

EPIC CARTS

— BY **ICON** —

Owner's Manual

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SAFETY INFORMATION

This manual has been designed to assist in maintaining the vehicle in accordance with procedures developed by the manufacturer. Adherence to these procedures and troubleshooting tips will ensure the best possible service from the product. To reduce the chance of personal injury or property damage, the following must be carefully observed:

GENERAL

Good common sense and prudent driving practices do more to prevent accidents and injury than all of the warnings and instructions combined. The manufacturer strongly suggests that all users and maintenance personnel read this entire manual paying particular attention to the CAUTIONS and WARNINGS contained there in.

EPIC CART reserves the right to make design changes without obligation to make these changes on units previously sold and the information contained in this manual is subject to change without notice.

EPIC CART is not liable for errors in this manual or for incidental or consequential or consequential damages that result from the use of the material in this manual.

These vehicles are designed and manufactured for off-road use. Some communities may permit these vehicles to be operated on their streets on a limited basis and in accordance with local ordinances.

With electric powered vehicles, be sure that all electrical accessories are grounded directly to the battery (-) post. **Never use the chassis or body as a ground connection.**

Refer to GENERAL SPECIFICATIONS for vehicle seating capacity.

Never modify the vehicle in any way that will alter the weight distribution of the vehicle, decrease its stability or increase the speed beyond the factory specification. Such modifications can cause serious personal injury or death.

Vehicles that are capable of higher speeds must limit their speed to no more than the speed of other vehicles when used in various environment. Additionally, speed should be further moderated by the environmental conditions, terrain and common sense.

GENERAL OPERATION

Always:

- Use the vehicle in a responsible manner and maintain the vehicle in safe operating condition.
- Read and observe all warnings and operation instruction labels affixed to the vehicle.
- Follow all safety rules established in the area where the vehicle is being operated.
- Reduce speed to compensate for poor terrain or conditions.
- Apply service brake to control speed on steep grades.

SAFETY INFORMATION

- Maintain adequate distance between vehicles.
- Reduce speed in wet areas.
- Use extreme caution when approaching sharp or blind turns.
- Use extreme caution when driving over loose terrain.
- Use extreme caution in areas where pedestrians are present.

MAINTENANCE

Always:

- Maintain the vehicle in accordance with the manufacturer's periodic service schedule.
- Ensure that repairs are performed by those that are trained and qualified to do so.
- Follow the manufacturer's maintenance procedures for the vehicle. Be sure to disable the vehicle before performing any maintenance. Disabling includes removing the key from the key switch and removal of a battery wire.
- Insulate any tools used within the battery area in order to prevent sparks or battery explosion caused by shorting the battery terminals or associated wiring. Remove the batteries or cover exposed terminals with an insulating material.
- Check the polarity of each battery terminal and be sure to rewire the batteries correctly.
- Use specified replacement parts. Never use replacement parts of lesser quality.
- Use recommended tools.
- Determine that tools and procedures not specifically recommended by the manufacturer will not compromise the safety of personnel nor jeopardize the safe operation of the vehicle.
- Support the vehicle using wheel chocks and jack stands. Never get under a vehicle that is supported by a jack. Lift the vehicle in accordance with the manufacturer's instructions.
- Maintain the vehicle in an area away from exposed flame or persons who are smoking.
- Be aware that a vehicle that is not performing as designed is a potential hazard and must not be operated.
- Test driving the vehicle after any repairs or maintenance. All tests must be conducted in a safe area that is free of both vehicular and pedestrian traffic.
- Replace damaged or missing warning, caution or information labels.
- Keep complete records of the maintenance history of the vehicle.
- Every time the vehicle travels 1865 miles, or every 90 days, it is necessary to do front wheel alignment maintenance. This will help with even wear and tear of the tires.

Use extreme caution and, if unsure as to the potential for injury, refer the repair or maintenance to a qualified mechanic.

FOR THE USER

1. GENERAL SAFETY PRACTICES

1.1 Introduction

Like other machines, EPIC CART can cause injury if improperly used or maintained. Part II contains broad safety practices applicable to EPIC CART operations. Before operation, the user shall establish such additional specific safety practices as may reasonably be required for safe operation.

SAFETY INFORMATION

1.2 Nameplates, Markings, Capacity, and Modifications

- 1.2.1 The user shall maintain in a legible condition all nameplates, warnings and instructions which are supplied by the manufacturer.
- 1.2.2 The user shall not perform any modification or addition which affects capacity or safe operation, or make any change not in accordance with the owner's manual without the manufacturer's prior written authorization. Where authorized modifications have been made, the user shall ensure that capacity, operation, warning and maintenance instruction plates, tags or decals are changed accordingly.

1.3 Changing and Charging Storage Batteries for Electric Personnel and Burden Carriers

- 1.3.1 The user shall require battery changing and charging facilities and procedures to be in accordance with appropriate paragraphs.
- 1.3.2 The user shall periodically inspect facilities and review procedures to be certain that appropriate paragraphs, are strictly complied with and shall familiarize carrier operators with it.

2. OPERATING SAFETY RULES AND PRACTICES

2.1 General

- 2.1.1 Safeguard the pedestrians at all times. Do not drive EPIC CART in a manner that would endanger anyone.
- 2.1.2 Riding on the EPIC CART by persons other than the operator is authorized only on personnel seat provided by the manufacturer.
- 2.1.3 When a EPIC CART is to be left unattended, stop it, apply the parking brake, stop the engine or turn off power, turn off the control or ignition circuit, and remove the key if provided. Block the wheels if machine is on an incline.
- 2.1.4 Use only approved EPIC CART in hazardous locations, as defined in the appropriate safety standards.
- 2.1.5 Operators shall not add to, or modify, the EPIC CART.

2.2 Driving

- 2.2.1 Observe all traffic regulations, including authorized speed limits. Under normal traffic conditions keep to the right. Maintain a safe distance, based on speed of travel, from a vehicle ahead; and keep the EPIC CART under control at all times.
- 2.2.2 Do not pass another vehicle traveling in the same direction at intersections, blind spots, or at other dangerous locations.
- 2.2.3 Keep a clear view of the path of travel, observe other traffic and personnel, and maintain a safe clearance.
- 2.2.4 Slow down or stop, as conditions dictate, and activate the sound-producing warning device at cross aisles and when visibility is obstructed at other locations.
- 2.2.5 Ascend or descend grades slowly.
- 2.2.6 Under all driving conditions the EPIC CART shall be operated at a speed that will permit it to be brought to a stop in a safe manner.
- 2.2.7 Do not indulge in dangerous activities, such as stunt driving or horseplay.
- 2.2.8 Avoid running over loose objects, potholes, and bumps.
- 2.2.9 To negotiate turns, reduce speed to improve stability, then turn hand steering wheel or tiller in a smooth, sweeping motion.
- 2.2.10 It is recommended that the slope of the road does not exceed 25%, the top of the slope and the slope must be smooth and transitioned to prevent the bottom of the vehicle and the pavement collision. When the slope is more than 25%, the signage is recommended. At this point, you must drive the vehicle very carefully.

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2.3 Loading

- 2.3.1 At the beginning of each shift during which the EPIC CART will be used, the operator shall check the EPIC CART condition and inspect the tires, warning devices, lights, battery, speed and directional controllers, brakes, and steering mechanism. If the EPIC CART is found to be in need of repair or in any way unsafe, the matter shall be reported immediately to the designated authority and the EPIC CART shall not be operated until it has been restored to safe operating condition.
- 2.3.2 Do not make repairs or adjustments unless specifically authorized to do so.
- 2.3.3 Do not operate a EPIC CART with a leak in the battery.
- 2.3.4 Do not use open flames for checking electrolyte level in storage battery.

3. MAINTENANCE PRACTICES

3.1 Introduction

- 3.1.1 Carriers may become hazardous if maintenance is neglected. Therefore, maintenance facilities trained personnel, and procedures shall be providing such facilities may be on or off the premises.

3.2 Maintenance Procedures

- 3.2.1 Maintenance and inspection of all EPIC CART shall be performed in conformance with the manufacturer's recommendations and the following practices.
 - (a) A scheduled preventive maintenance, lubrication, and inspection system shall be followed.
 - (b) Only qualified and authorized personnel shall be permitted to maintain, repair, adjust, and inspect carriers.
 - (c) Block chassis before working underneath it.
 - (d) Operation to check performance of the EPIC CART shall be conducted in an authorized area where safe clearance exists.
 - (e) Before commencing operation of the EPIC CART, follow the manufacturer's instructions and recommended procedures.
 - (f) Avoid fire hazards and have fire protection equipment present in the work area. Do not use an open flame to check level or leakage of battery electrolyte.
 - (g) Properly ventilate the work area.
 - (h) Brakes, steering mechanisms, speed and directional control mechanisms, warning devices, lights, governors, guards, and safety devices shall be inspected regularly and maintained in a safe operating condition.
 - (i) Special EPIC CART or devices designed and approved for hazardous area operation shall be inspected to ensure that maintenance preserves the original approved safe operating features.
 - (j) Carriers shall be kept in a clean condition to minimize fire hazards and facilitate detection of loose or defective parts.
 - (k) Modification and additions which affect capacity and safe machine operation shall not be performed by the customer or user without manufacturer's prior written authorization; where authorized modifications have been made, the user shall ensure that capacity, operation, warning, and maintenance instruction plates, tags, or decals are changed accordingly.
 - (l) Care shall be taken to ensure that all replacement parts are interchangeable with the original parts and of a quality at least equal to that provided in the original equipment.

MAINTENANCE AND OPERATIONS

1. GENERAL SAFETY PRACTICES

1.1 Introduction

SAFETY INFORMATION

Like other machines, EPIC CART can cause injury if improperly used or maintained. This section contains broad safety practices recommended for safe EPIC CART operations. Before operation, the controlling party should establish such additional specific safety practices as may be reasonably required for safe operations.

Experience has shown that EPIC CART which comply with the provisions stated in part II of this standard are safe when properly operated in accordance with the safety and operation is enhanced when the EPIC CART are operated within a specific set of operation instructions, safety rules and practices established to meet actual operating terrain and conditions.

The safety information contained in part II is intended to provide the controlling party with basic safety information and to encourage the controlling party to implement a EPIC CART safety program.

It is suggested and recommended that Part II be reprinted in the EPIC CART manufacturer's operation and service manuals to encourage safe operations and practices at the controlling party's facility.

1.2 Safety Survey

The controlling party shall perform a safety survey periodically, and as conditions warrant to their premises, to identify areas where EPIC CART should not be operated and to identify possible hazards.

1.2.1 Wet and Loose Terrain

Wet grassy areas and loose terrain may cause a EPIC CART to lose traction and may affect stability. Wet areas and loose terrain shall be chained or roped off to prevent EPIC CART operations or be identified by a suitable warning not to operate EPIC CART in this area due to wet and loose terrain.

1.2.2 Sharp Turns, Blind Corners, Bridge Approaches

Sharp turns, blind spots, bridge approaches and other potentially hazardous areas shall be either chained or roped off to prevent EPIC CART operations or identified with a suitable warning to the operator of the nature of the hazard and stating the proper precautions to be taken to avoid the hazard.

2. MAINTENANCE

2.1 Introduction

2.1.1 EPIC CARTs may become hazardous if maintenance is neglected or improperly performed. Therefore, maintenance facilities, trained personnel and procedures in accordance with the manufacturer's recommendations should be provided by the controlling party.

2.2 Preventive Maintenance

A regularly scheduled inspection and preventive maintenance program in accordance with the manufacturer's recommendations should be established.

2.2.1 Personnel

Only qualified, trained and authorized personnel shall be permitted to inspect, adjust and maintain EPIC CART.

2.2.2 Parts and materials

Only manufacturer's recommended replacement parts and materials shall be used.

2.2.3 Ventilation

Maintenance and storage areas shall be properly ventilated to avoid fire hazards in accordance with applicable fire codes and ordinances.

2.2.4 Maintenance Safety Procedures

All maintenance shall be performed in accordance with the manufacturer's recommended safety procedures as

SAFETY INFORMATION

outlined in the manufacturers operation and service manuals. The following list of recommended safety procedures are general in nature and in no way supersede the manufacturer's specific instructions.

- 2.2.4.1 Following manufacturer's instructions for immobilizing EPIC CART before beginning any maintenance.
- 2.2.4.2 Block chassis before working underneath EPIC CART.
- 2.2.4.3 Before performing any maintenance on an electric EPIC CART, disable the electrical system in accordance with the manufacturer's instructions.
- 2.2.4.4 Use only properly insulated tools when working on electrically powered EPIC CART or around batteries.
- 2.2.4.5 The controlling party shall not perform any modification or addition which affects capacity or safe operation, or make any change not in accordance with owner's manual without the manufacturers prior written authorization. Where authorized modifications have been made, the controlling party shall ensure that capacity, operation, warning and maintenance instruction plates, tags or decals are changed accordingly.

3. OPERATING SAFETY RULES AND PRACTICES

3.1 Operator Qualifications

- 3.1.1 Only authorized persons shall be allowed to operate EPIC CART, it is recommended that no persons be allowed to operate EPIC CART except those persons who possess a valid motor vehicle drivers license.
- 3.1.2 The controlling party shall display the operation and safety instructions as recommended by the EPIC CART manufacturers and the safety rules in a conspicuous place near the EPIC CART rental area or EPIC CART pick-up area. It is also recommended, as with all motor vehicles, that the warning "Do not operate EPIC CART when under the influence of alcohol or drugs." Be posted in a conspicuous location.

OPERATION INFORMATION

OPERATE INSTRUCTION

Read all of manual to become thoroughly familiar with this vehicle. Pay particular attention to all Notes, Cautions and Warnings

Thank you for purchasing this vehicle. Before driving the vehicle, we ask you to spend some time reading this Owner's Manual. This guide contains the information that will assist you in maintaining this highly reliable vehicle.

This vehicle has been designed and manufactured as a "World Vehicle". Some countries have individual requirements to comply with their specifications: therefore, some sections may not apply in your country.

Most of the service procedures in this guide can be accomplished using common automotive hand tools.

BEFORE INITIAL USE

Read, understand and follow the safety label on the dashboard panel. Be sure you understand how to operate the vehicle, its equipment and how to use it safely. Maintaining good performance depends to a large extent on the operator.

Before a new vehicle is put into operation, the items shown in the INITIAL SERVICE CHART must be performed (Ref Fig.1).

Vehicle batteries must be fully charged before initial use. Check for correct tire inflation. See GENERAL SPECIFICARIONS.

Determine and record braking distance required to stop vehicle for future brake performance tests.

Remove the protective clear plastic, which protect the seat bottom and back rest during shipping, before placing the vehicle in service.

ITEM	SERVICE OPERATION
Batteries	Charge batteries
Seats	Remove protective plastic covering
Brakes	Check operation and adjust if necessary
	Establish acceptable stopping distance
Tires	Check air pressure (see SPECIFICATIONS)
On Board Charger	-

Fig.1 Initial Service Chart

WARNING To prevent overheating that may cause serious damage to the charger and create the potential for fire, do not block or obstruct the airways.

OPERATION INFORMATION

The On Board chargers are coming with the vehicle. Located under the seat pop to prevent rain and sunshine.

CONTROLS AND INDICATORS

Vehicle controls and indicators consist of:

- | | | |
|-------------------------------|----------------------------------|----------------------|
| 1. Hazard Switch Button; | 2. Headlights Switch Button; | |
| 3. Hi/Low Speed Switch Button | 4. Forward/Reverse Switch Button | |
| 5. Ignition Switch | 6. Tee Holder | 7. Locked Door Panel |
| 8. 7 inch speedometers | 9. Combination Switch | 10. Steering wheel |

KEY SWITCH

Located on the dash panel, this switch enables the basic electrical system of the vehicle to be turned on and off by turning the key. To prevent inadvertent operation of the vehicle when left unattended, the key should be turned to the 'OFF' position and removed (Ref Fig 2).

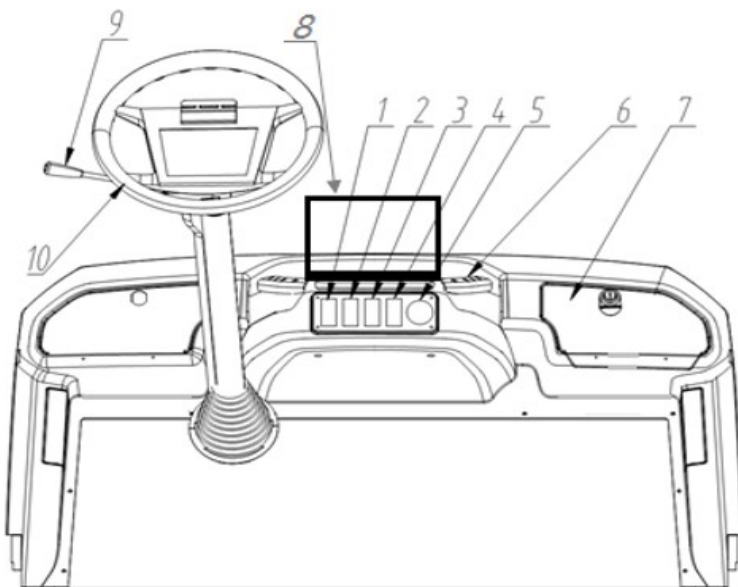
DIRECTION SELECTOR

WARNING To prevent loss of control, do not move direction selector while the vehicle is in motion. Moving the selector will result in a sudden slowing of the vehicle and the beeping of a warning device.

Located on the dash panel, this switch permits the selection of either 'FWD' (forward), 'REV' (reverse) or neutral (the position between forward and reverse). Vehicle should be left in neutral when unattended (Ref Fig.2).

BATTERY POWER DISPLAY

Located on the dash, the speedometer indicates the amount of usable power in the batteries (Ref Fig.2). it's a Multifunction speedometers, integrated with back-up camera.



OPERATION INFORMATION

ACCELERATOR PEDAL

WARNING Unintentional movement of the accelerator pedal will release the park brake and may cause the vehicle to move which could result in severe injury or death.

With the key switch 'ON', depressing the accelerator pedal starts the motor. When the pedal is released, the motor will stop (Ref Fig 3). To stop the vehicle more quickly, depress the service brake.

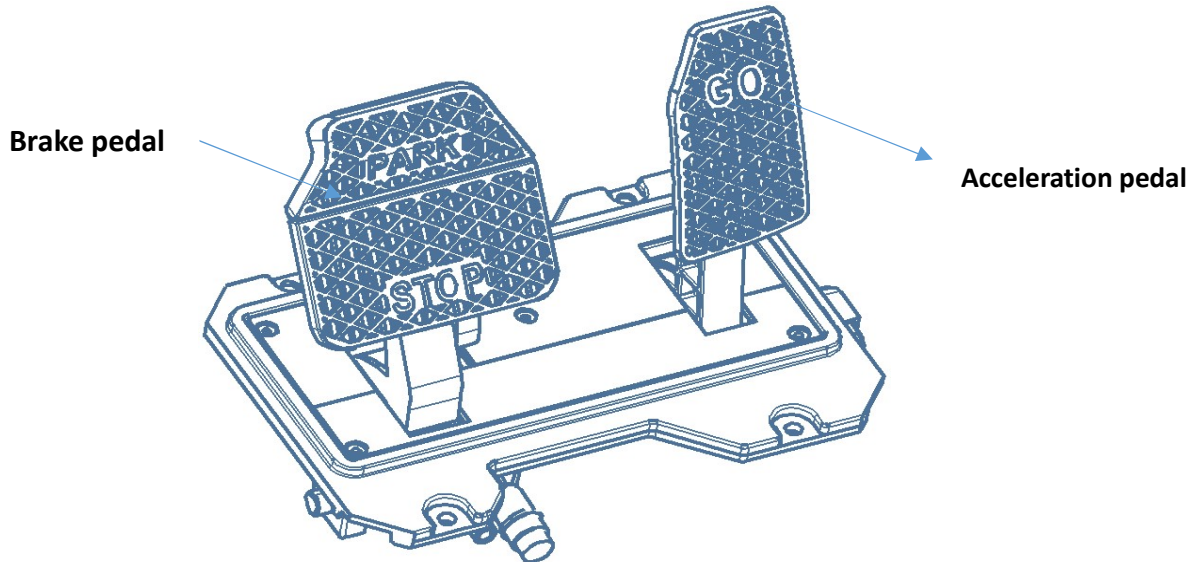


Fig 3

If key switch is 'ON' and park brake is set, depressing the accelerator inadvertently will release the park brake and will cause the vehicle to move which could cause severe injury or death.

Depressing the accelerator pedal will release the park brake if it is engaged. This is a feature to assure the vehicle is not driven with the park brake engaged. Depressing the accelerator pedal is not the preferred method of releasing the park brake.

NOTE: Depressing the lower section of the brake pedals the preferred method of releasing the park brake to assure the longest service life of brake components.

Parking Brake

The brake pedal (Fig 3) do not have parking brake function, EPIC Cart use EMB for parking, its operated by the magnetic system to control the brake pad.

There is one EMB Switch located on the controller box, the EMB is 3 way switch;

“ON”, stands for the cart at normal running status, when you release the accelerator pedal or stop on the hill , the EMB will be engage , the cart will stop

“OFF”, stands for the cart park in the garage and whole cart no power somsumption, just keep very little current to the EMB, So cart will not roll down in the garage.

“Manual EMB”, stands for the cart will be able to be towed, the EMB has release;

OPERATION INFORMATION

HORN

The horn is operated by pushing the horn button located on (Ref Fig.4)



Fig. 4

OPERATING THE VEHICLE

CAUTION Improper use of the vehicle or the lack of proper maintenance may result in damage or decreased performance.

Read and understand the following warnings before attempting to operate the vehicle.

WARNING to reduce the possibility of severe injury or death resulting from loss of vehicle control, the following warnings must be observed:

When driving vehicle, consider the terrain, traffic conditions and the environmental factors which effect the terrain and the ability to control the vehicle.

Use extra care and reduced speed when driving on poor surfaces, such as loose dirt, wet grass, gravel, etc.

Stay in designated areas and avoid extremely rough terrain.

Maintain a safe speed when driving down hill. Use service brake to control speed when traveling down an incline. A sudden stop or change of direction may result in loss of control.

Slow down before and during turns. All turns should be made at reduced speed.

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WARNING To reduce the possibility of severe injury or death resulting from improper vehicle operation, the following warnings must be observed:

Refer to GENERAL SPECIFICATIONS for seating capacity.

Depressing accelerator pedal will release foot operated park brake and may cause inadvertent vehicle movement. Turn the key to the 'OFF' position whenever the vehicle is parked.

To prevent inadvertent movement when the vehicle is to be left unattended, engage the park brake, move direction selector to forward position, turn key to 'OFF' position and remove key.

Make sure that the direction selector is in correct position before attempting to start the vehicle.

Always bring the vehicle to a complete stop before shifting the direction selector.

Do not take vehicle out of 'gear' while in motion (coast).

Check the area behind the vehicle before operating in reverse.

All occupants must be seated. Keep entire body inside vehicle and hold on while vehicle is in motion.

The lifespan, the reliability of the work and the economic efficiency of the use of EPIC Lifted Cart, all depend to a large extent on the running-in at the initial stage of use. The running-in mileage is 800 kilometers. If conditions permit, it is best to extend it to 1500Km.

The new cart must go through a running-in before it is officially used. During the running-in period, it should run at a lower speed. Generally, it cannot be fully loaded and absolutely cannot be operated with overload. The purpose of running-in is to allow the parts and components to perform a stage of running-in, improve its surface quality and matching accuracy, and avoid early wear and tear of the vehicle.

The following regulations shall be complied with during the integration period

- Avoid fast starting, rapid growth and unnecessary tight braking.
- During the running-in period, the vehicle speed must be strictly controlled within 25 Mph.
- Frequently check whether the battery, electric control, and motor connection wires are loose due to heat. Frequently check the temperature of the reducer, rear axle, wheel hub and brake drum. If there is overheating (greater than 60° C), check and eliminate the fault.
- When the break-in mileage reaches 500 miles, check the tightness of the steering system, front suspension and wheel nuts, and tighten if necessary. After the running-in period, the user should place the lubricating oil and rear axle gear oil during the shifting period.
- During the running-in period, the battery cannot be deeply discharged. After the break-in expires, the battery is not allowed to be over-discharged. Over-discharge will quickly damage the battery.

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● If the vehicle mileage is less than 60% of the rated continuous mileage when the vehicle is used for the first time, please stop using the vehicle and notify the company's after-sales department as soon as possible to find out the reason. The vehicle is used for more than one month, and the company is no longer responsible for the compensation of the entire battery pack. Within half a year, due to battery manufacturing quality problems, the company promises quality warranty for damaged batteries.

VEHICLE CLEANING AND CARE

VECHILE CLEANING

WARNING To reduce the possibility of severe injury or vehicle damage, read and understand all instructions supplied by manufacturer of pressure washer.

CAUTION When pressure washing exterior of vehicle, do not use pressure in excess of standard requirement. To reduce the possibility of cosmetic damage, do not use any abrasive or reactive solvents

It is important that proper techniques and cleaning materials be used. Using excessive water pressure may cause severe injury to operator or bystander, damage to seals, plastics, seat material, body finish or electrical system. Do not use pressure in excess of standard requirement to wash exterior of vehicle.

Clean windshield with lots of water and a clean cloth. Minor scratches may be removed using a commercial plastic polish.

Normal cleaning of vinyl seats and plastic or rubber trim requires the use of a mild soap solution applied with a sponge or soft brush and wipe with a damp cloth.

The painted surfaces of the vehicle provide attractive appearance and durable protection. Frequent washing with lukewarm or cold water and mild detergent is required to preserve the painted surface.

Occasional cleaning and waxing with non-abrasive products designed for 'clear coat' automotive finishes will enhance the appearance and durability of the painted surfaces.

Corrosive materials used as fertilizers or for dust control can collect on the underbody of the vehicle. These materials will cause corrosion of underbody parts unless flushed occasionally with plain water. Thoroughly clean any areas where mud or other debris can collect. Sediment packed in closed areas should be loosened to ease its removal, taking care not to chip or otherwise damage paint.

Lubrication maintenance

- The brake fluid of electric vehicles is checked once a month, and if there is a shortage of fuel, it must be added in time (the lack of fuel will affect driving safety).
- Grease for the front wheel hub, front wheel bearing, brake pedal linkage, and steering system will be refilled once next year. The oil product model 3# general lithium-based grease.
- The transmission gear oil is replaced once a year. Users can choose gear oils with different viscosity levels

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according to the atmospheric temperature in the region.

GL-4 90 (used in southern or northern summer) GL-80W/90 (severe cold area or northern winter, -35°C or below)

● Change the gear oil once a year for the rear axle. The oil model is GL-5 90 (used in summer in the south or north) or GL-5 80W/90 (in severe cold areas or winter in the north, -35°C or below) gear oil. It is 1.2 liters.

When replacing, first unscrew the oil drain plug, drain the gear oil, clean and install the oil drain plug, and then add new gear oil from the filling hole.

Battery Replacement

Remove battery hold downs and cables. Lift out batteries with a commercially available lifting device.

If the batteries have been cleaned and any acid in the battery rack area neutralized as recommended, no corrosion to the battery racks or surrounding area should be present. Any corrosion found should be immediately removed with a putty knife and a wire brush. The area should be washed with a solution of sodium bicarbonate (baking soda) and water and thoroughly dried before priming and painting with a corrosion resistant paint.

The batteries should be placed into the battery racks and the battery hold downs tightened to 45 - 55 in. lbs. (5 - 6 Nm) torque, to prevent movement but not tight enough to cause distortion of the battery cases.

Inspect all wires and terminals. Clean any corrosion from the battery terminals or the wire terminals with a solution of sodium bicarbonate (baking soda) and brush clean if required.

WARNING To prevent battery explosion that could result in severe personal injury or death, extreme care must be used with aerosol containers of battery terminal protectant. Insulate the metal container to prevent the metal can from contacting battery terminals which could result in an explosion.

Use care to connect the battery wires as shown (Ref Fig. 5). Tighten the battery post hardware to 50 70 in. lbs. (6 - 8 Nm) torque. Protect the battery terminals and battery wire terminals with a commercially available protective coating.

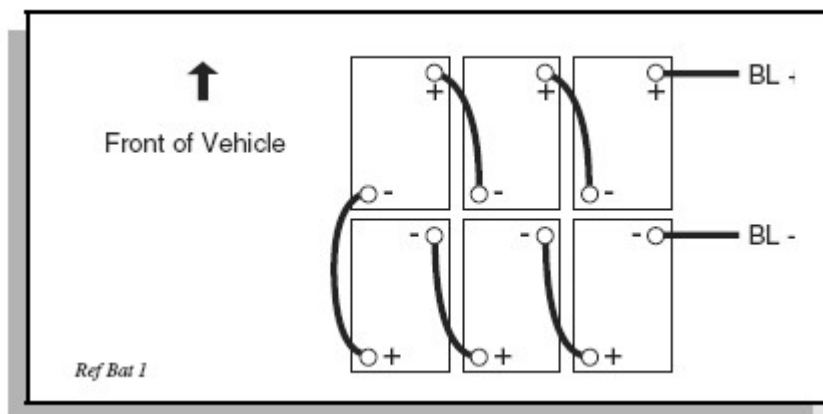


Fig.5

Prolonged Storage

OPERATION INFORMATION

CAUTION Battery charger, controller and other electronic devices need to be disconnected since they will contribute to the premature discharge of batteries.

During periods of storage, the batteries will need attention to keep them maintained and prevent discharge.

In high temperatures the chemical reaction is faster, while low temperatures cause the chemical reaction to slow down. A vehicle that is stored at 90° F (32° C) will lose .002 of specific gravity each day. If a fully charged battery has a specific gravity of 1.275, and the battery is allowed to sit unused, it will become partially discharged. When it reaches 1.240, which it will do in less than twenty days, it should be recharged. If a battery is left in a discharged state, sulfating takes place on and within the plates. This condition is not reversible and will cause permanent damage to the battery. In order to prevent damage, the battery should be recharged. A hydrometer can be used to determine the specific gravity and therefore the state of charge of a battery.

In winter conditions, the battery must be fully charged to prevent the possibility of freezing (Ref Fig. 29 on page 23). A fully charged battery will not freeze in temperatures above -75° F (-60° C). Although the chemical reaction is slowed in cold temperatures, the battery must be stored fully charged, and disconnected from any circuit that could discharge the battery. For portable chargers, disconnect the charging plug from the vehicle receptacle. The batteries must be cleaned and all deposits neutralized and removed from the battery case to prevent self discharge. The batteries should be tested or recharged at thirty day minimum intervals.

BATTERY CHARGING

The battery charger is designed to fully charge the battery set. If the batteries are severely deep cycled, some automatic battery chargers contain an electronic module that may not activate and the battery charger will not function. Automatic chargers will determine the correct duration of charge to the battery set and will shut off when the battery set is fully charged. Always refer to the instructions of the specific charger used.

Before charging, the following should be observed:

CAUTION Do not overfill batteries. The charging cycle will expel electrolyte and result in component damage.

- The electrolyte level in all cells must be at the recommended level and cover the plates.

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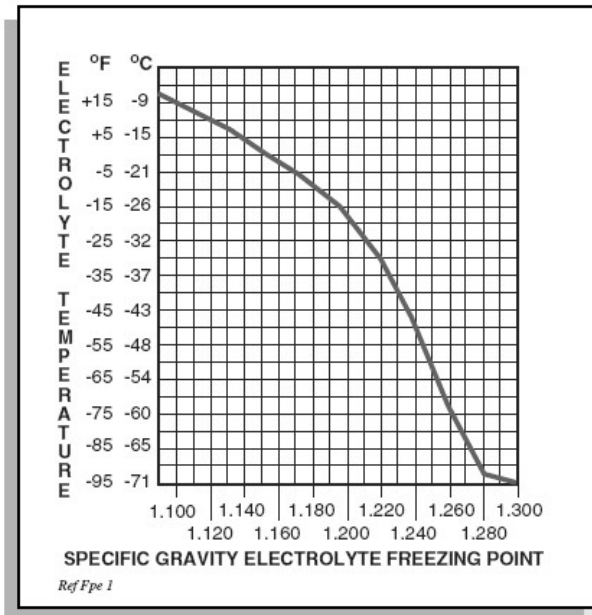


Fig. 6

- The charging must take place in an area that is well ventilated and capable of removing the hydrogen gas that is generated by the charging process. A **minimum** of five air exchanges per hour is recommended.
- The charging connector components are in good condition and free from dirt or debris.
- The charger connector is fully inserted into the vehicle receptacle.
- The charger connector/cord set is protected from damage and is located in an area to prevent injury that may result from personnel running over or tripping over the cord set.
- The charger is automatically turned off during the connect/disconnect cycle and therefore no electrical arc is generated at the DC plug/receptacle contacts.

NOTE In our chargers, there is a jiggle switch inside charger receptacle. The switch is part of the interlock system that prevents the vehicle from being driven when the charger plug is inserted in the vehicle charging receptacle. (Fig 7)

Fig. 7

TROUBLESHOOTING

In general, troubleshooting will be done for two distinct reasons. First, a battery that performs poorly and is outside of the manufacturers specification should be identified in order to replace it under the terms of the manufacturer's warranty. Different manufacturers have different requirements. Consult the battery manufacturer or a manufacturer representative for specific requirements.

The second reason is to determine why a particular vehicle does not perform adequately. Performance problems may result in a vehicle that runs slowly or in a vehicle that is unable to operate for the time required.

A new battery must mature before it will develop its maximum capacity. Maturing may take up to 100 charge/discharge cycles. After the maturing phase, the older a battery gets, the lower the capacity. The only way

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to determine the capacity of a battery is to perform a load test using a discharge machine following manufacturer's recommendations.

A cost effective way to identify a poorly performing battery is to use a hydrometer to identify a battery in a set with a lower than normal specific gravity. Once the particular cell or cells that are the problem are identified, the suspect battery can be removed and replaced. At this point there is nothing that can be done to salvage the battery; however, the individual battery should be replaced with a good battery of the same brand, type and approximate age.

Hydrometer

A hydrometer is used to test the state of charge of a battery cell (Ref Fig. 8). This is performed by measuring the density of the electrolyte, which is accomplished by measuring the specific gravity of the electrolyte. The greater the concentration of sulfuric acid, the more dense the electrolyte becomes. The higher the density, the higher the state of charge.

WARNING To prevent battery explosion that could result in severe personal injury or death, never insert a metal thermometer into a battery. Use a hydrometer with a built in thermometer

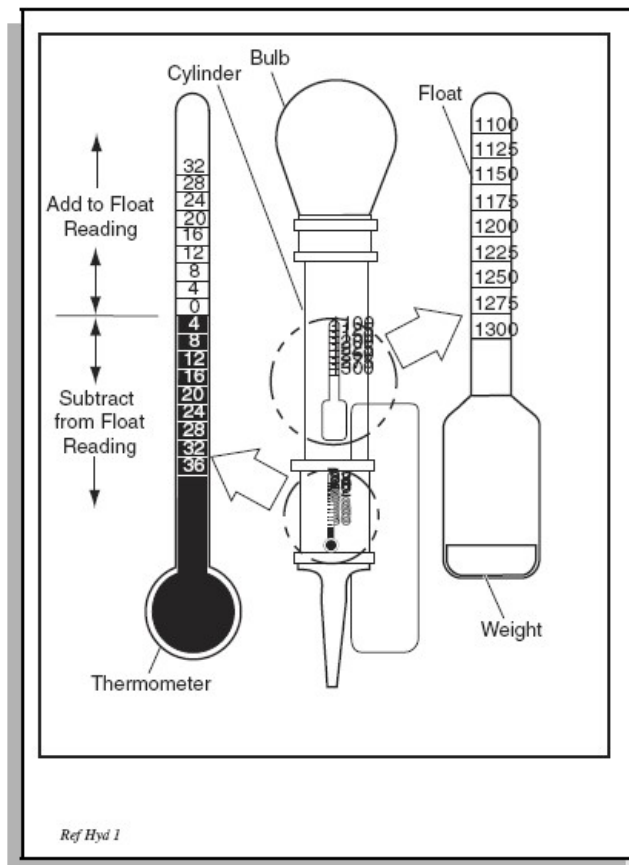


Fig.8

Specific gravity is the measurement of a liquid that is compared to a baseline. The baseline is water which is assigned a base number of 1.000. The concentration of sulfuric acid to water in a new golf car battery is 1.280 which means that the electrolyte weighs 1.280 times the weight of the same volume of water. A fully charged

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battery will test at 1.275 -1.280 while a discharged battery will read in the 1.140 range.

NOTE Do not perform a hydrometer test on a battery that has just been watered. The battery must go through at least one charge and discharge cycle in order to permit the water to adequately mix with the electrolyte.

The temperature of the electrolyte is important since the hydrometer reading must be corrected to 80° F (27° C). High quality hydrometers are equipped with an internal thermometer that will measure the temperature of the electrolyte and will include a conversion scale to correct the float reading. It is important to recognize that the electrolyte temperature is significantly different from the ambient temperature if the vehicle has been operated.

Using A Hydrometer

1. Draw electrolyte into the hydrometer several times to permit the thermometer to adjust to the electrolyte temperature and note the reading. Examine the color of the electrolyte. A brown or gray coloration indicates a problem with the battery and is a sign that the battery is nearing the end of its life.
2. Draw the minimum quantity of electrolyte into the hydrometer to permit the float to float freely without contacting the top or bottom of the cylinder.
3. Hold the hydrometer in a vertical position at eye level and note the reading where the electrolyte meets the scale on the float.
4. $\rho_{25^{\circ}\text{C}} = \rho_t + 0.0007 (t - 25)$
 $\rho_{25^{\circ}\text{C}}$ ——— 25°C electrolyte specific gravity ;
 ρ_t ——— $t^{\circ}\text{C}$ electrolyte specific gravity;
5. Test each cell and note the readings (corrected to 80° Fig. 30 Hydrometer F or 27° C). A variation of fifty points between any two cell readings (example 1.250 -1.200) indicates a problem with the low reading cell(s).

As a battery ages the specific gravity of the electrolyte will decrease at full charge. This is not a reason to replace the battery, providing all cells are within fifty points of each other.

Since the hydrometer test is in response to a vehicle exhibiting a performance problem, the vehicle should be recharged and the test repeated. If the results indicate a weak cell, the battery or batteries should be removed and replaced with a good battery of the same brand, type and approximate age.

BATTERY MAINTENANCE

Our experience shows that the key to achieving optimum performance and long life is a solid battery maintenance program using the simple procedures outlined here.

Equipment:

We recommend the following equipment for use in battery care and maintenance:

Recommended Equipment:

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- ◆ Wrench
- ◆ Distilled Water
- ◆ Voltmeter
- ◆ Hydrometer
- ◆ Thermometer
- ◆ Post Cleaner
- ◆ Baking Soda
- ◆ Vaseline
- ◆ Goggles & Gloves

CAUTION: Always wear protective clothing, gloves, and goggles
When handling batteries, electrolyte, and charging your battery.



Battery care and maintenance

This car uses a high-quality battery pack specially designed for electric vehicle as its power source. It has the characteristics of large current, large capacity and long duration. Correct maintenance is essential to maintain good performance and improve battery life. It is essential for daily maintenance. Please pay attention to the following:

- The upper part of the battery is the power output terminal. It should be kept clean and dry. There should be no debris or a lot of dust on it. Otherwise, leakage or short circuit will easily occur, which is extremely harmful to the battery, and it will also shorten the battery life or even burn the battery. .
- ▲ Note: Tap water is strictly prohibited from entering the battery during washing.
- Regularly check and adjust the height of the battery electrolyte level. Check once every 6-7 days in summer and every 10-13 days in winter. The standard liquid level is 10-15mm higher than the battery plate, and the electrolyte level is found to be lower than the specified height. At the same time, the battery refill or distilled water specified by the manufacturer should be added, and mineral water, tap water, well water, river water, etc. are strictly prohibited.
- The connection of the battery must be good, especially for a new car. After 2-3 days of use, the connector should be fully reinforced, and then the battery connector should be fully inspected once a week. Treat loose and discolored patina joints. High heat is generated due to poor contact of the joints, and the pole is damaged or cremated, causing hydrogen explosion.
- ▲ Note: Excessive tightening force will also cause damage to the battery pole.
- After the battery is discharged, the battery must be charged on the same day. It is not allowed to charge the battery every other day or more than 24 hours, otherwise the service life of the battery will be affected. For batteries that have been stored for a long time and are under-charged, they should be charged separately.
- Do not allow any harmful impurities to fall into the battery, and the appliances for water replenishment should be kept clean to avoid bringing impurities into the battery.
- When the ambient temperature is 0-4°C, the density of the electrolyte after fully charged is 1.28-1.29g/cm³.

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If the density of the electrolyte after fully charged is greater than 1.30g/cm³, it is very likely that the battery additive contains dilute sulfuric acid, The abnormally high density of this electrolyte will cause the battery plates to fall off, and the battery will quickly be damaged. In this case, use pure distilled water to adjust the density of the electrolyte to the normal value, and the battery discharges up to 80% (at this time, the electrolyte density of the battery is 1.13-1.15g/cm³.) It can only walk 3-5 kilometers. It should be charged immediately. If the battery is over-discharged due to continued use, the battery will be damaged very quickly if it is often operated in a "deficient" state.

- If the vehicle is not used for a long time, the battery should be fully charged and stored, and charged at least once a month. The charging time is 24 hours. A safe charge and discharge can be performed when conditions permit, and an equalization charge can be performed before reuse

- Replacement of battery

When the service life of the battery is close to completion, the electric capacity will drop sharply, and the continued mileage of the vehicle cannot meet the needs. At this time, the battery should be replaced in time. Consult the manufacturer for the method of battery replacement.

6.3 Charging the battery pack

- Please use the smart charger equipped with this car to charge the battery to ensure the service life of the battery

- When charging, the key switch must be off.

- The charger will generate a certain amount of heat during the working process. When using it, the charger must be placed a little higher from the ground so that the air can flow under and around the charger to take away the heat.

- Do not block or obstruct the air passage of the charger's cooling holes. Excessive temperature will seriously damage the charger and may cause a fire. If you use the charger outdoors, beware of rain and sun.

- Avoid overcharging the battery. Overcharging will cause the electrolyte solution to drain from the battery. The discharged electrolyte solution can damage the storage capacity of the car and the battery.

- It is strictly forbidden to charge the battery in direct sunlight. Do not charge the vehicle immediately after the vehicle has been used, especially when the temperature is high. Wait for the battery to cool before charging, so as not to cause the maintenance-free battery to swell or the flooded battery to lose water too quickly.

- When charging, first confirm whether the AC power supply is consistent with the input power indicated by the charger. After confirmation, connect the input end of the charger to an AC socket of rated voltage, and connect the output end to the charging socket of the car. Reliable plugging is required, The green indicator light is on to indicate that the charging is complete. The charger will automatically cut off the power after charging to prevent overcharging.

- ▲ Pay attention to being supervised while charging

WARNING

- ◆ Do not smoke near batteries.

- ◆ Do not overtighten terminals. Doing so can result post breakage, post meltdown, or fire.

- ◆ When the AC power plug is not unplugged, the plug on the electric vehicle cannot be unplugged, otherwise an electric arc will occur and the plug will be damaged.

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Specific Gravity Testing

1. Do not add water at this time.
2. Washing hydrometer with deionized water firstly.
3. Fill and drain the hydrometer 2 to 4 times before pulling out a sample.
4. There should be enough sample electrolyte in the hydrometer to completely support the float.
5. Take a reading, record it, and return the electrolyte back to the cell.
6. Check electrolyte specific gravity for each cell, testing one cell g temperature by thermometer (often from mid-cell) ;
7. Check all cells in the battery, repeating the steps above.
8. Replace the vent caps and wipe off any electrolyte that might have been spilled.
9. $\rho_{25^{\circ}\text{C}} = \rho_t + 0.0007 (t - 25)$
 $\rho_{25^{\circ}\text{C}}$ ——— 25°C electrolyte specific gravity ;
 ρ_t ——— $t^{\circ}\text{C}$ electrolyte specific gravity.
10. Check the state of charge using Table on the next page.

The readings should be at or above the specification of $1.280 \pm 0.01 \text{g/cm}^3$.

If any specific gravity readings register low, then follow the steps below:

1. Check and record voltage level(s).
2. Put battery(s) on a complete charge.
3. Take specific gravity readings again.

If any specific gravity readings still register low then follow the steps below.

1. Check voltage level(s).
2. Perform charging. Refer to the charging section for the proper procedure.
3. Take specific gravity readings again.

If any specific gravity reading still registers lower than the specification of $1.280 \pm 0.01 \text{g/cm}^3$ then one or more of the following conditions may exist:

1. The battery is old and approaching the end of its life.
2. The battery was left in a state of discharge too long.
3. Electrolyte was lost due to spillage or overflow.
4. A weak or bad cell is developing.
5. Battery was watered excessively previous to testing.

Batteries in conditions 1 - 5 should be taken to a specialist for further evaluation or retired from service.

NOTE

- ◆ Do not smoke near batteries.
- ◆ Do not overtighten terminals. Doing so can result in post breakage, post meltdown, or fire.

NOTE electrolyte specific gravity is 1.10g/cm^3 under full charging, if can not test or not air bubble in cell during of charging, then short circuit happened.

Open-Circuit Voltage Test

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For accurate voltage readings, batteries must remain idle (no charging, no discharging) for at least 6 hrs, preferably 24 hrs.

1. Disconnect all loads from the batteries.
2. Measure the voltage using a DC voltmeter.
3. Check the state of charge with Table 1.
4. Charge the battery if it registers 0% to 70% charged.

If battery registers below the Table 1 values, the following conditions may exist:

1. The battery was left in a state of discharge too long.
2. The battery has a bad cell.

Batteries in these conditions should be taken to a specialist for further evaluation or retired from service.

Watering (Flooded batteries only)

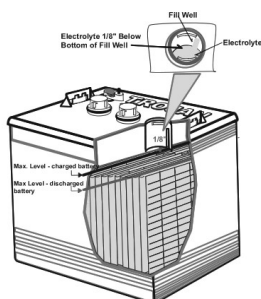
Flooded batteries need water. More importantly, watering must be done at the right time and in the right amount or else the battery's performance and longevity suffers.

Water should always be added after fully charging the battery. Prior to charging, there should be enough water to cover the plates. If the battery has been discharged (partially or fully), the water level should also be above the plates.

Keeping the water at the correct level after a full charge will prevent having to worry about the water level at a different state of charge.

1. Do not let the plates get exposed to air.
2. Do not fill the water all the way up to the cap.
3. Do not use water with a high mineral content.
4. Use distilled or deionized water only.

CAUTION The electrolyte is a solution of acid and water so skin contact should be avoided.



Procedure:

1. Open the vent caps and look inside the fill wells. Check electrolyte level; the minimum level is at the top of

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the plates.

2. If there is no electrolyte visible, add just enough distilled/deionized water to cover the plates.
3. Replace and tighten all water vent caps.
4. Put batteries on a complete charge before adding any additional water (refer to the Charging section).
5. Once charging is completed, remove the vent caps and check the electrolyte level.
6. Add water until the electrolyte level is 1/8" below the bottom of the fill well.
7. Clean, replace, and tighten all vent caps.

WARNING Never add acid to a battery.

CHARGING

Charging batteries properly requires administering the right amount of current at the right voltage. Most charging equipment automatically regulates these values. Some chargers allow the user to set these values. For proper charging, refer to the instructions that came with your charging equipment.

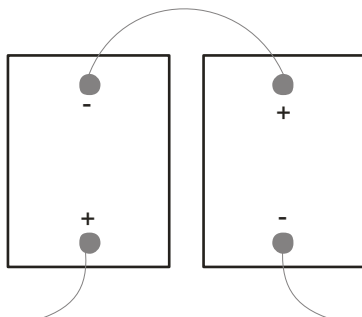
Important things to remember:

1. Become familiar with and follow the instructions issued by the charger manufacturer.
2. Batteries should be charged after each period of use.
3. Lead acid batteries do not develop a memory and need not be fully discharged before recharging.
4. Charge only in well-ventilated area. Keep sparks or flames away from a charging battery.
5. Verify charger voltage settings are correct .
6. Check electrolyte level.(See Watering section).
7. Tighten all vent caps before charging.
8. Do not overcharging or undercharging the batteries.
9. Do not charge a frozen battery.
10. Avoid charging at temperatures above 48°C.

How To Increase System Power

Two or more batteries can be easily connected to boost your system's voltage and/or capacity. There are three methods to obtain additional voltage and/or capacity, as described below:

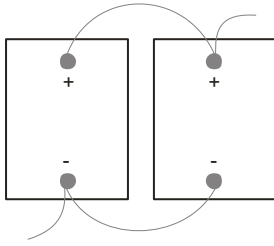
To increase voltage, connect batteries in series.



Battery System:12 Volt,226 AH Using Two DT106 Deep Cycle Batteries(6 Volts,226AH)

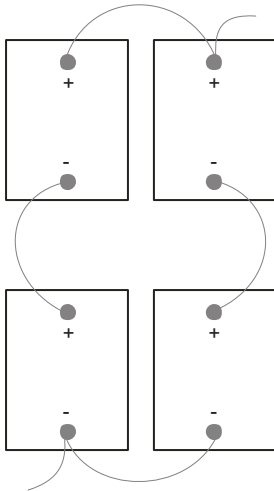
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To increase amp-hour capacity, connect batteries in parallel.



Battery System: 6 Volt, 452 AH Using Two DT106 Deep Cycle Batteries (6 Volts, 226AH)

To increase both voltage and amp-hour capacity, Connect batteries in series/parallel.



Battery System: 12 Volt, 452 AH Using Four DT106 Deep Cycle Batteries (6 Volts, 226 AH)

NOTE These systems can also be configured using 12-volt batteries. It is not recommended that you mix batteries of different voltages within the same system.

CLEANING

Batteries seem to attract dust, dirt, and grime. Keeping them clean will help one spot trouble signs if they appear and avoid problems associated with grime.

1. Check that all vent caps are tightly in place.
2. Clean the battery top with a cloth or brush and a solution of baking soda and water.
 - ◆ When cleaning, do not allow any cleaning solution, or other foreign matter to get inside the battery.
3. Rinse with water and dry with a clean cloth.
4. Clean battery terminals and the inside of cable clamps using a post and clamp cleaner.
 - ◆ Clean terminals will have a bright metallic shine.
5. Reconnect the clamps to the terminals and thinly coat them with petroleum jelly (Vaseline) to prevent corrosion.
6. Keep the area around batteries clean and dry.

STORAGE

Periods of inactivity can be extremely harmful to lead acid batteries. When placing a battery into storage, follow the recommendations below to insure that the battery remains healthy and ready for use.

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The most important things to avoid:

1. Freezing: Avoid locations where freezing temperature is expected. Keeping a battery at a high state of charge will also prevent freezing. (See Table2)
2. Heat: Avoid direct exposure to heat sources, such as radiators or space heaters. Temperatures above 80°F accelerate the battery's self-discharge characteristics.

Procedure:

1. Completely charge the battery before storing.
2. Store the battery in a cool, dry location, protected from the elements.
3. During storage, monitor the specific gravity (flooded) or voltage. Batteries in storage should be given a boost charge when they show a 70% charge or less. See Table 1 in the Testing Section.
4. Completely charge the battery before re-activating.
5. For optimum performance, equalize the batteries (flooded) before putting them back into service. Refer to the Equalizing section for this procedure.

Table2 Electrolyte Freezing Point @ Various States of Charge

Specific gravity (g/cm ³)	State of charge(%)	Freezing temperature(°C)
1.280	100%	-68.9
1.265	92%	-57.4
1.250	85%	-52.2
1.200	62%	-26.7
1.150	40%	-15
1.100	20%	-7.2

Battery Terms Explained

1. **Active Material**—In the positive plates, the active material is lead dioxide. In the negative, it's metallic sponge lead. When a circuit is created, these materials react with sulfuric acid during charging and discharging.
2. **Ampere (Amp)**—A unit of measurement for the electron flow or current through a circuit.
3. **Ampere-Hour (Amp. Hr., AH)**—A unit of measure for a battery's electrical storage capacity, calculated by multiplying the current in amperes by the time in hours. (Example: A battery which delivers 5 amps for 20 hours provides 5 amps ×20 hours = 100 AH of capacity.)
4. **Capacity Rating**—The time in minutes that a new, fully-charged battery will deliver 25 amperes or 75 amperes at 80°F and maintain a terminal voltage equal to or greater than 1.75 volts per cell.
5. **Cell**—The basic current-producing unit in a battery. It consists of a set of positive plates, negative plates, electrolyte, separators and casing, A cell's nominal voltage is 2 volts.(Example: A 12-volt battery has 6 cells.)
6. **Circuit**—The path followed by a flow of electrons. A closed, or short, circuit is a complete path. An open circuit has a broken path.
7. **Cycle**—One discharge of a battery plus one recharge.
8. **Depth of Discharge (DOD)**—The percentage of capacity actually removed from a battery compared to the

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total rated capacity.

- 9. Electrolyte**—In a deep cycle battery, it is a dilute solution of sulfuric acid and water.
- 10. Hydrometer**—A tool used to measure the specific gravity of the electrolyte solution.
- 11. Equalization**—An overcharge performed on flooded lead-acid batteries after they have been fully charged. This maintenance step helps eliminate stratification and sulfation.
- 12. Ohm**—A unit of measurement for electrical resistance within a circuit.
- 13. Open Circuit Voltage**—The voltage of a battery when there is no load attached(not receiving or delivering energy).This measurement is best taken when the battery has been at rest for at least 6 hours.
- 14. Power Inverter**—An electronic device that converts direct current (DC) power from a battery into standard alternating current(AC)house power.
- 15. Primary Battery**—An energy storage device that can deliver energy but cannot be recharged (i.e., disposable flashlight battery)
- 16. Secondary Battery**—An energy storage device than can deliver energy and can be recharged.(i.e., automotive or deep cycle battery)
- 17. Separator**—A divider made of porous material that is placed between the positive and negative plates in a battery cell and allows current to flow through it, while preventing direct contact between the plates which would cause a short circuit.
- 18. Specific Gravity(S.G.)**—A measurement of the strength of battery electrolyte by comparing its density to that of pure water.
- 19. Stratification**—A condition where the concentration of acid is greater at the bottom of the battery than at the top.
- 20. Sulfation** —The formation of lead sulfate on the positive and negative electrodes.
- 21. Volt (V)**—A unit of measurement for electrical potential within a circuit.
- 22. Watt (W)**—A unit of measurement for electrical power.
- 23. Watt Hour (Wh)**—A unit of measurement for electrical power for a certain period of time.

▲ General maintenance items

★Advanced maintenance items

User regular maintenance details					
Maintenance items	Weekly (or 20H)	Monthly (or 80H)	Quarterly or 250H)	Half a year (or 500H)	Annually (or 1000H)
Check tire pressure	▲				
Check whether the tires are abnormally worn	▲				
Check the tightening of the axle bolts and wheel nuts	▲				
Tire rotation			▲		

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Check the service brake and parking brake efficiency		▲			
Check the wear of the brake shoes			▲		
Check the free travel and work of the steering wheel			▲		
Check the tightness of the ball joints of the steering horizontal and straight rod		▲			
Check the fixing nut of the steering gear spline coupling		▲			
Check the tightness of the steering mechanism and bracket		▲			
Check and adjust the front wheel toe			▲		
Check the connection and tightening of the steering components			▲		
Check the tightness of the leaf spring U-bolt			▲		
Check the tightness of the front shock absorber			▲		
Check whether the battery pole is loose		▲			
Clean the battery pole with water		▲			
Check the working conditions of the controller and accelerator		▲			
Clean and fix the line connector		▲			
Check the wear of the brake friction lining			▲		
Check and adjust the front wheel bearing		▲			
Check the work of the rear axle main reducer and bearings					★

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Check and replace transmission gear oil					★
Check and replace the rear axle gear oil		▲ (after the first month or after the running-in period)			★
Check the work of the rear axle final drive and bearing		▲ (after the first month or after the running-in period)			★
Check the bolts and nuts of the motor			▲		
Clean and lubricate the front wheel bearings (with gear lubricant)					★
Check the electromagnetic brake			▲		
Lubricate other parts (use general oil)				★	

※Motors Maintenance

This electric vehicle uses an AC traction motor as the driving force, and the motor working conditions are logically controlled by a precision electronic controller, so that the motor has superior traction characteristics. As a power output device for electric vehicles, the drive motor's performance directly affects the use of the whole vehicle. The drive motor should be maintained on time, and the motor surface should be kept clean to ensure heat dissipation when it is working.

Regular maintenance and maintenance can be carried out through the following items and the "Regular Inspection and Maintenance List"

- Check whether the motor terminals are fixed and secure;
- Check whether the motor connection line is deformed and discolored;
- Check whether the motor coding line and electromagnetic brake lead wire are intact and firmly fixed;
- Check whether the electromagnetic brake and dust jacket are intact, whether the electromagnetic brake can park normally, and whether the dust cover completely seals the gap of the electromagnetic brake;
- Every 500 kilometers, open the dust cover of the electromagnetic brake, clean the dust accumulation of the brake pad wear, prevent the electromagnetic brake from stuck or fail, and after cleaning, the dust cover should be covered.
- Check the braking clearance of the electromagnetic brake (check with the plug gauge), when the clearance is greater than or equal to 0.7mm, the brake pad should be replaced in time.

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✘ Common Troubleshooting

Failure phenomenon	Probable Cause	Solution
The vehicle cannot run	Wrong Operation	Before turning on the key switch, place the forward/backward switch in neutral
	Battery Terminal oxidation (corrosion)	Disconnect the power supply, remove the nut, clean the terminal and install it
	Low battery Capacity	Charge
	Forward & Reverse Button Switch Broken	Replace
	Accelerator Broken	Replace
	Motor Broken	Replace
	Solenoid Broken	Replace
When the vehicle is climbing, it runs slowly until stop	Harness Connector PIN Loose Contact	Repair or replace
	Whether the vehicle is overloaded, causing the controller temperature to be higher than 75°C and shutting down for protection	Reduce the vehicle load and let the controller cool down
Release the accelerator pedal when driving, the vehicle will not slow down	The accelerator pedal spring is broken, causing the pedal do not return	Turn off the electric lock, and then contact the manufacturer
Turn on the ignition key , speedometer do not on and display	Loose connectors of electrical appliances or wiring harnesses	Lock the connector
	Fuse Blown	Troubleshoot short circuit and replace the fuse
Tire deviated from the direction	Tire pressure imbalance	Inflate to balance tire pressure
	Tire not align	Tire alignment Process
Steering difficulty	Insufficient tire pressure	Refuel
	Lack of lubrication on the steering linkage shaft	Add lubricating oil
	The Steering king pin or ball joint broken	Replace
Oversteering	Ball joint broken	Replace
	The steering gear is under-adjusted or worn	Debug or replace
	Steering linkage shaft loose	Fasten
Lack of power and slow	Low battery Capacity	Charge

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response	Damaged transmission gear	Replace
	Drag Brake	Debug the brake system
Rear wheel bearing oil leakage	Damaged wheel bearings or washers	Replace
	Overfilled engine oil	Release the right amount
Abnormal noise	Worn transmission gears or bearings	Replace
	Wear of front axle bearings or rear axle bearings	Adjust or replace
	Damaged motor bearings	Replace
Insufficient braking force	Brake wear	Replace

※ ICON Controller Troubleshooting Chart

CODE	Effect Of Fault	Possible Cause	Set/Clear Conditions
1	HPD/Sequencing Fault	1.KSI,Gears,Pedal,or Brake applied in incorrect sequence. 2.High Pedal applied before KSI	Set:HPD(High Pedal Disable)or sequencing fault caused by incorrect sequence of KSI,Pedal,Gears,or Brake Clear:Peapply inputs in correct sequence.
2	Mosfet break	Power modules broken	Set:Internal controller fault detection.
3	Controller Overtemp	1.Controller is performance-limited at this temperature. 2.Controller is operating in an extrenme environment. 3.Excessive load on vehicle.	Set:Heatsink temperature exceeded 85°C. Clear:Bring heatsink temperature below 85°C.
4	Main Contactor Did Not Close	1.Main contactor did not close. 2.Main contactor tips are oxidized,burned,or not making good contact. 3.External load on capacitor bank(B+connection	Set:With the main contactor commanded closed,the capacitor bank voltage(B+ connection terminal)did not charge to B+

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		terminal)that prevents capacitor bank from charging.4.Blown B+ fuse	
5	Current Sensor Fault	1.Leakage to vehicle frame from phase U,V,orW(short in motor stator). 2.Controller defective.	Set:Controller current sensors have invalid offset reading. Clear:Cycle KSI
6	Stall Detected	1.Stalled motor. 2.Motor encoder failure. 3.Bad crimps or faulty wiring. 4.Problems with power supply for the motor encoder.	Set:No motor encoder movement detected
7	CAN Timeout	1.Time between CAN messages received exceeded the Timeout Period	Set:Time between CAN messages received exceeded the Timeout Period. Clear:Cycle KSI or receive CAN message.
8	B+ Undervoltage	1.incorrect(to low)battery-voltage applied to B+ 2.Battery parameters are misadjusted. 3.Battery resistance too low for given regen current. 4.Battery disconnected while regen braking.	Set:Capacitor bank voltage dropped below the Undervoltage limit with the FET bridge enabled. Clear:Bring capacitor voltage above the Undervoltage limit
9	B+ Overvoltage	1.incorrect(to high)battery-voltage applied to B+ 2.Battery parameters are misadjusted. 3.Battery resistance too high for given regen current disconnected while regen braking.	Set:Capacitor bank voltage exceeded the Overvoltage limit with the FET bridge enabled. Clear:Bring capacitor voltage below the Overvoltage limit
10	Motor Temp Hot	1.Motor temperature is above the programmed	Set:Motor temperature is at or above the Temperature Hot

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		Temperature Hot setting. 2.Motor Temperature parameters are mis-tuned	parameter setting. Clear:Bring the motor temperature within range.
11	EEPROM Failure	1. Failure to write to EEPROM memory	Set:Controller operating system tried to write to EFPRM memory and failed
12	Pedal Fault	1.Dirty connector pins.2.Pedal do not match.3.Pedal broken	Set:Pedal signal input detected but no Pedal switch signal input detected. Clear:Cycle KSI.
13	EMBrake Open/Short	1. Open or short on driver load. 2. Dirty connector pins. 3. Bad crimps or faulty	Set:Electromagnetic brake driver is either open or shorted.This fault can be set only when EM Brake Type > 0. Clear:Correct open or short.and cycle driver.
14	Controller Overcurrent	External short of phase U,V,orW motor connections.	Set:Phase current exceeded the current measurement limit. Clear:Cycle KSI

Your brand is one of your most important assets! Don't let your residents and consumers see one of those run down work carts driving around!

Make it an EPIC experience for the staff and consumers!

Specs

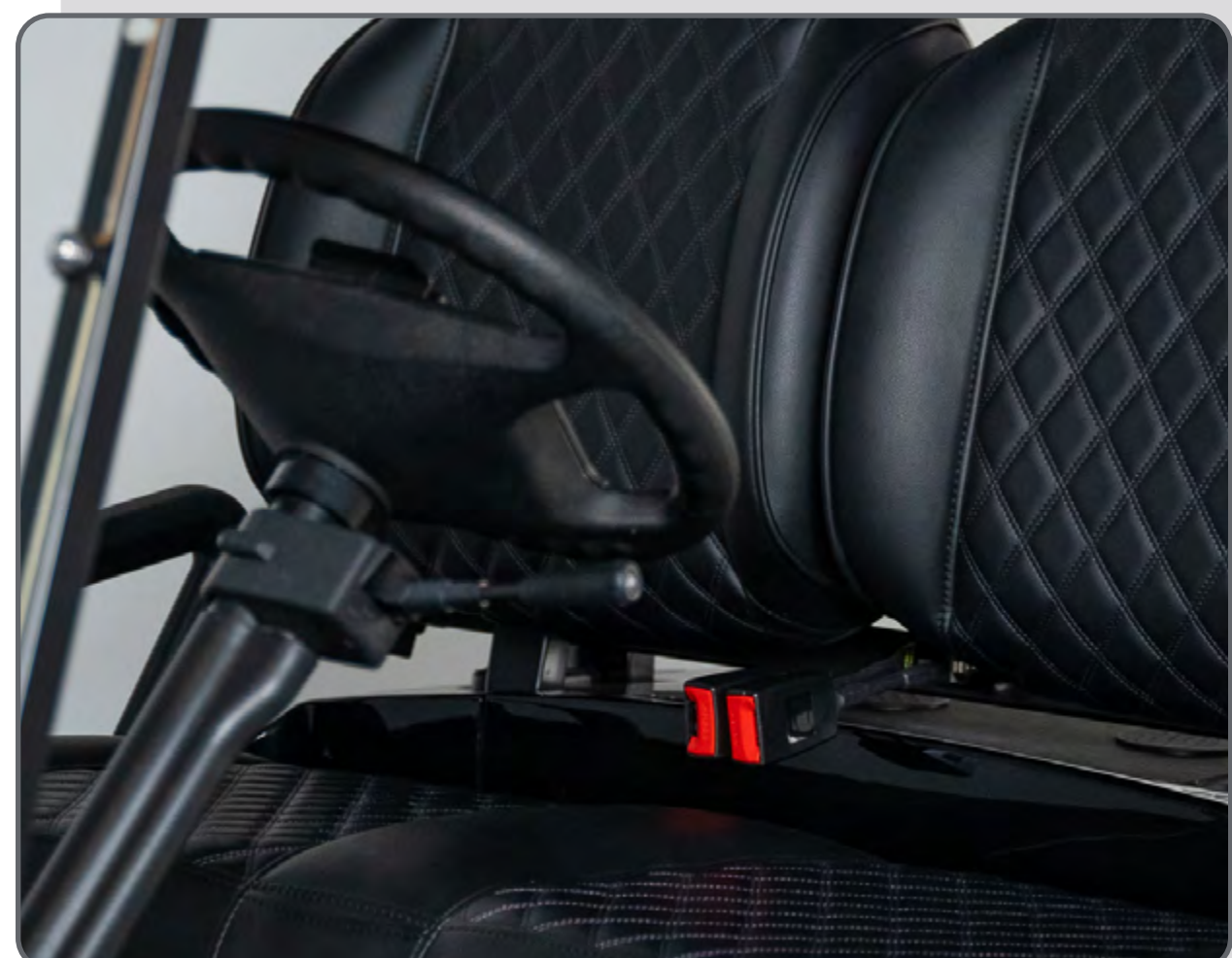
- **Curb Weight:** 1280 lbs
- **Capacity:** 2 People
- **Carry Capacity:** 750 lbs
- **Overall Dimensions LxW:** 99"x47"
- **Metallic Colors:** Black, Charcoal, Red, Pearl White, Royal Blue, Sky Blue, Silver & Matte Black

Body Configuration

- **Frame:** Powder Coated Steel
 - **Body Material:** Injection Molded PP
 - **Wheels:** 14" Aluminum Wheels
 - **Min Ground Clearance:** 6.7"
 - **Min Turning Radius:** 12'
 - **Max Speed:** 19 mph
 - **Max Climbing Capacity:** 20 - 25%
 - **Distance Per Charge:** (@ Speed 20mph) 25 miles
 - **Braking Range:** (@ Speed 20mph) <20ft
 - **Braking System:** Four Wheel Disk Brakes
 - **Lighting and Signals:** LED Lights, Turn Signals
 - **Mirrors:** Lighted Mirrors
 - **Rear:** High-speed Rear Ends
 - **Bumpers:** Durable Front and Rear Bumpers
 - **Roof:** Painted Rooftops
 - **Standard Features:** horns, digital gauges, basket and more.
- Every EPIC is backed by a 2-year limited manufacturer warranty.

Electrical Systems

- **Power:** E
- **Controller:** 450A/500A controllers
- **Motor:** 5kW Motor
- **Batteries:** Maintenance-Free AGM



Your brand is one of your most important assets! Don't let your residents and consumers see one of those run down work carts driving around!

Make it an EPIC experience for the staff and consumers!

Specs

- **Curb Weight:** 1440 lbs
- **Capacity:** 4 People
- **Carry Capacity:** 750 lbs
- **Overall Dimensions LxW:** 123"x47"
- **Metallic Colors:** Black, Charcoal, Red, Pearl White, Royal Blue, Sky Blue, Silver & Matte Black

Body Configuration

- **Frame:** Powder Coated Steel
 - **Body Material:** Injection Molded PP
 - **Wheels:** 14" Aluminum Wheels
 - **Min Ground Clearance:** 6.7"
 - **Min Turning Radius:** 12'
 - **Max Speed:** 19 mph
 - **Max Climbing Capacity:** 20 - 25%
 - **Distance Per Charge:** (@ Speed 20mph) 25 miles
 - **Braking Range:** (@ Speed 20mph) <20ft
 - **Braking System:** Four Wheel Disk Brakes
 - **Lighting and Signals:** LED Lights, Turn Signals
 - **Mirrors:** Lighted Mirrors
 - **Rear:** High-speed Rear Ends
 - **Bumpers:** Durable Front and Rear Bumpers
 - **Roof:** Painted Rooftops
 - **Standard Features:** horns, digital gauges, basket and more.
- Every EPIC is backed by a 2-year limited manufacturer warranty.

Electrical Systems

- **Power:** E
- **Controller:** 450A/500A controllers
- **Motor:** 5kW Motor
- **Batteries:** Maintenance-Free AGM



Your brand is one of your most important assets! Don't let your residents and consumers see one of those run down work carts driving around!

Make it an EPIC experience for the staff and consumers!

Specs

- **Curb Weight:** 1700 lbs
- **Capacity:** 4 People
- **Carry Capacity:** 750 lbs
- **Overall Dimensions LxW:** 133"x50"
- **Metallic Colors:** Black, Charcoal, Red, Pearl White, Royal Blue, Sky Blue, Silver & Matte Black

Body Configuration

- **Frame:** Powder Coated Steel
 - **Body Material:** Injection Molded PP
 - **Wheels:** 14" Aluminum Wheels
 - **Min Ground Clearance:** 6.7"
 - **Min Turning Radius:** 12'
 - **Max Speed:** 19 mph
 - **Max Climbing Capacity:** 20 - 25%
 - **Distance Per Charge:** (@ Speed 20mph) 25 miles
 - **Braking Range:** (@ Speed 20mph) <20ft
 - **Braking System:** Four Wheel Disk Brakes
 - **Lighting and Signals:** LED Lights, Turn Signals
 - **Mirrors:** Lighted Mirrors
 - **Rear:** High-speed Rear Ends
 - **Bumpers:** Durable Front and Rear Bumpers
 - **Roof:** Painted Rooftops
 - **Standard Features:** horns, digital gauges, basket and more.
- Every EPIC is backed by a 2-year limited manufacturer warranty.

Electrical Systems

- **Power:** E
- **Controller:** 450A/500A controllers
- **Motor:** 5kW Motor
- **Batteries:** Maintenance-Free AGM



Your brand is one of your most important assets! Don't let your residents and consumers see one of those run down work carts driving around!

Make it an EPIC experience for the staff and consumers!

Specs

- **Curb Weight:** 1540 lbs
- **Capacity:** 4 People
- **Carry Capacity:** 750 lbs
- **Overall Dimensions LxW:** 130"x50"
- **Metallic Colors:** Black, Charcoal, Red, Pearl White, Royal Blue, Sky Blue, Silver & Matte Black

Body Configuration

- **Frame:** Powder Coated Steel
 - **Body Material:** Injection Molded PP
 - **Wheels:** 14" Aluminum Wheels
 - **Min Ground Clearance:** 6.7"
 - **Min Turning Radius:** 12'
 - **Max Speed:** 19 mph
 - **Max Climbing Capacity:** 20 - 25%
 - **Distance Per Charge:** (@ Speed 20mph) 25 miles
 - **Braking Range:** (@ Speed 20mph) <20ft
 - **Braking System:** Four Wheel Disk Brakes
 - **Lighting and Signals:** LED Lights, Turn Signals
 - **Mirrors:** Lighted Mirrors
 - **Rear:** High-speed Rear Ends
 - **Bumpers:** Durable Front and Rear Bumpers
 - **Roof:** Painted Rooftops
 - **Standard Features:** horns, digital gauges, basket and more.
- Every EPIC is backed by a 2-year limited manufacturer warranty.

Electrical Systems

- **Power:** E
- **Controller:** 450A/500A controllers
- **Motor:** 5kW Motor
- **Batteries:** Maintenance-Free AGM



Your brand is one of your most important assets! Don't let your residents and consumers see one of those run down work carts driving around!

Make it an EPIC experience for the staff and consumers!

Specs

- **Curb Weight:** 1760 lbs
- **Capacity:** 6 People
- **Carry Capacity:** 1000 lbs
- **Overall Dimensions LxW:** 155"x47"
- **Metallic Colors:** Black, Charcoal, Red, Pearl White, Royal Blue, Sky Blue, Silver & Matte Black

Body Configuration

- **Frame:** Powder Coated Steel
 - **Body Material:** Injection Molded PP
 - **Wheels:** 14" Aluminum Wheels
 - **Min Ground Clearance:** 6.7"
 - **Min Turning Radius:** 12'
 - **Max Speed:** 19 mph
 - **Max Climbing Capacity:** 20 - 25%
 - **Distance Per Charge:** (@ Speed 20mph) 25 miles
 - **Braking Range:** (@ Speed 20mph) <20ft
 - **Braking System:** Four Wheel Disk Brakes
 - **Lighting and Signals:** LED Lights, Turn Signals
 - **Mirrors:** Lighted Mirrors
 - **Rear:** High-speed Rear Ends
 - **Bumpers:** Durable Front and Rear Bumpers
 - **Roof:** Painted Rooftops
 - **Standard Features:** horns, digital gauges, basket and more.
- Every EPIC is backed by a 2-year limited manufacturer warranty.

Electrical Systems

- **Power:** E
- **Controller:** 450A/500A controllers
- **Motor:** 5kW Motor
- **Batteries:** Maintenance-Free AGM



Your brand is one of your most important assets! Don't let your residents and consumers see one of those run down work carts driving around!

Make it an EPIC experience for the staff and consumers!

Specs

- **Curb Weight:** 1880 lbs
- **Capacity:** 6 People
- **Carry Capacity:** 1000 lbs
- **Overall Dimensions LxW:** 157"x50"
- **Metallic Colors:** Black, Charcoal, Red, Pearl White, Royal Blue, Sky Blue, Silver & Matte Black

Body Configuration

- **Frame:** Powder Coated Steel
 - **Body Material:** Injection Molded PP
 - **Wheels:** 14" Aluminum Wheels
 - **Min Ground Clearance:** 6.7"
 - **Min Turning Radius:** 12'
 - **Max Speed:** 19 mph
 - **Max Climbing Capacity:** 20 - 25%
 - **Distance Per Charge:** (@ Speed 20mph) 25 miles
 - **Braking Range:** (@ Speed 20mph) <20ft
 - **Braking System:** Four Wheel Disk Brakes
 - **Lighting and Signals:** LED Lights, Turn Signals
 - **Mirrors:** Lighted Mirrors
 - **Rear:** High-speed Rear Ends
 - **Bumpers:** Durable Front and Rear Bumpers
 - **Roof:** Painted Rooftops
 - **Standard Features:** horns, digital gauges, basket and more.
- Every EPIC is backed by a 2-year limited manufacturer warranty.

Electrical Systems

- **Power:** E
- **Controller:** 450A/500A controllers
- **Motor:** 5kW Motor
- **Batteries:** Maintenance-Free AGM





SoundExtreme SE26

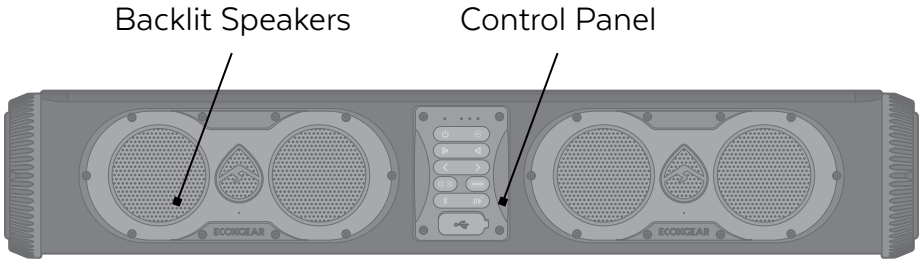
Models: GDI-EXSNDXTR00...20

POWERSPORTS AMPLIFIED SOUNDBAR

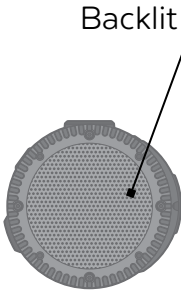


User Guide

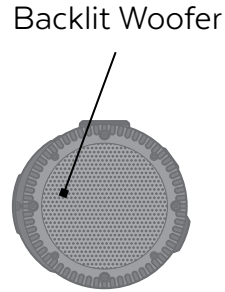
SoundExtreme Layout



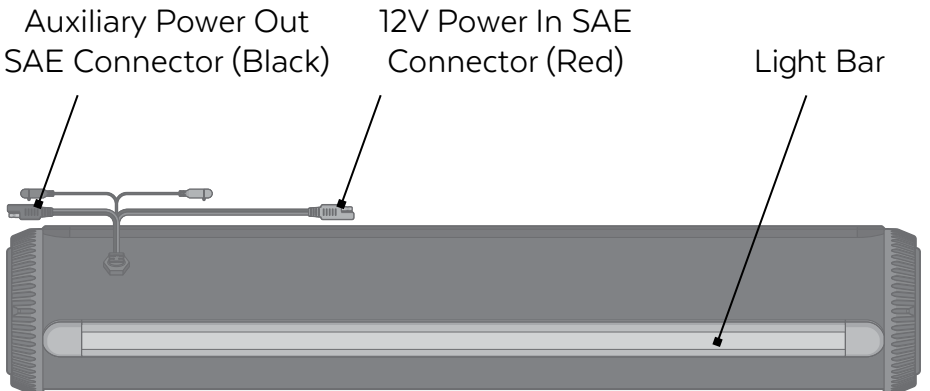
FRONT



LEFT SIDE

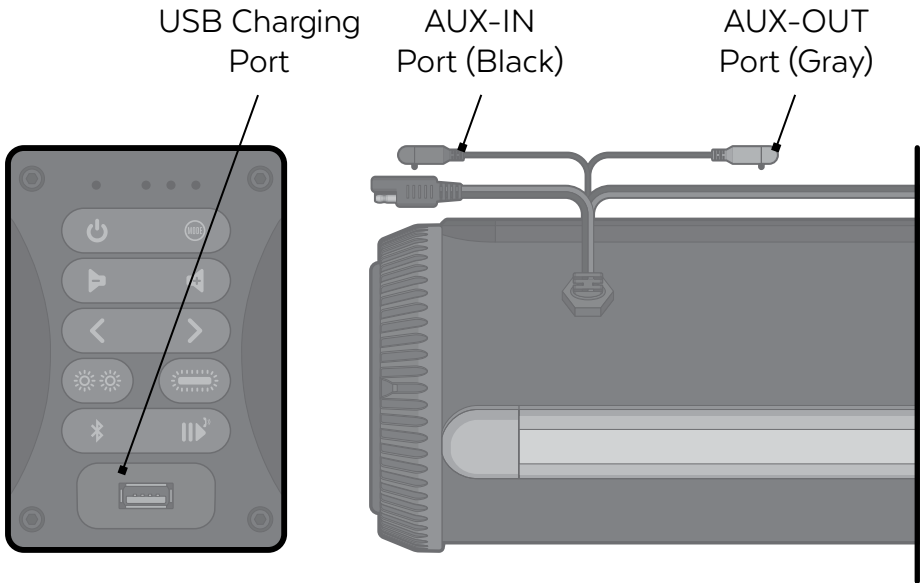


RIGHT SIDE



BACK

In/Out Connections



Do **NOT** use these connections if they are wet.

AUX-IN: This input can be used to connect a CD player, MP3 player, etc.

AUX-OUT: This output can be used to connect to an amplifier or to another speaker AUX-IN connection.

USB Charging Port: Connect your device's charge cable here to charge it. USB charging only functions when the SoundExtreme's power is turned on. USB port rating is 5V, 2.1A.

Important: Maintaining Waterproofness

If the caps on the control panel, the AUX-IN, and AUX-OUT Ports are not properly closed, the unit is **NOT** watertight.

To close the USB Charging Out Port properly, push firmly to be sure the cap fits flat along the edges with the panel.

To close the AUX-IN and AUX-OUT ports properly, push firmly to be sure the cap snaps securely into place.

Connecting to 12VDC Power Supply

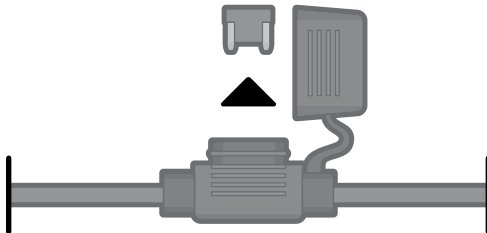
The SoundExtreme does not have an internal battery. It must be connected to an external 12VDC power supply to function. When you install the SoundExtreme to a battery or a voltage regulator on a golf cart, a boat, a quad bike, a UTV, or another vehicle, you need to make sure that your vehicle battery or battery pack terminal voltage is 12VDC. If the battery terminal voltage is not 12V, you will need a DC-DC converter with output 12V. Connecting the SoundExtreme to a non-12VDC power source will lead to a malfunction or damage to the speaker.

WARNING: Even when powered off, the SoundExtreme will draw a small amount of power from your battery. To prevent draining your battery when your SoundExtreme or powersports vehicle are not in use for more than 48hrs, we suggest unplugging the SoundExtreme from the battery or adding the toggle switch. (Toggle switch sold separately.)



Attach the 8ft Power Cable to the 12V Power In SAE Connector (**RED**).

Use Caution: Do **NOT** connect to 12V Battery if the Power In SAE Connector is wet. Contact may cause electric shock and injury if wet.



Remove the 15 Amp Blade Fuse from the Fuse Holder.

Use Caution: Do **NOT** remove Fuse if the Fuse Holder is wet. An improperly fitted cap may cause electric shock and injury if wet.

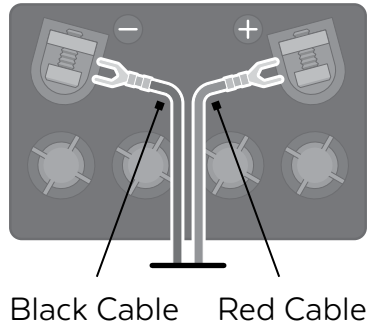
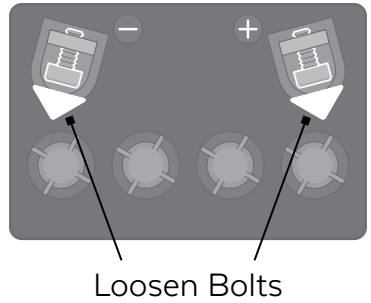
To close properly, push firmly to be sure the cap snaps into place.

Installation: Gas Vehicle

1. Loosen the bolts on the battery terminals.

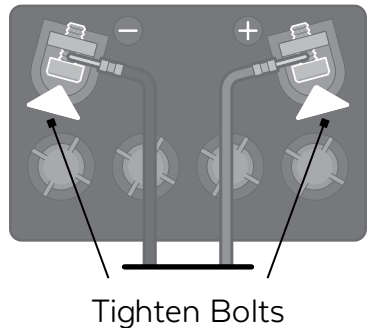
Use Caution: Do **NOT** attempt to loosen bolts if battery is wet. Contact may cause electric shock and injury if wet.

2. Connect the **BLACK** wire to the **BLACK**, negative terminal, then the **RED** wire to the **RED**, positive terminal. Unit will not work correctly and may be damaged if wires are not correctly attached.
3. Tighten the bolts on the battery terminals until the connectors are held firmly in place.
4. Return the 15 Amp Blade Fuse into the Fuse Holder and close the cap.

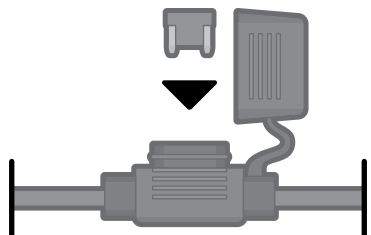


Installation: Electric Vehicle

1. Switch your vehicle to TOW mode.
2. Loosen the bolts on the battery terminals.
3. Connect the **BLACK** wire to the **GROUND** on the DC-DC Converter, then the **RED** wire to the **POSITIVE (+)** post on the DC-DC Converter. Unit will not work correctly and may be damaged if wires are not correctly attached.
4. Tighten the bolts on the battery terminals until the connectors are held firmly in place.
5. Return the 15 Amp Blade Fuse into the Fuse Holder and close the cap.



Tip: Use zip ties to gather any excess wires, and secure them so that they are not dangling, loosely.



Controls

1. **LED Indicators:** Each of the 4 LEDs correspond to different functions: Power, Bluetooth, Mode, and Status.
2. **Power Button:** Press button to turn the SoundExtreme on / off.
3. **Mode Button:** Press button to cycle through the following modes: Bluetooth, EcoCast Transmitting, EcoCast Receiving, FM, and AUX-IN.
4. **Volume Control Buttons:** Press to adjust the speaker's volume. Press and hold to adjust the volume continually.
5. **Track Buttons:** Press buttons to go to the previous / next track on a paired Bluetooth device.
6. **Backlight Speakers Button:** Press to cycle through the following 6 Party Light Modes: Green Light, Red Light, White Light, Blue Light, Music Sync, and Fading.
7. **Light Bar Button:** Press to cycle through the following 5 Light Modes: Red Light, Yellow Light, White Light (High), White Light (Mid), and White Light (Low). Press and hold to enable / disable Accessory Mode (which turns on /off the Auxiliary Power Out connection).
8. **Bluetooth Button:** When in Bluetooth Mode, if the Bluetooth LED Indicator is not flashing Blue, press this button to enter Bluetooth Pairing mode. If your device is paired (solid Blue LED), press button to disconnect. Press and hold this button for 5 seconds to clear all pairing records. In FM Mode, this button is used for FM Station Preset 1.
9. **Play / Pause / Answer / EcoTalk Button:** Press to play / pause a track or answer / end a mobile call from a paired Bluetooth device. Press and hold to activate your Voice Assistant (Siri and OK Google). In FM Mode, this button is used for FM Station Preset 2.



CONTROL PANEL

Operations

LED Indicators

From left to right, the 4 LED Indicators correspond to Power, Bluetooth, Mode, and Status.

1. **Power**

Solid Green: Power On

No Light: Power Off

2. **Bluetooth**

Flashing Blue: Bluetooth Pairing

Solid Blue: Bluetooth Connected

3. **Mode**

Solid Blue: Speaker Mode

Solid / Flashing Red: EcoCast Transmitting Mode

Solid / Flashing Green: EcoCast Receiving Mode


4. **Status**


Solid Blue: FM

Solid Green: AUX-IN


Solid Red: Accessory Mode Enabled

Power On / Off


Power On: Press  briefly to power on the SoundExtreme. “Speaker on, ready to connect” voice prompt will be heard.

Power Off: Press  briefly to power off the SoundExtreme.


Mode Button

Press  briefly to cycle through the following modes: Bluetooth, EcoCast Transmitting, EcoCast Receiving, FM, and AUX-IN.









Pairing a Bluetooth Device

1. Turn on your Bluetooth device.
2. Power on SoundExtreme. “Speaker on, ready to connect” voice prompt will be heard. If the Bluetooth LED Indicator (the second LED Indicator from the left) is not flashing, briefly press  to start pairing your device.
3. Navigate to your Bluetooth device’s setup screen, find ECOXGEAR and connect. If the connection is successful, the Bluetooth icon will be lit solid and your SoundExtreme will announce “Your phone is connected.”



Notes:

- If the pairing is not complete within 5 minutes, the speaker will exit the pairing mode. You need to repeat the pairing steps again.
- After the connection is successful, if you turn the speaker off and turn it on again, it will reconnect to the last connected device automatically. Also, a voice prompt, “Speaker on, ready to connect” followed by, “Your phone is connected” will be heard.
- **PRESS AND HOLD**  for 5 seconds to clear all pairing records.

Adjust Volume



1. Press  or  briefly to adjust the speaker volume.
2. **PRESS AND HOLD**  or  to adjust the volume continuously.
 - a. Press  briefly to increase one volume level. **PRESS AND HOLD**  to keep increasing the volume until maximum volume level is reached.
 - b. Press  briefly to decrease one volume level. **PRESS AND HOLD**  to keep decreasing the volume until minimum volume level is reached.

Play Music (Bluetooth Mode)


After the SoundExtreme is connected to your Bluetooth device, press  briefly on the SoundExtreme to play, press  again to pause.

Press  briefly to play previous song. Press  briefly to get the next song.

Notes:

- Pair and connect your Bluetooth device with SoundExtreme before using this feature.
- If a call is received when you are listening to music, press  briefly on the SoundExtreme to answer the call. Press  again to end the call.
- You can also control Volume and Play / Pause music operations from your Bluetooth enabled device. When the Audio Source is via the AUX-In connection, you must use your device to control Play / Pause music operations.

EcoTalk

PRESS AND HOLD  for 3 seconds to activate the voice assistant on your device (Siri, OK Google, etc.). Once activated, the speakerphone mic on your SoundExtreme will hear your voice commands and transfer them to the voice assistant on your device.

Notes:

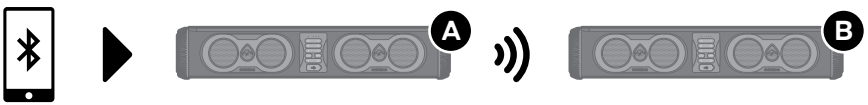
- Before using the EcoTalk function, your device must be connected to the SoundExtreme via Bluetooth.
- Not all devices have voice assistant functionality; refer to your device for details.

EcoCast – Broadcast Your Music to Multiple Speakers



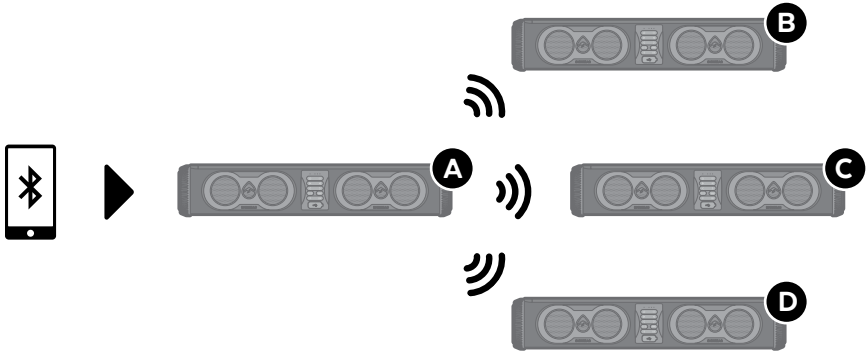
When you have two or more SoundExtreme speakers, you can build a broadcast system by initiating EcoCast Transmitting Mode in one SoundExtreme speaker and broadcasting your music to one or more SoundExtreme speakers in EcoCast Receiving Mode.

EcoCast: First Two Speakers




1. Follow the **Pairing a Bluetooth Device** instructions to connect one SoundExtreme (**Speaker A**) to your Bluetooth device. After your device is connected to **Speaker A**, you can select a song to play.
2. Press **MODE** on **Speaker A** to initiate EcoCast Transmitting Mode. The Mode LED Indicator (the third LED Indicator from the left) will flash Red, and the speaker will announce, “EcoCast transmitting.”
3. Power on **Speaker B** speaker and press **MODE** to cycle through to and initiate EcoCast Receiving Mode. The Mode LED Indicator will flash Green, and the speaker will announce, “EcoCast receiving.”
4. Once the connection between the speakers is successful, **Speaker B** will announce, “Connection Successful,” and start playing music from your Bluetooth device.

EcoCast: Additional Receiving Speakers





1. Power on the additional SoundExtreme speaker(s) (**Speaker C** and **Speaker D**). Press **MODE** to cycle through to and initiate EcoCast Receiving Mode. The Mode LED Indicator will flash Green, and the speaker(s) will announce, “EcoCast receiving.”
2. On **Speaker A** (the speaker with the Mode LED Indicator shining solid Red), **PRESS AND HOLD MODE** for 6 seconds. The Mode LED Indicator will flash Red.
3. Once the connection between the speakers is successful, **Speaker C** (and **Speaker D**) will announce, “Connection Successful,” and start playing music from your Bluetooth device.

Notes:

- If all the speakers are turned off, then turned on, the speaker(s) in EcoCast Receiving Mode (**Speakers B, C, and D**) will automatically re-connect to the speaker in Transmitting Mode (**Speaker A**). If they are not automatically re-connected, please follow the above steps.
- You can also pair the SoundExtreme with any other ECOXGEAR speaker bearing the EcoCast symbol .
- The EcoCast functionality is only available while using Bluetooth as your Audio Source at a maximum range of 30 feet between speakers.
- While connecting the SoundExtreme speakers, make sure that the speakers are within a few feet of each other.


Listening to FM Radio (FM Mode)


Press  briefly to cycle through to FM Mode. Press  or  briefly to tune in a radio station. To “seek” (jump to the next available station), **PRESS AND HOLD** either button down for a few seconds until it starts to seek a station.

When you tune and listen to a station, you can **PRESS AND HOLD**  to assign the current station to Preset 1, or **PRESS AND HOLD**  to assign the current station to Preset 2.

If you want to listen to a stored preset, briefly press either button to go to the stored radio station.

Party Lights


Press  briefly to cycle through 6 Party Light Modes: Green Light, Red Light, White Light, Blue Light, Music Sync, and Fading.


Press  briefly to cycle through 5 Light Modes: Red Light, Yellow Light, White Light (High), White Light (Mid), White Light (Low).

Accessory Mode



First, connect your accessory to the Auxiliary Power Out SAE Connector (12V only).

PRESS AND HOLD  for 3 seconds to enable Auxiliary Power Out. The speaker will announce, “Accessory mode enabled.”



PRESS AND HOLD  again to disable Auxiliary Power Out. The speaker will announce, “Accessory mode disabled.”

Use Caution: Do **NOT** connect to your accessory if the Auxiliary Power Out SAE Connector is wet. Contact may cause electric shock and injury if wet.

Remote Control

Pairing Your Remote Control


Before you use your Remote Control for the first time, pull and remove the plastic tab at the bottom of the Remote Control. Your Remote Control should be paired to your unit. **IF NOT** paired, please follow the steps below.

1. Connect the SoundExtreme to a 12V power supply. (Refer to **Connecting to 12VDC Power Supply** for details.)
2. Within 15 seconds, **PRESS AND HOLD**  for 3 seconds. Your Remote Control will be paired with your SoundExtreme.
3. Verify that your remote control works by pressing the  to see if the speakers light up.


If the speakers do not light up, unplug the 12V power supply, then repeat the above steps.

Once the remote is paired with the SoundExtreme, it will remain stored in the SoundExtreme's memory and should not need to be paired again.

Audio



Power On: **PRESS AND HOLD**  for 3 seconds to power on the SoundExtreme. "Speaker on, ready to connect" voice prompt will be heard.



Power Off: **PRESS AND HOLD**  for 3 seconds to power off the SoundExtreme.



Press  briefly to cycle through the following modes: Bluetooth, EcoCast Transmitting, EcoCast Receiving, FM, and AUX-IN.




REMOTE CONTROL



After the SoundExtreme is connected to your Bluetooth device, press  briefly to play, press  again to pause.

Press  briefly to play previous song. Press  briefly to get the next song.


Press  or  briefly to adjust the speaker volume.

LED: Backlit Speakers

Press  briefly to turn on your speaker backlights.

Press  or  briefly to cycle through the 6 Party Light modes.

LED: Light Bar


Press  briefly to turn on your Light Bar.


Press  or  briefly to cycle through the 5 Light modes.

Remote Switch



First, connect your accessory to the Auxiliary Power Out SAE Connector (12V only).

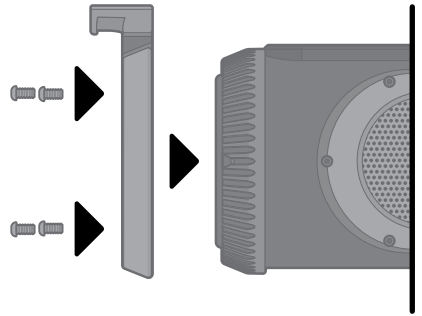
Press  briefly to enable Auxiliary Power Out. The speaker will announce, “Accessory mode enabled.”

Press  again to disable Auxiliary Power Out. The speaker will announce, “Accessory mode disabled.”

Use Caution: Do **NOT** connect to your accessory if the Auxiliary Power Out SAE Connector is wet. Contact may cause electric shock and injury if wet.

Mounting Your Speaker

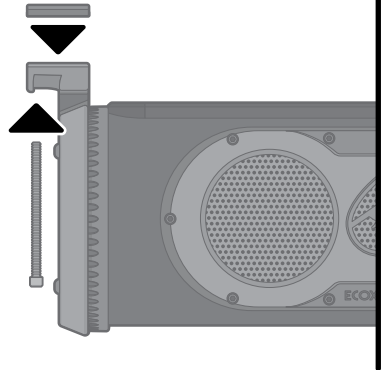
1. To mount the speaker, first place the 2 Mounts on the ends of the SoundExtreme at your desired orientation and attach them using three or four (depending on the orientation of your mount) Button Head Bolts, each. Tighten securely.



2. Ensure that the speaker fits in the desired location and mark where the mounts will be attached to your vehicle.

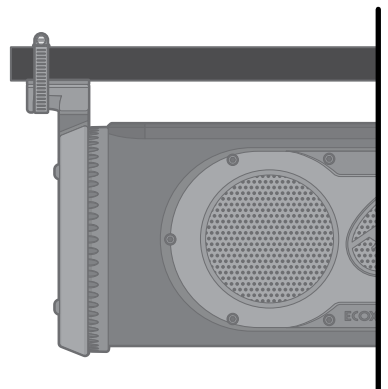


3. Drill holes at the desired mounting points on your vehicle, large enough for the provided 1/4-20 Bolts to fit.



4. Place the Rubber Feet on both Mounts.

5. Attach the Mounts to your vehicle with the provided 1/4-20 Bolts and Nuts. Tighten securely.



Tip: Alternatively to drilling holes into your vehicle, you can also use the provided Worm Clamps to secure the speaker to your vehicle. In order to prevent scratching /damage to your vehicle, slide the provided rubber sleeves onto the worm clamps before securing the speaker.

Note: For high-speed, high-vibration, and high-impact applications, we recommend using the provided 1/4-20 Bolt mounting solution, detailed above.

Troubleshooting

The sound is distorted

Try lowering the volume control of your connected device or musical instrument. Also, try to reduce the overall volume of the SoundExtreme.

Cannot Pair With Bluetooth Device

Make sure that your device is compatible with Bluetooth. Turn off your SoundExtreme and Bluetooth device, then power on and reconnect. Make sure that Bluetooth mode is selected on your SoundExtreme.

If there is poor FM reception

To adjust FM reception, move entire product.

Can NOT play music from a flash drive

The USB ports are only for charging USB devices.

Volume level is too low

Increase the volume on the SoundExtreme and / or increase the volume on your Bluetooth device.

LED lights for show and off-road use only

Check with local ordinance before using LED lights. Do **NOT** drive on public roads with LED lights on. LED lights are not DOT compliant.

Please do NOT attempt to fix your SoundExtreme

Please contact our Customer Support at support@gracedigital.com or call us at **800.903.9524**.

⚠ WARNING: REMOTE CONTROL INCLUDES A BUTTON BATTERY



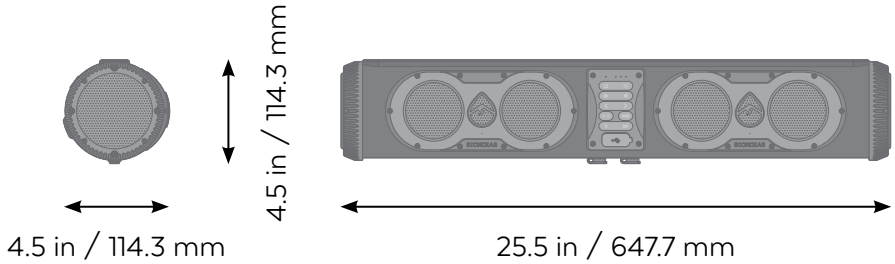
Keep the **BUTTON BATTERY** out of reach of **CHILDREN**.



If swallowed, **SEEK MEDICAL ATTENTION IMMEDIATELY**, as ingestion may lead to serious injury, chemical burns, or death.

Specifications

Dimensions



Unit + Mounts Height

5.75 in

Unit Weight

11 lbs

Bluetooth Compliance

Bluetooth V 5.0

Bluetooth Frequency Band

2.402-2.480GHz ISM Spectrum

Modulation

GFSK, $\pi/4$ -DQPSK, 8DPSK

Bluetooth Range

Up to 100 ft / 30m

Tweeter (2x)

1" (25.4 mm) tweeter

Woofer (2x)

4" (101.6 mm) woofer

Mid-Range Speaker (4x)

2.25" (57.15mm) speaker

Audio Output Power

500W (peak)

Power Supply

Input Voltage: 12VDC, 10A
(requires connection to external DC battery for power)

USB Output

5V, 2.1A

EcoCast

Using Qualcomm® Broadcast Audio technology

EcoCast Range

30 ft / 9.1 m between Casting speaker and Receiving speakers

Compatibility

Mobile phone / device supporting Bluetooth V1.1 (and above)

Radio Frequency Range

US: FM 87.5 - 107.9 MHz

RF Remote Operating Frequency

433 MHz

Blade Fuse

15A, 32V

Storage Temperature

-40°F to 122°F / -40°C to 50°C

Operating Temperature

23°F to 95°F / -5°C to 35°C

Waterproof / Dust Rating

IP66

FCC STATEMENT:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1.) This device may not cause harmful interference, and
- 2.) This device must accept any interference received, including interference that may cause undesired operation.

WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: To maintain compliance with FCC's RF Exposure guidelines, this equipment should be installed and operated with minimum distance between 20cm the radiator to your body: Use only the supplied antenna. FCC ID: 2AAUI-GDIEXSNDXTRO1.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: reorient or relocate the receiving antenna, increase the separation between the equipment and receiver, connect the equipment into an outlet on a circuit different from that to which the receiver is connected, consult the dealer or an experienced radio/TV technician for help.

RF WARNING STATEMENT:

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

IC STATEMENT:

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- 1.) This device may not cause interference, and
- 2.) This device must accept any interference, including interference that may cause undesired operation of the device.

PRODUCT USE AND PROTECTION:

Read and follow all instructions. Use only as intended.

The ECOXGEAR Bluetooth speaker is intended to be used indoors or outdoors and in land or water environments. The speaker has been tested to IP66 waterproofing standards, which means the speaker can be exposed to dust and water, but should not be submerged underwater. The speaker is **NOT** intended for constant underwater use.

Always make sure the cap(s) / cover(s) are clean, free from sand or debris, and correctly fitted. The speaker will only meet IP66 ratings if all rubber seals, gasket(s) and cover(s) / cap(s) are in place. If you notice a muffling of audio after submersion, gently shake the unit to clear excess water. If your speaker is exposed to salt water, clean it thoroughly after use with fresh water.

To prevent fire or shock, do **NOT** attempt to power this unit if it is wet or you suspect water has entered the unit. In this situation, please return the unit to Grace Digital for a free assessment. If we have found that the unit has carried water, we will repair or replace the unit free of charge.

SAFETY ADVISORY & WARNING:

Read and follow all instructions. Use only as intended.

CAUTION: Do **NOT** open to repair. A qualified technician must carry out repair work.

ATTENTION: Do **NOT** connect to a 12VDC power supply while the unit is wet. Make sure all connections are dry **BEFORE** connecting to a power source. Failure to do so may result in electrical damage to the unit and may void the warranty.

 **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov

WARNING: Danger of explosion if battery is incorrectly replaced.

ATTENTION: Do **NOT** dispose of in a landfill. Contact Grace Digital at www.gracesupport.com or a certified recycling agent to dispose of the unit.

SAFETY:

This product has a limited life span of use and should be replaced when it shows obvious signs of wear.

Do not modify or remove any original component parts of the speaker. Doing so could cause damage to the unit, allowing water to ingress. A unit with water ingress should not be charged due to potential risk of fire or shock.

Please exercise care and good judgment when using your ECOXGEAR speaker. Audio levels should be appropriate to your environment, comply with all local regulations, and always ensure that you can hear and be aware of any potential hazards around you.

You should always

- 1.) Use the ECOXGEAR speaker in accordance with any music or noise rules and regulations.
- 2.) Properly seal the ECOXGEAR prior and after each use when in humid or water environments to avoid water damage to the internal components. Salt water / air is particularly corrosive. Always make sure that the gaskets are sealed when in a salt water environment and that the unit is properly rinsed off after use.

- 3.) Properly clean the ECOXGEAR and ensure the gaskets have no sand, dirt, or water on them prior to storage.
- 4.) Store your unit with all caps properly sealed to avoid long term internal moisture damage inside your unit.
- 5.) Return the ECOXGEAR to Grace Digital if you suspect water ingress into the unit or if the unit has experienced a severe impact that may have affected the integrity of the unit to take on water.

You should never

- 1.) Never power your ECOXGEAR if you suspect water has entered the device. Powering a device with water inside could be potentially hazardous and cause fire or a spark.
- 2.) Never use your ECOXGEAR if you have dropped it or thrown it against a hard surface which may have destroyed the integrity of the speaker, housing, or gaskets. In the event of a severe impact to your unit, please return the unit to Grace Digital to review for potential damage.
- 3.) Never open the auxiliary doors in a water environment. This could cause water to ingress into the unit which could potentially be hazardous and cause a fire or a spark.
- 4.) Never connect a device to the auxiliary input jacks when in a water environment. The auxiliary jacks should only be used in a dry environment.
- 5.) Never attempt to fix, repair your ECOXGEAR unit. Please send it back to Grace Digital for any assessments and repairs.

CARE, MAINTENANCE & PRECAUTIONS:

- 1.) The unit is waterproof only when the caps and door are properly closed.
- 2.) Close the caps and door properly before use. If the unit is placed in a water environment without the caps or door properly closed, water may enter into the unit and void your warranty.
- 3.) Dry unit completely before opening the caps. Do **NOT** open the caps if wet or in a wet environment.
- 4.) Do **NOT** apply excessive force to any surfaces of the unit when wet or in a wet environment.
- 5.) Do **NOT** use or store the unit in places with high temperature.
- 6.) **AVOID** prolonged exposure to ultraviolet radiation (UV sunlight) and strong magnetic fields.
- 7.) Periodically check the rubber seal on the caps and door for premature wear.
- 8.) Periodically clean the rubber with a soft moist cloth and ensure no objects such as dirt, hair, sand are on the rubber seal ring. Do **NOT** use any oily solvent or chemicals for cleaning.
- 9.) Rinse off the unit with tap water after use in salt water.
- 10.) Power the unit by attaching the 12V Power In SAE Connector to the 30" Power Cable intended for use with the unit. The unit must be connected to a 12VDC power source. If the battery terminal voltage is not 12V, you will need a DC-DC converter with output 12V. Connecting the unit to a non-12VDC power source will lead to a malfunction or damage to the unit.

LIMITED MANUFACTURER'S WARRANTY:

SoundExtreme is covered by a 1-year limited warranty that covers defects in workmanship and / or materials for a period of 1 year from original purchase date. This warranty does not apply to any products which have been abused, neglected, modified or used for a purpose other than the one for which they were manufactured. Please refer to the above care and maintenance instructions for suggested care details. The warranty is valid only for the original owner who purchases the unit from an authorized dealer. Transfers do not qualify for warranty protection. Grace Digital reserves the right to replace any out-of-stock or discontinued product with a comparable product. Discontinued products may not be available for warranty replacement. Any contents are **NOT** covered by the limited manufacturer's warranty. Warranty terms may be revised without notification at the discretion of the manufacturer. Please visit www.ecoxgear.com for additional product & warranty information.



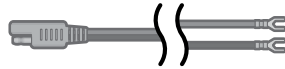
SoundExtreme SE26 by ECOXGEAR, a division of Grace Digital Inc., San Diego, California.
Designed in California. Made in China.

This product is protected under patent US 9,307,307 B2 and several patents pending.

What's in the Box



SoundExtreme Speaker



8ft Power Cable



SoundExtreme User Guide



SoundExtreme Remote Control



Auxiliary Power Out Mating Connector



(2x) 1/4-20 SHCS Bolt - 3.5" long



(2x) Rubber Sleeves



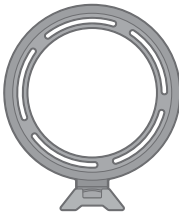
Allen Wrench for 1/4-20



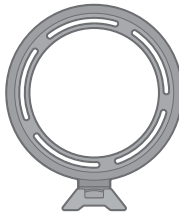
(2x) 1/4-20 SHCS Bolt - 2" long



(2x) 1/4-20 Stud - 1.5" long



(2x) Mounts



(2x) 1/4-20 SHCS Bolt - 1.25" long



(2x) 1/4-20 SHCS Bolt - 0.5" long



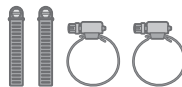
(8x) #8-32 Button Head Bolts



(2x) 1/4-20 Washer (S)



(2x) Rubber Feet



(4x) Worm Clamps - 1/2" Width



(2x) 1/4-20 Washer (L)



(2x) 1/4-20 Nut