



## *Owner's / Operator's Manual*

***48 Volt ALPHA EV 2+2***

***48 Volt ALPHA EV Sport 2+2***



***CAUTION: Read This Manual Carefully & Completely.***





## **INTRODUCTION**

*Congratulations on your purchase of our luxury Electric Vehicle (EV). We are hopeful that you will enjoy your new EV as much as we enjoy preparing this adventure for you.*

*Within this Owner's & Operator's Manual you will find helpful information for the proper care & maintenance of your EV which will allow you to also obtain the most enjoyment out of your investment.*

*If you have any questions regarding the Operation or Maintenance of your EV, please consult your Authorized Alpha EV Dealer.*

***2021 EV Owner's & Operator's Manual***

***1st Edition***

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## IMPORTANT MANUAL INFORMATION



**CAUTION:** Read This Manual Carefully & Completely.

This is a Safety Alert Symbol. It is used to alert the users of this manual to potential safety & injury hazards. Please obey all safety messages that follow this symbol to insure a safe vehicle operation and to avoid possible injury or death.



The Warning Symbol above indicates a hazardous situation, which if not avoided, could result in death or serious injury.



A Notice indicates special precautions that must be taken to avoid damage to the vehicle or property.



Quick Tip provides key information to make procedures clearer & easier.



## **CONTENTS**

- ⇒ **WARRANTY**
- ⇒ **OPERATOR SAFETY & SAFETY CONSIDERATIONS**
- ⇒ **DRIVING INSTRUCTIONS**
- ⇒ **CONTROLS & COMPONENTS**
- ⇒ **BEFORE OPERATING THE VEHICLE / PRE-INSPECTION**
- ⇒ **VEHICLE OPERATION**
- ⇒ **BATTERY CARE / WET-FLOODED BATTERIES**
- ⇒ **BATTERY CARE / LITHIUM BATTERY**
- ⇒ **BATTERY CHARGING**
- ⇒ **BODY & CHASSIS CARE**
- ⇒ **PERIODIC MAINTENANCE CHARTS**
- ⇒ **VEHICLE SPECIFICATIONS**
- ⇒ **VEHICLE STORAGE**
- ⇒ **RETURNING THE VEHICLE TO SERVICE**
- ⇒ **QUESTIONS / CONTACT INFORMATION**



## **WARRANTY**

### **LIMITED 2-YEAR WARRANTY / MODEL ALPHA 2+2 & ALPHA SPORT 2+2**

ALPHA EV hereby warrants to the original purchaser of a new Model Alpha EV 2+2 or Alpha EV 2+2 Sport Model, purchased from an Authorized Alpha EV Dealer in the United States, will be free from defects in material and workmanship under normal use and service for the period stated below. Enactment of this Limited Warranty starts from the purchase date and is subject to the provisions, limitations and exclusions contained in this Limited Warranty.

**During the Warranty Period** an Authorized Alpha EV Distributor, Dealer or approved Service Agent of Alpha EV will, free of charge, replace or repair, at Alpha EV's option, any part that is judged defective by Alpha EV due to faulty workmanship or materials from the factory. Parts used in these warranty repairs will be warranted for the balance of the original warranty period. All parts replaced under warranty will be property of Alpha EV.

**General Exclusions** of this warranty will include any product failures due to:

1. Abuse or neglect such as overcharging, undercharging, improper battery fluid level maintenance, loose wiring or rusted and corroded hardware.
2. Excessive operation of the battery in an undercharged condition (Below half charge - 1200 Specific Gravity.)
3. Lack of proper maintenance as described in the Vehicle's Owner's & Operators Manual.
4. Normal wear and tear, neglect, abuse, lack of proper maintenance and use not in conjunction to the Owner's & Operator's Manual.
5. Accident or Collision Damage.
6. Installation of parts & components that are not Original Equipment.
7. Fading, rust or deterioration due to exposure outside of normal wear and tear.
8. Modifications to the vehicle that is outside of the Original Equipment offered. These may affect the condition, operation, performance and durability of the vehicle in a negative fashion.
9. Damage due to improper transportation.
10. Acts of God such as Hurricanes, tornadoes, lightning, hail damage, flooding, fire, etc.
11. Semiconductor parts such as diodes, fuses, etc. which are vulnerable to electrical overloads (Including lightning strikes)

Transportation expenses for warranty services are excluded from this warranty. This includes any charges incurred in transporting the EV or component of to and from an Authorized Alpha EV Dealer for service or in performing field service are also excluded from this warranty.



## **WARRANTY**

### **LIMITED 2-YEAR WARRANTY / MODEL ALPHA 2+2 & ALPHA SPORT 2+2**

**(Continued) General Exclusions** of this warranty will include any product failures due to:

Also excluded from any Alpha EV warranty are all fuses, decals (Except Safety Decals), light bulbs, lubricants, trim pieces, seats, and routine wear items such as the charger cord, plug and receptacle, brake pads / shoes, bushings, mats and pads, maintenance adjustments, cosmetic deterioration, and items which deteriorate or fail due to exposure of normal wear and tear.

- Routine Maintenance.
- Tire Wear.

#### **Specific Exclusions:**

**The Customer's Responsibility** under this warranty shall be:

- Operate and maintain the Alpha EV and associated components as specified in the Owner's & Operator's Manual.
- Give notice to an authorized Alpha EV Dealer of any and all apparent defects within 7 days (One Week) after discovery. During this time the vehicle / components must be made available to an Authorized Alpha EV Dealer for inspection, diagnosis and potential repair.

Alpha EV makes no additional expressed or implied warranty of any kind. All implied or expressed warranties outside of this document are hereby disclaimed by Alpha EV and excluded from this warranty.

#### **Voiding of Warranty:**

This and any other warranty shall be void if the vehicle is abused or used in an unintended manner or shows indications that it has been altered in any way, including, but not limited to, modification of the factory speed setting, tire diameters, braking system, steering, transaxle, or other operating system of the car causing it to perform outside of Alpha EV Specifications.

The warranty is likewise void if the vehicle involved shows indications that reasonable or necessary maintenance as outlined in the Owner's & Operator's Manual was not performed at the time and in the manner specified in such manuals.

\* Some states allow neither limitation on the duration of an implied warranty, nor exclusions or limitations of incidental or consequential damages. Therefore the above limitations or exclusions may not apply to you.



## ***Operator Safety & Considerations***



Your ALPHA EV is designed for safety and simplicity. Please be sure to follow the Operator Safety requirements below to reduce the risk of serious injury or death due to the loss of vehicle control and additional hazards that may exist.

### **BEFORE OPERATING YOUR ALPHA EV:**

- ◆ Read the Owner's & Operator's Manual to familiarize yourself with all of the safety and warning instructions that are associated with your vehicle.
- ◆ Perform the pre-operational checks that are designated within this manual.
- ◆ Only authorized individuals should drive this vehicle from the drivers side only.
- ◆ Drive in designated areas only.
- ◆ Do not allow more than two occupants per seat . Your ALPHA EV 2+2 is equipped with two seats and a four person occupancy limit.
- ◆ Do not operate this vehicle while under the influence of alcohol or drugs. These components and the effects thereof will make the operation of this vehicle dangerous.
- ◆ Do not operate this vehicle on public streets, roads or highways; unless allowed by law or local regulating entities.

### **WHILE OPERATING YOUR ALPHA EV:**

- ◆ Keep all occupants seated firmly and inside your vehicle.
- ◆ Do not start the vehicle until all occupants are seated and inside the vehicle as explained above.
- ◆ Hold on while the vehicle is in motion.
- ◆ Keep your hands on the steering wheel and your eyes on the destination ahead of you..
- ◆ Use extra care and caution in congested areas or when backing up. Always back up slowly and cautiously.
- ◆ Avoid starting and stopping abruptly.
- ◆ Match your speed to the environment and terrain in which you are traveling.



## ***Operator Safety & Considerations***



Your ALPHA EV is designed for safety and simplicity. Please be sure to follow the Operator Safety requirements below to reduce the risk of serious injury or death due to the loss of vehicle control and additional hazards that may exist.

### **WHILE OPERATING YOUR ALPHA EV:**

- ◆ Avoid sudden and sharp turns of the steering wheel to avoid tipping or rolling over of the vehicle and loss of the occupants.
- ◆ Always drive slowly and straight up and down slopes. This will help avoid tipping or rolling over of the vehicle.
- ◆ Do not make any vehicle modifications that may affect the safety of the vehicle and endangerment of the occupants.

### **SAFE DRIVING CONSIDERATIONS:**

- ◆ Your ALPHA EV can cause injury if improperly used or maintained.
- ◆ Allow only authorized individuals with a valid motor vehicle license to operate this vehicle.
- ◆ Drivers should be cautious and observe all laws while operating this vehicle.
- ◆ Wet terrain may cause your vehicle to lose traction and become unstable. Operators should reduce the vehicle speed in wet areas or periods of inclement weather.

### **⚠ WARNING**

1. Do not operate this vehicle while under the influence of alcohol or drugs. These components and the effects thereof will make the operation of this vehicle dangerous.
2. Always drive slowly and straight up and down slopes. This will help avoid tipping or rolling over of the vehicle.
3. Be cautious and mindful of sharp turns, blind corners and structure (Garage, Bridges, etc.) heights.



## ***Operator Safety & Considerations***



Your ALPHA EV is designed for safety and simplicity. Please be sure to follow the Operator Safety requirements below to reduce the risk of serious injury or death due to the loss of vehicle control and additional hazards that may exist.



### **SAFE DRIVING CONSIDERATIONS:**

- ◆ When approaching pedestrian or congested areas, always reduce your speed, drive slowly and use caution as pedestrians have the right of way.

### **SAFE MAINTENANCE PRECAUTIONS:**

- ◆ Properly immobilize your ALPHA EV prior to any needed service maintenance. This will include disabling the vehicles electrical system in accordance with the manufacturers suggestions.
- ◆ Wear proper safety apparel while repairing this vehicle. Proper safety apparel includes, but is not limited to: Approved eye protection, insulated gloves.
- ◆ Remove all jewelry, and loose apparel items prior to working on this vehicle.
- ◆ Use only properly insulated tools when in electrical areas of the vehicle in order to prevent electrical shock and damage to the electrical system.
- ◆ Set the key switch to OFF. Use blocks to secure the wheels. Prior to service / maintenance.
- ◆ Electrical components can become hot during operation. Allow these components time to cool before service to avoid burns.
- ◆ Properly block the chassis before working underneath the vehicle and allow proper clearance.
- ◆ When working on or near the battery, do not smoke or allow open flames or sparks near the batteries.
- ◆ Maintain all vehicle safety devices in a safe operating condition. Do not modify these devices.
- ◆ Vehicle maintenance should be performed and maintained by qualified and trained personnel in order to provide the highest degree of safety for the operation and care of this vehicle.



## ***Driving Instructions***

Your ALPHA EV is designed for safety and simplicity. Please be sure to follow the Driving Instructions below to reduce the risk of serious injury or death due to the loss of vehicle control and additional hazards that may exist.

### **⚠ WARNING**

- ◆ All drivers must have a valid driver's license.
- ◆ All occupants must always wear seat belts.
- ◆ No more than two occupants at one time per bench seat on your Alpha EV 2+2 EV.
- ◆ Do not carry children on your lap or between seat occupants.
- ◆ Do not allow anyone to hang onto any part of the vehicle while operating / moving.
- ◆ Obey all traffic regulations.
- ◆ All drivers and occupants are required to have read the operator's manual to ensure proper operation of the vehicle.
- ◆ Ensure the passengers can operate the safety belts before allowing them to ride on the EV.
- ◆ When operating the vehicle at night, the use of headlights and taillights is required.
- ◆ Always use proper signaling when turning the vehicle.
- ◆ Bring the vehicle to a complete stop prior to shifting between forward / reverse. Failure to do this, may result in injury or vehicle damage.
- ◆ Operate the vehicle from the drivers seat only.
- ◆ In order to prevent the risk of serious injury, the driver and passenger must keep all body parts inside the vehicle at all times.
- ◆ Avoid sudden and sharp turns.
- ◆ To avoid the risk of the vehicle tipping over, reduce speed while making turns.
- ◆ Never drink or use drugs while driving. In addition to this being unsafe, it may also violate state and local laws.



## ***Controls & Components***

### **FEATURES:**

- ◇ Ignition Switch w/ Two Standard Keys.
- ◇ Dual-Position Speed Switch - Low & High Settings.
- ◇ 3 - Position Directional Selector (Forward - Neutral - Reverse).
- ◇ External Charging Port w/ Onboard Battery Charger.
- ◇ Heavy-Duty Batteries.
- ◇ DC Voltage Reducer.
- ◇ Accelerator Pedal.
- ◇ Brake Pedal.
- ◇ Electromagnetic Brake System.
- ◇ Hydraulic Rear Disc Brakes.
- ◇ Running Lights (LED Head & Tail / Light Bar).
- ◇ Turn Signals.
- ◇ Emergency Hazard lights
- ◇ Horn.
- ◇ Dual USB Charging Ports.
- ◇ LCD Dashboard
- ◇ Battery State of Charge Indicator.
- ◇ Speedometer.
- ◇ Odometer.
- ◇ Reverse Alarm.
- ◇ Side Mirrors (Right & Left).
- ◇ Run / Tow Switch.
- ◇ Dash Storage & Cup Holders (Front & Rear).
- ◇ Fuse Block.



## ***Before Operating the Vehicle / Pre-Inspection***

### **PRE-INSPECTION:**

Pre-inspections should be performed each time prior to using your vehicle.



For safety reasons and to keep the vehicle from moving when performing your pre-inspection check. Make sure the vehicle is charged (charge the batteries before each use), parked on a level surface and remove the main switch key.

- Make sure that all components are securely fastened to the vehicle, there are no missing parts and all screws and nuts are properly tightened.
- Review all vehicle warnings and safety decals placed on the vehicle.
- Visually Inspect and test the safety belts for a proper and safe operation.
- Inspect the tire condition, tread depth (Minimum 1mm or 0.04”), and tire inflation as identified on the tire sidewall. Inspection should also take place for foreign objects located in the tire (Nails, stones, etc.) in addition to potential loose wheel lug-nuts.
- Batteries: Check the electrolyte level in all cells of each battery. If any cell is low, add distilled water as described in the Battery Care section of this manual. (This is not applicable if your vehicle is equipped with AGM (Absorbed Glass Mat) or Lithium Batteries.
- Battery Wires: All wires should be free of corrosion and secure.
- Brakes: Check hydraulic brake fluid. If it is low, add brake fluid to the specified level. If a leak is detected, immediately call an authorized dealer for service.
- Accelerator Pedal: **WARNING. Make sure the key is in the off position.** Make sure the accelerator operates smoothly.
- Steering System: The steering should be smooth and consistent with no excessive play in the movement. To check the steering system for excessive play. Move the steering wheel slightly to the right and left as well as up and down. If you feel excessive free play, you may have worn or loose steering components that will need immediate attention by an authorized dealer and may require service.
- Forward & Reverse Directional Switch: Make sure this is operating correctly.
- Inspect the Charger cord, plug and charging receptacle for cracks, loose connections and wear.



## ***Before Operating the Vehicle / Pre-Inspection***

### **PRE-INSPECTION:**

Pre-inspections should be performed each time prior to using your vehicle.



For safety reasons and to keep the vehicle from moving when performing your pre-inspection check. Make sure the vehicle is charged (charge the batteries before each use), parked on a level surface and remove the main switch key.

- Reverse Buzzer: The reverse buzzer should sound, when the ignition key is turned to the on position and the direction switch is in the “R” reverse position.
- Lights: Inspect and make sure that all lights are functional. Head, Tail, Hazard & Turn Signals.
- Horn: Make sure the horn is functional and audible.
- Inspect the Charger cord, plug and charging receptacle for cracks, loose connections and wear.
- Before each use, inspect the body and body components for damage and/or missing parts.
- Prevent overloading of the vehicle as this may create damage.

## ***Operation***

- \* With the Run/Tow Switch in the Run position the Alpha EV’s Electromagnetic Motor Brake will inhibit the vehicle from rolling until the accelerator pedal is depressed.
- \* The top speed of the Alpha EV is 25MPH, even when going down an incline. The motor will engage to limit the top speed of the vehicle. When doing so the motor will act as a generator transferring some of the excess energy into recharging the batteries.
- \* The Alpha EV will also apply some slight motor braking while stopping. A slight extra force may be felt when coming to a complete stop. This indicates a transfer of some excess energy back into the batteries.



## Vehicle Operation

Your ALPHA EV is designed for safety and simplicity. Please study and understand the controls.

- Remove the battery charger cable if connected.
- Make sure everyone is seated with seat belts properly fastened.
- Adjust rear view mirrors.
- Adhere to all safety features within this manual.
- Your key switch has two positions OFF / ON. The key can only be removed and inserted in the off position. Insert the key and rotate to the top right position to turn the vehicle on.
- Select the direction of motion with the FNR (Forward-Neutral-Reverse) switch.



**Your vehicle will be supplied with two keys. Please put your spare key in a safe place.**

**Do not leave the vehicle unattended with the key inserted. Please remove the key. Do not leave unattended children in the vehicle as this may create a potentially dangerous situation.**

**NOTE: When driving the vehicle, do not turn the key off. This will cause the vehicle to stop suddenly.**



**Make sure the vehicle has come to a complete stop before changing the direction of the FNR switch. Failing to do this will initiate a protection procedure that will disable the vehicle. If this happens you need to put the vehicle in neutral, turn the key switch to the Off Position, then turn the key switch to the On Position, and then put the vehicle in the direction you wish to proceed.**

**Always power the vehicle off when stopped.**

- Turn the steering wheel into the direction you wish to proceed.
- Slowly apply the accelerator.



## Vehicle Operation

Your ALPHA EV is designed for safety and simplicity. Please study and understand the controls.

### Brakes:

- This vehicle contains an easy to use Electromagnetic Disc Brake System. When the accelerator is released the vehicle will come to a stop in approximately 1-3 seconds. This Brake System also contains a manual disconnect lever should an electrical issue occur.

### Run / Tow Switch:

- Switch to the TOW Position before Pushing or Towing the vehicle. Failure to do so, will cause damage to the vehicle.



### Battery Power Indicator:

- The battery power indicator reflects the batteries state of charge in three different graphics.
- \* Green = Good Condition.
- \* Yellow = A Depleting Condition. Caution.
- \* Red = Recharge Condition.



When the Power indicator is flashing in the Red Condition, discontinue use and recharge the batteries immediately to avoid battery damage.

### Light & Horn Switch:

- Press for Horn
- Move Forward / Backward for Turning Lights



### Low & High Speed Switch / Hazard:

- Located on the left (Drivers) side of the console is the Low (I) & High (O) Speed Switch.
- Additionally located on the left (Drivers) side of the console is the Hazard Light Switch.





## **Battery Care / Wet-Flooded Batteries**

### **⚠ WARNING**

Battery Electrolyte is a poisonous and dangerous solution that can cause severe burns, etc. Battery Electrolyte contains sulfuric acid. Avoid contact with skin, eyes & clothing. Always shield eyes when working near batteries.

KEEP OUT OF REACH OF CHILDREN.

#### **Antidote:**

External: Flush with water.

Internal: Drink large quantities of water or milk. Follow with milk of magnesia, a beaten egg or vegetable oil.

Call a physician immediately.

Eyes: Flush with water for 15 minutes and get immediate medical attention.

Batteries produce explosive gases. Keep sparks, flame, cigarettes, etc. away.

Provide proper ventilation when charging batteries.

\*\*\* Your Alpha EV contains (6) 8-Volt Heavy-Duty Batteries that must be properly maintained and recharged to obtain maximum performance and service life. \*\*\*

#### **PROPER CARE & MAINTENANCE OF DEEP CYCLE BATTERIES:**

- ⇒ New batteries should be given a full charge before use.
- ⇒ New deep cycle batteries need to be cycled several times before reaching full capacity (50 - 125 cycles, depending on type). Capacity will be limited during this period. \*XC2 formulation can reach full capacity in as few as 25 cycles.
- ⇒ Battery cables should be intact, and the connectors kept tight at all times. Always use insulated tools to avoid shorting battery terminals. Regular inspection is recommended.
- ⇒ Vent caps should be correctly installed and tight during vehicle operation and battery charging.
- ⇒ Batteries should be kept clean and free of dirt and corrosion at all times. Batteries should always be watered after charging unless the plates are exposed prior to charging. If exposed the plates should be covered by approximately 1/8" of electrolyte (add distilled water only). Check electrolyte level after charge. The electrolyte level should be kept 1/4" below the bottom of the fill well in the cell cover.



## ***Battery Care / Wet-Flooded Batteries***

### **PROPER CARE & MAINTENANCE OF DEEP CYCLE BATTERIES (Continued):**

- ⇒ Water used to replenish batteries should be distilled or treated not to exceed 200 T.D.S. (total dissolved solids...parts per million). Particular care should be taken to avoid metallic contamination (Iron).
- ⇒ For best battery life, batteries should not be discharged below 80% of their rated capacity. Proper battery sizing will help avoid excessive discharge.
- ⇒ Battery chargers should be matched to fully charge batteries in an eight hour period. Defective and unmatched chargers will damage batteries or severely reduce their performance.
- ⇒ Avoid charging at temperatures above 120F or ambient, whichever is higher.
- ⇒ Deep cycle batteries need to be equalized periodically. Equalizing is an extended, low current charge performed after the normal charge cycle. This extra charge helps keep all cells in balance. Actively used batteries should be equalized once per month. Manually timed charger should have the charge time extended approximately 3 hours. Automatically controlled charger should be unplugged and reconnected after completing a charge.
- ⇒ In situations where multiple batteries are connected in series, parallel or series/parallel, replacement battery (s) should be of the same size, age and usage level as the companion batteries. Do not put a new battery into a pack which has 50 or more cycles. Either replace with all new or use a good used battery (s).
- ⇒ Periodic battery testing is an important preventative maintenance procedure. Hydrometer readings of each cell (fully charged) gives an indication of balance and true charge level. Imbalance could mean the need for equalizing; is often a sign of improper charging or a bad cell. Voltage checks (open circuit, charged and discharged) can locate a bad battery or weak battery. Load testing will pick out a bad battery when other methods fail. A weak battery will cause premature failure of companion batteries.
- ⇒ Always use a matched charger and battery pack system. Unmatched chargers will cause potential problems.
- ⇒ As batteries age, their maintenance requirements change. This means longer charging time and/or higher finish rate (higher amperage at the end of the charge). Usually older batteries need to be watered more often. And, their capacity decreases.
- ⇒ Lead acid batteries should be brought up to full charge at the earliest opportunity. Avoid continuously operating batteries in a partially charge condition. This will shorten their life and reduce their capacity.
- ⇒ Extreme temperatures can substantially affect battery performance and charging. Cold reduces battery capacity and retards charging. Heat increases water usage and can result in overcharging. Very high temperatures can cause "thermal run-away" which may lead to an explosion or fire. If extreme temperature is an unavoidable part of an application, consult a battery/charger specialist about ways to deal with the problem.



## ***Battery Care / Wet-Flooded Batteries***

### **PROPER CARE & MAINTENANCE OF DEEP CYCLE BATTERIES (Continued):**

- ⇒ Inactivity can be extremely harmful to all lead acid batteries. If seasonal use is anticipated, we recommend the following:
- A. Completely charge the battery before storing.
  - B. Remove all electrical connections from the battery, including series/parallel connectors.
  - C. Store the battery in as cool a place as possible. However, do not store in a location which will consistently be below 32F. Batteries will discharge when stored, the lower the temperature the lower the self discharge.
  - D. When not in use, boost every two months.

## ***Battery Charging / Wet-Flooded Batteries***



Explosive hydrogen gas is produced while the batteries are being charged. Only charge the batteries in well ventilated areas. Death or serious personal injury can result from failing to comply with this Warning Label.

NOTE: The battery charger is built into the vehicle. Due to the heat caused when charging, the seat should be in a raised position when charging in hot weather conditions.

The battery charger can be connected to any 3-prong 110-240 volt home electrical outlet with an available minimum 15 Amps of current. To avoid the risk of electrical shorting, the battery charger must be grounded through a properly installed 3-prong outlet. Do not use a 2-prong adapter.

The condition of all Battery Charger components should be examined periodically for cracks and fraying. Replace if any problems are found. Make sure all connectors are clean and dry. DO NOT clean with water or other liquids.



**CAUTION: DANGER: Using the charger with any of the below conditions could result in fire or personal injury.**

Do not use the charger if:

The plug is loose or does not make good contact.

The plug or wires get hot.

The connector pins are bent or corroded.

The plug, receptacle or connector is damaged in any way.



## **Battery Care / LiFePO<sub>4</sub> Lithium Battery**

### **INTRODUCTION:**

Your Lithium Iron Phosphate Alpha EV Battery is controlled by an Advanced Battery Management System that will monitor the functionality of the battery in regards to Temperature, State of Charge (SOC) as well as overall Battery Health, which includes the balancing of the internal cells during the Charging and Discharging process.

Your Alpha EV Battery is Maintenance-Free and carries a **Manufacturer's 5-Year Warranty** against defects in manufacturing and materials.

Total Energy = 5,376 kWh.

**NOTE: \*\*\* FULLY CHARGE your Lithium Iron Phosphate Alpha EV Battery before use. \*\*\***

### **⚠ WARNING**

- ⇒ Improper Handling of your Lithium Battery and associated Electrical Components can result in serious injury or death.
- ⇒ Do not remove the battery cover, modify the battery or electrical design in any fashion. Never attempt to remove the battery cables. Lithium Battery procedures of any type should be performed by trained personnel only. No exceptions are permitted.
- ⇒ All tools used in or around the battery pack area must be insulated to prevent damage or electrical short circuits.
- ⇒ Prevention to keep your battery away from Static Electricity must be recognized and adhered to.
- ⇒ To prevent the risk of a battery explosion, always keep all flammable materials, open flames or sparks away from the battery at all times.
- ⇒ Your battery and battery terminals must remain clean at all times. Never use water or any chemicals to clean your battery, battery terminals or surrounding electrical connections. If your battery terminals do require cleaning, use a dry cloth only to clean debris from the terminals before use of the vehicle.
- ⇒ The Operating Temperature Range for your Lithium Battery is: -4° F - 140° F.

**\*\*\* Do not attempt to use or charge your Alpha EV Vehicle if your temperature is not within the above ranges. \*\*\***

- ⇒ Never hit your battery with an object, stand on your battery or place items on your battery.
- ⇒ Your battery must be kept dry.
- ⇒ Your Alpha EV is equipped with a dedicated Lithium Battery Charger. This is required.



## ***Battery Care / LiFePO<sub>4</sub> Lithium Battery***

### **STORAGE:**



1. Improper storage may damage, destroy or cause permanent battery capacity loss.
2. Do not exceed the recommended storage / temperature recommendations.

### **Storage Preparation:**

The recommended Storage Temperature Range is: 65° F - 85° F.

Charge your Alpha EV Battery according to the ambient temperature information below.

- Above 90° F the recommended State of Charge (SOC) is 80% prior to storage.
- Below 55° F the recommended State of Charge is 100% prior to storage.

### **During Storage:**

- Check the battery State of Charge (SOC) every 30-Days during storage.
- If your Alpha EV Battery reaches below 30% State of Charge (SOC) during storage, charge the battery to the proper setting above that was initiated prior to storage.

### **Returning your Alpha EV to Service:**

- Prior to using your Alpha EV, charge your battery to 100% State of Charge (SOC).

### **BATTERY CHARGING:**

- ⇒ The Charging Temperature Range for your Lithium Battery is: 32° - 113° F.
- ⇒ Inspect your Alpha EV charging receptacle and Battery Charger Connector for any dirt, debris or damage. If damage is present contact your Authorized Alpha EV Dealer for service prior to usage.
- ⇒ Connect your Alpha EV Charging cord directly into a dedicated AC Wall Receptacle. If an extension cord must be used it is to be a 3-Wire Cord, 16AWG (No longer than 25 feet) as per UL Guidelines
- ⇒ Recharge the battery fully after every use.



## Battery Charging



Position all charger cords and wires in locations that will not be driven over or present a tripping hazard.

Your Battery Charger is fully automatic and will supply sufficient power to bring your Alpha EV batteries to a full charge. It will also shut itself off when the batteries are fully charged. If left connected to the batteries and with AC Power, the charger will occasionally check the batteries condition and apply enough power to maintain a full charge. It is recommended to plug the charger in even after short trips (10 Minutes). This will assist in getting the maximum life from your Alpha EV batteries.

For proper charging of your Alpha EV Wet-Flooded & AGM Batteries, follow the instructions below:

- I. Put your 3-Position Directional Switch in Neutral.
- II. Turn your 2-Position Key Switch to the Off Position.
- III. Insert you're the DC side of your Charger Power Cord (Supplied with your Alpha EV) into the matching DC Receptacle (located on the outside of the body near the driver's side).
- IV. Insert the AC Side of your Charger Power Cord to an AC Outlet.
- V. During normal charging, the charging light blinks or continually illuminates as follows.
  - \* **POWER ON LIGHT** = Red / Blinking \*\*\* Low Battery Power.
  - \* **POWER ON LIGHT** = Red / Blinking \* Battery Charge Lower Than 80%.
  - \* **POWER ON LIGHT** = Yellow / Blinking \* Battery Charge Between 90%-100%.
  - \* **CHARGE COMPLETE LIGHT** = Continuous Green.

Do not disconnect the DC Output Cord from the battery charging receptacle when the charger is on and charging the batteries.

After the Charge is complete, disconnect the DC Outlet Plug. Grab the plug body firmly and pull straight out of the receptacle.

Contact your Alpha EV Dealer should you have an additional Charging Issues as your charger contains an additional (11) Fault Codes to assist with your System Diagnosis.



## Battery Charging Fault Codes

### Enpower Battery Charger

LED Indicator Information / Description			
1	Low Battery Power	R ***	
2	Battery Charge Lower Than 80%	R *	
3	Battery Charge Between 80% - 90%	Y *	
4	Battery Charge Between 90% - 100%	G *	
5	Full Charge	Normal Process of Charging	Continuous Green Light
Alarm Information			
1	Battery Not Connected	R * G ***	
2	Charger Over-Temperature Protection	R * G * Y ***	
3	Input Fault Protection	R * G * Y * Y ***	
4	Charging Timeout	R * G * Y * Y * Y ***	
5	Battery Overheating	R * G * Y * Y * Y * Y ***	
6	Pre-Charge Timeout	R * G * Y * Y * Y * Y * Y ***	
7	Internal Temperature Sensor Fault	R * G * Y * Y * Y * Y * Y * Y ***	
8	Output Voltage Feedback Fault	R * G * Y * Y * Y * Y * Y * Y * Y ***	
9	Low Temperature Start Delay (When the internal temperature of the charger is between -4° F to -22° F, the charger will delay starting for 1-2 minutes)	R * G * Y * Y * Y * Y * Y * Y * Y * Y ***	
10	Output Short Circuit Protection	R * Y ***	
11	Battery Temperature Sensor Fault	Green Light (3s), Yellow Light (0.3s)	
<p>Note:</p> <ol style="list-style-type: none"> <li>1. “*” Represents a LED Light that does not light for (0.5s), A Color Word Represents that the LED of this color lights for (0.2s).</li> <li>2. R = Red LED Light / G = Green LED Light / Y = Yellow LED Light.</li> </ol>			



## ***Body & Chassis Care***

### NOTE:

Prior to each use and cleaning, make sure that all components are securely fastened to the vehicle, there are no missing parts and all screws and nuts are properly tightened.

The care of the Alpha EV vehicle body is very important. Failure to keep your vehicle Chassis & Body clean with may result in damage and corrosion of the vehicle body components. Salt, dust and chemicals will accelerate the process of the vehicles deterioration in many facets.

### NOTE:

This is an Electric Vehicle that does require a special and more detailed cleaning procedure.

It is recommended to use automotive car wash soaps and mild household (neutral detergent solution) cleaners for the cleaning of your Alpha EV. Regular cleaning for all surfaces is a necessity in keeping the vehicle in top condition and to preserve your investment.

Use of a garden hose with a sponge or towel is recommended. Never use a pressure washer as the overspray may damage some of the electrical components.

Use non-abrasive automotive type wax products. Battery acid, bugs, asphalt and tar should be washed away with mild-reactive solvents to prevent possible staining.

For your imitation leather cleaning, use a leather cleaner followed by a leather protectant.

Your Alpha EV vehicle should be parked in a dry, well ventilated area. Long term storage should also be in a dry, well ventilated area.

Should you have any questions regarding the care, maintenance, repair or operation of your Alpha EV, contact your local Alpha EV Dealer or Alpha EV Customer Service directly at [customerservice@alphaelectricvehicles.com](mailto:customerservice@alphaelectricvehicles.com).



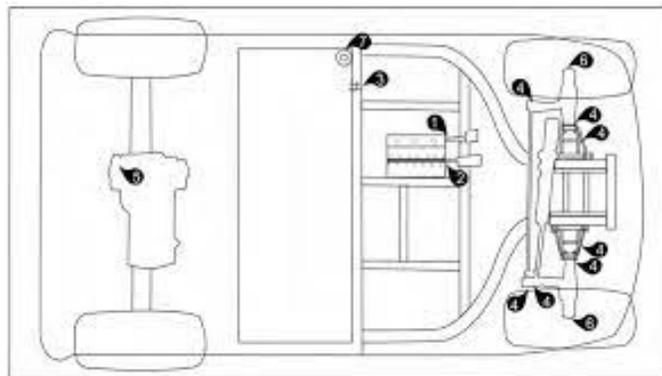
## Periodic Maintenance Schedule

ALPHA EV SCHEDULED INSPECTION PROCEDURES		
SCHEDULED INTERVAL	INSPECTION	
Per Use by Owner	Batteries	Check the state of charge. Charge if necessary.
	Charger Connection Port	Check for normal operation. Free of damage.
	Accelerator Pedal	Check for normal operation.
	Brake System	Check for normal operation.
	Parking Brake System	Check for normal operation
	Directional Selector	Check for normal operation. Forward, Neutral & Reverse.
	Reverse Warning Indicator	Check for normal operation.
	Steering	Check for normal operation. No excessive play.
	Tires	Check for proper inflation, wear & damage.
	Body & Chassis	Check for missing parts and damage.
	Vehicle Hardware - All	Check tightness of all bolts, nuts, screws & rivets.
	Monthly Inspection by Owner or an Authorized Service Personnel	Batteries
Brakes		Check brake fluid level. Fill if necessary.
Check all items / Listed in the Per Use by Owner.		
Quarterly Inspection by an Owner or Authorized Service Personnel	Accelerator Pedal	Check for normal operation. Adjust if necessary.
	Driving System	Perform lubrication as per the schematic diagram.
	Entire Car	Perform lubrication as per the schematic diagram.
	Check all items / Listed in the Per Use & Monthly Interval.	
6-Month Inspection by an Authorized Service Personnel	Batteries	Check on Charge Voltage per Battery.
	Wires	Check wire condition. Cracks / Damage / Short Circuit.
	Brake System	Adjust or replace brake components if necessary.
	Directional Selector	Check wire & contact connection. Secure.
	Front Wheel Alignment	Check and adjust when necessary.
	Suspension	Check for leaking shock absorbers / damaged springs.
	Entire Car	Perform lubrication as per the schematic diagram.
	Check all items / Listed in the Per Use, Monthly & Quarterly Interval.	
Annual Inspection by an Authorized Service Personnel	Batteries	Perform Discharge Test.
	Steering	Check steering knuckle bushing free play.
	Motor	Check overall operation.
	Front Wheel Bearings	Lubricate. Check wheel nut tightness.
	Rear Axle Bearings	Check rear axle bearings for excessive play / noise.
	Transaxle	Check & Fill oil level if necessary. Check for leaks.
	Check all items / Listed in the Per Use, Monthly, Quarterly & Semi-Annual Interval.	



## **Periodic Maintenance Schedule**

<b>SCHEDULED OILING / LUBRICATION PROCEDURES</b>			
<b>SCHEDULED INTERVAL</b>	<b>INSPECTION</b>	<b>POSITION</b>	<b>RECOMMENDED LUBRICATING OIL</b>
Quarterly Inspection by Owner or an Authorized Service Personnel	Brake Pedal Main shaft	TBD	General-Purpose Lithium Base Grease
	Accelerator Pedal Shaft	TBD	General-Purpose Lithium Base Grease
	Brake Reservoir	TBD	DOT 4 Brake Fluid
	Front Suspension	TBD	General-Purpose Lithium Base Grease
Annual Inspection by an Authorized Service Personnel	Driving Axle / Check & Fill	TBD	GL-5 Gear Lube
	Front Wheel Bearing	TBD	General-Purpose Lithium Base Grease



## **Vehicle Specifications**

<b>PERFORMANCE</b>	<b>ALPHA EV &amp; SPORT EV 2+2</b>	<b>ALPHA EV &amp; SPORT EV 4+2</b>
Factory Speed Setting	17	17
Maximum Speed	25	25
Optional Maximum Speed	25	25

<b>BATTERIES</b>	<b>CAPACITY (Ah @ 20Hrs)</b>	<b>ALPHA EV &amp; SPORT EV 2+2</b>	<b>ALPHA EV &amp; SPORT EV 4+2</b>
Wet-Flooded	170	170	170
AGM	180	180	180
Lithium	105	105	105



## Vehicle Specifications

WEIGHT	ALPHA EV & SPORT EV 2+2	ALPHA EV & SPORT EV 4+2
Without Batteries	899.50 lbs. / 408kg	1064.85 lbs. / 483kg
With Batteries	TBD	TBD

WEIGHT of LOAD	ALPHA EV & SPORT EV 2+2	ALPHA EV & SPORT EV 4+2
Passengers	TBD	TBD
Batteries	TBD	TBD

FRONT WHEEL ALIGNMENT (No Load)	ALPHA EV & SPORT EV 2+2	ALPHA EV & SPORT EV 4+2
Camber Angle (°)	TBD	TBD
Caster Angle (°)	TBD	TBD
Toe In	TBD	TBD

OTHER	ALPHA EV & SPORT EV 2+2	ALPHA EV & SPORT EV 4+2
Seating Capacity	Four	Six

VEHICLE DIMENSIONS	ALPHA EV & SPORT EV 2+2	ALPHA EV & SPORT EV 4+2
Length	9.97 Ft. / 3038 mm	12.74 Ft. / 3883 mm
Width	49.64" / 1261 mm	50.79" / 1290 mm
Height w/ Top	79" / 83"	TBD
Wheelbase	TBD	TBD
Floor Height (Step In)	17.5" / 18.875"	TBD
Minimum Ground Clearance	12.5" / 14"	TBD

SEATING & LEGROOM DIMENSIONS	ALPHA EV & SPORT EV 2+2	ALPHA EV & SPORT EV 4+2
Legroom for First Row Seating	TBD	21.75" / 550 mm
Legroom for Second Row Seating	N/A	15" / 380 mm
Seating Dimensions for First Row	TBD	15.75" / 400 mm
Seating Dimensions for Second Row	N/A	17.75" / 450 mm

STEERING TYPE: RACK & PINION	ALPHA EV & SPORT EV 2+2	ALPHA EV & SPORT EV 4+2
Steering Axis Inclination Angle (°)	TBD	TBD
Minimum Steering Radius	TBD	TBD

BRAKES	ALPHA EV & SPORT EV 2+2	ALPHA EV & SPORT EV 4+2
Parking	Electromagnetic	Electromagnetic
Electric Motor Disc w/ Manual Disconnect	Yes	Yes
Hydraulic Rear Disc	Yes	Yes



## Vehicle Storage

Perform the following preparations when storing your Alpha EV Vehicle for extended periods of time.

Turn main Key Switch to the off position.

### CHASSIS PREPARATION:

1. Verify the tire pressure on your vehicle is set to the recommended levels. Adjust is necessary.
2. Clean the exterior of your Alpha EV.

### BATTERY PREPARATION:



1. Do not attempt to charge frozen batteries or batteries with bulged cases. Discard the battery. Frozen batteries may explode. Batteries in a low state of charge (SOC) are more likely to freeze.
2. Dirty battery tops can conduct small amounts of electricity and accelerate the discharging of the batteries. Clean the tops of the batteries and battery wires with a solution of baking soda and water (One gallon of water and one cup of baking soda) as necessary to remove corrosion. **(It is important to not allow this solution to enter the battery cells. Serious battery damage may occur.)**
3. Inspect the condition of the battery wires. Damaged or frayed wires should be replaced.
4. Provide a protective coating to the battery terminals as a deterrent to future corrosion.
5. Fully charge the battery pack fully before storing. Check the battery electrolyte levels (Wet-Flooded Batteries Only), add distilled water if necessary.
6. If it is possible keep the battery charger connected to the vehicle and AC Power, so that the batteries will not discharge. The battery charger will automatically monitor and charge the batteries.
7. If a reliable AC Power supply is not available, disconnect the charger from the vehicle and disconnect the batteries.
8. Lubricate the front suspension and all other periodic lubrication points.
9. Store the vehicle in a cool, dry location.



## ***Returning the Vehicle to Service***

**The following steps are very important.**

1. Check the battery electrolyte levels (Wet-Flooded Batteries Only), add distilled water to cover the battery plates inside the cells if necessary.
2. Fully charge the battery pack before using.
3. Adjust the tire pressure to the recommended levels and inspect the tire condition. Replace if necessary.
4. Perform a Pro-Operation Inspection.

This manual contains the latest Alpha EV production information. As we continually make changes to improve your Alpha EV there may be inconsistencies that arise between your vehicle and this manual. Alpha EV reserves the right to make changes to the vehicle and products without prior notice.

## ***Contact Us***

**Please contact your local Authorized Alpha EV Dealer for immediate assistance / questions.**

\* An active Dealer listing will be located on the Alpha EV website. <https://alphaelectricvehicles.com>



**ALPHA EV, LLC**

**SALES: [sales@alphaelectricvehicles.com](mailto:sales@alphaelectricvehicles.com)**

**CUSTOMER SERVICE: [customerservice@alphaelectricvehicles.com](mailto:customerservice@alphaelectricvehicles.com)**

**ACCOUNTING: [accounting@alphaelectricvehicles.com](mailto:accounting@alphaelectricvehicles.com)**

