



A Textron Company

# **TXT Freedom 72V**

## **Owner's Guide**

# WELCOME

Thank you for purchasing this vehicle. Before driving the vehicle, we ask you to spend some time reading this owner's guide. This guide contains the information that will assist you in maintaining this highly reliable vehicle. Some illustrations may show items that are optional for your vehicle. This guide covers the operation of several vehicles; therefore, some illustrations may not represent your vehicle. Physical differences in controls will be illustrated.

The service procedures in this guide can be done with common, automotive tools. Contact your service representative on servicing the vehicle in accordance with the Periodic Service Schedule.

Repair and replacement parts are available through your E-Z-GO retailer or Textron Specialized Vehicles Service Parts Department.

**Record the vehicle model, VIN and serial number (see page 7 for location) in the spaces below for reference when contacting Textron Specialized Vehicles concerning service or parts for your vehicle:**

Vehicle Model \_\_\_\_\_

VIN \_\_\_\_\_

Serial Number \_\_\_\_\_

# OWNER'S GUIDE

# 72V ELECTRIC VEHICLE

**TXT FREEDOM 72V**

## STARTING MODEL YEAR 2016

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 specifications. Such modifications can cause serious personal injury or death. Textron Specialized Vehicles (TSV) prohibits and disclaims responsibility for any such modifications or any other alteration which would adversely affect the safety of the vehicle.

TSV reserves the right to incorporate engineering and design changes to products in this manual, without obligation to include these changes on units sold previously.

The information contained in this manual may be revised periodically by TSV, and therefore is subject to change without notice.

TSV DISCLAIMS LIABILITY FOR ERRORS IN THIS MANUAL, and SPECIFICALLY DISCLAIMS LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES resulting from the use of the information and materials in this manual.

These are the original instructions as defined by 2006/42/EC.

### CONTACT INFORMATION:

**TEXTRON SPECIALIZED VEHICLES**  
1451 Marvin Griffin Road  
Augusta, Georgia, USA 30906-3852

#### North America:

Technical Assistance & Warranty PHONE: 1-800-774-3946 FAX: 1-800-448-8124

Service Parts PHONE: 1-888-438-3946 FAX: 1-800-752-6175

#### International:

PHONE: 001-706-798-4311 FAX: 001-706-771-4609

# NOTES

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

**This vehicle has been designed and manufactured in the United States of America (USA). The Standards and Specifications listed in the following text originate in the USA unless otherwise indicated.**

**The use of non-Original Equipment Manufacturer (OEM) approved parts may void the warranty.**

**Failure to properly maintain batteries may void the warranty. Refer to the battery manual for instructions on the proper maintenance and care of the batteries.**

## BATTERY PROLONGED STORAGE

**All batteries will self-discharge over time. The rate of self-discharge varies depending on the ambient temperature, the age and condition of the batteries.**

**A fully charged battery will not freeze in winter temperatures unless the temperature falls below -75°F (-60°C).**

**For winter storage, the batteries must be clean, fully charged and disconnected from any source of electrical drain.**

**The battery charger may be left connected to the vehicle to maintain a full charge on the batteries, provided the charger is plugged into an active electrical source. If power to the electrical source is disconnected or interrupted the battery charger will continue to check the charge on the battery pack, this will draw power from the battery pack and eventually drain the batteries if power is not restored in a timely manner.**

**As with all electric vehicles, the batteries must be checked and recharged as required or at a minimum of 30 day intervals.**

**Remember to check and maintain the proper fluid level in all battery cells during the storage period; proper fluid level is required for maximum battery performance.**

## BATTERY DISPOSAL

**Lead-acid batteries are recyclable. Return whole scrap batteries to distributor, manufacturer or lead smelter for recycling. For neutralized spills, place residue in acid-resistant containers with absorbent material, sand or earth and dispose of in accordance with local, state and federal regulations for acid and lead compounds. Contact local and/or state environmental officials regarding disposal information.**

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

# SAFETY

## GENERAL

For any questions on material contained in this manual, contact an authorized representative for clarification.

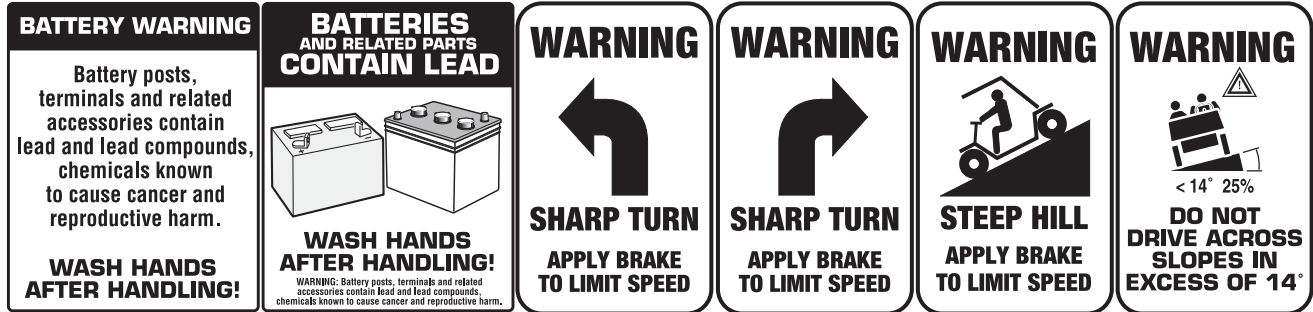
Read all labels located on the vehicle. Always replace any damaged or missing labels.

On steep hills it is possible for vehicles to coast at greater speeds. To prevent loss of vehicle control and possible serious injury, speeds should be limited to no more than the maximum speed on level ground. See SPECIFICATIONS CHART on page 37. Limit speed by applying the service brake.

Catastrophic damage to the drivetrain components due to excessive speed may result from driving the vehicle above specified speed. Damage caused by excessive speed may cause a loss of vehicle control, is costly, is considered abuse and will not be covered under warranty.

Use extra caution when towing vehicle(s). Do not tow a single vehicle at speeds in excess of 12 mph (19 kph). Do not tow more than three vehicles at a time. Do not exceed 5 mph (8 kph) while towing multiple vehicles. Towing the vehicle at above the recommended speed may result in personal injury and/or damage to the vehicle and other property.

If the vehicle is to be used in a commercial environment, signs similar to the ones illustrated should be used to warn of situations that could result in an unsafe condition.



## NOTICES, CAUTIONS, WARNINGS, AND DANGERS

Throughout this guide **NOTICE**, **CAUTION**, **WARNING**, and **DANGER** will be used. Read and comply with all **NOTICES**, **CAUTIONS**, **WARNINGS**, and **DANGERS**. Be aware that servicing a vehicle requires mechanical skill and a regard for conditions that could be hazardous. Improper service or repair may damage the vehicle or render it unsafe.



**DANGER** indicates a hazardous situation that, if not avoided, will result in death or serious injury.



**WARNING** indicates a hazardous situation, if not avoided, could result in death or serious injury.



**CAUTION** indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

**NOTICE:** Provides helpful tips and information.

# SAFETY

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

This manual has been designed to assist in maintaining the vehicle in accordance with procedures developed by the manufacturer. Following 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:

## CAUTION

**Certain replacement parts can be used independently and/or in combination with other accessories to modify an TSV manufactured vehicle to permit the vehicle to operate at or in excess of 20 mph. When an TSV manufactured vehicle is modified in any way by the Distributor, Dealer or customer to operate at or in excess of 20mph, UNDER FEDERAL LAW the modified product will be a Low Speed Vehicle (LSV) subject to the strictures and requirements of Federal Motor Vehicle Safety Standard 571.500. In these instances, pursuant to Federal law the Distributor or Dealer MUST equip the product with headlights, rear lights, turn signals, seat belts, top, horn and all other modifications for LSV's mandated in FMVSS 571.500, and affix a Vehicle Identification Number to the product in accordance with the requirements of FMVSS 571.565. Pursuant to FMVSS 571.500, and in accordance with the State laws applicable in the places of sale and use of the product, the Distributor, Dealer or customer modifying the vehicle also will be the Final Vehicle Manufacturer for the LSV, and required to title or register the vehicle as mandated by State law.**

TSV will NOT approve Distributor, Dealer or customer modifications converting TSV products into LSV's.

The Company recommends that all TSV products sold as personal transportation vehicles BE OPERATED ONLY BY PERSONS WITH VALID DRIVERS LICENSES, AND IN ACCORDANCE WITH APPLICABLE STATE REQUIREMENTS. This restriction is important to the SAFE USE AND OPERATION of the product.

All customers should adhere to this SAFETY RESTRICTION, in connection with the use of all TSV products, new and used, the Distributor or Dealer has reason to believe may be operated in personal transportation applications.

Information on FMVSS 571.500 can be obtained at Title 49 of the Code of Federal Regulations, section 571.500, or through the Internet at the web site for the U.S. Department of Transportation - at Dockets and Regulation, then to Title 49 of the Code of Federal Regulations (Transportation).

Since this vehicle can be used for a variety of tasks, it is impossible to anticipate and warn against every possible combination of circumstances that may occur. Always operate responsibly.

All users and maintenance personnel must read this entire manual, paying particular attention to all CAUTIONS, WARNINGS and DANGERS.

If you have any questions regarding this vehicle, contact your E-Z-GO dealer or write to the address on the back cover of this publication, Attention: Customer Care Department.

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

TSV IS NOT LIABLE FOR ERRORS IN THIS MANUAL. TSV IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES THAT RESULT FROM THE USE OF THE MATERIAL IN THIS MANUAL.

This vehicle conforms to the current applicable standard(s) for safety and performance requirements.

This vehicle does not conform to Federal Motor Vehicle Safety Standards (FMVSS) of the United States of America (USA) and is not intended for operation on public streets. Some communities may permit operation of this type of vehicle on neighborhood streets on a limited basis and in accordance with local ordinances.

Always make 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.

## WARNING

**Never modify the vehicle in any way that will alter the weight distribution of the vehicle, decrease it's stability, or increase the speed or extend the stopping distance beyond the factory specification. Such modifications can result in serious personal injury or death.**

Operation of the vehicle is limited to persons above the height of 59 inches (150 cm).

Never modify the vehicle in any way that will alter the weight distribution of the vehicle, decrease it's stability, or increase the speed or extent the stopping distance beyond the factory specification. TSV prohibits and disclaims responsibility for all such modifications which would adversely affect the safety of the vehicle.

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

## GENERAL OPERATION

Read the following before operating the vehicle.

### **WARNING**

**When the vehicle is left unattended, turn the key to the OFF position and remove the key from the key switch.**

**Drive the vehicle at speeds appropriate to the terrain and other conditions. Consider the terrain and traffic conditions. Consider environmental factors which affect the terrain and the ability to control the vehicle.**

**Avoid driving fast downhill. Sudden stops or change of direction may result in a loss of control. Use the brake to control speed when traveling down an incline.**

**Use extra caution and reduced speed when driving in poor conditions or on poor surfaces.**

**Stay in designated areas and avoid steep slopes.**

**Keep feet, legs, hands, and arms inside the moving vehicle at all times.**

**Avoid rough terrain.**

**Check the area behind the vehicle before operating in reverse.**

**Make sure the direction selector is in the correct position before accelerating.**

**Brake to decrease and control speed before and during turns.**

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

**Do not exceed the maximum vehicle load and seating capacities. See SPECIFICATIONS CHART on page 37. Capacities are also listed on vehicle labels.**

**NOTICE:** *Read the following text and warnings before attempting to service vehicle.*

In any product, components may eventually fail to perform properly as the result of normal use, age, wear, or abuse. It is impossible to anticipate all possible component failures or the manner in which each component may fail.

A vehicle in need of repair is not functioning as it was designed to function, could be potentially hazardous. Use extreme care when working on any vehicle. When diagnosing, removing, or replacing any components that are not operating correctly, evaluate the situation regarding the safety of yourself and others around you.

Some components are heavy, spring-loaded, highly corrosive, explosive, may produce high amperage, or reach high temperatures. Exposure to battery acid and hydrogen gas could result in serious bodily injury. Always protect hands, face, feet, and body from injury.

Always use the tools listed in the tool list and wear approved safety equipment.

### **WARNING**

**Before working on the vehicle, remove all jewelry and loose clothing.**

**Be aware of loose clothing or hair that can possibly contact moving parts.**

**Do not to touch hot objects.**

**Wear eye protection when working on or around the vehicle. In particular, use care when working around batteries, using solvents or compressed air.**

**Hydrogen gas is formed when charging batteries. Do not charge batteries without adequate ventilation.**

**Do not permit open flame or anyone to smoke in an area being used for charging batteries.**

# SAFETY

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

## 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.
- Leave the vehicle and seek shelter when there is a risk of lightning.
- Reduce speed to compensate for poor terrain or conditions.
- Apply service brake to control speed on steep grades.
- 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:

- Replace damaged or missing warning, caution or information labels.
- Maintain the vehicle in accordance with the manufacturer's periodic service schedule.
- Ensure that repairs are performed by trained and qualified personnel.
- Follow the manufacturer's maintenance procedures.
- Insulate any tools used within the battery area in order to prevent sparks or battery explosion.
- 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 only 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 drive the vehicle after any repairs or maintenance in a safe area that is free of both vehicular and pedestrian traffic.
- Keep complete records of the maintenance history of the vehicle.

## VENTILATION

### ALWAYS:

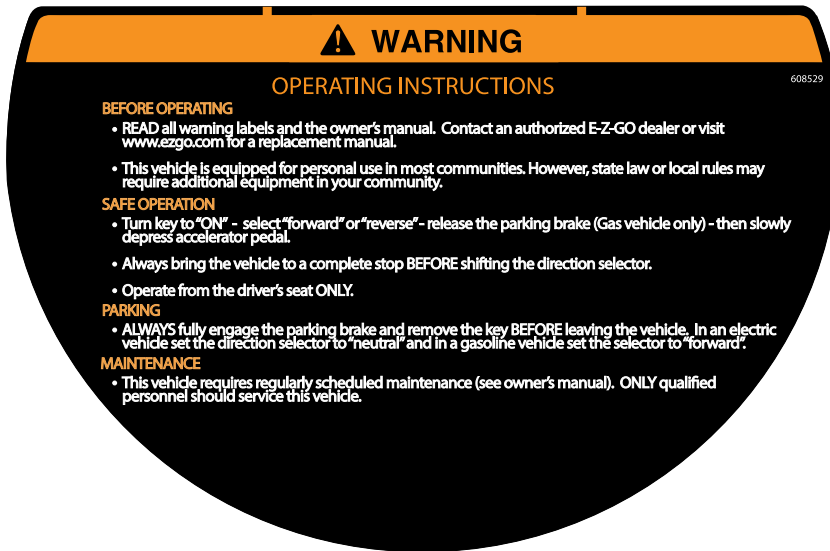
- Charge the vehicle in a well ventilated area.
- Charge in an area free of flammable liquids and items.
- Charge a vehicle in an area that is free from flame or spark. Pay particular attention to natural gas or propane water heaters and furnaces.
- Use a dedicated 15-amp circuit for each battery charger. DO NOT permit other appliances to be plugged into the receptacle when the charger is in operation.
- Operate the charger in accordance with manufacturers recommendations or applicable electrical code.

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

## LABELS

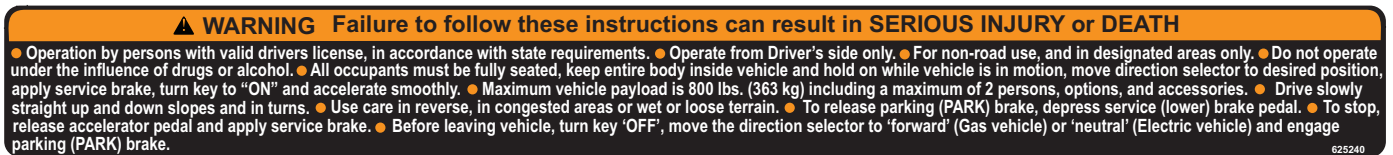
### Operating Instructions Label (608529)

Located on the steering wheel.



### Operation Warning Label (625240)

Located on the cup holder.



### Run/Tow Switch Label (613048)

Located under the seat on the passenger side of the vehicle.



# Notes:

A large grid of graph paper with 22 columns and 22 rows, intended for taking notes.

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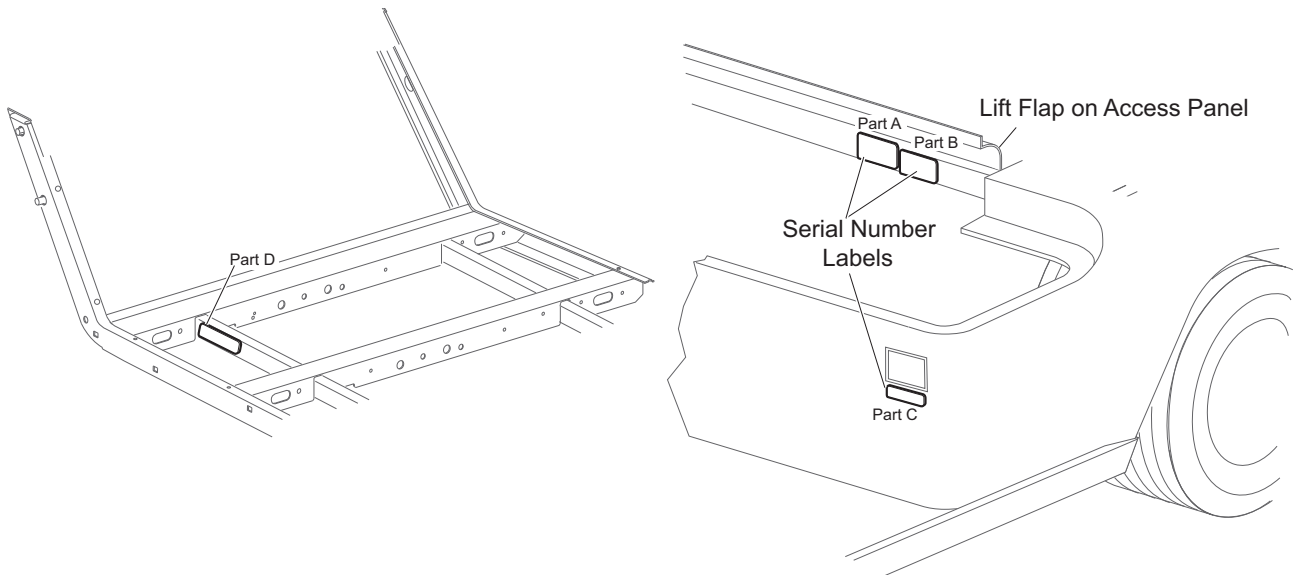
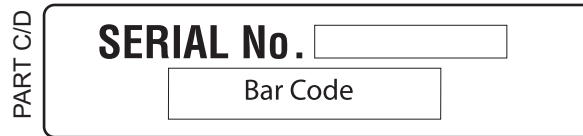
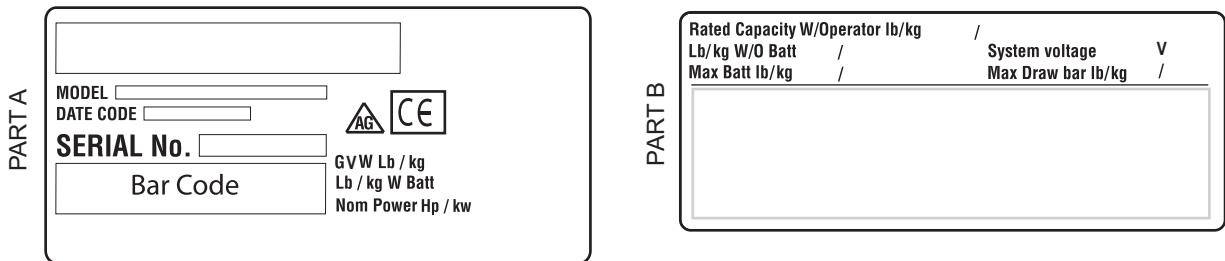
# INTRODUCTION

## SERIAL NUMBER LOCATION

Two serial number and manufacture date code plates are on the vehicle.

- One (PART C) is placed on the body below the front, driver side of the seat, PART D is placed on the frame weld tube.
- The other (PART A and PART B) is located on the frame crossmember on the driver's side (seat back support). Raise the seat and lift up the flap on the access panel for access.

Design changes take place on an ongoing basis. To obtain correct components for the vehicle, the manufacture date code, serial number and vehicle model manufacture date code, and vehicle model must be provided when ordering service parts.





# INTRODUCTION

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

## FEATURES AND CONTROLS

### General Information

**NOTICE:** Some factory installed accessories remain operational with the key switch in the OFF position.

#### 1. Steering Wheel

The steering wheel controls the direction of vehicle travel.

#### 2. Brake Pedal

**NOTICE:** The brake pedal is a combination brake/park brake pedal. The bottom section is the service brake pedal. The top section is the park brake.

The service brake is the lower section of the pedal that is located on the floor to the left of the accelerator pedal. The service brake function is to slow or stop the moving vehicle.

#### 3. Park Brake

The park brake is the top section of the brake pedal. Pushing on the upper section of the pedal until it locks in place engages the park brake. Pressing the lower part of the brake pedal releases the park brake.

**NOTICE:** The engaged park brake will release if the accelerator pedal is pressed. This is a safety feature to ensure that the vehicle cannot be driven with the park brake engaged. It is not the preferred method of park brake release.

#### 4. Horn

The horn button is located on the driver's side floorboard. Pressing the button activates the horn.

#### 5. Accelerator Pedal



**WARNING** Accidental contact with the accelerator pedal can cause the vehicle to move unexpectedly, which could result in severe injury or death.

With the key switch ON, pressing the accelerator pedal starts the motor. When the pedal is released, the motor will stop.

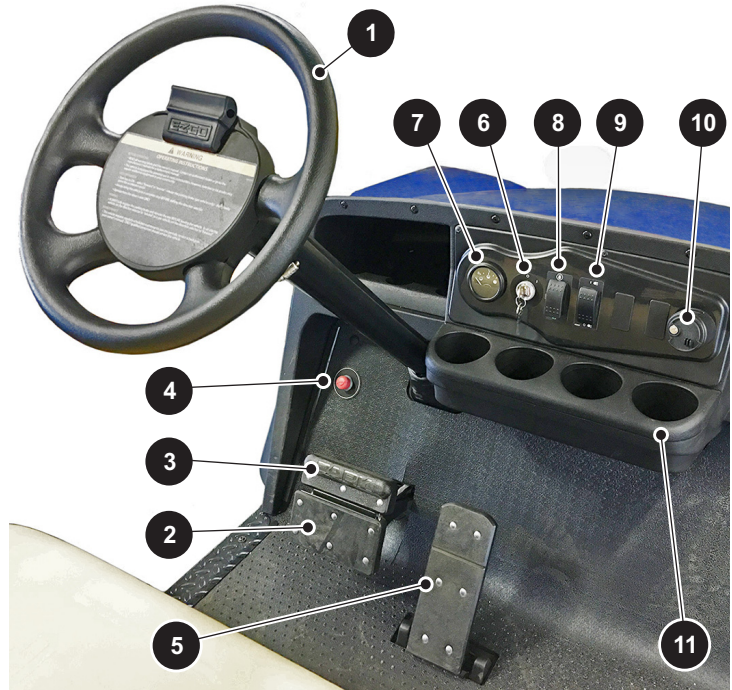
#### 6. Key Switch



**CAUTION** To reduce the possibility of component damage, do not change the position of the key switch while the vehicle is in motion.

Located on the dash panel, this switch controls the basic electrical system of the vehicle.

**NOTICE:** Some factory installed accessories remain operational with the key switch in the OFF position.





# INTRODUCTION

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

## 7. State of Charge Meter

The state of charge meter is located on the dash panel to the left of the key switch. It indicates the amount of usable power in the batteries, with F indicating a full charge and E indicating low batteries.

## 8. Max Speed/Range Switch

A two-position switch located on the dash to the right of the key switch:

- Top: MAX SPEED setting - Allows the vehicle to travel at maximum vehicle speed. This setting diminishes distance capability for increased speed advantage.
- Bottom: MAX RANGE setting - Limits the top speed of the vehicle, which conserves battery power to maximize travel distance.

## 9. Light Switch

A two-position switch located on the dash to the right of the key switch:

- Top: Lights on
- Bottom: Lights off

## 10. USB Port

The covered USB port is located on the dash panel. With the key switch ON, the USB port supplies power to electronic devices via a USB cable.

## 11. Cup Holder

A cup holder is provided to accommodate up to four beverage containers.

## 12. Direction Selector Switch

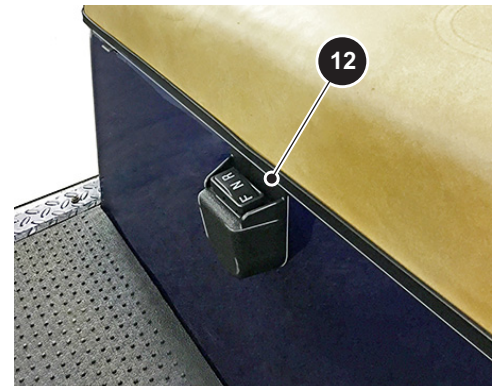


### WARNING

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

Located on the seat wrap panel, the direction selector switch allows the selection of either F (forward), R (reverse) or N (neutral). When left unattended, the vehicle should be placed in neutral, the parking brake engaged, and the key removed.

When moved to the R position, a reverse warning buzzer will sound.



## 13. Charger Receptacle

The polarized charger receptacle is located in the front bumper. Always check to be sure the receptacle is free from dirt and debris before connecting the charger cord.



# INTRODUCTION

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

## 14. Fuse Block

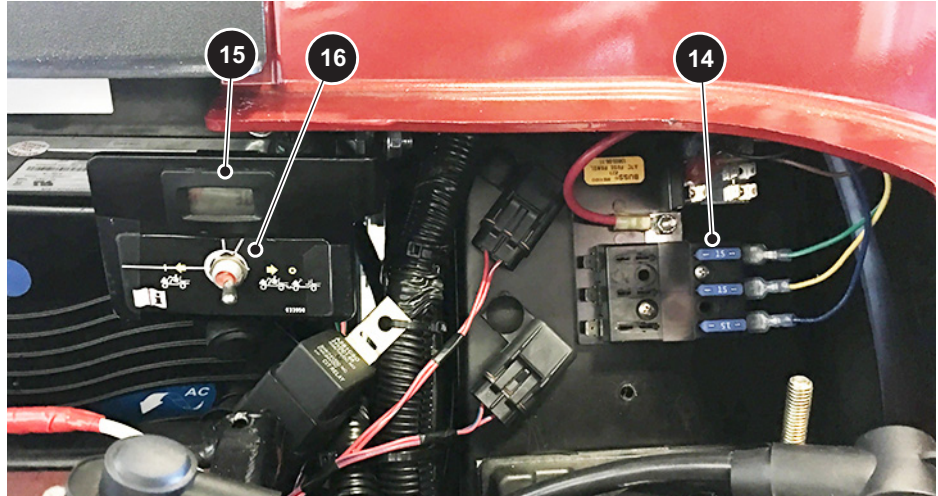
The fuse block provides electrical protection to some electrical components and vehicle accessories. The fuse block is located under the driver's seat.

## 15. Hour Meter

The hour meter is located under the driver's seat. It displays the total hours of vehicle operation.

## 16. Run/Tow Switch

The run/tow switch is located under the driver's seat. The function of the run/tow switch is to enable/disable the function of the controller.



When in the RUN position, the controller is enabled and the vehicle functions normally.

When in the TOW position, the controller is disabled so the vehicle can be safely:

- towed
- serviced
- stored

### **WARNING**

To reduce the risk of severe injury or death from loss of vehicle control, engage the park brake before moving the run/tow switch to the TOW position. When in the TOW position, the ANTI-ROLL BACK (page 16) and WALK-AWAY (page 16) safety features of the system no longer function

### **CAUTION**

Before towing vehicle, move the run/tow switch to the TOW position. Failure to do so will damage the controller or motor.

Before disconnecting or connecting a battery, or any other wiring, move the run/tow switch to the TOW position.

After connecting a battery, or any other wiring, wait a minimum of 30 seconds before moving the run/tow switch to the RUN position.

**NOTICE:** Keep the run/tow switch on a stalled or non-functioning vehicle in the TOW position. If the switch is left in the RUN position for an extended period of time, it will drain the batteries.

With the switch in TOW position:

- the controller is deactivated
- the electronic braking system is deactivated which allows the vehicle to be towed or roll freely
- the warning beeper is deactivated

With the switch in RUN position:

- the controller is activated
- the electronic braking system and warning beeper features are activated

# INTRODUCTION

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## 17. Seat

The bench seat is designed for two occupants.

## 18. Hip Restraints

The hip restraints are designed to help keep the occupants properly positioned in the event of sudden vehicle position changes.

## 19. Turn Signal Switch

The turn signal switch is located on the steering column and activates the turn signals when moved up or down.

## 20. Brake and Taillights

The brake and taillights are located on the rear fenders.

## 21. Sweater Basket

Open basket behind the seat back for carrying sweaters, jackets or small packages.

## 22. Bag Well

Large bag well with straps to secure golf bags.

## 23. Glove Box Compartments and Ball Holders

Glove box compartments with golf ball holders, one on each side of the instrument panel provide storage space for small items.

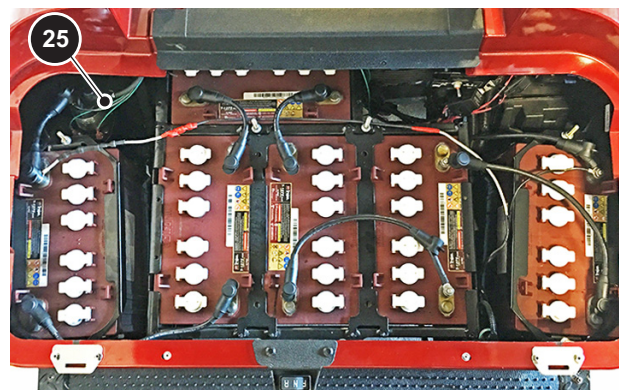
## 24. Headlights / Turn Signals

The combination headlight/turn signal assemblies are located on the front cowl.



## 25. Battery Compartment

Access the battery compartment by raising the front seat to perform battery maintenance or access the run/tow switch.



# INTRODUCTION

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

## SUN TOP AND WINDSHIELD (IF EQUIPPED)



**The sun top does not provide protection from roll-over or falling objects.**

**The windshield does not provide protection from tree limbs or flying objects.**

The sun top and windshield provide some protection from the elements but will not keep the operator and passenger dry in a downpour.

The sun top is not designed to provide roll-over protection, or protection from falling objects.

The windshield does not protect against flying objects and tree limbs.

Keep arms and legs within the vehicle while it is moving.



## OPERATING PROCEDURES

### BEFORE INITIAL USE

Read and comply with all information on the warning labels on the steering wheel and dash. Understand how to operate the vehicle in a safe and responsible manner before driving. Maintaining good vehicle performance is largely dependent on the abilities of the operator.

#### **WARNING**

**Improper use of this vehicle could result in severe injury or death.**

**Do not engage in dangerous horseplay with this vehicle.**

**Plan carefully before using the vehicle to go significant distances or on unfamiliar terrain. Keep in mind that a one hour drive may take many hours to walk out if you run out of battery power or become stuck on unsuitable terrain.**

**Hydrogen gas is generated as a natural part of the lead acid battery charging process. A 4% concentration of hydrogen gas is explosive and could cause severe injury or death. Charging must take place in an area that is adequately ventilated (minimum of 5 air exchanges per hour).**

**To reduce the chance of a battery explosion that could result in severe injury or death, never smoke around or charge batteries in an area that has open flame or electrical equipment that could cause an electrical arc.**

Hydrogen gas is generated in the charging cycle of batteries and is explosive in concentrations as low as 4%. Because hydrogen gas is lighter than air, it will collect in the ceiling of buildings. Five air exchanges per hour is considered the minimum requirement.

Never charge a vehicle in an area that is subject to flame or spark. Pay particular attention to natural gas or propane gas water heaters and furnaces.

Before a new vehicle is put into operation, the items shown in the **INITIAL SERVICE CHART** must be performed.

INITIAL SERVICE CHART	
Item	Service Operation
Portable Charger	Remove from vehicle and properly mount
Batteries	Charge batteries
Seats	Remove protective plastic covering
Brakes	Check operation
	Establish acceptable stopping distance for brake performance test
Tires	Check air pressure (see specifications)

Check for leaks that may have developed during shipment from the factory.

### PORTABLE CHARGER

#### **WARNING**

**There is risk of electric shock. Connect the charger power cord to an outlet that has been properly installed and grounded in accordance with all local codes and ordinances. A grounded outlet is required to reduce risk of electric shock – do not use ground adapters or modify plug. Do not touch uninsulated portion of output connector or uninsulated battery terminal.**

**Disconnect the DC supply before making or breaking the connections to the battery while charging. Do not open or disassemble charger. Do not operate charger if the AC supply cord is damaged or if the charger has received a sharp blow, been dropped, or otherwise damaged in any way – refer all repair work to qualified personnel. Not for use by children.**

# OPERATING PROCEDURES

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

## **⚠ WARNING**

Use charger **ONLY** on 72 volt battery systems. Other usage may cause personal injury and damage. Lead acid batteries may generate explosive hydrogen gas during normal operation. Keep sparks, flames, and smoking materials away from batteries. Provide adequate ventilation during charging. Never charge a frozen battery. Study all battery manufacturers' specific precautions such as recommended rates of charge and removing or not removing cell caps while charging.

Portable chargers are supplied with the vehicle. Before vehicle or charger operation, remove the charger from the vehicle. **A dedicated circuit is necessary for the charger.** Refer to the charger manual for correct circuit protection. For best performance and shortest charge times, locate the charger in an area with good ventilation.

The list below provides tips to keep the charger cool while in operation.

- Put the charger in an area that is free of dirt, mud and dust to prevent build-up in the charger fins.
- Put the charger on a horizontal surface with the fins vertical.
- Put the charger on a platform above the ground to allow air to flow around and below the charger.

If the charger is operated in an outdoor location, it must be protected from rain and direct sun.

## **⚠ WARNING**

The charger can get hot during operation. Locate it in an area with minimal pedestrian traffic to decrease risk of contact with a hot charger.

Make sure the status display on the charger is visible to the user.

**NOTICE:** *Insert the DC cord through the center of the steering wheel as a reminder to put the cord away after charging is complete. You can damage the DC plug if you drive over or catch the cord on the vehicle when you drive away.*

## **⚠ WARNING**

To decrease the possibility of electrical shock or electrocution, make sure that the charger plug is not damaged and is correctly connected to a grounded outlet.

The power AC cord has a plug with a ground post. Do not remove, cut or bend the ground post.

## Using the Charger

Before use, read the charger manufacturer's operation manual that is supplied with the charger.

## **⚠ WARNING**

To prevent a physical hazard that could result in an electrical shock or electrocution, be sure that the charger plug is not damaged and is inserted into a grounded receptacle.

An ungrounded electrical device may become a physical hazard that could result in an electrical shock or electrocution.

The charger (DC) cord is equipped with a polarized connector that fits into a matching receptacle on the vehicle.

Always check to be sure the receptacle is free from dirt and debris before inserting the charger cord.



# OPERATING PROCEDURES

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

## OPERATING THE VEHICLE

### CAUTION

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

Read the following warnings before attempting to operate the vehicle.

### WARNING

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

Use extra caution and reduce 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 the brake to control speed when traveling down an incline. A sudden stop or change of direction may result in loss of control.

To prevent loss of control, do not move the 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.

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

Never drive vehicle up, down, or across an incline that exceeds 14° (25% grade).

Refer to page 37 for seating capacity.

Pressing the accelerator pedal will release an engaged park brake and may cause accidental vehicle movement. Turn the key to the OFF position when the vehicle is parked.

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

Make sure the direction selector is in correct position before accelerating.

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

Do not put the direction selector in neutral while the vehicle is moving.

Check the area behind the vehicle before accelerating in reverse.

All occupants must remain seated at all times. Keep entire body inside the vehicle and hold on while the vehicle is in motion.

## Performance

**NOTICE:** *Vehicles operate only when the run/tow switch is in the RUN position.*

## Speed Control

### WARNING

To prevent the possibility of loss of control that could cause severe injury or death, use service brake to control speed. The Speed control system is not a substitute for the service brake.

The vehicle's top speed is sensed and regulated directly by the controller.

Speed control system vehicles are equipped with a regenerative motor control system.

# OPERATING PROCEDURES

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

Example: If all of the following events occur:

- the vehicle is being driven down a slope
- the vehicle attempts to exceed the specified top speed with the accelerator pedal pressed **or** released

the regenerative braking will limit the speed of the vehicle to the specified top speed (the warning beeper will **not** sound). When the regenerative braking system is activated by this sequence of events, the motor generates power which is returned to the batteries.

If the operator attempts to override the regenerative braking feature by moving the direction selector or key switch to another position, the warning beeper will sound and the vehicle will brake **rapidly** until it reaches the speed of approximately 2 mph (3 kph).

## Pedal-Up Braking

Pedal-up braking is regenerative braking that occurs when the accelerator pedal is released while the vehicle is moving between 8 mph (13 kph) and the vehicle's top speed.

Example: If all of the following events occur:

- the vehicle is being driven down a slope
- the accelerator pedal is released for more than one second

the pedal-up braking will slow the vehicle (the warning beeper will **not** sound) until either the vehicle speed is reduced to 8 mph (13 kph), at which it freely coasts between 8 and 3 mph (5 kph), or the accelerator pedal is applied. When pedal-up braking system is activated by this sequence of events, the motor generates power which is returned to the batteries.

## Terrain

The vehicle is designed for use on improved roads (but not on public highways). The vehicle may also be used on established trails or open terrain that is free from stumps, large rocks or holes.

The vehicle should not be used to cross water.

## Walk-Away Feature

Walk-Away limits vehicle movement without driver input, slowing the vehicle to 2 mph (3 kph) and sounding an audible alarm (reverse beeper).

Example: If all of the following events occur:

- the vehicle has been stopped for more than 1.5 seconds
- the accelerator pedal has been released for more than one second
- the vehicle begins to roll above 2 mph (3 kph)

the Walk-Away feature will limit speed to approximately 2 mph (3 kph) and the warning beeper will sound. When the accelerator pedal is pressed, the Walk-Away feature and warning beeper will be overridden and normal vehicle operation resumes. Any unusual situation sensed by the TruCourse Technology system will cause a similar response. The system functions in all key switch positions.

## Anti-Roll Back Feature

Anti-Roll Back, like Walk-Away, limits backward motion of the vehicle down an incline to less than 2 mph (3 kph). See 'Walk-Away Feature' above.

## Anti-Stall Feature

Anti-Stall protection prevents motor damage from stalling the vehicle against an object or on a hill.

Example: If all of the following events occur:

- the system senses that the accelerator pedal is pressed (power applied to motor)
- the motor is stalled long enough that any more time may cause motor damage

the Anti-Stall feature will momentarily interrupt power to the motor. This brief interruption will permit the car to roll backwards slightly before again stopping in the stalled condition. This process will repeat itself periodically until the car is moved from the stalled condition.



# OPERATING PROCEDURES

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

Example: If all of the following events occur:

- the system senses that the accelerator pedal is pressed (power applied to motor)
- the brake is engaged so as to prevent vehicle motion

the Anti-Stall feature will sense a stalled motor condition and remove power from the motor. When the brake pedal is released, the car will roll backwards slightly before power is returned to the motor.

## High Pedal Disable Feature

High pedal disable prevents undesired acceleration if the direction selector lever is changed, or the key is turned on while the accelerator is pressed.

## Diagnostic Mode Feature

Diagnostic mode eases troubleshooting.

In the unlikely event of certain electrical system failures, the Diagnostic Mode feature will default to a mode that will permit the vehicle to operate, but at a very reduced speed.

This feature allows the vehicle to be driven back to its storage facility where the problem can be diagnosed.

The controller can be put in diagnostic mode by the technician and the controller will report the failure mode.

## STARTING AND DRIVING



**To reduce the possibility of roll-back which could result in severe injury or vehicle damage, do not release the service brake until motor has started.**

All vehicles are equipped with an *interlock system* that disables the controller and prevents the vehicle from being operated or towed while the charger is connected. Remove the charger plug from the vehicle receptacle and properly store the cable prior to moving the vehicle.

To operate the vehicle:

1. Press the brake pedal, place the key in the key switch and turn it to the ON position.
2. Move the direction selector to the direction desired.
3. Release the park brake by pressing the bottom of part of the brake pedal until the park brake releases.
4. Slowly press the accelerator pedal to start the motor.
5. When the accelerator pedal is released, the motor will steadily slow the vehicle until it stops. To stop the vehicle more quickly, press the brake pedal.

**NOTICE:** *When the direction selector is in the reverse position, a warning signal will sound to indicate that the vehicle is ready to run in reverse.*

## Starting Vehicle On A Hill



**To reduce the possibility of roll-back which could result in severe injury or vehicle damage, do not release the service brake until motor has started.**

**Do not hold vehicle on hill by using accelerator and motor. Leaving the motor in a stalled condition for more than 3 - 4 seconds will cause permanent damage to the motor.**

To reduce the risk of permanent damage to the drive system, it is important to prevent excessive roll-back when starting the vehicle on a hill.

1. Press the brake pedal with your left foot to release the park brake.
2. Press accelerator with right foot, while releasing pressure from the brake pedal.

# OPERATING PROCEDURES

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

## Coasting

### **WARNING**

To reduce the possibility of severe injury or death from coasting at above recommended speeds, control the vehicle speed by pressing the brake pedal.

Uncontrolled coasting will not occur with this model. This is not, however, a substitute for the brake which should be used to slow the speed of the vehicle quickly.

**NOTICE:** *This model is equipped with a feature (pedal-up braking) that slows the vehicle's speed when the accelerator pedal is released, until the vehicle comes to a complete stop.*

## MAINTENANCE

### VEHICLE CLEANING AND CARE

#### **WARNING**

If using a pressure washer to clean your vehicle, comply with all instructions and safety information supplied by the manufacturer of the pressure washer.

#### **CAUTION**

When pressure washing the exterior of the vehicle, do not use pressure in excess of 700 psi and maintain a 12-inch minimum distance from spray nozzle to painted surface. To reduce the possibility of cosmetic damage, do not use any abrasive or reactive solvents to clean plastic parts.

It is important to use proper techniques and cleaning materials. Using excessive water pressure can cause severe injury to the operator or a bystander, damage to seals, plastics, seat material, body finish or electrical system. Do not use pressure in excess of 700 psi to wash the exterior of the vehicle.

Clean the windshield with water and a clean cloth. Minor scratches can be removed with a commercial plastic polish or Plexus<sup>®</sup> plastic cleaner available from the service parts department.

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.

Removal of oil, tar, asphalt, shoe polish, etc. will require the use of a commercially available vinyl/rubber cleaner.

The painted surfaces of the vehicle provide attractive appearance and durable protection. Frequent washing with luke-warm or cold water and mild detergent will preserve the painted surfaces.

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.

### ENVIRONMENTAL CONCERNS

**NOTICE:** *As a responsible owner and operator, respect all wildlife and their habitat. Respect private property and comply with all local laws and regulations.*

#### **WARNING**

Be aware of the danger of fire when vehicle is operated over dry, combustible material.

When operating vehicle, be aware of environmental hazards such as steep slopes, overhanging limbs, etc.

#### Battery Disposal

Lead-acid batteries are recyclable. Return whole scrap batteries to the distributor, manufacturer or lead smelter for recycling. For neutralized spills, place residue in acid-resistant containers with an absorbent material such as sand and dispose of in accordance with local, state and federal regulations for acid and lead compounds. Contact local and/or state environmental officials regarding disposal information.

# MAINTENANCE

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

## LIFTING THE VEHICLE

Some servicing operations may require the front wheels, the rear wheels, or the entire vehicle to be raised.

### WARNING

Use extreme care since the vehicle is extremely unstable during the lifting process.

Be sure the vehicle is on a firm and level surface.

Never get under a vehicle while it is supported by a jack.

Use jack stands and test the stability of the vehicle on the stands.

Place chocks in front and behind the wheels not being raised.

### CAUTION

When lifting the vehicle, position the jacks and jack stands at the areas indicated only.

Tool List	Qty.	Tool List	Qty.
Floor Jack .....	1	Jack Stands .....	4
Wheel Chocks.....	4		

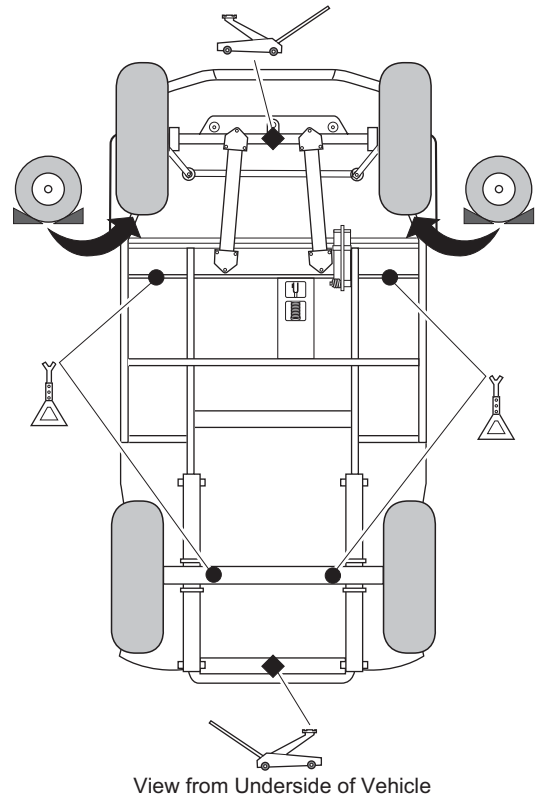
Do not allow anyone on the vehicle while lifting.

To raise the entire vehicle:

1. Install chocks in front and behind each front wheel.
2. Center the jack under the rear frame crossmember.
3. Raise the vehicle enough to place a jack stand under the outer ends of the rear axle.
4. Lower the jack and test the stability of the vehicle on the two jack stands.
5. Place the jack at the center of the front axle. Raise the vehicle enough to place jack stands under the frame crossmember as indicated.
6. Lower the jack and test the stability of the vehicle on all four jack stands.

**NOTICE:** *If only the front or rear of the vehicle is to be raised, place chocks in front and behind each wheel not being raised to stabilize the vehicle.*

Reverse the lifting sequence to lower the vehicle back to the ground.



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

## WHEELS AND TIRES

### WARNING

A tire explosion can cause severe injury or death. Never exceed the inflation pressure rating on the tire sidewall.

To reduce the possibility of tire explosion, pressurize the tire with small amounts of air applied intermittently to seat the tire beads. Due to the low volume of the small tires, overinflation can occur in seconds. Never exceed the tire manufacturer's recommendation when seating a bead. Protect face and eyes from escaping air when removing a valve core.

To reduce the possibility of severe injury caused by a broken socket when removing wheels, use only sockets designed for impact wrench use.

**DO NOT** use low inflation tires. **DO NOT** use any tire which has a recommended inflation pressure less than the inflation pressure recommended in the owner's guide.

Use caution when inflating tires. Overinflation could cause the tire to separate from the wheel or cause the tire to explode, either of which could cause severe injury.

### Tire Repair

**NOTICE:** *This vehicle is fitted with low pressure, tubeless tires mounted on one-piece rims. The most cost effective way to repair a puncture in the tread is to use a commercial tire plug. Tire plug tools and plugs are available at most automotive parts outlets and have the advantage of not requiring the tire be removed from the wheel.*

Tool List	Qty.	Tool List	Qty.
Lug Wrench, 3/4" .....	1	Impact Socket, 3/4" .....	1
Impact Wrench .....	1	Torque Wrench, ft. lbs. ....	1

### WARNING

Use caution when inflating tires. Due to the low volume of the small tires, overinflation can occur in seconds. Overinflation could cause the tire to separate from the wheel, or cause the tire to explode.

- Tire inflation should be determined by the condition of the terrain. See the following table for recommended tire inflation pressure. Never exceed the inflation pressure recommended on the tire sidewall.
- **All four tires** should have the same pressure for optimum handling characteristics.
- Be sure to install the valve stem dust cap after checking or inflating.

TIRE PRESSURE RANGE	TERRAIN CONDITIONS	RECOMMENDATION
18 - 22 psi (124 - 152 kPa)	Hard surfaces or pavement	Inflate to higher pressure within the range; never exceed maximum pressure indicated.
	Soft terrain or turf	Inflate to lower pressure within the range to reduce potential damage to the terrain or turf.

If the tire is flat, do the following:

1. Remove the wheel.
2. Inflate the tire to the maximum recommended pressure.
3. Immerse the tire in water to locate the leak and mark with chalk.
4. Insert tire plug in accordance with manufacturer's instructions.

### WARNING

To reduce the possibility of severe injury, be sure the mounting/demounting machine is anchored to floor. Wear OSHA approved safety equipment when mounting/demounting tires.

Tire removal and mounting requires a tire changing machine and must be done by a qualified tire center or your TSV dealer.

# MAINTENANCE

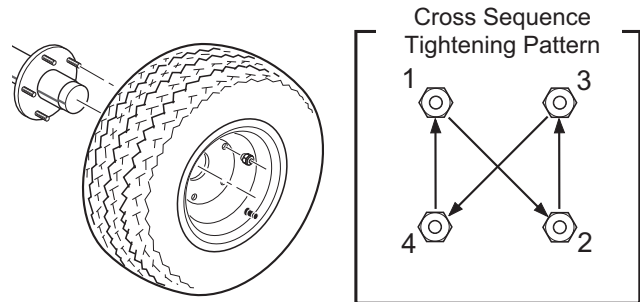
Read all of this manual to become thoroughly familiar with this vehicle. Pay particular attention to all Notices, Cautions, Warnings, and Dangers.

## Wheel Installation

**CAUTION** To reduce the possibility of component damage, do not tighten lug nuts to more than 85 ft.lbs. (115 Nm) torque.

**NOTICE:** It is important to install the lug nuts in a cross pattern. This will assure even seating of the wheel against the hub.

1. With the valve stem to the outside, mount the wheel onto the hub with lug nuts.
2. Finger tighten the lug nuts (1) in a cross sequence pattern.
3. Torque the lug nuts to 50 - 85 ft.lbs. (68 - 115 Nm) in 20 ft.lbs. (27 Nm) increments, following the cross sequence pattern.

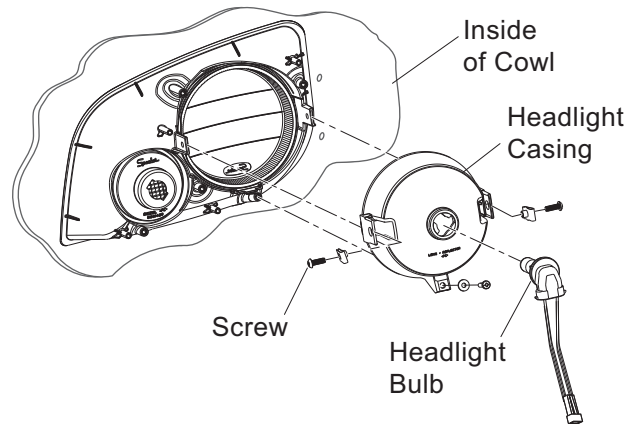


## LIGHT BULB REPLACEMENT

**CAUTION** To decrease the risk of premature bulb failure, do not allow your fingers to contact new bulbs. Use clean, dry paper or paper towels to touch the glass part of the bulb.

### Headlight

1. Locate the bulb socket on the backside of the light.
2. Turn the bulb socket a quarter turn to the left to unlock, and pull out.
3. Insert a new bulb and rotate the socket a quarter turn to the right to secure.

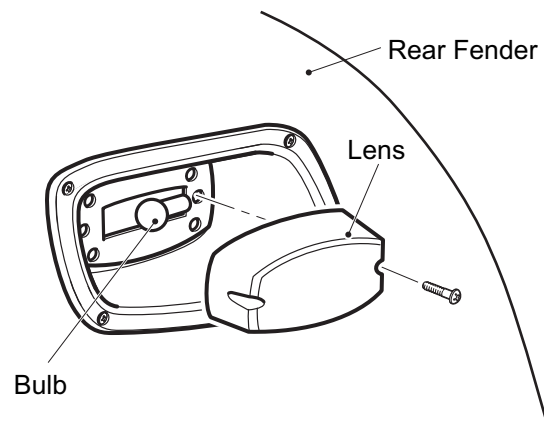


### Turn Signal

1. Locate the bulb socket on the backside of light housing.
2. Turn the bulb socket a quarter turn to the left to unlock and pull out.
3. Insert a new bulb and rotate socket a quarter turn to the right to secure.

### Brake Light

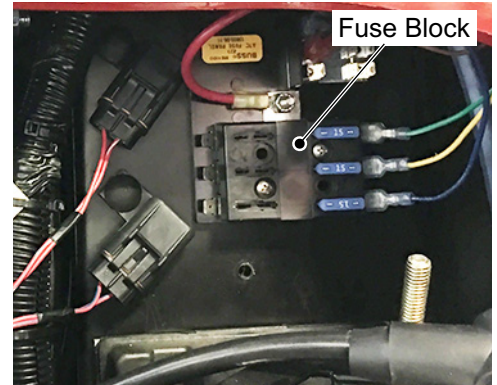
1. Remove the two Phillips head screws that secure the brake light lens.
2. Remove the lens to access the brake light bulb.
3. Remove the light bulb and install a new bulb, making sure bulb makes good contact with socket.
4. Replace the lens and reinstall the Phillips head screws.



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

## FUSE REPLACEMENT

1. Raise the seat bottom.
2. Remove the old fuse.
3. Install a new fuse of the same type and size.



## TRANSPORTING VEHICLE

### Towing

#### **⚠ WARNING**

**Do not ride or allow other people on the vehicle being towed.**

**Do not try to tow the vehicle with ropes, chains or any device different from a tow bar approved by the factory.**

**Do not tow the vehicle on highways.**

**Do not tow the vehicle at speeds more than 12 mph (19 kph).**

Before towing the vehicle, raise the seat and move the run/tow switch to the TOW position to disable the vehicle controller. Towing the vehicle with the run/tow switch in the RUN position can damage the motor and controller.

After towing is complete, return the run/tow switch back to the RUN position so the vehicle will function normally.

### Hauling

#### **⚠ WARNING**

**Make sure you secure the vehicle and all items before you move a vehicle on a trailer.**

**Do not allow people to ride on a vehicle being moved on a trailer.**

**Remove the windshield before you move a vehicle on a trailer.**

**Maximum speed with sun top installed is 50 mph (80 kph).**

If the vehicle is to be transported at highway speeds, the sun top must be removed and the seat bottom secured.

When transporting vehicle below highway speeds, check for tightness of hardware and cracks in sun top at mounting points.

The rated capacity of the trailer or truck must exceed the weight of the vehicle (see GENERAL SPECIFICATIONS for vehicle weight) and load plus 1000 lbs. (454 kg).

Secure the vehicle to the trailer with ratchet tie downs.

# MAINTENANCE

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

## SERVICE AND MAINTENANCE

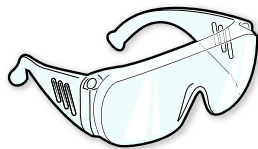
### WARNING

Read all notices, cautions and warnings in this manual before you do any type of service operations.

The drive wheels must be lifted and supported on jack stands before you do any service to the powertrain when the motor is in operation.

To decrease the risk of motor damage, do not operate the vehicle at full throttle for more than 5 seconds with the drive wheels lifted off the ground.

Disconnect the negative battery terminal before you service the vehicle to prevent accidental operation.



Wear eye protection when you service the vehicle. Be careful when you do work around batteries, use solvents or compressed air.

To decrease the risk of an electrical arc, which can cause a battery explosion, disable all electrical loads from the battery before you remove the battery wires.

Use wrenches with insulation to decrease the risk of a short-circuit if a wrench falls across the battery terminals. A battery short-circuit can cause an explosion.

The electrolyte in a battery is an acid solution which can cause burns to the skin and eyes. Completely clean all electrolyte spills that contact the body and eyes with clear water. Contact a physician immediately.

Neutralize electrolyte spills with a solution of 2 teaspoons (10 ml) sodium bicarbonate (baking soda) mixed in 1 quart (1 liter) of water. Clean with water.

Be careful with the use of aerosol containers near battery terminals. Always insulate a metal container to prevent an explosion.

The vehicle owner and service technician must carefully follow the procedures recommended in this manual. Preventative maintenance, applied at recommended intervals, keeps the vehicle dependable and decreases costs for repairs. Refer to the PERIODIC SERVICE SCHEDULE on page 39 for service and intervals. Refer to Lubrication on page 26 for lubrication locations.

### CAUTION

Before any electrical service is performed, the run/tow switch must be placed in the TOW position.

If a power wire (battery, motor or controller) is disconnected for any reason, the run/tow switch must be left in the TOW position for at least 30 seconds after the circuit is restored.

This vehicle will give years of satisfactory service, providing it receives regular maintenance. Refer to the PERIODIC SERVICE SCHEDULE on page 39 for recommended service intervals. Refer to LUBRICATION on page 26 for lubrication locations.

## ROUTINE MAINTENANCE

### CAUTION

To prolong vehicle life, some maintenance items must be serviced more frequently on vehicles used under severe driving conditions such as extreme temperatures, extreme dust/debris conditions, or frequent use with maximum load.

To access the powertrain for routine maintenance, lift or remove the seat and remove the rear access panel. For major repair, refer to the appropriate Repair and Service Manual.

Some service procedures may require the vehicle to be lifted. Refer to LIFTING THE VEHICLE on page 20 for correct lifting procedure and safety information.



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

## TIRE INSPECTION

Inspect the tire condition according to the PERIODIC SERVICE SCHEDULE on page 39. Tire inflation pressures must be checked when the tires are cool. Always install the valve dust cap after you check or inflate the tires.

## BRAKES

### WARNING

Always inspect the pedal travel before you operate a vehicle to confirm some brake function is found.

Make sure you do all brake tests in a safe location with regard to the safety of all personnel.

**NOTICE:** A subtle loss of performance can occur over time; therefore, it is important to establish the standard with a new vehicle.

The PERIODIC BRAKE TEST should be performed regularly as an evaluation of braking system performance. It is useful as a method of identifying subtle loss of performance over time.

### Periodic Brake Test

This test compares the brake performance of the vehicle to the brake performance of new or 'known to be good' vehicles or to an established acceptable stopping distance. Actual stopping distances are influenced by weather conditions, terrain, road surface condition, actual vehicle weight (accessories installed) and vehicle speed. No specific braking distance can be reliably specified. The test is conducted by latching the park brake to eliminate different pedal pressures and to include the affects of linkage mis-adjustment.

Establish the acceptable stopping distance by testing a new or 'known to be good' vehicle and recording the stopping location or stopping distance. Several vehicles should be tested when new and the range of stopping locations or distances recorded.

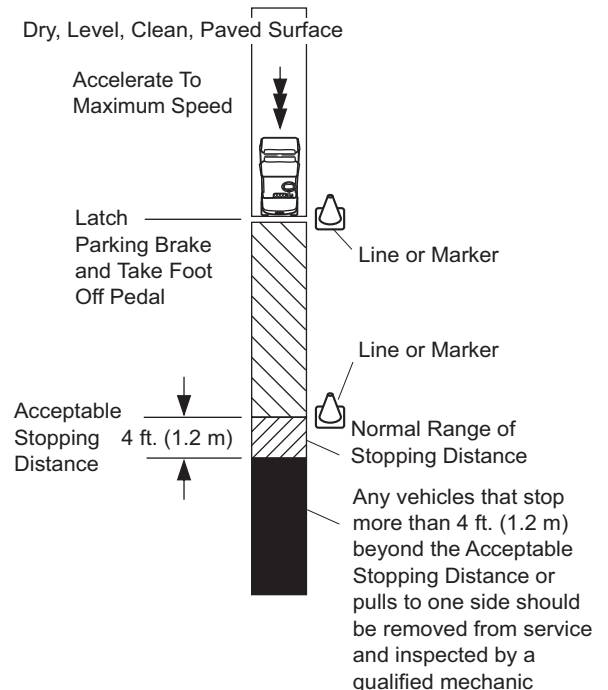
**NOTICE:** Over time, a subtle loss of performance may occur; therefore, it is important to establish the standard with a new vehicle.

Drive the vehicle at maximum speed on a flat, dry, clean, paved surface.

Quickly press the brake pedal to lock the parking brake at the line or marker in the test area and remove foot from pedal. The vehicle must stop fast. The wheel brakes may or may not lock.

Observe the vehicle stopping location or measure the vehicle stopping distance from the point at which the brakes were locked. The vehicle must stop within the 'normal' range of stopping distances. If the vehicle stops more than 4 ft. (1.2 m) beyond the acceptable stopping distance or pulls to one side, the vehicle has failed the test and must be tested again.

If the vehicle fails the second test, it must **immediately** be removed from service. The vehicle **must** be inspected by a qualified mechanic who should refer to the TROUBLESHOOTING or FAULT DIAGNOSIS section in the Repair and Service Manual.



# MAINTENANCE

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

## SYSTEM TEST

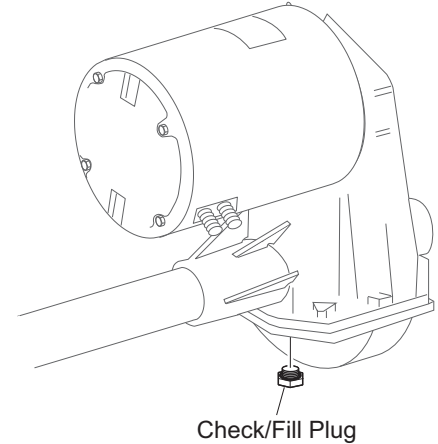
At monthly intervals, test the controller by allowing the vehicle to roll down an incline with the accelerator pedal released. Braking force should be felt at approximately 2 mph (3 kph) indicating that the system is functioning. If vehicle speed continues to rise, apply the service brake and have vehicle inspected by a trained mechanic.

## REAR AXLE

The only maintenance necessary for the first five years is the inspection of the rear axle for lubricant leakage. Unless leakage is visible, the lubricant needs to be replaced after five years. Refer to the Service and Repair Manual for the fluid replacement procedure.

### Checking the Lubricant Level

Clean the area around the check/fill plug and remove the plug. The correct lubricant level is just below the bottom of the threaded hole. If lubricant is low, add lubricant as required. Add lubricant (30 WT engine oil) slowly until lubricant starts to seep from the hole. Install the check/fill plug. In the event that the lubricant is to be replaced, the oil pan must be removed or the oil siphoned through the check/fill hole.



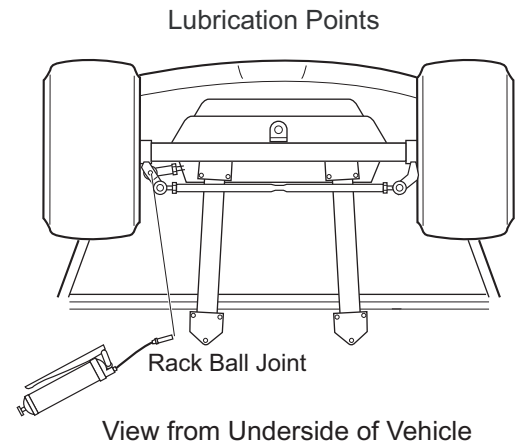
## LUBRICATION



Do not use more than three (3) pumps of grease in any grease fitting at any one time. Excess grease may cause grease

seals to fail or grease migration into areas that could damage components.

Putting more than three pumps of grease in a grease fitting could damage grease seals and cause premature bearing failure.



## CAPACITIES AND REPLACEMENT PARTS

Rear Axle Oil	12 oz (1.2 liters) 30 WT Engine Oil
Fuse	15 amp (P/N 18392-G1)
Headlight Bulb	P/N 74004-G01
Turn Signal Bulb	P/N 604539
Tail Light Bulb	#1157 (P/N 21759-G1)







# MAINTENANCE

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

## HARDWARE

Normally, three classes of standard hardware and three classes of metric hardware are used in the vehicle. Grade 5 hardware is identified by the three marks on the hexagonal head; grade 8 hardware is identified by six marks on the head; grade 2 hardware is not marked. The class specification is marked on metric hardware.

Inspect the vehicle for loose fasteners periodically. The fasteners must be tightened carefully and according to the Torque Specifications table or as specified in the Repair and Service Manual.

ALL TORQUE FIGURES ARE IN FT. LBS. (Nm)										
Unless otherwise noted in text, tighten all hardware in accordance with this chart.										
This chart specifies 'lubricated' torque figures. Fasteners that are plated or lubricated when installed are considered 'wet' and require approximately 80% of the torque required for 'dry' fasteners.										
BOLT SIZE	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
Grade 2 	4 (5)	8 (11)	15 (20)	24 (33)	35 (47)	55 (75)	75 (102)	130 (176)	125 (169)	190 (258)
Grade 5 	6 (8)	13 (18)	23 (31)	35 (47)	55 (75)	80 (108)	110 (149)	200 (271)	320 (434)	480 (651)
Grade 8 	6 (8)	18 (24)	35 (47)	55 (75)	80 (108)	110 (149)	170 (230)	280 (380)	460 (624)	680 (922)
BOLT SIZE	M4	M5	M6	M8	M10	M12	M14			
Class 5.8  (Grade 2)	1 (2)	2 (3)	4 (6)	10 (14)	20 (27)	35 (47)	55 (76.4)			
Class 8.8  (Grade 5)	2 (3)	4 (6)	7 (10)	18 (24)	35 (47)	61 (83)	97 (131)			
Class 10.9  (Grade 8)	3 (4)	6 (8)	10 (14)	25 (34)	49 (66)	86 (117)	136 (184)			

### Torque Specifications and Bolt Grades

# MAINTENANCE

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

## BATTERY CHARGING AND MAINTENANCE

### Safety

Always observe the following warnings when working on or near batteries.

#### WARNING

To prevent the risk of battery explosion, keep all flammable materials, open flames or sparks away from the batteries.

Hydrogen gas is made as batteries are charged. Do not charge batteries without good ventilation. A 4% concentration of hydrogen gas is explosive.

Make sure that the key switch is in the OFF position and all electrical accessories are off before you start to work on the vehicle.

Turn off all accessories before disconnecting from the battery terminal.

#### SAFETY FIRST



Use safe procedures to move the batteries. Always lift the battery with a commercially available battery lifting device.

Do not tilt the batteries during removal or installation. An electrolyte spill can cause burns and damage.

The electrolyte in a storage battery is an acid solution which can cause burns to the skin and eyes. Treat all electrolyte spills to the body and eyes with extended flushing with clear water. Contact a physician immediately.



Always wear a safety shield or approved safety goggles when you add water or charge the batteries.

Neutralize electrolyte spills with a solution of 2 teaspoons (10 ml) sodium bicarbonate (baking soda) mixed in 1 quart (1 liter) of water. Clean with water.

If you fill the batteries with electrolyte above the maximum level, you can cause an electrolyte spill during the charge cycle. An electrolyte spill can cause damage to the vehicle and storage facility.

Be careful when you use aerosol containers near the battery terminals. Use a container with insulation to prevent an explosion.

Use wrenches with insulation to decrease the risk of a short-circuit if a wrench falls across the battery terminals. A battery short-circuit can cause an explosion.

### Battery Disposal

Lead-acid batteries are recyclable. Return used batteries to distributor, manufacturer or lead smelter for recycling. For neutralized spills, put residue in acid-resistant containers with absorbent material, sand or earth and discard according to state and federal regulations for acid and lead compounds. Contact state environmental officials for disposal information.

### Battery

A battery is described as two dissimilar metals immersed in an acid. If the acid is absent or if the metals are not dissimilar, a battery has not been created. The batteries in this vehicle are lead acid.

A battery does not store electricity, but it can produce electricity as the result of a chemical reaction which releases stored chemical energy in the form of electrical energy. The chemical reaction occurs faster in warm conditions and slower in cold conditions. Temperature is important when conducting tests on a battery and test results must be corrected to adjust for temperature differences.

An older battery can perform adequately except that its capacity is decreased. Capacity describes the time that a battery can continue to supply its design amperes from a full charge.

A battery has a maximum life. Good maintenance maximizes the available life and decreases the conditions that can reduce the life of the battery.

# MAINTENANCE

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

## Battery Maintenance

Tool List	Qty.	Tool List	Qty.
Insulated Wrench, 9/16" .....	1	Battery Carrier.....	1
Hydrometer .....	1	Battery Maintenance Kit P/N 25587-G01.....	1
Battery Protective Spray .....	1		

## At Each Charging Cycle

- Before you charge the batteries, inspect the plug of the battery charger and vehicle receptacle housing for dirt or other particles.
- Charge the batteries after each use.

## Monthly

- Inspect all wires for wear, loose connections, corrosion or damage to insulation.
- Make sure that the electrolyte level is correct and add clean water as required.
- Clean the batteries and wire connections.
- Apply battery protectant to the battery terminals.
- Move the run/tow switch to the TOW position, and disconnect the B+ and B- cables from the batteries. Clean out the charger receptacle. Reconnect the battery cables and torque to 90 - 100 in.lbs (6 - 8 Nm). Move the run/tow switch back to RUN.

## Electrolyte Level and Water

The correct level of the electrolyte is 1/2" (13 mm) above the plates in each cell.

This level will leave approximately 1/4" - 3/8" (6 - 10 mm) of space between the electrolyte and the vent tube.

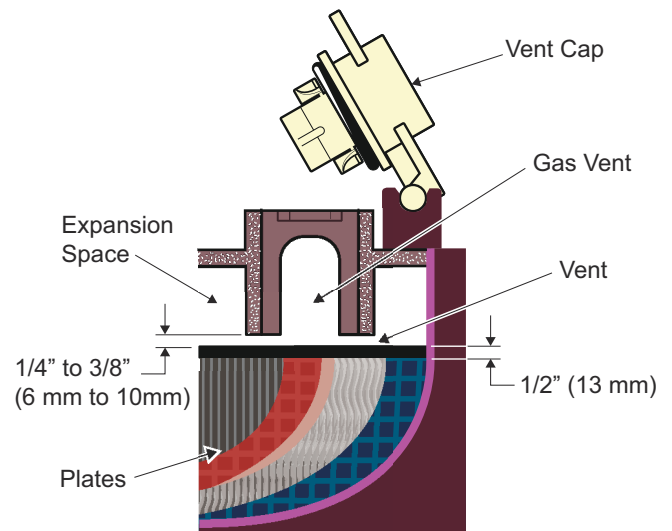
The electrolyte level is important because any part of the plates open to air will be damaged.

Do not overfill with water. Too much water pushes the electrolyte from the battery by release of gas and a decrease in volume of the electrolyte.



**DO NOT overfill batteries. The charge cycle will expel electrolyte and cause component damage.**

A battery being charged will 'gas' with most gassing occurring at the end of the charging cycle. This gas is hydrogen which is lighter than air. Water and sulphuric acid droplets will be carried out of the battery vents by the hydrogen gas, however, this loss is minimum. If the electrolyte level is high, the electrolyte will block the vent tube and the gas will push it out the vent tube and battery cap. The water will dry but the sulphuric acid will stay and damage the vehicle components and the storage facility floor. Sulphuric acid loss will weaken the amount of acid within the electrolyte and decrease the life of the battery.



Electrolyte level should be at least 1/2" (13mm) above the plates and 1/4" to 3/8" (6 to 10 mm) below vent

Correct Electrolyte Level

# MAINTENANCE

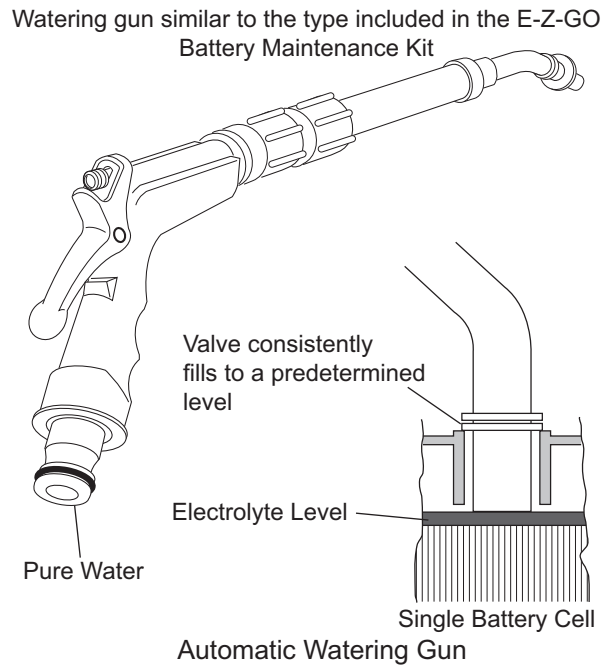
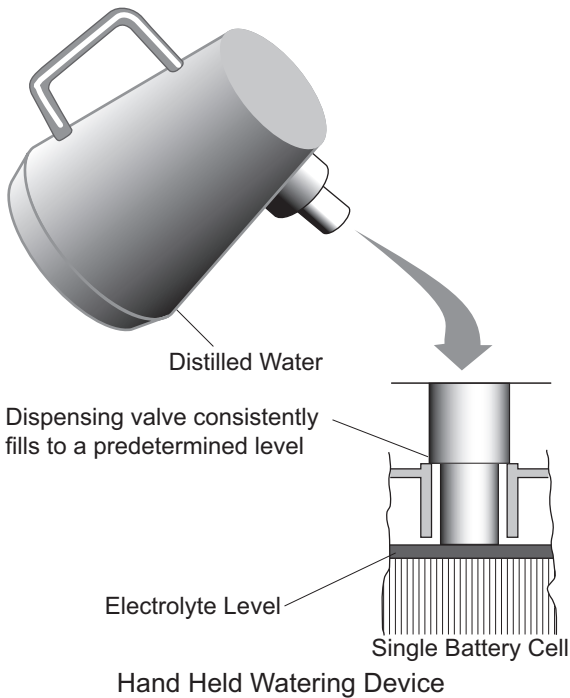
Read all of this manual to become thoroughly familiar with this vehicle. Pay particular attention to all Notices, Cautions, Warnings, and Dangers.

Over the life of the battery, a large amount of water is used. The water used must be clean and without contamination. Water that is not clean decreases the life of the battery by reducing the chemical reaction. Use distilled water or filtered water only. Test water that is not distilled water and filter if needed. Refer to the water purity table for requirements.

Impurity	Parts Per Million
Color	Clear
Suspended	Trace
Total Solids	100
Calcium & Magnesium Oxides	40
Iron	5
Ammonia	8
Organic & Volatile Matter	50
Nitrites	5
Nitrates	10
Chloride	5

Water Purity Table

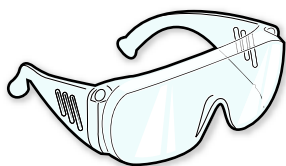
Hand held watering devices available at an automotive parts store, or automatic watering devices like the one included in the E-Z-GO Battery Maintenance Kit (P/N 25587-G01) can be used with an approved water supply. These watering devices are accurate, easy to use and allow for fast fill. They also keep the correct electrolyte level within the battery cells.



**NOTICE:** Only use the watering device if the electrolyte level is less than 1/2" (13 mm) above top of plates.

## WARNING

The electrolyte in a battery is an acid solution which can cause severe burns to the skin and eyes. Clean all electrolyte spills to the body and eyes with clear water. Contact a physician immediately.



To clean an electrolyte spill, use a solution of 2 teaspoons (10 ml) sodium bicarbonate (baking soda) mixed with 1 quart (1 liter) of water.

Always wear a safety shield or approved safety goggles when you add water or charge the batteries.

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

## Battery Cleaning

### CAUTION

To prevent battery damage, make sure you correctly install all battery caps.

To decrease the risk of damage to vehicle or floor, neutralize acid before you spray the battery with water.

To decrease the risk of damage to the electrical components while cleaning, do not use a pressure washer.

Clean the batteries according to the PERIODIC SERVICE SCHEDULE on page 39.

When you clean the battery cases and terminals, do not use water without neutralizing any acid deposits first. The water moves the acid from the top of the batteries to another area of the vehicle or storage facility, where it can cause damage. After spraying the batteries, a conductive residue remains on the batteries and contributes to the discharge of the batteries.

To clean, spray the top and sides of the batteries with a solution of baking soda and water:

- 1 quart (1 liter) of water
- 2 teaspoons (10 ml) sodium bicarbonate

You can apply the cleaning solution with a plastic spray bottle. Also spray the solution on all metal components near the batteries.

Allow the solution to set a minimum of three minutes. Use a soft bristle brush or cloth to clean the top of each battery to remove residue that can cause the discharge of the battery. Clean the area with low pressure clear water.

### WARNING

Be careful when you use aerosol containers near the battery terminals. Use an insulated container to prevent an explosion.

Clean one time a month or more often in harsh conditions. After the batteries are clean and dry, apply a commercially available protectant to the terminals.

## Battery Replacement

### CAUTION

Before you disconnect or connect a battery or any other wires, move the run/tow switch to TOW position.

After you connect a battery or any other wires, wait a minimum of 30 seconds before you move the run/tow switch to the RUN position.

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

If the batteries are cleaned and acid in the battery rack area is neutralized as recommended, no corrosion to the battery racks or surrounding area should be found. Any corrosion found must be removed with a putty knife and a wire brush. The area must be washed with a solution of sodium bicarbonate (baking soda) and water and dried before primer and corrosion resistant paint is applied.

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

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

### WARNING

Be careful when you use aerosol containers near the battery terminals. Use a container with insulation to prevent an explosion.



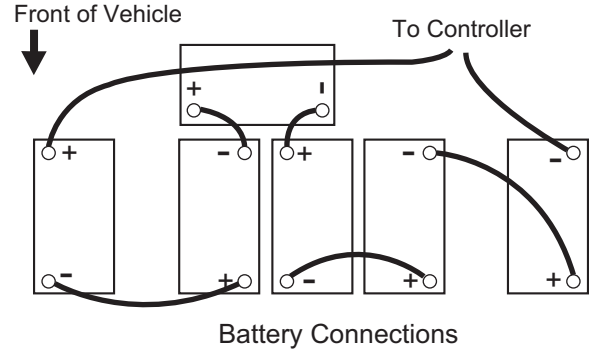
# MAINTENANCE

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

Make sure you reconnect the battery wires as shown.

Tighten the battery post hardware to 90 - 100 in. lbs. (6 -8 Nm) torque. Do not over-tighten the terminal stud nut, this will cause a "mushroom" effect on the battery post which will prevent the terminal nut from being correctly tightened.

Protect the battery terminals and battery wire terminals with a commercially available coating.



## Prolonged Storage

### CAUTION

Battery charger, controller and other electronic devices need to be disconnected for prolonged storage, as they will contribute to the premature discharge of batteries.

**NOTICE:** Make sure the run/tow switch, located under the passenger seat, is in the TOW position for long term storage of the vehicle to avoid draining of the batteries.

During storage, the batteries 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. A vehicle that is stored at 90° F (32° C) will lose .002 of specific gravity each day. If a completely charged battery has a specific gravity of 1.275, and the battery is not used, it will become partially discharged. When it reaches 1.240, which it will do in less than 20 days, it must be charged again. If a battery stays in a discharged state, sulfating occurs on and within the plates. This condition is not reversible and will cause permanent damage to the battery. To prevent damage, the battery must be charged again. Use a hydrometer to find the specific gravity and the state of charge of a battery.

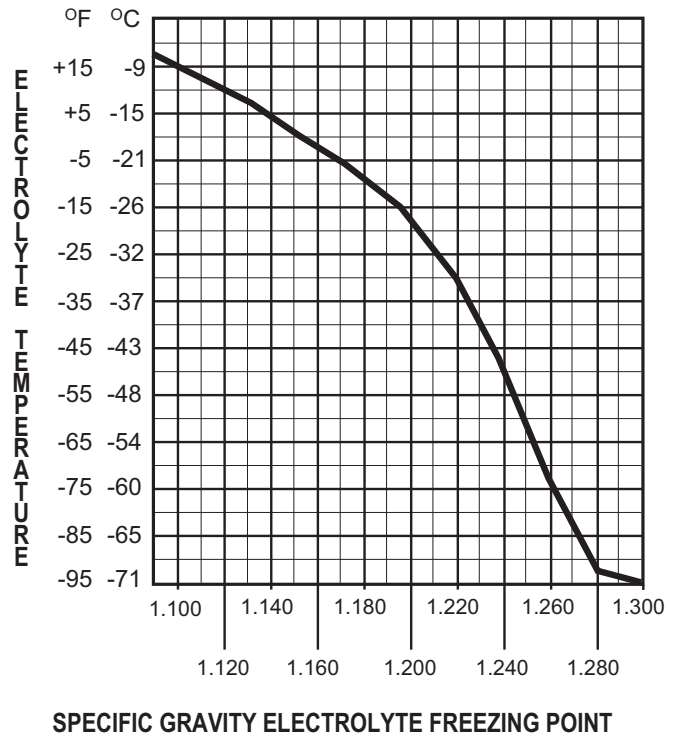
In winter conditions, the battery must be completely charged to prevent the risk of freezing. A completely charged battery will not freeze in temperatures above -75° F (-60° C). Although the chemical reaction is decreased in cold temperatures, the battery must be stored completely charged, and disconnected from circuits that can discharge the battery. The controller must be disconnected from the batteries by setting the run/tow switch to the TOW position.

For portable chargers, disconnect the charger plug from the vehicle receptacle.

For on-board chargers, disconnect the charging harness from the batteries.

The batteries must be cleaned and all deposits neutralized and removed from the battery case to prevent self discharge.

The batteries must be tested or charged again at 30 day minimum intervals.





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

## 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.



### CAUTION

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

Before charging, the following must be observed:

- The electrolyte level in all cells must be at the recommended level and above the plates.
- The charging must occur in an area with good ventilation to remove hydrogen gas that is made during the charge cycle. A minimum of five air replacements for each hour is recommended.
- The charger connector components must be in good condition and free from dirt and particles.
- The charger connector must be completely installed in the vehicle receptacle.
- The charger connector and cord set must be protected from damage. The charger connector and cord set must be used in an area where it is not possible for personnel to drive over or trip over the cord set.
- The charger automatically turns off during the connect and disconnect cycle so no electrical arc is generated at the DC plug and receptacle contacts.

## AC Voltage

The battery charger output is directly related to the input voltage. If the vehicle receives an incomplete charge in a normally adequate time period, low AC voltage can be the cause. Consult an electrician if necessary.

## Troubleshooting

Fault diagnosis is done for two reasons:

- A battery that performs poorly and is outside of the manufacturer's specification must be identified to replace it within the terms of the manufacturer's warranty. Different manufacturers have different requirements. Refer the battery manufacturer or the manufacturer's representative for specified requirements.
- Find the reason a vehicle does not perform adequately. Performance problems can cause a vehicle to run slowly or can not operate for the time needed.

A new battery must mature before it develops its maximum capacity. Maturing can take 100 or more charge and discharge cycles. After the maturing phase, the older a battery gets, the lower the capacity. The only method to find the capacity of a battery is a load test with a discharge machine. Refer to the discharge machine manufacturer instructions.

A hydrometer is used to identify a poorly performing battery in a set with a low specific gravity. When the particular cell or cells that are the problem are identified, the battery can be removed and replaced. The battery can not be restored. The individual battery should be replaced with a good battery of the same brand, type and approximate age.

## Hydrometer

A hydrometer (P/N 50900-G1) is used to test the state of charge of a battery cell. 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.

# MAINTENANCE

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

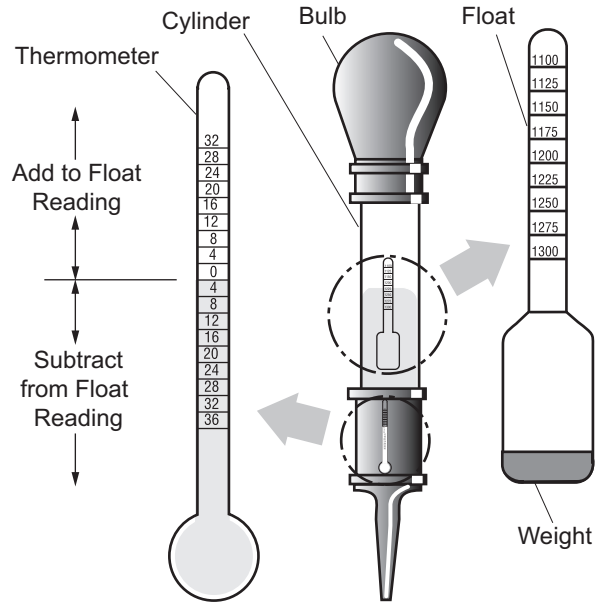
## **WARNING**

To prevent battery explosion, never insert a metal thermometer into a battery. Use a hydrometer with a built in thermometer that is designed for testing batteries.

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

**NOTICE:** 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.



Hydrometer

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

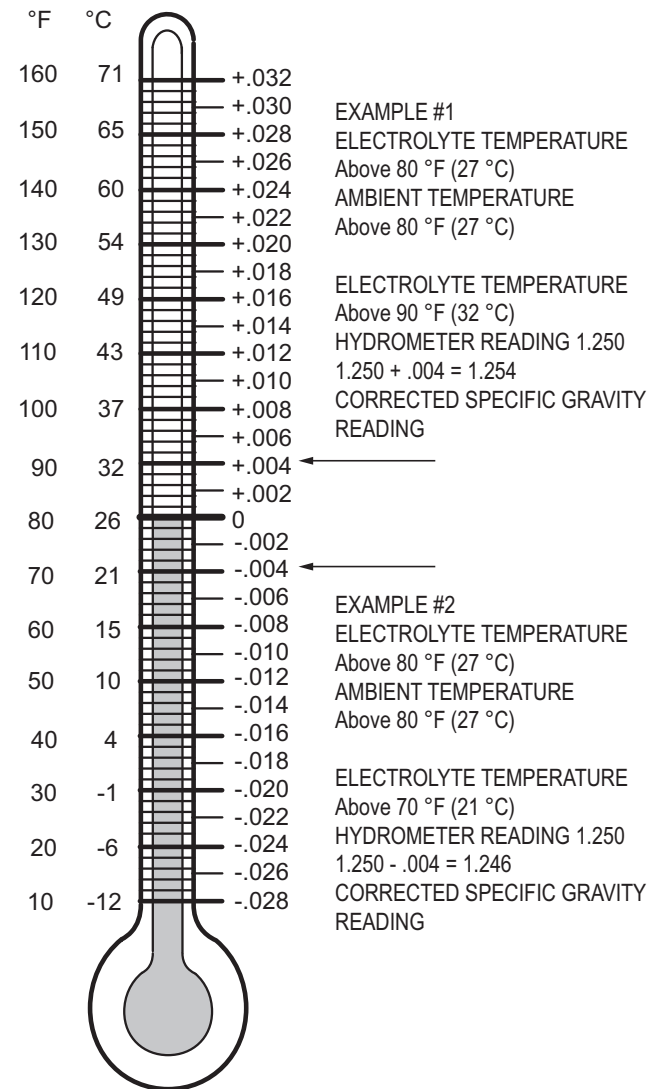
## Using A Hydrometer

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. Add or subtract four points (.004) to the reading for every 10° F (6° C) the electrolyte temperature is above or below 80° F (27° C). Adjust the reading to conform with the electrolyte temperature, e.g., if the reading indicates a specific gravity of 1.250 and the electrolyte temperature is 90° F (32° C), add four points (.004) to the 1.250 which gives a corrected reading of 1.254. Similarly if the temperature was 70° F (21° C), subtract four points (.004) from the 1.250 to give a corrected reading of 1.246.
5. Test each cell and note the readings (corrected to 80° 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.

### ELECTROLYTE TEMPERATURE



Hydrometer Temperature Correction

**Notes:**

A large grid of empty cells, consisting of 20 columns and 30 rows, intended for taking notes.

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

## GENERAL SPECIFICATIONS

### SPECIFICATIONS CHART

Item	Specification
Vehicle Load Capacity	800 lbs. (360 kg)
Seating Capacity	2 person
Dry Weight (without batteries)	573 lbs. (260 kg)
Curb Weight	1200 lbs. (544 kg)
Overall Length	93.5 in. (237 cm)
Overall Width	47 in. (119 cm)
Overall Height (no canopy - top of steering wheel)	46.5 in. (118 cm)
Overall Height (with canopy - top of canopy)	67.5 in. (171 cm)
Wheelbase	66 in. (168 cm)
Track Width (front)	34 in. (86 cm)
Track Width (rear)	38.5 in. (98 cm)
Ground Clearance (at differential)	4.5 in. (11 cm)
Outside Clearance Circle	19 ft. (5.8 m)
Speed (level ground)	14.5 - 19.5 mph (23.3 - 31.4 kph)
Steering	Self-compensating rack and pinion
Suspension (front and rear)	Leaf springs with hydraulic shock absorbers
Brakes	Rear wheel mechanical self-adjusting drum
Parking Brake	Self-compensating, single point engagement
Power Source	72 V DC
Batteries	Six 12 V deep cycle
Motor	72 V AC
Horsepower (kW)	22.4 HP (16.7 kW)
Electrical System	72 V
Starting System	Pedal start
Battery Charger	72 V, 1200 W
Speed Controller	350 Amp
Drive Train	Motor Shaft Direct Drive
Transaxle	Hardened helical gears
Direction Selector	Body mounted FNR
Rear Axle Ratio	16:99:1
Front Tires	205/65 10 LOADSTAR 4-Ply
Rear Tires	205/65 10 LOADSTAR 4-Ply
Frame	Powder coated welded steel
Body and Finish	Injection Molded TPO

# **GENERAL SPECIFICATIONS**

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

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## PERIODIC SERVICE SCHEDULE

### PERIODIC SERVICE SCHEDULE

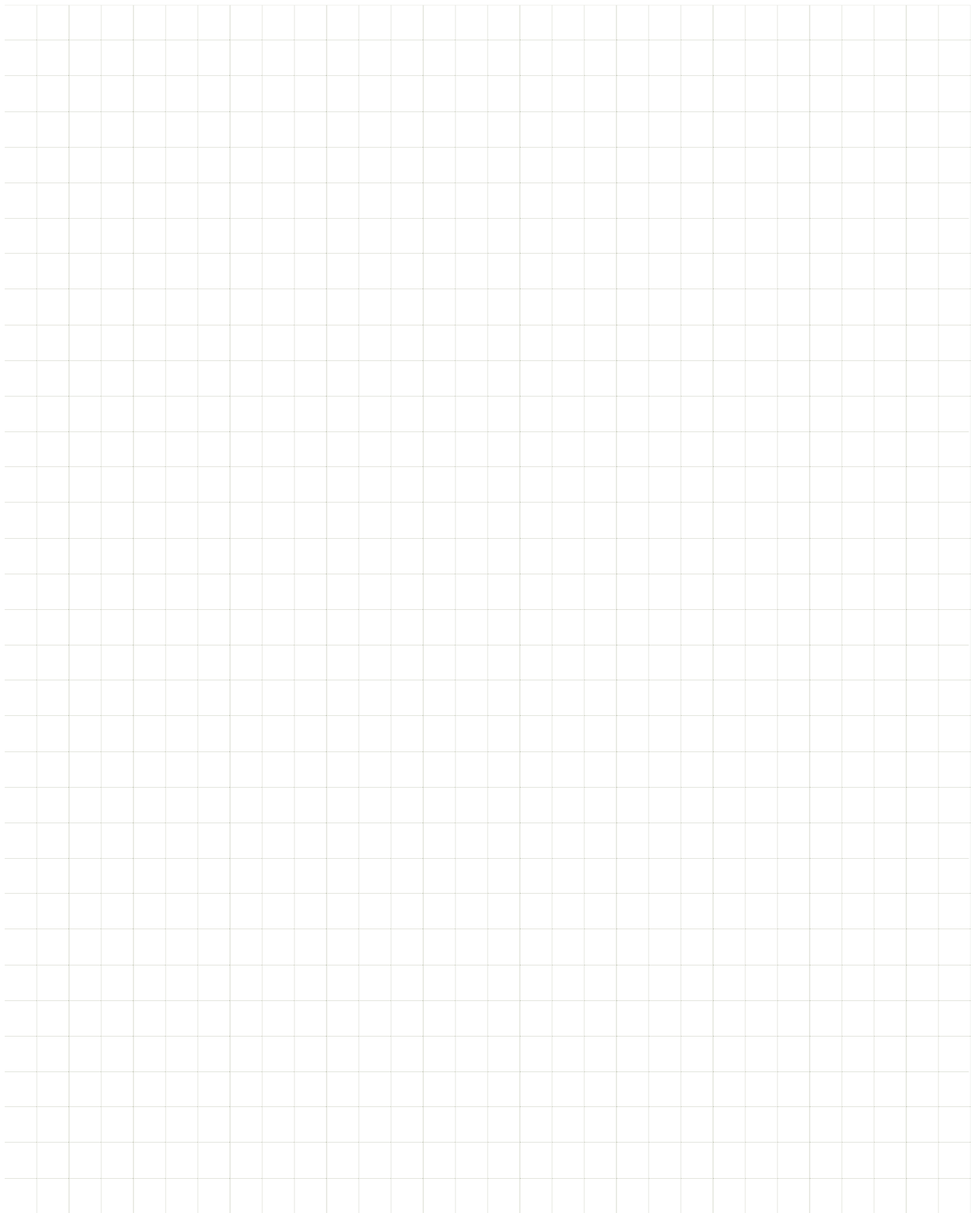
\* - CHECK      C&A - CHECK & ADJUST      CL - CLEAN      R - REPLACE

	Before each use DAILY	WEEKLY	20 rnds/20 hrs 100 miles/160 kms MONTHLY	60 rnds/60 hrs 300 miles/500 kms QUARTERLY	125 rnds/125 hrs 600miles/1000 kms SEMI-ANNUAL	250 rnds/250 hrs 1200miles/2000 kms ANNUAL	5 YEARS
Tires - pressure, condition of tires & rims	*	*	*	*	*	*	
Hardware - loose or missing	*	*	*	*	*	*	
Reverse Warning Indicator	*	*	*	*	*	*	
Overall Vehicle Condition	*	*	*	*	*	*	
Battery Pack - state of charge, condition, loose terminals, corrosion, hold down & hardware	*	*	CL	CL	CL	CL	
Batteries* - check electrolyte level, fill if required			C&A	C&A	C&A	C&A	
Charger Receptacle - disconnect B+ and B- cables from battery pack and clean out receptacle			C&A	C&A	C&A	C&A	
Brake Pedal - smooth operation	*	*	*	*	*	*	
Brakes - aggressive stop test			C&A	C&A	C&A	C&A	
Park Brake - operation, does it hold on a hill	*	*	C&A	C&A	C&A	C&A	
Accelerator - smooth operation	*	*	*	*	*	*	
Charger / Receptacle - inspect charger connector and receptacle at each charge	*	*	*	*	*	*	
Wiring - loose connections, broken or missing insulation			*	*	*	*	
Direction Selector - attachment and mechanism			C&A	C&A	C&A	C&A	
Steering Assembly - excessive play, loose or missing hardware			*	*	*	*	
Tie Rods - excessive play, bent rods, loose or missing hardware			*	*	*	*	
Rear Axle - fluid level, oil leakage, noise, loose or missing hardware			*	*	*	*	
Rear Axle - drain & replace fluid							R
Rear Suspension - shock oil leakage, worn bushings, loose or missing hardware				*	*	*	
Front Suspension - strut oil leakage, excessive play in hubs or kingpins, worn bushings, loose or missing hardware			*	*	*	*	
Front Wheel Alignment - unusual tire wear				C&A	C&A	C&A	

\* Use only distilled or purified water that is free from contaminants to fill batteries.

NOTE: Some maintenance items must be serviced more frequently on vehicles used under severe driving conditions.

## **Notes:**













A Textron Company

**TEXTRON SPECIALIZED VEHICLES**

1451 Marvin Griffin Road  
Augusta, Georgia 30906-3852  
USA

**CONTACT US:**

North America:

**Technical Assistance & Warranty**  
**Service Parts**

Phone: 1-800-774-3946, FAX: 1-800-448-8124

Phone: 1-888-438-3946, FAX: 1-800-752-6175

International:

Phone: 001-706-798-4311, FAX: 001-706-771-4609

Service Parts Manuals and Repair and Service Manuals  
are available from a local Distributor, an authorized Branch,  
Genuine E-Z-GO Parts & Accessories Department or at [www.shopezgo.com](http://www.shopezgo.com).

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