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.

Most of the service procedures in this guide can be accomplished using common, automotive hand tools. Contact your service representative on servicing the vehicle in accordance with the Periodic Service Schedule.

Repair or replacement parts are available through your CUSHMAN retailer.

The following information is needed when ordering service or parts for your vehicle:

Vehicle Model ___________________________  
VIN Number _______________________________  
Manufacturing Date Code _________________________

The Cushman LSV800 INTL (LSV 800 International) is a motor vehicle that can only be operated by a licensed driver, and must be driven in accordance with all local laws.

The LSV 800 International complies solely with American National Standards Institute (ANSI) Z135 for Personal Transport Vehicles (PTV). For clarity, the 2Five International is NOT certified for on-road use in accordance with U.S. Federal Motor Vehicle Safety standard 571.500. On-road use of the 2Five International outside of the United States is subject to applicable laws and regulations of the jurisdiction in which the 2five International is operated. As such, E-Z-GO does not warranty or certify that the 2Five International can be legally operated on-road in jurisdictions outside of the United States. Users should consult their local authorities as to the legality of using the LSV 800 International as an on-road vehicle.
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. E-Z-GO Division of Textron, Inc. prohibits and disclaims responsibility for any such modifications or any other alteration which would adversely affect the safety of the vehicle.

E-Z-GO Division of Textron, Inc. 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 E-Z-GO Division of Textron, Inc., and therefore is subject to change without notice.

E-Z-GO Division of Textron, Inc. 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.

TO CONTACT US

CUSHMAN
1451 Marvin Griffin Road.
Augusta, Georgia, 30906-3852
USA
E-mail: Cushmancomm@textron.com

North America:
Technical Assistance & Warranty PHONE: 800-774-3946 FAX: 800-448-8124
Cushman Genuine Parts & Accessories PHONE: 888-438-3946 FAX: 800-752-6175

International:
PHONE: 001-706-798-4311 FAX: 001-706-771-4609
This vehicle was 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.

Use Original Equipment Manufacturer (OEM) approved parts to keep the warranty effective.

If you do not correctly maintain the batteries, you will cancel the warranty. Refer to the MAINTENANCE section for instructions on the correct maintenance of the batteries.

**BATTERY PROLONGED STORAGE**

The batteries discharge over time. The rate of discharge changes according to the ambient temperature, the age and condition of the batteries.

Completely charged batteries will not freeze in winter temperatures unless the temperature is less than -75°F (-60°C).

For winter storage, the batteries must be clean, completely charged and disconnected from any electrical drain.

The battery charger can remain connected to the vehicle to keep a full charge on the batteries as long as the charger is connected to an active electrical supply. If the power to the electrical supply is disconnected or interrupted, the battery charger will continuously check the charge on the battery pack. The continuous check of the battery pack will pull power from the battery pack and eventually drain the batteries.

The batteries must be checked and charged again as required or at a minimum of 30-day intervals.

Check and maintain correct fluid level in all battery cells during the storage period. Correct fluid level is necessary for maximum battery performance.

**BATTERY DISPOSAL**

Lead-acid batteries are recyclable. Return discarded batteries to distributor, manufacturer or lead smelter for recycling. For neutralized spills, put residue in acid-resistant containers with absorbent material such as sand. Dispose in accordance with local, state and federal regulations for acid and lead compounds. Contact local or state environmental authorized people for the disposal information.
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Notes:
GENERAL

For any questions about material in this manual, contact an authorized representative.

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

Steep hills allow the vehicle to move at faster speeds than speeds on a flat surface. To prevent the loss of vehicle control and possible injury, speeds must be controlled to the maximum level ground speed indicated in the GENERAL SPECIFICATIONS section. Apply the brake to control the speed.

If you operate the vehicle above the maximum specified speed, you can damage the drivetrain components. The damage caused by speeds more than the maximum specified can cause a loss of vehicle control, is abusive, and will not be covered under the warranty.

Use caution when you tow the vehicle. Towing the vehicle at above the recommended speed can cause personal injury or damage to the vehicle and other property.

If the vehicle is used in a commercial environment, signs must be in position to inform of possible conditions that can be dangerous. Examples shown below.

NOTICES, CAUTIONS, WARNINGS AND DANGERS

Read the NOTICES, CAUTIONS, WARNINGS and DANGERS. The person who services a vehicle needs the mechanical skill and experience to see possible hazardous conditions. Incorrect service or repairs can cause damage to the vehicle or make the vehicle dangerous to operate.

A NOTICE indicates and describes information not related to personal injury.

A CAUTION indicates a dangerous condition that can cause an injury that is not life threatening.

A WARNING indicates a dangerous condition that can cause death or serious injury.

A DANGER indicates a dangerous condition that will cause death or serious injury.
This manual contains recommended maintenance procedures from the manufacturer. Follow these procedures and fault isolation information to get the best service from the product. To decrease the risk of personal injury or property damage, obey all the information in this manual.

**SAFETY**

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

THE LSV 800 INTL SHALL BE OPERATED ONLY BY PERSONS WITH VALID DRIVERS LICENSES, AND IN ACCORDANCE WITH APPLICABLE LOCAL REQUIREMENTS. THIS IS A LEGAL REQUIREMENT AND 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 E-Z-GO products, new and used, in personal transportation applications.

Vehicles are used for different purposes, so it is not possible to know and inform of every possible occurrence. Be careful when you drive to prevent avoidable personal injury or damage to the vehicle. All users must read and obey this manual. Make sure you give special attention to the CAUTIONS, WARNINGS and DANGERS.

**GENERAL**

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

E-Z-GO 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.

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

Be sure that all electrical accessories are grounded directly to the battery (-) post. Never use the chassis or body as a ground connection.

Refer to GENERAL SPECIFICATIONS for vehicle seating capacity.

**WARNING**

*Do not change the vehicle in any manner that changes the weight distribution, decreases stability, increases speed or extends the necessary distance to stop more than the factory specification. Such changes can cause personal injury or death.*

Do not change the vehicle in any manner that changes the weight distribution, decreases stability, increases speed or extends the necessary distance to stop more than the factory specification. E-Z-GO is not responsible for changes that cause the vehicle to be dangerous.

Do not let anyone below the height of 59 inches (150 cm) operate the vehicle.

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

**GENERAL OPERATION**

Read the following warnings before you operate the vehicle.
When you leave the vehicle, turn the key to the OFF position and remove the key from the vehicle.

Drive the vehicle only as fast as terrain and conditions allow. Consider the terrain and traffic conditions. Consider environmental conditions that change the terrain and your ability to control the vehicle.

Do not drive fast downhill. Sudden stops or change of direction can cause a loss of control. Use the brake to control the speed of the vehicle when you drive down a slope.

When possible, stay in approved areas and do not drive on steep slopes.

Always keep feet, legs, hands and arms inside vehicle.

Do not drive on rough terrain.

Before you drive in the reverse direction, make sure the area behind the vehicle is clear.

Make sure the direction selector is in the correct position before you press the accelerator pedal.

Decrease speed before and during turns.

Make sure you completely stop the vehicle before you move the direction selector.

See GENERAL SPECIFICATIONS for the vehicle load and seat capacity.

Read the following text and warnings before you service the vehicle.

Normal use, age, wear or abuse can cause some components on the vehicle to fail. The manufacturer cannot know all possible component failures or the methods that failures can occur.

A vehicle in need of repair does not function properly and can be dangerous.

Be careful when you service the vehicle. Be aware of your safety and the safety of other people in the area.

Some components are heavy, spring loaded, corrosive, explosive, can cause high amperage or get hot. Battery acid and hydrogen gas can cause injury. Do not put your hands, face, feet or body in a location that can expose them to injury if an unexpected situation occurs.

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

Remove all jewelry before you service the vehicle.

Do not allow loose clothing or hair to contact the moving parts.

Do not touch hot objects.
SAFETY

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

WARNING

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

ALWAYS:

• Use the vehicle in a responsible manner and keep the vehicle in safe condition for operation.
• Read and obey all warnings and operation instruction labels on the vehicle.
• Follow all safety rules in the area where the vehicle is operated.
• When there is a risk of lightning, leave the vehicle and look for a safe location to wait until the lightning has stopped.
• Drive the vehicle only as fast as terrain and conditions allow.
• Apply brake to control the speed on steep grades.
• Decrease speed in wet areas.
• Be careful when you make sharp turns, or turns you are not familiar with.
• Be careful when you drive on loose terrain.
• Be careful when you operate the vehicle around people.

MAINTENANCE

ALWAYS:

• Replace damaged or missing warning, caution or information labels.
• Service the vehicle according to the periodic service schedule in this manual.
• Make sure that approved and qualified personnel do all repairs.
• Follow the manufacturers maintenance procedures.
• Use insulated tools within the battery area to prevent sparks or battery explosion.
• Use specified replacement parts. DO NOT use replacement parts of lesser quality.
• Use recommended tools.
• Make sure that tools and procedures not specified by the manufacturer will not be a safety risk to personnel or operation of the vehicle.
• Support the vehicle with wheel chocks and jack stands. NEVER get below a vehicle that is supported by a jack. Lift the vehicle according to the manufacturers instructions.
• Make sure you service the vehicle in an area away from open flame or sparks.
• Know that a vehicle in need of repair does not operate correctly and can be dangerous to operate.
• After you do the repairs or maintenance, test the vehicle in a safe area that is without vehicle and person traffic.
• Make sure you record and keep all of the maintenance history of the vehicle.

VENTILATION

• 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.
SAFETY

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

- 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 E-Z-GO’s recommendations or applicable electrical codes.

SEAT BELTS

⚠️ WARNING ⚠️

All occupants in the vehicle must have their seat belts properly fastened.

Be sure the seat belts are latched securely and are not twisted.

Position the shoulder belt across the top of the shoulder. Do not place the shoulder belt under the arm.

Loose fitting safety belts significantly reduce protection. Keep belts snug and positioned low on the hips.

Do not exceed the recommended number of occupants for the vehicle;

Each seat is designed for one occupant only.

The driver and all passengers must wear seat belts, one person per belt. The two-passenger LSV 800 has two seats and is equipped with two safety belts, one for the driver and one for the passenger. The safety belts must be used at all times while operating the vehicle.

This vehicle has not been tested for use with automotive style child safety seats or booster seats.

⚠️ CAUTION ⚠️

Do not use automotive style child safety seats or booster seats with this vehicle.

Inspect the safety belt webbing and hardware periodically. Check for cuts, frays or loose parts. Replace components if excessive wear or damage is found.

Keep safety belts clean and dry. To clean, use mild soap and warm water. Do not use bleach, dye or abrasive cleaners as this will weaken the belt webbing material.

Do not insert any objects into the retractor mechanism.

Periodically check for smooth operation and replace if the mechanism is not operating properly.

Pregnant, disabled, or injured persons should consult their doctor for specific recommendations before using the LSV 800.
Seat Belt Operation

To properly secure the seat belts, pull the metal tab from the retractor and insert into the appropriate buckle located near the center of the seat. A click will be heard when the tab is securely latched. Position the lap belt as low as possible on the hips; not the waist. Properly adjust and ensure a snug fit by pulling the shoulder portion upward.

The retractor locks the belt when the vehicle stops suddenly. It can also lock if the occupant leans forward quickly. Slow, easy motion allows for free travel of the seat belt.

To release the safety belt, press the buckle release button and allow the belt to retract. If the belt does not retract, check for twists.
Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

LABELS AND PICTOGRAMS

READ THE MANUAL
OPERATE ACCORDING TO LOCAL LAWS AND REGULATIONS
USE CAUTION IN BAD WEATHER

OPERATE FROM DRIVER SIDE ONLY
DO NOT STAND UP AND KEEP ENTIRE BODY INSIDE VEHICLE
MINIMUM HEIGHT TO OPERATE VEHICLE IS 150 CM

GASOLINE VEHICLES
FORWARD OPERATION
* TURN KEY TO ‘ON’
* MOVE DIRECTION SELECTOR TO ‘F’
* PRESS ACCELERATOR PEDAL GENTLY

REVERSE OPERATION
* TURN KEY TO ‘ON’
* MOVE DIRECTION SELECTOR TO ‘R’
* PRESS ACCELERATOR PEDAL GENTLY

PARK VEHICLE
* MOVE DIRECTION SELECTOR TO ‘F’
* TURN KEY TO ‘OFF’
* APPLY PARKING BRAKE

MAXIMUM RAMP OR HILL
MAXIMUM CROSS RAMP OR HILL

DO NOT DRIVE ON HIGHWAY
DO NOT OPERATE IF USING DRUGS OR ALCOHOL
DO NOT OPERATE VEHICLE WHEN LIGHTNING IS IN THE AREA

ELECTRIC VEHICLES
FORWARD OPERATION
* TURN KEY TO ‘F’
* PRESS ACCELERATOR PEDAL GENTLY

REVERSE OPERATION
* TURN KEY TO ‘R’
* GENTLY PRESS ACCELERATOR PEDAL

PARK VEHICLE
* TURN KEY TO ‘OFF’

SECURE LOAD
MAX BED WEIGHT
300 LBS or 136KG

MAX CENTER OF GRAVITY
HEIGHT
5 INCHES or 12 CM ABOVE FLOOR

NO PASSENGERS IN TRUCK BED
TAILGATE
MAX WEIGHT
100 LBS or 45 KG

HIGH CENTER OF GRAVITY MAY CAUSE TIP OVER
MAX SIDE SLOPE 14”

WARNING
READ THE MANUAL
MAY CAUSE EXPLOSION
DO NOT FILL FUEL CONTAINER IN TRUCK BED

WARNING
READ THE MANUAL
MAY CAUSE TIP OVER
MAX SIDE SLOPE 14”

MAY CAUSE TIP OVER
MAX SIDE SLOPE 14”

MAXIMUM RAMP OR HILL
MAXIMUM CROSS RAMP OR HILL

MAXIMUM RAMP OR HILL
MAXIMUM CROSS RAMP OR HILL

MAXIMUM RAMP OR HILL
MAXIMUM CROSS RAMP OR HILL

MAXIMUM RAMP OR HILL
MAXIMUM CROSS RAMP OR HILL

MAXIMUM RAMP OR HILL
MAXIMUM CROSS RAMP OR HILL
SAFETY

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

REPORTING SAFETY DEFECTS

If you believe your vehicle has a defect that could cause a crash, or could cause injury or death, immediately inform E-Z-GO Division of Textron Inc.
Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

Notes:
Notes:
**GENERAL SPECIFICATIONS**

MODEL: LSV 800 INTL  
TYPE: ELECTRIC LOW SPEED TRUCK  
MODEL YEAR: 2016  
Part No.: 643612G01

**Programmable AC Drive System:** Factory programmable to application
- Solid State variable frequency AC speed controller
- Drive-by-wire electronic throttle control
- Dash mounted direction selector switch (Forward-Neutral-Reverse)
- Descent speed control and automatic hill hold
- Full-time regenerative braking

**Motor:** 48 Volt AC induction motor, solid copper windings. 4.4 hp (3.3 kW) Continuous, 15 hp (11.2 kW) peak. AC system reads motor speed for accurate speed control in all conditions. Regenerative braking for maximum economy

**Battery Charger:** On-board 48 VDC PowerWise™ High Frequency, 120/230 VAC 50/60 Hz with 30 amp DC-DC Converter. (U.L. & C.S.A. Certified)

**Electrical System:** 48 Volt DC, four, 12 volt deep cycle storage batteries (60 minute minimum, 150 amp-hour @ 20 hr. discharge rate)

**Drive Train:** Direct motor shaft connected to transaxle pinion shaft

**Transaxle:** Differential with reverse helical gears

**Brakes:** 4-wheel hydraulic disc brakes and induction motor. Electro-magnetic parking brake is applied automatically

**Towing:** Rear hitch receiver integrated into bed support frame

**Cargo Bed:** Roto-molded cross-linked polyethylene. Tilts for access to powertrain. Removable hinged multi-position tailgate requires no latch mechanism

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**Dimensions**

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<th>Metric</th>
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<tr>
<td>Overall Length</td>
<td>108.9 in</td>
<td>277 cm</td>
</tr>
<tr>
<td>Overall Width</td>
<td>48.5 in</td>
<td>123 cm</td>
</tr>
<tr>
<td>Overall Height</td>
<td>71.2 in</td>
<td>181 cm</td>
</tr>
<tr>
<td>Overall Height (w/ Strobe)</td>
<td>75.2 in</td>
<td>191 cm</td>
</tr>
<tr>
<td>Wheel Base</td>
<td>65.9 in</td>
<td>167 cm</td>
</tr>
<tr>
<td>Front Wheel Track</td>
<td>38.7 in</td>
<td>93 cm</td>
</tr>
<tr>
<td>Rear Wheel Track</td>
<td>39.7 in</td>
<td>101 cm</td>
</tr>
<tr>
<td>Floor Clearance @ Differential</td>
<td>4.5 in</td>
<td>11 cm</td>
</tr>
<tr>
<td>Cargo Box Width (inside)</td>
<td>44.5 in</td>
<td>113 cm</td>
</tr>
<tr>
<td>Cargo Box Length (inside)</td>
<td>30.5 in</td>
<td>77 cm</td>
</tr>
<tr>
<td>Cargo Box Depth (inside)</td>
<td>7.5 in</td>
<td>19 cm</td>
</tr>
<tr>
<td>Cargo Box Capacity</td>
<td>5.9 cu ft</td>
<td>0.17 m³</td>
</tr>
<tr>
<td>Cargo Box Material</td>
<td>Roto-molded polyethylene</td>
<td></td>
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**Battery Charger**

- Onboard 48 VDC PowerWise™
- DC-DC Converter 30 amp - Integrated into On-board Charger

**Performance**

- Seating Capacity & Style 2 Persons/Bucket Seats
- Dry Weight: 893 lb (405 kg)
- Curb Weight: 1221 lb (554 kg)
- Bed Load Capacity: 300 lb (136 kg)
- Vehicle load capacity: 800 lb (363 kg)

**Towing Capacity:** 1200 lb max (See Page 2 for Gradeability)

**Speed - Low (Level Ground)**

- 14 mph (22.5 kph)

**Speed - High (Level Ground)**

- 25 mph (40.2 kph)

**Speed - Reverse**

- 8 mph (12.9 kph)

**Steering & Suspension**

- Steering: Double Ended Rack & Pinion - 3.69 turns to lock
- Front Suspension: Independent A-arm with Coil Over Shock
- Rear Suspension: Mono-Leaf Springs with Hydraulic Shocks
- Service Brake: 4-Wheel Hydraulic Disc with Motor Regen
- Parking Brake: Spring Applied Electro-magnetic
- Front & Rear Tires: DOT Street Legal 205-50-10 Radial

**Body & Chassis**

- Frame: Welded Steel with DuraShield powder coat
- Body & Finish: Injection Molded TPO & Automotive Style Paint
- Standard Color: Patriot Blue

---

*Some items shown may be optional equipment*
GENERAL SPECIFICATIONS

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

VEHICLE DIMENSIONS

47.3” (120 cm)

48.5” (123 cm)

65.9” (167 cm)

108.9” (277 cm)
GENERAL SPECIFICATIONS

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

TURNING DIAMETER AND INCLINE INFORMATION

MAX RAMP GRADE 25% OR 14°

MAX SIDE TILT 25% OR 14°

19.7 ft (6.0 m)
Notes:
INTRODUCTION

FEATURES

General Information

If the vehicle has accessories that were installed at the factory, some accessories continue to operate with the key switch in the OFF position.

**NOTICE**

ALL accessories that do NOT use the accessory wiring harness MUST be connected to the DC to DC converter to pull from the full 48-Volt battery pack.

A DC to DC converter is necessary for the accessories that need the voltage different from 48 volts to operate correctly.

Accessories, including a DC to DC converter, that are connected to this vehicle and do not use the accessory wiring harness must be connected across the entire 48 volt battery pack. To correctly connect a 48-volt accessory, connect one wire to the most positive battery pack terminal and the second wire to the most negative battery pack terminal.

If an accessory needs voltage different from 48 volts, use a DC to DC converter to change the voltage to the correct amount. A DC to DC converter is available for purchase from E-Z-GO Service Parts.

**Parking Brake**

This vehicle is equipped with an automatic parking brake; when the vehicle is stopped the parking brake is automatically set. The parking brake is released when the direction selector is in F (forward) or R (reverse) and the accelerator is pressed. The parking brake is also released when the run/tow switch is in the TOW position with the key switch in N (neutral).

1. **Key Switch and Direction Selector**

   **CAUTION**

   To decrease the risk of component damage, stop the vehicle before you move the key switch and the direction selector.

   **WARNING**

   To prevent loss of control, do not move the direction selector while the vehicle is in motion. If you move the switch, the vehicle speed will immediately decrease and a warning device activates.

Key switch and direction selector is located on the instrument panel, the key switch and direction selector enables the electrical system of the vehicle to be turned ON or OFF by turning the key; it also functions as the direction selector and allows the operator to select F (forward), R (reverse) or N (neutral).
INTRODUCTION

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

When the direction selector is moved to the R position, a reverse warning buzzer activates.
When the vehicle is without an operator, the key must be turned to the OFF position and removed to prevent accidental movement of the vehicle.

2. Speedometer
The digital speedometer is located on the instrument panel to the left of the key switch and indicates vehicle speed in miles per hour.

3. State of Charge Meter
The vehicle is equipped with a state of charge meter located in the dash panel below the speedometer. The state of charge meter indicates the amount of usable power in the batteries. The state of charge meter shows the condition of the battery pack with F indicating a full charge on the battery pack and E indicating the battery pack needs to be charged.

4. Odometer
The digital odometer is located below the speedometer and indicates total vehicle miles driven. The odometer also displays warning or error codes to alert the driver to potential problems with the vehicle.
5. Headlight Switch
The headlight switch is located on the instrument panel to the left of the speedometer.

6. Turn Signal/Hazard Switch
The switch is mounted on the steering column and controls the operation of the right and left turn signal lights. To activate the hazard lights, pull the hazard switch away from the steering column. To deactivate, temporarily flip the turn signal switch in either direction.

7. Accelerator Pedal

![WARNING]

*Accidental movement of the accelerator pedal can cause the vehicle to suddenly move and cause severe injury or death.*

With the key switch in the F or R position, pressing the accelerator pedal starts the motor and moves the vehicle in the direction indicated by the direction selector. When the pedal is released, the motor stops. To stop the vehicle immediately, press the brake pedal.

8. Horn
The horn button is located on the turn signal switch. Press the button to activate the horn.

9. Brake Pedal
This vehicle is equipped with 4-wheel hydraulic disc brakes. The brake master cylinder is located under the seat on the driver side of the vehicle.

10. Locking Glove Box
A passenger-side locking glove box is standard; driver-side is optional. The glove boxes have their own key and cannot be unlocked with the vehicle ignition key.

11. Cup Holder
The vehicle has a cup holder for the benefit of both the driver and passenger.

12. Speed Selector Switch
The speed selector switch is located to the left of the center compartment. This switch allows the operator to select high/rabbit or low/turtle speeds.

- High/rabbit allows maximum speed of 25 mph for on-road use.
- Low/turtle allows maximum speed of 14 mph for golf course use.

13. USB Port
The USB port is located to the right of the center compartment.

14. 12-Volt Power Outlet
The 12-Volt power outlet is located to the left of the center compartment. The outlet supplies continuous power for any accessories that have a 12-volt plug.
Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.
15. Front Seat
The split bench front seat is designed for one occupant on each side of the center console. There is a seat belt for the passenger and one for the driver.

16. Hip Restraint - Front
The front hip restraints are designed to help keep the occupants properly positioned in the event of sudden vehicle position changes.

17. Steering Wheel
The steering wheel controls the direction of vehicle travel.

18. Rear View Mirror
The rear view mirror is a two-position adjustable mirror for day and night use.

19. Grab Handles
The vehicle is equipped with grab handles.

20. Seat Belts
Two seat belts are located for the front seat occupants (driver and passenger).

21. Headlights
The vehicle has two single element headlights.

22. Turn Signals
The vehicle is equipped with front and rear turn signals.

23. Brake Light/Turn Signal
The combination brake light/turn signal assemblies are located on the rear fenders.

24. Brake Light (Overhead)
The vehicle is equipped with an overhead brake light.

25. On-Board Charger Receptacle
Connect the charger cord to this receptacle to charge the batteries.

26. Battery Compartment
Lift the front seat to access the battery compartment for maintenance of the batteries and for access to the run/tow switch.

27. Run/Tow Switch
The run/tow switch is used when the vehicle has become stalled or inoperative. The switch is located below the seat on the passenger side of the vehicle.

To reduce the possibility of severe injury or death resulting from loss of vehicle control, consider the grade of the terrain the vehicle is on and remove the key from switch before you move the run/tow switch to the TOW position. When in the TOW position, the anti-roll back and walk-away safety features of the system no longer function.
To decrease the risk of damage to the controller or motor, move the run/tow switch to the TOW position before you tow the vehicle.

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

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

The run/tow switch should always be returned to the RUN position after moving the stalled vehicle. If the switch is left in the TOW position for an extended period of time, it will drain the batteries.

With the switch in TOW position and key in N position:
- the controller is deactivated, which allows a stalled vehicle to be moved or roll freely, except in the event of a controller failure
- the brake is still active
- the reverse warning beeper is deactivated

With the switch in RUN position:
- the controller is activated
- the electronic braking system and reverse warning beeper features are activated

28. On-board Charger with DC to DC Converter

The on-board charger is used to charge the batteries when the vehicle is parked. The DC to DC converter is used to power accessories.

29. Utility Bed

The utility bed comes standard with a manual bed lift and is used to transport cargo.

To reduce the possibility of severe injury or death, read, understand and follow the danger label on the front of the utility bed.
Side View Mirror
The vehicle is equipped with driver and passenger side mirrors. Side view mirrors are manually adjusted.

Windshield Wiper
The vehicle is equipped with a two-speed windshield wiper.

Windshield Wiper Switch
The windshield wiper switch is located on the wiper motor cover plate. It is a two-speed rocker switch that has LOW/HIGH/OFF positions.

Weather Enclosure (if equipped)
A weather enclosure provides protection from strong weather conditions.
INTRODUCTION

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

Notes:
OPERATING PROCEDURES

SERIAL NUMBER LOCATION

Three serial number and manufacture date code labels are on the vehicle. One of the labels is found on the steering column, the second label is found on the frame member under the front splash shield on the driver side and the third is found on the passenger side frame rail at the rear of the vehicle.

Design changes occur on a continuous basis. To get the correct components for the vehicle, the PIN number, manufacture date code, serial number or vehicle model, must be supplied.

VEHICLE IDENTIFICATION NUMBER (VIN)

The Vehicle Identification Number (VIN) is located on the far left side of the header. It may be necessary to provide the VIN when service or parts are needed for the vehicle. Do not remove the VIN from the vehicle.
OPERATING PROCEDURES

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

VEHICLE DATA PLATE

The vehicle data plate is located on the inside surface of the canopy strut. The data plate contains information concerning the date of manufacture, GVWR, GAWR (front), GAWR (rear), tire and rim dimensions, VIN, and type of vehicle.

![Vehicle Data Plate on Header](image)

BEFORE INITIAL USE

Read, understand and follow the safety and operation label on the cup holder. Make sure you understand how to safely operate the vehicle and its equipment.

⚠️ WARNING ⚠️

Explosive hydrogen gas is created during the charge cycle of batteries. Do not charge batteries without enough ventilation. A 4% concentration of hydrogen gas is explosive.

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

Explosive hydrogen gas is created during the charge cycle of the batteries. Good ventilation is necessary to remove gas from enclosed spaces. The air must change every 12 minutes.

Never charge a vehicle near flammable materials, open flame or sparks. Never charge a vehicle near gas water heaters and furnaces.

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

<table>
<thead>
<tr>
<th>INITIAL SERVICE CHART</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Item</strong></td>
</tr>
<tr>
<td>Batteries</td>
</tr>
<tr>
<td>Seats</td>
</tr>
<tr>
<td>Brakes</td>
</tr>
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<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Tires</td>
</tr>
</tbody>
</table>
BRAKE BURNISHING PROCEDURE

For new vehicles or after replacement of brake pads or rotors, it is recommended that approximately 20 stops with moderate braking from 20 mph to 5 mph should be made without coming to a complete stop. This procedure ensures that your new brakes function to their full potential, and maintain maximum wear resistance.

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

SEAT BELT OPERATION

**WARNING**

The seat belts must be worn by all occupants when the vehicle is in motion.

Make sure seat belts are free from twists and latch securely.

Position the shoulder belt across the top of the shoulder. Do not put the belt below the arm.

Keep the belts tight and positioned low on hips. Loose fitting belts decrease protection.

The vehicle has seat belts for the number of occupants it is designed to carry. Do not exceed the recommended number of occupants for the vehicle.

The seat belts are designed for one person for each belt. Do not secure more than one person in a seat belt.

The seat belts must always be worn by all occupants when the vehicle is in motion.

To keep seat belts in correct, working condition, do the following:

- Inspect the seat belt webbing and hardware periodically. Check for cuts, worn or loose parts. Replace the components if wear or damage is apparent.
- Keep seat belts clean and dry. Use mild soap and warm water to clean. Do not use bleach, dye or abrasive cleaners as this will weaken the belt webbing material.
- Do not put any objects into the retractor mechanism.
- Periodically check for normal operation. Replace the mechanism if it is not operating correctly.

To secure the seat belts:

1. Pull the metal tab on the seat belt across the body toward the correct buckle found near the center of the seat.
2. Insert the tab into buckle. (A click will be heard when the tab is securely latched).
3. Position the lap belt as low as possible on the hips; not at the waist.
4. Adjust to a tight fit by pulling the shoulder portion upward.

The retractor will lock the belt during sudden stops. It can lock if a person bends forward quickly. Slow, easy motions allow the belt to travel freely.

To release the safety belt, press the buckle release button and allow the belt to retract. If the belt does not retract, check for twisted straps.
ON-BOARD Charger WITH DC TO DC CONVERTER

**Danger**

Risk of electric shock. Connect the charger power cord to an outlet that is correctly installed and connected to an electrical ground according to all codes and regulations. A grounded outlet is necessary to decrease the risk of electric shock – do not use ground adapters or replace the plug. Do not touch parts of output connector or battery terminals that do not have insulation.

Disconnect the DC plug before you make or break the connections to a battery that is charging. Do not open or disassemble the charger. Do not operate the charger if the AC cord is damaged. Make sure qualified personnel does all repair work to the charger.

**Warning**

Do not allow children to use the charger.

Use the charger on 48-volt battery systems. Other use can cause personal injury and damage.

Lead acid batteries can create explosive hydrogen gas during normal operation. Keep sparks, flames and flammable materials away from batteries.

Supply enough ventilation during the charge cycle.

Never charge a frozen battery.

Read all of the manufacturers specified precautions for the battery. For example, recommended rates of charge and removal of cell caps during charge cycle.

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

Understand the Charger

The vehicle is equipped with an on-board charger and DC to DC converter to power 12 volt accessories. This allows your accessories to draw from the full battery pack, so that one battery is not damaged due to the increased current draw on a single battery.

The charger automatically starts as the AC plug is plugged into the receptacle. NOTE: a spark may be visible when as the plug is connected, this is normal and not a safety issue. The charger must be connected to a dedicated 15-amp (minimum) circuit.

Within two seconds after the AC plug has been engaged, the receptacle LED shall perform a <3 second RED/GREEN self-test flash. The receptacle LED will then flash SHORT GREEN to indicate “CHARGING <80%” and a low charge current shall be applied for a minimum of five seconds until the battery voltage reaches a minimum 1.95Vpc, or a time-out error condition has occurred. Receptacle LED will flash SHORT AMBER if charger is operating in reduced output mode due to thermal cutback.

The charger output will turn off and the receptacle LED will continuously illuminate GREEN to indicate ‘CHARGED’. If left plugged into the vehicle, the charger will automatically restart if the battery pack drops below 2.08 Vpc (Volts per cell).

If the AC is removed, the charger will turn off the receptacle LED and the charger will terminate charging.

- Charger input voltage 95 to 230 VAC power
- 9 Amp input current required
- Frequency 45-65 hertz
The charger will output 13A at 48V, and the DC to DC converter will output 30A at 12V.

**WARNING**

To prevent the possibility of an electrical shock or electrocution, be sure that the charger plug is not damaged and is inserted into a grounded receptacle.

The optional charging (AC) cord is equipped with a polarized connector that fits into a matching receptacle on the vehicle. The receptacle is located on the driver side of the vehicle just below the seat bottom.

E-Z-GO offers a charging cord with a ground fault circuit interrupt (GFCI). If the car is not charged from a GFCI receptacle, E-Z-GO recommends that the GFCI charging cord be purchased. If using a charging cord other than one purchased from E-Z-GO, the cord must be a 3 conductor #14 SJO, or equivalent.

**Maintenance Instructions**

1. For flooded lead-acid batteries, regularly check the water levels of each battery cell after charging. Add distilled water as required to the level specified by the battery manufacturer. Follow the safety instructions recommended by the battery manufacturer.
2. Make sure the charger connections to the battery terminals are tight and clean. Check for any deformations or cracks in the plastic parts. Check the charger harness for chaffing and rubbing. Inspect all wiring for fraying, loose terminals, chaffing, corrosion or deterioration of the insulation.
3. Keep the cooling fins free of dirt and debris. Do not expose the charger to oil, dirt, mud or to direct heavy water spray when cleaning equipment.
4. Inspect the ends of the charger cord and the vehicle receptacle housing for dirt or debris. Clean the connector monthly or more often if needed.

**HOW TO OPERATE THE VEHICLE**

**CAUTION**

Incorrect use of the vehicle or lack of maintenance can cause damage or decreased performance.

Read the following warnings before you operate the vehicle.

**WARNING**

To decrease the risk of severe injury or death resulting from the loss of vehicle control, the following warnings must be obeyed:

When driving the vehicle, understand the terrain, traffic conditions and the environmental conditions which change the terrain and the ability to control the vehicle. When possible, stay in approved areas and do not drive on steep slopes.

Maintain a safe speed when driving down hill. Use the brake to control speed when traveling down a slope. A sudden stop or change of direction can cause loss of control.
OPERATING PROCEDURES

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

Slow down before and during turns. All turns should be made at reduced speed. Never drive the vehicle up or down a slope that exceeds 14° (25% grade).

**WARNING**

Refer to GENERAL SPECIFICATIONS for the vehicle load and seat capacity.

When you leave the vehicle, turn the key to the OFF position and remove from the switch to prevent accidental operation.

Make sure the direction selector is in correct position before you press the accelerator pedal.

Make sure you completely stop the vehicle before you move the direction selector to a different position.

Do not take vehicle out of gear while in motion.

Before you drive in the reverse direction, make sure the area behind the vehicle is clear.

Driver and passengers must stay in their seats while the vehicle is in motion. Keep entire body inside vehicle and hold on while in motion.

Incorrect and irresponsible operation of this vehicle can cause dangerous conditions for the operator, passengers and other people in the area. Do not allow children or anyone without a license to operate the vehicle. Children may not have the skill and ability to make good decisions or strength to operate the vehicle.

Drugs and alcohol decrease the ability of the driver to operate the vehicle safely. Always check with a medical professional before you operate the vehicle.

When you drive the vehicle at full speed on a dirt road, loose surface or wet grass, the necessary distance to stop the vehicle increases. The necessary distance to stop a loaded vehicle is more than the necessary distance to stop a vehicle without a load. In wet weather conditions, apply light pressure to the brakes to supply enough friction to dry the brake unit. Wet brakes lose much of their effect.

If you drive on a steep hill and can not get enough traction, do not try to turn around on the hill. Slowly drive in reverse and use the brake to control the speed.

**NOTICE**

Reduced vehicle range and performance can occur in steep terrain and low temperature operating conditions.

Regenerative Braking

**WARNING**

To prevent the possibility of loss of control that could cause severe injury or death, use service brake to reduce speed.

This vehicle is equipped with a regenerative motor control system.

Example: If both of the following events occur:

a. The vehicle is being driven down a slope
b. The driver 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. When the regenerative braking system is activated by this sequence of events, the motor generates power that is returned to the batteries.

When the vehicle speed is reduced below the maximum by using the service brake, the speed will not increase unless
the throttle is increased. When the brake pedal is released the vehicle will slow down as it does with pedal up braking.

**Pedal-Up Braking**

Pedal-up braking is regenerative braking that occurs when the accelerator pedal is released while the vehicle is moving.

Example: If both of the following events occur:

a. The vehicle is being driven down a slope
b. The accelerator pedal is released

The pedal-up braking will slow the vehicle until the vehicle stops, or the accelerator pedal is applied. When pedal-up braking system is activated by this sequence of events, the motor generates power that is returned to the batteries.

**Parking Brake**

In the event that the vehicle will not move in forward or reverse, the automatic parking brake can be released using the instructions located on the controller splash shield beneath the seat on the passenger side of the vehicle. Refer to the Maintenance Procedures section of this manual for in-depth instructions.

**High Pedal Disable Feature**

High pedal disable prevents acceleration if the key is turned on while the accelerator is pressed.

**Starting and Driving**

All vehicles have an *interlock system* that disables the controller and prevents operation of the vehicle while the charger is connected. Remove the charger plug from the receptacle and correctly store the cable before you move the vehicle.

To operate the vehicle:

- Apply the service brake, put the key in the key switch and turn the direction selector to the correct direction.
- Slowly press the accelerator pedal to start the motor.
- When the accelerator pedal is released, the motor decreases the speed of the vehicle. To stop the vehicle quickly, press the service brake pedal.

**NOTICE**

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

**Starting Vehicle on a Hill**

The parking brake will activate automatically when the vehicle comes to a stop. To start the vehicle on a hill, press the accelerator pedal and the parking brake will be released.

**Coasting**

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

**NOTICE**

*This vehicle is equipped with a feature (pedal-up braking) that slows the vehicle’s speed when the accelerator pedal is released, until the vehicle stops.*

**Labels and Pictograms**

The vehicle has labels with pictograms to supply information or warnings. Refer to the SAFETY section of this manual for the description of the labels.
OPERATING PROCEDURES

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

Canopy Top and Windshield

![WARNING]

Always keep arms and legs inside of the vehicle when the car is moving.

The canopy top and windshield are designed to provide some protection from the elements, but the occupants may get wet during severe weather. The windshield does not provide protection from flying objects.

If the vehicle is equipped with the optional strobe light overhead clearance will be reduced.

Towing Gradability

Refer to the chart shown below for towing capacity.

### Towing Gradability

<table>
<thead>
<tr>
<th>Vehicle Speed**</th>
<th>Drawbar Pull†</th>
<th>0%</th>
<th>5%</th>
<th>10%</th>
<th>15%</th>
<th>20%</th>
<th>25%</th>
<th>30%</th>
</tr>
</thead>
<tbody>
<tr>
<td>mph/kmh</td>
<td>lbs/kg</td>
<td>lbs/kg</td>
<td>lbs/kg</td>
<td>lbs/kg</td>
<td>lbs/kg</td>
<td>lbs/kg</td>
<td>lbs/kg</td>
<td>lbs/kg</td>
</tr>
<tr>
<td>2.0/3.2</td>
<td>468/212</td>
<td>1418/6436</td>
<td>4267/1935</td>
<td>2192/994</td>
<td>1213/550</td>
<td>621/282</td>
<td>249/113</td>
<td>-</td>
</tr>
<tr>
<td>6.0/9.7</td>
<td>455/206</td>
<td>1374/6232</td>
<td>4103/1861</td>
<td>2092/949</td>
<td>1136/516</td>
<td>562/255</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10.0/16.1</td>
<td>354/161</td>
<td>1036/4703</td>
<td>2875/1304</td>
<td>1312/595</td>
<td>568/258</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>16.0/25.7</td>
<td>151/68</td>
<td>362/1645</td>
<td>418/190</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Grades designated in this chart indicate "climbing ability" of the vehicle with one operator and no bed load. Other considerations such as braking, road surface, type of load and stability must be made for safe operation. Consult factory for specific requirements.

*Payload - Vehicle payload must not exceed vehicle payload rating. Balance of load must be trailed weight (trailer weight plus load on trailer).
**Vehicle speed at Peak Torque.
†Formula: Weight to be pulled multiplied by .03 equals Drawbar Pull required.

Truck Bed Operation

![WARNING]

Failure to follow these instructions can cause personal injury, damage the vehicle or cause the vehicle to tip over. Be aware of the load when you operate the vehicle. Read, understand and follow the warning label attached to the front of the load bed.

Do not allow passengers to ride in the truck bed. A sudden move or stop can cause severe injury or death to passengers in the truck bed.

Before operating, make sure no one is behind the vehicle.

A load bed warning label is attached to the inside front of the truck bed. Understand and obey the warnings on this label for safe operation of the vehicle.

- See the load bed warning label for maximum load.
- Position the load in the truck bed as far forward as possible.
• Make sure the center of gravity of the load is within the height limit shown on label.
• Secure the load to the truck bed.
• Be aware of the load when you operate the vehicle.
• Do not let passengers to ride in the truck bed. Do not drive the vehicle with the truck bed lifted or with the tailgate unsupported.

**WARNING**

Never fill a gas container in the truck bed. Static discharge can ignite gasoline vapor and cause an explosion.

Always put the gas container on the ground before you fill with gas. Never fill a gas container in the truck bed. Static electricity accumulates during the fueling process and can discharge and cause the gasoline vapor to ignite.

**Manual Lift Bed Operation**

**WARNING**

Use caution when you operate the truck bed latch to make sure the truck bed does not accidentally drop during lift or lower procedure. If the truck bed drops, fingers or other body parts can be trapped.

To lift the truck bed, pull up the latch release handle behind the driver seat. Use the latch handle to lift up on the truck bed.

To lower the truck bed, pull the manual load bed latch down. Use the latch handle to lower the truck bed into the resting position. Make sure your hands are not trapped by the truck bed.
Tailgate Operation

Open the tailgate:

- Lift the tailgate upward with a sharp pull
- Pivot out for open position

Remove the tailgate:

- Remove the side cables from the truck bed
- Open the tailgate and allow to swing completely down
- Lift the tailgate upward to remove from the pins and the truck bed.
Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

Notes:
Notes:
MAINTENANCE

VEHICLE CLEANING AND CARE

⚠️ WARNING ⚠️

To decrease the risk of severe injury, read and understand all instructions supplied by the manufacturer of the pressure washer before use.

⚠️ CAUTION ⚠️

When you clean the outside of the vehicle with a pressure washer, do not use more than 700 psi pressure. Keep a minimum distance of 12 inches from the spray nozzle to the painted surface. Do not clean the plastic parts with abrasive solvents.

Make sure you use correct methods and cleaning materials to prevent risk of damage to the outside of the vehicle. The use of more than 700 psi water pressure can cause injury to anyone in the area or damage to vehicle.

Clean the windshield with water and a clean cloth. Remove small scratches with a plastic polish or Plexus® plastic cleaner, available from the service parts department.

Apply a soap and water solution with a sponge or soft brush to clean the vinyl seats and plastic or rubber trim. Dry with a cloth.

Use a commercially available vinyl and rubber cleaner to remove oil, tar, asphalt, shoe polish, etc.

Wash the vehicle frequently with cool water and mild detergent to protect the painted surfaces.

Apply wax that is for clear coat automotive finishes to improve the appearance and protection of the painted surfaces. Do not apply wax to matte finish 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.

Materials used as fertilizers or for dust control can collect on the bottom of the vehicle. These materials will cause corrosion of components, unless cleaned with water. Clean areas where mud or dirt can collect. Loosen the sediment that is packed in closed areas to help with removal. Be careful not to damage the paint.

ENVIRONMENTAL CONCERNS

⚠️ WARNING ⚠️

As a responsible user, practice respect for all wildlife and their habitat. Respect private property and comply with all local laws and regulations governing the use of light duty utility vehicles.

Always be respectful of the environment.

Make sure you are permitted by property owners to operate the vehicle on their property.

There is a risk of fire when the vehicle is operated near combustible material.

Be careful of environmental hazards like steep slopes, tree branches, etc.
Battery Disposal
Return used batteries to the manufacturer or lead smelter for recycling purposes. For neutralized spills, put residue in acid-resistant containers with absorbent material such as sand. Dispose in accordance with local, state and federal regulations for acid and lead compounds. Contact authorized environmental people for information about disposal.

LIFTING THE VEHICLE
You must lift the front, the rear or the entire vehicle for some service and maintenance operations.

**WARNING**

The vehicle is not stable during the lifting process.

Make sure the vehicle is on a hard and level surface.

Never get below a vehicle that is supported by a jack only.

Make sure a vehicle that is supported on jack stands is stable before you get under the vehicle.

Put wheel chocks in front and behind the wheels that remain on the ground.

Do not allow any person in or on the vehicle being lifted.

**CAUTION**

When you lift the vehicle, put the jacks and jack stands at the areas indicated only.

<table>
<thead>
<tr>
<th>Tool List</th>
<th>Quantity</th>
<th>Tool List</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor Jack</td>
<td>1</td>
<td>Jack Stands</td>
<td>4</td>
</tr>
<tr>
<td>Wheel Chock</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remove payload from vehicle before lifting. No person(s) should be in or on the vehicle while lifting.

**How to lift the entire vehicle:**

1. Install the wheel chocks in front and behind each front wheel
2. Place the jack under the rear axle tube next to the differential housing.
3. Lift the vehicle enough to place two jack stands under the frame where the leaf spring mounting brackets are welded to the frame.
4. Lower the jack and test the stability of the vehicle on the two jack stands.
5. Place the jack under the center front just behind the bumper.
6. Lift the vehicle enough to place two jack stands under the frame where the instrument panel support is attached to the frame.
7. Lower the jack and test the stability of the vehicle on all four jack stands.
How to lift the rear of the vehicle only:
1. Install the wheel chocks in front and behind each front wheel.
2. Place the jack under the rear axle tube next to the differential housing.
3. Lift the vehicle enough to place two jack stands under the frame where the leaf spring mounting brackets are welded to the frame.
4. Lower the jack and test the stability of the vehicle on the two jack stands.

How to lift the front of the vehicle only:
1. Install the wheel chocks in front and behind each rear wheel.
2. Place the jack under the center front just behind the bumper.
3. Lift the vehicle enough to place two jack stands under the frame where the instrument panel support is attached to the frame.
4. Lower the jack and test the stability of the vehicle on the two jack stands.

Lower the vehicle:
1. Lift the vehicle enough to remove the jack stands.
2. Carefully lower the vehicle to the ground with the jack.

WHEELS AND TIRES
Recommended tire inflation pressure: 16 - 20 psi.

**WARNING**

To decrease the risk of tire explosion, do not exceed the tire inflation pressure rating on the tire sidewall.

To decrease the risk of tire explosion, inflate small amounts of air into the tire at intervals to seat beads. Because of the low volume of the small tires, over inflation can occur in seconds. Never exceed the tire inflation pressure rating on the tire sidewall when seating a bead. Protect the face and eyes when you remove a valve core.

When you remove the wheels, use only sockets made for impact wrenches to decrease the risk of injury by a broken socket.

Do not use tires with low rated pressure. Do not use tires that have a recommended tire inflation pressure less than the tire inflation pressure recommended in the owner’s guide.

Do not over inflate the tires. Excess pressure can cause the tire to separate from the wheel or cause a tire explosion.
MAINTENANCE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

Tire Repair

Use caution when you inflate the tires. Because of the low volume of the small tires, over inflation can occur in seconds. Over inflation can cause the tire to separate from the wheel or cause a tire explosion.

The general recommended tire inflation pressure is 16 - 20 psi, but know that tire inflation pressure can change according to the condition of the terrain.

For outdoor applications with primary use on areas with grass, consider the following:

- Slightly higher tire inflation pressure is suitable on hard turf
- A lower pressure decreases the risk of tires cutting into a soft turf

For hard surfaces or pavement, tire inflation pressure must be in the higher allowed range, but not more than recommended on the tire sidewall.

**All four tires** must have the same pressure for best control qualities. Always install the valve stem cap after you check or inflate the tires.

The vehicle has low-pressure tubeless tires, installed on one-piece rims.

Use a tire plug to repair small holes in the tread part of the tire. For large holes and cuts, replace the tire.

**NOTICE**

*Tire plug tools and plugs are available at automotive outlets. The tires do not have to be removed from the wheel to install the tire plugs.*

If the tire is flat, remove the wheel and inflate the tire to the recommended maximum pressure for the tire. Submerge the tire in water to find the leak and mark with chalk. Install the tire plug according to manufacturers instructions.

Wheel Installation

**CAUTION**

*To decrease the risk of component damage, do not tighten lug nuts to more than 77 ft. lbs. (105 Nm) torque.*

**NOTICE**

*Always follow the cross-sequence pattern when you install the lug nuts to make sure the wheel is evenly seated against the hub.*

- With the valve stem to the outside of the wheel, install the wheel on the hub with lug nuts.
- Tighten the lug nuts (1) with your fingers in the cross-sequence pattern shown.
- Tighten the lug nuts to 63 to 77 ft. lbs. (85 to 105 Nm) torque in 20 ft. lbs. (27 Nm) increments.
- Continue to follow the cross-sequence pattern until the correct torque is reached.
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 towels to touch the glass part of the bulb.

Headlight Bulb Replacement
Make sure that the vehicle key switch is in the OFF position and the key has been removed. Locate the headlight bulb socket on the backside of the light assembly.

- Disconnect the accessory harness (3) from the light bulb.
- Turn the headlight bulb (2) clockwise and pull to remove.
- Align the new bulb with the opening in the back of the headlight assembly.
- Turn the bulb (2) counter clockwise until it stops.
- Connect the accessory harness (3) to the light bulb (2).

Turn Signal Bulb Replacement
Make sure that the vehicle key switch is in the OFF position and the key has been removed.

- Remove the two Phillips head screws (4) that secure the lens (5) to the fascia (6).
- Remove the turn signal bulb.
- Install the new turn signal bulb.
- Install the lens (5) and secure in place with the two phillips head screws (4).

Taillight/Brake Light Bulb Replacement
Make sure that the vehicle key switch is in the OFF position and the key has been removed.

- Remove the two phillips head screws (7) that secure the lens (8) to the taillight assembly.
- Remove the taillight bulb.
- Install the new taillight bulb.
- Install the lens (8) and secure in place with the two phillips head screws. (7)

Replacement bulbs are available from a local Distributor, an authorized Branch or the Service Parts Department.

FUSE REPLACEMENT
The fuse block is found below the driver seat. Lift the seat bottom to access the fuses. Remove the old fuse and replace with a new fuse of the same type and size. Fuses are available from a local Distributor, an authorized Branch or the Service Parts Department.
Hauling

WARNING

To reduce the possibility of severe injury or death while transporting the vehicle:

* Secure the vehicle and contents.
* Never ride on the vehicle being transported.
* The vehicle must be transported in the forward-facing position.
* Maximum speed while hauling the vehicle is 70 mph (112 kph).

If the vehicle is to be transported at highway speeds, the seat bottom and controls must be secured. Always check that the vehicle and contents are adequately secured before transporting. The rated capacity of the trailer or truck must exceed the weight of the vehicle (see GENERAL SPECIFICATIONS for vehicle weight) and the load plus 1000 lbs. (454 kg). Secure the vehicle using ratchet tie downs.

In the event that the vehicle will not move in forward or reverse, the parking brake can be released using the run/tow switch located under the seat on the passenger side. With the switch toggled to the TOW position and the key switch in N (neutral) position, the vehicle will roll freely without activating the reverse warning beeper or damaging the controller and motor. After moving the vehicle, return the run/tow switch to the RUN position; leaving the switch in the TOW position will drain the batteries.

In Case of Total Power Loss

In case of total power loss and the run/tow does not release the parking brake, refer to the instructions below the controller splash shield. Chock the tires to prevent the vehicle moving when the brake is released.

To access the instructions remove three re-usable plastic rivets securing the controller splash shield to the body and the controller. To remove the re-usable rivets, press the center of the rivet with the vehicle key, when the center pin snaps into place, the rivet can be removed. Repeat the process for each remaining rivet. Turn the splash shield over to reveal the instructions for releasing the parking brake.

To reinstall the controller splash shield, position the splash shield by aligning the mounting holes with the holes in the body. Push the center pin of each rivet upward so that the top of the pin is above the rivet head.
Place a rivet in each mounting hole of the controller splash shield and push down on the center pin until the top of the pin is flush with the rivet head.

**WARNING**

*This procedure should only be performed by qualified trained personnel.*

1. Locate the auxiliary power line (C) and remove the weather pack seal (D) from the connector.
2. Locate the primary power line connector (A) and disconnect it from line (B).
3. Connect the auxiliary power line (C) to the primary power line (A) which will release the brake. If the tires are not chocked and the vehicle is not on flat ground, the vehicle will move immediately.
4. Move the vehicle to desired, safe location and chock the tires immediately.
5. Disconnect the auxiliary power line (C) from the primary power line (A).
6. Connect the primary power line (A) to line (B).
7. Replace the weather pack seal (D) on the auxiliary power line connector (C).

**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 five 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 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 when you use the aerosol containers near battery terminals. Use a metal container that has insulation to prevent an explosion.

The vehicle owner and service technician must carefully follow the procedures recommended in this manual. The preventative maintenance, applied at recommended intervals, keeps the vehicle dependable and decreases costs for repairs. Refer to the Periodic Service Schedule for service and intervals. Refer to Lubrication Points for correct lubrication locations.

**CAUTION**

To decrease the risk of damage to the controller or motor, move the run/tow switch to the TOW position before you tow the vehicle.

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

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

**ROUTINE MAINTENANCE**

**CAUTION**

To increase the life of a vehicle that is used in rough conditions, some maintenance must be done more often than recommended in the Periodic Service Schedule. For example: high or low temperatures, high dust and dirt conditions, high use with maximum load.

To access the powertrain for normal maintenance, lift or remove the seat and remove the rear access panel. For major repairs, refer to the Technician's Repair and Service Manual.

Some service procedures make it necessary to lift the vehicle. Refer to LIFTING THE VEHICLE for correct lifting procedure and safety information.

**Tire Inspection**

Inspect the tire condition according to the Periodic Service Schedule. Tire inflation pressures must be checked when the tires are cool. Always install the valve dust cap after you check or inflate the tires.

**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.

**Brake Master Cylinder**

Fluid level in the brake master cylinder should be checked per the PERIODIC SERVICE SCHEDULE section. Brake fluid level must be maintained between the MIN and MAX indicators on the master cylinder body. Make sure that the area is clean and free of dirt before removing the cap from the master cylinder to add fluid.
MAINTENANCE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

ERROR AND WARNING CODES

Error and warning codes will display in the odometer window as a four or five digit number to indicate a potential problem with the vehicle. If an error or warning code is displayed, contact your E-Z-GO service representative.

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
<th>CODES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>Parking Brake Pad Wear Warning</td>
<td>12818</td>
<td>Battery Voltage High</td>
</tr>
<tr>
<td>1001</td>
<td>Power Reduction to Motor</td>
<td>12833</td>
<td>Battery Voltage Low</td>
</tr>
<tr>
<td>1002</td>
<td>Motor Speed Sensor</td>
<td>20753</td>
<td>15V Supply Low Voltage</td>
</tr>
<tr>
<td>1003</td>
<td>Controller Default Parameter</td>
<td>20755</td>
<td>Sensor Power Error</td>
</tr>
<tr>
<td>1004</td>
<td>State of Charger Meter Calibration</td>
<td>21008</td>
<td>Current Sensor Error</td>
</tr>
<tr>
<td>1005</td>
<td>Controller Temperature Low</td>
<td>21520</td>
<td>Electrical Short Detected</td>
</tr>
<tr>
<td>1006</td>
<td>Charger Connected</td>
<td>16912</td>
<td>Motor Temperature High</td>
</tr>
<tr>
<td>1007</td>
<td>Throttle Switch Closed at Start Up</td>
<td>17912</td>
<td>Controller Temperature High</td>
</tr>
<tr>
<td>1008</td>
<td>Reverse Alarm Test Failed</td>
<td>20755</td>
<td>Sensor Power Error</td>
</tr>
<tr>
<td>8976</td>
<td>Controller AC Over Current</td>
<td>21008</td>
<td>Current Sensor Error</td>
</tr>
<tr>
<td>9024</td>
<td>Controller AC Short Circuit</td>
<td>21520</td>
<td>Electrical Short Detected</td>
</tr>
<tr>
<td>12576</td>
<td>Controller Charging Time-out</td>
<td>25108</td>
<td>Parking Brake Sensor Error</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>BOLT SIZE</th>
<th>1/4&quot;</th>
<th>5/16&quot;</th>
<th>3/8&quot;</th>
<th>7/16&quot;</th>
<th>1/2&quot;</th>
<th>9/16&quot;</th>
<th>5/8&quot;</th>
<th>3/4&quot;</th>
<th>7/8&quot;</th>
<th>1&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 2</td>
<td>4 (5)</td>
<td>8 (11)</td>
<td>15 (20)</td>
<td>24 (33)</td>
<td>35 (47)</td>
<td>55 (75)</td>
<td>75 (102)</td>
<td>130 (176)</td>
<td>125 (169)</td>
<td>190 (258)</td>
</tr>
<tr>
<td>Grade 5</td>
<td>6 (8)</td>
<td>13 (18)</td>
<td>23 (31)</td>
<td>35 (47)</td>
<td>55 (75)</td>
<td>80 (108)</td>
<td>110 (149)</td>
<td>200 (271)</td>
<td>320 (434)</td>
<td>480 (651)</td>
</tr>
<tr>
<td>Grade 8</td>
<td>6 (8)</td>
<td>18 (24)</td>
<td>35 (47)</td>
<td>55 (75)</td>
<td>80 (108)</td>
<td>110 (149)</td>
<td>170 (230)</td>
<td>280 (380)</td>
<td>460 (624)</td>
<td>680 (922)</td>
</tr>
<tr>
<td>Class 5.8 (Grade 2)</td>
<td>1 (2)</td>
<td>2 (3)</td>
<td>4 (6)</td>
<td>10 (14)</td>
<td>20 (27)</td>
<td>35 (47)</td>
<td>55 (76.4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 8.8 (Grade 5)</td>
<td>2 (3)</td>
<td>4 (6)</td>
<td>7 (10)</td>
<td>18 (24)</td>
<td>35 (47)</td>
<td>61 (83)</td>
<td>97 (131)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class 10.9 (Grade 8)</td>
<td>3 (4)</td>
<td>6 (8)</td>
<td>10 (14)</td>
<td>25 (34)</td>
<td>49 (66)</td>
<td>86 (117)</td>
<td>136 (184)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Torque Specifications and Bolt Grades
MAINTENANCE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

CAPACITIES AND REPLACEMENT PARTS

<table>
<thead>
<tr>
<th>Capacities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear Axle Lubricant Mobil 434 Gear Oil</td>
<td>25 oz (740 ml)</td>
</tr>
<tr>
<td>Brake Fluid, DOT 3</td>
<td>As Required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Replacement Parts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuse (15 amp)</td>
<td>ATC 10A (E-Z-GO P/N 35212G07)</td>
</tr>
<tr>
<td>Headlight Bulb</td>
<td>894 (E-Z-GO P/N 74004G01)</td>
</tr>
<tr>
<td>Front Turn Signal Bulb</td>
<td>2057 (E-Z-GO P/N 604311)</td>
</tr>
<tr>
<td>Taillight/Brake light Bulb</td>
<td>2057 (E-Z-GO P/N 604311)</td>
</tr>
<tr>
<td>*Vehicle Key</td>
<td>E-Z-GO P/N 609680</td>
</tr>
</tbody>
</table>

If replacing a lost key, the number on the key must match the number on the ignition.

BATTERY CHARGING AND MAINTENANCE

**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.

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

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, but 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 decrease the life of the battery.

Battery Maintenance

<table>
<thead>
<tr>
<th>Tool List</th>
<th>Quantity</th>
<th>Tool List</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulated Wrench, 9/16&quot; (14 mm)</td>
<td>1</td>
<td>Battery Carrier</td>
<td>1</td>
</tr>
<tr>
<td>Hydrometer</td>
<td>1</td>
<td>Battery Maintenance Kit P/N 25587G01</td>
<td>1</td>
</tr>
<tr>
<td>Battery Protective Spray</td>
<td>1</td>
<td>Socket, 9/16&quot; (14 mm)</td>
<td>1</td>
</tr>
<tr>
<td>Torque Wrench</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 of 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.

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.
MAINTENANCE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

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.

**CAUTION**

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

A battery being charged will ‘gas’ with most of the gassing occurring at the end of the charging cycle. This gas is hydrogen, which is lighter than air. Water and sulphuric acid droplets is carried out of the battery vents by the hydrogen gas, but the loss is minimum. If the electrolyte level is high, the electrolyte blocks the vent tube and the gas pushes it out of 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 weakens the amount of acid within the electrolyte, and decreases the life of the battery.

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 and filter if needed. Refer to the water purity table for requirements.

<table>
<thead>
<tr>
<th>Impurity</th>
<th>Parts Per Million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>Clear</td>
</tr>
<tr>
<td>Suspended</td>
<td>Trace</td>
</tr>
<tr>
<td>Total Solids</td>
<td>100</td>
</tr>
<tr>
<td>Calcium &amp; Magnesium Oxides</td>
<td>40</td>
</tr>
<tr>
<td>Iton</td>
<td>5</td>
</tr>
<tr>
<td>Ammonia</td>
<td>8</td>
</tr>
<tr>
<td>Organic &amp; Volatile Matter</td>
<td>50</td>
</tr>
<tr>
<td>Nitrites</td>
<td>5</td>
</tr>
<tr>
<td>Nitrates</td>
<td>10</td>
</tr>
<tr>
<td>Chloride</td>
<td>5</td>
</tr>
</tbody>
</table>

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 25587G01) 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**

The watering device must only be used 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 that 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.

**Battery Charging**

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

**CAUTION**

Do not overfill batteries. The charge cycle will expel electrolyte and cause 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 accumulates 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 run over or trip over the cord set.
MAINTENANCE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

- The charger automatically turns off during the connect and disconnect cycle so no electrical arc is generated at the DC plug and receptacle contacts.

Battery Removal and Installation

**WARNING**

Improper handling of high voltage wiring, batteries, or control systems could result in serious or fatal injury by electric shock. Only qualified technicians should repair or access high voltage wiring, battery packs, and associated systems.

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

**CAUTION**

If the batteries are replaced, make sure they are the exact type and model originally supplied with the vehicle. Failure to follow this caution can result in damage to the vehicle’s electrical system.

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 retainer and tighten the hold downs to 44 - 55 in. lbs. (5 - 6.2 Nm) torque. The hold downs must be tight enough to prevent movement of the battery, but do 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.

Make sure you connect the battery wires as shown.

Tighten the battery terminal hardware to 95 - 105 in. lbs. (11 -12 Nm) torque. Do not over-tighten the terminal stud nut. Over-tightening causes a “mushroom” effect on the battery post, that prevents the terminal nut from being correctly tightened.

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

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.

When you clean the battery cases and terminals, do not use a water hose before neutralizing any acid deposits. The water hose 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.

Preparing Acid Neutralizing Solution

The correct cleaning method is to spray the top and sides of the batteries with a solution of baking soda and water. Apply this solution with a plastic spray bottle. The solution is 2 teaspoons (10 ml) sodium bicarbonate (baking soda) mixed with 1 quart (1 liter) of water. Spray the solution on all metal components near the batteries also.

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.
MAINTENANCE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

WARNING

Be careful when you use aerosol containers near the battery terminals. Use a container with insulation 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 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 such as sand. Dispose in accordance to local, state and federal regulations for acid and lead compounds. Contact state environmental officials for disposal information.

Prolonged Storage

CAUTION

Disconnect the battery charger, controller and other electronic devices for extended storage. All connected electronic components cause the discharge of batteries.

NOTICE

Put the run/tow switch in the RUN position for extended storage of the vehicle to prevent 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 (2°C) will lose 0.002 of specific gravity each day. If a completely charged battery has a specific gravity of 1.275, and the battery is not used, it becomes 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 decreases 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.

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.
Fault Diagnosis

Fault diagnosis is done for two reasons:

- A battery that performs poorly and is outside of the manufacturers specification must be identified to replace it within the terms of the manufacturer’s warranty. Different manufacturers have different requirements. Consult 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 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.

**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 to allow the water to adequately mix with the electrolyte.

The temperature of the electrolyte is important since the hydrometer reading must be adjusted to 80° F (27° C). High quality hydrometers are equipped with an internal thermometer that measures the temperature of the electrolyte and includes a conversion scale to correct the float reading. It is important to know that the electrolyte temperature is significantly different from the ambient temperature if the vehicle has been operated.
Using A Hydrometer

1. Draw electrolyte into the hydrometer and release it several times to permit the thermometer to adjust to the electrolyte temperature and note the reading. Examine the color of the electrolyte. Brown or gray 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 allow 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 (2° 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 lower reading cell(s).

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

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

Battery Charger Maintenance

Connect the charger plug into the vehicle receptacle and wait for the relay to activate.

Move the plug back and forth in the receptacle. If the charger turns off, check the plug for a broken red wire in the DC cord.
Notes:
NOTICE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

Notes:
PERIODIC SERVICE SCHEDULE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

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### PERIODIC SERVICE SCHEDULE

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<td>Batteries* - check electrolyte level, fill after charging if required* (if plates are exposed before charging add only enough water to cover any exposed plates and fill after charging)</td>
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<td>Rear Suspension - strut oil leakage, excessive play in hubs or king-pins, worn bushings, loose or missing hardware</td>
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*Use only distilled or purified water that is free of contaminants to fill batteries.
PERIODIC SERVICE SCHEDULE

Read all of SAFETY and this section before attempting any procedure. Pay particular attention to Notices, Cautions, Warnings and Dangers.

Notes:
To register your vehicle, go to http://www.ezgo.com

For warranty information, go to http://www.ezgo.com

For Genuine E-Z-GO Parts & Accessories, contact your local E-Z-GO dealer or visit www.shopezgo.com
Notes:
Read the following warnings before operating vehicle:

**WARNING**

When you leave the vehicle, turn the key to the OFF position and remove the key from the vehicle.

Drive the vehicle only as fast as terrain and conditions allow. Consider the terrain and traffic conditions. Consider environmental conditions that change the terrain and your ability to control the vehicle.

Do not drive fast downhill. Sudden stops or change of direction can cause a loss of control. Use the brake to control the speed of the vehicle when you drive down a slope.

When possible, stay in approved areas and do not drive on steep slopes.

Always keep feet, legs, hands and arms inside vehicle.

Do not drive on rough terrain.

Before you drive in the reverse direction, make sure the area behind the vehicle is clear.

Make sure the direction selector is in the correct position before you press the accelerator pedal.

Decrease speed before and during turns.

Make sure you completely stop the vehicle before you move the direction selector.

See GENERAL SPECIFICATIONS for the vehicle load and seat capacity.

**NOTICE**

Read the following information and warnings before operating vehicle:

In any product, components will eventually fail to perform properly as the result of normal use, age, wear or abuse.

Normal use, age, wear or abuse can cause some components on the vehicle to fail. The manufacturer cannot know all possible component failures or the methods that failures can occur. A vehicle in need of repair does not operate correctly and can be dangerous.

Be careful when you service the vehicle. Be aware of your safety and the safety of other people in the area. Some components are heavy, spring loaded, corrosive, explosive, can cause high amperage or get hot. Battery acid and hydrogen gas can cause injury. Do not put your hands, face, feet or body in a location that can expose them to injury if an unexpected situation occurs.

Always use the correct tools shown in the tool list and wear safety equipment.

**WARNING**

Remove all jewelry before you service the vehicle.

Do not allow loose clothing or hair to contact the moving parts.

Do not touch hot objects.

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.

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

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.

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.