



Columbia / ParCar OEM Parts

evtechnicalservices.com



COLUMBIA



2017

Model IS12

Stockchaser

Owner and Operator Manual



Preface

Welcome, and congratulations on your choice of vehicle from Columbia ParCar Corp.! Your vehicle has been designed and manufactured to conform to applicable sections of ANSI B56.8. Your safe use and operation of your vehicle is important to us. Any alteration of your Columbia vehicle that results in the vehicle being in noncompliance with applicable ANSI standards is strictly prohibited. Columbia ParCar Corp. is not responsible or liable for any damage that results from any such alteration, and all warranties for any such altered vehicles are null and void.

These vehicles are not designed for over-the-road use. They do not conform to Federal Motor Vehicle Safety Standards or EPA regulations, and are not equipped for operation on public streets, roads, or highways.

To the best knowledge of Columbia ParCar Corp., the material contained herein is accurate as of the date this publication was approved for printing. Columbia ParCar Corp. is not liable for errors in this manual or for incidental or consequential damages that result from the use of the material in this manual. Columbia ParCar Corp. reserves the right to change specifications, equipment or designs at any time without notice and without incurring obligation.

This manual contains proprietary information that is protected by copyright. All rights are reserved. No part of this manual may be photocopied, reproduced, or translated to another language without the written consent of Columbia ParCar Corp. Columbia ParCar Corp. products are manufactured under one or more of the following U.S. Patents - 2986162, 2987934, 3116089, 3144631, 3144860, 3229792, 3434887, 3559773, 3673359, 3680403, 3683716, 3709317, 4648473, Des. 225626.

CHANGE HISTORY		
DATE	DESCRIPTION	BY
7/1/2016	Issued 2017 Model Year	CPC

This manual provides important safety information, operating instructions, model specifications and maintenance instructions for the IS12 Stockchaser.

The information in this manual is limited to care and maintenance information only. Information covering repairs and technical service is provided in detailed service manuals available from Columbia Dealers. These activities require the attention of a skilled technician and the use of special tools and equipment. Your Columbia Dealer has the facilities, experience and genuine Columbia vehicle parts and accessories to properly service Columbia vehicles.

1115 Commercial Avenue • Reedsburg, WI 53959
Phone: (608) 524-8888 • Fax: (608) 524-8380
(800) 222-4653 • Web: www.columbiausa.com



TABLE OF CONTENTS

INTRODUCTION	PAGE
TABLE OF CONTENTS	1
SAFETY MESSAGES	2
VEHICLE DESCRIPTION.....	3
VEHICLE IDENTIFICATION NUMBER LOCATION	3
VEHICLE IDENTIFICATION NUMBER DECODING.....	4
VEHICLE SPECIFICATIONS	4
SAFETY	
GETTING STARTED.....	5
SAFETY GUIDELINES.....	5
VEHICLE SAFETY STATEMENTS	5
ADDITIONAL OPERATING SAFETY CONCERNS	7
OPERATIONS AND CONTROLS	
IMPORTANT FIRST STEP.....	7
INSPECTING THE VEHICLE	8
WHAT TO DO IN EVENT OF A PROBLEM NOTICED DURING INSPECTION	8
VEHICLE CONTROLS	9
HORN BUTTON.....	9
KEYSWITCH.....	9
BATTERY STATE OF CHARGE METER.....	10
SYSTEM STATUS LIGHT	10
HOUR METER INDICATOR.....	10
LIGHT SWITCH.....	10
DIRECTION KNOB	10
ACCELERATOR AND BRAKE PEDAL	11
PRE-OPERATION CHECKLIST	12
DRIVING THE VEHICLE	13
BACKREST POSITION	13
STEERING THE VEHICLE.....	13
PARKING THE VEHICLE.....	13
ELECTRIC SYSTEM	
BATTERY INSPECTION & MAINTENANCE	15
BATTERY CLEANING.....	16
CONDITIONS WHICH AFFECT CHARGING	17
BATTERY CHARGING SYSTEM	18
CHARGER ERROR CODES.....	19
CHARGER INTERNAL ALGORITHM SETTING.....	20
EXCESSIVELY DISCHARGED BATTERIES	21
BATTERY REMOVAL & INSTALLATION	21
TIPS FOR PROLONGING BATTERY LIFE	22
SINGLE POINT WATERING SYSTEM.....	22
ROLL OUT BATTERY TRAY.....	23





SERVICING YOUR VEHICLE

MAINTENANCE SCHEDULE - OWNER/OPERATOR.....	25
MAINTENANCE SCHEDULE - QUALIFIED TECHNICIAN.....	25
MAINTENANCE GUIDELINES.....	26
LIFTING INSTRUCTIONS.....	26
BRAKE PEDAL.....	27
TIRE CARE/WHEEL REMOVAL.....	27
CLEANING.....	27
LUBRICATION.....	27
STEERING CHAIN.....	27
VEHICLE TROUBLESHOOTING.....	28
CONTROLLER TROUBLESHOOTING.....	28

VEHICLE STORAGE

BATTERY PREPARATION.....	29
VEHICLE PREPARATION.....	30
RETURNING VEHICLE TO SERVICE.....	30
TOWING AND TRANSPORTING.....	30

WARRANTY

WARRANTY INFORMATION.....	31
SERVICE HISTORY.....	32
ADDITIONAL NOTES.....	33

SAFETY MESSAGES

Safety messages and other information in this manual are preceded by the words **DANGER**, **WARNING**, **CAUTION** or **NOTICE**. They are printed in bold face, and are very important. We recommend you take special notice of this information.

⚠ DANGER
Danger indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING
Warning indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION
Caution indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE: Notices are messages not related to personal injury. They will provide key information to prevent property damage and to assure procedures are more easily understood or implemented.



VEHICLE DESCRIPTION

The Stochaser is a single passenger vehicle involving stand-up operation. This vehicle is designed to be driven on smooth surfaces in and around industrial plants, warehousing, institutions, motels, mobile home parks, and resorts.

This vehicle is not designed to be driven on public highways. It is designed to conform to requirements for Type E vehicles as described in O.S.H.A. Standard Section 1910.178 (Powered Industrial Trucks) and with all applicable portions of the American National Standard for Personnel and Burden Carriers (ANSI B56.8 1993 Part III).

VEHICLE IDENTIFICATION NUMBER (VIN)

Each vehicle is assigned a unique Vehicle Identification Number (VIN). The VIN describes facts and features of the vehicle and contains thirteen (13) digits. The VIN can be found in two locations.

The VIN is recorded on the vehicle nameplate which is located on the left side of the operator's position.



The VIN is also stamped on the metal cross bar located under the foot treadle platform.



The nameplate also has other important information such as vehicle weights and capacity. Do not exceed this capacity. This rated capacity includes cargo and operator.

To ensure prompt service when repairs or adjustments are required, your Columbia Dealer must have the VIN.

NOTICE: Always provide the complete VIN when contacting your dealer for technical assistance or maintenance and repair parts.

For your own personal reference, fill in the VIN in the space provided below:



**VIN MATRIX - 13 DIGIT VIN**

Digit 1 thru 3 = Abbreviation (Model)	I2S (IS12 - Stockchaser)
Digit 4 = Power System	E = Separately Excited Regenerative
Digit 5 = System Voltage	2 = 24V, 4 = 48V
Digit 6 = VIN Spacer	- = normal
	# = Special Product
Digit 7= Controller Amperage	3 = 300A, 4 = 400A
Digit 8 = Axle/Brake System	Z = Rear Mechanical
Digit 9 = Build Year	Q = 2016, R = 2017, S = 2018 etc. (Letters I & O not used)*
Digit 10 Thru 13 – Build Sequence	1234

VEHICLE SPECIFICATIONS

Passenger Capacity	1-Standard, 7 with Transport Express Option
Max. Speed (MPH)	24V = 8.5mph, 48V = 10mph
Turning – Curb to Curb (in)	127
Turning –Intersecting Aisle (in)	55
Overall Length (in)	81.5
Overall Width (in)	29.5
Overall Height (in)	45
Wheelbase (in)	36
Load Bed Height (in)	24
Load Bed – LxW (in)	43 x 29.5
Towing Capacity	24V = 1000#, 48V = 1200#, w/Tow Option = 6000#
Tires	4.80x8, Pneumatic, 6 ply, Load Range C 4.80x8, Foam Filled, 6 ply, Load Range C





GETTING STARTED

For personal safety before operating the vehicle, it is the operator's responsibility to read, understand and follow the basic rules of operation and maintenance instructions in this manual. If you are responsible for the use of the vehicle, it is your responsibility to inform the person or persons using the vehicle about the following basic rules of operation for their personal safety.

It is Columbia ParCar Corp's specific recommendation that the following warnings must be observed at all times. Not all are repeated throughout this manual, but the recommendations included must be observed whenever these subjects (vehicle operation hazards, battery hazards, etc.) are encountered.

Please be a safe operator. Electric vehicles are only as safe as the person who is at the controls. If accidents are to be prevented, operators must accept their full measure of responsibility. While the designer, the manufacturer, the dealer and the safety engineer can help minimize the possibility of an accident, their combined efforts can be erased by a single careless act.

SAFETY GUIDELINES

Observe the following guidelines for safe operation.

- Define where vehicles may be driven.
- Define who should be allowed to drive the vehicle.
- Instruct first-time drivers.
- Maintain vehicles in a safe driving condition.
- Enforce safe-operating rules.

VEHICLE SAFETY STATEMENTS

⚠ DANGER

This vehicle will not provide protection from lightning, flying objects, or other storm related hazards. If driving the vehicle in a storm, leave the vehicle and take shelter as per safety guidelines for your location.

Any modifications or changes to the vehicle that affect the stability, steering or result in increased speed beyond factory specifications could result in vehicle damage, severe personnel injury or death.

⚠ CAUTION

When replacement parts are required, use only genuine Columbia vehicle parts.

No modifications or additions, which affect the mechanical or electrical integrity and the safe operation of the unit, shall be made without the written approval of the manufacturer. If in doubt about any modification, contact your local Columbia Dealer or Columbia ParCar Customer Service.



⚠ WARNING

Only trained service professionals should repair or service this vehicle. Persons doing even simple repairs or maintenance should have working knowledge and experience in general electrical and mechanical repair.

Follow all procedures exactly and observe all safety messages stated in this manual. Working on vehicles without following proper procedures and using proper equipment may result in vehicle damage or personal injury.

Moving parts hazard! When operating any vehicle in a stationary position, avoid components which could snag clothing or cause sever injury to body parts. A running vehicle must be worked on with the greatest care.

Failure to maintain vehicle properly could result in decreased vehicle performance, reliability or cause severe personal injury.

Always wear safety glasses or approved eye protection while performing vehicle maintenance.

This vehicle is not Federal or State DOT approved and is not equipped to be operated on public roads or highways.

Do not exceed the rated vehicle speed. Exceeding this speed may result in steering difficulty, motor damage, and/or loss of control and injury.

Never exceed the capacity ratings of the vehicle. Exceeding these limits may endanger occupant or cause vehicle damage.

Completely stop vehicle before stepping off.

If vehicle is to be left unattended, turn keyswitch to “OFF” and remove key.

Drive slowly in turns and up and down grades. Do not make turns on steep hills or inclines.

Do not operate while under the influence of alcohol or drugs.

To avoid the risk of injury or vehicle damage, operate at maximum speed only on smooth flat surfaces.

Allow additional stopping distance when traveling at higher speeds.

Do not drive this vehicle in hazardous areas unless this vehicle is approved and labeled for such operation.



ADDITIONAL OPERATION SAFETY CONCERNS

It is recommended that the operator and owner or renter of this vehicle comply with the OSHA requirements as stated in the Code of Federal Regulations, Section 29, 1910.178, Powered Industrial Truck Training Standard and the ANSI requirements as stated in Personnel and Burden Carriers ANSI B56.8.

As a minimum every operator should, in addition to the above requirements found in the standards noted above:

- Demonstrate a working knowledge of each control.
- Understand all safety rules and guidelines as presented in this manual.
- Know how to properly load and unload cargo.
- Know how to properly park the vehicle.
- Recognize an improperly maintained vehicle.
- Demonstrate ability to handle the vehicle in all conditions.

Every owner or renter of this vehicle must, at a minimum:

- Define where the vehicles should and should not be driven and utilized.
- Ensure all proper warnings as to driving hazards are properly displayed and visible.
- Install safety signage concerning hills, speed bumps, ramps, turns, blind crossings, intersections, etc.
- Define who should and who should not drive the vehicles.
- Enforce safe driving and operating rules.
- Provide driver training for first time operators and review safe operating recommendations regularly.
- Maintain vehicles in a safe operating condition and maintain a schedule for daily, weekly, monthly, quarterly, semi-annually and annual vehicle inspections.
- Determine who, when, and how should pre-operation inspections be conducted.
- Notify operators what should be done if an unsafe condition or operating problem is discovered.

IMPORTANT FIRST STEP

Upon initial delivery, it is very important that the battery pack is properly charged. This is required if the vehicle is to be stored for later use or is to be used immediately.

- Check that the batteries are not damaged or leaking and that connections are tight.

NOTICE: The following information does NOT apply to sealed batteries.

- Remove the battery vent caps and inspect each cell for proper electrolyte level. The battery manifold assemblies on vehicles with a single point watering system will require a ¼ counterclockwise turn to be removed for this inspection.
- If the electrolyte level is below the plates add only enough water to cover the plates.

NOTICE: Do not overfill a cell. Electrolyte expands and can overflow during charging.

- With the electrolyte level correct, use the on board charger to charge the batteries. Charging is complete when the remote LED is steady green.
- Vehicles without a single point watering system, after charging, refill cells to below the bottom of each cell vent.



INSPECTING THE VEHICLE

Upon receipt of vehicle, perform a pre-delivery inspection of the vehicle. Also, before using the vehicle, there are checks that must be performed to ensure that it is in safe proper working order.

NOTICE: Vehicle should be inspected immediately after delivery. Use the following guidelines to make sure there are no obvious problems.

Examine the contents of all packages and accessories that may have come in separate packages with this vehicle. Make sure everything listed on the packing slip is there. Items should not be broken or damaged.

Examine any visible wiring for obvious signs of damage. Check that all connections are secure. Check that battery connections are tight and all cells are filled to above plates. Check for damaged or leaking batteries.

Inspect the tires for obvious wear or damage. Check for proper tire inflation. Refer to manufactures recommendation imprinted on tire sidewall. Make sure that all wheel lugs are secure.

Check the body and other parts for obvious damage. Look for body damage, jagged edges etc. that may cause personal injury.

Operate each of the following controls before turning on the power keyswitch.

- Accelerator / Brake Pedal
- Steering Wheel

NOTICE: Each control should operate smoothly and easily without sticking or requiring excessive effort.

Check that the horn sounds and that the key can only be removed when keyswitch is in the "OFF" position.

WHAT TO DO IF YOU HAVE A PROBLEM

If vehicle has just been delivered, report any physical damage or missing items to the shipping company and your local Columbia Dealer.

Report any service issue problems to the individual(s) responsible for correction and/or repair or contact your local Columbia Dealer for service.

⚠ DANGER

If any problems are found, Do not operate vehicle until repairs are made. Failure to make necessary repairs could result in fire, severe personal injury, property damage or death. Consult your local Columbia Dealer for professional service.

OPERATIONS AND CONTROLS



HORN BUTTON

The horn button is located on the upper left side body panel and may be sounded by applying pressure.



KEYSWITCH

The keyswitch is on the right side of the console and energizes the vehicle. Rotate the key to the right from vertical to turn the vehicle on, return to vertical to turn the vehicle off.

The keyswitch should be in the vertical OFF position whenever the operator leaves the vehicle. The switch is also designed to secure and disable the vehicle. You can remove the key only when the key switch is in the OFF position.



OPERATIONS AND CONTROLS (Continued)



(A) BATTERY STATE OF CHARGE METER

The battery state of charge meter on the left side of the console is an analog gauge with an indicating needle and a colored background. It is a continuously reading meter. At rest with fully charged batteries the meter should read in the right white region.

When accelerating quickly, the needle will move to the left green region near the very far left red region. This is normal. If the needle continues past the green region into the very far left red region, it indicates that the batteries need recharging as soon as possible to avoid a shut-down of the vehicle.

(B) SYSTEM STATUS LIGHT

If equipped, the green system status LED will light when the power keyswitch is turned to the “ON” position. This indicates the controller is powered up and should display a steady green light.

With the power keyswitch “ON”, if this green status light is not lit or is flashing refer to the controller troubleshooting section later in this manual.

(C) HOUR METER INDICATOR

If equipped, the hour meter indicates the total number of hours the vehicle has been operating.

(D) LIGHT SWITCH

If equipped, the light switch is a two-position switch. Move switch up to activate headlights and taillights, down to turn off.

(E) DIRECTION SELECTOR

When the direction selector is in the vertical position, the vehicle’s direction signal is turned OFF or in neutral (N).

Turn direction selector to the right from vertical position to move the vehicle in forward (F) direction. Turn direction selector to the left from vertical position to move the vehicle in reverse (R) direction. A warning buzzer sounds when in reverse.

NOTICE: Vehicle must be stopped before changing direction selector or damage to controller or motor could occur.

ACCELERATOR AND BRAKE PEDAL



The accelerator/brake pedal moves the vehicle when the toe portion of the pedal is depressed.

When the pedal is in the upright position, the spring applied brake system is engaged.

With the direction selector in the desired direction of travel, depress the pedal slowly until the appropriate speed is reached.

Reducing pressure on the pedal slows the vehicle. Release the accelerator/brake pedal slowly and completely to stop the vehicle. Rapid release of the pedal will stop the vehicle abruptly.

⚠ CAUTION

To avoid injury, speed in reverse should always be kept at a minimum.

Be sure the direction selector is in the desired direction of travel before depressing the accelerator pedal.

⚠ DANGER

This vehicle is equipped with a dual braking system.

When the accelerator pedal is in the raised position, the service spring applied mechanical brake system will activate the brake shoes on the axle assembly. This function operates regardless of power application.

When power is applied, the vehicle controller will also function in the regenerative braking mode. This function operates when the accelerator is in the raised position and the unit is travelling forward or reverse. This function does NOT operate with power turned off.

In the event of a runaway condition, leave power applied and lift left foot from accelerator pedal.



PRE-OPERATION CHECKLIST

⚠ CAUTION

Before operating the vehicle always inspect the items listed in the following checklist. Should any item malfunction or need adjustment. Do not operate vehicle until the problem has been corrected.

ITEM	PROCEDURE
Batteries	Fully charged or adequately charged to provide power for duration of operations.
	The AC cord is disconnected from the vehicle.
	Electrolyte level in each cell covers the top of cell plates.
	Batteries are secure and free of corrosion.
	All terminals and connections are tight.
Tire Pressure	Inflated to the specifications labeled on the tire sidewall.
Horn	Press horn button to sound horn.
Beeper	Reverse beeper sounds when R is selected for direction of travel. Note: Some units may be programmed to operate in F and R.
Accelerator/Brake Pedal	Operates smoothly. With pedal in the upright position, the vehicle should not be able to be moved. If vehicle moves, do not use and contact your dealer for service.
Labels	All warning and operation labels in place.
Steering	Responsiveness and the absence of excessive free play.
Cargo	Secured to the bed platform.
	Load is balanced and not top heavy.
Obstacles	Path of intended travel is free for obstructions.



VEHICLE OPERATING INSTRUCTIONS

DRIVING THE VEHICLE

- Do not operate vehicle unless you are a qualified and trained operator.
- Keep the vehicle under control at all times.
- Drive only on level surfaces or on surfaces having an incline of no more than 10%.
- Drive slowly when making a turn, especially if the ground is wet, slippery or when driving on an incline.
- Do not drive this vehicle in hazardous areas unless this vehicle is approved and labeled for such operation.
- Do not drive over loose objects, holes or bumps.
- Observe all traffic regulations and speed limits.
- Keep to the right of traffic under normal conditions.
- Maintain a safe distance from all objects and other vehicles.
- Yield right of way to pedestrians, ambulances, fire trucks or other vehicles in emergencies.
- Do not overtake another vehicle at intersections, blind spots or other dangerous locations.
- Keep a clear view ahead at all times. Slow and sound the horn when approaching a corner or other blind intersection.
- Immediately report any accident or vehicle problem to your supervisor.
- Do not load cargo that can easily fall off this vehicle.
- Do not exceed the cargo load capacity of this vehicle.

ADJUSTING BACKREST POSITION

The rear operator support bar is adjustable for optimum distance from steering wheel. To adjust forward or rearward, loosen lower bolts, and remove and reinstall upper bolts to either upper hole pattern. (Shown in rearward position)

Backrest should be positioned so operator maintains best control of unit.

Note that if equipped with ladder as rear support bar, this is in the forward position and not adjustable due to stability concerns.



STEERING

The steering system is designed to operate as an auto does. The vehicle will turn to the same direction as the steering wheel is turned.

CAUTION

Be sure to have both hands on the steering wheel at all times. Do not turn the vehicle sharply at high speeds.

PARKING

- If you will be away from this vehicle turn off the keyswitch, remove the key and take the key with you.
- If you park this vehicle on an incline, block the wheels.
- Do not block fire aisles, fire equipment, or stairways.



ELECTRICAL SYSTEM

The type of battery used in a Columbia vehicle has a service requirement which is quite different from that of an automotive battery.

The electric vehicle battery supplies all of the power to drive the vehicle. During operation the power stored in the batteries is expended. While the amperage drain rate can vary greatly depending on the type of service, the duration of use and the number of "starts" and "stops" made during a day, the batteries nevertheless progress through each duty cycle from "fully charged" to an almost depleted state. This type of service is known as "deep cycle" service and electric vehicle batteries are specifically designed to handle this type of service.

Proper performance of your Columbia Vehicle can only be obtained from specified deep cycle, electric vehicle batteries.

PLEASE REVIEW IMPORTANT DANGER STATEMENTS WHEN WORKING NEAR BATTERIES AND CHARGING SYSTEMS!

⚠ DANGER

Battery acid is poisonous and can cause severe burns. Avoid contact with skin, eyes, or clothing.

ANTIDOTES:

EXTERNAL: Flush with water. Call a physician immediately.

INTERNAL: Drink large quantities of milk or water. Follow with milk of magnesia or vegetable oil. Call a physician immediately.

EYES: Flush with water for fifteen minutes. Call physician immediately.

⚠ DANGER

Always remove key and disconnect battery pack before servicing or repairing the vehicle. See BATTERY DISCONNECT METHOD.

Always wear full-face shield when working on or near batteries.

All batteries used in electric vehicles can explode! Batteries produce explosive hydrogen gas at all times, especially, during charging or discharging. Ventilate area when charging batteries.

Do not attempt to charge a battery if it is frozen, or if the case is bulged excessively. Frozen batteries can explode! Properly dispose of the battery.

Do not smoke around batteries. Keep sparks and flames away from batteries and the charging area. Use care to prevent an accidental arc which could cause an explosion. Use only approved insulated tools, remove jewelry such as rings, watches, chains etc. and place an insulating material (wood, plastic, rubber etc.) over all battery connections.

Never add acid to a battery.

⚠ WARNING

To reduce the risk of electrical shock or injury:

Do not use an ungrounded two to three-prong adapter to connect the charger to a two-prong outlet or extension cord.

The battery charger must be properly grounded. Use a three prong No. 12 AWG heavy duty power cord no more than 50 feet long.

Locate all cords so that they will not be stepped on, tripped on, or otherwise damaged. Immediately replace worn, cut, or damaged power cords or wires.

Do not connect the power cord near fuels, grain dust, solvents, thinners, or other flammables. The spark can ignite flammable materials and vapors

NOTICE: Automotive batteries should never be used for "deep cycle" application, as their useful life will be very short.

Damaged or corroded battery terminals should be replaced or cleaned as necessary. Failure to do so may cause overheating during operation. Torque connections to 100 in. lbs.

Do not attempt to recharge batteries with a charger not designed for your vehicle.

Only trained technicians should service the charger. Contact your Columbia Dealer for assistance.

NOTICE: Install surge arrestors on incoming AC power lines. Surge arrestors will help protect electrical/electronic components in the charger and vehicle from all but direct or "close proximity" lightning strikes.

BATTERY INSPECTION & MAINTENANCE

1. Be sure battery hold downs are properly tightened. A loose hold down may allow the battery to become damaged from vibration or jarring. A hold down that is too tight may buckle or crack the battery case.
2. Weekly inspect battery posts, clamps and cables for breakage, loose connections and corrosion. Replace any that are damaged. Batteries and connections must be clean and dry. Torque connections to 100 in. lbs.
3. Weekly an equalization charge is to be applied to the battery pack. This process balances the electrical charge in the battery pack and will extend battery life. The following procedure is used to complete this.
 - Charge the battery pack allowing the charger to go to green 100% charge.
 - Once the green LED lights unplug the power cord.
 - Wait approximately 30 seconds. Reconnect the power cord and allow the charger to complete a second charge cycle.
 - If the vehicle is not to be used, leave power cord connected. The on-board charger can test and recharge as needed.

NOTICE: Automotive batteries should never be used for "deep cycle" application, as their useful life will be very short.

Install surge arrestors on incoming AC power lines. Surge arrestors will help protect electrical/electronic components in the charger and vehicle from all but direct or "close proximity" lightning strikes.

Damaged or corroded battery terminals should be replaced or cleaned as necessary. Failure to do so may cause overheating during operation.

Do not attempt to recharge batteries with a charger not designed for your vehicle.

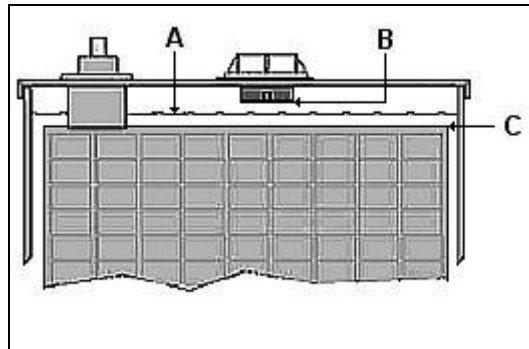
Only trained technicians should service the IS-12 charger. Contact your Columbia Dealer for assistance.

BATTERY CLEANING

Acid-soaked debris on the battery terminal connections will cause current leakage, reduces battery efficiency, and battery life.

Hose wash battery terminal connections periodically with clean low-pressure water to keep them free of acid spillage, dirt, and other debris. Do not hose wash electronic controllers, switches, solenoids and other electrical control devices. Cover as necessary to prevent splashing. Clean battery terminal connections with baking soda (sodium bicarbonate) and water solution. Mix 5 teaspoons baking soda per quart of water. Use a stiff bristle brush, rinse with clean water and dry with a clean cloth. Torque connections to 100 in. lbs

NOTICE: The following information does NOT apply to sealed batteries.



1. Check the electrolyte level on new batteries before they are put into service, and, at a minimum, once a week thereafter. Water use increases as batteries age. If the vehicle is equipped with a Single Point Battery Watering System see the information on this in this section.
2. Never allow the electrolyte level (A) to fall below the top of the plates (C). If the plates are exposed, add only enough to cover the plates before charging.
3. After batteries are fully charged, fill cells to just below the bottom of the cell vents (B), approximately 1/8" to 1/4". Electrolyte level should not touch the bottom of the cell vents.
4. Do not overfill batteries. Electrolyte expands and can overflow during charging. Water added to replace the spillage dilutes the electrolyte and reduces its specific gravity.



BATTERY CLEANING (Continued)

5. Use only distilled water. Vehicle batteries may use up to 16 quarts of water during their useful life and non-distilled water may contain harmful minerals which will have a cumulative adverse effect on battery performance and life.
6. Check to see that battery cap vent holes are clear. Plugged vent holes will not permit gas to escape from the cell and could result in battery damage. Check that all vent caps are tightly in place. Do not allow water or cleaning solution to enter cap vent holes.

NOTICE: Follow local ordinances and codes for proper disposal of battery cleaning waste.

CONDITIONS WHICH AFFECT CHARGING

Always schedule enough charging time so the charger attains the 100% level. Charging time is affected by age and battery condition, state of discharge, electrolyte temperature, AC line voltage, and other variables. Correct charging methods extend battery life and vehicle range between charges. If vehicle is used only occasionally, a refresher charge should be given prior to using.

New batteries need up to four hours more charging than “mature” batteries. Before the first use, completely charge new batteries. Charging time will vary based on conditions noted above but will probably be 12 hours.

Limit new batteries use between charges for the first 25 – 50 cycles. New batteries have less capacity than seasoned batteries. New batteries should not be discharged more the 20 – 30% before recharging. This will prevent premature battery failure.

Battery efficiency is affected by temperature. If the temperature of the outside air and/or batteries is below 60° F, battery capacity is reduced. Batteries will require more frequent and longer charge periods in early spring, fall and winter.

As batteries age, they finish charge at progressively higher charge rates and tend to use more distilled water. At this point in battery age, charger will automatically begin reducing charge time.

Batteries found defective must be replaced. All batteries in a vehicle should be matched according to age, capacity and brand.

BATTERY CHARGING

Connect the supplied power cord to the vehicle charger receptacle and to a properly grounded 120 volt AC supply minimum 20 amp circuit wall outlet. Charger start and charge time is automatic. The receptacle is located directly beneath the key switch on the right side of the console.



Charger start and charge time is automatic. The remote LED will be flashing short green. If this LED is not lit check the AC connection and the AC source fuse or breaker. If this fails to correct the problem, contact your Columbia Dealer for assistance.

Charger will automatically turn on and conduct a short self-test and battery pack test. The LED will flash in sequence and then a trickle current will be applied to batteries until a minimum voltage is reached.

If the batteries meet the minimum voltage requirements of the charger, signifying they are serviceable (chargeable), the charger enters the bulk charging (higher amperage-constant current) stage. The remote LED will be flashing short green.

NOTICE: If the batteries are excessively discharged, the charger will not be able to charge the complete set of batteries. The remote LED will be flashing red (see Red Light Charger Error Codes). It will then be necessary to follow the Special Charging for Excessively Discharged Batteries.

When the charger has completed approximately 80% state of charge the remote LED will flash long green as the last 20% of charge is returned to the batteries in the second phase (constant voltage phase).

NOTICE: You can terminate charging at this point if necessary. The vehicle can be used, but completing the charge cycle is highly recommended.

A Green LED continuously lit indicates the batteries are completely charged. The charger may now be unplugged from the AC source. If the batteries will not be used for a length of time, check monthly for the charge level. It is also acceptable to leave the charger plugged in. The charger has the capability to test and recharge if necessary.

Repeated "Short Charging", leaving the charge short of 100% will shorten operating cycle distance and reduce battery life.

A fault occurring while charging causes the remote LED to flash with a code relaying the error. Some errors may require repair by a qualified technician and others may be simply transient and will automatically recover when the fault condition is eliminated and the charger cycled by disconnecting the AC source for a minimum of 11 seconds.

NOTICE: A Yellow (Amber) flashing remote LED indicates the thermostatic control has limited the charger output due to ambient temperature conditions. It is still charging, but at a reduced rate.



RED LIGHT CHARGER ERROR CODES

1 FLASH = Battery Voltage High: Auto-recover. May be temporary condition, or wrong charger installed, i.e. 36 volt charger on 48 volt battery pack.

2 FLASH = Battery Voltage Low: Auto-recover. Confirm each individual batteries minimum voltage with a voltmeter. Two or more 6 volt batteries register less than 5.85 volts, or accumulative total pack voltage has been discharged to less than 20% remaining. Vehicle operation will cease until batteries are recharged.

3 FLASH = Charge Timeout: The charging did not complete in allowed time, 12-14 hours. This may indicate a battery problem, or that the charger output was reduced due to high ambient temperatures. Disconnect AC supply, confirm sufficient ventilation, allow cool down time, and restart charger.

NOTICE: If the charger is exhibiting a 3 flash fault and it has been determined that the cause was not due to ventilation or high ambient temperature, the following procedure may restore the battery pack to normal operation.

1. Battery posts and terminals must be clean and free of corrosion.
2. For non-sealed batteries, check that electrolyte level just covers plates.
3. Plug in charger for at least a 16 hour charge.
4. Drive the vehicle for less than half the distance normally driven.
5. Repeat the above steps until the charger goes green 100% charge on a 16 hour charge.

4 FLASH = Check Battery: The batteries could not be trickle charged up to a minimum level to start charger. This may be the result of badly discharged batteries, or one (or more) damaged cells. See EXCESSIVELY DISCHARGED BATTERIES.

5 FLASH = Over-Temperature: The charger shutdown due to high internal temperature. May require reset (AC unplugged) and cool down to restart charging cycle. This fault may indicate inadequate cooling airflow or high ambient air temperatures. Check for debris or blockage at cooling fins. Move the vehicle to a cooler, well ventilated area, or adjust time of day when charging.

6 FLASH = Charger Fault: A fault was detected either in the batteries or in the charger. The batteries must be tested to ensure there is no damage to one or more cells. If the batteries are found to be good, the charger may need to be replaced by a qualified technician.

A STEADY RED FAULT LED confirms an internal electrical fault of the charger and requires charger replacement and return.

REMOTE LED CHARGER CODES

STEADY GREEN = Battery pack is = 100% charged.

SHORT GREEN FLASH = Battery pack is =< 80% charged.

LONG GREEN FLASH = Battery pack is => 80% charged.

SHORT AMBER FLASH = Battery pack is =< 80% charged, high internal charger temperature.

LONG AMBER FLASH = Battery pack is => 80% charged, high internal charger temperature.

RED FLASH = Charger detected a fault, see codes listed above.





CHECK / CHANGE CHARGING ALGORITHM

The charger has been programmed for use with the Columbia ParCar supplied batteries and contains algorithms for use with different batteries. Table A details these battery models.

TABLE A	
ALGORITHM	BATTERY TYPE
126	Full River 100Ah AGM
125	Full River 200Ah AGM
72	Generic 250-335 Ah Flooded Constant power dv/dt
43	Discovery AGM
42	Discover AGM 80 – 150 Ah
11	Generic 200-255 Ah Flooded Constant power dv/dt
5	Trojan 30XHS
4	US 2200, US 145 (Standard)
1	Trojan Flooded

NOTICE: For maximum battery life the correct algorithm must be used. If your battery model is not listed in Table A, contact Columbia ParCar for further information

Each time AC power is applied with the battery pack NOT connected, the charger enters an algorithm select/display mode for approximately 11 seconds. This will be displayed on the remote LED.

During this time, the current algorithm # is indicated on the LED light. A single digit algorithm # is indicated by the number of blinks separated by a pause. A two digit algorithm # is indicated by the number of blinks for the first digit followed by a short pause, then the number of blinks for the second digit followed by a longer pause.

To check/change the charging algorithm:

Disconnect the charger positive connector from battery pack. Apply AC power and after the LED test, the algorithm # will be displayed for 11 seconds.

To change the algorithm, touch the positive connector during the 11 second display period to the battery pack's positive terminal for 3 seconds and then remove. The algorithm # will advance after 3 seconds. Repeat until the desired algorithm # is displayed. A 30 second timeout is extended for every increment. Incrementing beyond the last algorithm moves back to the first algorithm. After the desired algorithm # is displayed touch the charger connector to the battery positive until the output relay is heard to click (~ 10 seconds). The algorithm is now in permanent memory.

Remove AC power from the charger and reconnect the charger positive connector to the battery pack. It is highly recommended to check a newly changed algorithm by repeating the above steps.





EXCESSIVELY DISCHARGED BATTERIES

NOTICE: Your Columbia Dealer will have the equipment and experience to perform the following battery inspections

The charger will not charge dead batteries. First establish that none of the batteries have an internal fault or bad cell. If a battery has remained too long in a discharged state (i.e. 2-4 volts each), it may be internally damaged and not capable of accepting a charge and must be replaced.

If the electrolyte Specific Gravity is low (less than 1.1098 SG) or individual battery voltage is less than 5.25 volts for three cells (10.5 volts for six cells), recharge each battery with an ordinary automotive style trickle charger at a rate of 3 to 6 amps.

It is not necessary to disconnect the battery cables, as the alligator style clips can be connected to each positive and negative battery post. Follow specific charger instructions.

⚠ DANGER

To prevent a spark from igniting the gas emitted from the batteries, always disconnect the charger AC power cord first when moving the positive/negative alligator clips.

Be sure to charge all of the batteries in the set. Each battery may require two to three hours of charging to bring it back to serviceable condition. After all batteries have been individually charged, remove the automotive charger and restart charging with the on-board charger. It may require several 8-12 hour cycles to bring severely discharged batteries back to 100% charged condition. If again the charger has the RED FAULT LED flashing there is a problem with one or more of the batteries.

BATTERY REMOVAL & INSTALLATION

- Remove battery negative (-) cables and then battery positive (+) cables.
- Remove battery hold down.
- Remove batteries from vehicle.
- To install batteries, reverse the removal procedure with the negative (-) cables being attached last. Torque connections to 100 in. lbs.



NOTICE: A common misconception is Deep Cycle Batteries develop a memory, lose capacity, or must be discharged until the BDI warning flashes and then recharged. Deep Cycle Wet Lead Acid Batteries are not like cell phone NiCad Batteries. Deep Cycle Batteries benefit from frequent charging and being maintained at as close as possible to a 100% state of charge. Plugging in the on-board charger overnight or when the vehicle is not in use for 3-5 or more days is encouraged.

- Recharge batteries as soon as they become 20% or more discharged (less than 1.238 sp. gr.).
- Make it a regular habit to plug in the charger when the vehicle is not in use. Batteries may be recharged if vehicle has been driven 15 minutes or more since the previous charge.
- Make sure your electrical outlet is operational.
- Never go below 20% state of charge (or 80% discharged) without recharging immediately. Allow 14 – 16 hours of charging.
- Batteries will provide a longer life if not deeply discharged. Batteries that are regularly deeply discharged will require more work by the charger and will have a shorter life.
- For non-sealed batteries, make it a regular habit to check (and water) your batteries after charging. Always add water after charging. This will reduce the chance for overflow due to expanding water.
- Weekly equalize the battery pack.
- If the vehicle is not operated daily the Power keyswitch should be turned off. This will power down the traction control system and reduces power loss on the batteries.
- Batteries in storage may self discharge and should be recharged when the specific gravity falls below 1.238 sp. gr. or individual battery voltage is less than 5.25 volts for three cells (10.5 volts for six cells).

SINGLE POINT BATTERY WATERING SYSTEM (If equipped)

NOTICE: The following information does NOT apply to sealed batteries

This is a single point watering system for maintaining a sufficient electrolyte level in the batteries.

The fill tube assembly which is used for adding water to the battery pack consists of a fill tube, one end having a filter screen, the other having a female coupler and a rubber squeeze bulb.

Check the battery pack water level weekly by:

- Inserting the fill tube filter end in an approved water supply.
- Attaching the female coupler to the battery pack male coupler. Squeeze the rubber ball until firm which indicates that filling is complete. Immediately disconnect the couplers by depressing the push button on the female coupler. If the water supply is left connected after the filling process is finished it could lead to an overflow.

ROLL OUT BATTERIES (IF EQUIPPED)

BATTERY TRAY REMOVAL

Before battery tray removal check that the direction selector is in the neutral position, the power keyswitch is in the "Off" position and the key is removed.

Disconnect the battery connector from the vehicle charger connector. Position battery connector in a location that will prevent pinching or damage to the cables as the battery tray is moved.

With the transfer stand in the lowest down position, move the transfer stand ahead until the chassis hooks are underneath the chassis tube and the side locators are firmly engaged at both sides of the battery tray opening. Transfer stand pin & slot will aid in alignment & positioning.

Raise the transfer stand until the chassis is lifted slightly off the ground. Use the rear tire as reference.

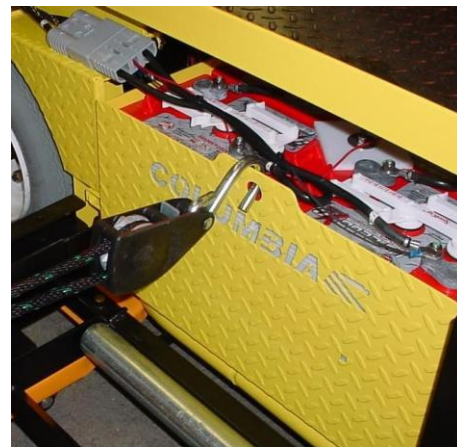
Attach a hook to the transfer stand and the other hook (to the battery tray). Pull out the battery tray.

Secure the battery pack in the stand by inserting a hitch pin through a hole in the left bottom rail of the transfer stand.



Roll out battery tray is heavy. Battery tray must be secured in the transfer stand before moving.

Lower the stand to disengage the catch mechanisms and roll away the transfer stand and battery tray.



ROLL OUT BATTERIES (IF EQUIPPED) (Continued)

BATTERY TRAY INSTALLATION

Move a transfer stand with freshly charged batteries to the vehicle. Use the transfer stand alignment pin and chassis slot for correct positioning of the transfer stand.

With the transfer stand in the lowest down position, move the transfer stand ahead until the chassis hooks are underneath the chassis tube and the side locators are firmly engaged at both sides of the battery tray opening. Raise the transfer stand until the chassis is lifted slightly off the ground. Use the rear tire as reference.

Make sure the battery connector is in a position to prevent pinching or damage during installation.

Once in position, remove the hitch pin from the transfer stand and push battery tray into vehicle.

Once installed, secure the battery pack in the vehicle by installing the hitch pin as shown in Figure 4.14. 5. The hole for the hitch pin is behind and left of the front tire.

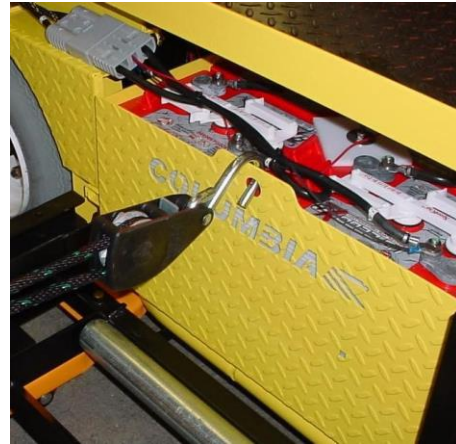
Lower the transfer stand to the lowest position to disengage the chassis hooks and remove the transfer stand.

Connect the battery connector and the vehicle charger connector.

Raise the transfer stand until the chassis is lifted slightly off the ground. Use the rear tire as reference.

Attach a hook to the transfer stand and the other hook (to the battery tray). Pull out the battery tray.

Secure the battery pack in the stand by inserting a hitch pin through a hole in the left bottom rail of the transfer stand.





MAINTENANCE SCHEDULE - OWNER/OPERATOR

Item	Operation	Weekly	Monthly	Semi-Annual
Tires	Lug nuts tight.		*	
	Check tire pressure, wear, damage. dented rims.		*	
Electrical	Check battery electrolyte level.	*		
	Apply equalization charge to the battery pack.	*		
	As required, clean battery terminals and wash cases.	*		
	Check the general condition of the electrical system (connections, frayed/broken cables).		*	
Brakes	Check pedal & park brake operation.		*	
Body and Frame	Inspect for loose hardware (bolts & nuts).	*		
	Clean body and seats, Wash as needed.	*		
Lube	Visually check suspension and differential for leakage.		*	

MAINTENANCE SCHEDULE QUALIFIED TECHNICIAN

It is recommended that the following be performed by a trained qualified technician or your Columbia Dealer.

Item	Operation	Quarterly	Semi-Annual	Annual
Tires	Front wheel alignment .		*	
Electrical	Test batteries.		*	
	Inspect motor condition and operation.			*
Brakes	Check brakes, clean, adjust, replace if needed.		*	
	Check brake fluid (when equipped)	*		
Lube	Check differential fluid level.			*
	Grease fittings.		*	
Wheel	Check wheel axle nuts for tightness & torque.		*	
	When equipped,- wheel bearings, repack, replace if needed			*





MAINTENANCE GUIDELINES

To ensure that the vehicle is kept in a safe and correct operating condition, it must be inspected and maintained on a regular basis. Proper lubrication, electrical control adjustments, safety feature checks, etc. performed at recommended intervals will help prevent damage or failure of the unit while providing optimum performance.

To perform many of the maintenance items detailed in the following pages, it will be necessary to remove the vehicle deckboard. Care should be exercised while removing the deckboard.

Follow the guidelines below to assure proper maintenance.

- Allow only trained maintenance personnel to maintain, repair, and inspect the vehicle.
- Before starting any repairs or maintenance, immobilize the vehicle by turning the power keyswitch off, removing the key and setting the park brake.
- Disconnect both of the main battery pack leads before working on or disconnecting any electrical component or wire.
- Block the chassis with jack stands before working under a raised vehicle.
- Conduct vehicle performance checks in an authorized area where a safe clearance exists.
- Before starting the vehicle, follow the recommended safety procedures.
- Avoid fire hazards and have fire protection equipment present in the work area.
- Do not use flammable fluids for cleaning parts.
- Work in a properly ventilated work area.
- Regularly inspect and maintain in safe working condition the brakes, steering mechanisms, speed and directional control mechanisms, warning devices, guards and safety devices.
- Keep the vehicle in a clean condition to minimize fire hazards and facilitate detection of loose or defective parts.

LIFTING INSTRUCTIONS

- Make sure that front tires are facing straight ahead.
- Tie steering wheel to prevent turning.
- Place jack under one side of vehicle on frame rail at point midway from front and back of vehicle.

⚠ WARNING

A vehicle is extremely unsteady when one side is raised. Use care to prevent tipping or roll over.

- Raise one side of vehicle with jack, and place a 6-8" block under both front and rear of vehicle being raised.
- Slowly lower jack and move it to opposite side of vehicle.
- Repeat lifting procedure previously described and position blocks corresponding to those on opposite side as described above.
- Slowly lower jack and ensure that vehicle is supported by four blocks.
- To lower vehicle, use above procedure in reverse order.



ACCELERATOR/BRAKE PEDAL

Your vehicle is equipped with spring applied rear wheel drum brakes. Manual adjustment is required to maintain braking performance. To check brake operation, operate vehicle with no load in a large clear area. Release accelerator/brake pedal completely, and vehicle should stop abruptly. See your Columbia Dealer for adjustment procedure.

⚠ DANGER

Should the free travel or the stopping action of the brakes be in question, do not use the vehicle. Contact your Columbia Dealer for qualified service assistance.

TIRE CARE

Improper inflation will shorten the life of your tires and will adversely affect performance. For proper tire inflation refer to vehicle specifications.

NOTICE: Replacement tires must be the same size as original equipment. Increased tire load ratings are permissible but tire rating does not increase the rated load carrying capacity of the vehicle.

WHEEL & TIRE REMOVAL/INSTALLATION

Place blocks ahead of and behind the wheels that will remain on ground. Slightly loosen lug nuts. Place jack under one side of vehicle on frame rail at point midway from front and back of vehicle. Raise vehicle and remove lug nuts and wheels. To install, tighten the lug nuts evenly in a star pattern until the nuts are all seated and torque to 65 ft. lbs. Recheck lug nut torque with the vehicle on the ground.

NOTICE: The wheel may be bent if not torqued in a crossing pattern. This will cause the wheel to wobble.

CLEANING

Wash underside to remove all dirt and debris. Do not direct high pressure water at the controller, speed switches, or tops of the batteries.

Wash body with a mild detergent. Do not use abrasives (bodies are painted).

LUBRICATION

Vehicles have 2 grease fittings. They can be located by removing steering wheel roll pin, steering wheel and then removing the console (5 screws). One fitting is found on each chain sprocket. Use a good quality wheel bearing grease.

Steering chain should be lubricated with quality chain lubricant.

The differential should be checked periodically for signs of leakage. Contact your Columbia Dealer for fluid replacement.

STEERING CHAIN

Semiannually adjust the steering chain tension.



VEHICLE TROUBLESHOOTING

PROBLEM	CHECK
Will not move	Keyswitch on. Keyswitch is in desired direction. Keyswitch for loose wires or faulty switch.
	Batteries for loose terminals, corrosion, electrolyte level or state of charge.
	Motor for loose wires, open circuits.
Runs slow	Batteries for loose terminals, corrosion, electrolyte level or state of charge.
	Brakes dragging
	Under inflated or flat tires.
	Wheels for binding, do not spin freely.
If these test procedures do not resolve your vehicle problem, contact your Columbia Dealer for service.	

CONTROLLER TROUBLESHOOTING

The controller is located under the deck next to the charger. The controller has a green LED diagnostic light which is a good tool to indicate a fault in the electrical system. The vehicle is also equipped with a dash System Status LED, it functions the same as the controller LED.

It is essential to observe the flashing pattern (number of blinks followed by a pause) of the LED light any time the vehicle is not operating as expected. The number of blinks is very useful for your servicing dealer to accurately and quickly diagnose any faults that exist.

However, two of the flash codes may indicate an operation fault, and likely do not require component changes or dealer service.

A "2 Flash fault" may indicate a start-up sequence fault. This is caused when the vehicle direction selector is not in the neutral position when the power keyswitch is turned on. Steps to take to possibly clear this fault are:

- Set the parking brake.
- Turn vehicle power keyswitch to OFF.
- Set direction selector to N – Neutral.
- Ensure the accelerator pedal is at its resting (up) position.
- Turn vehicle power keyswitch to ON.
- Select the desired direction on the direction selector.
- Release parking brake and depress accelerator.



A "7 flash fault" may indicate that the battery voltage is too high or too low for the vehicle power system. Voltage too high occurs when rapidly descending hills with a vehicle equipped with the ACEplus Regenerative braking system. The electrical system creates current which causes a spike in battery voltage.

To prevent this, always travel at a safe, prudent speed when driving on declines, especially with freshly charged batteries. To possibly clear this fault turn the power keyswitch to OFF and back to ON. If there is still a "7 flash fault", the battery voltage may be low. Check and charge batteries or replace batteries.



BATTERY PREPARATION FOR VEHICLE STORAGE

Before storage make sure batteries are fully charged, for non-sealed batteries make sure the electrolyte is full in all cells. Clean the batteries and connections as described earlier.

The charger has the capability to test and recharge batteries during storage. Leave the batteries connected and the charger plugged into a reliable AC source.

If the on-board charger is not used the batteries will "self-discharge" during storage and recharging will be necessary. Below is the recommended frequency for recharging.

STORAGE TEMPERATURE	CHARGE AT
Below 4° C (40° F)	Every 6 months
4° C - 16° C (40° - 60° F)	Every 2 months
Above 16° C (60° F)	Once a month

The voltage or specific gravity of the electrolyte should be checked every 6 to 8 weeks using a voltmeter or hydrometer.

After charging, disconnect the batteries.

NOTICE: Batteries in a low state of charge will freeze at higher temperatures than fully charged batteries. Do not attempt to charge a battery that is frozen or if battery case is excessively bulged. Properly dispose of battery, because frozen batteries can explode.

The table below indicates freezing points of batteries at different specific gravities.

SPECIFIC GRAVITY	FREEZE POINT °F/°C
1.260	-70/-57
1.230	-39/-38
1.200	-16/-26
1.117	-2/-19
1.110	+17/-8

Notice: Specific gravity readings are at 80° F. Values need adjustment for electrolyte temperature. Reduce .004 for every 10° F below 80° F. Increase by that amount for every 10° F above

Quarterly during storage check water levels for non-sealed batteries.





VEHICLE PREPARATION FOR STORAGE

Store the vehicle in a cool place.

Maintain tire pressure at recommended PSI.

Grease suspension and continue quarterly lubrication during storage period.

Clean vehicle body, seats, battery compartment and vehicle underside.

Do not engage park brake. Block wheels to prevent movement.

NOTICE: Make sure power keyswitch is in the OFF position.

RETURNING VEHICLE TO SERVICE

- If necessary, connect the battery pack and fully recharge batteries.
- Check tire pressure and readjust if necessary.
- Perform Pre-Operational Checklist.

For vehicles with a single point watering system:

- After the batteries have been fully charged, connect the system to its water supply for 3-5 seconds then disconnect regardless of whether or not the batteries are completely full.
- Return the vehicle to its regular service.
- Place the vehicle back into its regular watering schedule (waiting at least 1 week until next watering).

TOWING & TRANSPORTING

TOWING

NOTICE: Columbia ParCar does not recommend towing this vehicle.

TRANSPORTING YOUR VEHICLE

NOTICE: Never transport a vehicle behind an auto or truck unless on an approved trailer.

When trailering your vehicle over long distances or on the highway observe the following:

- Use trailers specifically designed to carry your Columbia ParCar vehicle that meets all federal, state and local requirements.
- Secure vehicle to the trailer following trailer manufacturer's instruction.
- The key should be removed from the vehicle, the parking brake firmly locked, and the wheels blocked.
- On vehicles equipped with high or wide additions or accessories be certain they are secured properly to prevent loss or damage while trailering.





VEHICLE WARRANTY

We warrant to the original consumer purchaser or lessee that our electric Industrial and Commercial vehicles as well as our electric passenger vehicles used in an industrial or commercial application / environment will be free from defects in factory materials and workmanship under normal use and service for the period stated below from date of sale subject to the terms and provisions contained herein.

1. 12 MONTHS – PARTS AND LABOR ON COMPONENTS:

Columbia ParCar Corp. (Columbia) warrants parts and labor to repair defective components both on electric Industrial and Commercial vehicles for twelve (12) months from date of purchase, subject to the following terms and conditions.

2. EXCLUDED COMPONENTS:

Batteries and tires are excluded from this warranty as they are warranted by their respective manufacturers. Your authorized Columbia dealer will assist in processing these warranties, if necessary. Consequential damage caused by defective batteries or tires are also excluded from this warranty.

3. ADDITIONAL CONDITIONS:

Columbia will warrant all Columbia replacement parts provided under this warranty. All Columbia parts replaced under warranty become the property of Columbia and, if requested by Columbia, must be returned to the factory for inspection.

- (a) Any other expense incurred in obtaining warranty repairs, including transportation and labor, are the responsibility of the purchaser, unless otherwise stated in this warranty.
- (b) To qualify for warranty coverage, you and the selling dealer must complete the warranty registration process within ten (10) days after purchase or lease. If this information is not on file with Columbia, purchaser must provide proof of date of purchase with any warranty claim.
- (c) To obtain warranty service, you must return your vehicle during the warranty period to any authorized Columbia vehicle repair facility. Dealers are able to provide service during their normal business hours and within a reasonable time. Further information regarding warranty service may be obtained from Columbia calling (800) 222-4653 or by writing our Customer Service Department, Columbia ParCar Corp., 1115 Commercial Ave., Reedsburg, WI 53959.
- (d) Any subsequent changes in vehicle design and equipment shall not apply to vehicles previously manufactured or purchased.

4. THIS WARRANTY SHALL NOT APPLY TO DAMAGE OR COST CAUSED BY:

- (a) Failure to operate, maintain and service vehicle, as specified in the applicable Owner's Manual.
- (b) Abuse, misuse, neglect, accident, collision and operation at other than specified design speed or rated capacity.
- (c) Alteration or repair outside of factory specifications.
- (d) Use of components, including lubricant or batteries, not specified in the applicable Owner's Manual, or avoidable with the proper use of specified Columbia components.
- (e) Fading, deterioration or weathering of seats, fabric enclosures, floor mats, bag racks, bag straps, body parts, paint or chrome caused by ordinary wear and tear or exposure.
- (f) Charges incurred to transport any vehicle to and from an authorized dealer for warranty service. Travel charges incurred by an authorized dealer to or from the vehicle location to perform warranty service.

5. WARRANTY DOES NOT APPLY TO:

Normal maintenance shown in the Owner's Manual which the purchaser is expected to perform or arrange for including, but not limited to, brake adjustment, battery maintenance (cleaning, maintaining proper fluid levels and battery charge), lubricant replacement in differential assemblies.. Wear items such as brake shoes, brake pads, bearings, etc... are also not warrantable.

6. USE OF NON-GENUINE PARTS:

Columbia dealers are independently owned and operated, and may sell products other than those provided by Columbia. Therefore, you should understand that COLUMBIA IS NOT, AND CANNOT, BE RESPONSIBLE FOR THE QUALITY, SUITABILITY OR SAFETY OF ANY NON-GENUINE COLUMBIA PART, ACCESSORY OR DESIGN MODIFICATION, INCLUDING LABOR, WHICH MAY BE SOLD AND/OR INSTALLED BY DEALERS OR DAMAGE CAUSED THEREBY.

7. SOLE REMEDY, NO OTHER WARRANTY:

The purchaser and Columbia expressly agree that the remedy of replacement or repair of the defective vehicle or component thereof, is the exclusive and sole remedy of the purchaser. Columbia makes no other representation or warranty of any kind, and no representative, employee, distributor or dealer of Columbia has the authority to make or imply any representation, promise or agreement which in any way varies from the terms of this warranty.

THERE ARE NO OTHER EXPRESS WARRANTIES ON YOUR VEHICLE BEYOND THOSE SET FORTH HEREIN AND NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS, TO THE FULLEST EXTENT ALLOWED BY LAW, COLUMBIA AND ITS DEALERS SHALL NOT BE LIABLE FOR LOSS OF USE, INCONVIENCE, LOST TIME, COMERCIAL LOSS OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES OR ECOMOMIC LOSS.

8. VEHICLES SOLD OUTSIDE OF THE UNITED STATES:

In the case of vehicles sold outside the U.S.A., defective parts must be returned to the selling dealer and transportation charges prepaid by the purchaser. The dealer will then replace all parts which his inspection shall show to be defective under the warranty. Columbia assumes no liability for the dealer's labor charges, if any, or any other expenses. For further information concerning export, please contact Columbia ParCar Corp., 1115 Commercial Ave., Reedsburg, WI 53959 U.S.A. Attn: Customer Service Department, (608) 524-8888. FAX (608) 524-8380.

9. STATE SPECIFIC RIGHTS:

Some states do not allow the exclusion or limitation of incidental, consequential or other damages, or limitation on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.





RECORD OF SERVICE HISTORY

Date	Dealer	Concern	Repair
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

DEALER INFORMATION

Name: _____

Address: _____

City/State: _____

Sales #: _____

Service #: _____



ADDITIONAL NOTES





Columbia / ParCar OEM Parts

evtechnicalservices.com



COLUMBIA

1115 Commercial Avenue • Reedsburg, WI 53959
Phone: (608) 524-8888 • Fax: (608) 524-8380
(800) 222-4653 • Web: www.columbiausa.com

The Columbia Vehicle Group

Nordic Group Member Brands | Business Ventures Since 1947



COLUMBIA



TOMBERLIN



PARCAR



ELITE

*Stockchaser IS12
2017*