

**Owner's  
and  
Operator's  
Manual**

**Gasoline and Electric  
Golf and Industrial  
Vehicles**

PART NO. 99466-95

**COLUMBIA ParCar** 

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Your Columbia ParCar vehicle has been manufactured in full compliance with all applicable American National Standards Institute (ANSI) standards. Your safe use and operation of your vehicle is important to us. Any alteration of your Columbia ParCar vehicle that results in the vehicle being in noncompliance with applicable ANSI standards is strictly prohibited. Columbia ParCar 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 designed for off-road use only. 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.

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#### MODEL IDENTIFICATION

Except for the Utilitruck®, the vehicle identification number (VIN) is located on a metal tag on the left fender. The Utilitruck VIN is on a plate below the seat in the passenger compartment. On gasoline powered vehicles, the engine serial number is located on the top of the engine crankcase.

**IMPORTANT!** Always give the VIN when ordering parts or making inquiries about your Columbia ParCar vehicle.



#### WARNING

For Angle Bag Rack Model G4S and E4S, secure body upright and to avoid possible personal injury through accidental closing of body, remove body hold-up rod from clip and insert into slot in body frame.

#### PATENT NOTICE

Columbia ParCar products are manufactured under one or more of the following: U.S. Patents - 2986168, 2987934, 3116089, 3144631, 3144860, 3229792, 3434887, 3559773, 3673359, 3680403, 3683716, 3709317, 4648473, Des. 225 626.

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## INTRODUCTION

This manual provides important safety information, operating instructions, model specifications and maintenance instructions for Columbia ParCar golf and industrial vehicles.

The service information in this manual is limited to care and maintenance information only. Information covering repairs is provided in a detailed service manual available from Columbia ParCar distributors. Such major repairs require the attention of a skilled mechanic and the use of special tools and equipment. Your Columbia ParCar distributor has the facilities, experience and genuine Columbia ParCar parts and accessories to properly service Columbia ParCar vehicles.

Statements in this manual preceded by the following words are of special significance:



#### DANGER

Indicates an immediate hazard which will result in severe personal injury or death.



#### WARNING

Indicates an immediate hazard which could result in severe personal injury or death.



#### CAUTION

Indicates hazards or unsafe practices which could result in product or property damage or minor personal injury.

We recommend you take special notice of these items.



#### 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.



#### WARNING

- The modification of Columbia ParCar vehicles is not recommended.
- Exceeding load capacities or recommended speed may result in possible injury or property damage.
- This vehicle has a designed maximum speed of 15 mph and is not designed or intended to be used on public roadways or highways.
- Only trained technicians should repair or service this vehicle. When performing even minor repairs or service, follow the correct procedures and obey the warnings in this manual as well as in the related service manual.
- Always wear eye protection when servicing the vehicle.
- Always turn safety directional keyswitch to "OFF", remove key, block tires and disconnect battery(ies) prior to servicing.
- Use only insulated tools when working around batteries or electrical connections.

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## SAFE OPERATING RULES

Before operating Columbia ParCar vehicles, it is the operator's responsibility to read and follow the safety, operating and maintenance instructions in this manual for personal safety. If you are responsible for the use or rental 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.



### DANGER

Do not operate gasoline vehicle in an enclosed area. Gasoline engines produce carbon monoxide, which is an odorless, deadly gas.



### WARNING

For personal safety and to maintain vehicle stability and control:

- All vehicles should be operated from driver's side by authorized persons only and only in designated areas.
- Never exceed the occupant or load capacity ratings of the vehicle. Exceeding these limits may endanger occupants.
- Personal injury may result if arms, legs, or other parts of body are not kept inside vehicle while it is moving.
- Do not start until all occupants are seated. Remain seated and hold on to hand hold while vehicle is in motion.
- Before leaving your seat, bring vehicle to a complete stop and lock parking brake to prevent vehicle from moving. If vehicle is to be left unattended, switch key OFF and remove key.
- Do not use accelerator to hold vehicle on an incline - use the brake.
- Make sure safety directional keyswitch is in position for desired direction of travel before depressing accelerator. **DO NOT CHANGE**

### THE SAFETY DIRECTIONAL KEYSWITCH WHILE VEHICLE IS MOVING.

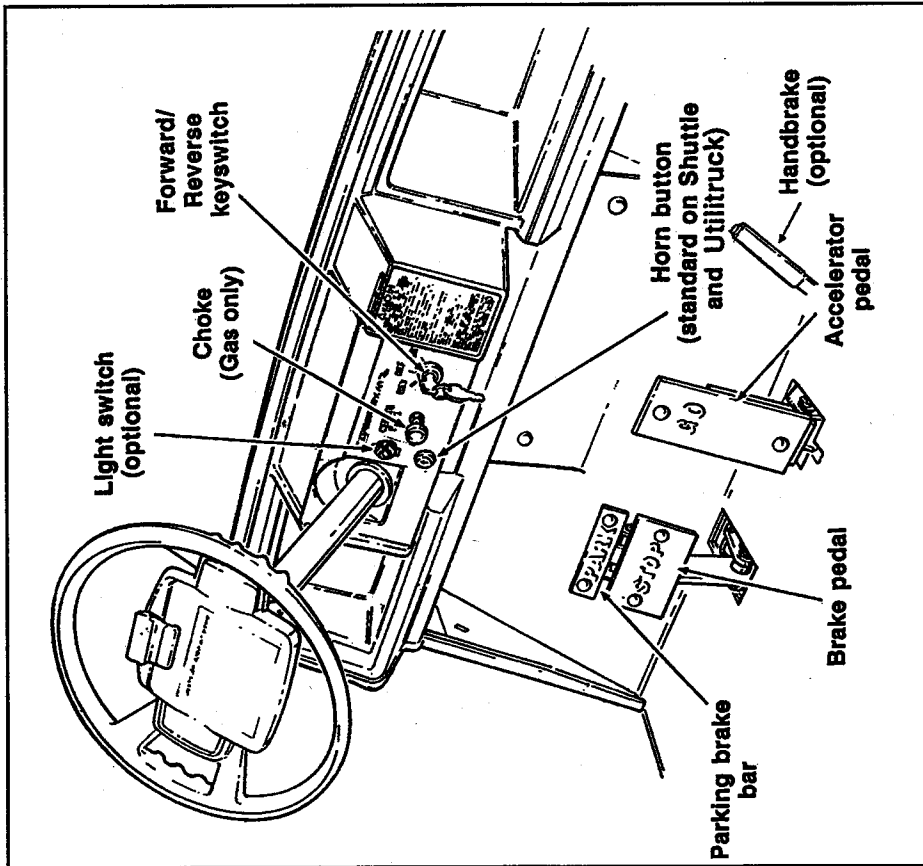
- Drive slowly in turns and descending grades.
- Drive slowly straight up and straight down hills.
- Do not operate while under the influence of alcohol or drugs.
- This vehicle is not Federal or State DOT approved and is not equipped to be operated on public roads or highways.
- To avoid the risk of severe personal injury, use extreme care and operate at maximum speed **ONLY** on smooth, flat, uncongested roadways or paved pathways.
- Allow additional stopping distance when traveling at higher speeds.

Failure to comply with above warnings may result in bodily injury and property damage.

These basic rules of operation, combined with courtesy and common sense, will help to make driving your Columbia ParCar vehicle a safe and pleasant experience.

# CONTROLS AND OPERATION

Control Location



Simple controls make it easy to operate your Columbia ParCar vehicle. To drive, move safety directional keyswitch to desired position and depress accelerator with right foot. Depress brake pedal to slow or stop vehicle.



## WARNING

Be sure safety directional keyswitch is in desired direction of travel before depressing accelerator.

### Safety Directional Keyswitch

The switch requires key to operate. Insert key and turn to **FORWARD** position to run vehicle forward. Turn to **REVERSE** position to run vehicle in reverse. Warning buzzer sounds when in reverse. Key can only be removed when in the **OFF** position. Switch locks automatically when key is removed.



## CAUTION

Do not change direction until vehicle has come to a complete stop. Always turn key **OFF** before exiting the vehicle. Always remove key when leaving the vehicle unattended.

### Accelerator

#### Gasoline Vehicles

Accelerator pedal starts the engine automatically when depressed. Further movement of pedal operates vehicle at desired speed. The engine stops running when pedal is released completely. To slow or stop vehicle depress brake.

#### Electric Vehicles

Accelerator pedal operates the vehicles in selected speeds as pedal is depressed. With key in desired position, depress accelerator to operate vehicle in desired direction. To slow or stop vehicle depress brake.

### Foot Brake

Depress brake pedal to slow or stop vehicle. If equipped with a foot-operated parking brake, the parking brake lock is controlled by a bar located across the top of the pedal. To lock brake for parking, depress pedal and bar at the same time. Always apply parking brake when leaving vehicle. Parking brake remains applied until automatically released by depressing accelerator pedal. Parking brake can also be released by momentarily pressing brake pedal and then releasing.

## Hand Parking Brake

If equipped with a hand-operated parking brake, depress brake pedal to slow or stop vehicle. To lock parking brake, pull brake lever upward to lock. Always apply parking brake when leaving vehicle. Parking brake remains applied until manually released for vehicle operation.



### CAUTION

Do not operate the vehicle with the hand operated park brake applied. Damage to the vehicle could result.

## Choke

On P4G, G4S and RSG models, the choke knob is located on the front console next to the safety directional keyswitch. On FG, C6G, GD4, GU4, and GUXB models, the choke knob is located in the center of the front seat vertical support. Use choke knob when starting a cold engine. Pull knob out to choke. Note: Choke is spring returned to the open position. Make sure that it returns properly. It will probably not be necessary to use choke again unless the engine has completely cooled off. This vehicle should not require choking except when cold. Excessive choking of the engine may cause it to flood out and not start.

## TRAILERING

When trailering your vehicle, observe the following safety precautions:

- Use trailers specifically designed to carry your Columbia ParCar vehicle that meet all federal, state and local requirements.
- Secure vehicle to trailer following trailer manufacturer's instructions. The key should be removed and the parking brake firmly depressed and locked.
- On vehicles equipped with windshield, cab, or suntop, be certain windshield, cab, or suntop is secured properly to vehicle to prevent loss or damage while trailering. Also secure vehicle body to chassis as it may raise as a result of air flow on suntop while trailering. Increased trailering speed adds stress to windshield, cab, or suntop and subsequently increases chance of loss or damage.



### WARNING

## GASOLINE VEHICLE SERVICING

### Engine Lubricant and Fuel



### DANGER

Gasoline is extremely flammable and highly explosive under certain conditions. Do not fill fuel tank while engine is running. Do not smoke or allow open flames or sparks near vehicle when refueling.



### CAUTION

Your gasoline-powered vehicle has been delivered with Columbia ParCar Clean Air Plus™ lubricant in the oil tank. The automatic oil injection pump has been calibrated accordingly. If any other oil is used, the oil injection pump must be recalibrated or engine damage may result.

Columbia ParCar gasoline vehicles are equipped with automatic oil injection so it is not necessary to mix oil with the gas. Use regular grade leaded or unleaded gasoline in the fuel tank and Genuine Columbia ParCar Clean Air Plus Lubricant in the oil tank. Check level of oil in tank every time gasoline is added to fuel tank. Do not allow the oil level to fall below one inch from the bottom of the tank.

Use only Columbia ParCar Clean Air Plus lubricant, available from your Columbia ParCar distributor. Use of lubricants other than Genuine Columbia ParCar Clean Air Plus, or other lubricants which **DO NOT** meet Columbia ParCar standards, may damage the engine. Engine damage resulting from the use of incorrect lubricant is not warranted.

### Service Schedule

Use the following service schedule as a guide for maintaining your Columbia ParCar gasoline vehicle.



### WARNING

Always turn vehicle to "OFF", remove key, block tires, and disconnect negative battery cable before performing any service to avoid accidental start-up of vehicle and possible personal injury.

### AS NECESSARY OR WEEKLY

#### Cooling Air Intake Screen

Remove debris from cooling air intake screen in front of engine, particularly after operating vehicle through clippings, dry dandelions, weeds, etc.

#### Cleaning

Wash underside of vehicle to remove all dirt and debris. Do not hose wash electronic control devices, switches and solenoids.

Wash body and seats with a mild detergent only. DO NOT use abrasives (bodies are painted).

#### Starter-Generator Belts

On new vehicles, or vehicles with newly installed belts, belt tension must be checked at least within the first hour of operation to account for any initial stretch or seating of components.

Tighten new belts to  $110 \pm 10$  pounds ( $43.3 \pm 4.5$  kg) tension. Retighten belts to  $90 \pm 10$  pounds ( $40.8 \pm 4.5$  kg) tension. Do not allow belt tension to drop below 70 pounds (31.8 kg).

#### MONTHLY, 24 HOURS OPERATING TIME OR 32 ROUNDS OF GOLF

Perform all weekly checks in addition to the following:

#### Brake and Park Brake

Your vehicle is equipped with either manual adjust or auto adjust rear wheel drum brakes. Please confirm which type brake system is installed on your vehicle with your Columbia ParCar distributor before performing adjustment. Simply provide your VIN to your Columbia ParCar distributor.

Check brake pedal free travel and braking action. Maximum allowable pedal free travel is 2 inches (5 cm). Measure free travel from the top of the brake pedal, not the parking brake bar.

To adjust brake and park brake for auto adjust brake systems:

Check the pedal free travel and braking action. The brake shoes will automatically adjust or advance as wear occurs, and no adjustments are normally required. Free travel should not be less than a minimum of 1/2 inch. Measure the free travel from the top of the brake pedal, **not** from the parking brake bar.

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

To adjust brake and park brake for manual adjust systems:

1. After securely blocking front wheels to prevent rolling, raise rear wheels of vehicle off ground. Support chassis with stands.
2. Remove rubber protective boots from brake adjusters on brake backing plates.
3. While rotating rear wheel, turn adjusting screw in until brake locks. Back off adjusting screw counter clockwise until wheel rotates freely (3-5 clicks). Replace boot. Adjust opposite brake in same manner.

4. Check free travel of pedal and brake function. Minimum free travel is from 1/2 to 3/4 inch (1.3 to 1.9 cm) as measured from the top of the brake pedal.

5. Remove vehicle from stands and test drive.

#### Tires

18x8.5 - 8 tires, check pressure and inflate to 18 psi (1.2 atm).  
5.70 x 8 tires, check pressure and inflate to 50 psi (3.4 atm).

#### Starter-Generator Belt

Check belt tension, Do not allow belt tension to drop below 70 pounds (31.8 kg). Retighten belts to  $90 \pm 10$  pounds ( $40.8 \pm 4.5$  kg) tension.

#### Air Cleaner

Service air cleaner more often under dirty operating conditions, or if power loss is noted. The air cleaner element can be removed by loosening the wing nut and removing end of filter housing.

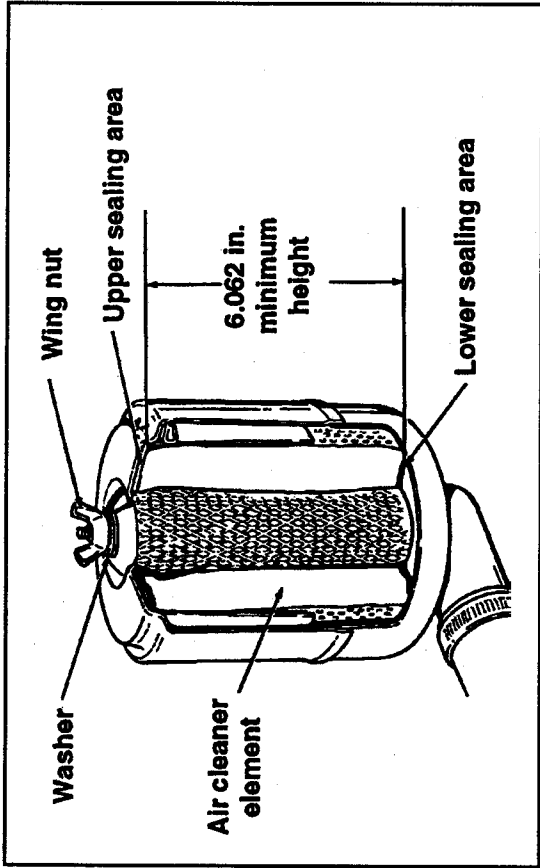
Check automatic dust unloader for obstruction or damage. Replace if necessary. Make sure the lower filter housing is positioned with the unloader valve pointing to the rear of the vehicle to allow the housing to contact the base gasket fully and seal properly.

Replace air cleaner element if dirty with element purchased from a Columbia ParCar Authorized Distributor or Service Center, Part No. 29131-88. Install element, and position the lower filter housing with unloader valve pointing to rear of vehicle. Tighten wing nut snugly by hand but do not crush element. To ensure proper canister seal, the air cleaner element must have a minimum height of 6.062 inches as shown.



#### CAUTION

If air cleaner element is short, the canister cover will contact before the element can seal, leaving a space for dirt to pass. This will damage the engine and void the warranty.



### Lubrication

Oil all body hinges

Columbia ParCar vehicles have nine grease fittings; two on steering column joints, three on each side of front suspension, and one on the brake pedal pivot which should be greased with high quality chassis grease. Remove the weight from the front suspension before lubricating to insure proper grease distribution to suspension components.

Check differential oil level and fill to filler opening with API Service GL5 Multipurpose Gear Lubricant APG 90 Part No. 99890-61A, available through your Columbia ParCar Distributor.

### EACH SEASON

Perform all monthly service operations in addition to the following:

#### Spark Plug

Replace spark plug with Champion L95YC or equivalent gapped to .035 in. to .040 in. (.9 mm to 1.0 mm).

Change oil and fuel filters if deemed necessary. Frequency of required change depends on vehicle application and cleanliness of fluid placed in the tanks.

## GASOLINE VEHICLE GENERAL SPECIFICATIONS

### Engine

**Type:** Reversible, single cylinder, two-cycle, fan air-cooled  
**Bore and Stroke:** 2.75 in. (70 mm) x 2.50 in. (64 mm)  
**Lubrication System:** Automatic Oil Injection  
**Displacement:** 14.8 cu. in. (243 cc)  
**Compression Ratio:** 6.0:1  
**Air Cleaner:** Dry-type  
**Spark Plug:** Champion L95YC

**Type:** 14 mm x 1/2 in. (12.78 mm) reach  
**Size:** .035 in. to .040 in. (.9 mm to 1.0 mm)  
**Gap:** 15-20 ft.-lbs (2-2.7 kg/m)  
**Torque:** 19' BTC

**Ignition Timing:** 7 gals. (26.5 l)  
**Capacities:** 3.5 qts. (3.3 l)  
**Fuel Tank:**  
**Oil Tank:**

### Power Transmission

Automatic variable-pitch V-belt torque converter and automotive-type spiral-bevel rear axle. Overall drive ratio variable from 8.82 to 42.14 governed to a maximum speed of 15 mph (24.1 kph).

### Brakes

Mechanically operated drum brakes on rear wheels. Pedal actuated parking brake with automatic release controlled by accelerator pedal is standard. Hand actuated parking brake is optional.

### Tires

High flotation 18 x 8.50-8 tires inflated to 18 psi (1.2 atm) pressure.  
 Industrial 5.70 x 8 tires inflated to 50 psi (3.4 atm) pressure.

### Electrical Equipment

Reversible starter-generator, solid state voltage regulator, solid state ignition.  
 Battery - 12 volt BCI group size 70 with 360 CCA minimum.

See your Columbia ParCar Distributor for his full line of Genuine Columbia ParCar replacement parts, accessories, service aids and service tools.

## ELECTRIC VEHICLE SERVICING

When servicing your electric vehicle, always observe the following:

### DANGER

When adding water or acid to battery, always wear eye and hand protection.

Batteries contain sulfuric acid. Avoid contact with skin, eyes, or clothing.

Antidote:

External - Flush with water for 15 minutes and get immediate medical attention.

Internal - Drink large quantities of milk or water followed by milk of magnesia, vegetable oil or beaten eggs. Call doctor immediately.

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

### WARNING

Always turn vehicle to "OFF", remove key, block tires, and disconnect the negative battery cable before performing any vehicle service to avoid accidental start-up of vehicle and possible personal injury.

Always wear eye protection when servicing the vehicle.

Use only insulated tools when working around batteries or electrical connections. Remove watches and rings to avoid electric shock.

### CAUTION

Do not overcharge battery. Overcharging could cause damage to battery cells.

Battery wire terminals that are damaged or corroded should be replaced or cleaned as necessary. Failure to do so may cause them to overheat during operation.

## GASOLINE VEHICLE CAPACITIES AND DIMENSIONS

Model	Maximum Number of Occupants	Maximum Carrying Capacity, lbs. (kg)	Empty Weight, lbs. (kg)	Turning Radius, ft. (m)	Ground Clearance, in. (cm)	Wheel Base, in. (cm)	Overall Length, in. (cm)	Overall Width, in. (cm)	Overall Height, in. (cm)
P4G	2	750 (340)	725 (330)	10.5 (3.2)	4 (10.2)	64 (162.6)	92.5 (235.0)	44.25 (112.4)	46 (116.8)
R5G	2	750 (340)	774 (352)	11.3 (3.4)	4 (10.2)	64 (162.6)	109 (276.9)	45 (114.3)	46 (116.8)
G4S	2	750 (340)	706 (320)	10.5 (3.2)	4 (10.2)	64 (162.6)	94 (238.8)	44.25 (112.4)	47.5 (120.7)
FG	4	1200 (544)	886 (403)	13.5 (4.1)	4 (10.2)	89 (226.1)	119 (302.3)	44.25 (112.4)	46 (116.8)
C6G	4	1200 (544)	878 (398)	13.5 (4.1)	4 (10.2)	89 (226.1)	119 (302.3)	44.25 (112.4)	46 (116.8)
GD4	2	1200 (544)	806 (366)	11.5 (3.5)	4 (10.2)	74 (188.0)	105 (266.7)	44.25 (112.4)	47.5 (120.7)
GU4	2	1200 (544)	844 (383)	11.5 (3.5)	4 (10.2)	74 (188.0)	105 (266.7)	44.25 (112.4)	47.5 (120.7)
GUXB	2	1200 (544)	916 (417)	13.5 (4.1)	4 (10.2)	89 (226.1)	125 (317.5)	44.25 (112.4)	46 (116.8)



5.2.1 **ELECTRIC VEHICLE (EV) BATTERY CARE AND OPERATION (AUTOMATIC CHARGER)**

**Battery Charging**



**DANGER**

Batteries produce explosive hydrogen gas at all times, especially when being charged. To avoid personal injury, keep cigarettes, open flame, and sparks away from the battery at all times. Ventilate area when charging battery. Raise body or seats over batteries while charging vehicle to allow hydrogen to escape freely.

Ventilation fans should be located at the highest point in the room, and must be capable of changing the total volume of air in the room five (5) times per hour. Consult a local HVAC engineer.



**WARNING**

Each charger should have its own dedicated 20 ampere (15 ampere in Canada) maximum branch circuit protection (circuit breaker or fuse) in accordance with the National Electrical Code, ANSI/NFPA 70, and local codes and ordinances.

Do not use an adaptor to plug the charger with a three-prong plug into a two-prong outlet or extension cord. Improper connection of the equipment-grounding conductor can result in a fire or an electrical shock.

Only trained technicians should repair or service the charger. Contact your Columbia ParCar distributor.

Do not operate the charger if it has received a sharp blow, was dropped, or otherwise damaged in any way.

Have worn, cut or damaged power cords or wires replaced immediately.

Do not use near fuels, grain, dust, solvents, thinners, or other flammables. Chargers can ignite flammable materials and vapors.

Do not expose to rain or any liquid. Keep the charger dry.

Never push objects of any kind into the charger through cabinet slots. They may touch dangerous voltage points or cause an electrical short that could result in fire or electrical shock.

Do not disconnect the DC output plug from the battery receptacle when the charger is on. The resulting arcing and burning could damage the plug and receptacle and could cause batteries to explode. If the charger must be stopped, disconnect the AC supply plug from the wall outlet before disconnecting the charger DC output plug.



**CAUTION**

Do not block or cover slots and openings in the back and bottom of cabinet. They provide ventilation and protect the charger from overheating.

Do not allow clothing, blankets, or other material to cover the charger. Provide adequate ventilation for the charger.

Do not leave DC plug plugged in while unattended for more than two (2) days in a row. Severe overheating and damage to the batteries may result if the charger does not turn off.

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

Each electric vehicle is supplied with a fully automatic battery charger as standard equipment. The AC cord to each charger is to be connected to a source capable of supplying 10 amperes minimum per charger.

The battery charger must be grounded to reduce the risk of electrical shock. The charger is equipped with an AC electric cord having an equipment-grounding conductor and a grounding type plug and is for use on a nominal 115 volt 60 Hertz circuit, unless otherwise noted on the charger. The plug must be grounded to an appropriate dedicated receptacle that is properly installed and grounded in accordance with the National Electrical Code, ANSI/NFPA 70, and all local codes and ordinances.

The use of an extension cord with the charger should be avoided. If an extension cord must be used, use a three conductor No. 12 AWG heavy duty with a ground conductor in good electrical condition. Keep it as short as possible (no more than twelve [12] feet). Locate all cords so that they will not be stepped on, tripped over, or otherwise subject to damage or stress.

Ventilation fans should be located at the highest point in the room, and must be capable of changing the total volume of air in the room five (5) times per hour. Consult a local HVAC engineer.

Correct charging methods extend battery life and range between charges.

Charge brand new EV Batteries completely before they are used the first time. Charging time will vary based on conditions noted below but will probably be at least 12 hours. New batteries need up to four hours more charging time than "mature" batteries.

Schedule enough charging time if possible so charger shuts off automatically. Charging time is affected by age of battery, condition of battery, state of discharge, temperature of electrolyte, AC line voltage level, and other variables.

Limit the use of brand new batteries between charging for the first 15-20 cycles. New batteries have less capacity than batteries which have been broken in. New

golf car batteries should be limited to 18 holes between charges. Industrial vehicle batteries should not be discharged more than 20-30% (37.38-37.08 volts) before recharging. Following this practice will prevent premature battery failure.

*PROLONGING BATTERY LIFE*

Whenever possible, for longest battery life, recharge EV batteries as soon as they become 20% discharged (1.1233 SG/37.38 volts). Never allow EV batteries to fall below 80% discharged (1.148 SG/35.94 volts). Deep discharging significantly reduces battery life.

Batteries in storage self-discharge and should be recharged whenever the specific gravity falls below 1.240. The rate of self-discharge varies inversely with temperature. *Refer to section 6. In proper battery storage.*

Battery state-of-charge can be determined by using a hydrometer, or by connecting the charger and observing the charging rate. If the ammeter needle jumps smartly to 20-25 amps and then tapers below 14 amps within 15 minutes, the battery is fully charged.

If performance service per charge is affected by the charger electrical supply, check facility for proper wire size, and that the circuit breaker is adequate for charging while giving protection from overload. Check charger instructions, local codes, and your Columbia ParCar Distributor for full details.

### **c. Battery Watering**

*! DANGER (FROM PG. 13)*

Correct watering procedures extend battery life.

Check the electrolyte level on brand new batteries before putting them into service, and at least monthly on batteries in service. Water use increases as batteries age.

Never allow the electrolyte level to fall below the top of the plates. If the plates are exposed, add only enough water to cover the plates before charging.

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. Cells with lower specific gravity have lower charging capacity. Make sure the electrolyte covers the plates before charging and fill cells to the markers only after batteries are charged.

Use only distilled water. Electric vehicle batteries may use up to 16 quarts of water during their useful lives and non-distilled water may contain harmful minerals which will have a cumulative adverse effect on battery performance.

### **d. Battery Cleaning**

Acid-soaked dirt on the battery tops causes current leakage, reduced battery efficiency and higher self-discharge during storage.

Hose wash battery tops periodically with clean, low-pressure water to keep them free of acid spillage, dirt, grass cuttings and other debris. Make sure vent caps are secure before washing. DO NOT hose wash electronic controllers, switches, solenoids, and other electrical control devices.

1) Wash the tops with a baking soda mixture (1/2 cup per quart of water) and a stiff bristle brush if a low pressure hose doesn't remove the dirt. Rinse with clean water. Take care to insure that the baking soda mixture does not enter the vent openings in the battery caps.

2) Make sure the battery tops are clean and dry before putting them into storage.

3) **Service Schedule** *Electric Vehicle Recommendations Maintenance Procedures*  
*UNAVAIL (FROM PG. 13)*

Use the following service schedule as a guide for maintaining your Columbia ParCar electric vehicle.

*\* 5.1.5 (IN NEW HOSE - A FIVE ELEVEN)*

### **BATTERY**

*SEE PAGE 17*

a. **Batteries** *BATTERY CHARGING*

Batteries may be recharged if vehicle has been driven 15 minutes or more since previous charge. Before charging, be sure keyswitch is off, key removed from switch and the park brake is set. *Refer to section 5.1.5 for correct charging procedure.*

Check electrolyte level and, if low, add sufficient distilled or low mineral content water to cover plates before charging. Do not fill to the marker until the battery is charged. Electrolyte expands during charging and could overflow if filled to the marker before charging.



**DANGER**

Batteries give off hydrogen gas which is highly explosive. DO NOT allow flame or sparks near charging area when charging. Charging area must be well ventilated. When adding water or acid to batteries, always wear hand and eye protection.

Batteries contain sulfuric acid. Avoid contact with skin, eyes, or clothing.

Antidote:

External - Flush with water for 15 minutes and get immediate medical attention.

Internal - Drink large quantities of milk or water followed by milk of magnesia, vegetable oil, or beaten eggs. Call doctor immediately.

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

### **AG NECESSARY OR WEEKLY**

*SEE* b. **Batteries** *BATTERY WATERING (FROM PG. 16)*

Check electrolyte level. Fill to marker in each cell with distilled water after charging.

C. VEHICLE CLEANING

**e. Cleaning** (1) BATTERY CLEANING (FORM PG. 16)

(2) Wash underside of vehicle to remove all dirt and debris. **DO NOT** direct high pressure water at the controller, speed switches, or tops of the batteries. Dry the controller and top surfaces of the batteries immediately after washing.

(3) Wash body and seats with a mild detergent only. **DO NOT** use abrasives (bodies are painted).

**MONTHLY, 24 HOURS OPERATING OR 92 ROUNDS OF GOLF**

Perform all weekly checks in addition to the following:

**f. Brake and Park Brake** (COPY FROM S.I.S. 1-1)

MODELS AVE, E43, FE, ERY, EWE, EUY, EUXB

Your vehicle is equipped with either manual adjust or auto adjust rear wheel drum brakes. Please confirm which type brake system is installed on your vehicle with your Columbia ParCar distributor before performing adjustment. Simply provide your VIN to your Columbia ParCar distributor.

Check brake pedal free travel and braking action. Maximum allowable pedal free travel is 2 inches (5 cm). Measure free travel from the top of the brake pedal, not the parking brake bar.

To adjust brake and park brake for auto adjust brake systems:

Check the pedal free travel and braking action. The brake shoes will automatically adjust on advance as wear occurs, and no adjustments are normally required. Free travel should not be less than a minimum of 1/2 inch. Measure the free travel from the top of the brake pedal, **not** from the parking brake bar.

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

To adjust brake and park brake for manual adjust systems:

1. After securely blocking front wheels to prevent rolling, raise rear wheels of vehicle off ground. Support chassis with stands.
2. Remove rubber protective boots from brake adjusters on brake backing plates.
3. While rotating rear wheel, turn adjusting screw in until brake locks. Back off adjusting screw counter clockwise until wheel rotates freely (3-5 clicks). Replace boot. Adjust opposite brake in same manner.
4. Check free travel of pedal and brake function. Minimum free travel is from 1/2 to 3/4 inch (1.3 to 1.9 cm) as measured from the top of the brake pedal.
5. Remove vehicle from stands and test drive.

**d. Tires**

18x8.5 - 8 tires, check pressure and inflate to 18 psi (1.2 atm).  
5.70 x 8 tires, check pressure and inflate to 50 psi (3.4 atm).

**Electrical**

Check solenoid terminal connections and battery connections. Clean batteries as required, following the cleaning instructions on page 16.

**e. Lubrication**

(1) Oil all body hinges.

(2) ~~GREASE VEHICLE CHASSIS~~

Columbia ParCar vehicles have nine grease fittings: two on steering column U-joints, three on each side of front suspension, and one on the brake pedal pivot which should be greased with high quality chassis grease. Remove the weight from the front suspension before lubricating to insure proper grease distribution to suspension components.

(3) ~~APPLY FRONT OIL~~

Check differential oil level and fill to filler opening with Light Weight Gear Lubricant APG 75 30W oil.

**EACH SEASON**

Perform all monthly service operations.

~~Inspect battery pack for charge and electrolyte level. Add water to safe level.~~

5 \*

**ELECTRIC VEHICLE GENERAL SPECIFICATIONS**

**Motor Type:** 36 Volt, DC Series wound, reversible, with NEMA Class H insulation  
**Rating:** 3.2 HP @ 2800 RPM continuous duty  
 8.8 HP @ 1500 RPM intermittent duty

**Control Systems:**

*MODELS: ME XP, EU XP, FE XP*  
**All vehicles except the Utilitrucks have the patented Columbia ParCar four-speed Soft Start™ system as standard equipment.**  
*MODELS: ME XP, EU XP, FE XP, ECU, C6E, EU4, EU4B, EU4XB, EU4XB, C6E*  
**Utilitrucks have a solid-state infinitely variable speed control system as standard equipment.**

**Batteries:**

**Type:** 6 Volt electric vehicle (EV) lead storage battery  
**Rating:** 105 minutes (75 amp discharge at 80° F to 5.25 volts)  
**Quantity:** 6 per vehicle  
**Charge Rate (total for 6 batteries in series):** 30 amperes with automatic charger reduction to low rate

**Power Transmission:**

Direct drive motor to helical gear rear axle with a drive ratio of 12.55:1

**Brakes:**

*MODELS: ME XP, EU XP, FE XP, EU4, EU4B, EU4XB, C6E*  
**Models ME, EU, FE, C6E, EU4, and EU4B** have mechanically operated drum brakes on rear wheels. Pedal actuated parking brake with automatic release controlled by accelerator is standard. Hand actuated parking brake is optional.

**Models EU2400, EU2400XB, and TP4M**

Hydraulically operated drum brakes on rear wheels. Hand actuated parking brake is standard.

**Tires**

High flotation 18 x 8.50-8 tires, inflate to 18 psi (1.2 atm).  
 High speed 5.70 x 8 load range B tires, inflate to 50 psi (3.4 atm).

**ELECTRIC VEHICLE CAPACITIES AND DIMENSIONS**

Model	Maximum Number of Occupants	Maximum Carrying Capacity, lbs. (kg)	Empty Weight, lbs. (kg)	Turning Radius, ft. (m)	Ground Clearance, in. (cm)	Wheel Base, in. (cm)	Overall Length, in. (cm)	Overall Width, in. (cm)	Overall Height, in. (cm)
EU4	2	1100 (499)	1158 (529)	11.5 (3.5)	4 (10.2)	74 (188.0)	105 (266.7)	44.25 (112.4)	47.5 (120.7)
EU4XB	2	1100 (499)	1230 (560)	13.5 (4.1)	4 (10.2)	89 (226.1)	125 (317.5)	44.25 (112.4)	46 (116.8)
EU2400	2	2400 (1305)	1166 (529)	11.5 (3.5)	4 (10.2)	74 (188.0)	105 (266.7)	44.25 (112.4)	47.5 (120.7)
EU2400XB	2	2400 (1305)	1238 (562)	13.5 (4.1)	4 (10.2)	89 (226.1)	125 (317.5)	44.25 (112.4)	46 (116.8)
EU4	2	750 (340)	988 (448)	10.5 (3.2)	4 (10.2)	64 (162.6)	92.5 (235.0)	44.25 (112.4)	46 (116.8)
EU4XB	2	750 (340)	1037 (470)	10.5 (3.2)	4 (10.2)	64 (162.6)	94 (238.8)	44.25 (112.4)	46 (116.8)
EU2400	2	1100 (499)	1149 (521)	13.5 (4)	4 (10.2)	89 (226.1)	119 (302.3)	44.25 (112.4)	47.5 (120.7)
EU2400XB	2	1100 (499)	1192 (541)	13.5 (4.1)	4 (10.2)	89 (226.1)	119 (302.3)	44.25 (112.4)	47.5 (120.7)

## VEHICLE STORAGE

### All Vehicles



#### WARNING

When storing your Columbia ParCar vehicle, turn key to "OFF", remove key, and depress parking brake.

### Gasoline Vehicles

Add a good quality fuel stabilizer to the fuel following the manufacturer's recommendation on the container.



#### DANGER

Gasoline is extremely flammable and highly explosive under certain conditions. Store vehicle in well ventilated area away from heat or open flame (such as pilot light or space heater).

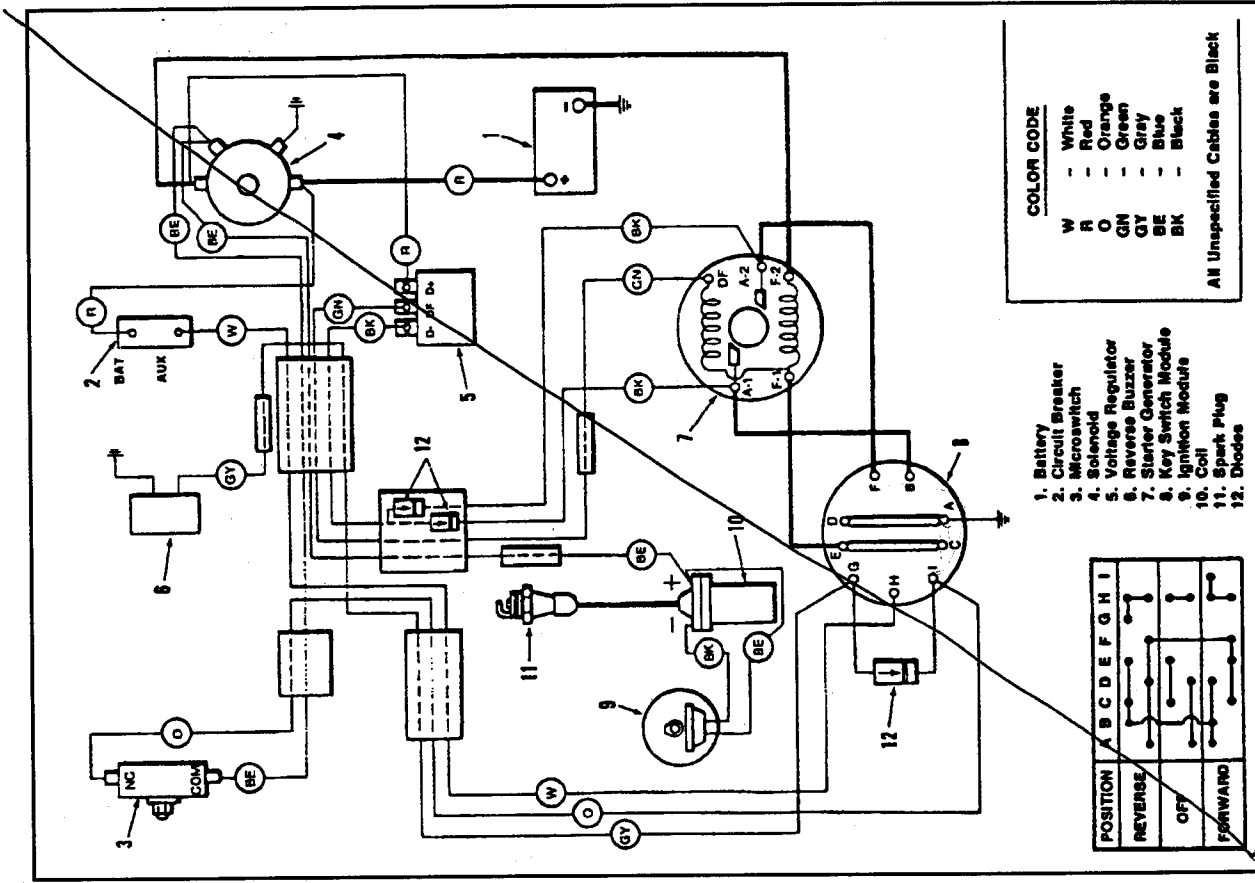
### Electric Vehicles

Fully charge batteries. With electrolyte up in all cells, store batteries in as cold a place as possible. If stored above 50° F (27° C), check state of charge every 8 to 10 weeks and charge as necessary to maintain 1.250 to 1.270 specific gravity. Use the chart below to determine freezing point of battery and maximum recommended storage temperature.

Specific Gravity	1.260	1.230	1.200	1.117	1.110
Freezing Point of Electrolyte	F C -70	F C -39	F C -16	F C -2	F C -8

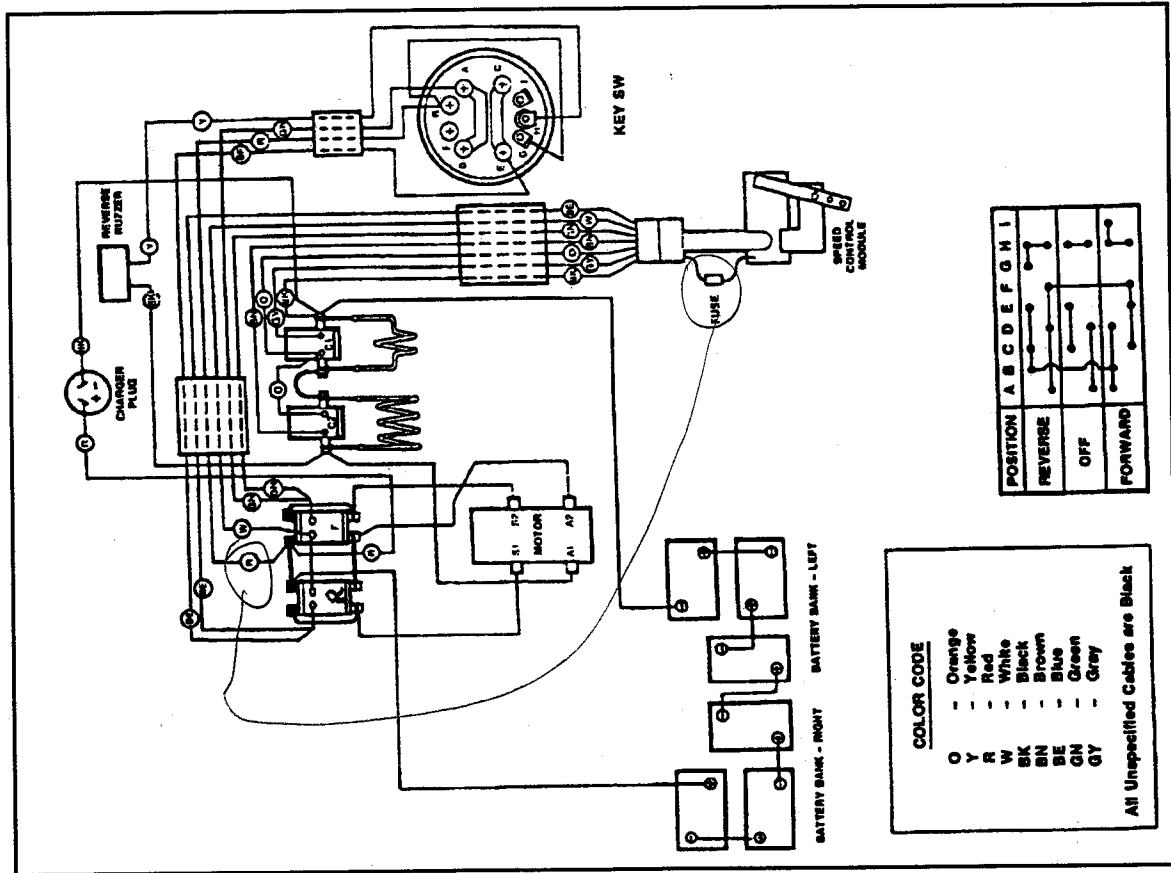
## BASIC WIRING DIAGRAMS

### Gasoline Powered Vehicles



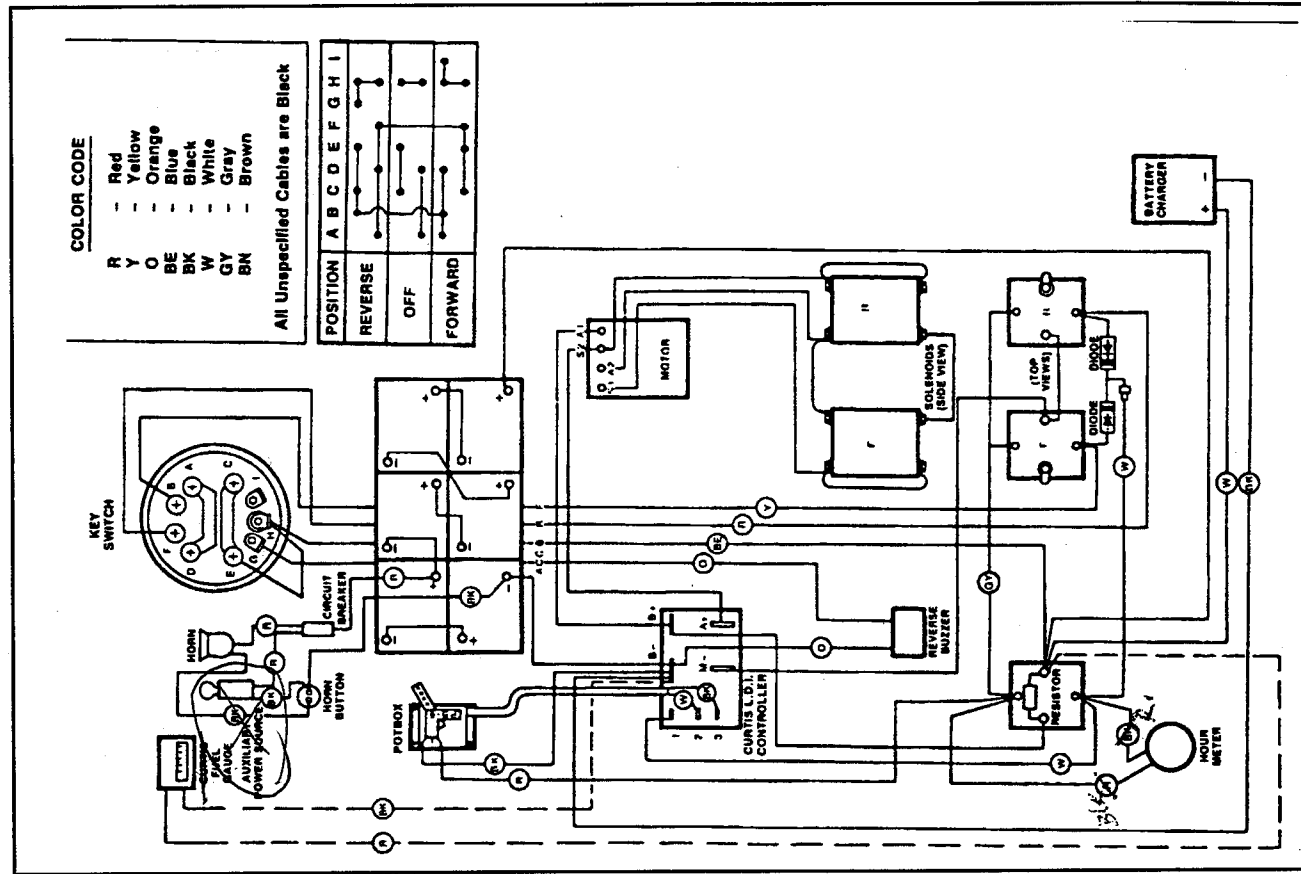
# ELECTRIC VEHICLES

Soft Start System - Standard on Models P4E, RSE, E4S, FE, C6E and TRAM



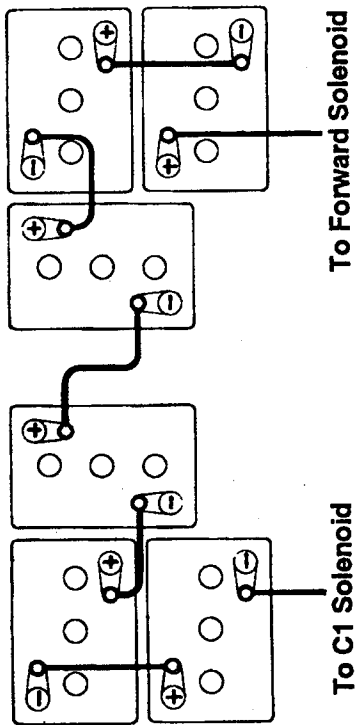
# ELECTRIC VEHICLES

Solid State Infinitely Variable System - Standard on Models EU4, EUXB, EU2400 and EU2400XB

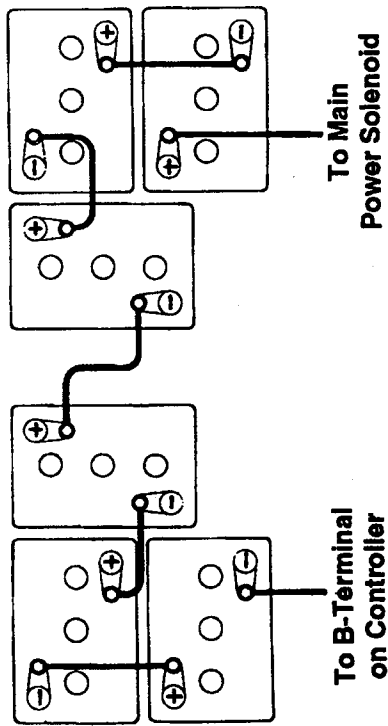


# NOTES/SERVICE RECORDS

**BATTERY INSTALLATION**  
Soft Start System  
FRONT OF VEHICLE



**Solid State Infinitely Variable System**  
FRONT OF VEHICLE



**NOTES/SERVICE RECORDS**

**NOTES/SERVICE RECORDS**