

COLUMBIA Par Car 

Service Manual

Gasoline and Electric
Golf and Industrial
Four Wheel Vehicles



FOREWORD

This service manual has been prepared with two purposes in mind. First, it will introduce the trained maintenance professional to the latest field-tested and factory-approved major repair methods. Secondly, it will acquaint the reader with the construction of Columbia ParCar vehicles and assist him/her in performing basic maintenance and repair. We sincerely believe that this manual will make your association with Columbia ParCar vehicles more pleasant and profitable.

In addition to the information given in this Service Manual, Service Bulletins are issued to Columbia ParCar Dealers, from time to time, which cover interim engineering changes and supplementary information. Service Bulletins should be consulted for complete information on the models covered by this manual.

To ensure the safety of those servicing Columbia ParCar vehicles and to protect the vehicles from possible damage resulting from improper service or maintenance, the procedures followed in this manual should always be followed exactly as outlined. Execution of the procedures and trouble-shooting tips as outlined will ensure the best possible service from the vehicle(s). To reduce the chance of personal injury and/or property damage, carefully observe NOTES, CAUTIONS, WARNINGS and DANGER recommendations throughout this manual. See Chapter 1 for additional details.

Preparation For Service


Proper preparation is very important for efficient service work. A clean work area at the start of each job will allow you to perform the repair as easily and quickly as possible and reduce the incidence of misplaced tools and parts. Columbia ParCar vehicles that are excessively dirty should be cleaned before work begins. Cleaning will occasionally uncover trouble sources. Tools, instruments and parts needed for the job should be gathered before work is started. Interrupting a job to locate tools or parts is a needless delay. Special tools required for a job are listed at the front of each section.

Model Identification

Always, give the full vehicle identification number when ordering parts or making inquiries about your Columbia ParCar vehicle.

Use of the full and complete vehicle identification number (VIN) information will assure your dealer or service provider is supplying you with the correct parts for your vehicle. See Chapter 2 for vehicle identification information.

Use Genuine Replacement Parts

 **Warning: When replacement parts are required, use only genuine Columbia parts or parts with equivalent characteristics including type, strength and material. Failure to do so may result in product malfunction and possible injury to the operator and/or passenger.**

To ensure a satisfactory and lasting repair job, follow the service manual instructions carefully and use only genuine Columbia ParCar replacement parts. This is your insurance that the parts you are using will fit right, operate properly and last longer. When you use genuine Columbia ParCar parts, you use the best.

Product References

When reference is made in this manual to a specific brand name product, tool or instrument, an equivalent product, tool or instrument may be used in place of the one mentioned.

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CHAPTER 1

SAFETY

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OVERVIEW

Statements in this manual preceded by the words NOTE, CAUTION, WARNING or DANGER and printed in bold face are very important. We recommend you take special notice of these items.

It is important to note that some warnings against the use of specific service methods, which could damage the vehicle or render it unsafe, are stated in this service manual. However, please remember that these warnings are not all inclusive. Since Columbia ParCar could not possibly know, evaluate and advise servicing personnel of all possible ways in which service might be done or of the possible hazardous consequences of each way, we have not undertaken any such broad evaluation. Accordingly, anyone who uses a service procedure or tool which is not recommended by Columbia ParCar must first thoroughly satisfy himself that neither his nor the operator's safety will be jeopardized by the service methods selected.

 **Danger:** Danger indicates an immediate hazard that will result in severe personal injury or death.

 **Warning:** Warnings will indicate an immediate hazard, which could result in severe personal injury.

 **Caution:** Cautions indicate hazards or unsafe practices, which could result in minor personal injury, damage to the vehicle or to other property.

Note: Notes will provides key information to assure procedures are more easily understood or implemented.

It is Columbia ParCar'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 (indoor vehicle operation hazards, gasoline and fuel system hazards, battery hazards, etc.) are encountered.

Notes, Cautions, Warnings And Dangers

ALL VEHICLES



Any modifications or changes to the vehicle that affect the stability or increases vehicle speed beyond factory specifications could result in severe personal injury or death.

Always, remove key and disconnect the battery(s) before servicing or repairing your vehicle. See Battery, Chapter 8, for details.

All batteries used in gas or electric vehicles can explode! Always, wear full-face shield when working on or near batteries. Hydrogen fumes are a natural byproduct of charging and discharging and are extremely explosive. Do not smoke. Keep sparks and flames away from batteries. Battery charging should only be done in a well-ventilated area. See Batteries, Chapter 8, for details.

If any problems are found during scheduled maintenance or inspections, DO NOT operate vehicle until repairs are made. Failure to make necessary repairs could result in fire, property damage, severe personal injury, or death.

Notes, Cautions, Warnings And Dangers

ALL VEHICLES



Warning

Only trained maintenance professionals should repair or service this vehicle. Persons doing even simple repairs or service should have working knowledge and experience in general electrical and mechanical repair. Follow all procedures exactly and observe all warnings stated in this manual. Use caution and common sense.

Proper service and repair is important for safe, reliable operation of all Columbia ParCar vehicles. The service procedures recommended and described in this service manual are effective methods for performing service operations. Some of these service operations require the use of tools specially designed for this purpose. These special tools should be used when and as recommended.

Moving parts hazard! When operating any vehicle in a stationary position, avoid spinning clutches, belts, and wheels which could snag clothing or cause severe injury to body parts. A running vehicle must be worked on with the greatest care. Use caution and common sense.

Working on Columbia ParCar vehicles without following proper procedures and using proper lifting equipment may result in vehicle damage or personal injury. See Lifting Instructions in Chapter 2 for detailed instructions.

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 servicing vehicle. Wear a full face shield when working with batteries.

Exceeding rated vehicle load capacities could result in possible severe injury or property damage.

The modification of golf cars for use in other than golf play is not recommended.



Caution

Cautions appear throughout this manual indicating possible hazards or unsafe practices that may result in minor personal injury, damage to vehicles or property.

Note

Notes appear throughout this manual to provide key information to assure procedures are more easily understood or implemented.

GASOLINE-POWERED VEHICLES



Danger

Gasoline is extremely flammable and highly explosive under certain conditions. When refueling or servicing gasoline-powered vehicles, always, stop engine. Do not smoke, and keep away from open flame or sparks.

DO NOT operate when the smell of gasoline is present or other explosive conditions exist which could result in severe personal injury or death.

DO NOT operate vehicle in an enclosed area without proper ventilation. Engines produce carbon monoxide, which is a colorless, odorless and deadly gas.

BATTERY - Is poisonous! Contains acid which causes severe burns! Avoid contact with skin, eyes or clothing.

GASOLINE-POWERED VEHICLES (CONTINUED)



Danger:

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 a physician immediately.

Any modifications or changes to the vehicle that affect the stability, or increases the speed beyond factory specifications, could result in severe personal injury or death.



Warning:

Only trained maintenance professionals should repair or service this vehicle. Persons doing even simple repairs or service should have working knowledge and experience in general electrical and mechanical repair. Follow all procedures exactly and observe all warnings stated in this manual. Use caution and common sense.

To avoid accidental starting of the vehicle, always, turn key switch OFF, remove key, disconnect battery negative (-) cable and remove spark plug wire from spark plug prior to servicing.

Hot engine and exhaust system! DO NOT attempt to service while hot. Failure to observe this warning could result in severe burns.

DO NOT refuel indoors where area is not well-ventilated. Outdoor fueling is recommended.

DO NOT store, spill or use gasoline near open flame or stoves, furnaces or water heaters that use a pilot light, or device which causes a spark that could ignite a fire.

DO NOT fill fuel tank while engine is hot. Allow engine to cool for 2 minutes before refueling. Store all fuels in properly marked containers.

DO NOT operate engine if gasoline is spilled. Push vehicle away from the spill and avoid creating any possible ignition until the spill has evaporated or has been properly taken care of.



Caution:

Cautions appear throughout this manual indicating possible hazards or unsafe practices that may result in minor personal injury, damage to vehicles or property.

Notes

Notes appear throughout this manual to provide key information to assure procedures are more easily understood or implemented.

ELECTRIC-POWERED VEHICLES



When working around batteries, use approved insulated tools, remove jewelry such as rings, watches, chains, etc. and place an insulating material (wood, plastic, rubber, etc.) over batteries covering all connections.

BATTERY - Is poisonous! Contains acid! Causes 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 a physician immediately.

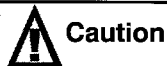


Only trained maintenance professionals should repair or service this vehicle. Persons doing even simple repairs or service should have working knowledge and experience in general electrical and mechanical repair. Follow all procedures exactly and observe all warnings stated in this manual. Use caution and common sense.

Always turn key switch to OFF, remove key, block tires and disconnect the battery negative (-) cable on XP and XP Plus models before performing any vehicle service to avoid accidental start-up of vehicle and possible injury.

To prevent accidental starting of the Power Master model, turn tow switch to tow position, disconnect the battery positive cable (+), turn key to reverse position until warning buzzer is silent.

HOT! - DO NOT attempt to service hot motor or resistors. Failure to observe this warning could result in severe burns.



Cautions appear throughout this manual indicating possible hazards or unsafe practices that may result in minor personal injury, damage to vehicles or property.

Notes

Notes appear throughout this manual to provide key information to assure procedures are more easily understood or implemented.

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CHAPTER 2

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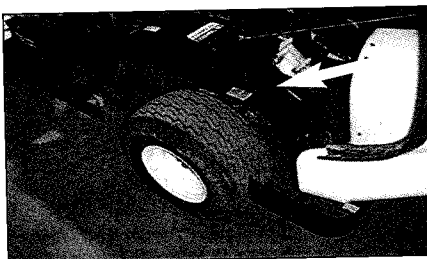
VEHICLE AND MODEL INFORMATION

Model	Vin Prefix	Name	Use Type	Power System
P4G	8E	Eagle	Golf	Gas 4 Cycle 9 HP Briggs & Stratton
P4E	3E	Eagle	Golf	Battery 36/48 Volt System
P5E	E	Eagle	Golf	Battery 36/48 Volt System
FG	8F	Foursome	Golf	Gas 4 Cycle 9 HP Briggs & Stratton
FE	4F	Foursome	Golf	Battery 36/48 Volt System
GU4	8U	Utilitruck	Utility	Gas 4 Cycle 9 HP Briggs & Stratton
EU4	4E	Utilitruck	Utility	Battery 36/48 Volt System
GUXB	8X	Utilitruck Extended Bed	Utility	Gas 4 Cycle 9 HP Briggs & Stratton
EUXB	4X	Utilitruck Extended Bed	Utility	Battery 36/48 Volt System
GU2400	9J	Utilitruck	Utility	Gas 4 Cycle 13 HP Briggs & Stratton
EU2400	5J	Utilitruck	Utility	Battery 36/48 Volt System
GU2400XB	9N	Utilitruck Extended Bed	Utility	Gas 4 Cycle 13 HP Briggs & Stratton
EU2400XB	5N	Utilitruck Extended Bed	Utility	Battery 36/48 Volt System
GD4	8D	Utilidump	Utility/Dump	Gas 4 Cycle 9/13 HP Briggs & Stratton
ED4	4D	Utilidump	Utility/Dump	Battery 36/48 Volt System
C6G	8S	Shuttle	People Mover	Gas 4 Cycle 9 HP Briggs & Stratton
C6E	4S	Shuttle	People Mover	Battery 36/48 Volt System
C10G	9H	Tram	People Mover	Gas 4 Cycle 13 HP Briggs & Stratton
C10E	5H	Tram	People Mover	Battery 36/48 Volt System
911G	8Z	Ambulance	Medical Transport	Gas 4 Cycle 9 HP Briggs & Stratton
911E	4Z	Ambulance	Medical Transport	Battery 36/48 Volt System

The Vehicle Identification Number (VIN) of each vehicle, describes many different facts or features of the vehicle. Refer to the VIN Chart below to determine unique features of your vehicle.

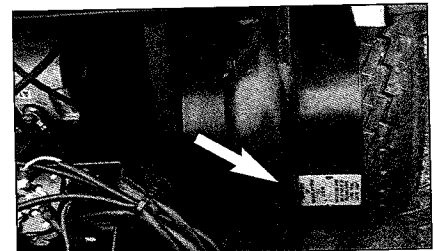
Vehicle Identification Number (VIN) Matrix				
VIN, Four Character System			Sequential Serial #	Suffix (when used)
1st Character Power System	2nd Character Model Code Designation	3rd & 4th Characters Factory Modifications/Options to Standard Vehicle	5 Numeric Characters	1 Alpha/1 Numeric
3=PowerMaster System	C=Classic	A=36 volt high speed motor	Example=12345	Decade D=1900 E=2000
4=Std XP Power System	D=Utilidump	D=48 volt Power System 8 6V batteries		Year 8=1998 9=1999 0=2000 1=2001
5=XP+ Power System	E=Eagle	E=48 volt Power System 6 8V batteries		SP, when used indicates this is a Special Vehicle having been significantly modified from model indicated by model prefix. It is critical when ordering parts for any vehicle that you give the entire vehicle VIN to Columbia ParCar customer service to ensure correct service parts are ordered and supplied.
8=9 HP 4 cycle engine	F=Foursome	S=Special Product Modification		
9=13 HP 4 cycle engine	H=Tram	W=Front wheel hydraulic disc brakes		
	J=Utilitruck 2400	X=4 wheel hydraulic disc brakes		
	N=Utilitruck 2400XB	Y=Rear wheel hydraulic disc brakes		
	S=Shuttle	Z=Custom Carts model		
	U=Utilitruck			
	X=UtilitruckXB			
	Z=Ambulance			

Note: ALWAYS, provide the complete VIN when contacting your Dealer for technical assistance or maintenance and repair parts. For golf and commercial vehicles, the VIN number is printed on a white label located in the upper right inside floorboard or stamped on a metal name plate affixed to the rear fender (under the rear body). On Industrial models, the VIN name plate is located at the front right corner of the rear body.



1996~1999 Eagle

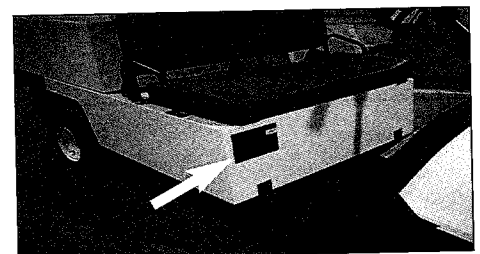
VIN Plate Location



1996~1999 Shuttle



2000 Eagle & Shuttle



Utility/Tram/Ambulance

General Vehicle Specifications

Item	Specifications	Vehicle							
		P4G	P4E	FG	FE	GU4	EU4	GUXB	EUXB
Power Source									
Engine	9 HP 4 cycle, Single cylinder, fan air cooled, OHV Briggs & Stratton	*		*		*		*	
	13 HP 4 cycle, Single cylinder, fan air cooled, OHV Briggs & Stratton								
Motor	36 Volt, DC series wound, Reversible, NEMA Class H insulation, 3.2 HP @2800 RPM		*		*		*		*
Drive	Direct coupled to helical geared differential		*		*		*		*
Speed Control	Infinitely variable, solid state maintenance free, 275 AMP		*		*		*		*
Transmission	Fully automatic torque sensing variable speed with overdrive	*		*		*		*	
Transaxle ¹	12.44:1 Helical gear reduction with integral differential		*		*		*		
	13.32:1 Helical gear reduction with integral differential	*		*		*		*	
	13.25:1 Helical gear reduction with integral differential, Heavy duty								*
Electrical	Solid state voltage regulator, 12 volt heavy duty battery	*		*		*		*	
Batteries ²	36 Volt: Six 6-volt, Heavy duty, 220Ah, deep cycle		*		*		*		*
	48 Volt: Eight 6-volt, Heavy duty, 220 Ah, deep cycle		*		*		*		*
Charger	Lestronic II 36/48 Volt, 25 AMP (Portable) or 30 AMP (Built-in)		P		P		B		B
Directional Control	Dash mounted safety directional keyswitch, forward, reverse and off		*		*		*		*
	Dash mounted safety directional shift control, forward, reverse and off	*		*		*		*	
Air Intake	Micro-clean primary and safety element	*		*		*		*	
Brakes, Steering and Suspension									
Brakes ³	Auto adjusting mechanical drum rear, Automatic release parking brake	*	*	*	*	*	*	*	*
	Hydraulic drum brakes on rear, hand operated parking brake								
Steering	Automatic adjusting, speed balanced, Automotive rack and pinion	*	*	*	*	*	*	*	*
Suspension	Front-multi-leaf spring with dual shock absorbers Rear-Independent dual coil springs with dual shock absorbers	*	*	*	*	*	*	*	*
Body and Chassis									
Tires ⁴	G= Golf, 18x8.5-8 Classic St (Std) I= Industrial 5.70x8 Industrial Service (Std)	G	G	G	G	I	I	I	I
Frame	Mig-welded tubular steel, electrostatic powder coated	*	*	*	*	*	*	*	*
Capacities									
Fuel tank Capacity	7 U.S. Gallon Capacity ⁵ Total number of occupants and cargo not to exceed _lbs.	*		*		*		*	
		2 750 lbs.	2 750 lbs.	4 1100 lbs.	4 1100 lbs.	2 1200 lbs.	2 1100 lbs.	2 1200 lbs.	2 1100 lbs.

General Vehicle Specifications (Continued)

Item	Specifications	Vehicle							
		GU 2400	EU 2400	GU 2400XB	EU 2400XB	GD4	ED4	C6G	C6E
Power Source									
Engine	9 HP 4 cycle, Single cylinder, fan air cooled, OHV Briggs & Stratton							*	
	13 HP 4 cycle, Single cylinder, fan air cooled, OHV Briggs & Stratton	*		*		*			
Motor	36 Volt, DC series wound, Reversible, NEMA Class H insulation, 3.2 HP @2800 RPM		*		*		*		*
Drive	Direct coupled to helical geared differential		*		*		*		*
Speed Control	Infinitely variable, solid state maintenance free, 275 AMP		*		*		*		*
Transmission	Fully automatic torque sensing variable speed with overdrive	*		*		*		*	
Transaxle ¹	12.44:1 Helical gear reduction with integral differential								
	13.32:1 Helical gear reduction with integral differential		*		*	*	*	*	*
	13.25:1 Helical gear reduction with integral differential, Heavy duty	*		*					
Electrical	Solid state voltage regulator, 12 volt heavy duty battery	*		*		*		*	
Batteries ²	36 Volt: Six 6-volt, Heavy duty, 220Ah, deep cycle		*		*		*		*
	48 Volt: Eight 6-volt, Heavy duty, 220 Ah, deep cycle								
Charger	Lestronic II 36/48 Volt, 25 AMP (Portable) or 30 AMP (Built-in)		B		B		P		P
Directional Control	Dash mounted safety directional keyswitch, forward, reverse and off		*		*		*		*
	Dash mounted safety directional shift control, forward, reverse and off	*		*		*		*	
Air Intake	Micro-clean primary and safety element	*		*		*		*	
Brakes, Steering and Suspension									
Brakes ³	Auto adjusting mechanical drum rear, Automatic release parking brake					*	*	*	*
	Hydraulic drum brakes on rear, hand operated parking brake	*	*	*	*				
Steering	Automatic adjusting, speed balanced, Automotive rack and pinion	*	*	*	*	*	*	*	*
Suspension	Front-multi-leaf spring with dual shock absorbers	*	*	*	*	*	*	*	*
	Rear-Independent dual coil springs with dual shock absorbers								
Body and Chassis									
Tires ⁴	G=Golf, 18x8.5-8 Classic St (Std) I=Industrial 5.70x8 Industrial Service (Std)								
Frame	Mig-welded tubular steel, electrostatic powder coated	*	*	*	*	*	*	*	*
Capacities⁵									
Fuel tank	7 U.S. Gallon Capacity	*		*		*		*	
Capacity	Total number of occupants and cargo not to exceed _lbs.	2 2400 lbs.	2 2400 lbs.	2 2400 lbs.	2 2400 lbs.	2 1200 lbs.	2 1100 lbs.	4 1200 lbs.	4 1100 lbs.

		General Vehicle Specifications (cont.)			
Item	Specifications	Vehicle			
		C10G	C10E	911G	911E
Power Source					
Engine	9 HP 4 cycle, Single cylinder, fan air cooled, OHV Briggs & Stratton			*	
	13 HP 4 cycle, Single cylinder, fan air cooled, OHV Briggs & Stratton	*			
Motor	36 Volt, DC series wound, Reversible, NEMA Class H insulation, 3.2 HP @2800 RPM		*		*
Drive	Direct coupled to helical geared differential		*		*
Speed Control	Infinitely variable, solid state maintenance free, 275 AMP		*		*
Transmission	Fully automatic torque sensing variable speed with overdrive	*		*	
Transaxle ¹	12.44:1 Helical gear reduction with integral differential				
	13.32:1 Helical gear reduction with integral differential			*	
	13.25:1 Helical gear reduction with integral differential, Heavy duty	*			
Electrical	Solid state voltage regulator, 12 volt heavy duty battery	*		*	
Batteries ²	36 Volt: Six 6-volt, Heavy duty, 220Ah, deep cycle		*		*
	48 Volt: Eight 6-volt, Heavy duty, 220 Ah, deep cycle				
Charger	Lestronic II 36/48 Volt, 25 AMP (Portable) or 30 AMP (Built-in)		B		B
Directional Control	Dash mounted safety directional keyswitch, forward, reverse and off		*		*
	Dash mounted safety directional shift control, forward, reverse and off	*		*	
Air Intake	Micro-clean primary and safety element	*		*	
Brakes, Steering and Suspension					
Brakes ³	Auto adjusting mechanical drum rear, Automatic release parking brake			*	*
	Hydraulic drum brakes on rear, hand operated parking brake	*	*		
Steering	Automatic adjusting, speed balanced, Automotive rack and pinion	*	*	*	*
Suspension	Front-multi-leaf spring with dual shock absorbers Rear-Independent dual coil springs with dual shock absorbers	*	*	*	*
Body and Chassis					
Tires ⁴	G=Golf, 18x8.5-8 Classic St (Std) I=Industrial 5.70x8 Industrial Service (Std)				
Frame	Mig-welded tubular steel, electrostatic powder coated	*	*	*	*
Capacities⁵					
Fuel tank Capacity	7 U.S. Gallon Capacity	*		*	
	Total number of occupants and cargo not to exceed _lbs.	10 2000 lbs.	10 2000 lbs.	3 1200 lbs.	3 1100 lbs.

Notes from General Vehicle Specifications:

- ¹Optional transaxles may be used for different applications.
- ²Six, 8-volt batteries may be used for 48-volt system.
- ³Other brake options are available depending on application. Contact your Columbia ParCar Dealer.
- ⁴Other tire styles and sizes are available for different applications.
- ⁵For a full list of dimensions and capacities, refer to your vehicle owner's manual.

Columbia ParCar golf cars are designed to conform to ANSI standards and OSHA standards.

Columbia Utilitrucks are designed to conform to ANSI B56.8 and OSHA standards.

Columbia ParCar Corp. reserves the right to change specifications, equipment or designs at any time without notice and without incurring obligations.

Safety Committee

If the Gasoline or Electric, Golf or Industrial Vehicles are to be operated by renters or company employees, we recommend that a safety committee be appointed. The primary concern of this committee should be the safe operation of the vehicles.

Subjects which must be considered include, but not limited to, the following:

- a. Define where the vehicles should and should not be driven and utilized.
- b. Ensure all proper warnings as to driving hazards are properly displayed and visible.
- c. Safety signage concerning hills, turns, blind crossings or intersections is highly recommended.
- d. Enforcement of safe driving and operating rules.
- e. Provide driver training for first time operators, and review safe operating recommendations regularly.
- f. Maintain vehicles in a safe operating condition. Maintain a schedule for daily, weekly, and monthly vehicle inspections.
- g. Who, when and how should pre-operation inspections be conducted.
- h. Define who should and who should not drive the vehicles.
- i. What to do should an unsafe condition or operating problem be discovered.

Note: Refer to OSHA regulations for additional requirements regarding operator training.


These basic rules of operation, combined with courtesy and common sense, will help make driving your Columbia ParCar vehicle a safe and pleasant experience. The safety committee should be made up of managers and/or supervisors in charge or responsible for the operation and maintenance of the vehicles.

Controls and Operation

Location of Controls

Figure 1 shows location of your vehicle's controls.

Simple controls make it easy to operate a Columbia ParCar Golf or Columbia Industrial Vehicle. To drive, move the Safety Directional Keyswitch/Shift Control to desired position and depress accelerator with right foot. Depress brake pedal to slow or stop vehicle.

 **Warning:** On electric vehicles, be sure safety directional keyswitch is in desired direction of travel before depressing accelerator. On gasoline vehicles, be sure the safety directional shift control is in the desired direction of travel before depressing accelerator.

 **Caution:**

Golf Cars:

- * Golf cars are to be used for golf play only.
- * It is hazardous to use golf cars anywhere other than on designated car paths and car areas.
- * This vehicle is designed for transporting no more than (2) golfers and their equipment. The only exception is the foursome vehicle designed to handle four (4) golfers and their equipment.
- * Never exceed the rated load capacity or vehicle stability, reliability and control will be reduced.

Industrial Vehicles:

- * Industrial vehicles are designed to transport no more than two (2) people unless adequate provisions have been factory installed to accommodate additional passengers.
- * Never exceed the rated load capacity or vehicle stability, reliability and control will be reduced. See vehicle identification plate for capacities.
- * Before operating vehicle, ALWAYS, distribute and secure loads.

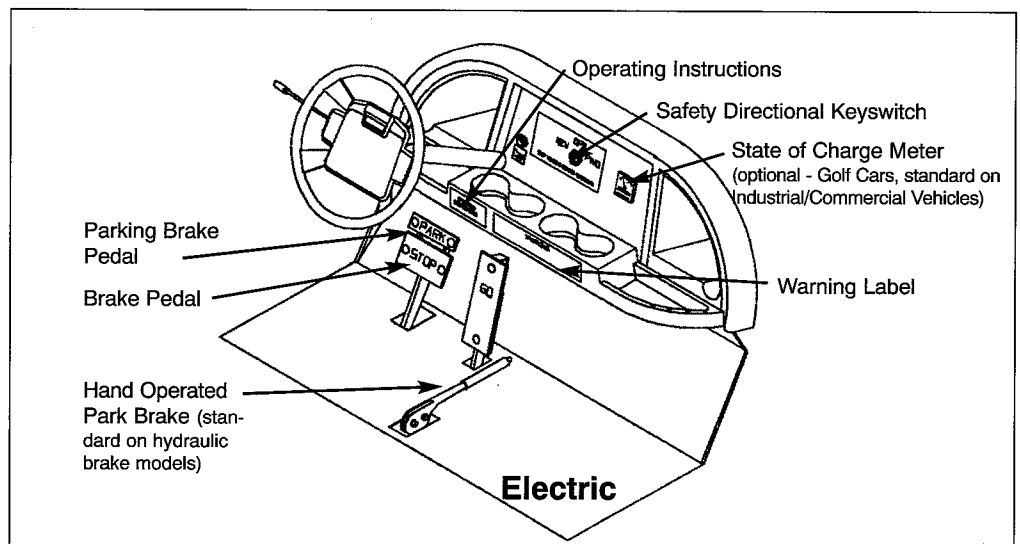
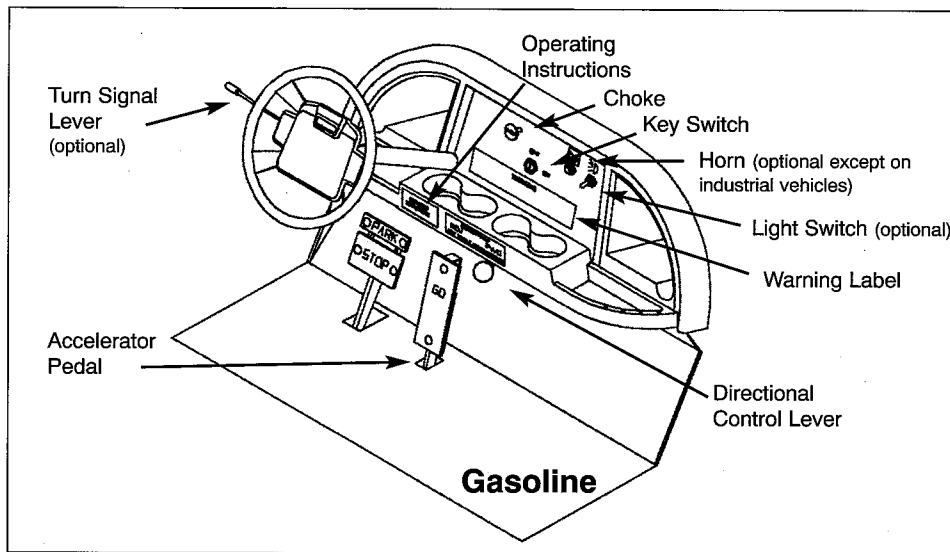


Figure 1- Location of Controls

Pre-Operations Inspections

Your Columbia ParCar vehicle has been inspected and adjusted to factory specifications before delivery. Upon receipt of vehicle, make a predelivery 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.

Warning: Only trained maintenance professionals should service or repair this vehicle. Persons doing even simple repairs or service should have working knowledge and experience in general electrical and mechanical repair. Follow all procedures and observe all warnings stated in this manual. Use caution and common sense.

Note: Controls should be operated smoothly and easily without sticking or requiring undue effort. The service manual contains maintenance procedures necessary to perform maintenance on your vehicle. Maintenance and/or repair to fuel metering systems, air induction systems, ignition system, exhaust system (including connectors and assembling) could affect emissions controls on the engine. Contact your Columbia ParCar Dealer or Columbia ParCar at (800) 222-4653 for instruction and/or recommendations before proceeding.

Pre-Operations Check List		
Service Item	Service Method/Check	Manual Reference
Vehicle Body	Visually, check for damaged and loose hardware.	See note.
Steering and Linkages	Test drive, check for free movement and proper operation.	See note.
Brake Operation	Test drive, check free travel and braking action.	Refer to owner's manual for specifications, Section 5.1.
Parking Brake	Test drive, check latching and proper release.	Refer to owner's manual for specifications, Section 5.1.
Warning Labels	Visually, inspect all labels for readability or missing.	Verify labels are in place and readable.
Tires	Visually, check for wear or damage.	Refer to owner's manual for specifications, Section 5.2.4.c.
Engine	Test drive, check for proper operation.	See note.
Accelerator/Governor Linkage	Test drive, check for free movement.	See note.
Reverse Warning Buzzer	Test drive, check for proper operation.	Verify an audible sound heard.
Air Intake Screen	Visually, check for clogged screen.	Refer to owner's manual for specifications, Section 5.2.4.a.
Fuel System	Visually, check tank, lines, pump and carburetor for fuel leakage.	See note.
Charger Plug and Receptacle	Check for damage and snug fit.	Refer to owner's manual for specifications, Section 5.3.1.a.
Batteries	Charge.	Refer to owner's manual for specifications, Section 5.3.1.a.

What to do if you find a problem:

1. If vehicle has just been delivered, report any physical damage or missing items to the Shipping Company and your local Columbia ParCar Dealer.
 - * Look for body damage, jagged edges etc. that may cause personal injury.
 - * Check for damaged or leaking batteries.
 - * Verify bumpers are not bent out or protruding and are attached properly.

2. Daily, before operation, assess what affect the problem has on the safe operation of the vehicle.
 - * If the safe operation of the vehicle is affected, remove the vehicle from service until the problem has been corrected. Report the problem to the individual(s) responsible for correction and/or repair.
 - * If the safe operation of the vehicle is not affected, record the problem and report it to the individual(s) responsible for correction and/or repair.

3. Report any service item problems to the individual(s) responsible for correction and/or repair or contact your local Columbia ParCar Dealer for service.
 - * Refer to Pre-Operations Checklist.



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 ParCar Dealer for professional service.


Torques and Metric Conversion Factors

Individual component torques and metric equivalents are listed where the maintenance is performed throughout this manual. When a specific fastener torque is not specified, use this Torque Table as a general guide in determining the proper torque. When a metric equivalent is not listed, use the conversion factor table to convert the metric values.

Torque Table													
Torque to the value in this table unless specified otherwise.													
Fine or course thread fastener	Grade Designation	Tensile Strength Minimum	Material	Screw, Stud or bolt shank size or diameter									
				Torque figures are in ft. lbs.									
				1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
Cap Screw ○	S.A.E. 2 A.S.T.M A-307 Steel	64,000 P.S.I.	Low Carbon Steel	6	11	19	30	45	66	90	150	202	300
Cap Screw ⊖	S.A.E. 3 Steel	100,000 P.S.I.	Medium Carbon Steel	9	17	30	47	69	103	145	234	372	551
Cap Screw ⊕	S.A.E. 5 A.S.T.M A-499 Steel	105,000 P.S.I.	Medium Carbon Steel Or Low Alloy Heat Treated	9	18	31	50	75	110	150	250	378	583
Cap Screw ⊗	A.S.T.M A-354BB Steel												
Cap Screw ⊕	A.S.T.M A-325												
Cap Screw ⊖	A.S.T.M A-354-BC Steel	125,000 P.S.I.	Low Alloy or Med. Carbon Steel Quenched Tempered	11	20	34	54	81	119	167	269	427	644
Cap Screw ⊕	S.A.E. 6 Steel	133,000 P.S.I.	Med. Carbon Steel Quenched Tempered	12.5	24	43	69	106	150	209	350	550	825
Cap Screw ⊗	S.A.E. 7 Steel		Med. Carbon Alloy Quenched Tempered Roll Threaded										
Cap Screw ⊕	S.A.E. 8 Steel	150,000 P.S.I.	Med. Carbon Alloy Quenched Tempered	13	28	46	75	115	165	225	370	591	893


Conversion Factors					
Into Metric			Out of Metric		
To convert From	To	Multiply by	To convert From	To	Multiply by
Work force measurements					
inch-pound	N.m.	0.1130	newton-meter	in.lb.	8.8496
foot-pound	N.m.	0.3558	newton-meter	in.lb.	0.7376
Length Measurements					
inch	mm	25.4	micrometer	in.	0.394
foot	m	0.3048	Meter	ft.	3.2808
miles	kilometers	1.6	kilometers	miles	0.62
Liquid Volume Measurements					
fluid ounces	milliliters	30	millimeters	fluid ounces	0.03
pints	liters	0.47	liters	pints	2.1
quarts	liters	0.95	liters	quarts	1.06
gallons	liters	3.8	liters	gallons	0.26
Temperature					
fahrenheit	°C	°C = (°F-32)/1.8	celsius	°F	°F = 1.8°C + 32

Lifting Instructions


 **Warning: Use extreme caution lifting or working around lifted vehicle. Vehicle should be lifted only when on a flat, hard and level surface.**

When lifting the vehicle for service, use a sturdy lifting device such as a hoist, floor jack or hydraulic lift. **ALWAYS**, wedge wheels and set parking brake of the vehicle to keep it from rolling. When using a lifting device, lift only on sturdy parts under the vehicle, an example being the frame. When using a floor jack, lift only on sturdy parts under the vehicle, an example being the frame or axle housing. After the vehicle is lifted to a 10° to 25° angle, place jack stands under vehicle frame to support vehicle weight for added safety. Watch for cables, linkages or wire harness.

Note: Jack stands should be of sufficient rated weight capacity to hold vehicle safely. See General Vehicle Specifications for empty weights.

 **Cautions: If any vehicle is raised while loaded, check that the load is secured before lifting vehicle. Failure to do so could cause damage to load, vehicle, or personal injury.**

Hoist Lifts


 **Caution: Before lifting, ALWAYS, wedge wheels and set parking brake.**

If a hoist is used to lift the vehicle, check that the hoist is rated at a capacity greater than the vehicle weight. Lift the vehicle sufficiently from the floor, 10° to 25° angle, to allow the placement of jack stands to support the weight of the vehicle during service. See Figure 2.

To lift the rear, connect the lifting eyes/hooks to rear frame tubes at right and left sides. **DO NOT** use the bumper for lifting. Place jack stands under frame at right and left sides to allow access under vehicle. When work is completed, lift vehicle and remove jack stands. Then, lower vehicle to the floor.

To lift the front, connect the lifting eyes/hooks to front frame tubes. **DO NOT** use the front suspension or front bumper to lift the vehicle. Place jack stands under frame at the right and left sides. Then, lower vehicle to allow access under vehicle. When work is completed, lift vehicle and remove jack stands. Then, lower vehicle to the floor.

Floor Jack

 **Caution: Before lifting, ALWAYS, wedge wheels and set parking brake.**

If a floor jack is used to lift the vehicle, check that the floor jack is rated at a capacity greater than the vehicle weight. Lift the vehicle sufficiently from the floor, 10° to 25° angle, to allow the placement of jack stands and hold the weight of the vehicle during service.

To lift the rear, place the floor jack under the rear axle housing, and lift vehicle until jack stands can be placed under the frame at right and left sides to allow access under vehicle. Lower vehicle on to stands and remove floor jack. When work is completed, reuse floor jack, lift vehicle, and remove jack stands. Then, lower vehicle to the floor.

