



# **TAYLOR-DUNN®**

**Commercial and Industrial Vehicles Since 1949**

## *Operator's Manual Tiger TC50E*



*The best way to go about your business*

Serial Number Range:

Starting: 198576

Ending: See Introduction Chapter

*Use with Model Numbers:*

*C0-T50-80*

### **⚠ WARNING**

**READ THIS MANUAL BEFORE OPERATION OR PERFORMING MAINTENANCE.**

**This manual contains important information regarding the safe operation and maintenance of this vehicle. This manual should be kept with the vehicle.**

**My Vehicle information**

Serial Number: \_\_\_\_\_.

Date Purchased: \_\_\_\_\_.

Date Delivered: \_\_\_\_\_.

Dealer Purchased From: \_\_\_\_\_.

Salesman Name: \_\_\_\_\_.



Your satisfaction is our #1 goal. If you have questions or concerns with your vehicle, please contact your Sales Representative or Service Advisor at your local dealership. Taylor-Dunn has a worldwide dealer and distribution network to provide replacement parts and service for our vehicles. Refer to our web site, [www.taylor-dunn.com](http://www.taylor-dunn.com), for a dealer lookup application.

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## ***CONTACT INFORMATION***

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### **Service, Parts, Sales:**

Taylor-Dunn has a network of dealers distributed around the globe to support our vehicles. Information regarding vehicle sales, replacement parts, or service should be obtained through your local dealer.

A dealer locator can be found on the Taylor-Dunn website at [www.taylor-dunn.com](http://www.taylor-dunn.com).

If you do not have access to the internet, you can call the factory direct at:

01 (714) 956-4040

Feedback regarding this or any Taylor-Dunn manual can be sent to:

Taylor-Dunn Manufacturing  
Attn: Tech Writer  
2114 West Ball Road  
Anaheim, CA 92804



# ***The Taylor-Dunn Corporation:***

*Leading Provider of Commercial & Industrial Vehicles since 1949*

## **Taylor-Dunn Manufacturing:**

From the day we shipped our first vehicle in 1949, we have pursued a singular goal: to build tough, rugged, dependable vehicles to help our customers move personnel, equipment, and materials. It's that simple. For over sixty years, our standard and custom vehicles - Burden Carriers, Personnel Carriers, Stock Chasers, Electric Carts, Tow Tractors & more - have been the leading solution for customers in a broad range of industrial, commercial, and ground-support markets.

Decades of experience are an invaluable asset, and it is an asset we cherish and protect. Our guiding principle is to provide application-specific solutions, which are reliable, efficient, and economical.

Our domestic and international network of quality Taylor-Dunn Dealers and Parts & Service Support keeps our customers moving.

## **Tiger Tractor:**

Tiger manufacturing has become a leading manufacturer of internal combustion engine industrial tractors and ground support equipment. With tractor capacities ranging from 3,000 - 12,000 pounds drawbar pull, they are ideal for industrial applications as well as aircraft ground support. As with all Taylor-Dunn vehicles; quality, service, support and reliability are built into all Tiger Tractor products.

***Shown below is just a small sample of what Taylor-Dunn has to offer to keep your business moving:***



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## **WARNING**

### **CALIFORNIA**

#### **Proposition 65 Warning**

Operating servicing and maintaining a passenger or off road vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead which are known to the State of California to cause cancer and birth defects or other reproductive harm.

To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle.

For more information go to [www.p65warnings.ca.gov/passenger-vehicle](http://www.p65warnings.ca.gov/passenger-vehicle)

# Introduction

## Who Should Read This Manual

This manual is intended for use by anyone operating or performing routine maintenance on this vehicle. Each person should be familiar with the parts of this manual that apply to their use of this vehicle.

## About This Manual

This manual is valid only for the serial numbers listed on the front cover. If the ending serial number is blank, then this manual was for current production vehicles when printed. If you did not receive this manual with the vehicle, you should confirm this manual is valid for your serial number at the Taylor-Dunn web site. A place to record your vehicle information is provided on the inside front cover.

This manual is subject to change without notice. Updates are available through your dealer or the Taylor-Dunn web site at [www.taylor-dunn.com](http://www.taylor-dunn.com).

Taylor-Dunn is not to be held liable for errors in this manual or any consequential damage that results from the use of this manual.

The purchase of this vehicle shows a belief in high quality products manufactured in the USA.

Taylor-Dunn, a leading manufacturer of electric burden and personnel carriers since 1949, wants to be sure this vehicle provides years of reliable service. Please continue to read this manual and enjoy this high quality Taylor-Dunn vehicle.

This manual is to serve as a guide for the operation and maintenance of your Taylor-Dunn vehicle. Taylor-Dunn has made every effort to include as much information as possible about the operation and maintenance of this vehicle.

This manual contains information about the standard equipment and options available for this model. This vehicle may not be equipped with all available options. If you do not know which information applies to your vehicle, then you should contact your dealer.

Included in this manual are:

- Vehicle Description
- Safety Rules and Guidelines
- Operational Information
- Operator Responsibilities
- Owner Responsibilities
- Control Operation and Location Information
- Maintenance Information

Before operating or performing maintenance on this or any other Taylor-Dunn vehicle, read the appropriate Taylor-Dunn manual.

Please, be aware of all cautions, warnings, instructions, and notes contained in this manual.

## **WARNING**

**The only personnel authorized to repair, modify, or adjust any part of this or any Taylor-Dunn vehicle is a factory authorized service technician. Repairs made by unauthorized personnel may result in damage to the vehicle's systems which could lead to an unsafe condition resulting in severe bodily injury and/or property damage. Unauthorized repairs may also void the vehicle's warranty.**



## GLOSSARY OF TERMS

There are a number of words and phrases used in this document that may have a different, special, or specific definition when use in the context of this document.

Approved Operator Position Sit down vehicle	The operator shall be seated in the operator seat with back up against the operator seat back cushion. Additional back support may be added as needed. The back support shall be fastened to the operator seat back cushion to prevent it from falling off the vehicle or onto the seat cushion. The operator's left foot shall be on the floorboard. The right foot should be positioned for easy access to the brake or throttle pedals. Both hands should be on the steering wheel while the vehicle is in motion.
Approved Operator Position Stand up vehicle	The operator shall be standing on the operator platform with weight about equally distributed between left and right feet. The left foot shall be placed on the left side of the operator platform to properly engage the operator presence switch. Both hands shall be on the steering wheel while the vehicle is in motion.
BDI	Battery Discharge Indicator. Same as BSI:
BSI	Battery Status Indicator. The gauge on the dash showing the battery charge level. Also can be referred to as BDI.
Caution (signal word)	Refer to Signal Words and Their Definitions.
Danger (signal word)	Refer to Signal Words and Their Definitions.
DBP	Draw Bar Pull (see below).
Draw bar pull	The force seen by the trailer hitch at the rear of the vehicle.
Electrolyte	The fluid inside of a battery.
Fault	A "fault" is something that happens when the motor speed control system detects a problem with the vehicle. Some faults will prevent operation of the vehicle.
FLA battery	Flooded Lead Acid Battery. A battery that requires regular maintenance of electrolyte level.
FS-1	Switch inside of the throttle module that starts the vehicle moving.
High/Low	High speed, Low speed.
LOBB	Lift Out Battery Box, a type of removable battery.
Moderate injury	An injury treatable by first aid and/or follow up treatment by a doctor or other professional medical personnel.
Notice (signal word)	Refer to Signal Words and Their Definitions.
OPS	"Operator Protective Structure": Steel cab or cage around the occupants.
Regen	Short term for Regenerative Braking. "Regen" is the braking action provided by the motor. Similar to downshifting in an automobile. Energy created during regen is returned to the battery.
ROBB	Roll Out Battery Box a type of removable battery.
Seating position:	When used in the context of occupant seating positions, "seat" is defined as a single seat cushion or a span of 20 inches on a bench seat.
Sequence Fault	A type of fault that disables the vehicle. Occurs when the switches require to operate the vehicle are not operated in the correct order.

Service Brake	The primary braking system used to stop the vehicle.
Severe bodily injury	An injury that requires immediate treatment by a doctor or other professional medical personnel. Not first aid.
Signal word	A word used to define hazards to operator, passengers, service technician, or personnel in the immediate vicinity of the vehicle.
SLA battery	Sealed Lead Acid Battery. A battery that does not require maintenance of electrolyte level.
Small children	Children that must be transported in a child seat as defined by federal or state motor vehicle standards.
SRO	Static Return to Off. A fault action that disables the vehicle.
Start Switch	A switch typically located on the dash that enables the vehicle for operation. This switch may, or may not require a key to operate.
Warning (signal word):	Refer to Signal Words and Their Definitions.



## CONVENTIONS

Symbols and/or words used to define Dangers, Warnings, Cautions, and Notices are found throughout this manual. The “Words” in this context will be referred to as “Signal words.” The words defined here as “signal words” may be used elsewhere in the text of this document without being a signal word. When used as a signal word, the signal word will be enclosed in a solid rectangle with white background (example below).

### Signal Words and Their Definitions:

- DANGER:** This signal word will be accompanied by the safety alert symbol (see below). “DANGER” will indicate a hazard that, if not avoided, WILL result in death or serious bodily injury to yourself, the operator or passengers of the vehicle, or people in the immediate area of the vehicle.
- WARNING:** This signal word will be accompanied by the safety alert symbol (see below). “WARNING” will indicate a hazard that, if not avoided, may result in death or serious bodily injury to yourself, the operator or passengers of the vehicle, or people in the immediate area of the vehicle.
- CAUTION:** This signal word will be accompanied by the safety alert symbol (see below). “CAUTION” will indicate a hazard that, if not avoided, may result in minor or moderate injury to yourself, the operator or passengers of the vehicle, or people in the immediate area of the vehicle.
- NOTICE:** This signal word will not be accompanied by the safety alert symbol. “NOTICE” will indicate a condition that if not avoided may result in property damage. “Property” is defined and the vehicle, components in the vehicle and/or the surrounding area such as buildings, other vehicles, etc.

### Safety Alert Message


Important information notifying you of any conditions that may result in hazards to yourself, persons nearby, and/or hazards to the vehicle will be presented in a text box with a black border and may include a signal word (see above). To the right is an example of a safety message.


The safety message may include additional warning icons representing the type of hazard. Below is a list of these icons and what they represent. These icons may also be included on the various warning and information decals applied to the vehicle.





**This is an example of a safety alert message. This message will contain information about a hazard and/or instructions on avoiding a hazard. The actual size, location, and signal word used for the message box may vary.**


Decals applied to the vehicle may have other icons representing their function. The icons and their definitions are listed below:


 Safety alert symbol (see above).

 High voltage hazard.

 Explosion hazard.

 Corrosive chemical hazard.

 Fire hazard.

 Poisonous chemical hazard.



Read the operators manual.



Read the maintenance manual.



Keep arms and legs inside the vehicle.



Parking brake ON.



Parking brake OFF.



Do not get wet.



Do not spray wash.

# RESPONSIBILITIES

## Of the Owner...

The owner of this or any Taylor-Dunn vehicle is responsible for the overall maintenance and repairs of the vehicle, as well as the training of operators.

The owner is responsible for operator training. Refer to Driver Training section for details.

The owner shall provide a copy of this manual if rented or loaned to another party and instruct the other party to read and understand the contents of this manual.

The owner shall provide a copy of this manual when and if the vehicle is transferred to another party.

## Of the Operator...

All operators should complete an operator training course provided by the owner of the vehicle.

The operator is responsible for the proper use of the vehicle on authorized roads, highways, and approved installations only.

The operator is responsible to confirm that all passengers are properly seated and properly using the available restraints.

The operator is responsible for the safe operation of the vehicle, preoperational and operational checks on the vehicle, and the reporting of any problems to service and repair personnel.

## Of the Passengers ...

The passengers are responsible to remain fully seated, keeping their hands, arms, and legs inside the vehicle at all times. Each passenger should be fully aware of the vehicle's operation. All forms of recklessness are to be avoided.

## Of the Service Personnel...

The service personnel are responsible for the service and maintenance of the vehicle. At no time should a service person allow any untrained personnel to service or repair this or any Taylor-Dunn vehicle. For the purposes of training, a qualified service person may oversee the repairs or services being made to a vehicle by an individual in training. At no time should an untrained individual be allowed to service or repair a vehicle without supervision. This manual is not a training guide.

Personnel performing service and repair should have knowledge of:

- Basic standard automotive repair procedures
- Basic DC and AC electrical theory
- AC motor speed control operation
- Use of digital and analog multi-meters
- Lead acid batteries

Personnel performing maintenance should have basic knowledge of standard automotive maintenance procedures and lead acid batteries.

## **WARNING**

**The only personnel authorized to repair, modify, or adjust any part of this or any Taylor-Dunn vehicle is a factory authorized service technician. Repairs made by unauthorized personnel may result in damage to the vehicle's systems which could lead to an unsafe condition resulting in severe bodily injury and/or property damage. Unauthorized repairs may also void the vehicle's warranty.**

## **VEHICLE MODIFICATIONS**

Taylor-Dunn vehicles are designed and manufactured in accordance with ANSI/ITSDF and OSHA regulations. Per ANSI/ITSDF and OHSA, modifications to the vehicle must be approved by the manufacturer. Listed below are the specific regulations:

### **ANSI/ITSDF 56.8-2006 Personnel and Burden Carriers:**

Paragraph 8.2q:

Modifications and additions which affect capacity and safe machine operation shall not be performed by the customer or user without manufacture's prior written authorization; where authorized modifications have been made, the user shall ensure that capacity, operation, warning, and maintenance instructions plates, tags, or decals are changed accordingly.

Paragraph 8.2r:

Care shall be taken to ensure that all replacement parts are interchangeable with the original parts and of a quality at least equal to that provided in the original equipment.

### **ANSI/ITSDF 56.9 – 2007 Safety Standard for Operator Controlled Industrial Tow Tractors:**

Paragraph 6.2.14:

Modifications and additions which affect capacity and safe tow tractor operation shall not be performed without manufacture's prior written approval. Capacity, operation, and maintenance instructions plates, tags, or decals are changed accordingly.

### **Code of Federal Regulations (CFR) Title 29, Subtitle B, Chapter XVII OSHA, Part 1910.178 Powered Industrial Trucks (2011)**

1910.178(a)(4)

Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturers prior written approval. Capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly.

1910.178(q)(6)

Industrial trucks shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts, except as provided in paragraph (q)(12) of this section. Additional counterweighting of fork trucks shall not be done unless approved by the truck manufacturer.

### **Motor Speed Control Programming:**

Taylor-Dunn programmable motor speed controls are programmed at the factory for optimum safe, efficient, and smooth operation of the vehicle. The program settings are based on many factors including but not limited to: Vehicle Model, Maximum Safe Speed, System Voltage, Drive Axle Configuration, Vehicle Configuration, etc.

Some of the parameters can be changed in the field Using PC software or handsets.

Contact the factory for information regarding available alternate program settings.

Taylor-Dunn will only authorize the use of settings obtained from the factory for a specific vehicle. Any other alterations to the programming ARE NOT AUTHORIZED and is at your own risk.

DO NOT interchange program settings from different vehicle models or models with different configurations.

## **WARNING**

**Improper programming may cause unexpected operation of the vehicle and/or damage the electrical components. This could result in severe bodily injury and/or property damage**

# REPLACEMENT PARTS

## **⚠ WARNING**

To maintain peak performance, always use original Taylor-Dunn replacement parts intended for use on your vehicle. Taylor-Dunn components are designed and tested for use on specific Taylor-Dunn model vehicles. Only use the correct Taylor-Dunn replacement components for your Taylor-Dunn vehicle.

### **Do not modify your vehicle:**

Modifications to this vehicle may have an undesirable effect on the operation of the vehicle, result in additional frame stress, or stress other components resulting in premature failure or an unsafe condition and may lead to an accident resulting in serious injury or death.

### **Using Non-OEM Replacement Components:**

To maintain peak performance, always use original Taylor-Dunn replacement parts intended for use on your vehicle.

Taylor-Dunn components are designed and tested for use on specific Taylor-Dunn model vehicles. Only use the correct Taylor-Dunn replacement components for your Taylor-Dunn vehicle.

### **Electrical Components:**

Electrical components not tested by Taylor-Dunn (or intended for use on other Taylor-Dunn vehicles) may have unanticipated interaction and/or interference with the vehicle's control system resulting in unsafe operation or damage to the electrical system.

### **Mechanical Components:**

Mechanical components not tested by Taylor-Dunn (or from other model Taylor-Dunn vehicles) may have an undesirable affect on the operation of the vehicle, result in additional frame stress, or stress other components resulting in premature failure or an unsafe condition.

Due to the unknown properties of non-Taylor-Dunn tested components or from components not originally equipped on the vehicle, we cannot approve their use in a Taylor-Dunn vehicle.



# About Your Vehicle

The purchase of your Taylor-Dunn vehicle shows a belief in high quality products manufactured in the USA. Your new vehicle operates entirely on electric battery power. It is an emissions free vehicle.

Taylor-Dunn, a leading manufacturer of electric burden and personnel carriers since 1949, wants to be sure this vehicle provides years of reliable service. Please continue to read this manual and enjoy this high quality Taylor-Dunn vehicle.

Each base model is available in numerous configurations depending on what options were requested when the vehicle was ordered.

## WARNING

**This vehicle does not provide protection from lightning, flying objects, or other storm related hazards. If caught in a storm, immediately seek shelter in accordance with local safety guidelines for your area. Not seeking shelter may result in severe personal injury.**

## Licensing Requirements

This vehicle **IS NOT** approved for licensed operation on public roads and highways. This model conforms to:

- American National Standards Institute Controlled Personnel and Burden Carriers ANSI B56.9.
- O.S.H.A. Standard Section 1910.178, Powered Industrial Trucks Type E

## Vehicle compliance

This vehicle complies with one of the following designations: E, G, LP, or D. The vehicle identification tag lists the specific compliance designation. Operate this vehicle only in environments consistent with the compliance designation. Operation in other more hazardous environments can cause injury or death. Vehicles complying with more stringent designations are labeled as to the designation. Type EE compliance vehicles will have the EE<sup>1</sup> label applied.



## Electric tow trucks:

This vehicle is designed for operation on hard smooth road surfaces such as around warehouses or paved lots and may be operated on other hard surfaces such as smooth packed dirt or light gravel. Operating this vehicle on rough surfaces will result in premature failure of axles, wheel bearings and/or the vehicle frame.

<sup>1</sup> Vehicles approved for EE operation will have a special "EE" decal applied.

# HOW TO IDENTIFY YOUR VEHICLE

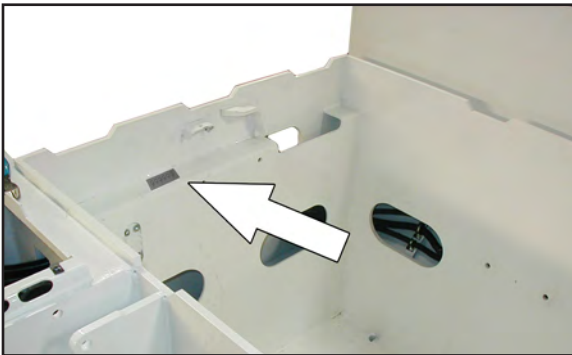
## Data Plate

To identify the model series of your vehicle, refer to the vehicle data plate.

 <b>TAYLOR-DUNN</b> <small>Commercial and Industrial Vehicles Since 1949</small>		<small>2314 West Ball Road            Anaheim, CA 92804-5417            USA • (714) 855-4050            www.taylor-dunn.com</small>	
MODEL NUMBER:	<input type="text"/>	SERIAL NUMBER:	<input type="text"/>
MFG DATE:	<input type="text"/>		
APPROX. WEIGHT	<input type="text"/> lb	<input type="text"/> kg	
DRAW BAR PULL			
NORMAL:	<input type="text"/> lb	<input type="text"/> N	
ULTIMATE:	<input type="text"/> lb	<input type="text"/> N	
LOAD CAPACITY:	<input type="text"/> lb	<input type="text"/> kg	
FUEL TYPE:	<input type="text"/>		
BATTERY (FUEL TYPE E ONLY):		VOLTS:	<input type="text"/>
WEIGHT	MAXIMUM: <input type="text"/> lb		<input type="text"/> kg
	MINIMUM: <input type="text"/> lb		<input type="text"/> kg
CONFORMS TO TYPE <input type="text"/> VEHICLE PER OSHA STANDARD 1910.178 (POWERED INDUSTRIAL TRUCKS) AND ANSI B56 <input type="text"/> AT THE DATE OF MANUFACTURE			
94-373-70			

## Where to Find Data Plate and Serial Number

The vehicle identification number is in three locations as shown in the illustrations below:



*ID tag on the main frame in battery compartment.*



*Data plate on the kick panel*



# Taking Delivery of Your Vehicle

Inspect the vehicle immediately after delivery. Use the following guidelines to help identify any obvious problems:

- Examine the contents of all packages and accessories that may have come in separate packages along with the vehicle.
- Make sure everything listed on the packing slip is there.
- Check that all wire connections, battery cables, and other electrical connections are secure.
- Check battery cells to be sure they are filled.
- Check the tire pressure and tightness of the lug nuts
- Check for any signs of damage.

## NOTICE

**New front wheel bearing adjustment must be inspected after the first 24 hours of operation. This includes new vehicle installations. Failure to inspect the bearings after the break in period may result in premature failure of the bearings.**

### **Check the operation of each of the following controls:**

- Accelerator Pedal
- Brake Pedal
- Parking Brake
- Key Switch
- Shift Lever
- Reverse Warning Alarm (if equipped)
- All lights
- Steering Wheel
- Horn

## WHAT TO DO IF A PROBLEM IS FOUND

If there is a problem or damage as a result of shipping, note the damage or problem on the bill of lading and file a claim with the freight carrier. The claim must be filed within 48 hours of receiving the vehicle and its accessories. Also, notify your dealer of the claim.

If there is any problem with the operation of the vehicle, **DO NOT OPERATE THE VEHICLE**. Immediately contact your dealer and report the problem. The report must be made within 24 hours of receiving the vehicle and its accessories.

The only personnel authorized to repair, modify, or adjust any part of this or any Taylor-Dunn vehicle is a factory authorized service technician.

## WARNING

**The only personnel authorized to repair, modify, or adjust any part of this or any Taylor-Dunn vehicle is a factory authorized service technician. Repairs made by unauthorized personnel may result in damage to the vehicle's systems which could lead to an unsafe condition resulting in severe bodily injury and/or property damage. Unauthorized repairs may also void the vehicle's warranty.**

# Driver Training

Per the following regulations, the owner of this vehicle shall conduct an Operator Training program for all those who will be operating this vehicle:

- ANSI/ITSDF 56.8-2006 Personnel and Burden Carriers: Part II, Paragraph 6.2a.
- ANSI/ITSDF 56.9 – 2007 Safety Standard for Operator Controlled Industrial Tow Tractors: Part II, paragraph 4.11.
- Code of Federal Regulations (CFR) Title 29, Subtitle B, Chapter XVII OSHA, Part 1910.178 Powered Industrial Trucks (2011): 1910.178, Section (I).
- Per OSHA Regulation, 29 CFR 1910.178 Powered Industrial Truck Operator Training, the owner must keep a record of conducted training and maintenance performed on the vehicle.

The training program shall not be condensed for those claiming to have previous vehicle operation experience. Successful completion of the Operator Training program shall be required for all personnel who operate this vehicle.

The Operator Training program shall include the following:

- Operation of this vehicle under circumstances normally associated with your particular environment.
- Emphasis on the safety of cargo and personnel.
- All safety rules contained within this manual.
- Proper operation of all vehicle controls.
- A vehicle operation and driving test.

## Driver Qualifications

Only those who have successfully completed the Operator Training program are authorized to drive this vehicle. Operators must possess the visual, auditory, physical, and mental ability to safely operate this vehicle as specified in the American National Standards Institute Controlled Personnel and Burden Carriers ANSI B56.8.

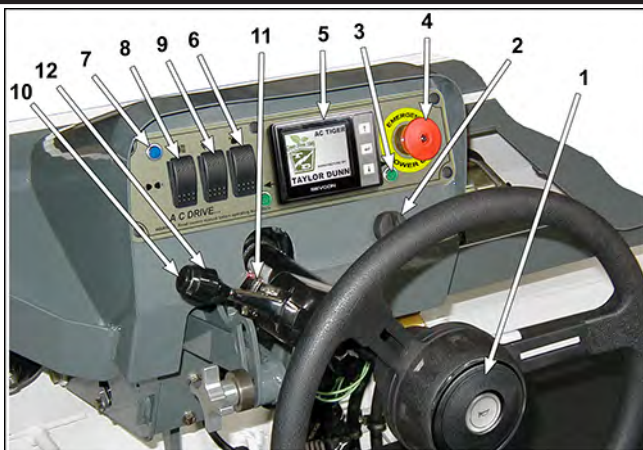
The following are minimum requirements necessary to qualify as an operator of this vehicle:

- 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 this vehicle.
- Recognize an improperly maintained vehicle.
- Demonstrate the ability to handle this vehicle in all conditions.

***www.taylor-dunn.com***



# Vehicle Controls



## Horn Switch

**#1:** Press the horn switch to sound the horn, release it to turn it off.

## Start Switch

**#2:** The Start switch turns the vehicle electrical control system ON. This switch may or may not require a key to operate. Rotate the switch clockwise to turn the vehicle system "ON" and counterclockwise to turn the vehicle system "OFF". The vehicle will not run when in the OFF position.

The switch should be in the "OFF" position whenever the operator leaves the driver's seat.

This switch is designed to secure and disable the vehicle. The key can only be removed when the switch is in the "OFF" position.

## Directional Signal Indicator Light

**#3:** These lights located on opposite sides of the display will flash when the directional signals are activated.

## Emergency Stop Switch

**#4:** This switch will disconnect main power to the controller and should only be used in an emergency. When operated, power to the drive motor will be interrupted, power steering and power brakes will be lost, and the lights will turn off. An additional Emergency Power Off Switch is located on the rear inching panel.

## Dash Display

**#5:** The type of dash display will vary dependent on the vehicle control system (Sevcon system shown). Refer to following section for details.

## Strobe Light Switch

**#6:** Optional. If equipped with a strobe light, push the top of the switch to turn the light on. Push the bottom of the switch to turn the light off.

## High Beam Indicator Light

**#7:** This light located will be on when the headlight high beams are activated.

## Headlights

**#8:** This is a three position rocker switch. All lights are off when the switch is in the lowest position (push on bottom of actuator). Only the parking lights are on when the switch is in the 2nd position (push top of actuator 1-click from off). All lights are on when the switch is in the 3rd position (push top of actuator 2-clicks from off).

## CAUTION

**Unless in an emergency, do not activate the Emergency Stop Switch while the vehicle is in motion. This vehicle is equipped with an automatic electric parking brake. Activating the Emergency Stop Switch will immediately apply the brake and abruptly stop the vehicle. This may result in injury to the occupants and/or upsetting the load being carried or towed.**

## **Windshield Wiper**

**#9:** Optional. The wiper has a 2-speed wiper motor. The wiper is off when the switch is in the lowest position (push on bottom of actuator). Normal speed is when the switch is in the 2nd position (push top of actuator 1-click from off). Fast speed is when the switch is in the 3rd position (push top of actuator 2-clicks from off).

## **High Beams (headlight)**

**#10:** A push button latching switch is located on the end of the directional switch lever. Depress and release to turn the high beams on or off.

## **4-Way flashers**

**#11:** The actuator lever for the 4-way flasher is located behind the directional switch lever. Pull the actuator out to turn the 4-way flashers on. To turn the 4-way flashers off, move the directional switch lever in either direction.

## **Directional Signal Switch**

**#12:** Use the directional switch lever to indicate a left or right Turn. Push the lever away (clockwise) to signal a right turn. Pull the lever closer (counterclockwise) to signal a left turn. The directional switch does not automatically reset. Move the lever to the center off position after completing a turn.

## **Interlocks**

**Operator Presence:** A switch located under the driver's seat disables the power to the vehicle when the driver leaves the seat. The driver must be seated for the vehicle to operate.

Whenever the driver leaves the vehicle, the driver should turn the key-switch "OFF", place the Shift Lever in the center "OFF" position.

**Foot Brake:** This vehicle is equipped with a foot brake interlock. The vehicle control system will not run if the foot brake is applied.

**Parking Brake:** This vehicle is equipped with a parking brake interlock. The vehicle control system will not run if the parking brake is applied.

**Rear Charger Connector:** A switch located on the charger connector disables power to the vehicle whenever a charger is connected.

## **Shift lever**

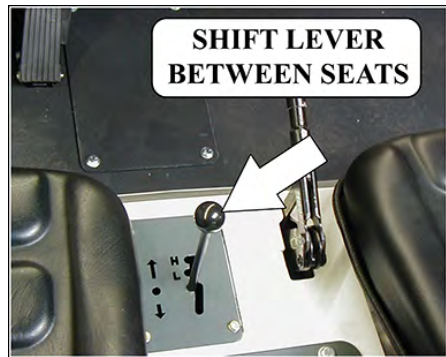
The shift lever has 4-positions.

**H (high):** Move the shift lever to the right and then up to the second notch in the index plate. High will allow the vehicle to obtain it's maximum speed but will also reduce the running time due to increased demand from the battery.

**L (low):** Move the shift lever to the right and then up to the first notch in the index plate. Low should be used while pulling loads greater then half of the vehicle capacity or pulling any load up or down a grade.

**Off:** The lever is shown in the Off position in the illustration.

**Reverse:** From the Off position, move the shift lever to the right and then back.



## **⚠ WARNING**

**Do not dismount the operator's seat while the vehicle is in motion. Getting off of the seat will activate the Operator Presence circuit, rapidly slowing the vehicle and applying the park brake. The abrupt slowing of the vehicle may result in severe bodily injury.**

**The operator presence switch is only one part of the vehicle safety system. It should not be relied upon as the only safety feature used to disable or disengage this vehicle. Doing so could result in unexpected movement of the vehicle causing severe bodily injury and/or property damage.**

## **Parking Brake**

The hand parking brake lever is located to the right of the driver seat. To apply the parking brake, pull back and up until the lever is vertical and locks in place.



## **Throttle Pedal**

#1: The throttle pedal is located to the right of the brake pedal. It controls the speed of the vehicle and operates similar to the throttle pedal in an automobile. Press the pedal to increase speed and release the pedal to decrease speed.

## **Brake Pedal**

#2: The foot brake pedal, is located to the left of the throttle pedal, it is for operation with the right foot only. It works similar to the brake in an automobile. Applying pressure to the brake pedal slows the vehicle according to the amount of pressure applied. Relieving pressure from the pedal releases the braking action.



## **Steering**

#3: The steering wheel and steering system are similar to an automobile. To turn right, turn the steering wheel clockwise. To turn left, turn the steering wheel counter-clockwise.

## **Tilt Steering**

Turn the tilt column locking knob counter clockwise and then move the steering column up or down as needed then tighten the knob to lock the column in place. Be sure the knob is tight enough so that the column can not move during operation of the vehicle.



## Seat Adjustments

### **⚠ WARNING**

**DO NOT attempt to adjust the driver or passenger seats while the vehicle is in motion. Adjusting the seat while in motion could result in sudden and violent uncontrolled movement of the seat. The sudden movement of the seat could cause the driver to lose control of the vehicle or eject the occupant from the vehicle resulting in severe personal injury and/or property damage.**

This vehicle is equipped with 3-way adjustable seats.

- 1) Seat Suspension Tension: The position of this lever changes the stiffness of the suspension spring in the seat cushion. There are 3 settings, the lever is shown in the center position. Move up for softer suspension or down for harder suspension.
- 2) Seat Back Angle: Rotate the knob to change the angle of the seat back rest. Rotate clockwise to tilt back and counterclockwise to tilt forward.
- 3) Seat Position: Allows the seat to move forward or back. Pull the lever to the right to unlock the seat and then move the seat to the desired position. Make sure the lever is securely locked in place before operating the vehicle.



## Inching

The inching buttons located on the rear panel. The inching buttons will move the vehicle a short distance at a slow speed to facilitate connecting or disconnecting the trailer tongue.

The inching buttons are active only when all of the following apply:

- The vehicle start switch is ON.
- The shift lever is in the center OFF position.
- The parking brake is OFF.
- The driver seat is not occupied.

To disconnect the trailer, release the tongue latching lever and depress the forward (FWD) inching button until the tongue is clear from the vehicle hitch.

To connect the trailer, park the vehicle so that the hitch is close to and in line with the trailer tongue. Release the tongue latching lever and depress the reverse (REV) inching button to move the vehicle hitch to engage the tongue. Make sure the hitch latching mechanism is properly engaged before operating the vehicle.

### **⚠ WARNING**

**Do not attempt to connect or disconnect a trailer while parked on a grade. This may result in the trailer uncontrolled travel down the grade or crushing the person between the trailer and vehicle.**





## **Power Steering and Brakes**

The hydraulic power system is active only while the start switch is ON and a direction is selected with the shift lever.

The hydraulic power system will turn off if any of the following occur:

- Start switch turned OFF.
- Emergency Power Off switch is activated.
- Battery is disconnected.
- Serious control system fault.
- Shift lever placed in the OFF position.

If the hydraulic system turns off, then the effort required to steer the vehicle will immediately and significantly increase and the hydraulic braking system will have one to three operations of the brake pedal in reserve.

Should the hydraulic system turn off while driving:

- Immediately release the throttle pedal.
- Carefully steer to the side of the road.
- Brake to a complete stop.
- Apply the parking brake.
- Turn the start switch OFF.

Do not attempt to drive the vehicle until the hydraulic system has been repaired.

## **⚠ WARNING**

**This vehicle is equipped with power hydraulic steering and power hydraulic assist brakes. If the hydraulic system is not working, then significantly more effort will be required to steer and stop the vehicle. This may make the vehicle difficult to control at higher speeds resulting in property damage and/or severe bodily injury.**




## ClearView Display



The ClearView display is a multi-function dashboard graphics display that functions as a Speedometer, Trip Odometer, Battery Status Indicator, Vehicle System Status Monitor, and Control System Diagnostics.

The three buttons on the right side of the display are used to access all of the available screens and functions.


- Pressing any one of the three buttons opens the button navigation window in the display which indicates the function of the three buttons.
- Pressing the middle button (Enter ) will toggle through all of the screens available to the operator.
- The upper and lower buttons will perform the action that is displayed in the navigation window.



## Messages on the ClearView Dash Display

The dash display may show the following messages while operating the vehicle:

**System Fault:** If a system fault occurs, the fault message will be displayed along the bottom of the screen. Fault information details are provided later in this section.

**Battery Watering Reminder:** A battery watering reminder icon will pop up in the lower right corner of the display after every 5 charging cycles. This is a reminder to check the battery water level. To reset the icon, press and hold the upper display navigation button  for a few seconds.





## ClearView Dash Display Screens

The Main Screen displays the following:

- Speedometer
- Total Hours
- Trip Odometer
- Direction Selected (N=OFF, D=Forward, R=Reverse)
- Battery Status Indicator (BSI)
- Battery Water Reminder

Details regarding each of these items can be found later in this section.


Should a system fault occur, all screens will display a popup message at the bottom of the screen indicating the fault.

Shown to the right is an example of a sequence fault. A complete fault list can be found later in this section.

If a fault is currently displayed, additional information on the fault can be viewed by pressing any one of the navigation buttons on the right of the display and then the Fault Help button (top).

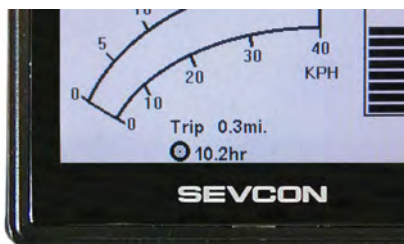
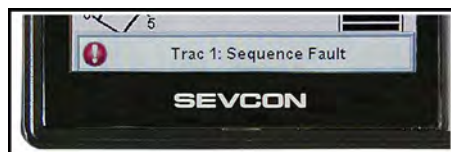


The Trip Odometer and hour meter is shown at the bottom of the main screen.

To reset the trip odometer: Press and hold the lower display navigation button  for about 1-second.



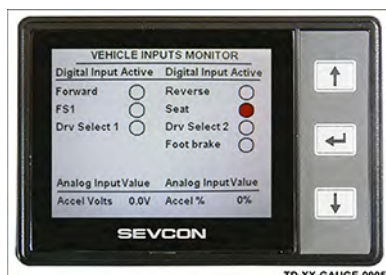
TD-XX-Clearview-M0002



TD-XX-GAUGE-0013

The Vehicle Inputs Monitor screen displays the current condition of the vehicle's various control switches.

A circle that is filled in red indicates a closed switch.



TD-XX-GAUGE-0005

The Time to Distance screen displays how long it takes to drive a predefined distance.

Also included on this screen are the total hours of operation.



The Fault Log screen displays the fault log history. The "ID" column is the fault ID code.

Then "No" column is the number of specific faults that have occurred.



## Faults

Any current fault will be displayed along the lower edge of the screen as shown in the illustration. In addition, there is a fault log screen that will show the recent fault history. The fault code list is located at the end of this section.



The Vehicle Status screen displays the current operating condition of the vehicle.



## Battery Status Indicator

The battery status indicator (BSI) is shown on the right side of the dash display main screen. This gauge functions similar to a fuel gauge in an automobile. At the top of the gauge, it shows the percentage remaining in the battery.

The BSI is not an absolute gauge of power remaining in the battery. The amount of available power is relative to the amount of power required. As the power requirements are increased, such as driving up a hill, the relative available power in the battery is decreased. The motor speed control system estimates the battery power remaining by monitoring the current driving conditions.

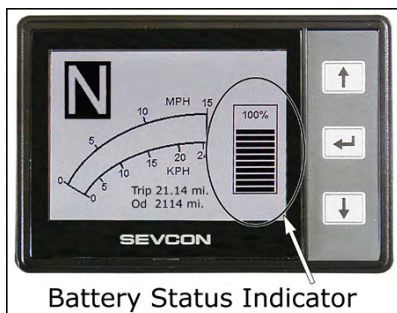
There are 10 bars in the bargraph display, each bar representing 10% of battery power.

At 10% estimated battery power remaining (last bar showing), a warning message will pop up at the bottom of the display informing the driver of the low battery condition. It is important to drive to a charging station as soon as possible.

If the estimated battery power remaining drops below empty, then the control system will reduce the power to the motor in order to conserve energy. To avoid damage to the battery, the vehicle should be immediately taken to a charging station.

*Note: The BSI will only reset to full after a full charging cycle has completed. In addition, the BSI **will not** reset to full unless the battery is discharged below 75% before starting the charge cycle.*

*While coasting, the batteries are being charged through a process called regenerative braking (regen). It is possible that the BSI could reset to full while in the regen braking mode. Details regarding the regen braking mode can be found in the Vehicle Operation section.*



## **System Faults**

Any active faults will be displayed at the bottom of the display screen.

This fault listing is limited to faults that are generated by operator error or faults that are a result of system operation that can be corrected by the operator.

If a fault occurs that is not listed here, then vehicle diagnostics and repair should be referred to a qualified technician.

Fault ID	Fault Display	Definition	Possible Cause
4481	Handbrake fault	Parking brake was applied when throttle pedal was depressed	Parking brake applied.
45C1	BDI Warning	Battery discharged below warning threshold voltage	Battery is getting low on charge.
45C2	BDI Cutout	Battery empty	The battery is empty and requires charging. Vehicle speed is reduced to protect the battery and control system from low voltages.
45C3	Low Battery Cut	Battery voltage dropped below protection threshold voltage	Possibly an overloaded vehicle. Vehicle speed is temporarily reduced until overload condition is corrected.
4602	Device too hot	Controller internal temperature exceeded high temperature threshold	Motor speed controller has overheated. Reduce the load or stop until temperature is reduced.
4603	Motor in thermal cutback	Motor temperature exceeded high temperature threshold	Motor has overheated. Reduce the load or stop until temperature is reduced.
4881	Seat Fault	Seat or foot interlock switch open when throttle pedal was pressed.	Driver must remain seated while operating vehicle. If equipped with a foot switch, the switch must remain depressed.
4883	SRO Fault	Startup switches operated out of order.	All operator switches must be actuated in the correct sequence.
4884	Sequence Fault	Startup switches operated out of order.	All operator switches must be actuated in the correct sequence.
4885	FS-1 Recycle Fault	Startup switches operated out of order.	All operator switches must be actuated in the correct sequence.
4886	Inch Fault	Problem with Inching Buttons	Refer to the operation instructions of the inching buttons later in this section.

# Vehicle Operation

## General Safety Guidelines

### **WARNING**

**Your ability to operate a motor vehicle can be seriously impaired with blood alcohol levels far below the legal minimum.**

**If you have been drinking alcohol, don't drive. Ride with a designated non-drinking driver, call a cab, or use public transportation.**



### **WARNING**

**The advanced technology built into the vehicle motor control has many systems to monitor the condition and operation of the vehicle to maintain safe operation.**

**Even with advanced technology, it is not possible to change the laws of physics. Improper driving technique for the current conditions could result in loss of vehicle control.**

- Only qualified and trained operators with no physical, mental, or sensory disabilities shall operate this vehicle or any of its components.
- Only licensed drivers shall operate this vehicle.
- Before operating this vehicle, perform all Daily and Pre-operation checks as defined in the Vehicle Maintenance section.
- Confirm proper operation of all vehicle controls before operating the vehicle.
- Wear closed toe low heel shoes when operating the vehicle.
- No reckless driving.
- Do not operate a motor vehicle while under the influence of alcohol or any drug that may impair your ability to drive.
- Keep all body parts (head, arms, legs) inside this vehicle while it is moving.
- All occupants shall remain seated while the vehicle is in motion, one passenger per seating position. No passengers are allowed to be transported in the cargo area of the vehicle.
- The operator shall confirm that all passengers are physically able to secure themselves while being transported in this vehicle.
- Occupants shall not exit the vehicle until the vehicle has come to a complete stop.
- Do not transport small children. This vehicle is not designed to accommodate child seats.
- Do not leave children unattended in the vehicle.
- Keep a clear view ahead at all times.
- Keep the vehicle under control at all times.
- Observe all traffic regulations and speed limits.
- The vehicle shall be equipped with head and tail lights if operated at night.
- This vehicle may overturn if turned sharply when driven at high speeds.
- Drive slowly when making a turn, especially if the ground is wet or when driving on an incline.
- Yield right of way to pedestrians, ambulances, fire trucks, or other emergency vehicles.
- Sound your horn when approaching pedestrians. DO NOT assume the pedestrian is aware of your presence; before passing, slow down and allow sufficient clearance between the vehicle and pedestrian.
- Do not overtake another vehicle at intersections, blind spots, narrow isles, or other dangerous locations.
- Stop and sound horn at all intersections regardless if it is posted with a stop sign.
- Do not operate this vehicle in areas at risk to falling objects.

- Do not drive over loose objects, holes, or bumps.
- Do not drive under any object that is less than 80 inches (203 cm) from the ground.
- Do not drive off of curbs or other steep drop-offs more than 2 inches high.
- Stay in your driving lane under normal conditions, maintaining a safe following distance from other vehicles.
- If equipped with doors, the doors must remain closed and latched while vehicle is in motion.
- Driving through water or mud may affect brake performance. ALWAYS test brakes by pressing the brake pedal after driving through water or mud.

## **WARNING**

**When leaving the approved operating position ALWAYS:**

- 1) **Firmly set the park brake.**
- 2) **Place the Shift Lever in the center OFF position.**
- 3) **Turn the start switch OFF and remove the key.**

**Failure to perform these operations may result in unexpected vehicle movement causing severe bodily injury and/or property damage.**



## **Seat Belts (optional)**

Your vehicle may be equipped with safety seat belts. The requirement for the use of safety seat belts is to be determined by the application where the vehicle is operated.

Safety seat belts should only be installed on vehicles equipped with Taylor-Dunn approved Operator Protective Structure (OPS) such as a steel cab or cage. Fiberglass cabs or sun tops do not qualify as an OPS.

The use of safety seat belts helps to restrain you and your passengers in case of a collision.

Safety belts provide the best restraint when:

- The occupant is sitting upright (not slouched)
- The lap belt is snug and low on the hips
- The shoulder belt is snug against the chest
- The knees are straight forward

Refer to the following pages for directions on how to properly use safety belts.

### **WARNING**

**In the event of a vehicle tip over, studies have indicated that it is safer to be able to move away from the vehicle unless the vehicle is equipped with an OPS.**

**Do not use seat belts unless the vehicle is equipped with an OPS. Using seat belts in a vehicle without OPS may result in occupants being crushed while restrained in the vehicle.**

### **WARNING**

- **Do Not use seat belts in a vehicle that is not equipped with roll over protection.**
- **Make sure you (the driver) and all passengers are properly seated in approved seating positions and wearing seat belts. Improper sitting and/or failure to wear seat belts may result in severe bodily injury in a collision or other vehicle accident.**
- **If equipped with a shoulder belt, do not wear the shoulder belt under the arm. Never swing it around the neck over the inside shoulder.**
- **Never use a single belt for more than one person or across more than one seating position.**
- **Do not allow a passenger to hold a child while the vehicle is moving. The passenger cannot protect a child in a collision and the child may be severely injured.**
- **Failure to follow these rules will increase the risk of injury in a collision or other vehicle accident.**
- **All seat belts and seat belt hardware should be inspected by a qualified technician after any collision. Failure to confirm proper operation of seat belt assemblies may result in failure of the seat belt in another collision leading to severe bodily injury.**

### **WARNING**

**Doors (optional) on this vehicle are designed for protection against the weather. Do not rely on the doors to keep the occupants contained within the vehicle or to protect against injury in an accident.**

## **All Seat Belt Types**

Refer to additional information below for details applying to different types of seat belts.

Before fastening the seat belt:

- If equipped with adjustable seats, adjust the seat to the position that suits you best.
- Make sure the shoulder and/or lap belt is not twisted and freely passes through any guides.

To unfasten the belt, Push the release button in the buckle.

## **Combination Lap and Shoulder Belts**

While your vehicle is in motion, the combination lap and shoulder belt adjusts to your movement. However, if you brake hard, corner hard or if your vehicle receives an impact of 5 mph (8 kph) or more, the lap and shoulder belt locks and helps reduce your forward movement. The retractor can also be made to lock by rapidly pulling on the belt.

To fasten the belt, pull the lap/shoulder belt from the retractor so that the shoulder portion of the belt crosses your shoulder and chest. Insert the belt tongue into the proper buckle until you hear a snap and feel it latch.

To unfasten the belt, Push the release button on in the buckle. This allows the tongue to unlatch from the buckle. Guide the tongue to its stowed position while the belt retracts. If you do not guide the tongue, it may strike you or part of the vehicle.

## **Lap Belts Only**

**With Auto Retractor:** To fasten the belt, pull the belt from the retractor and insert the belt tongue into the proper buckle until you hear a snap and feel it latch. Make sure the tongue is securely fastened in the buckle.

When unfastening the belt, guide the belt tongue to its stowed position. If you do not guide the tongue, it may strike you or part of the vehicle.

**Without Auto Retractor:** To fasten the belt, insert the belt tongue into the proper buckle until you hear a snap and feel it latch. Pull the belt adjustor strap until the belt is snug against your lap.

After unfastening the belt, stow the belt in a position so that it cannot fall out of the vehicle while the vehicle is in motion and the belt is not in use.

## **Seat Belts While Pregnant**

If equipped with seat belts, always wear a seat belt. Wearing your seat belt protects you and your baby from injury or death in the event of a collision. You should wear a seat belt no matter where you sit in the vehicle.

Be sure to wear your seat belt correctly. The lap strap should go under your belly, across your hips and as high as possible on your thighs. The shoulder strap should go between your breasts and off to the side of your belly. Seat belt straps should never go directly across your stomach. The seat belt should fit snugly.

## **Safety Belt Maintenance**

Check the safety belt systems periodically to make sure that they work properly and are not damaged.

All safety belt assemblies, including retractors, buckles, front seat belt buckle support assemblies and attaching hardware, should be inspected by a qualified technician after any collision.

Taylor-Dunn recommends that all safety belt assemblies used in vehicles involved in a collision be replaced. However, if the collision was minor and a qualified technician finds that the belts do not show damage and continue to operate properly, they do not need to be replaced. Safety belt assemblies not in use during a collision should also be inspected and replaced if either damage or improper operation is noted.



**Starting**

Before operating this vehicle: Refer to General Safety Guidelines at the beginning of this chapter.

*Note: This vehicle is equipped with a charger interlock which is designed to disable the vehicle from being driven while the DC charger cord is plugged into the rear charging connector.*

*Note: This vehicle is equipped with an operator presence switch which disables the vehicle when the driver is not present.*

**⚠ WARNING**

**DO NOT transport passengers in the cargo area. All passengers must be seated in the available seats, one passenger per seating position.**

**⚠ WARNING**

The operator presence switch is part of the vehicle safety system. **DO NOT** rely on the switch as the only method to prevent vehicle movement. **ALWAYS** turn the start switch **OFF**, place the Shift Lever in the center **OFF** position, and set the park brake when leaving the approved operator position.

**DO NOT** bypass, modify, or disable the operator presence switch. Doing so could result in unexpected movement of the vehicle causing severe bodily injury and/or property damage.

**DO NOT** place or store any object on the driver or passenger seats. Any object placed on the driver seat may turn on the operator presence switch; Any object placed on the passenger seat may fall onto the driver seat and turn on the operator presence switch resulting in unexpected vehicle movement causing severe bodily injury and/or property damage.

**DO NOT** transport any objects on the passenger seat or front floorboard. Objects may interfere with vehicle operation causing severe bodily injury and/or property damage.

1. Make sure all occupants are properly seated and prepared for vehicle movement.
2. Sit in the driver seat and press the service brake pedal.
3. Place the Shift Lever in the center **OFF** position.
4. Place the Start switch on the **ON** position and wait 1 second.
5. Select a direction of travel.
6. Slowly press the throttle pedal to accelerate to the desired speed.

*Note: In an emergency, the Start switch may be turned **OFF** to disable the motor speed control.*

Refer to the Driving section for additional information in the operation of your vehicle.

**⚠ CAUTION**

**DO NOT** turn the Start switch **OFF** while the vehicle is in motion unless the vehicle must be stopped due to an emergency. This vehicle is equipped with power hydraulic steering and power hydraulic assist brakes. If turned off, the steering will be very heavy and braking force will be diminished required much more foot pedal pressure to apply the brakes. This will increase distance required to stop and may result in collision and severe bodily injury.

**⚠ WARNING**

**DO NOT** exceed the maximum rated speed for your vehicle, locally imposed speed limits, or the safe operating speed for conditions. Exceeding any of these speed limits will increase the likelihood of an accident causing personal injury. In addition, exceeding the maximum rated speed for your vehicle may result in damage to the vehicle drive train and/or control system.

## **Driving**

Before operating this vehicle:

- Perform all daily and pre-operation checks as defined in the Vehicle maintenance section.
- Refer to General Safety Guidelines at the beginning of this chapter.

### **WARNING**

**DO NOT exceed the maximum rated speed for your vehicle, locally imposed speed limits, or the safe operating speed for conditions. Exceeding any of these speed limits will increase the likelihood of an accident causing personal injury. In addition, exceeding the maximum rated speed for your vehicle may result in damage to the vehicle drive train and/or control system.**

### **WARNING**

**DO NOT “ride the brakes” or drive with your left foot resting on the brake pedal. Riding the brakes will cause excessive heat build up and rapid wear in the brake system and could result in brake failure causing a collision or accident with severe injury.**

## **Selecting Direction of Travel**

The direction of travel is selected with the Shift Lever. The direction of travel must be selected **after** the Start switch is turned ON. If a direction is selected before the Start switch is turned ON, then a sequence fault will occur. If the sequence fault occurs, you can clear the fault by placing the Shift Lever in the center OFF position and then re-selecting the desired direction of travel.

Your vehicle may be equipped with a reverse or motion alarm.

- The motion alarm will sound in forward and reverse.
- The reverse alarm will only sound when the reverse direction is selected.

## **Changing Direction of Travel**

The direction selected by the Shift Lever can be changed at any time but you may have to release the throttle pedal to reverse direction.

If the vehicle is in motion when the direction is changed, the motor control system will reverse the current flow in the motor slowing the vehicle to a stop and then continue in the new direction selected. For more information, refer to the section on Stopping.

The throttle pedal must be released after selecting a new direction. If the pedal is not released, then a sequence fault will occur. If the sequence fault occurs, you can clear the fault by placing the Shift Lever in the center OFF position and then re-selecting the desired direction of travel.

### **WARNING**

**Do not coast with the Shift Lever in the center OFF position. Shortly after the shift lever is in the OFF position, the hydraulic pump will turn off causing significantly more effort to steer and stop the vehicle. This may make the vehicle difficult to control resulting in property damage and/or severe bodily injury.**

## **Driving in Forward**

1. Turn the start switch ON, then select FORWARD using the Shift Lever.
2. Release the parking brake
3. Slowly press the throttle pedal to accelerate to the desired speed.

## **Driving in Reverse**


1. Check and confirm that there are no obstacles behind the vehicle before backing up.
2. Turn the start switch ON, then select REVERSE using the Shift Lever.
3. Release the parking brake
4. Slowly press the throttle pedal to accelerate to the desired speed.

*Note: The maximum reverse speed will be slower than the forward speed.*

## **Messages on the Dash Display**

The dash display may show the following messages while operating the vehicle:

**System Fault:** If a system fault occurs, the fault message will be displayed along the bottom of the screen. Fault information details are provided later in this section.

**Battery Watering Reminder:** A battery watering reminder icon will pop up in the lower right corner of the display after every 5 charging cycles. This is a reminder to check the battery water level. To reset the icon, press and hold the upper display navigation button  for a few seconds.



## **Stopping**

Release the throttle pedal and use your right foot to press the brake pedal. The amount of force required to stop the vehicle will vary depending on the environment and load on the vehicle.

This vehicle is equipped with regenerative (regen) braking. Regen braking uses the stored energy of the moving vehicle to generate electricity. The generation of electricity slows the vehicle down and the power generated is put back into the batteries increasing the driving time of your vehicle.

There is more than one regenerative braking mode. The mode used depends on the current driving conditions as follows:

- **While Coasting:** When you release the throttle pedal, the Neutral Regen mode is selected and gradually slows the vehicle. Only a small amount of power is generated.
- **While Braking:** When the brake pedal is pressed, the Foot Brake Regen mode is selected with a dramatically increased amount of power generated with a more rapid slowing of the vehicle.
- **Changing Direction:** The Direction Regen mode is selected when the direction of the vehicle is changed while the vehicle is in motion. In this mode the motor is reversed and slows the vehicle to a stop and then continues in the opposite direction.

## **Parking**

1. Bring the vehicle to a stop at an authorized parking space.
2. Place the Shift Lever in the center OFF position.
3. Turn the start switch OFF.
4. Firmly set the parking brake.
5. Remove the key from the Start switch. The driver should keep the key in his/her possession.

*Note: If parking this vehicle on an incline, turn the wheels to the curb, or block the wheels.*



## **WARNING**

**This vehicle does not have a “park” function in the transmission. Always apply the parking brake. Failure to apply the parking brake may result in a runaway vehicle.**

## **Loading Cargo**

### **⚠ WARNING**

**DO NOT transport or load cargo in the front passenger area or leave loose items on the front floorboard. Cargo placed in the front passenger area may interfere with the driver causing loss of control of the vehicle and result in a collision or accident with severe injury.**

- The standard TC50E is not equipped to carry cargo but may be equipped with optional cargo carrying capabilities.
- Use only Taylor-Dunn approved cargo accessories.
- Cargo shall only be transported in the designated cargo area of the vehicle and evenly distributed with the center of gravity close to the center of the designated cargo area.
- Before loading or unloading cargo:
  1. Place the Shift Lever in the center OFF position.
  2. Turn the start switch OFF
  3. Set the park brake.
- Do not transport cargo that is wider than the vehicle.
- Do not load cargo in the passenger compartments.
- Do not exceed the load capacity of the vehicle.
- All cargo shall be secured to prevent falling from the vehicle or shifting position while the vehicle is in motion.
- Our deck enclosures and covers such as cabs, fiberglass tops, surrey tops, cargo boxes, and similar structures are not designed to carry cargo or accessories unless equipped from the factory. Mounting additional weight on these structures may result in sudden failure of the cover and/or cover supports causing severe personal injury.
- Cargo consisting of fluid in tanks shall have fluid baffles in the tank to help reduce sloshing and shifting load weight.

### **⚠ WARNING**

**DO NOT transport passengers in the cargo area. All passengers must be seated in the available seats, one passenger per seating position.**

## **Transporting Pets**

Pets should only be transported in a pet carrier that is securely tied down on the designated cargo area.



## **Vehicle Load Capacity, Definition**

The rated maximum load capacity of a vehicle is the load carrying capacity of the **standard** model. The maximum load is on the vehicle's data plate.

Occupants and optional equipment added to the vehicle at time of manufacture or installed after delivery by the dealer or user reduces the capacity.

Example: Standard Load Capacity = 3,000 pounds:

3,000 - Driver (200) - Steel Cab/Doors Option (300) - Cargo Box (400) = 2,100 pounds maximum load on deck. Add a passenger and the maximum load is reduced to 1,900 pounds.

The definition of maximum load is the maximum weight than can be carried on a vehicle under ideal conditions. There are many conditions that will reduce the maximum safe load a vehicle can carry.

Some of these conditions are, but not limited to:

- Uneven road surface.
- Tall loads.
- Wide loads.
- Long loads.
- Liquid loads (sloshing).
- Traveling up or down grades.
- Traveling across grades.

The rated capacity assumes the load has a low center of gravity and is centered on the deck. As example: A 20 foot tall, 3,000 pound statue on the deck of a 3,000 pound capacity vehicle is not approved.

Liquid loads sloshing around in a tank will shift the center of gravity and may result in stability and braking issues. Liquid loads must be secured and have fluid baffles in the tank to help reduce shifting load weight due to sloshing.

## **Collisions or Accidents**

A collision or accident may damage the electrical circuits or batteries resulting in a fire hazard or chemical spill. In the event of a collision or accident, immediately turn the Start switch OFF, set the park brake, then exit the vehicle.

Call emergency personnel if there is any indication of smoke, burning smell, electrical arcing, or leaking fluid.

## **Tip Over**

In the event of a tip over AND the vehicle is equipped with OPS, stay inside the confines of the vehicle. Exit the vehicle after the vehicle has come to a complete stop.

In the event of a tip over and the vehicle IS NOT equipped with OPS. Quickly exit the vehicle and quickly move out of its path.



# TOWING

## WARNING

**Use caution when towing trailers wider than the tow tractor allowing for additional isle clearance and corner cutting of the trailers.**

**Not allowing for additional clearance may result in collision with severe bodily injury and/or property damage.**

### Towing a Trailer

*Note: Towing up or down grades will significantly reduce the capacity of the vehicle.*

When towing trailers:

- Do not exceed the DBP towing capacity of the vehicle. See Specifications and DBP definition.
- Only use Taylor-Dunn approved trailer hitches.
- Do not exceed the capacity of the trailer hitch installed on the vehicle.
- Do not exceed the load capacity of the trailer. Refer to documentation supplied with your trailer for information regarding load capacity of the trailer.
- Make sure all loads are securely tied down. Refer to documentation supplied with your trailer for information regarding attaching loads to the trailer.
- Cargo consisting of fluid in tanks shall have fluid baffles in the tank to help reduce shifting load weight.
- Do not back up when towing more than one trailer.
- Drive slowly when towing loads with a high center of gravity.
- When turning, be sure to allow for "corner cutting" of the trailer.
- Allow for longer stopping distances when towing heavy loads.
- Allow for longer stopping distances when driving down a grade.
- Block the trailer wheels before disconnecting from the vehicle.
- Do not disconnect a trailer while parked on a grade.

### Draw Bar Pull (DBP), Definition

DBP is a measure of pulling force required to move a load. The load may be a trailing load or a pushed load. It is normally expressed in pounds or Newtons.

The DBP of a tow tractor is the horizontal force exerted on a load at its coupler while towing or pushing a load. To measure the DBP, a scale would be connected in line with the tractor coupler and the load. The scale will directly read the DBP as the tractor tows the load.

Tow tractor DBP specifications, definition:

- Normal DBP: Highest DBP that can be sustained for a given duty cycle.
- Ultimate DBP: Also referred to a Maximum DBP. Highest DBP achieved while traveling at a minimum speed of approximately 0.5 mph (0.8 kph) for a minimum of 30 seconds. This specification is used in calculations for getting a load moving.

Notes:

Tow tractor DBP specifications are based on:

- Road surface consisting of level dry clean asphalt, brushed concrete or equivalent.
- Maximum battery weight installed per tow tractor battery specification.

Towing a load up any grade will significantly increase the DBP required.

Most paved roads and parking lots have a drainage grade to allow water to run off. When operating a tow tractor at or near its maximum capacity, this drainage grade will significantly affect DBP required to pull the load and may result in exceeding the tractor specifications.

## **Towing This Vehicle**

### **⚠ WARNING**

**Do not tow this vehicle faster than 3 mph (5 kph).**

**This vehicle is equipped with power hydraulic steering and power hydraulic assist brakes. If the hydraulic system is not working, then significantly more effort will be required to steer and stop the vehicle. This may make the vehicle difficult to control at higher speeds resulting in property damage and/or severe bodily injury.**

To tow this vehicle, attach a tow strap to the front hitch bracket.

Use another driver to steer this vehicle while it is being towed. Be sure the driver uses the brakes when the towing vehicle slows or stops.

Do not tow the vehicle faster than 3 mph (5 kph) or its maximum designed speed, whichever is lower.

If at all possible, this vehicle should be placed on a carrier, rather than towing it.

### **NOTICE**

**Towing this vehicle requires the controller to be turned off, park brake released and battery disconnected.**

## **Trailing This Vehicle**

Use the holes in the front cowl and rear spring mounts to securely strap the vehicle to a trailer or truck bed.



# Charging Your Vehicle

## GENERIC SAFETY GUIDELINES

### DANGER

The charger must be connected to a properly grounded AC receptacle. Improper connection will increase the risk of electric shock and can cause severe personal injury or death.

### WARNING

- Explosive mixtures of Hydrogen gas are present within battery cells at all times. Do not work with or charge a battery in an area where open flames (including gas furnace or water heater pilots), sparks, cigarettes, or any other sources of combustion are present. Always provide ample ventilation in rooms where batteries are being charged. Failure to do so may result in severe bodily injury and/or property damage.
- DO NOT disassemble the charger. There are no user serviceable components in the charger. Refer all repairs to a qualified technician. Incorrect repair or reassembly of the charger can result in an explosion, electric shock, or fire.
- Use of extension cords is not recommended. Improper use of an extension cord may result in fire.
- Do not attempt to operate the vehicle while charging the battery. Operating the charger and vehicle at the same time may lead to damage to the charger and/or the vehicle resulting in personal injury and/or property damage.
- Do not charge any battery that is, or is suspected to be frozen. Charging a frozen battery may result in explosive rupturing of the case due to a build up of internal pressure. This may causing severe bodily injury and will cause property damage.
- The charger should not be used by children or any personnel with mental or sensory disabilities. Incorrect usage due to inability to understand operation may cause severe personal injury and/or property damage.

### NOTICE

The Start switch must be in the “OFF” position when charging the batteries. Failure to turn the Start switch “OFF” may result in damage to the vehicle’s electrical system.

### NOTICE

Check battery electrolyte before charging. Do not charge batteries with low electrolyte level. Charging with low electrolyte level will result in premature failure of the battery.



# NOTICE

**The charger originally supplied with the vehicle is for use with the batteries originally supplied with the vehicle. If using a different charger or batteries, consult the charger and/or battery manufacturer to confirm that the charger used is compatible with the batteries. Use of an incorrect charger will result in damage and premature failure of the batteries.**

## Charging Time

Average charging time is dependent on the battery and charger used.. The time required to fully charge your batteries will vary depending on:

- Capacity of the batteries: Higher capacity battery requires longer charge time.
- Output of the charger: Higher charger output requires less charge time.
- Depth of discharge: The deeper a battery is discharged, the longer it takes to charge.
- Temperature: Low temperatures require longer charge time.

It is not unusual for charge times to exceed 15-hours, especially with new batteries.

# NOTICE

**Charging batteries emit hydrogen. Hydrogen is known cause false alarms in carbon monoxide detectors.**

## To Obtain the Maximum Battery Life

Charge the battery only after it reaches a normal discharge (20%) as indicated on the Battery Status Indicator (BSI). Failure to follow this guideline could result in the battery entering an overcharge state, which will reduce the life of the battery. If you find it necessary to charge the battery before it is completely discharged, we recommend waiting until it is discharged a minimum of 30% to reduce the possibility of overcharging. Refer to Vehicle Controls in this section for information on how to read the BSI.

Do not discharge the battery beyond a normal discharge as indicated on the BSI. Discharging your battery too deep will result in premature failure of the battery. Refer to Vehicle Controls in this section for information on how to read the BSI.

Check the battery electrolyte level once a week. Do not charge the battery if the battery electrolyte is low. Charging when the electrolyte is low will damage the batteries and shorten the life-span of the battery. Only authorized personnel should perform battery maintenance including maintaining the battery electrolyte level. Refer to the Battery Maintenance Section for battery maintenance information.

It is not recommended to interrupt the charging cycle. Allow the charger to turn off before disconnecting the AC plug. Interrupting the charging cycle could lead to overcharging or discharging the batteries too deep. Both circumstances will result in premature failure of the battery.

## New Battery Break In

New batteries require a break in period of up to 40-cycles. The batteries will not have their full capacity during this break in period and may result in longer charging times.

## AC Power Source

The AC power source required by the charger will vary depending on the charger used. Refer to the specifications for the charger for details.

Use of extension cords is not recommended. If you find it necessary to use an extension cord, make sure the extension cord power rating exceeds the power requirements of the charger.

The United States Federal, State or local regulations may require the use of a Ground Fault Interrupter (GFI) cable or AC outlet equipped with a GFI for charging your vehicle. A charger cord with an integral GFI is available through your Taylor-Dunn dealer.

# ⚠ WARNING

**Use of extension cords is not recommended. Improper use of an extension cord may result in fire.**

## **Charger Connector**

The charging connector is located on the left side, rear panel.

There is an interlock switch on this connector that prevents operation of the vehicle while the charger is connected.



# **Storing and Returning to Service**

Both storing your vehicle and returning it to service should only be performed by authorized personnel.

## **Storing Your Vehicle**

- Clean the batteries, then fill and charge before putting the vehicle in storage. Do not store batteries in a discharged condition.
- Lube all grease fittings.
- Clean, dry, and check all exposed electrical connections.
- Inflate the tires to proper pressure (if applicable).
- For extended storage, the vehicle should be elevated so that the tires are not touching the ground.

If stored for a prolonged period, the batteries should be charged as follows:

## **NOTICE**

**Storing batteries that are discharged or allowing stored batteries to discharge while in storage causes sulphation of the battery plates. This will result in reduced capacity and premature failure of the batteries.**

Storage Temperature (F)	Charging Interval (months)
Over 60	1
Between 40 and 60	2
Below 40	6

## **Returning to Service**

- Check the battery state of charge and charge if required.
- Perform all applicable maintenance checks in the Maintenance Schedule.
- Remove any blocks from the vehicle and/or place the vehicle down on to the ground.
- Test drive before putting into normal service.

# Vehicle Maintenance

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## **Daily Inspection**

The following items should be inspected once every day before the vehicle is put into service:

- External frame damage (body).
- Operation of all lights, warning alarms.
- Smooth and proper operation of seat belts (if equipped).
- Smooth and proper operation of all controls such as but not limited to:
  - Throttle pedal
  - Brake pedal
  - Steering
  - Horn
  - Parking brake
  - Etc.
- Proper operation of all locking devices such as but not limited to:
  - Tool box
  - Removable battery trays
  - Battery lid
  - Cargo box
  - Cab doors
  - Etc.
- Proper operation of all interlocking switches such as but not limited to:
  - Key switch
  - Operator presence switch
  - Charger interlock switch
  - Etc.
- Inspect for leaking fluids or grease.

## **Pre-Operation Inspection**

The following items should be inspected every time before the vehicle is driven:

- Confirm all removable seat cushions are correctly installed and secured in position. .
- Rear and side view mirror adjustments.
- Steering operation.
- Brake operation (service and park brake).
- Tire pressure (visual inspection only).
- Trailer hitch operation, latch, and wear.



## **WARNING**

**Remove cargo before raising the vehicle, raising or removing the deckboard, or servicing the vehicle. Failure to remove the cargo may result in cargo falling from the vehicle causing severe personal injury and/or property damage.**

# INTERLOCK SWITCH INSPECTION

The interlock switches should disable vehicle operation when activated. Perform the following to confirm proper operation. If any one test fails, then immediately remove the vehicle from service and refer repair to a qualified technician.

## WARNING

**These procedures may result in unexpected vehicle movement.**

- All procedures shall be performed in an area that allows for possible movement of the vehicle and room to safely stop the vehicle if it moves.
- DO NOT allow any personnel to stand in front or behind the vehicle while performing these procedures.

**Failure to follow the above instructions may result in severe personal injury and/or property damage.**

**DO NOT bypass, modify, or disable any interlock switch. Doing so could result in unexpected movement of the vehicle causing severe bodily injury and/or property damage.**

All procedures shall be performed with the charger disconnected from its power source except for the procedure testing the charger interlock. If using a portable charger, disconnect the charger cable from the vehicle.

If equipped with a battery disconnect switch, make sure it is in the run position before performing procedures.

## Start Switch

Sit in the operator position, select a direction, then slowly press the throttle pedal.

- The vehicle should not operate.

Release the pedal and place the Shift Lever in the center OFF position.

Turn the start switch ON, select a direction and slowly press the throttle pedal.

- The vehicle should operate normally.

## Operator Presence Switch

Sit in the operator position, turn the start switch ON, select a direction, and slowly press the throttle pedal.

- The vehicle should operate normally.

Release the throttle pedal, lift up off the driver seat and again slowly press the pedal.

- The vehicle should not operate.

## Parking Brake Switch:

*Note: This switch is optional and may not be installed on your vehicle. Refer to you original vehicle option list to determine if the vehicle is equipped with this switch.*

Sit in the operator position and set the park brake.

Turn the start switch ON, select a direction, and press the throttle pedal.

- The vehicle should not operate.

Release the park brake.

- The vehicle should operate normally.

## **Brake Interlock Switch**

Sit in the operator position, turn the start switch ON, select a direction, and slowly press the throttle pedal.

- The vehicle should operate normally.

While operating at a slow speed; press the brake pedal with your left foot.

- The motor control system should turn off and a DTC should be displayed on the dash display.

## **Charger Interlock Switch**

Connect the charger cord to the rear charging connector.

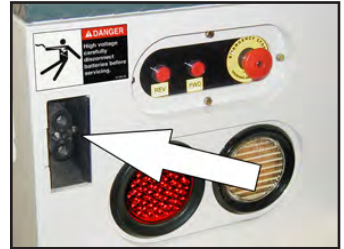
Sit in the operator position, turn the start switch ON, select a direction, and slowly press the throttle pedal.

- The vehicle should not operate.

Disconnect the charger cord.

Sit in the operator position, turn the start switch ON, select a direction, and slowly press the throttle pedal.

- The vehicle should operate normally.



## **Maintenance Schedule**

Most of these items should only be performed by a qualified technician. Details regarding the service procedures can be found in the vehicle service manual.

Any problems found during an inspection should be repaired before the vehicle is put back into service.

### **Every Week**

- All daily items plus the following:
- Check all tires tread for debris.

### **First 15 hours of Operation**

- Re-torque the wheel nuts.
- Inspect all hardware for tightness.
- Adjust front wheel bearings

### **Every Month or 150 hours**

- All weekly items plus the following:
- Inspect/Adjust front wheel bearings
- Wash and clean battery and terminals.
- Check battery fluid level.
- Check tire pressure.

### **Every 3 months or 500 hours**

All monthly items plus the following:

- Wash the battery compartment.
- Inspect brake fluid level.
- Inspect hydraulic fluid level.
- Inspect gap between rear hub and gear case for debris.
- Lubricate the vehicle per lubrication schedule.
- Adjust service and park brakes.
- Re-torque the wheel nuts.
- Inspect front wheel bearings.
- Inspect and tighten all power electrical connections.
- Inspect all hardware for tightness. First 500 hours then every 1000 hours

### **Every 6 months or 1000 hours**

- All 3 month items plus the following:
- Inspect all hardware for tightness.
- Tighten all electrical connections.
- Inspect wiring for cracks, fraying, wear.
- Inspect steering link rod ends.
- Inspect steering king pins.
- Align the front end.

### **Every 2 years or 12,000 miles (19,000)**

- All 6 month items plus the following:
- Flush and replace the hydraulic fluid.
- Flush and replace the brake fluid.
- Flush and replace the transaxle oil.
- Clean and repack front wheel bearings.
- Inspect all suspension bushings.
- Inspect service brakes for wear.
- Inspect suspension bushings.
- Inspect the chassis for damage.
- Rotate tires.

### **Maintenance Guidelines for Severe Duty Applications**

The above maintenance schedule is based on the average typical application. If the vehicle is operated under "severe conditions", service procedures should be conducted more frequently than specified. The frequency of service under severe conditions is determined by the use of the vehicle. The owner/operator must evaluate the operating environment to determine the increase in maintenance frequency.

In addition, the entire vehicle should be inspected monthly for signs of damage.

The following list is meant as a guide and is not all-inclusive of a "severe duty" application.

- Usage in excess of 150 hours per month.
- Extreme temperature.
- Bumpy, dusty, or ill maintained roads.
- Excessively wet areas.
- Corrosive or contaminated areas.
- Frequent loading of the vehicle at/near capacity.

# BATTERY MAINTENANCE

## WARNING

High Voltage is present in the battery compartment. **DO NOT** touch the battery terminals during servicing of the battery as this may result in severe electric shock and/or death.

## DANGER



- Battery electrolyte is poisonous and corrosive. It contains sulfuric acid. Avoid contact with skin, eyes or, clothing. Wear rubber gloves and face safety shield while servicing batteries. **DO NOT INGEST!** This will result in severe bodily injury.
- Wear a full face shield when working on or around batteries. A full face shield will help protect your eyes from battery electrolyte. If battery electrolyte gets in your eyes, immediately flush your eyes with large amounts of water and seek medical attention.
- Wear heavy duty long rubber gloves when working on or around batteries. If battery electrolyte gets on your skin, immediately flush with large amounts of water to prevent chemical burns.
- Explosive mixtures of Hydrogen gas are present within battery cells at all times. Do not work with or charge batteries in an area where open flames (including gas furnace or water heater pilots), sparks, cigarettes, or any other sources of combustion are present. Always provide ample ventilation in rooms where batteries are being charged. Failure to do so may result in severe bodily injury and/or property damage.
- Lead is poisonous. Batteries and battery terminals contain lead and lead components. Avoid touching the battery terminals and always thoroughly wash hands after servicing the batteries.
- A battery is a live electrical source. It cannot be disconnected or neutralized. Do not drop any tool or conductive object onto the battery. A conductive object that comes in contact with the battery terminals will initiate a short circuit of the battery. This could cause the battery to explode resulting in severe bodily injury and/or property damage.
- Do not leave cables on batteries that have been removed from the vehicle. Cables left on batteries could cause a short circuit resulting in battery explosion, severe bodily injury and/or property damage.

## NOTICE

- Battery electrolyte will stain and corrode most surfaces. Immediately and thoroughly clean any surface outside of the battery that the battery electrolyte comes in contact with. Failure to clean may result in property damage.
- **DO NOT** remove the caps on a maintenance free battery. Removing the caps will damage or destroy the battery seals resulting in premature battery failure.
- Do not operate or charge a vehicle equipped with moist charged batteries until the batteries have been filled with electrolyte. Operating or charging moist charged batteries before filling with electrolyte will damage the batteries resulting in premature failure of the batteries.

## Cleaning

### ⚠ WARNING

- 1) Refer to battery warnings at the start of this chapter.
  - 2) Place the Shift Lever in the center “off” position (neutral).
  - 3) Turn the Start switch OFF.
  - 4) Set the parking brake.
  - 5) Place blocks under the front or rear wheels to prevent vehicle movement.
  - 6) Disconnect the battery.
- 
6. Dry dirt can be readily blown off with low-pressure air or brushed off.
  7. Wetness or wet dirt on the battery indicates battery acid. Using a nonmetallic brush with flexible bristles, wash the battery off with a strong solution of baking soda and hot water (one pound of soda to a gallon of water). Continue until all fizzing stops, which indicates that the acid has been neutralized. Then rinse thoroughly with clear water. DO NOT get any of the solution into the battery cells.
  8. Remove the blocks from the wheels and test drive.

## Watering

Non-maintenance free batteries only.

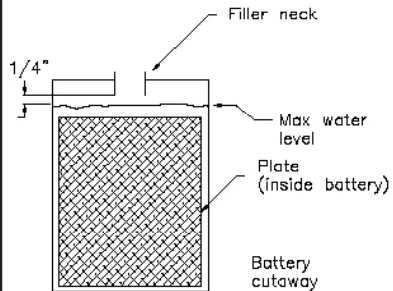
### ⚠ CAUTION

**Do not overfill the batteries. Overfilling the batteries may cause the batteries to boil over and result in chemical burns and/or property damage.**

*Note: The electrolyte level in a battery rises while charging and will be close to its highest level after the end of a charging cycle. It is recommended to fill the battery at the end of a charging cycle. If the electrolyte is below the top of the battery plates then fill just enough to cover the plates and then top off when the charging cycle is complete.*

### ⚠ WARNING

- 1) Refer to battery warnings at the start of this chapter.
- 2) Place the Shift Lever in the center “off” position (neutral).
- 3) Turn the Start switch OFF.
- 4) Set the parking brake.
- 5) Place blocks under the front or rear wheels to prevent vehicle movement.
- 6) Disconnect the battery.



6. Clean the battery. Refer to Cleaning section for information on cleaning the battery.
7. Check the electrolyte level in all battery cells. If low, fill to the correct level with distilled water using part number 77-201-00 battery filler. Never add additional battery electrolyte to the batteries.
8. Remove the blocks from the wheels and test drive.



## REMOVING THE BATTERY

Removing the battery will require an overhead hoist or forklift attachment not included with the vehicle. Refer to the manufacturer of the hoist or attachment for proper operation.

### WARNING

**Before removing the battery:**

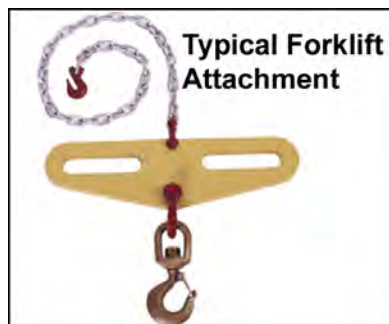
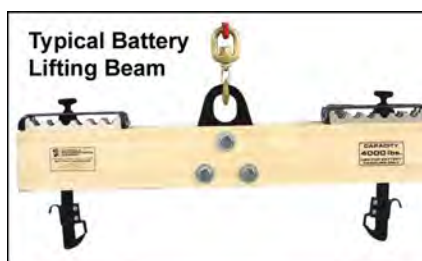
- 1) Park the vehicle on a level surface.
- 2) Place the Shift Lever in the center OFF position.
- 3) Make sure the Start switch is in the OFF position.
- 4) Set the park brake.

### WARNING

- Use the proper equipment when handling and transporting removable batteries. Equipment that is used to lift and support removable batteries should be rated at a minimum of 1.5 times the total battery weight.
- Keep all body parts out from underneath any battery that is not installed and latched in the vehicle.

**Failure to follow these rules may result in severe bodily injury and/or property damage.**

1. Unplug the battery connector.
2. Attach the hook from the hoist or forklift attachment to the lifting eyes on the battery box.
3. Lift the battery until it is clear of the frame.
4. Place the battery on the ground or battery storage platform.
5. If the battery is to be transported away from the vehicle, then it should first be lowered as close as practical to the ground before transporting.



## TIRES

### WARNING

Incorrect tire inflation can result in sudden failure of the tire and/or braking / steering problems leading to loss of control of the vehicle.

Never exceed the maximum pressure as indicated on the side wall of the tire. Exceeding the maximum pressure may cause explosive failure of the tire resulting in severe bodily injury.

### Changing a Tire/Wheel assembly

*Note: A spare tire, jack, or lug wrench is not attached to the vehicle.*

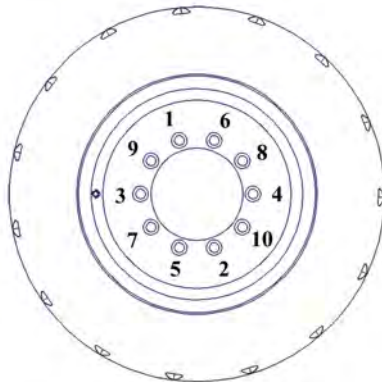
### WARNING

- 1) Park the vehicle on a hard level surface off of any main road or highway.
- 2) Make sure the Start switch is in the OFF position, then remove the key.
- 3) Place the Shift Lever in the center OFF position.
- 4) Set the park brake.
- 5) Block the wheels on the opposite side of the tire to be changed.

### WARNING

When lifting the vehicle, always use a hoist with lifting strap, or a jack of adequate capacity. Use jack stands to support the vehicle before starting any repairs. Failure to use lifting and support devices of rated load capacity may result in severe bodily injury.

6. Loosen the wheel nuts (do not remove) before raising the tire off of the ground.
7. Raise the tire to be changed off of the ground and support with a jack stand.
8. Remove the wheel nuts and tire/wheel assembly.
9. Install the replacement tire/wheel assembly.
10. Install the wheel nuts and cross tighten per illustration below to 85 foot pounds (115 Nm).
11. Check the tire for proper inflation.
12. Lower the vehicle to the ground and remove the blocks from the wheels.
- 13. Wheel nuts should be checked for tightness after first 100 miles (10 hours of operation).**



**10-Bolt Pattern**

## **Tire Rotation**

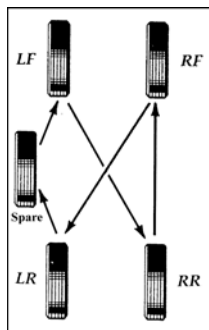
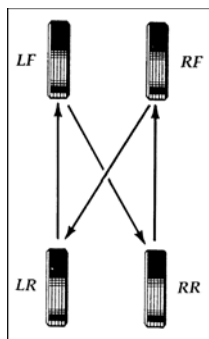
Front and rear tires as well as left and right tires can wear at different rates. It is important to periodically rotate your tires to extend your tire life. Refer to the maintenance schedule in this manual for the recommended interval.

Use the following pattern for a vehicle with no spare tire:

- Right Rear to Right Front
- Right Front to Left Rear
- Left Rear to Left Front
- Left Front to Right Rear

Use the following pattern for a vehicle with spare tire:

- Right Rear to Right Front
- Right Front to Left Rear
- Left Rear to Spare
- Spare to Left Front
- Left Front to Right Rear



## **Replacing a Tire**

### **⚠ WARNING**

Tire replacement should only be performed by an authorized technician trained in tire replacement.

Improper tools or procedures can result in explosion of the tire/wheel assembly causing severe bodily injury or death.

### **⚠ WARNING**

Never mix tire types, tire sizes, speed ratings, or load capacity.

Only use the tire types and sizes approved for use on this model. Contact your authorized Taylor-Dunn dealer to confirm approved tire types and sizes.

Mixing tires or installing a tire that is not approved may:

- Cause handling problems with the vehicle.
- Cause sudden tire failure due to mechanical interference.
- Accelerated tire wear and premature failure.

Any of the above may cause loss of control of the vehicle resulting in a collision or accident with severe bodily injury.

## BRAKE FLUID LEVEL

### **⚠ WARNING**

- Only use DOT 3 brake fluid from a new sealed container.
- DOT 3 brake fluid is corrosive and will damage paint finishes.
- Dispose of brake fluid in accordance with local state and federal regulations.
- Read and follow all warnings provided on the brake fluid container.
- Wear protective gloves when handling brake fluid and thoroughly wash hands after handling brake fluid.
- Before removing the master cylinder cap, thoroughly clean the area around the master cylinder cap. If any contaminates or debris enters the master cylinder then it may result in diminished and/or loss of braking power resulting in a collision or accident with severe bodily injury.

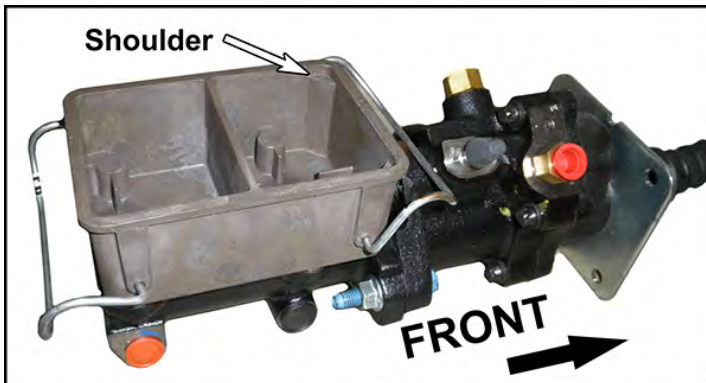
Visually inspect the brake fluid level in the master cylinder. Low fluid level could result in diminished and/or loss of braking power.

Refer to the maintenance schedule in this manual for the recommended inspection interval.

The master cylinder is located in the dash accesible through in inspection cover..

### **⚠ WARNING**

- 1) Park the vehicle on a level surface in an area approved for servicing a vehicle.
- 2) Set the park brake.
3. Thoroughly clean the area around the master cylinder before removing the master cylinder cap.
4. Remove the cap.
5. The fluid in both reservoirs should be within 1/4 inch (6 mm) of the shoulder at the front of the reservoir. Refer to illustration.



## HYDRAULIC FLUID LEVEL

Visually inspect the fluid level in the hydraulic pump reservoir. Low fluid level could result in diminished and/or loss of steering and/or braking power. Low fluid level may be a result of a leak in the system. Inspect for fluid leaks whenever needing to add fluid to the system.

Refer to the maintenance schedule in this manual for the recommended inspection interval.

### Fluid Specifications:

Universal power steering fluid. Meets or exceeds service requirements for one of the following:

- GENERAL MOTORS – GM9985010
- FORD – ESW-M2C128-C
- DAIMLERCHRYSLER-MS-5931
- VOLKSWAGEN-TL-VW-570-26

The pump is located in the rear of the vehicle.

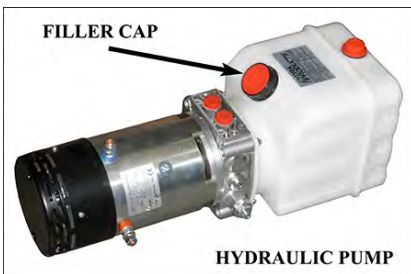
### WARNING

- 1) Park the vehicle on a level surface in an area approved for servicing a vehicle.
- 2) Set the park brake.
- 3) Disconnect the battery.



3. Thoroughly clean the area around the reservoir before removing the filler cap.
4. Remove the cap.
5. Depending on the pump in your vehicle:
  - The fluid in the reservoir should be between the two marks on the filler cap dipstick Refer to illustration.
  - The fluid should be in the MIN and MAX depicted by the lines in the illustration.

Your vehicle may be equipped with one of the two pumps as illustrated below.



# CLEANING

## Glass

The front, rear, and hard door windows are made of standard automotive glass and can be cleaned with any standard household glass cleaner.

## Plastic Windows

The soft door windows are made of clear soft plastic that is easily scratched and can be damaged from some cleansers or solvents.

To remove any road tar or grease, Use a 70% isopropyl alcohol solution and soft cloth then wash with water and dry with a soft cloth.

- Do not use any abrasives or abrasive cleaners.
- Do not use any chemical cleaners or cleaning solvents.

## Seats / Soft Doors

Clean your seats with any standard automotive vinyl cleaner.

## Interior

### NOTICE

**DO NOT spray the interior with water. Large amounts of water may damage the electronics in the dash.**

Use a mild liquid detergent in warm water to wipe down the interior of your vehicle.

## Exterior Body

### NOTICE

**DO NOT use an automated car wash facility of any type. This vehicle is not designed to fit in any automated car wash and it is likely that the vehicle will be damaged.**

Use any standard automotive exterior car wash solution. Do not use any abrasive cloths or cleaners.

Finish with a quality automotive wax to preserve the finish of your vehicle.

## Cleaning the Seat Belts

Clean the safety belts with any mild soap solution that is recommended for cleaning upholstery or carpets. Do not bleach or dye the belt webbing because this may weaken it.

## Under Carriage

For long life, it is important to keep the under carriage of the vehicle clean from caked on dirt, mud, or road salt. Any of these substances will cause accelerated corrosion of the frame and lead to premature failure.

When cleaning the under carriage, be careful not to get any cleaning solutions or excessive water into any electrical compartments.

## Battery

Refer to the Battery Maintenance section.



# Standard Specifications

ITEM		SPECIFICATION
Occupancy		1 Driver, 1 Passenger
		Max occupant weight 250 pounds each (113 kg)
Dimensions		136.1 L x 56.2 W x 55 H Inches
		345.7 L x 142.6 W x 139.7 H Millimeters
Turning Radius		144 Inches (365.76 Millimeters)
Ground Clearance		iii Inches (mmm Millimeters)
Weight (less battery)		5,000 pounds (2,268 kg)
Maximum Towed Load	Draw Bar Pull	5,000 Pounds (2,268 kg)
	Tongue Weight	300 pounds (136 kg) MAX
Electrical System		80 Volts (traction)
		12 Volts (accessories)
Battery Compartment		34.5 x 41.5 x 31 H Inches
<b>! SEE WARNING BELOW !</b>		876 x 1,054, 787 H Millimeters
Battery		3,500 to 4,500 pounds
		1,587 to 2,041 kg
Lead Length		80 volts
		EBC 320 connector
		25 inch (635 mm) Position D
		No cover
Transmission		Dual planetary reduction transaxle
Motor		20 kW AC (44.7 intermittent, 5 minute)
Maximum Speed		15 mph (24 kph)
Brakes		Power assist 4-wheel Hydraulic
		Front: Disc
		Rear: Multi disc in oil bath
		Had park brake
Steering		Hydraulic Power Steering
Tires		175/80D13 8 ply rated pneumatic
	Pressure	100 psi (6.89 bar)
Frame and Cab		Steel Unitized Frame, Fiberglass Body and Cab
Instrumentation		Multi-Function Dash Display
Lighting Accessories		Front Head Lights, Rear Tail/Brake Lights, Turn Signal Lights

## WARNING

**Battery guides must be installed to locate the battery in the center rear of the battery compartment.**

**Failure to install proper guides may result in battery movement during operation of the vehicle. The battery movement may result in damage to the battery or to the vehicle. It will also increase the possibility of roll over due to sudden shift of the vehicle center of gravity.**

Specifications subject to change without notice.

This vehicle conforms 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 Operator Controlled Industrial Tow Tractors (ANSI B56.9).

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## **WARNING**

**Operating, servicing and maintaining a passenger vehicle or off-highway motor vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle.**

**For more information go to [www.P65Warnings.ca.gov/passenger-vehicle](http://www.P65Warnings.ca.gov/passenger-vehicle).**

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