

User-Service Manual

Pony Express 1062

Tugger

To avoid injury, read user's manual before using.



1062 Motorized Tugger

RETAIL
ERGONOMIC SOLUTIONS

MATERIAL HANDLING
ERGONOMIC SOLUTIONS

HEALTHCARE
ERGONOMIC SOLUTIONS

Important Precautions

- ⚠ Warning: Possible Injury or Death.** It is important that you read and understand this entire manual before operating or performing maintenance on your Pony Express Tugger.
- ⚠ Warning: Possible Injury or Death.** This product was designed and is intended for use as a means to move material handling carts for facility worker's convenience and safety. Use of this product in a manner for which it was not designed could result in an unproven or unsafe configuration, potentially resulting in injury or death.
- ⚠ Warning: Possible Injury or Death.** The Pony Express Tugger is designed to attach to various material handling, food, or hospital carts utilizing hitches provided by Electro Kinetic Technologies. Use of hitches not provided by Electro Kinetic Technologies or modifications of supplied hitches could result in an unproven or unsafe configuration, potentially resulting in injury or death.
- ⚠ Warning: Possible Injury.** The Pony Express Tugger has a maximum load capacity on a level surface. Failure to use the Pony Express Tugger within its design guidelines could result in property damage or injury.
- ⚠ Warning: Possible Injury.** Do not travel up or down inclines greater than 5 degrees. Do not travel sideways on inclines. Failure to do so could result in property damage or injury.
- ⚠ Warning: Possible Injury.** Do not stop the Pony Express Tugger on an incline. Always park, load and unload on a flat surface.
- ⚠ Warning: Possible Injury.** Do not operate Pony Express Tugger in wet environments. Do not expose the Tugger to temperatures beyond the rated specifications. Failure to do so could result in property damage, battery damage or injury.
- ⚠ Warning:** Using non-approved cables and accessories may negatively affect the EMC performance.
- ⚠ Warning:** Mobile RF communication equipment can affect Electrical Equipment.

- ⚠ Warning: Possible Shock Hazard.** Unplug charger power cord from wall outlet before performing any maintenance, cleaning, or service to the Pony Express Tugger. Failure to do so could result in injury or death.
- ⚠ Warning: Possible Injury or Death.** Disconnect batteries before performing any maintenance or service work to the unit. Failure to do so could result in injury or death.
- ⚠ Warning: Possible Injury or Death.** Do not use any replacement parts not manufactured, marketed, or provided by Electro Kinetic Technologies on the Pony Express Tugger. Use of unapproved replacement parts may result in injury or death.
- ⚠ Warning: Possible Shock Hazard.** The Pony Express Tugger has a NEMA 5-15 male terminal to which a 3-pronged power cord can be connected for charging the Pony Express Tugger. Grounding reliability can only be achieved when equipment is connected to an equivalent receptacle with ground. Failure to do so could result in injury.
- ⚠ Warning: Explosion Hazard.** Do not use in the presence of flammable anesthetics, gas, or vapors. Use in the presence of flammable gases or vapors could result in equipment damage, injury or death.
- ⚠ Warning: Possible Injury or Death.** Do not disengage the drive system on or near an inclined surface. The unit will freely move and will not stop on its own when the transaxle and braking system are disengaged. Severe injury may result if the unit is left unattended with the transaxle and braking system disengaged.
- ⚠ Warning: Possible Injury or Death.** Never disengage the transaxle and electromechanical parking brake when the Pony Express Tugger is connected to a cart. Doing so could result in property damage, injury or death.
- ⚠ Warning: Possible Equipment Damage or Injury to Employees.** Service and repair must only be performed by qualified, authorized Electro Kinetic Technologies Technical Support Personnel (call 800-824-1068)

Save These Instructions

Thank you and congratulations for choosing the Pony Express Motorized Tugger a member of the Electro Kinetic Technologies family of quality mobility products.

Information in this manual is based upon specifications in effect at the time of the publication. Electro Kinetic Technologies reserves the right to make changes at any time without notice.

The Pony Express Tugger has been developed with advanced ergonomic design and will provide years of reliable service in your facility.

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Features and Specifications

Standard Features

- Innovative ergonomic mast and control design are adjustable to a wide range of user heights.
- Automatic sleep mode to conserve battery power when unit is not in use.
- Compact design is easily maneuvered with thumb controlled infinite variable speed forward & reverse operation.
- IP 54, NEMA 3/13 rated.
- Award winning user interface controller design.
- High capacity, deep discharge AGM battery system.
- Standard and custom hitches allow for attachment to a wide range of material handling carts.
- Maintenance free, non-marking tires.
- Regenerative dynamic braking technology ensures a controlled stop at any speed and load.
- Holding brake secures load even on inclines.
- Emergency Stop on the operating control handle for safety.
- Battery charge level indicator prominently placed on the operating control handle.

Specifications

Load Rating..(10" casters, flat surface) 2000 pounds
 Maximum Peak Pull/Push Force.....125 pounds
 Maximum Continuous Pull/Push Force.....60 pounds
 Enclosure RatingIP54, NEMA 3/13
 Width.....24 inches
 Height (tallest).....53 inches
 Length (shortest)25 inches
 Length (longest).....45 inches
 Weight260 lbs.
 Drive Wheels 9 X 3.50 - 2
 Caster Wheels3 1/2" (2 used)
 Ground Speed (SLOW)1.5 mph*
 Ground Speed (FAST)3.0 mph*
 Braking.....Regenerative
 Typical Range.....8 hours¹

Note 1: Variances in battery conditions, charge level, load, surface, caster conditions and inclines impact this time between charges.

*Depending on battery condition.

Electrical Specifications

Electrical Terminal.....NEMA 5-15 male
 Batteries.....(2) 12VDC, 35 amp-hour AGM
 (4) four with option

Battery Charger

- Input Voltage.....120/240 VAC
- Input Frequency..... 50/60 Hz
- Input Current...5/2.5 Amp (max) @ 120/240 VAC

Operating Instructions

When used properly, the Pony Express Tugger allows the user to safely move and maneuver material handling, food, or hospital carts utilizing hitches provided by Electro Kinetic Technologies. Read and thoroughly understand this user manual before operating the Pony Express Tugger. If possible, have the Pony Express Tugger available to review when going through this manual.

Electro Kinetic Technologies recommends becoming familiar with the operation of the Pony Express Tugger first by itself and then when docked with an empty cart in a large open area on a flat surface free of obstacles.

When using the Pony Express Tugger always be aware of your surroundings, operate the unit slowly and cautiously. Avoid collisions which may injure the user, nearby people, cause damage to the facility, or cause damage to the cart or Pony Express Tugger. Be courteous of others and use the horn to let your presence be known.

Anticipate and avoid unsafe situations. Be especially cautious when using the Pony Express Tugger on sloped surfaces. The Pony Express Tugger is designed for use on ADA approved 1:20 sloped surfaces. Consult Electro Kinetic Technologies for load de-rating on inclines.

Tugger Control Handle (Figure 1)

ON/OFF Power Switch

The ON/OFF power rocker switch is located on the left side of the Pony Express Tugger control handle. To turn the power on, fully depress the switch to the ON position. The Battery Indicator will illuminate indicating the power switch is on.

Speed Modes

The Pony Express Tugger control handle provides two speed modes, FAST ("rabbit") or SLOW ("turtle"). The FAST/SLOW rocker switch located on the right side of the Tugger control handle allows selection of the desired speed mode. Depressing SLOW enables the low speed mode, whereas FAST enables the high speed mode. The speed mode applies to both forward and reverse directions.

Forward/Reverse Control

The Forward/Reverse direction of the Tugger is controlled by the thumb levers located on either side of the Pony Express Tugger control handle. Pushing either of the thumb levers forward will cause the Pony Express Tugger to move forward. Pushing either of the thumb levers backward will cause the Pony Express Tugger to move in reverse. The farther you push the thumb levers (either forward or backward) the faster the Pony Express Tugger will move, within the limits of the chosen speed mode.

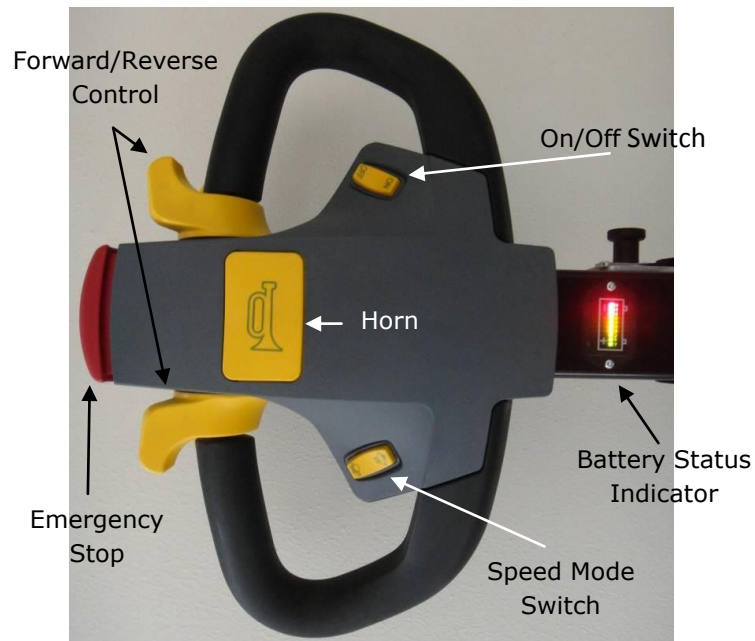


Figure 1

Horn

The Pony Express Tugger control handle has a horn button located on the top of the control handle. Press the button to sound the horn. Release the button for the horn to turn off.

Emergency Stop

To stop the Pony Express Tugger in an emergency, press in on the Emergency Stop Button. The Emergency Stop Button is the large red button covering most of the Pony Express Tugger control handle's front portion nearest the operator. The Battery Condition Gauge flashing indicates the Emergency Stop button has been pressed. To restart the Pony Express Tugger after the Emergency Stop Button has been pressed, the power switch must be turned off and then back on again.

Battery Status Indicator

The Battery Status Indicator located on top of the Pony Express Tugger control handle indicates when the Pony Express Tugger's batteries need to be recharged. If the Battery Status Indicator shows red, yellow and green, the batteries are charged. If the Battery Status Indicator shows just red and yellow, the batteries need to be charged as soon as possible. If the Battery Status Indicator shows just red (either steady or flashing slowly), the batteries need to be charged immediately. The Battery Status Indicator reading is more accurate after the power has been on for at least one minute.

Operation

⚠Warning: Possible Injury or Death. Whenever moving carts with the Pony Express Tugger, be extremely cautious and deliberate with your movements using an appropriate speed for the environment. Failure to do so could result in property damage, injury or death.

⚠Warning: Possible Injury or Death. The Pony Express Tugger is designed to move carts on flat or ADA approved 1:20 sloped surfaces. Using the Pony Express Tugger on a sloped surface steeper than the ADA requirements may result in loss of control or disconnection of the Pony Express Tugger and the cart.

To operate the Pony Express Tugger

1. Make sure the charger cord is disconnected and properly stored.
2. Turn the Power Switch to the "ON" position on the Pony Express Tugger control handle.
3. Pay attention to the Battery Status Indicator on the Pony Express Tugger control handle. For more information on the Battery Status Indicator, please see the "Battery Status Indicator" section.
4. Select the desired speed (FAST/SLOW) using the Speed Mode switch.
5. Gently push either of the Pony Express Tugger control handle thumb levers forward (clockwise). The Pony Express Tugger will start to move and accelerate forward, away from you.
6. To stop, release the Pony Express Tugger thumb levers allowing them to return to their neutral position. The Pony Express Tugger will come to stop with the aid of the dynamic regenerative braking feature. Once stopped, the Pony Express Tugger features electromechanical braking to keep the unit from moving.
7. To go in reverse, gently push either of the Pony Express Tugger control handle thumb levers downwards (counter-clockwise). The Pony Express Tugger will start to move backwards. Always adjust the speed appropriately for safe operation.

For your first drive, we recommend the following:

1. Make sure the area is flat, firm, smooth, open and free of obstacles.
2. Make sure the cart or carts are hitched to the Pony Express Tugger and all casters on the carts are unlocked.

⚠Warning: Possible Equipment Damage or Injury to Employees. The Pony Express Tugger is designed for use on rolling carts with at least one set of fixed casters. Use on carts without one set of fixed casters is unsafe and could cause personal injury or damage to property.

3. All the casters must be unlocked for the Pony Express Tugger to function properly. The drive wheels will perform the steering and braking functions.
4. Adjust the control handle to one of three desired positions.
5. Ensure the manual brake lever is in its original forward position to prevent unattended movement and to enable the drive unit. Depress the POWER switch to turn the power ON.
6. Depress the SPEED rocker switch to ensure the unit is in its SLOW speed setting. Secure all AC power cords.
7. Steer the Tugger and carts in different directions to get a feel for how the device maneuvers.
8. Depress the speed rocker switch to change to the unit's FAST speed. Remember, power compensation will automatically give you more power and allow you to keep a slower speed should you need it.
9. Release the control lever to stop the device. Take note of how the braking feels when the dynamic regenerative brake disengages and engages.
10. Push the control lever to the rear to go backward. The reverse direction will be at the same speed as the forward direction. Always make sure the area is clear behind you before backing up.
12. Remember to turn the power button OFF (no visible lights on the Battery Status Indicator) when not driving.

⚠Warning: The Pony Express Tugger transport is designed for high maneuverability, but use caution when encountering obstacles. Failure to drive cautiously can result in collisions which may cause physical harm. When approaching an obstacle, keep your speed at a minimum and maintain a safe distance from that object. Avoid all small objects on the ground. The Pony Express Tugger's ground clearance may be less than the size of the object.

Adjusting the Handle

The Electro Kinetic Technologies Pony Express Tugger has a three position handle. To change the position of the handle, pull the lock-pin located on the left side of the handle, move the handle to the desired position and release the lock-pin.

The three positions are:

Vertical (Figure 2) – Locks the handle in a position where it is in line with mast. This position is designed to minimize the overall length of the Pony Express Tugger such as when placing the Pony Express Tugger in storage or when the Pony Express Tugger is attached to a cart in an elevator.

Horizontal (Figure 3) – Locks the handle in a position where it is horizontal to the floor when the mast is pulled back completely. This position is most commonly used for normal operation of the Pony Express Tugger.

Middle (approx. 45 degree angle) (Figure 4) – Provides an in-between position for users who are taller.

Braking Systems

The Pony Express Tugger has two types of braking systems, dynamic regenerative braking and electro-mechanical braking. **Note:** Braking is only effective as long as the drive wheels do not lose traction, which can happen as a result of a smooth, wet floor surface and/or a floor surface sloped in excess of ADA requirements.

Dynamic Regenerative Braking – Dynamic regenerative braking automatically brings the Pony Express Tugger to a smooth stop when the thumb-wheel is released. However, it does not lock the wheels in place.

Electromechanical Braking – After the dynamic braking has brought the Pony Express Tugger to a complete stop, the electromechanical brake will lock the drive wheels in place. The electromechanical brake is a parking brake and can be applied instantly by pressing the emergency stop switch (located on the front of the Pony Express Tugger control handle).



Figure 2



Figure 3



Figure 4

Pushing Manually

The drive system on the Pony Express Tugger can be disabled to allow the unit to be pushed manually. To disable the drive system:

1. Move the Pony Express Tugger to a level surface and place the Power Switch in the OFF position.
2. Pull (towards the back of the unit) on the brake release handle located under the Pony Express Tugger near the right drive wheel (Figure 5). This disengages the Transaxle and Electromechanical Parking Brake.

Note: When finished, return the brake lever to the original forward position to prevent the Tugger from unattended movement and to enable the drive unit.

⚠Warning: Possible Injury or Death. Do not disable the drive system on or near an inclined surface. The unit will freely move and will not stop on its own when the transaxle and braking system is disabled. Severe injury may result if the unit is left unattended with the transaxle and braking system disabled.

Tugger Batteries & Charger

For best results use only Absorbed Glass Mat (AGM) batteries with your Pony Express Tugger.

1. To access the battery section, remove the screws as shown in Figure 6 and removed the plate taking precautions not to let the plate coming in contact with the battery terminals.
2. The electrical system on your Pony Express Tugger operates on a 24 volt system, requiring the 12 volt batteries to be connected in a specific way. If the batteries are not connected correctly, damage to the electrical control unit of the Pony Express Tugger will occur and the unit will be inoperable. Please refer to Figure 7 for more information.
3. The batteries supplied with the Pony Express Tugger are maintenance free sealed AGM batteries. Do not remove the battery caps. Do not attempt to add water. This will ruin your batteries and void your warranty.
4. If a powdery white substance appears on or around the battery terminals, clean them: use a solution of baking soda and water with a toothbrush.
5. When replacing the batteries, all four batteries must be replaced at the same time. Clean the terminals and battery posts with a wire brush. When reattaching the terminals, be sure all connections are tight. The black wire must be attached to the negative (-) terminal. Failure to connect with the proper polarity will damage the control module.

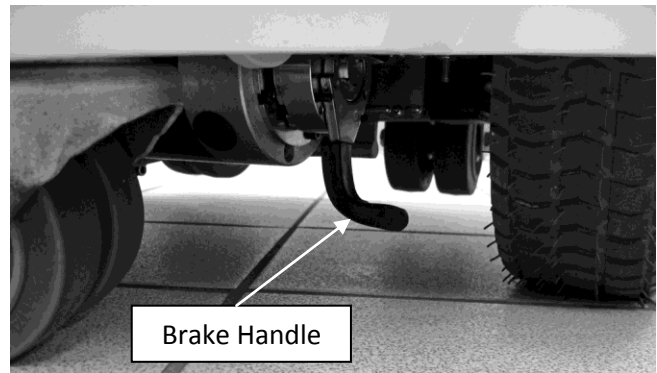


Figure 5

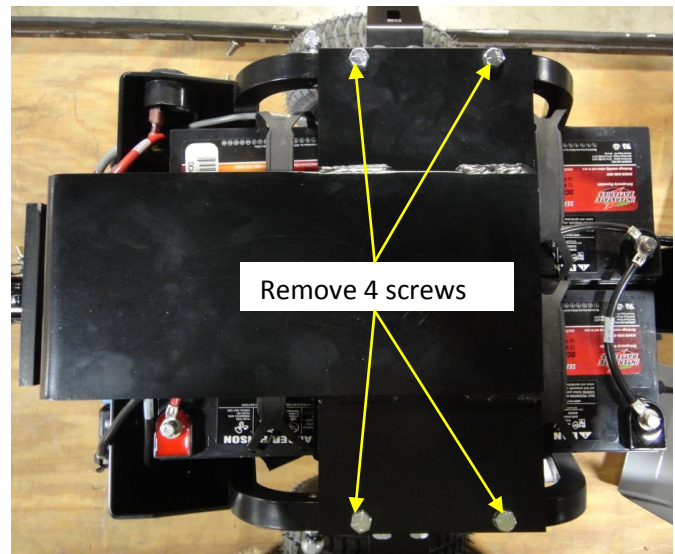


Figure 6



Figure 7

Shown with Optional (4) four batteries

Battery Life

Battery life depends upon use and proper care. How much your Pony Express Tugger is used will affect how soon your batteries will need replacement. Other factors which can reduce battery life are: Irregular or inefficient charging, extreme temperatures, and how much weight you are moving.

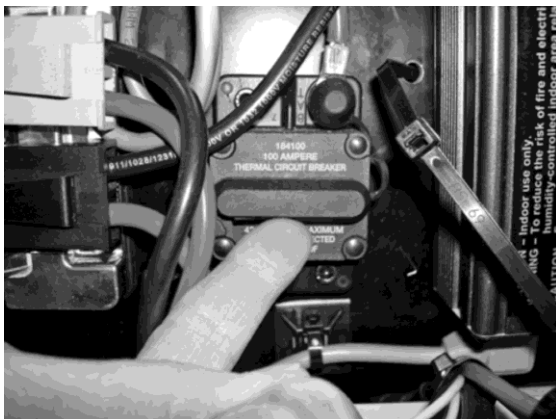
If the distance you travel on a charge becomes noticeably shorter, and ramps once easily climbed become difficult, you may need to replace the batteries. Other signs indicating the need to replace the batteries include heating or swelling of the batteries which is sometimes accompanied by an acrid odor. If you notice any of these conditions, have your batteries tested.

Battery Load Testing

A "Load Test" is a sure test of battery condition. Load testing measures battery voltage under a heavy load. Before the test, your batteries should be fully charged. The tester will measure the open circuit voltage, or voltage across the batteries, prior to a load test. The open circuit voltage must measure at least 12.6 volts on each battery in order to receive an accurate assessment during a load test. The tester will set the load tester to 100 amps and hold the setting for 10 seconds. At the end of 10 seconds, the tester will read the results while the batteries are still under load. If the load voltage is below 10.0 volts each, the batteries should be replaced.

Circuit Breaker

A manually reset circuit breaker is located on one battery attached to the positive (+) terminal. To gain access to the circuit breaker, the cover must be removed. The circuit breaker protects the wiring and batteries against damage in the event of a short circuit. If the breaker opens, reset it by pushing the tab upwards. If it opens again in a short time, there is a short circuit which must be found and corrected.



Charging

The Pony Express Tugger is equipped with two or four sealed absorbed glass mat (AGM) deep cycle batteries which require charging on a regular basis. An on-board charging system is integrated into the electronics of the Pony Express Tugger to make charging easy. The Pony Express Tugger is equipped with a NEMA 5-15 male terminal for charging. Note: Before using the Pony Express Tugger for the first time, fully charge the batteries according the following procedure.

1. Position the Pony Express Tugger close to a power outlet.
2. Turn the power switch off.
3. Insert a 3-prong power cord into the NEMA 5-15 male terminal located to the left of the handle on the main body of the Tugger near the base of the mast handle.
4. Connect the power cord into the AC power outlet insuring that the plug is fully engaged into the supply outlet.
5. Allow the unit to charge overnight – six to eight hours for a full charge. For optimum battery life, charge the Pony Express Tugger whenever it is not in use – it cannot be over-charged.
6. With the power switch on, the Battery Status Indicator shows the battery charge status. If the Battery Status Indicator shows red, yellow and green, the batteries are nearly or fully charged. If the Battery Status Indicator shows red and yellow, or just red, charging needs to be continued.
7. Unplug the cord from the AC power outlet (or if used, the extension cord) and from the cord connector located to the left of the mast on the Pony Express Tugger. The Pony Express Tugger will not operate if the Pony Express Tugger is plugged into a functioning AC power outlet.

Electrical Warnings

To help reduce the electrical and fire hazard risk, the Pony Express Tugger battery charger, like all electrical products, must be treated with caution. Follow these instructions to reduce the electrical hazard risk.

⚠ Warning: Possible Shock Hazard. The Pony Express Tugger has a NEMA 5-15 male terminal to which a 3-pronged power cord can be connected for charging the Pony Express Tugger. Grounding reliability can only be achieved when equipment is connected to an equivalent receptacle with ground. Failure to do so could result in injury.

Maintenance

Maintenance Schedule

Your Pony Express Tugger will give you years of safe and dependable service in return for regular maintenance and early attention to any developing problems. We recommend the following maintenance program. Should you use your Pony Express Tugger often, you may find it advantageous to perform this maintenance more frequently.

⚠ Caution: Disconnect the batteries before performing any maintenance.

Every Day or as Needed:

1. Maintain the charge on the batteries.
2. Clean debris from the wheels and drive unit assembly.
3. Clean the Tugger with a damp sponge.

Once Each Month:

Check for loose connectors and any signs of unusual wear. Replace worn components.

Once every Three Months:

1. Remove the metal cover and check the wires for wear, fraying or cracking.
2. Check the connectors for wear or cracking.
3. Examine the tires and wheel assemblies for wear or damage.

Lubrication:

All wheel bearings are sealed and permanently lubricated. Spray silicone lubricants may be used on any other moving parts. Apply this lubricant whenever there is "stickiness" in the moving parts.

Cleaning

Turn the power off. Use warm soapy water with a damp sponge to clean your Pony Express Tugger. Do not pressure wash or hose off your Pony Express Tugger. The water may damage electronic components. Do not use harsh or abrasive cleaners on the Pony Express Tugger or its tires. These types of cleaners will damage the finish of your Pony Express Tugger and may cause premature tire wear. Clean the tires with a bristle brush dipped in warm water.



Figure 8

Servicing

Removing the Covers

1. Remove the screws on each side of the Pony Express Tugger just above the drive wheels (Figure 8).
2. Remove the two screws at the front and two screws and washers at the rear of the Tugger (Figures 9 and 10).



Figure 9

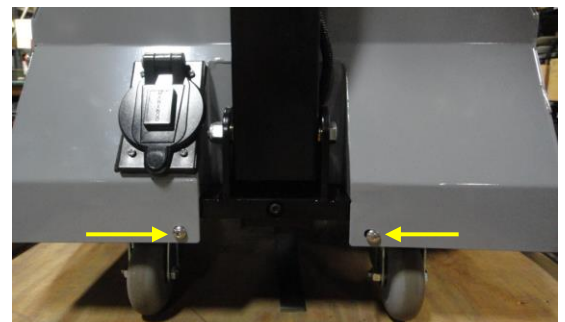


Figure 10

Battery Location

The cover and plate must be removed to access the batteries (Figure 11)

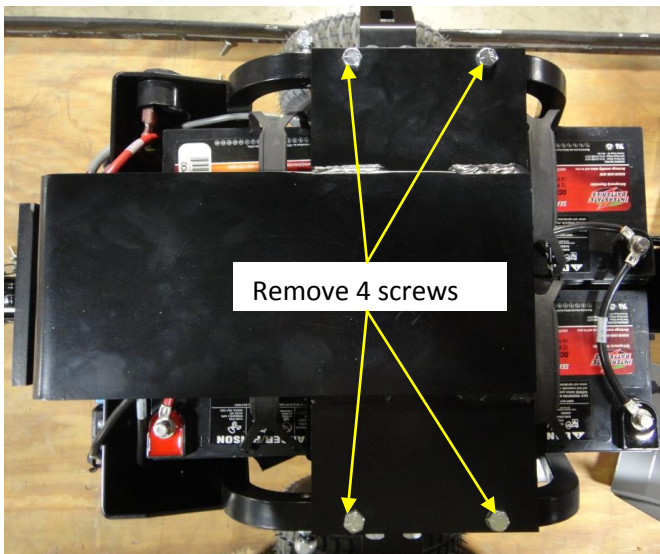


Figure 11

Battery Removal

1. Disconnect all the battery cables from the batteries, removing the negative connections first. Note how the batteries are connected. Refer to figure 12.








Figure 12

2. Remove the straps holding the batteries in place. Note the orientation of the batteries.
3. Loosen the four bolts holding the front plate (this plate contains the battery charger and drive control) and carefully move forward enough to allow the batteries to be removed.
4. If replacing the batteries, all four should be replaced at once. Reverse the above procedure.

Troubleshooting



Battery Charge Levels

The Pony Express Tugger controller has a software algorithm that utilizes the currents and voltages on the batteries along with the motor current to calculate the remaining battery power. Although it provides an estimate on power up, the most accurate reading will be after operating the Pony Express Tugger for one minute. As power is drawn from the battery pack, successive LEDs will go dark starting with green, then yellow and finally red.

LEDS	Description
10 Bars  R Y G	The Pony Express Tugger is fully charged and ready for operation.
7 Bars  R Y G	The display is showing only red and yellow. Connect the Pony Express Tugger to an AC outlet to recharge the batteries as soon as possible.
3 Bars  R Y G	The display is only showing red. Connect the TUGGER to an AC outlet to recharge the batteries immediately to prevent damage to the batteries. Warning: Continuous discharging of batteries to this level, limits the life of the batteries.
1 Bar  R Y G	ONE (1) RED LED Flashing. The battery is almost completely discharged. Charge immediately.
0 Bars  R Y G	Display is dark. <ul style="list-style-type: none"> • Check to be sure ON/OFF switch is ON. • Check circuit breaker to see if tripped. Reset once. If it continues to trip call for service. • Batteries are dead. Charge batteries, then load test. Replace if required.

Level 1 Display Faults

Below are the most common display faults.

LEDS	Description
6 Bars  R Y G	If all bars are flashing rapidly the emergency stop on the control has been engaged. Cycle ON/OFF switch to reset this fault.
1-10 Bars  R Y G	If the display is cycling from 1 to 10 bars (red, yellow then green), the Tugger batteries are being charged. To engage unit, remove power cord from the outlet and cycle the ON/OFF switch.

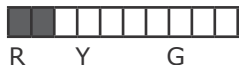
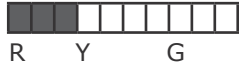


System Level Troubleshooting

The following is a list of other items to check before calling for service.

Symptom	Possible Cause	Solution
Display is illuminated but unit will not operate.	<ul style="list-style-type: none"> • Holding brake not engaged. • Transaxle worn out. 	<ul style="list-style-type: none"> • Engage holding brake by moving brake handle • Call service provider to replace
Unit runs slow	<ul style="list-style-type: none"> • Speed mode is set to SLOW speed • Battery charge low 	<ul style="list-style-type: none"> • Check speed mode and change to FAST. • Check display on control. Recharge unit if reading low.
Display shows full charge but drops shortly after powering unit.	<ul style="list-style-type: none"> • Batteries are weak 	<ul style="list-style-type: none"> • Remove batteries and charge. Load test all batteries and replace if they fail.
Display shows low charge after charging for eight hours.	<ul style="list-style-type: none"> • Check to make sure display shows unit charging (see above). • Charger needs replacing. 	<ul style="list-style-type: none"> • Check outlet to make sure outlet has power. • Call service provider to replace.
Intermittent Running	<ul style="list-style-type: none"> • Loose connections in power and/or control wiring. • Motor needs to be replaced. 	<ul style="list-style-type: none"> • Check wiring or call your service provider. • Call service provider to replace.

Level 2 Display Faults

Below are some fault codes that can be used by qualified trained technician or maintenance personnel to troubleshoot and repair the Pony Express Tugger. **Note:** Display will flash.

LEDs	Description
Flashing 2 Bars 	One or both of the power wires between the motor and control has opened. Check this wiring and repair.
Flashing 3 Bars 	The motor has a short circuit to the battery connection. Contact your service provider to replace the transaxle.
Flashing 8 Bars 	Controller fault. Make sure all connections are secure.
Flashing 9 Bars 	One or both of the control wires between the motor brake and control has opened. Check this wiring and repair. If good, contact service provider to replace transaxle.