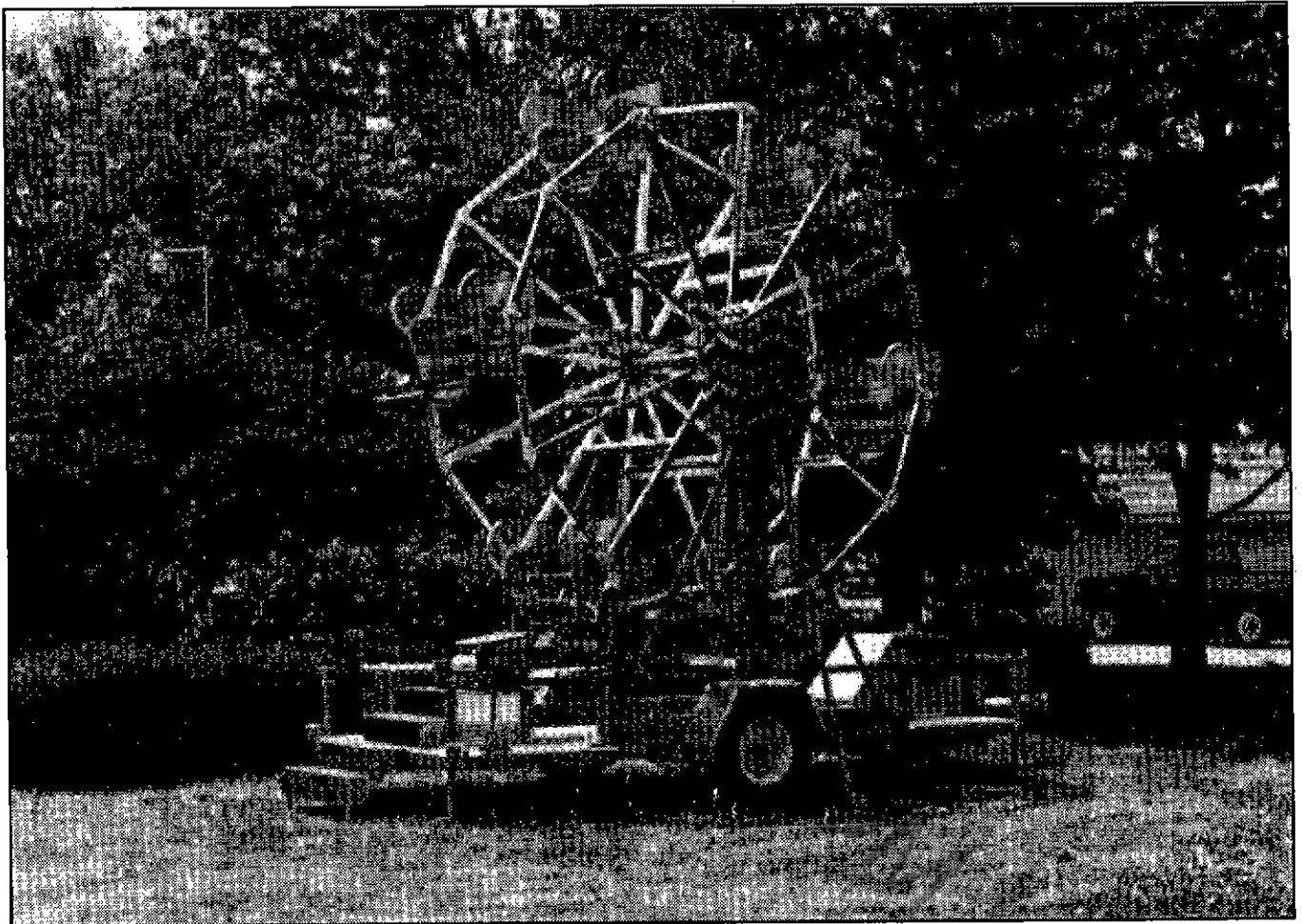


Eli Bridge Company  
Little Eli Wheel  
Kiddie

# Trailer-Mounted Little Eli Wheel



## Operations Manual



Eli Bridge Company  
800 Case Avenue  
Jacksonville, Illinois 62650, USA

# An Introduction to The Trailer-Mounted Little Eli Wheel

Eli Bridge Company's **Trailer-Mounted Little Eli Wheel** offers the time-tested excitement and reliability of our 16-seat **Aristocrat** ground model Wheel in a miniature, fully-portable version just for children.

Its six aluminum seats are smaller versions of the standard seats used on standard *Big Eli*® Wheels, and each is equipped with padded upholstery and colorful decals.

Over 1600 flashing Turbolites™ are programmed to give the Trailer-Mounted Little Eli Wheel an eye-catching appeal which highlights any kiddie center.

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# Manufacturer's Statement

The following manual has been provided to assist you in every phase of erecting, dismantling, operating, and maintaining your **Trailer-Mounted Little Eli Wheel**.

**We cannot emphasize too strongly the need to follow the instructions in this manual. Failure to follow these instructions can have very serious consequences.**

This manual has been prepared to assist you in procedures which will promote long life and serviceability of your Wheel as well as the safety and enjoyment of your patrons.

By following instructions, your **Trailer-Mounted Little Eli Wheel** can be a dependable and profitable investment for your organization for many years to come.

**This manual was prepared for**

**Owner:** \_\_\_\_\_

**Serial Number:** \_\_\_\_\_

**Manual Revision Date:** 9-21-94

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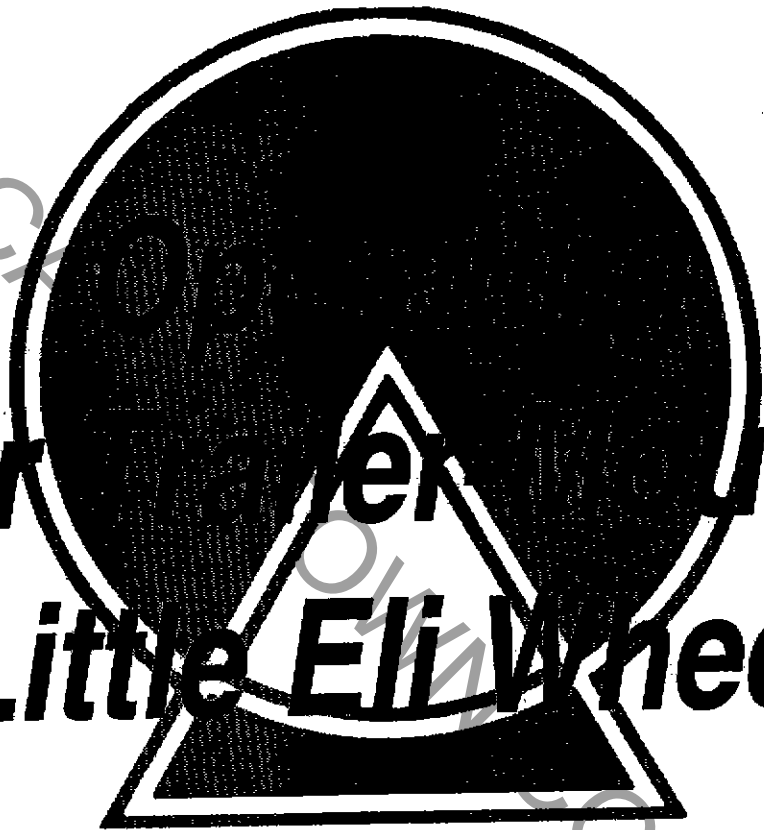
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**Your Little Eli Wheel**

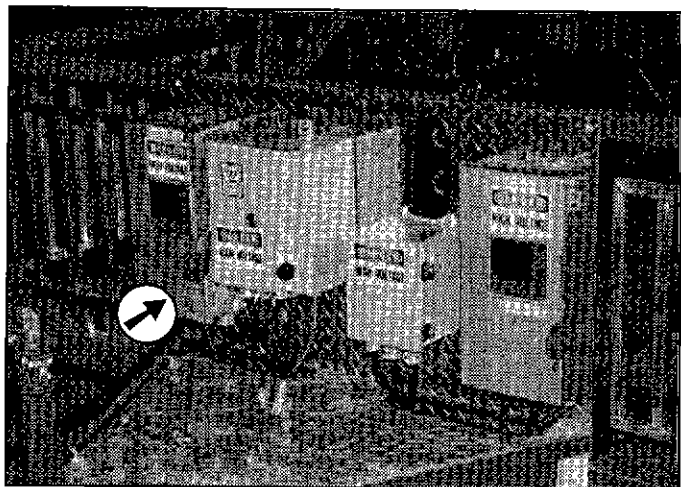


Your **Trailer-Mounted Little Eli Wheel** is designed to be operated with efficiency and dependability.

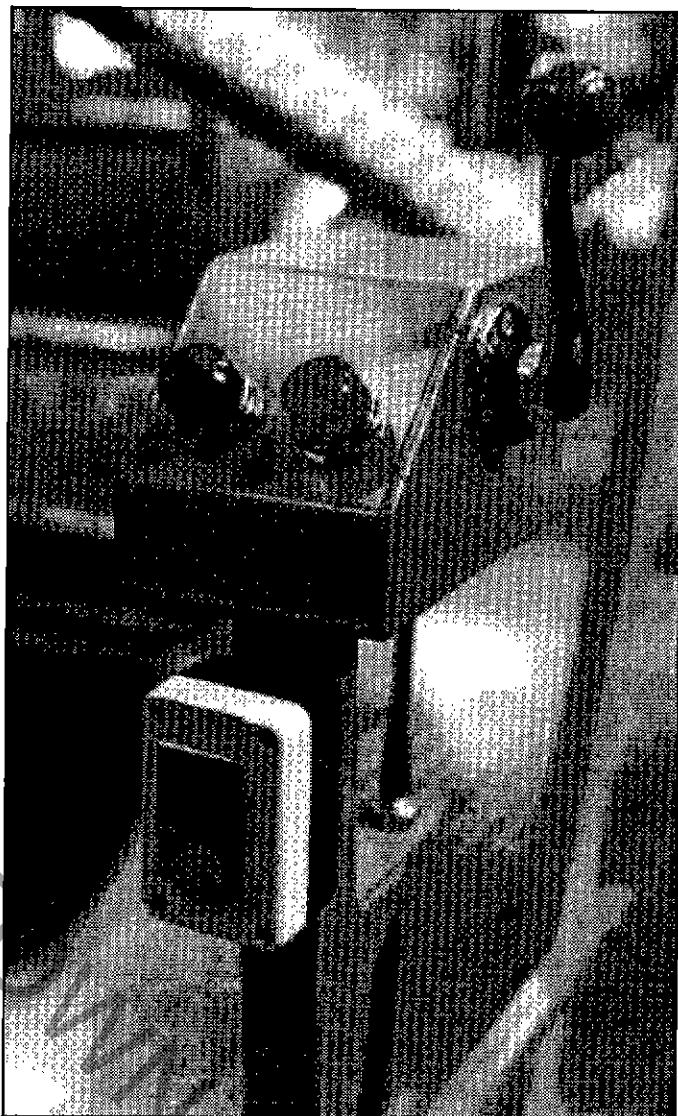
This section is designed to assist operators in powering up, operating the Wheel, and handling passengers with care.

The Wheel should be checked each day for wear or damage. Consult the maintenance section of this manual for complete details concerning which parts to check before starting.

Please read the following instructions carefully before serving the public.



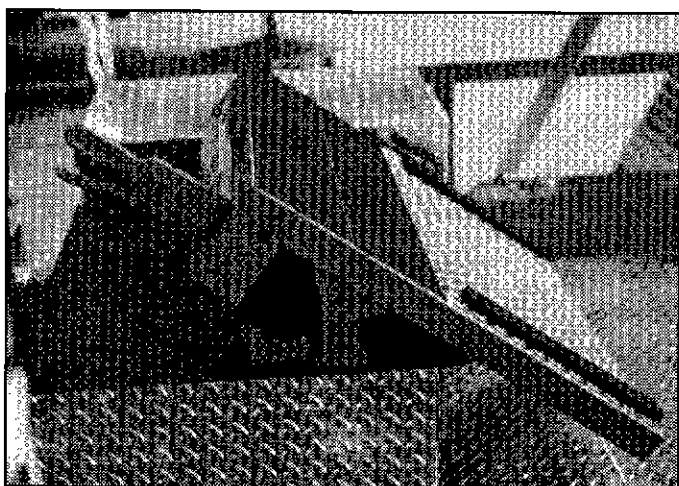
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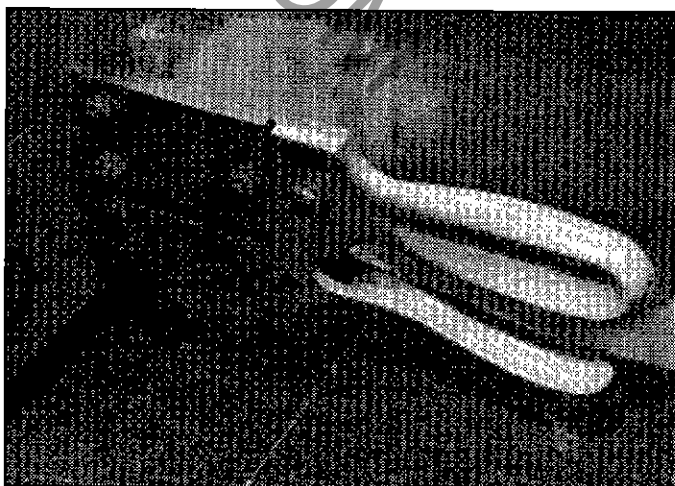
No. 2-2



No. 2-3



No. 2-4



No. 2-5

## **TURNING ON THE POWER**

The main power is accessed in the bank of electrical boxes located across the rear of the trailer (Picture No. 2-1). Raise the red handle on the box at the left. This will transfer electrical power to the operator's control panel (Picture No. 2-2) at the front of the Wheel.

Next, raise the red lever on the right side of the box on the right to the "on" position. This turns on the lighting system.

To turn on the motor, press the green button on the operator's control stand marked "Start" (Picture No. 2-3). It is located just below the operator's control panel. Test run the Wheel a few times to be certain everything is operating as it should.

You are now ready to load passengers.

## **SETTING THE BRAKES**

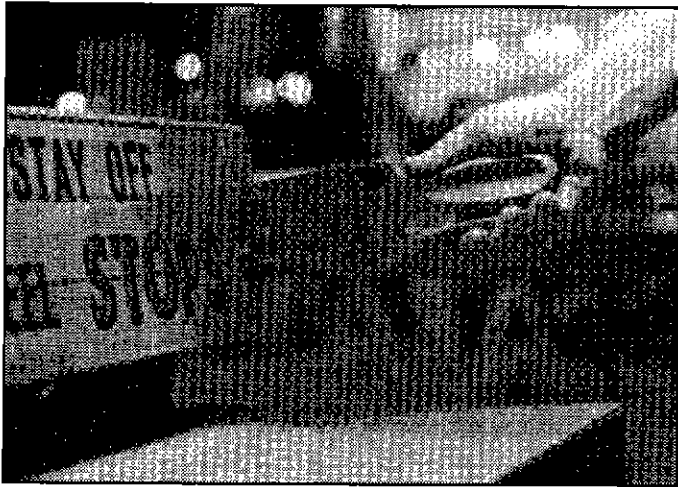
The brakes on the Little Eli Wheel are automatically engaged any time the control lever is in the neutral position. The brakes release only when the Wheel is rotated or if the power is turned off or lost.

## **OPERATING THE WHEEL**

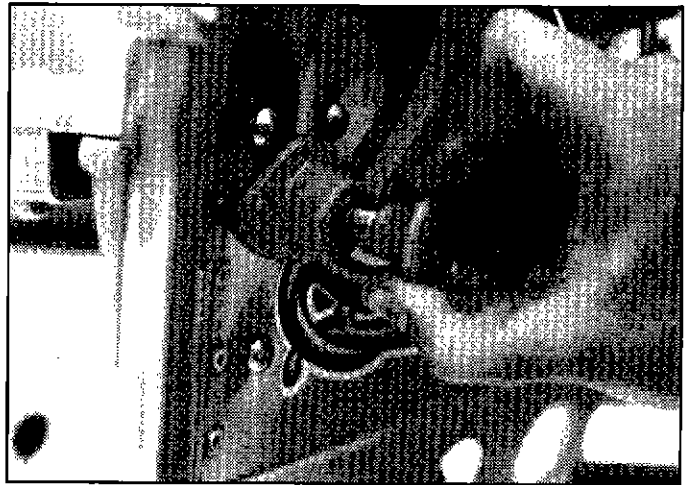
To turn the Wheel, move the control lever (Picture No. 2-2) forward, away from the operator. The farther the lever is extended, the faster the Wheel turns.

When the lever is brought to the rear, or neutral, position, the ride will come to a stop and the brakes will lock the Wheel into position.

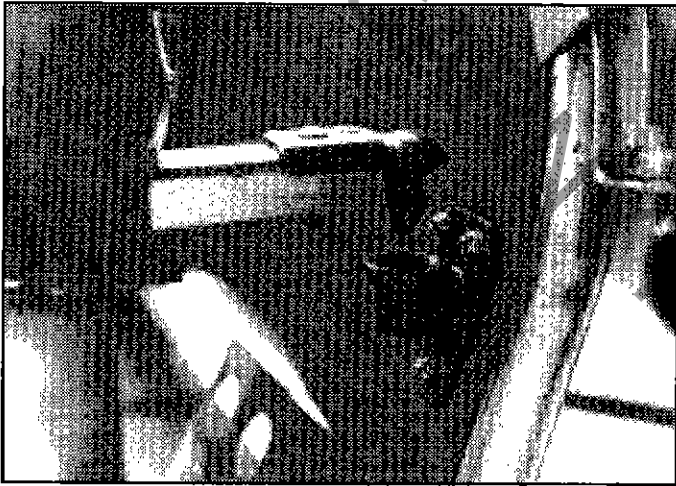
Once the Wheel is stopped, the loading platform can be raised for loading and unloading passengers (Picture No. 2-4). Grasp the handle on the rear of the loading platform (Picture No. 2-5) and press the handle downward until the front of the platform has been raised and locked into position beneath the seat.



**No. 2-6**



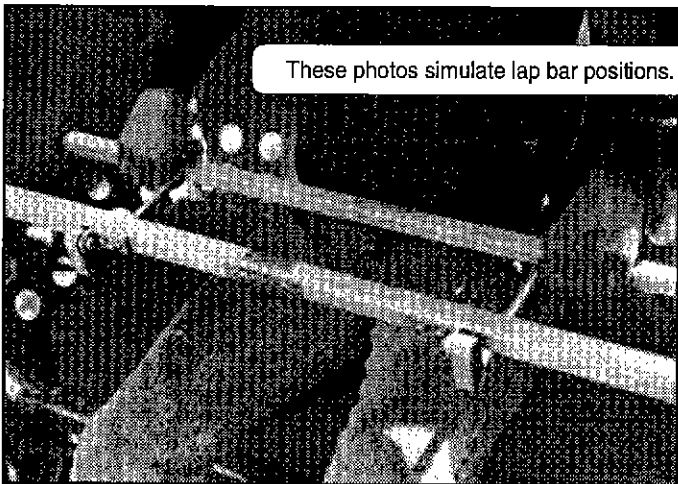
**No. 2-7**



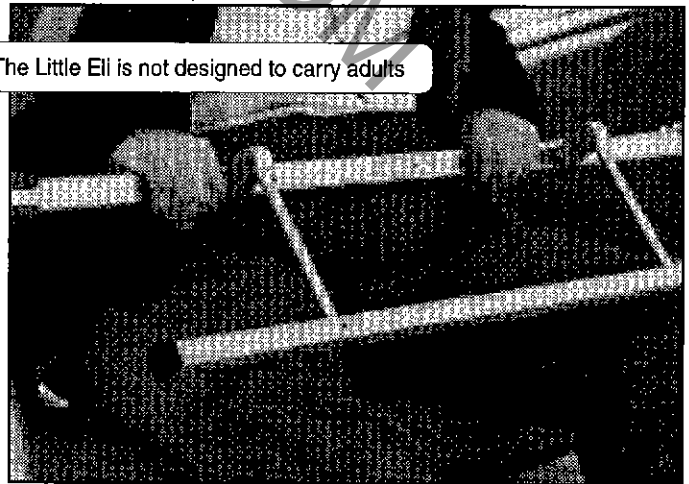
**No. 2-8**



**No. 2-9**



**No. 2-10**



**No. 2-11**

These photos simulate lap bar positions. The Little E11 is not designed to carry adults

Once the passengers are loaded and/or unloaded and the Wheel is ready to turn again, grasp the handle on the loading platform and squeeze the #43 malleable release (Picture No. 2-6). This will release the lock and allow the platform to be lowered into its original position.

**NOTE: THE LOADING PLATFORM MUST BE LOWERED BEFORE TURNING THE WHEEL, OTHERWISE THE SEATS WILL STRIKE THE RAISED PLATFORM AS THEY PASS.**

## **LOADING AND UNLOADING PASSENGERS**

When the seat is properly stopped, pull out the plunger on the operator's side of the seat (Picture No. 2-7), disengage the handlebar lock from the socket (Picture No. 2-8), and swing the handlebar and lap bar up and out as far as it will move easily. Hold the footbottom against the loading platform as the passengers enter and leave the seat (Picture No. 2-9).

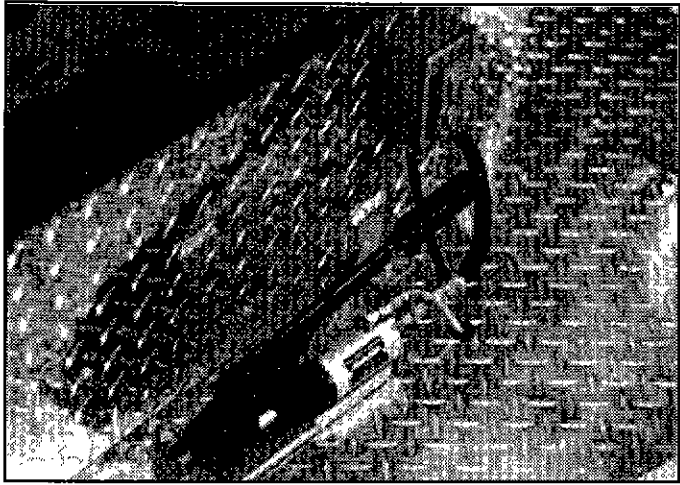
After incoming passengers are seated, position the lap bar toward the passengers so it will rest in their laps (Picture No. 2-10). To accommodate larger passengers, swing the lap bar down so it rests against their knees when it would otherwise be uncomfortable to position it in their laps (Picture No. 2-11).

Close and securely lock the handlebar with the plunger. When the exiting passengers have cleared the loading area, the Wheel can be started. **NOTE: If the seat tilts backward when the passengers are loaded, they are too heavy to ride this Wheel. They must be loaded into separate seats or not allowed to ride.**

## **BALANCING THE WHEEL**

The equipment will give you longer service if you try to operate the Wheel as nearly balanced as possible. In starting to load, put passengers in seat No. 1. Then turn the Wheel around to the opposite side to seat No. 4 for the next passengers. This will leave the Wheel balanced except for the differences in weight of the passengers in each seat.

Advance to the next seat, No. 5, and load. Go to seat No. 2 to load the next passengers, and then to seat No. 3, and so on, trying always to keep the Wheel as balanced as possible. If you have a line of children waiting to get on the Wheel, after



**No. 2-12**

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your first passengers have all had a long enough ride, stop at any seat, such as No. 1, unload and load it, and then go right around the Wheel (2, 3, 4, and so on). However, if business is not heavy and all of the seats will not always be occupied, you will need to use care to keep the Wheel balanced. This is only a matter of a little practice.

## **EMERGENCY BRAKE**

If the Wheel should lose power, the brake powered by the electric motor will not function. To hold the Wheel in place, engage the hand brake located on the operator's side of the loading platform (Picture 2-12).

This brake should be bled every day at start-up to remove air bubbles. The bleed valve is located just above the windbrace connection under the light box on the operator's side.

If, after activating the emergency brake, the Wheel has not been completely stopped, then pump the brake handle up and down a few times to build up the pressure. DO NOT lower it all the way or the hydraulic oil will flow back into the reservoir.

## **RULES FOR SAFE OPERATION**

Many millions of people have ridden *Big Eli*® Wheels with pleasure and in safety. However, the operator has the responsibility for ensuring a safe ride for all passengers. He must watch the ride at all times, and must refuse rides for any person or persons that, in his opinion, might be a danger to themselves or to others. There are a few simple rules which safe operators must follow:

- A. Completely inspect and test-run the Wheel before each operating period.
- B. If an unusual noise or condition develops while the Wheel is in operation, stop it and get to the source of the trouble before you begin operating again.
- C. Do not try to grease, oil, or wipe the operating parts of your Wheel with the ride running. Some very serious accidents have been caused by operators trying to do this.
- D. Do not use alcohol or drugs. You are responsible for the care, upkeep, and proper operation of a public amusement riding device. Unless you are in good mental

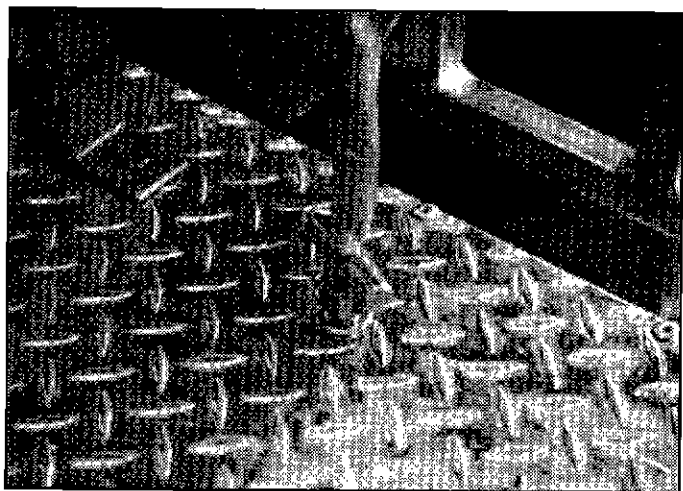
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and physical condition you will not be able to carry out your responsibilities properly.

- E. You are very close to the Wheel while it is running. Be very careful you do not get into the path of the Wheel until after it has stopped.
- F. Assist passengers on and off the Wheel when necessary.
- G. If the Wheel is being abused in any way by the passengers, shut down the ride until the condition is corrected. Do not allow the seats to be rocked.
- H. Be cautious and ready for the unexpected where children are involved. It is recommended a child being allowed to ride should be no more than 42" tall. Frequently, parents may want to ride with their child, but the Little Wheel was not designed to accommodate adult passengers. A large adult may have his center of gravity above the seat pin centerline and the seat can turn upside down in this circumstance.
- I. Passengers waiting for the next ride should be kept away from any of the moving parts of the Wheel.
- J. Be alert when the Wheel is operating and be prepared for an emergency stop.
- K. Never, under any circumstances, walk away from the Wheel while it is operating and carrying passengers.
- L. Take pride in operating safely; a safe Wheel is a profitable one.

You may find at first that operating the Wheel is awkward for you. No doubt you will find it desirable to make small adjustments in your procedures as you develop experience.

Do not jerk the ride in starting or stopping. This rocks the seats and some passengers will not like it. The main purpose of any amusement ride is to please the passengers so they will come back and bring their friends.



No. 2-13

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## EMERGENCY PROCEDURES

If there should be a power outage while the Wheel is turning, it will quickly come to a stop. The main brakes will not operate without power, but the Wheel can be held still by the use of the emergency hand brake. If the power outage continues you may find it necessary to remove the passengers from the Wheel without power.

The Wheel will not turn freely because as you attempt to turn, hydraulic oil has to be by-passed in the hydraulic motors, and this will place considerable drag on the Wheel. To make the Wheel turn more freely, open the valve located on the trailer deck near the operator's position (Picture 2-13). This will allow the oil to flow freely and make the Wheel easier to turn. The more open the valve, the more easily the Wheel can be rotated.

Release the hand brake, located on the operator's side of the loading platform, and pull the Wheel around so that there is a seat in line with the loading platform. Set the emergency hand brake before attempting to take out the passengers. When the seat is emptied, release the emergency hand brake, and pull the Wheel around by hand to the seat on the opposite side of the Wheel, in order to keep the Wheel fairly well balanced. If you do keep it somewhat balanced it will be much easier to control when turned.

Be sure to close the valve after all the seats are unloaded or the Wheel will not operate when power is restored.

## CLOSING DOWN YOUR OPERATION FOR THE NIGHT

When you are ready to close down your Wheel for the night, there are a few simple steps to take.

Press the **Stop** button below the operator's control panel. This will shut down the main drive motor.

Swing the red handle down to the off position on the **Main Light Disconnect** box and press the button on the lower left of the **Main Power Disconnect** box at the rear of the trailer.

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**Your *er* mounted  
Little *Eli* Wheel**



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Follow these instructions carefully when preparing your **Trailer Mounted Little Eli Wheel** for moving. The photos referenced can be located in the Setting Up section of this manual.

1. Remove the skirting (Picture No. 1-48) and pack it away in the tool box.
2. Fold the operator's seat into the travel position and fasten the restraining strap (Picture No. 1-46).
3. Close the footbottoms on each of the seats.
4. Remove seat Nos. 2 and 3 and store in the rear seat racks (Picture No. 1-12).
5. Fold up the loading steps (Picture No. 1-37). Lock in position with the locking pin and locking assembly (Picture No. 1-36). Disconnect and retract the emergency brake hydraulic line.
6. Unpin the rim section from the spoke section between the two spokes no longer carrying seats (Picture No. 1-34). Unpin the rim section behind it so there are four rim sections hanging down (Picture No. 1-33). Fold down four spokes in this fashion.
7. Use the storage rods to lock seat Nos. 1 and 6 in place (Picture No. 1-19). Lock one end of a storage bar to the bracket on the base of a seat (Picture No. 1-21) and the other end to a similar bracket on a spoke crossbar (Picture No. 1-20).
8. Turn off the power at the main power disconnect box at the rear of the trailer (Picture No. 1-17).
9. Attach the bracket and lower sway brace cables over the seat pin next to the towers and secure with a hitch pin (Picture No. 1-16). Attach the other end of the cables to the brackets on the trailer deck (Picture Nos. 1-14 and 1-15). Tighten the turnbuckle until the cable is tensioned.
10. Remove the locking pins and lift the trailer leg on each corner of the trailer (Picture No. 1-10) into the raised position and lock in place (Picture No. 1-9).

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12. Raise the locking lever on the trailer hitch ball lock assembly (Picture No. 1-4). Move the towing vehicle into position and lower the rear trailer support onto the towing hitch ball (Picture No. 1-6). Once in place, secure the ball lock in place with a hitch pin (Picture No. 1-7).
13. Store the rear trailer support post foot in the tool box (Picture No. 1-3).
14. Attach the safety chains to the towing vehicle (Picture No. 1-2).

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Regular maintenance is very important in keeping your **Little Eli Wheel** in excellent running condition. Your equipment will give you years of dependable service if you take care of it properly.

The following guidelines have been established to aid you in maintaining your Wheel. Failure to follow these instructions will most likely reduce the service life of your ride.

## **BRAKES**

There is a bleeder valve on the upper side of the brake which should be bled after each set up and when the brake is not holding the ride in place. With the power on, and the Wheel stopped, the red brake light should be on. Using one of the spokes extending horizontally from the axle, a person weighing about 120 pounds should be able to hang onto the end of the spoke without brake slippage. If the brake is properly adjusted it will hold the weight. If it slips, the brake needs to be adjusted. Check the brakes daily before operation.

## **ELECTRIC MOTOR**

The electric motor which drives the Wheel should be greased at least once annually, depending upon the conditions at its location. Lubrication recommendations are listed at the end of this section of your manual.

## **ELECTRIC RINGS AND BRUSHES**

Keep the electric rings and brushes clean.

**WARNING:** BE SURE THAT POWER IS OFF BEFORE TOUCHING THE ELECTRIC RINGS OR BRUSHES.

## **EMERGENCY BRAKE**

Check the emergency brake, located on the side of the loading platform, and bleed air out of the hydraulic line as needed. The bleeder valve is located under the tower light assembly on the operator's side of the Wheel.

## HANDLEBARS and LAP BARS

Check over each handlebar and lap bar daily to be sure all screws and bolts are tight. Make sure that the AB plunger locks into the J casting on the latching end of the handlebar. After closing and latching the handlebar, lift up on the handlebar to make certain it is securely locked. Make certain all lap bars swing freely.

## HYDRAULIC FILTER

The filter on the hydraulic system should be replaced once every year. The Little Eli incorporates the Lenz Filter # DH750-800PR with replacement cartridge #8-03.

## HYDRAULIC FLUID

We recommend the use of Mobilfluid® 424 for the Little Eli's hydraulic system. The product specifications are as follows:

Product Number .....	52233-4
Gravity API .....	28.5
Density, lbs./gal. @ 60° F .....	7.37
Flash Point, °C (°F) .....	228 (442)
Pour Point, °C (°F) .....	-43 (-46)
Viscosity, cP @ -18° C .....	2700
Viscosity, cSt @ 40° C .....	55
Viscosity, cSt @ 100° C .....	9.3
Viscosity Index .....	152
ASTM Foam, Seq. I, ml / ml .....	0/0
Seq. II, ml / ml .....	0/0
Seq. III, ml / ml .....	0/0
Copper Strip Corrosion, 3hr. / 150° C .....	1B

## HYDRAULIC RESERVOIR

The hydraulic oil level in the reservoir should be checked daily. The level should be kept between the bottom and top sight glasses on the side of the power unit. Do not let this level drop below the bottom sight glass. Use Mobilfluid 424.

The breather/filler cap on top of the reservoir should be checked daily to be sure it is securely tightened.

## LEVELING BOLTS

The leveling bolts on the bases and windbraces should be installed properly. The swiveling foot pad should be in firm contact with the floor and the jam nuts should be wrenched tightly to prevent the bolts from loosening.

## LOADING PLATFORM

Before operation each day, make certain the loading platform will lock properly into the raised position and will hold the weight of passengers. All bolts should be tight.

The pivots of the loading platform turn on nylon sleeve bushings. To extend the life of these bushings, they should receive a little light oil regularly.

NOTE: Do NOT use Nev-Seize as a lubricant for the loading platform because it contains an element which will cause the nylon to swell and possibly lock the pivots so they will not turn.

## PILLOW BLOCK BEARINGS

There is one grease fitting in each pillow block bearing on top of each tower. These should be lubricated once a year, using Texaco Marfak Multipurpose grease or equivalent.

## ROLLER DRIVE CHAINS

Check the main drive roller chains daily for proper tension. Turn the electric motor off: this will release the main brake. Be sure the emergency brake is released. Then rock the Wheel back and forth as far as it will go easily. The hydraulic motor, without power, will not move easily. Rocking the Wheel will establish how much slack there is in either or both of the roller chains. There should be very little movement.

If there is, the slack in the chains can be taken up by adjusting the position of the hydraulic motors. To tighten the chain, loosen the bolts on the motor mounting plate, slide the mounting plate down until the chain is tight, and re-tighten the bolts.

Both chains should be lubricated periodically. Use a spray-type grease (such as that used on motorcycle chains) whenever the chain appears dry.

## **SEATS**

Before operation, make sure all footbottoms are in the open position and locked.

There must be hitch pins locking both seat hangers on each seat onto the seat pins. Be sure that the bail is snapped over the end of each hitch pin to lock it in place.

Clean the seats when needed using a mild soap and water.

## **SEAT PINS**

The seat pins should be greased daily so the seats will turn freely. The nut on every seat pin should be checked daily for tightness.

## LUBRICATION INSTRUCTIONS FOR THE LITTLE ELI WHEEL BALL BEARING MOTOR

**LUBRICATION:** The **Little Eli Wheel's** 5-horsepower electric motor requires periodic lubrication. No lubrication needs to be added before the initial start-up. The bearings have been lubricated at the factory.

**LUBRICATION INTERVALS:** The following intervals are suggested by the bearing manufacturer as a guide:

HOURS OF SERVICE PER YEAR	SUGGESTED INTERVAL
Infrequent Operation or Light Duty in Clean Atmosphere	Once Every Three to Five Years
8-16 Hours a Day in Clean, Relatively Dry Atmosphere	Once Every Two to Four Years
12-24 Hours a Day Heavy Duty, or if Moisture is Present	Once Every One to Two Years
Heavy Duty in Dirty or Dusty Locations Moisture-Laden Atmosphere; Vibrations	Once Every Four Months

**LUBRICATION:** Use a high quality, medium polyurea ball bearing grease (such as **Shell Dolium R**) for lubricating.

**PROCEDURE:** Clean the tip of the grease fitting and apply the grease gun. Use one full stroke.

**CAUTION:** Keep the grease clean. Lubricate while the motor is at a standstill. Do not mix petroleum grease and silicone grease in motor bearings.



There are many *Big Eli*<sup>®</sup> Wheels that have been in service for over 60 years. This exceptionally long service for a piece of mechanical equipment has been possible only through careful erection, proper operation, and proper maintenance of the equipment. From the beginning, *Big Eli*<sup>®</sup> Wheels have been designed and built for easy operation, maintenance, and replacement of parts as needed. Eli Bridge Company has always been ready to help with any problems that occur.

This troubleshooting section has been prepared to try to cover those questions most frequently asked. Keep this manual handy, for it should help you solve many of the problems that may arise. If you have a problem that is not covered, do not hesitate to contact the factory.

Some of the material included in this section has been covered in earlier parts of this manual, but they are repeated here to assist you as much as possible.

**ALCOHOL OR DRUGS:** See **OPERATION**

**AXLE CRACKS:** See **MAIN AXLE**

**AXLE INSPECTION:** See **MAIN AXLE**

**AXLE, MAIN:** See **MAIN AXLE**

**BALANCING THE WHEEL:** See **OPERATION**

**BEARING, TOP TOWER:** See **TOP TOWER BEARINGS**

**BEARINGS:** See **LUBRICATION**

**BENELEX BLOCKS:** See **TOP TOWER BEARINGS**

**BRUSHES, ELECTRIC:** See **TOP TOWER BEARINGS**  
**SPRING START UP**  
**WIRING**

**BUCKETS:** See **SEATS**

**BULBS:** See **LIGHTING**

**COUPLINGS, FLEXIBLE:** See **ELECTRIC MOTOR**

**COVERS:** See **SEATS**

**CRACKS IN MAIN AXLE:** See **MAIN AXLE**  
**SPRING START UP**

**CUSHIONS:** See **SEATS**



**DECALS:** See **SEATS**  
**SPRING START UP**

**DECORATIONS:** See **SEATS**  
**SPRING START UP**

**DRUGS OR ALCOHOL:** See **OPERATION**

**ELECTRICAL WIRING:** See **WIRING**

**ELECTRIC BRUSHES:** See **SPRING START UP**  
**TOP TOWER BEARINGS**  
**WIRING**

**ELECTRIC MOTOR:**

The 5 Horsepower, 1750 RPM, 230/460 Volt, 60 HZ electric motor powers the main drive. It has two grease fittings and should be lubricated as specified in the Lubrication Instructions in the Maintenance Requirements section of this manual.

The motor drives a pump through a flexible coupling with a rubber insert. Each rubber insert, also called a spider, should be checked at least monthly for wear or breakage. If any part of this insert is obviously worn or broken, it should be replaced immediately. If it gets beaten out, then the two metal parts of the coupling will hit, and instead of just replacing an inexpensive rubber insert you will be faced with possibly replacing the entire coupling.

If you do anything to these couplings, it is very important that the two halves of the coupling be in line with each other as much as possible. If one is offset from the other, the rubber insert will be destroyed in a short time, but if properly lined up, it will give excellent service. A convenient way to check this is to lay a straight edge along the tops and along the sides of the coupling. Misalignment will usually be quite visible when you do this.

See also: **LUBRICATION**  
**WINTER STORAGE**

**ELECTRIC RINGS:** See **SPRING START UP**  
**TOP TOWER BEARINGS**  
**WIRING**

**FILTERS ON HYDRAULIC SYSTEM:** See **HYDRAULIC FILTERS**

**FITTINGS, HYDRAULIC:** See **HYDRAULIC FITTINGS**

**FIVE-WIRE GROUNDED ELECTRICAL WIRING:** See **WIRING**

**FLASHERS:** See **TURBOLITE™ LIGHT CHASERS**



**FLEXIBLE COUPLINGS:** See **ELECTRIC MOTORS**

**GREASE:** See **LUBRICATION**  
**WINTER STORAGE**

**GROUNDING WIRING:** See **WIRING**

**GUARD FOR HAIR:** See **SEATS**

**HAIR GUARDS:** See **OPERATION**  
**SEATS**

#### **HYDRAULIC FILTERS:**

The hydraulic system depends on clean fluids for its efficiency. Large dirt particles will be separated out by the intake strainer in the hydraulic tank, but the extremely fine particles that do the most damage must be taken out by the hydraulic filters. These particles are so small they cannot be seen, but when they get in the working parts of a hydraulic system, they act almost like grinding compound, and wear away the close clearances. On the main drive the hydrostatic transmission is particularly sensitive to this kind of damage.

Any filter over a period of time will clog, and prevent the proper flow from getting through. The filters on your hydraulic system should be replaced at least once a year. If you are operating in a dusty location, then more frequent replacement would be warranted. The filter used is described in the maintenance section of this manual.

#### **HYDRAULIC FITTINGS:**

On a new ride, tighten all hydraulic fittings every week or so until you are sure that all will remain securely tightened. Vibration tends to loosen them until they have had a chance to become more permanently seated.

#### **HYDRAULIC RESERVOIR:**

The fluid level in the reservoir should be checked every day. There are two sight glasses on the side of the tank. Hydraulic fluid should be put into the tank until it can be seen in the top sight glass. With the ride erected, the system should never be run if hydraulic fluid does not show in the bottom sight glass.

Mobil 423 hydraulic oil is used in this system and no other kind of hydraulic fluid should be used unless it is known to be completely compatible and interchangeable with Mobile 423.

There are two drain plugs on the bottom of the reservoir. The top plate containing the air breather/filler cap can be removed for access to the interior of the tank.

**JOURNAL BOLT:** See **SEAT PIN**

**LAMPS:** See **LIGHTING**

**LIGHT CHASER:** See **TURBOLITE™ LIGHT CHASER**

**LIGHTING:**

The lighting arrangement on the Little Eli Wheel is equipped with Turbolite™ incandescent lamps and chasers. The lights are wired in pairs so that if one bulb (lamp) burns out, two lights will not be operating. Remember this when changing burned out lamps. The lamps are 60V-4W. Replacement lamps are available from Eli Bridge Company.

**LOADING PLATFORM:**

The loading platform is a manually-operated unit. The loading platform must not be raised until the Wheel has been stopped and the brakes are set.

**LOADING PROCEDURE:** See **OPERATION**

**LOCKING PINS FOR SEATS:** See **SEAT LOCK PINS**

**LONG HAIR:** See **OPERATION  
SEATS**

**LUBRICATION:**

The top tower bearings are self-aligning roller bearing pillow blocks which will give long life with reasonable care. If the bearing is ever removed, the bearing bore should be well coated with grease before it is slid back on the axle. After the Wheel is erected, these bearings can be re-greased from time to time through the grease fitting on the top of each bearing. Use a good grade of clean cup grease, and pump grease in until it can be seen coming out around the seals.

Rub grease lightly on the bearing surfaces of all seat pins to keep down wear of the pins and wear of the "Y" castings on the seats.

The electric motor in the power unit should be lubricated several times during the season through the two grease fittings on the motor. Be very careful not to overdo it, because excessive grease can be as bad as too little. See Lubrication Chart in the Maintenance Section of this manual.

See Also: **TOP TOWER BEARINGS**

**MADE GROUNDS:** See **WIRING**



## MAIN AXLE:

It is very important that the axle be checked regularly for any cracks, and if any are found, the axle should be replaced. Eli Bridge Company recommends that every **Little Eli Wheel** be completely dismantled every 10 years so that all parts can be checked.

See Also: **SPRING START UP**  
**WINTER STORAGE**

## MODEL AND SERIAL NUMBER:

Replacement parts are readily available from the factory, but before contacting the factory be sure to say you have a Little Eli and what the serial number is. Otherwise it may be impossible for us to know what parts to send you or how to answer questions you may have.

Every *Big Eli*<sup>®</sup> Wheel has the factory serial number on it. An aluminum name plate is fastened to the tower and it carries the serial number of the Wheel.

On each serial number, the first numbers are the actual serial number and the last two show the year when it was delivered. If the Wheel has been brought back to the factory for major repairs or modifications, the original serial number will be followed by an "R" and the year in which the repairs or modifications were done.

Pass this serial number on to the factory and our records department will verify your findings with the year model and the record of ownership of that Wheel. By having this information on file at the factory, you will be assured of prompt and efficient service any time you need repair parts or have questions to ask about your Wheel.

**MOTOR, ELECTRIC:** See **LUBRICATION**  
**WINTER STORAGE**

## OPERATION:

Many millions of people have ridden *Big Eli*<sup>®</sup> Wheels with pleasure and in safety. However, the operator has the responsibility for insuring a safe ride for all passengers. He must watch the ride at all times, and must refuse rides for any person or persons that, in his opinion, might be a danger to himself or to others.

### Some personal rules for Wheel operators:

1. Completely inspect and test-run the Wheel before each operating period.
2. If an unusual noise or condition develops while the Wheel is in operation, stop it and get to the source of the trouble before you begin operating again.



3. Do not try to grease, oil, or wipe the operating parts of your Wheel with the ride running. Some very serious accidents have been caused by operators trying to do this.
4. Do not use alcohol or drugs. You are responsible for the care, upkeep, and proper operation of a public amusement riding device. Unless you are in good mental and physical condition you will not be able to carry out your responsibilities properly.
5. You are very close to the Wheel while it is running. Be very careful that you do not get into the path of the Wheel until after it has stopped.
6. This is not a safety rule, but it is still good advice for every operator to keep himself neat and clean.

Some safety rules for Wheel Operators in handling passengers:

1. Assist passengers on and off the Wheel when necessary.
2. All Little Eli seats are equipped with hair guards which are permanently mounted. Without these hair guards, under certain conditions, very long hair can blow out around the seat pin, and then as the Wheel continues to turn the hair will "cinch" on itself. This can entangle hair very badly and can result in serious scalp injuries. Do not let this happen. Eli Bridge Company regards the hair guards as mandatory pieces of equipment that must always be used.
3. Lap bars are also considered by Eli Bridge Company as mandatory equipment that should be installed on all *Big Eli*<sup>®</sup> Wheel seats. The Little Eli seats come equipped with lap bars. Make certain they are used properly.
4. If the Wheel is being abused in any way by the passengers, shut down the ride until the condition is corrected. Do not allow the seats to be rocked.
5. Persons under the influence of alcohol or drugs must not be allowed on the Wheel.
6. Be cautious and ready for the unexpected where children are involved. It is recommended that a child should be no more than 48" tall before being allowed to ride.
7. Passengers waiting for the next ride should be kept away from any of the moving parts of the Wheel.
8. Be alert when the Wheel is operating and be prepared for an emergency stop.
9. Never, under any circumstances, walk away from the Wheel while it is operating and carrying passengers.
10. Take pride in operating safely; a safe Wheel is a profitable one.

11. While the Little Eli Wheel will operate with significant out-of-balance loading, for smoothest operation and longest service life it is always advisable to keep your Wheel as balanced as possible. If you load passengers in seat No. 1, then turn the Wheel half way around and load seat No. 4 next. Then load seat No. 5, then No. 2, and so on until all seats are loaded.

**PADDING:** See **SEATS**

**PAINTING:** See **SEATS**  
**WINTER STORAGE**

**PINS:** See **SPRING START UP**

**PINS, SEAT LOCK:** See **SEAT LOCK PINS**

**PLATFORM, LOADING:** See **LOADING PLATFORM**

**PROCEDURE FOR LOADING SEATS:** See **OPERATION**

**RESERVOIR, HYDRAULIC:** See **HYDRAULIC RESERVOIR**

**RINGS, ELECTRIC:** See **SPRING START UP**  
**WIRING**

**RUBBER INSERT FOR FLEXIBLE COUPLING:** See **ELECTRIC MOTORS**

**RULES FOR SAFETY:** See **OPERATION**

**RUST:** See **WINTER STORAGE**

**SAFETY RULES:** See **OPERATION**

**SEAT COVERS:** See **SEATS**

**SEAT LOADING:** See **OPERATION**

**SEAT LOCK PINS:**

Underneath each seat pin there is a seat lock hitch pin which goes clear through the "Y" seat hanger on each end of the seat. The seat lock hitch pin holds the seat securely to the seat pin so that it cannot come off regardless of how the seat may swing.

**SEAT PINS:** See **LUBRICATION**  
**SEAT LOCK PINS**  
**SPRING START UP**  
**WINTER STORAGE**



## SEAT REMOVAL: See WINTER STORAGE

### SEATS:

Years of satisfactory service have shown the *Big Ell*<sup>®</sup> seats to be very reliable pieces of equipment. Originally, the seats were mostly constructed of wood. About 1947 they were changed to steel. The standard design now is all aluminum. It is light in weight, extremely weather resistant, while remaining colorful, functional, and easy to handle.

The floors of the footbottoms are covered with Safety Walk, which is a slip-resistant, adhesive-backed material to provide secure footing for passengers entering and leaving the seats. Decorative and durable vinyl decals are used on the backs and sides of the seats, as well as on the footbottoms.

The seats must be kept clean and in good condition for the *Big Ell*<sup>®</sup> Wheel to present an attractive appearance. If the structure is well painted but the seats are in poor condition, then the entire ride will be very unattractive. As the public looks at your Wheel, they will first look at the overall appearance, but as they get closer, they will concentrate on the seats. It is because of this that so much care has gone into the manufacturing of a strong, durable, functional, and attractive seat. Any fine product deserves good care by the owner and good care for your seats will extend their life for many years.

Clean out the seats daily. Wipe off any dirt and fingerprints with a damp cloth. Use a mild soap with water if necessary. Fold up the footbottoms and cover the seats every night.

Check all the fittings on the seats for wear, cracks, breakage, or malfunction. The seat hanger on each end of the seat should be checked to make certain all bolts are tight and that the surface where the seat pins rest is not worn excessively. A little grease here will greatly extend the life of the seat hangers.

Every seat hanger should be equipped with a hitch pin. The handlebar hinge should be lubricated and be free to turn without binding or excessive wear. The bolts holding all the parts of the hinge should be securely tightened. Be certain the handlebar lock drops freely into the socket and that the plunger engages the lock easily and firmly. The plunger should extend into the socket a minimum of 1/4". Be sure the spring that forces the plunger into the lock is not broken. A broken spring could allow the passengers to open the handlebar while the Wheel is turning and this could be very hazardous. Be sure that the footbottom is securely locked and the hinges are in good condition.

Do not carry passengers in a seat that is not in good condition.

If proper care is exercised in the handling of your *Big Ell*<sup>®</sup> seats, painted seats should not need re-painting for a number of years. Touch up work may have to be done once a year. Refinishing may need to be done after several seasons. In time, polished aluminum seats may become scuffed to the point where it would be advisable to paint them. Before attempting to do any refinishing, remove all upholstery. Remove all old decals using paint remover. Check over the entire seat for

weathering or roughness, and smooth where needed. Use spray painting equipment if at all possible. We recommend the use of PPG Deltron acrylic urethane for high quality finishing.

To remove old decals from painted seats, you will have to sand them off and repaint the surface. Allow the paint to dry completely before starting the procedure to add new decals.

The decals prepared for use on *Big Eli*® seats add a great deal of attractiveness to the ride if they are properly applied and maintained. All decals are made of pressure-sensitive die-cut vinyl. A new set of decals can be ordered through our Parts Department. Application instructions:

1. Clean off the surface where the decal is to be applied, using Tide detergent and water. Rinse with clear water.
2. Add a handful of Tide to a five-gallon bucket of water. This is to be used for conditioning the decal so it can be properly positioned. For the best results, use regular Tide and not the Tide with Bleach or Ultra-Tide varieties.
3. Carefully strip off the backing from the decal. Take care that you do not stretch or tear the decal. After the backing has been removed, do not let the sticky surface fold over onto itself or it will stick so tightly that the decal will be destroyed in trying to separate it.
4. Place the decal, sticky side up, on a flat surface and sponge the sticky surface thoroughly with the Tide detergent and water solution prepared in step 2. The Tide solution provides lubrication so you can shift a decal a little on the seat as you position it in place. Without the Tide solution, the decal will stick to whatever it touches and it cannot be moved.
5. Carefully place the thoroughly-wetted decal on the seat. When it is properly positioned, squeegee the decal, beginning at the center and working all air bubbles and water toward the edges. A squeegee is supplied when you order decals from the factory.
6. The decals which go on the ends of the seat are die-cut to fit over the rivet heads, so they must be very carefully located.

Use the seat covers to protect the seats at all times when the Wheel is not in operation. These covers are a worthwhile investment as a protection for the seats from the rays of the sun and the extremes of weather. Hair guards and lap bars are standard with all Wheels sold by Eli Bridge Company.

**SERIAL NUMBER:** See **MODEL AND SERIAL NUMBER**

#### **SPRING START UP:**

If your Wheel has been shut down during the winter, you should check over everything before starting up again.

Examine the entire structure to see if any parts are damaged. If possible, straighten any kinks or dents that might be found. Repair any cracks located.



There has never been a report of a *Big Eli*<sup>®</sup> seat pin being broken while in service, provided it has not been altered from the original design. Nevertheless, the safety of your passengers depends upon the strength of each seat pin. Take the time to inspect each pin carefully before you start carrying passengers. Replace any seat pin showing bends, cracks, or evidence of severe mistreatment.

Examine the electric rings and carbon brushes at the hubs. Check all wiring, receptacles, and lamps throughout the Wheel.

Check the oil level in the reservoir. The oil should show in the top sight glass. Do not operate the Wheel if the oil does not show in the bottom sight glass.

Along with the mechanical condition of the ride, give consideration to the appearance of your *Big Eli*<sup>®</sup> Wheel. Your customers will judge your equipment by its appearance. An attractive, well-painted riding device is bound to attract attention and get the business. If needed, re-paint the structure. There is much more to painting than just applying the paint. The beauty and durability of a paint job depends primarily on the condition of the surface to which the paint is applied. No paint will give service if applied to a greasy or dirty surface. Clean all of the steel with a low-flammability solvent before painting. If the paint is flaking or blistering in any location, scrape these spots down, sand them, and then apply the recommended steel primer before putting on the finished coat.

If the proper care is exercised in the handling of your *Big Eli*<sup>®</sup> seats, very little should need to be done to them other than thorough cleaning. Painted seats might need to be touched up once a year, but you should be able to go through several seasons before refinishing will be necessary.

For decorations on the seats, use the decals available from Eli Bridge Company.

**SWITCH BOX:** See **WIRING**

**TANK, HYDRAULIC:** See **HYDRAULIC RESERVOIRS**

**TOP TOWER BEARING INSIDE DIAMETER:** See **SPRING START-UP**  
**TOP TOWER BEARINGS**

**TOP TOWER BEARINGS:**

If the top tower bearings are ever removed from the axle, before re-assembling, cleaning the bearing and the axle, and coating both with grease before they are assembled together, will substantially reduce any wear that might take place. Each bearing should be lubricated two or three times a year, and grease should be pumped in until it comes out around the seals.

The carbon brushes should be inspected to be certain the brushes are lined up with the rings, that each brush is making good contact with the ring, and the electrical connections are securely fastened. Never touch the electric brushes or rings unless the power has been cut off.

Benelex blocks go under the top tower bearings. Normally, these blocks do not require any maintenance.

See also: **SPRING START UP  
WINTER STORAGE**

**TUBS:** See **SEATS**

**TURBOLITE™ LIGHT CHASER:**

The lighting package includes the use of Turbolite™ and Rocox light chasers, which flash the incandescent lamps in a moving display. Chasers for the star lights are mounted in a box on the axle.

In the box containing the chaser you will see a white knob with a slotted top for adjusting it with a screwdriver. Written on a panel below it are instructions for turning the knob to make the flashing go faster or slower. If the flasher is going too fast, then it will almost be like having the lights on all the time. If the lights move too slowly, the moving pattern will not be very effective.

There is a problem with running the chaser too fast. The chaser module is set at its slowest speed at the factory. Running the chaser faster increases the amount of electrical current being used. This increases the possibility of blowing a fuse. You will know there is a problem if you see the lights stop flashing. If this should happen, shut off that circuit immediately. Continuing to run that light circuit may do additional damage, causing a burnout of the timing relays. The equipment is fused, but there have been times when the fuses have not cut off the circuit. You will need to watch for this type of problem.

**UPHOLSTERY:** See **SEATS**

**WHEEL BALANCE:** See **OPERATION**

**WINTER STORAGE:**

Pump grease into the top tower bearings until it comes out around the seals.

Before putting the **Little Eli Wheel** in storage, clean the seats thoroughly. It is much easier to remove fingerprints and dirty smudges at this time rather than in the spring when you set up the Wheel again.

Find a place which is dry. Do not leave the idle ride out all winter if it can be avoided. If no building is available and you are forced to leave the ride outside, be sure it is covered and protected as much as possible from the weather.

One of the biggest problems is always rust and the easiest way to stop rust is to prevent it from getting started. Rub down all places where the paint is beginning to flake and touch them up with a good grade of primer to stop and prevent rust. There are many parts which cannot be painted, such as pins and the bearing surfaces of the main axle. These should all be coated with grease where possible. Brush oil over the small pins and leave them covered for the winter.

All of these suggestions are made for the proper care of your *Big El*® Wheel. Ride equipment is valuable and should be given proper care during the storage period as well as during the operating portion of the year.

#### **WIRING:**

The power input cable has five #8 wires: black, white, red, orange, and green. The green wire is the ground wire. The white wire is neutral, and the black, red and orange wires are the three phases. Be sure to check the color coding of the wire so you will not contact a hot wire to ground accidentally. The electric rings rotate with the axle and current passes to them through carbon brushes.

The minimum electrical service requirements are: 208VAC, 3 phase, 5 wire (phase A, phase B, phase C, neutral, ground), 60HZ, 35A (dedicated breaker).

The input power is split to two disconnect boxes, one for the motor and one for the lights.

The lighting disconnect hookup has three connections. The electrical cable has 3 wires: black, white and green. The green wire is the ground wire. Be sure to check the color coding of the wire so you will not contact a hot wire to ground accidentally.

If the electrical system does not include an electrical ground, the ground wire should be connected to a made ground as described in the National Electrical Code as follows:

**250-81 WATER PIPE:** A metallic, underground water piping system, either local or supplying a community, shall always be used as the grounding electrode where such a piping system is available. Where the buried portion of the piping system is less than 10 feet (including well casings bonded to the piping system) or there is some likelihood of the piping system being disconnected, it shall be supplemented by one or more of the grounding electrodes recognized in sections 250-82 and 250-83.

**250-82 OTHER AVAILABLE ELECTRODES:** Where a water system as described in Section 250-81 is not available, the grounding connection can be made to any of the following:

- A. The metal frame of a building, where effectively grounded.
- B. A continuous metallic underground gas piping system.
- C. Other local metallic underground systems (piping, tanks, etc.)

**250-83 MADE ELECTRODES:** Where electrodes described in Sections 250-81 and 250-82 are not available, the grounding electrodes can consist of a driven pipe, driven rod, buried plate, or other device provided for the purpose of conforming to the following requirements:

- A. **PLATE ELECTRODES:** Each plate electrode shall present not less than two square feet of surface to exterior soil. Electrodes of iron or steel shall be at least 1/4" in thickness. Electrodes of non-ferrous metal shall be at least 0.06" in thickness.
- B. **PIPE ELECTRODES:** Electrodes of pipe conduit shall not be smaller than 3/4" pipe size and where of iron or steel shall have the outer surface galvanized or otherwise metal coated for corrosion protection.
- C. **ROD ELECTRODES:** Rods of steel or iron must be at least 5/8" in diameter. Approved rods of non-ferrous materials, or their approved equivalent, used for electrodes shall be no less than 1/2" in diameter.
- D. **INSTALLATION:** Electrodes should, as far as practicable, be embedded below the permanent moisture level. Except where rock bottom is encountered, pipes or rods shall be driven to a depth of at least 8 feet regardless of size or number of electrodes used. Pipes or rods, when less than standard commercial length, shall preferably be of one piece. Such pipes or rods shall have clean metal surfaces and shall not be covered with paint, enamel, or other poorly-conducting materials. Where rock bottom is encountered at a depth of less than 4 feet, electrodes shall be buried in a horizontal trench, and where pipes or rods are used as the electrodes, they shall comply with Section 250-83 (paragraphs b and c) and shall be not less than 8 feet in length. Each electrode shall be separated at least 6 feet from any other electrode, including those used for signal circuits, radio, lightning rods, or any other purpose.

**250-84 RESISTANCE:** Made electrodes shall, where practicable, have a resistance to ground not to exceed 25 ohms. Where the resistance is not at low as 25 ohms, two or more electrodes shall be connected in parallel. Continuous underground metal water or gas piping systems in general have a resistance to ground of less than 3 ohms. Metal frames of buildings and local metallic underground piping systems, metal wall casings, and the like, have, in general, a resistance substantially below 25 ohms. It is recommended in locations where it is necessary to use made electrodes for grounding interior wiring systems, additional grounds, such as connections to a system ground conductor, be placed on the distribution circuit. It is also recommended that a single electrode ground, when installed, and periodically afterwards, be tested for resistance.

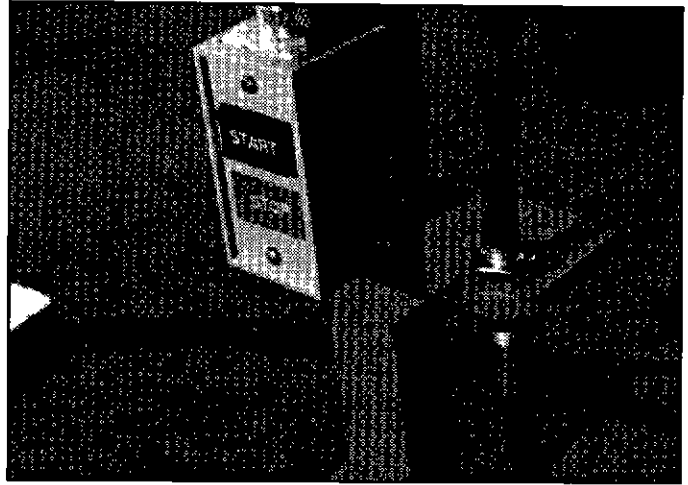


If problems occur while your Little Eli Wheel is in operation, there is often a quick cure for the situation. The following list of diagnostics provides answers to the most frequently-asked questions regarding operation of the Little Eli.

Additional information and instructions can be found in the Troubleshooting section of this manual.



No. 6-1



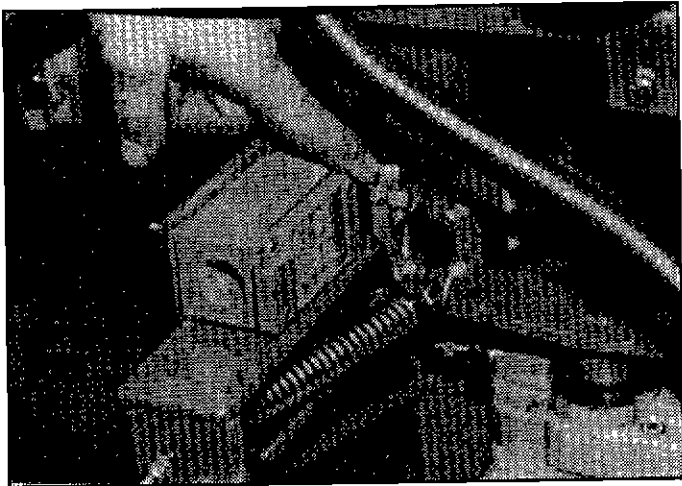
No. 6-2

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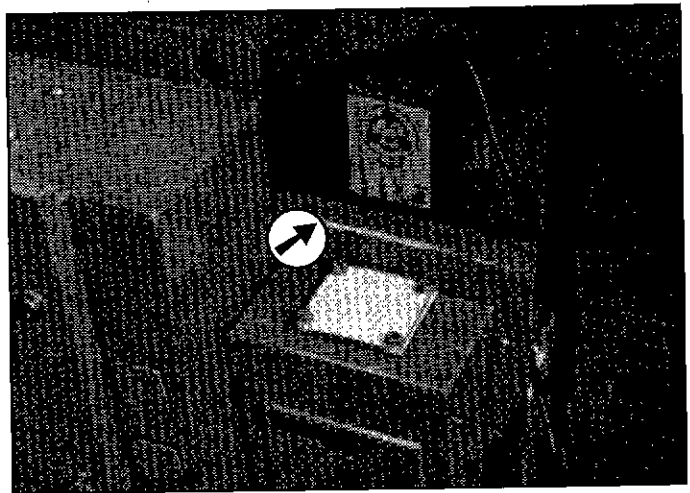
## WHAT TO DO WHEN THE FOLLOWING SYMPTOMS OCCUR:

### ELECTRIC MOTOR:

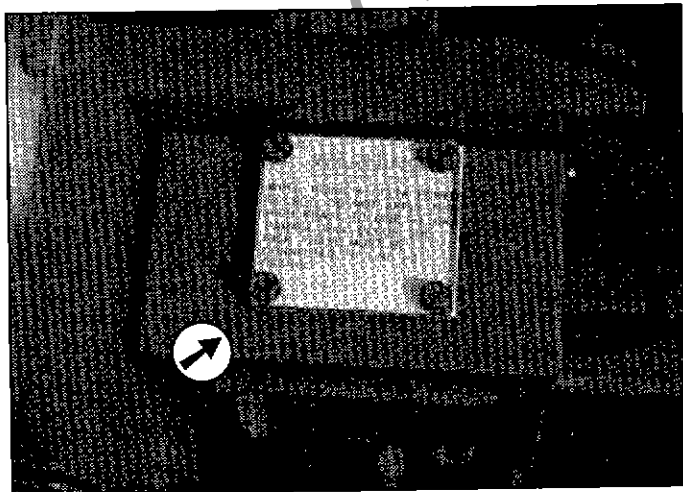
1. If the motor won't start when you push the START button:
  - A. Check to make sure the control lever on the control stand is all the way back in the neutral position.
  - B. Check to make sure that both halves of the Amphenol plug, which can be found under the front floor, are firmly attached to each other (Picture No. 6-1).
  - C. Check to see that the handle on the fused disconnect switch on the right side of the power unit is in the raised position.
  - D. With the power off, check the power coming from the source to be sure you are properly connected to the fused disconnect switch. Note the warning shown in Picture No.6-5).
  - E. Check the 30A fuses in the fused disconnect switch to be sure all are in good condition.
  - F. With the power off, check the wire connections between the fused disconnect switch and the motor magnetic starter.
  - G. With the power off, check the wire connections between the motor magnetic starter and the electric motor.
  - H. With the power off, check the wire connections from the motor magnetic starter to the Amphenol plug at the operator's control station.
  - I. Check the 5A fuse located in the motor magnetic starter box in the line connecting the operator's control stand to the power unit. Replace it if it is burned out.
  - J. With the power off, check the wire connections from the Amphenol plug to the START/STOP station on the operator's control stand (Picture No.6-2).



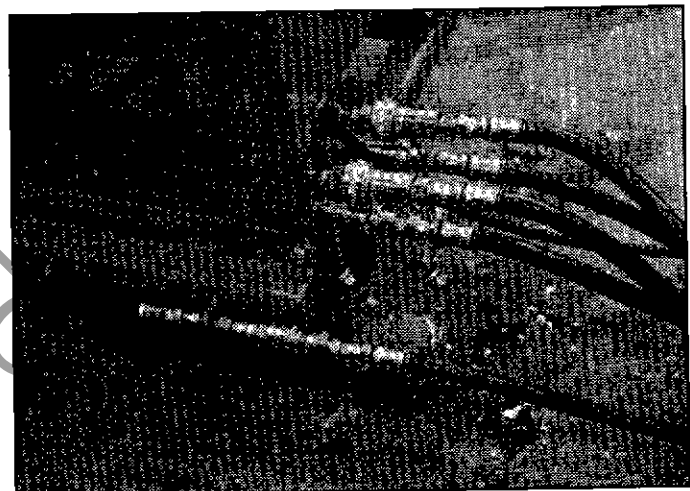
No. 6-3



No. 6-4



No. 6-5



No. 6-6

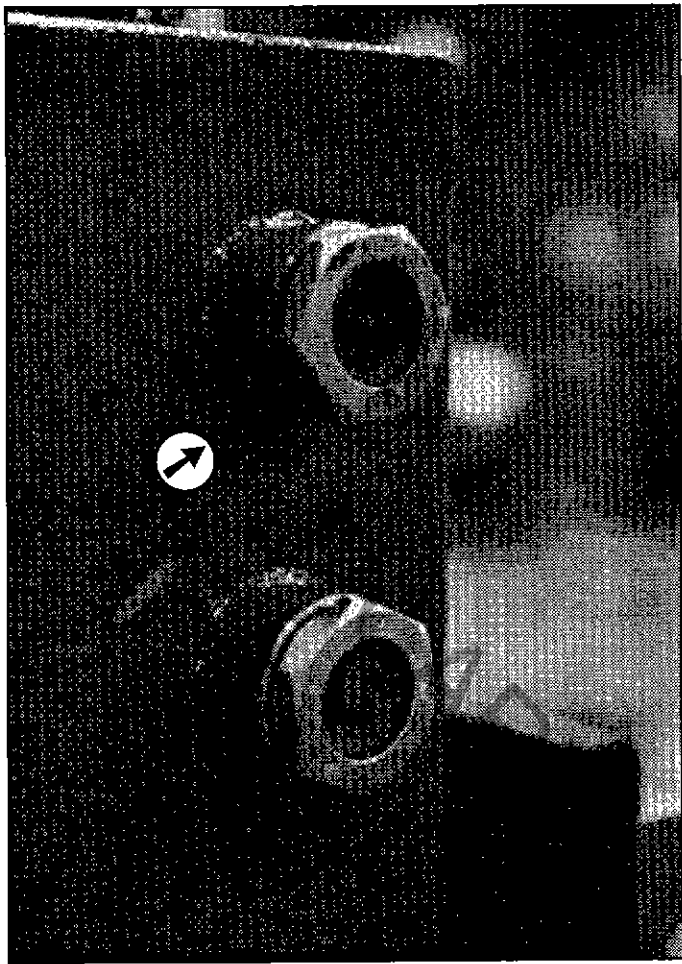
- K. The microswitch (Picture No. 6-3) actuates the solenoid next to the needle valve (Picture No. 6-3) and it in turn operates the brake. If this microswitch is not engaged, the electric motor will not start, and the brake will not be on.
2. If the electric motor turns in the wrong direction:
- A. Check the phase rotation indicator mounted above the fused disconnect switch to make sure the power leads are connected properly with three-phase power (Picture No. 6-4).
- B. To reverse the direction of a three-phase electric motor, interchange only the red and black power lines. Refer to the delta power source warning on top of the fused disconnect switch (Picture No. 6-5). Since this will involve the incoming power, the resident electrician should make the change.

#### HYDRAULIC SYSTEM:

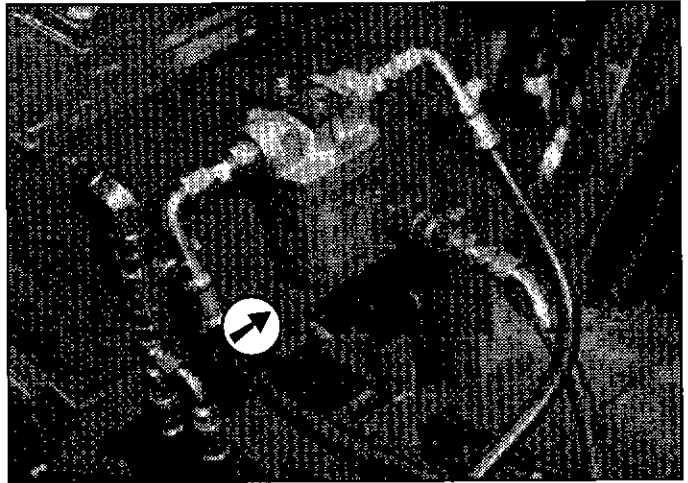
1. If the Wheel will not turn when the motor is turning in the right direction and the control handle is all the way forward:
- A. Check to see if all of the quick-disconnects on the hydraulic lines are engaged. These would include all of the hydraulic lines coming out of the power unit (Picture No. 6-6), as well as those under the base covers, and at the hydraulic motors near the tops of the towers.
- B. If someone has altered the connections on the hydraulic lines so that they are not the same as originally installed, it is possible that the hydraulic lines going to the hydraulic motors may have become crossed so that one is trying to turn in one direction, and the other is trying to go the other way. With them working against each other, the Wheel cannot turn. If this happens, the lines to one of the hydraulic motors will need to be reversed. When they are reversed, be sure that the Wheel is turning in the proper direction, which from the operator's side of the Wheel is counter-clockwise.

As installed at the factory, the quick-disconnect couplings are located by size and position so that they cannot be connected incorrectly.

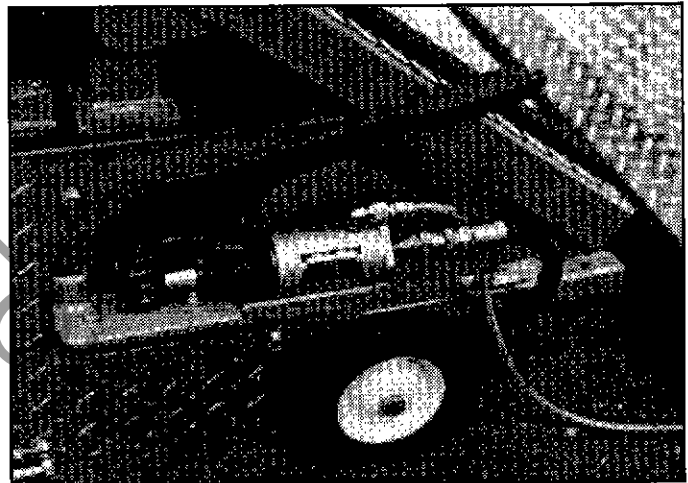




No. 6-7



No. 6-8



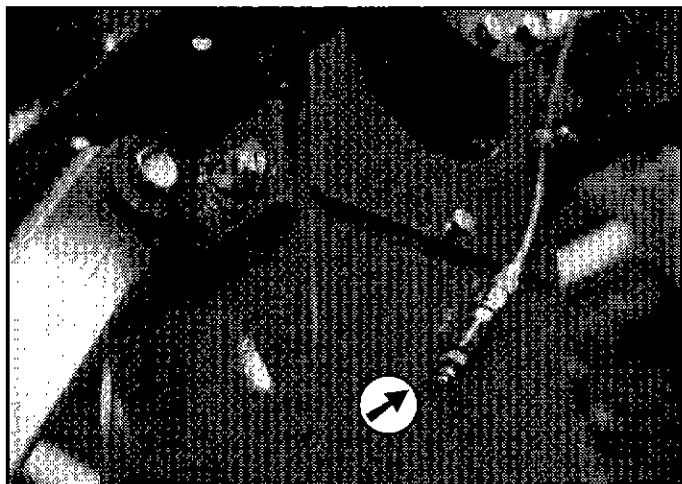
No. 6-9

2. If the quick-disconnect couplings leak:
  - A. Tighten the quick-disconnect couplings.
  - B. If an attempt to operate the Wheel has been made, and one of the quick-disconnect couplings was not properly connected, the line pressure might have blown out a seal in the quick-disconnect. If tightening the quick-disconnect couplings does not stop the leakage, contact the factory for further instructions.
3. If the hydraulic reservoir becomes too hot to hold your hand on it:
  - A. Check the oil level in the reservoir. The oil level should always show in the bottom sight glass, and when filling the reservoir oil should be added until it shows in the top sight glass (Picture No. 6-7). Use Mobil 424 hydraulic fluid, or equivalent.
  - B. Change the filter element (Picture No. 6-8). A dirty filter can slow down, or even stop, the flow of oil.
  - C. Make sure there is no cover over the power unit. There must be free flow of air around the power unit in order to allow proper cooling. An enclosure must NEVER be placed around the power unit without first checking with the factory.
4. If oil does not show in the sight glass on the hydraulic reservoir:
  - A. Add oil until it shows in the top sight glass (Picture No. 6-7). Use Mobil 424 hydraulic fluid, or equivalent.

#### BRAKE:

1. If the Wheel creeps around when the brake light is on:
  - A. Use the emergency brake (Picture No. 6-9).
  - B. Check to see that the operator's control handle is all the way back in the neutral position.





No. 6-10



No.6-11

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C. Make sure that the quick-disconnect coupling at the base of the left tower is firmly connected.

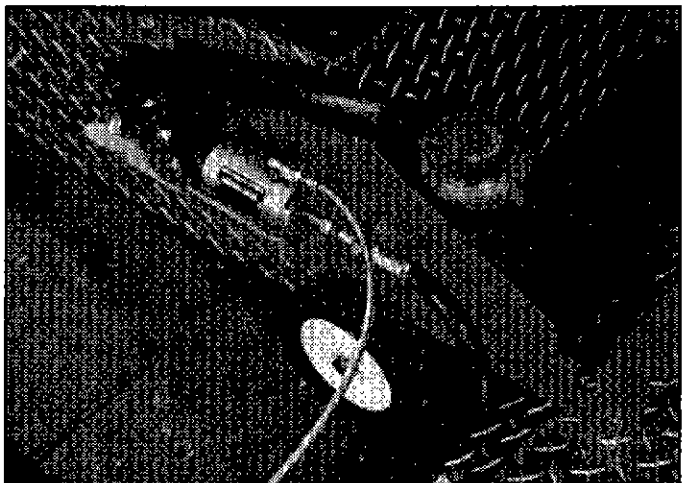
D. If you have a heavily out-of-balance load:

1. The load may be too out-of-balance for the brake to hold. If so, allow the most heavily loaded seat to come to the loading platform, set the emergency brake, and re-load the Wheel with a more balanced load.
2. The brake lines may not have been bled, and there could be air in the main brake line or the line to the emergency brake (Picture No. 6-10).

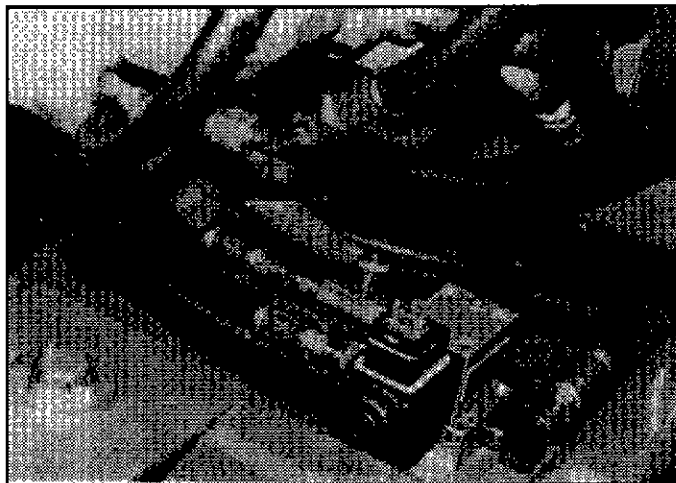
The main brake line, powered by the electric motor, is bled at the time it is installed and usually requires no additional bleeding of air from that line. Starting and stopping the Wheel several times will usually clear out any air in the line, but if you find it necessary to bleed this line, remove the tower light on the left side, and you will find bleed ports on the brake caliper. Open the bleed ports and apply the brake. If there is air in the line, it will spew out, often with air bubbles. When oil squirts out be prepared to catch any oil that may come out. Close the bleed ports after you have let out all of the air.

The hydraulic line to the emergency brake is more likely to get air in the line. It is accessible without having to remove anything. Just open the bleed port, and pump on the emergency brake handle until all air is driven out and oil begins to emerge. Then tighten the bleed port. Be prepared to catch any oil that may squirt out. It is important that you check out the emergency brake each time you start to run the Wheel. It will be used very seldom, but when you may need it it is essential that all air be out of the line. Checking this hydraulic line will take just a few seconds, so be sure that you do this every time you start to use the Wheel.

3. The brake pressure may not be high enough. Use care when increasing the pressure because too much pressure may cause the brake to drag when you are turning the Wheel. Pressure may not be high enough to hold the load. The sequence valve (Picture No.6-11) is used to adjust the brake pressure, which is set at the factory to hold an out-of-balance load of 150 pounds. To check this out, turn the Wheel until the one seat loaded with 150 pounds is straight out horizontally from the main axle, and move the



**No. 6-12**



**No. 6-13**

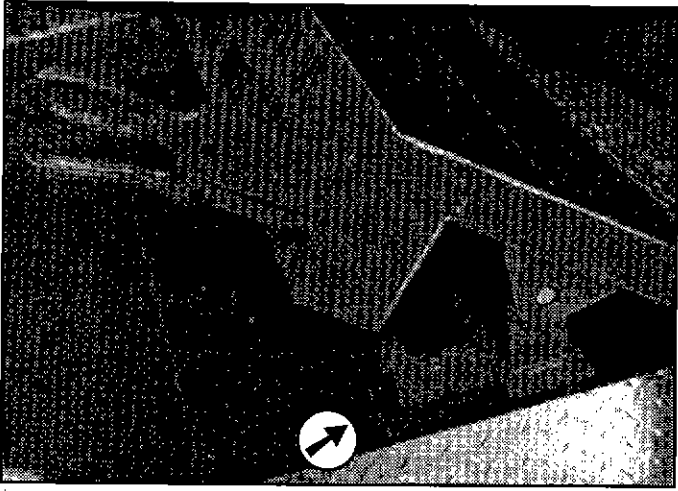
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control handle all the way to the rear, stopping the Wheel and setting the brake. There should be enough pressure to hold the seat in that position. If it wants to drift downward, increase the pressure slowly with the sequence valve until the seat stops moving.

4. Be sure there is oil in the emergency brake reservoir located underneath the loading platform (Picture No. 6-12).

To add oil, unscrew the top of the reservoir. Add Mobil 423 hydraulic fluid or equivalent. When replacing the cap, be sure that the bellows inside the cap is fully retracted inside the cap. Without this bellows, flow of oil from the reservoir could be stopped because of inability to adjust air pressure between the cap and the top of the oil.

- E. Check the control cable to make sure it is properly adjusted. The pintle on the hydrostatic transmission must be in the neutral position. If it is not all the way back to the neutral position, the adjustment of the control cable may have to be changed so the pintle can be moved back all the way.
  - F. Make sure that the needle valve is open all the way on the solenoid (Picture No. 6-13).
  - G. Check the coil on the brake solenoid. It is shown in Picture No. 6-13 to the right of the needle valve. The coil may be burned out. If the small light on the brake solenoid coil is on when the control handle is all the back in the neutral position, then the coil should be working properly.
2. If the brake is applied too slowly:
    - A. Check the needle valve (Picture No. 6-13). It should be kept fully opened. If it is partially closed it will slow the rate of brake application. If it is closed all the way the brake will not operate.
  3. If the brake light does not come on:
    - A. Check to be sure that the Amphenol plug, located under the front floor, is fully tightened (Picture No. 6-13).
    - B. Check the 2A fuse located in the motor magnetic starter box. If it is blown, replace it.



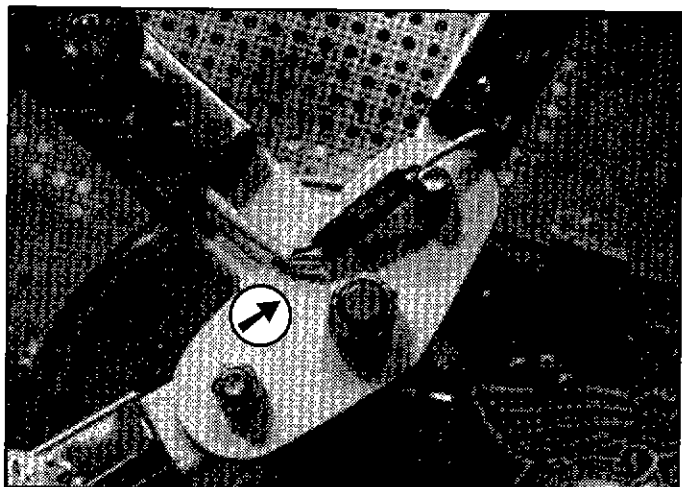
No. 6-14

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- C. The microswitch which is contacted when the pintle on the hydrostatic transmission is turned to the neutral position may have gotten out of adjustment so that it is not making contact. With the control handle all the way back to the neutral position, see if you can manually operate the microswitch to get the brake light to come on.
- D. Check the brake solenoid to see if the small light on the coil is on. If it is not, then:
1. Check the 2A fuse, located in the motor magnetic starter box. If blown, replace it.
  2. One or more of the electrical connections to the brake solenoid may be open.
  3. The coil of the brake solenoid may be burned out.

LOADING PLATFORM:

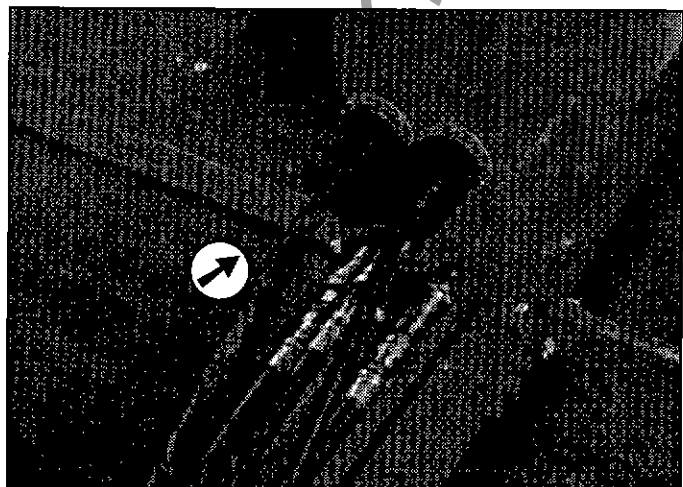
1. If the loading platform does not latch securely:
  - A. Do not carry passengers until it is fixed.
  - B. The latch block bolted to the base of the loading platform may need to be shimmed either higher or lower.
  - C. The spring in the operating handle may be broken, missing, or deformed so that it does not move the pawl into full engagement with the latch block. Replace the spring.
  - D. The parts that latch together may have gotten out of alignment, which may require loosening the bolts on the latch blocks so they can be re-aligned. Be sure the bolts are securely tightened when you are through.
  - E. The engaging edges may be worn so badly that they do not lock into each other securely. This is not likely to happen for many years, but if it does, the engaging parts will need to be replaced (Picture No. 6-14).



**No. 6-15**



**No. 6-16**



**No. 6-17**

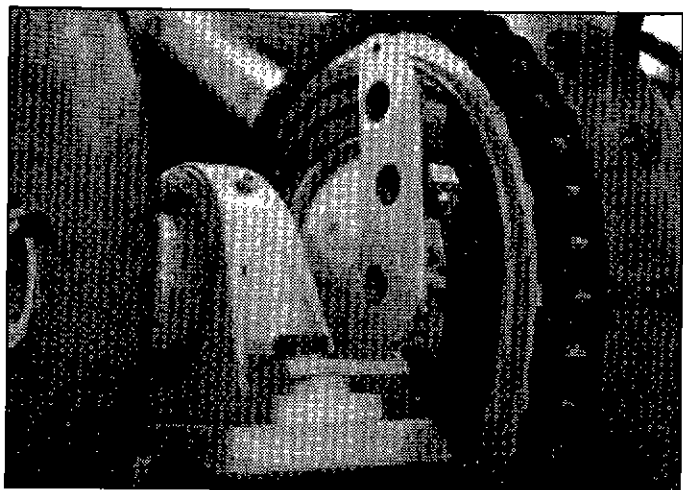
## LIGHTING:

### 1. If none of the lights on the Little Eli come on:

- A. Check to see that the fused disconnect switch on the left side of the power unit is turned on, with the switch handle in the raised position.
- B. Switch off the fused disconnect switch for the lighting (on the left side of the power unit) and check the 20A fuses inside the chaser box mounted on the main axle. If any are blown, replace them.
- C. If the problem still exists, call the factory.

### 2. If some of the lights do not come on:

- A. If the lights on one spoke and the rim lights connected to it do not come on, then with the power off check the electrical connection to the axle-mounted chaser box.
- B. If the only line of lights which is out is a rim section, then with the power off check the electrical connection between the spoke and the rim (Picture No. 6-15).
- C. If one or more of the tower lights does not come on:
  - 1. Make sure the tower light is plugged in near the top of the tower (Picture No. 6-16).
  - 2. Switch off the fused disconnect switch for lighting (on the left side of the power unit) and check the fuse inside the box. If it is blown, replace it.
  - 3. Check the wire connections from the fused disconnect switch to the electrical plugs connected into the lower end of each tower.
  - 4. Check the wire connections between the electrical sockets at the bottom and near the top of each tower (Picture No. 6-17).
  - 5. Check the wire connections between the tower light and the electrical plug.

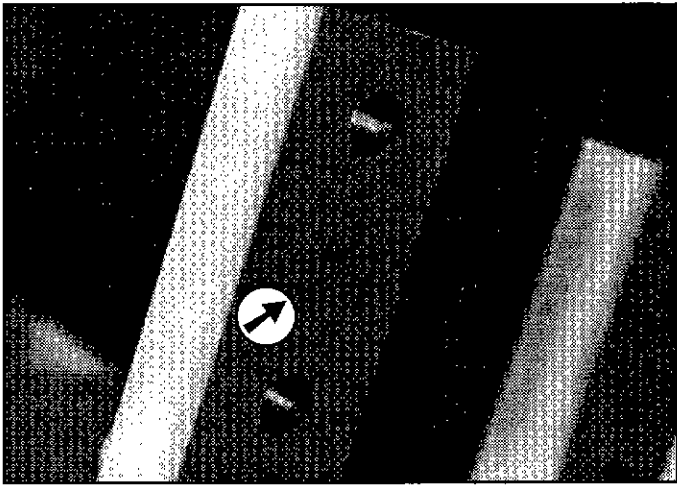


**No. 6-18**

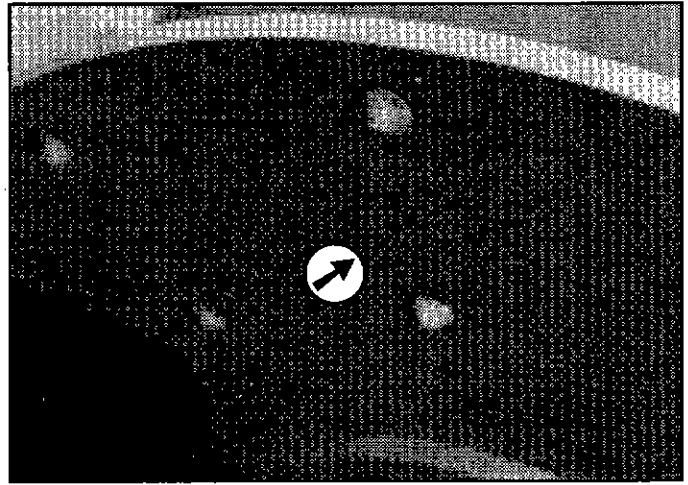
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E. If none of the Wheel lights comes on:

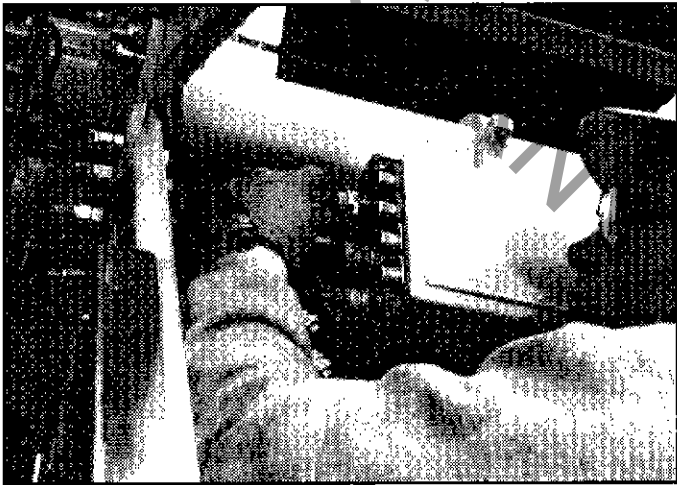
1. Switch off the fused disconnect switch for lighting (on the left side of the power unit) and check the fuse inside the box. If it is blown, replace it.
  2. Check the wire connections from the fused disconnect switch to the three-pronged electrical plug at the bottom of the left tower.
  3. Check the electrical connections between the socket at the bottom, and near the top, of the left tower.
  4. Check the wire connections between the three-pronged electrical plug and the carbon brush assembly.
  5. With power off, check that the carbon brushes are centered on the electric rings and are making proper contact. See that the brushes are free to move in and out inside the brush holders (Picture No. 6-18).
  6. Check the wire connections between the electric rings and the chaser box mounted on the axle.
  7. Check the wire connections inside the chaser box.
3. If two side-by-side lamps do not come on:
- A. One or both of the lamps have vibrated loose. Unscrew the plastic lens and tighten the lamps. The lamps are wired in pairs, so when one lamp fails two lamps will go out.
  - B. If the lamps do not come on when you tighten them, then one or both of the lamps have burned out and should be replaced.
  - C. After replacing one or both of the lamps, and they still do not come on, the wiring to the lamp socket may have gotten loose. This will require removing the light panel in order to get to the back side to check the electrical connections.



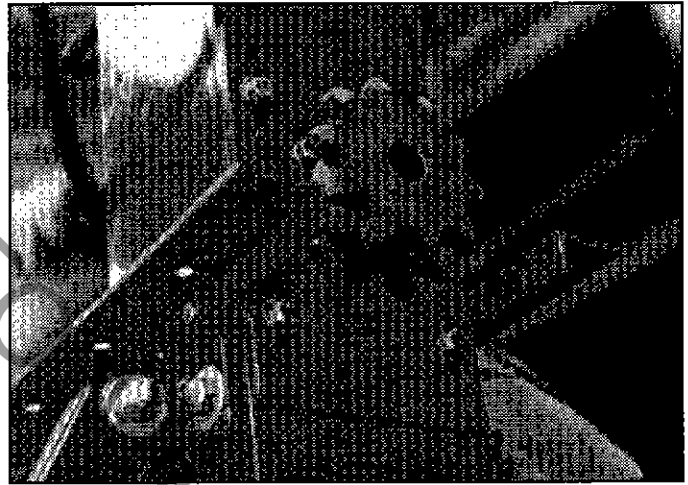
No. 6-19



No. 6-20



No. 6-21



No. 6-22

4. If the lights do not chase in the prescribed manner:

- A. Each spoke (Picture No. 6-19) is lettered, so that each one should be attached to the hubs (Picture No. 6-20) where the letters are the same. The letters are covered up when the spoke is installed, so it is very important that they be installed in the right order when the Wheel is assembled.
- B. The electrical cable from each spoke may not be connected to the axle-mounted chaser box in the proper location (Picture No. 6-21). Check the diagram (Drawing Number 06B00116) in the manual to see where each should go.

#### ROLLER CHAIN DRIVE:

1. If the driving chains get loose:

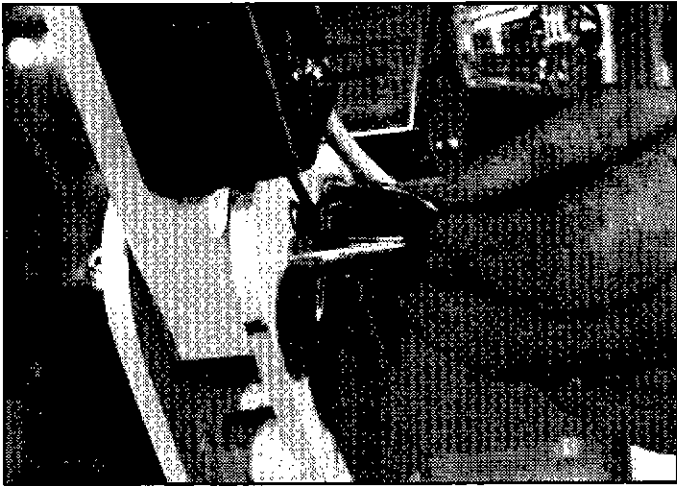
- A. The plate to which the hydraulic motor is attached on each tower is held in place with bolts in slotted holes (Picture No. 6-22). Loosen the four bolts in the plate, and pull down until the slack in the chain has been taken out. Then re-tighten the bolts.
- B. In time, the chain may wear to the point that it cannot be tightened even when the mounting plate has been adjusted to the top of the slots. If this occurs, take out one of the links in the chain and re-assemble it. There is enough length in the bolt slots to permit this shortening of the roller chain.

#### SEAT PIN SQUEAK:

1. If the seat pins squeak in the seat hangers:

- A. Apply a little white lithium grease or Door-Ease to the surface where the seat hangs on the pin, and also where the "Y" seat hanger rubs against the shoulder of the seat pin.





No. 6-23

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## CLICKING SOUND:

1. If you hear a lot of clicking as the Wheel turns:

- A. The Klik-pin securing each of the rim pins is loosely fitting in each pin so it will be easy to assemble (Picture No. 6-23). As the Wheel turns, the Klik-pins will move back and forth, making a clicking sound. This is quite normal and is to be expected. If this proves to be a problem in a particular location, a small piece of tape can prevent movement of the Klik-pin.

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