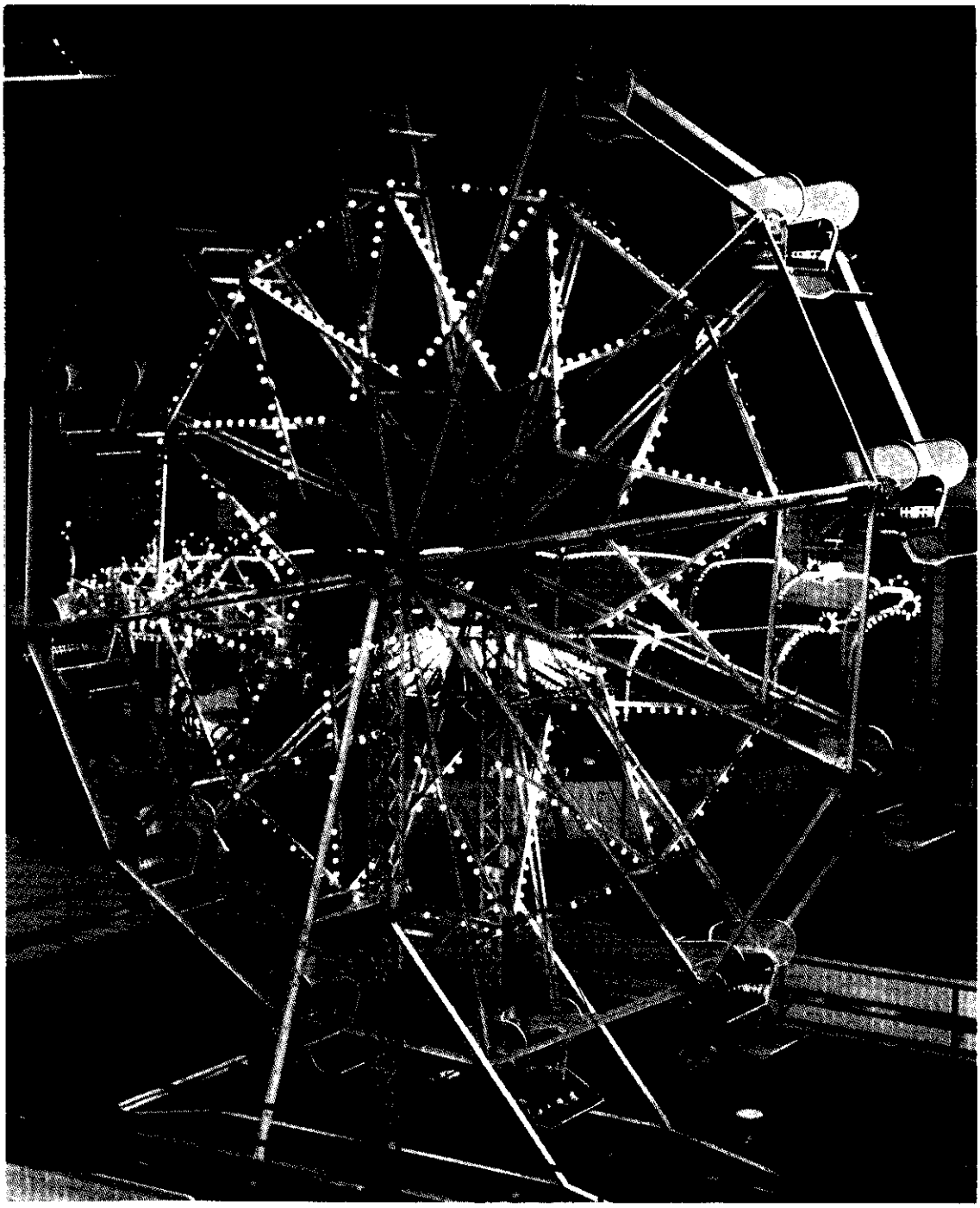

BIG ELI® STANDARD & DELUXE WHEELS

- 12 Seats; 36 Passengers Per Load
- Time Tested - Quality Proven
- "First" Ride for many Successful Companies
- Suitable for Park or Portable Operation
- Fluorescent Lighting Standard
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- Many Color Options (Including Upholstery) Available

ELI BRIDGE COMPANY

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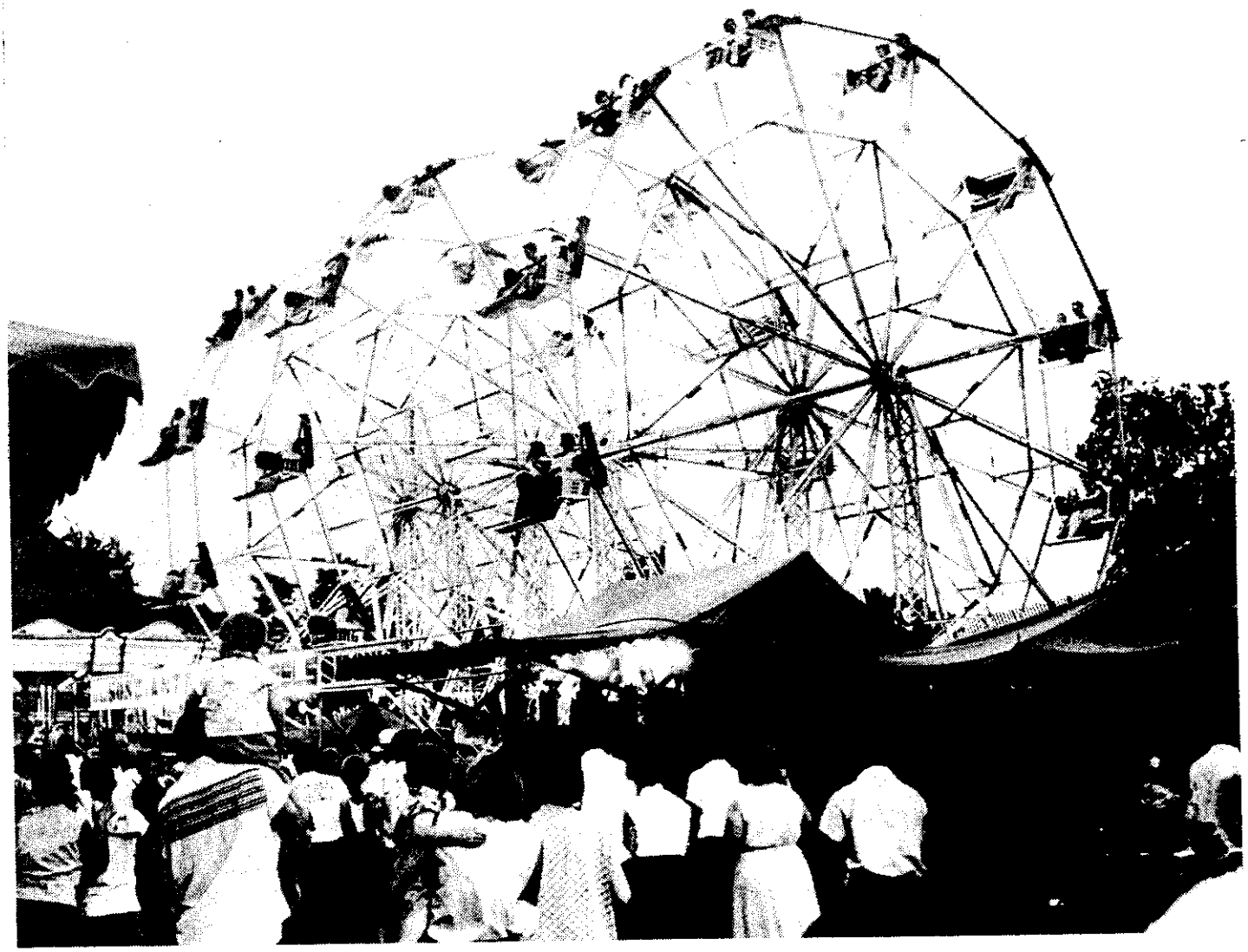
Instructions

for

Erecting and Operating

the

BIG ELI WHEELS



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800 CASE AVENUE

JACKSONVILLE, ILLINOIS 62650

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CONTENTS

gasoline power unit mounted on a power unit truck (or 10 HP, 208-220/440 volt, 60 cycle, three-phase electric motor, mounted on skids and slide rails); necessary crates and boxes; ropes with tackle blocks; and all tools and equipment needed for proper erection and operation of the ride. Electric wiring is 3-wire, 110 volt, grounded type. Designed with interchangeable features, the No. 5 BIG ELI WHEEL is quick and simple to erect for either park or portable operation. To erect, a space 28 feet deep by 27 feet wide is required. This space must be clear of branches and wires for a height of 45 ft. Weight of the No. 5 BIG ELI WHEEL and all equipment is approximately 11,877 lbs.

The "DELUXE" No. 12 BIG ELI WHEEL

Overall height of the No. 12 BIG ELI WHEEL is 45 ft. 3 in. It also has 12 standard BIG ELI seats. It has standard equipment similar to that on the No. 5 WHEEL. A space 31 ft. square is required to erect it, and the space must be clear overhead to a height of 50 feet to allow ample clearance for the ride when carrying passengers. Weight of the No. 12 BIG ELI WHEEL and all equipment is approximately 12,883 lbs.

the hubs, which are supported by the main axle riding on the tops of the towers. Each tower is a two-part, hinged structure, that is braced front to back by bases, kneebraces, and corner guy cables, and is braced from side to side by wind-braces and A-braces.

Erecting Directions for a BIG ELI WHEEL

Erecting a BIG ELI WHEEL is a simple operation and briefly consists of the following steps:

1. Setting the foundation plate.

2. Erecting the two stub towers, and pinning to them the four bases, the kneebraces, and base crossbars. The brake support finger must be on the base section nearest the electric motor (or power unit) before it is assembled to the tower. Lay out the drive cable.

3. Assembling the gearing.

4. Assembling the top towers, axle, and hubs with electric rings, wind-braces and A-braces on the sides of the towers, and hoisting them into position.

5. Connecting the corner guy cables and blocking the outer ends of the bases until the towers are plumb.

6. Assembling the WHEEL by putting up one pair of spokes and one pair of rims at a time until the WHEEL is assembled.

7. Adding the remaining WHEEL cables and truing the WHEEL.

8. Attaching the woodrims and idler, and fitting the drive cable to the WHEEL.

9. Installing the lights.

10. Positioning the loading platform.

11. Hanging the seats, locking them in place, and unfolding the foot-bottoms.

You should be able to assemble your BIG ELI WHEEL in a very few hours. For the man who has seen or operated a BIG ELI WHEEL the above instructions are about all that are necessary. All similar parts are interchangeable. Although the erection of a BIG ELI WHEEL is not difficult, the following directions are

Towers, Bases, and Brake Support Finger

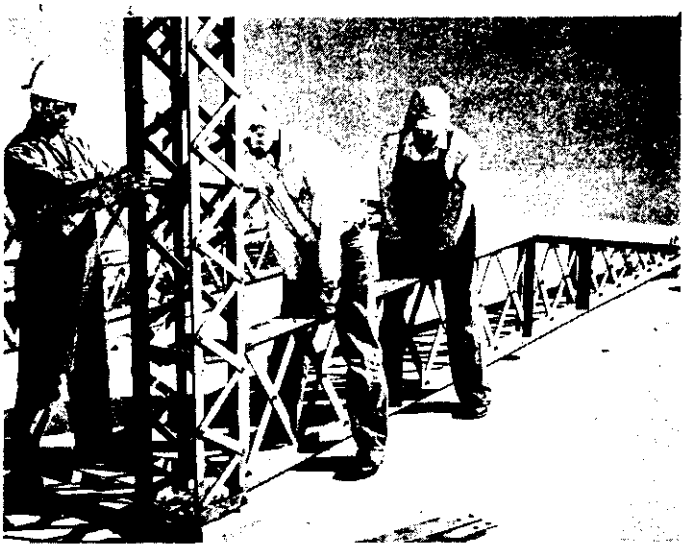
Bring out the towers and bases, as shown in Picture No. 3. Set the base of each tower on the foundation plate and let the upper end rest on the ground. Picture No. 4 shows that the "off" tower has a slot just the above the bottom plate, and this slot must go to the outside for inserting the windbrace crossbar later on. The gear tower shown in Picture No. 5 is for a No. 16 WHEEL and has a part of the tower extended to one side. This extended side goes next to the rotating WHEEL assembly. The No. 5 and No. 12 gear towers are not extended in this way. They can best be positioned by laying the gear tower on its side so that the brake bar plates stick up. See the arrows in Picture No. 5. Do not turn these plates down toward the ground when you lay down the tower. If the plates become bent, the brake expander bar will not work properly.

Begin the assembly by raising the "off" tower. See Picture No. 6. Be sure that the base of the tower is on the foundation plate and that is it clean so that it will seat properly. Have one man brace his weight against the lower end of the tower to keep it from sliding, while the others raise it to an upright position. Shift it around until it drops down within the narrow bars that surround the base of the tower on the foundation plate.

Then, while one man holds the tower, two others slide one of the bases part way into the tower slots. See Picture Nos. 7 and 8. All four bases are interchangeable so it does not make any difference which one is used. Next, fit the second base to the "off" tower, as in Picture No. 9.

Raise the gear tower as in Picture No. 10, making sure that the two brake bar plates on the gear tower are toward the front of the WHEEL. If necessary, you can turn the tower around fairly easily after it is raised. Slip the front base into the gear tower, as in Picture No. 11. Before inserting the rear base you must install the brake support finger. The one shown in Picture No. 12 is used only on the No. 16 WHEEL, and the one in Picture No. 13 fits only the No. 5 and No. 12 models.

The brake support finger is packed in the turnbuckle box, and is slid on top of the base with the extended lever pointed toward the rotating WHEEL assembly. When this is done the base can then be slid into the tower, as in Picture No. 14. Occasionally operators forget to install this piece, and the only proper way to install it when that happens is to take down the WHEEL. There have been some instances where operators have cut away the flanges of the angles at the top of the base so that the brake support finger could be slid on after the WHEEL was up. Do not do this because it seriously weakens the ability of your WHEEL to resist wind loads. The best procedure is: DO NOT FORGET THE BRAKE SUPPORT FINGER.



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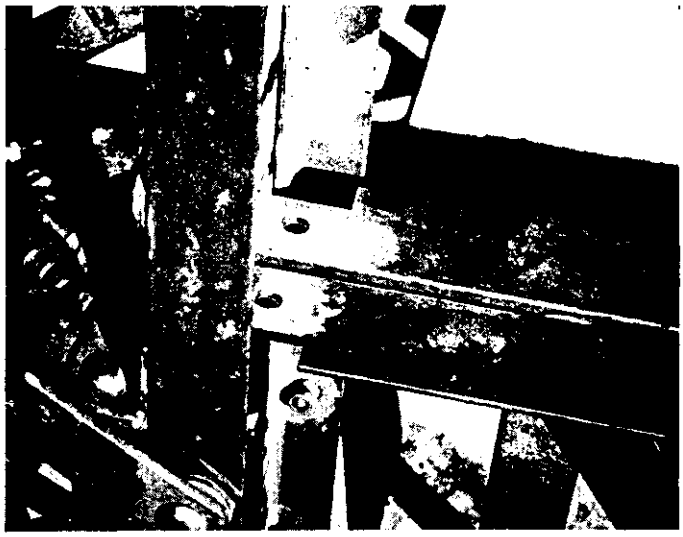

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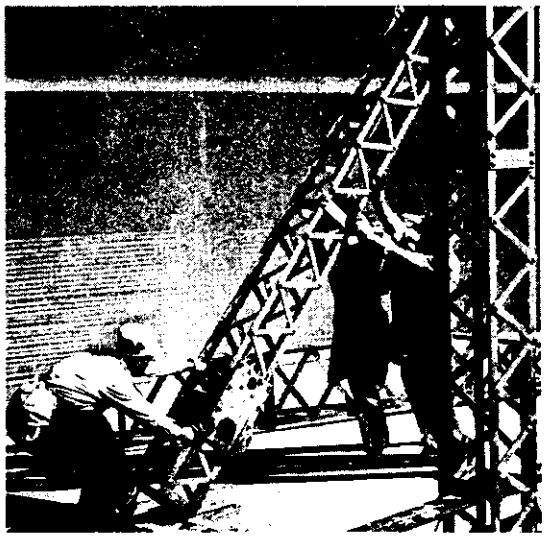

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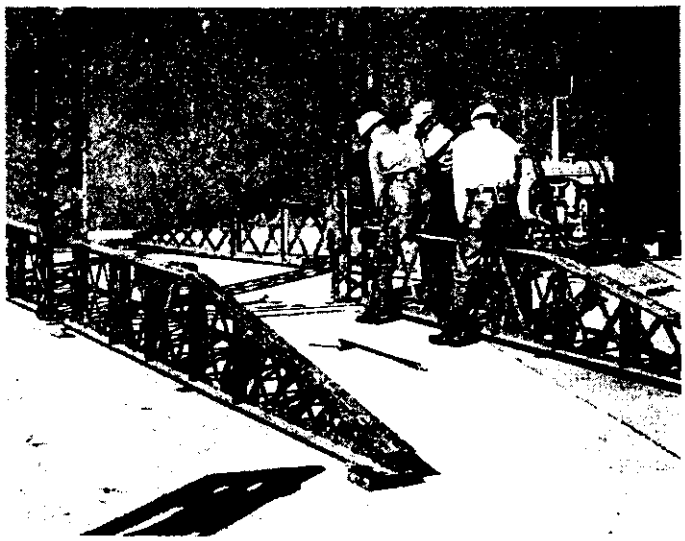

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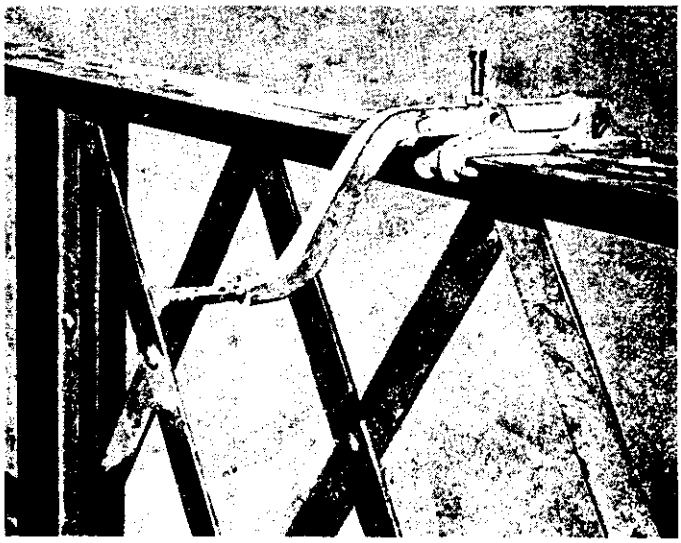


No. 12

On the No. 16 WHEEL, as soon as both towers are up install the tower spreader shown in Picture No. 15. Plumb the towers roughly and brace each tower with a prop pole. It is strongly recommended that you use this temporary bracing, because on at least one occasion a gust of wind blew over a tower at this stage. For the towers to be braced properly, the tower spreader and both of the prop poles must be used. See Picture No. 16. The No. 5 and No. 12 towers are not as tall, nor as heavy, and usually do not need this additional bracing.

Before going to the next step, check again to see if the two towers are located properly. As you stand in front and face toward the WHEEL, the "off" tower to your left should have the slot at the bottom toward the outside, and the brake bar plates on the gear tower should be on the side next to you. To check another way, the hinge pin holes at the tops of the towers are not the same size on each side of the tower. The larger pin holes in each tower should be to your left. Hinge pins are driven into the tower hinge plates from left to right. Consequently, the larger holes are on the left.

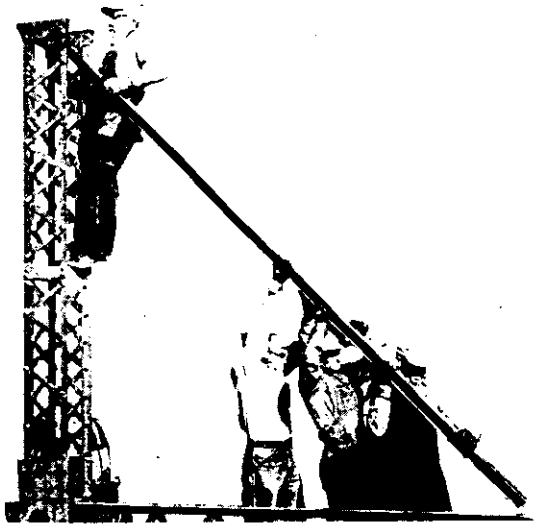
Check again to see that the brake support finger is on the right rear base and that it extends in toward the rotating WHEEL.

Assembling Kneebraces, Base Crossbars, and Windbrace Crossbars

One end of the kneebrace has two rivets (or huckbolts) close together, and it is this end which is inserted between the angles near the top of the stub tower. See Picture No. 17. The lower end drops between the angles that form the top of the base. See Picture No. 18. One man stands at the side of the tower and guides the kneebrace up into position as it is lifted and the lower end is dropped into the slot in the base, as in Picture No. 19. At this time the base is not pulled all the way into the tower and so the kneebrace will drop in easily. Next, position the second kneebrace.

At this point both of the kneebraces are loosely positioned. Using the crowbar and a chain or hook, as in Picture Nos. 20 and 21, pull the bottom of the base all the way into the tower. At the same time, lift and guide the top of the kneebrace into the tower kneebrace socket. When the base is positioned in the tower, drive in two No. 68 double head short base pins in the bottom of the base. These pins are made with a double head so that they can be pulled easily with the split end crowbar pin puller when taking down the WHEEL. See Picture No. 22.

Pin the second base in the same way. Occasionally it is necessary to move the base back and forth until the pin holes line up. If you sight along the tops of the bases you can tell which way to move the end of the base to line up the pin holes.



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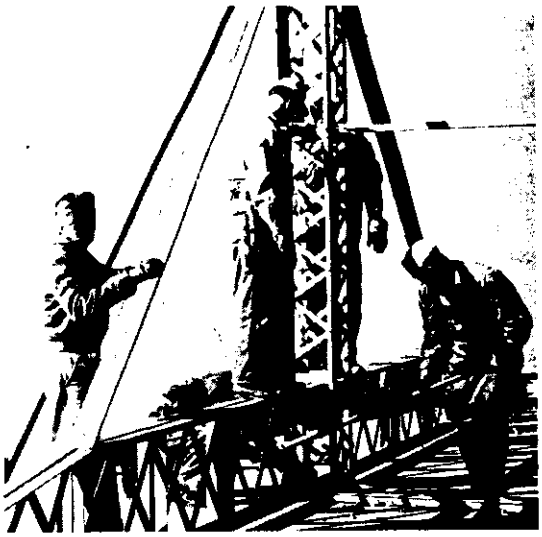

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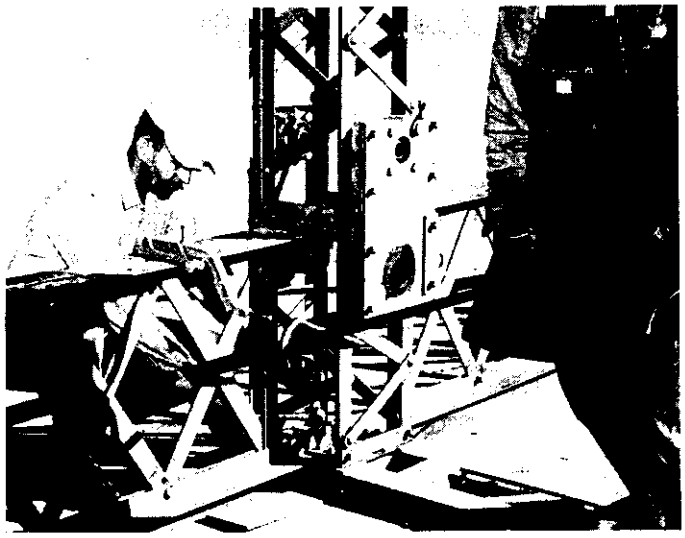

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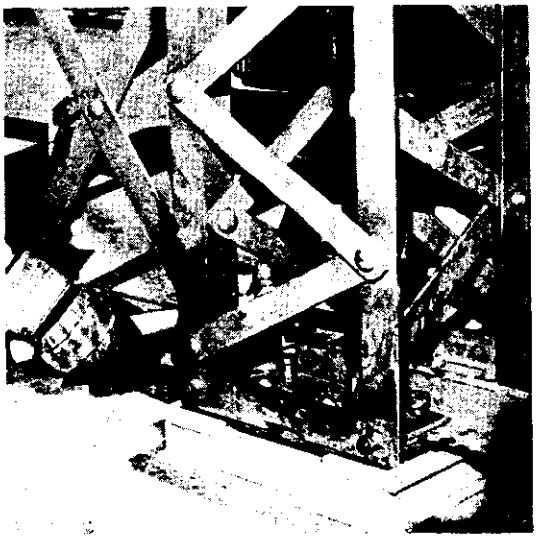

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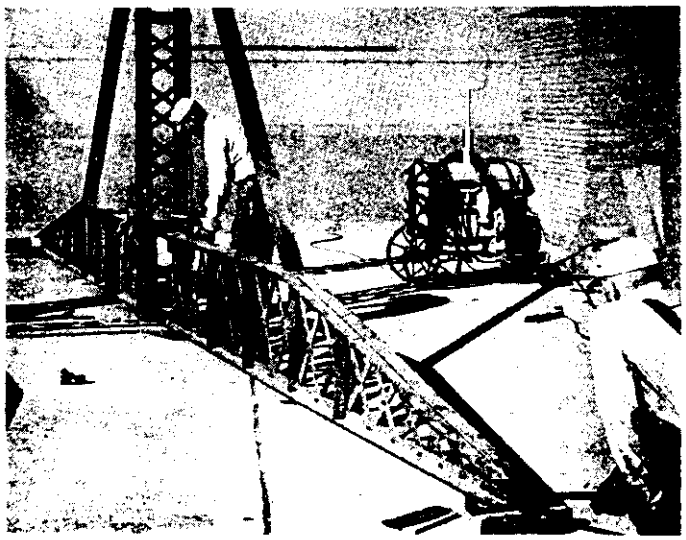

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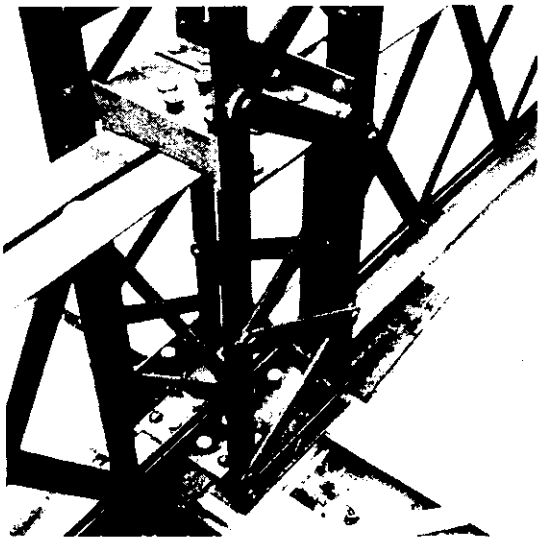


No. 24

Next, as shown in Picture No. 30, set your drive cable off to the right beyond the gear tower and uncoil enough of it to go over the gear tower and lie on the ground around the two bases on the right side (or drive side) of the WHEEL. When the WHEEL is all assembled then the drive cable will be in position for you to install it on the WHEEL. You will make a lot of work for yourself if you do not position the drive cable at this time.

DO NOT FORGET IT.

DIRECTION FOR CONNECTING THE DRIVING GEARS, CLUTCH, BRAKE, AND ELECTRIC MOTOR OR POWER UNIT.

The first step is the installation of the clutch, which is delivered and carried assembled in its own crate. Examining the clutch, you will find that one end of the countershaft has two keyways for the 36-XX Fiber Pinion, while the other end is smooth. There are two sets of holes in the tower plates. The clutch goes in the top set. No. 5 and No. 12 WHEELS have a single bearing No. 57, on the inside tower plate; a No. 16 has two bearings.

Remove the clutch assembly from the crate and make sure the countershaft is free from dirt, grit, sand, or dirty grease. For a No. 5 or No. 12 WHEEL, slide the clutch assembly, keyways first, through the tower bearing from the outside, so that the keyway end extends out between the towers. For a No. 16 WHEEL, remove the No. 133 Set Collar and No. 16-47S Spacer, slide the clutch assembly, keyways first, through the outer bearing, and slip the set collar back on the countershaft. See Picture No. 31. Slide the clutch assembly on through the inner bearing, and put the No. 16-47S Spacer over the end of the countershaft against the tower bearing.

Slip the No. 36-XX Fiber Pinion on the countershaft and install the two keys. Insert the keys with the "sled runners" first, matching the keyways milled into the countershaft. Keep the pinion flush with the end of the countershaft. See Picture No. 32. With the keys in place, fasten the No. 47B bevel edge washer to the end of the countershaft with the No. 47C capscrew. Slide the countershaft outward until the pinion butts against the bearing, in the case of the No. 5 or No. 12 models, or the spacing sleeve on the No. 16 WHEEL. Then slide the set collar (inside the tower on the countershaft) up against the bearing that is next to the pinion. The set collar and the No. 47C capscrew lock the countershaft so that it cannot move in toward the WHEEL, or out. This is necessary to keep the pinion properly lined up with the gear fastened to the drive sheave.

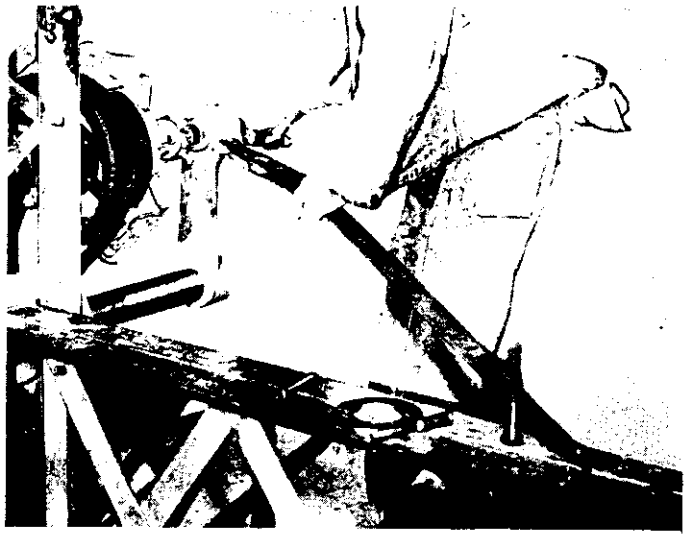
Next, assemble the sheave axle to the gear tower, as shown in Picture No. 33. The sheave axle has a hole through each end and one in the middle. Insert the sheave axle in the bottom set of holes in the tower plates. This axle is completely interchangeable, top and bottom, and end for end. It is recommended that it be used in one position for a week, turned over and operated in that position for a week, turned end for end and operated there for a week, and finally turned over for another week. In this way, wear will develop uniformly over the whole shaft so that it can be used interchangeably to achieve maximum service life. This kind of rotation is easy to accomplish on portable rides, but is perhaps not as practical for a fixed location. In a park, it would be advisable to change the position of the sheave axle once or twice a season.

With the sheave axle in the tower, anchor it in position with the No. 96 sheave axle double head center pin. On the No. 16 WHEEL the pin goes through the center of the sheave axle. See Picture No. 34. On the No. 5 and No. 12 WHEELS the pin goes through the sheave axle and into the plate beneath it. See Picture No. 35. This pin keeps the sheave axle from revolving or sliding one way or the other.

Hang the three V-belts (or five, in the case of the No. 16) loosely around the sheave on the clutch. Then slide the No. 46 standjack on the outer end of the countershaft, and after that on the sheave axle. Anchor the standjack to the sheave axle with a No. 95 sheave axle end pin, as shown in Picture No. 36. Notice that this pin does not go all the way through the sheave axle. The countershaft turns freely in the babbitted bearing in the top of the standjack. Next, add the No. 52 standjack brace. Pin the end with two holes to the lug at the top of the standjack, using a No. 70 frame pin, (Picture No. 37), and fasten the other end to the base in front of the gear tower, using a No. 117 shoulder bolt and nut. However, a No. 116-B bent toggle, which is an "L" shaped flat bar, must be fitted on the shoulder before the bolt goes through the standjack brace and into the base. The bend in this piece must be toward the front of the WHEEL.

The No. 116-L clutch lever is the next to go on. See Picture No. 38. This is the piece with the fork on one end. The fork is held together by one rivet and one bolt. The small bolt extends up from the bottom through a slotted hole. The bolt head is elongated. DO NOT TAKE THIS BOLT OUT. Loosen the nut and turn the bolt one-quarter turn, so that the head will come through and permit the forks to be expanded enough to go over the pins of the No. 85 slide collar yoke on the clutch. The clutch lever lies across the top of the standjack brace. Squeeze the forks together, turn the bolt one-quarter turn, and screw down the wing nut securely to hold the forks together. Then connect the clutch lever to the standjack brace with a No. 211 combination clutch lever special bolt.

Do not assemble the clutch operating mechanism any further than this until after the top towers have been raised, and the spokes and rims have been installed. The clutch can still be operated at this stage by pulling the No. 116-L clutch lever toward the base. This will engage the clutch, and pushing the lever away from the base will disengage the clutch.



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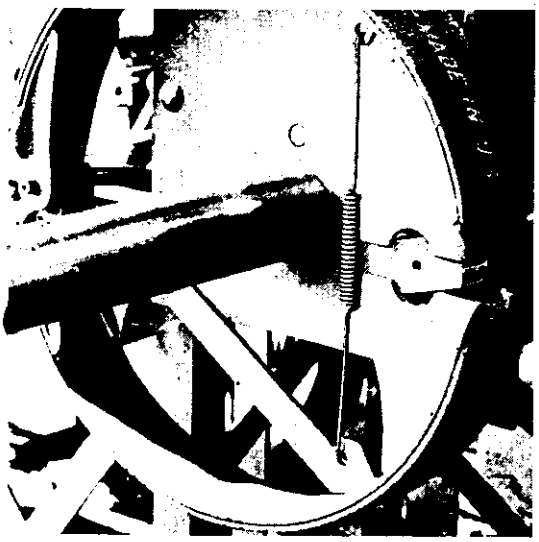

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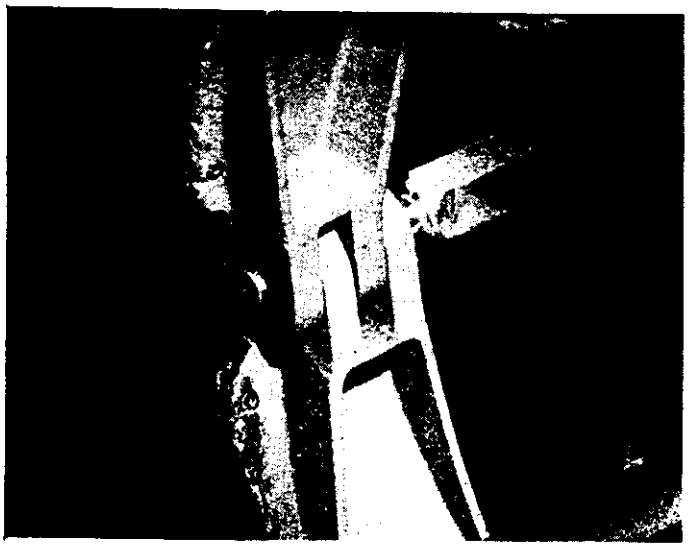

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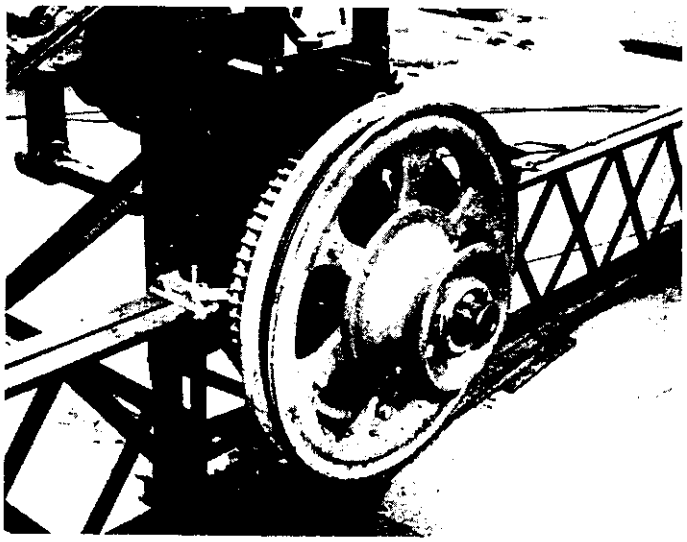


No. 42

If your BIG ELI WHEEL is powered with an electric motor, fasten the motor base to the pier and tighten the V-belts by adjusting the position of the motor with the adjusting screws in the motor base.

If your WHEEL is powered by a gasoline engine, bring your power unit into position to the rear of the clutch, with the sheave on the end of the power unit lined up with the sheave on the countershaft, and far enough to the rear to take up the slack in the V-belts. Be sure that the sheaves are in line and that the belts run true without binding on the sides of the V-grooves in either sheave. See Picture No. 45. Then install the No. 111-112V jackscrew assembly for tightening the belts, as shown in Picture No. 46. There is a small angle with a square hole in it on the side of the engine truck in which the screw end of the jack fits. The yoke end fits over the sheave axle on the WHEEL. By using the jackscrew handle you can readily adjust the position of the engine and truck, keeping the belts just snug. If you continue tightening the belts beyond what is necessary to drive the WHEEL, the countershaft will flex out of line and this will wear out the babbitted bearings in a short time. Do not tighten the belts any more than just enough to drive the WHEEL. After the engine is in position turn the front wheels all the way around so that the tongue will be under the engine and not in the way.

The top of the clutch must turn toward the operator when he is at the control lever. With the engine in position and with the V-belts connected, start the engine and observe the operation of the clutch and brake until you understand the operation thoroughly.

The clutch and brake surfaces should always be kept clean. Do not let dirt, gum, or grease accumulate. Keep the surfaces polished if you want to get the most clutching and braking action. Dirt, gum, or grease will decrease your clutching and braking power and might cause the clutch or brake shoes to jump and shimmy. The clutch and brake are simple in design but ruggedly built, and will give very effective clutching and braking power with smooth action and long life, with a minimum of adjustment, provided they are given reasonable care.

Proper lubrication of the bearings is very important. When first starting to turn the clutch and drive sheave under power, do not run more than a few moments before stopping and forcing more grease into the drive sheave bearing by turning down the cap of the grease fitting in the drive sheave. Also, keep an oil can handy for oiling the oil cup in the No. 85 yoke on the clutch slide collar. The bearing inside the V-belt sheave hub is an oil-less bushing which never needs oiling or greasing.

you block solidly under each runboard in two places between the two sets of rim angles on the No. 16 WHEEL.

Next, bring out the two top towers and lay one beside each base. The larger 7/8" holes in the tower hinge plates must be to your left as you stand in front and face the WHEEL. Also, each top tower has a plate with two holes in it on one side at the top. This plate is used to pin the windbrace to the top of the tower, and so this plate MUST be to the outside. The dolly wheels must be underneath the towers.

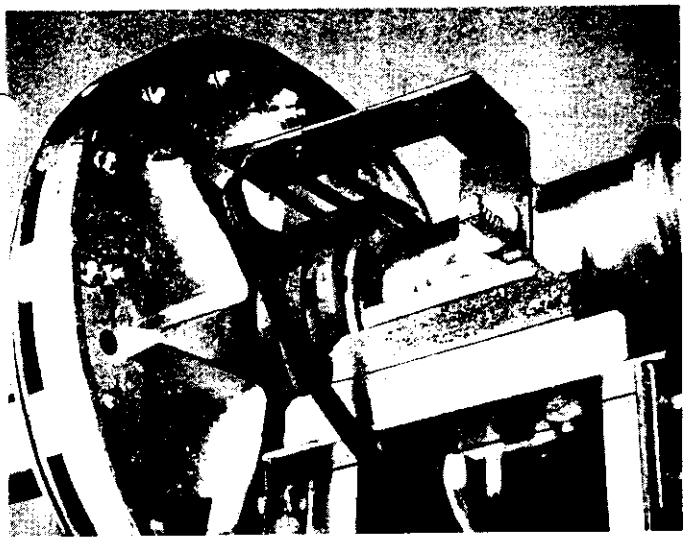
Assemble the hubs to the main axle next. There is no right or left hand to the main axle. Both hubs are the same. However, if only one hub is fitted with electric rings, then this hub is to go on the side closest to your electrical supply. Before sliding the hubs on the axle, a hub ring, which is the spring-loaded ring that holds the hub pins in the hub, should be on each hub. On a No. 16 hub ring there are four holes counterbored on one side only (there are three such holes on No. 5 and No. 12 hub rings). See Picture No. 50. With the ring fastened to the hub, the counterbore allows the ring to spring up around the head of each hub bolt, which locks the hub ring in position and prevents it from coming off.

Wipe out the insides of the hubs and clean off the main axle. Coat the mating surfaces with clean grease, and then slip the hubs on the axle, making sure that the hub rings on both hubs face toward each other. After the hub is started on you can get it to go the rest of the way much easier if you will rotate the hub slightly as you push. A pin on the axle keys the hub to the axle when the hub is all the way on. Tighten the set screws in the hubs to lock the hubs securely to the main axle.

You should never have to remove the electric rings except to replace them when they are worn out, but be sure that they are on before you insert the main axle in the top tower bearings. Clean out the top tower bearing on each tower as shown in Picture No. 51, coat it with clean grease, and then slip the tower bearing on the end of the axle. See Picture No. 52. To do this, the hinge end of the tower should be picked up, raised to clear the base, and walked toward the WHEEL until the dolly wheels on the tower can rest on top of the base. Then bring the other tower into position on the axle and on the base.

With the tower bearings all the way on the axle, then slip the set collars on the axle and tighten the set screws. See Picture No. 53. Be sure that the set screws fit in the recess in the axle. This prevents the bearing boxes from sliding off the main axle.

Then roll the towers and axle back until the dolly wheels are up against the lower ends of the kneebraces. Block the hubs to keep them from rolling. The flanges on the dolly wheels fit over both edges of the kneebraces and keep the tower from sliding off one way or the other. See Picture No. 54. Most



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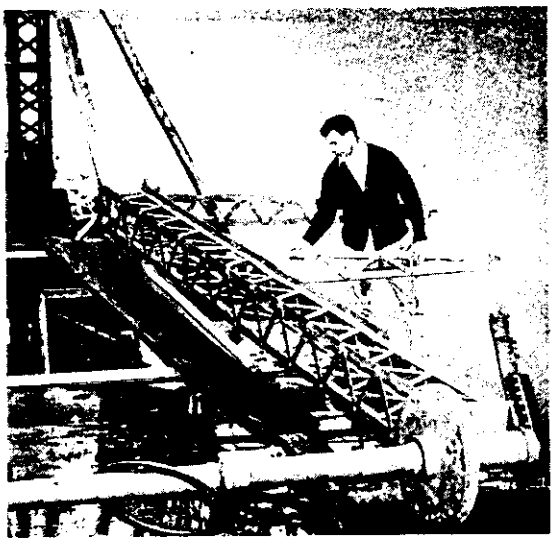

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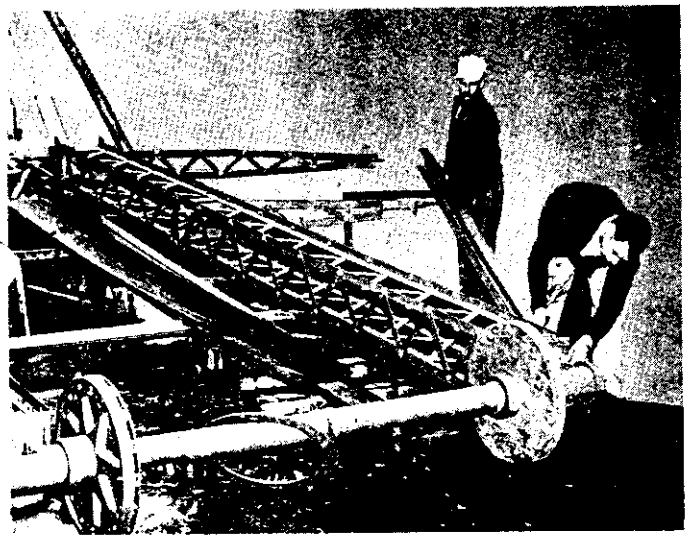

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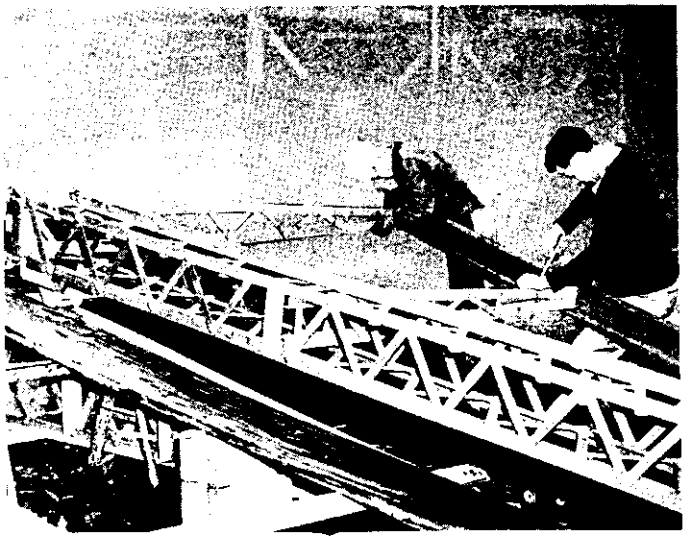

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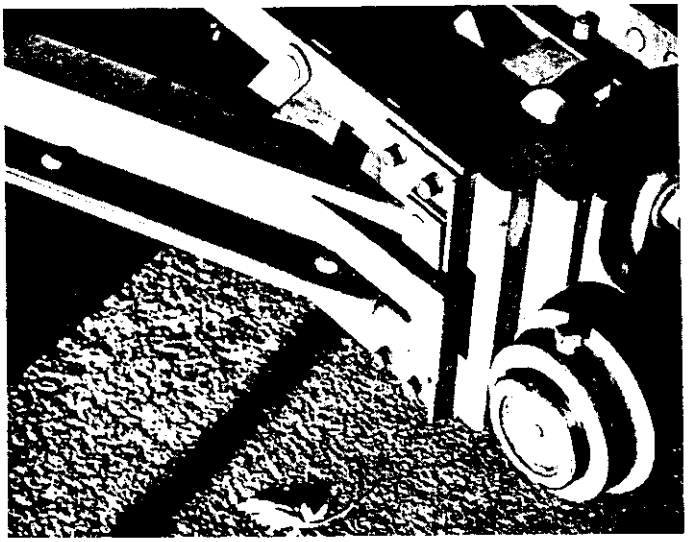

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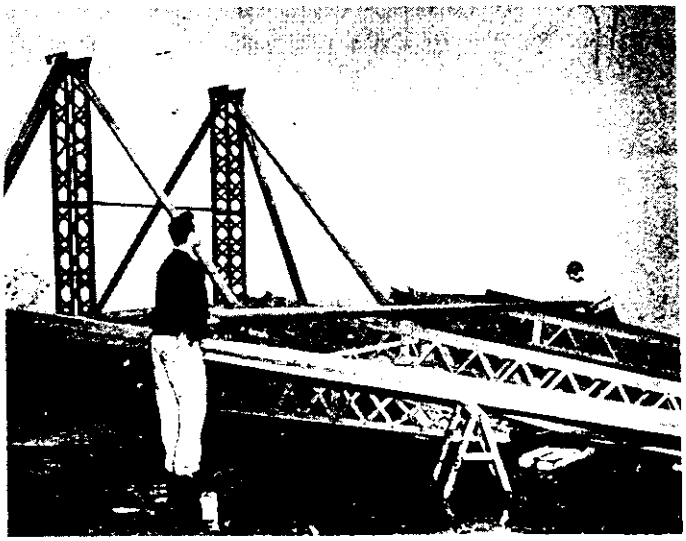


No. 60

the windbrace parallel to the tower and away from the ends of the A-braces as shown in Picture No. 57, and guide this flat part at the top end of the windbrace up under the flat plate on the outside of the tower just below the main axle. Then swing the lower end of the windbrace back onto the ends of the two A-braces, align the pin holes, and drive in No. 70 frame pins. See Picture No. 58.

On the No. 16 WHEEL, before you try to pin the top end of the windbrace to the tower, block up under the outer end of the windbrace until it is lined up with both towers. Keep the blocking under the windbrace until you are ready to roll the towers up the kneebraces. Connect the top of the windbrace to the tower with two No. 68 double head base pins. Put the No. 71 pin lock, which is a slotted flat plate, over the heads of these two pins and behind the top rivet in the windbrace, as shown in Picture No. 59. This will prevent these pins from working out.

Next, assemble the A-braces and windbrace to the other side of the WHEEL and you are ready then to install the tower erecting equipment.

Tower Erecting Equipment

First, remove the hub ring from each hub. This is done by pushing the ring in so that it can be turned far enough to let the large part of the slot come over the head of the bolt. Then the ring will slip off easily. Bring the two hub rings together in the center of the main axle.

On the No. 16 model:

> Then as shown in Picture No. 60, lay the erecting beam, which is the 20 ft. long section of 3" round pipe, across the top of the two towers where they lie. The erecting beam has a hook bolt on each end. The eyebolt in the center should be on the side next to the main axle. Slide the erecting beam toward the main axle until each hook bolt hooks under the bottom side of the windbrace and the bolt butts against the back side of the windbrace. The erecting beam should be square with the towers, so be sure that each hook is the same distance from the end of each windbrace. Then tighten the hook bolts until the weight of the windbraces is carried by the erecting beam. See Picture No. 61. The beam will bow a little as you raise the windbraces until they are straight across from each other and the towers are lined up. If you do not do this, the towers will twist outward and the tower hinge pin holes will not line up. When the weight is carried by the erecting beam you can then remove the blocking under the windbraces if you wish.

On the No. 5 and No. 12 models:

> This erecting beam is not necessary because the structural members are much lighter than on the No. 16 WHEEL, and twisting of the towers is not the problem that it is on the larger WHEEL.

Erecting Derrick

The erecting derrick on the No. 16 WHEEL is considerably different from the design used on the No. 5 and No. 12 WHEELS, and so it is necessary that they be considered separately.

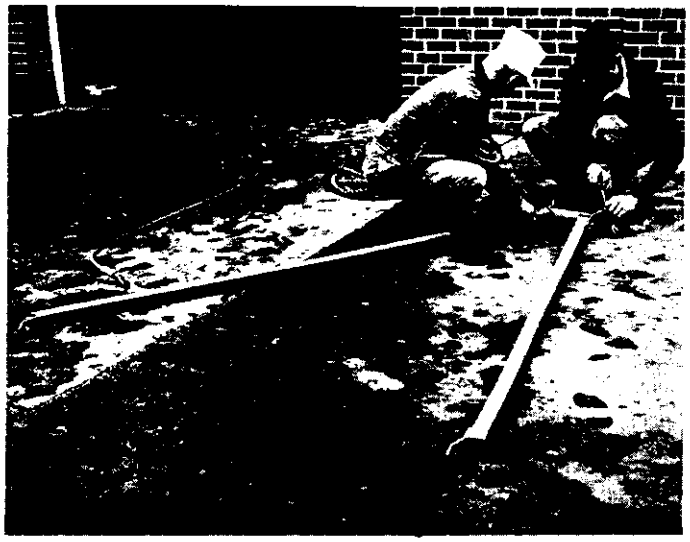
On the No. 16 model:

The first part to assemble is the large A-frame, which consists of two long 3" square tubes, a square tube cross member, and a triangular cap. Lay the long tubes across the erecting beam and the main axle as in Picture No. 62, so that the lugs with the holes in them are sticking up, and the hinge ends are toward the tower hinges. Bring the tapered ends together and slip on the triangular cap. See Picture No. 63. The large plate in the middle of the cap has two holes in it. The side with the large hole should be on the top. Fasten the three parts together with the two bolts in the cap. The heads of the bolts should be on top and the nuts underneath.

Then install the cross member at the other end. This piece of square tubing has two angles welded on near the ends. These angles should be pointed up. The eye in the center should be away from the main axle. As shown in Picture No. 64, swing the hinge up out of the way to make it easier to slide the A-frame leg in between the plates on the end of the cross member. Otherwise, the hinge will hang up on the tower. Bolt this cross member to the two A-frame legs, but do not pull the bolts tight enough to squeeze the square tubes out of shape. A good snug fit is all that is necessary. Slide the whole A-frame up the erecting beam and bolt one of the hinges to the tower. See Picture Nos. 65 and 66. Notice that these hinge pieces are just like the dolly plates on the other sides of the towers, and they fasten to the towers in the same way. Move the point of the A-frame back and forth until the second hinge goes into place in the tower. Bolt it in place.

Next, assemble the small A-frame shown in Picture No. 67. It consists of two legs made of 2" square tubing, and a point connection. One end of the square tube has a bent plate welded to it. Position both legs so that the bent plates are spread apart and are parallel to each other. These pieces are interchangeable and can be used either on the right or on the left. Bolt the point connection to the legs as shown in Picture No. 68. Tighten these bolts also just for a snug fit.

Then, lay the small A-frame across the top of the erecting beam and drop the bent plates down between the two angles welded to the large A-frame cross member. See Picture No. 69. Bolt the bent



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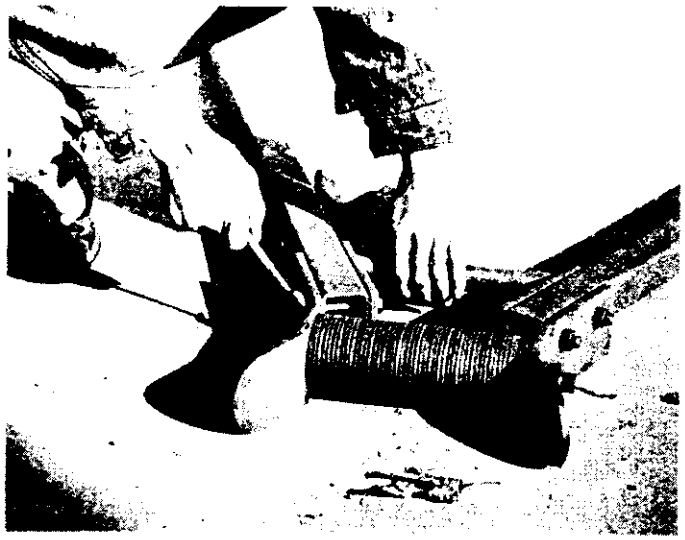

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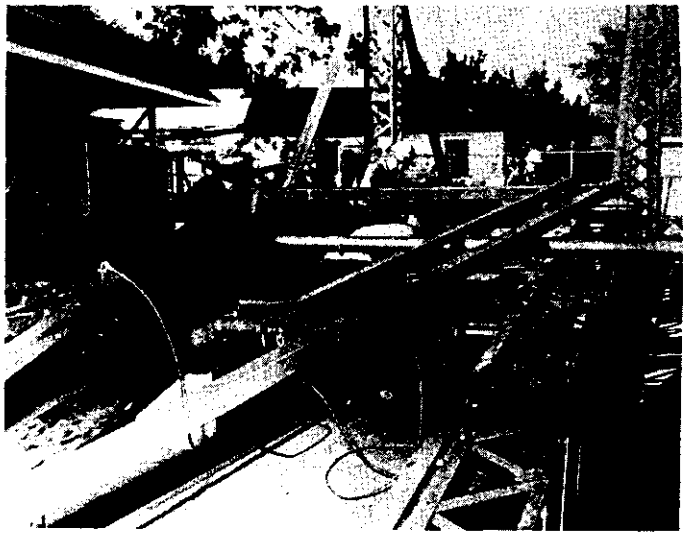

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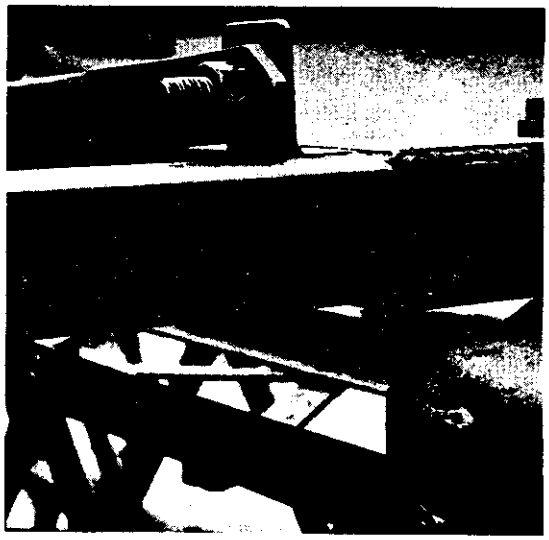

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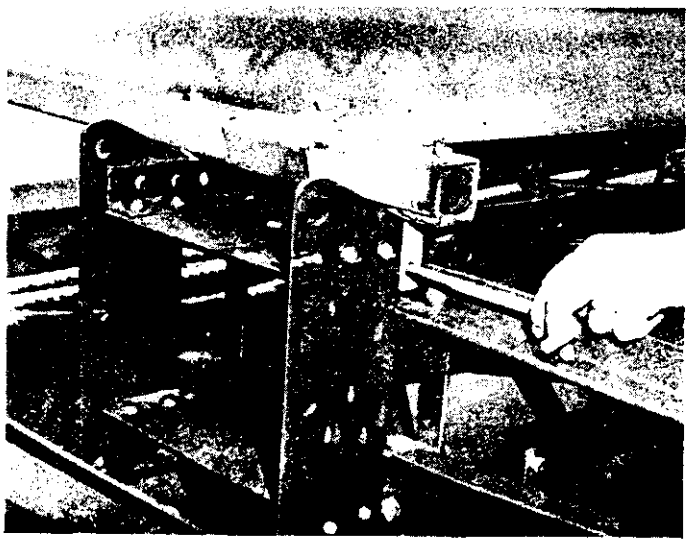

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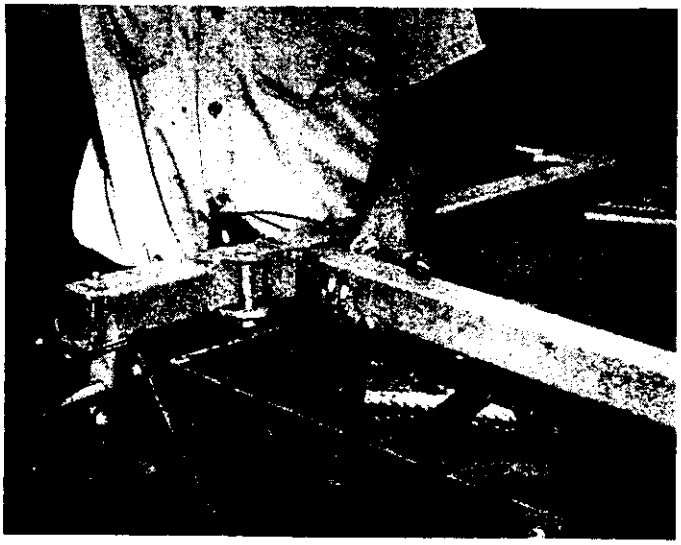


No. 72

Block and Tackle

All of the block and tackle needed for erecting the WHEEL is in the rope box shown in Picture No. 75. The spoke rope is a 7/8" diameter 3-strand Manila rope. It is used with a single block.

- On the No. 16 model it is 65 feet long.
- On the No. 12 model it is 55 feet long.
- On the No. 5 model it is 50 feet long.

The derrick rope is used to pull up the towers and is a 7/8" diameter 3-strand Manila rope on all three models, but is of differing lengths.

- On the No. 16 model it is 360 feet long.
- On the No. 12 model it is 195 feet long.
- On the No. 5 model it is 150 feet long.

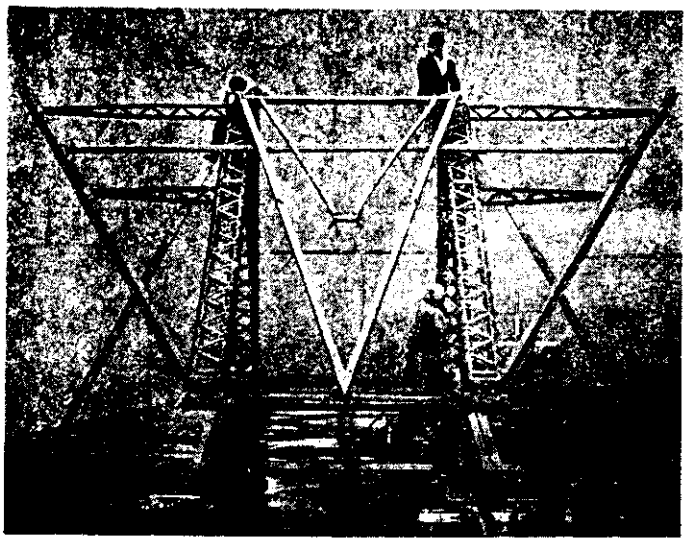
The following rope blocks are used with each model of BIG ELI WHEEL:

- On the No. 16 model, two triple blocks and a single block.
- On the No. 12 model, one triple block, one double block, and one single block.
- On the No. 5 model, two double blocks and one single block.

The block and tackle used on the three models must be different from each other because of differences in size and weight of the parts that must be handled. Because of these differences, the block and tackle for each model of BIG ELI WHEEL is connected in a particular way.

When removed from the rope box, the ropes will be pulled up so that the large blocks are close to each other. The first thing to do is to feed the ropes through them until one can be hooked into the center of the doubletree at the rear of the WHEEL and the other one through the two hub rings which are together in the middle of the axle.

- On the No. 16 model, the rope is tied off on the triple block which hangs on the hub rings at the main axle.
- On the No. 12 model, the rope is tied off on the double block, which is then hooked into the doubletree at the rear of the WHEEL, and the triple block is hooked into the hub rings on the main axle.
- On the No. 5 model, the tope is tied off on the double block which hangs on the main axle.



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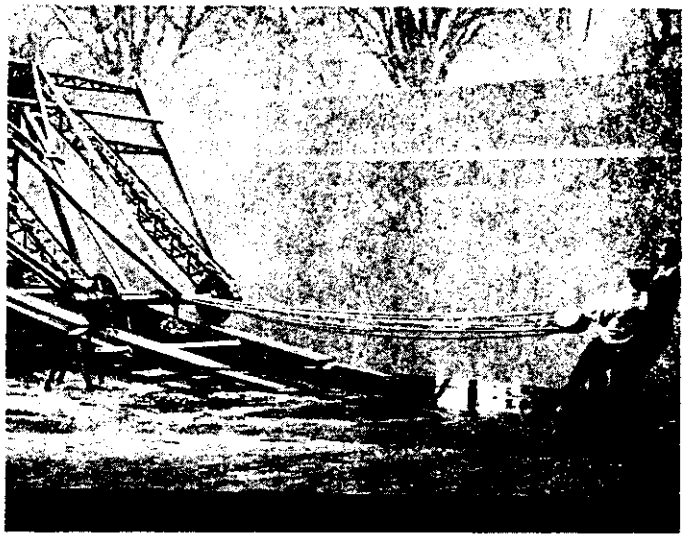

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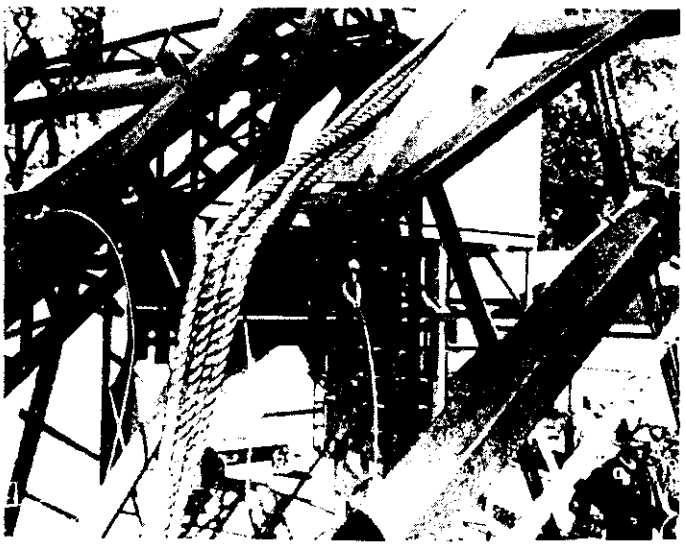


No. 84

Next, unhook the block from the hub rings and pull it out in front the length of a base. See Picture No. 80. It may be necessary to pull the ropes through the blocks by hand. Then carry the block back behind the towers, up one of the towers, and over the cross member of the A-frame, as shown in Picture No. 81. The man who does this should stay up on top of the stub tower.

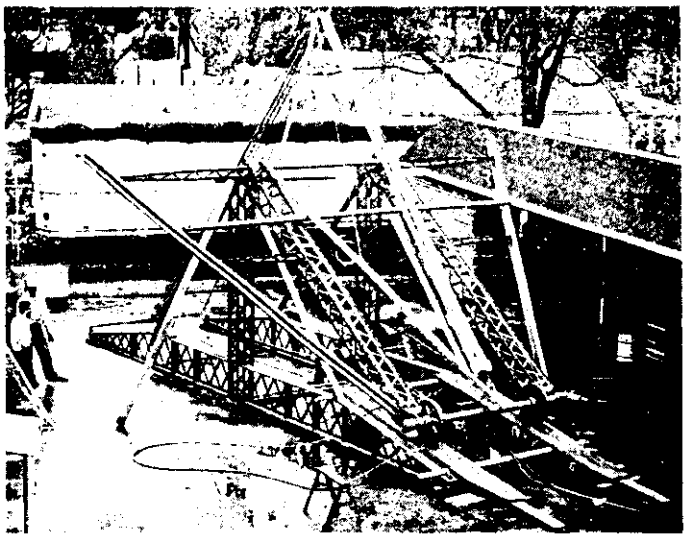
On the No. 16 model:

Bring the block down to the triangular cap of the large A-frame and hook it in the large hole in the top of the plate. See Picture No. 82. With the triple block hooked into the A-frame cap, pull enough slack in the topes so that they can be pulled back as far as the towers, as shown in Picture No. 83. You need this extra slack before raising the small A-frame.

One of the prop poles has a steel bracket bolted to one end. Tie the end of the spoke rope through the eye on the other end of this prop pole. Hand up the bracket end of the prop pole to the man on top and he can hook it to the pipe welded to the point connection of the small A-frame. See Picture No. 84. Check to be sure that the two cables connecting the two A-frames are securely fastened at both ends. Then, by pulling down and toward the front on the spoke rope, the prop pole pivots, first, over the erecting beam, and then over the cross member of the large A-frame. See Picture Nos. 85 and 86. It swings the small A-frame up and over center. The man on top should steady the small A-frame when he disengages the prop pole so the men on the ground can take it away. The prop pole should immediately be braced against the tower again.

If there is slack in the topes, particularly on the back side of the WHEEL, the ropes should be tightened. A gust of wind could blow over the small A-frame if the ropes are loose. The man on top should brace the small A-frame while the ropes are tightened. The ropes are going in both directions across the top of the small A-frame and it could be pulled back over center if you are not careful. If this happens the small A-frame could drop onto the erecting beam and become bent. Be sure that someone braces it when you take the slack out of the ropes. You will need someone at each triple block to feed the ropes through where the slack is the greatest.

The next thing to do is to connect the short guy cables to the cap of the large A-frame. These two cables are first fastened to the connecting rod with a large clevis, and the connecting rod is then fastened to the bottom side of the A-frame cap with a second smaller clevis, as shown in Picture No. 87. The other end of each cable is hung over the hook just below the main bearing at the top of the tower, and is tied in place with a piece of twine to keep it from jumping off. See Picture No. 88.



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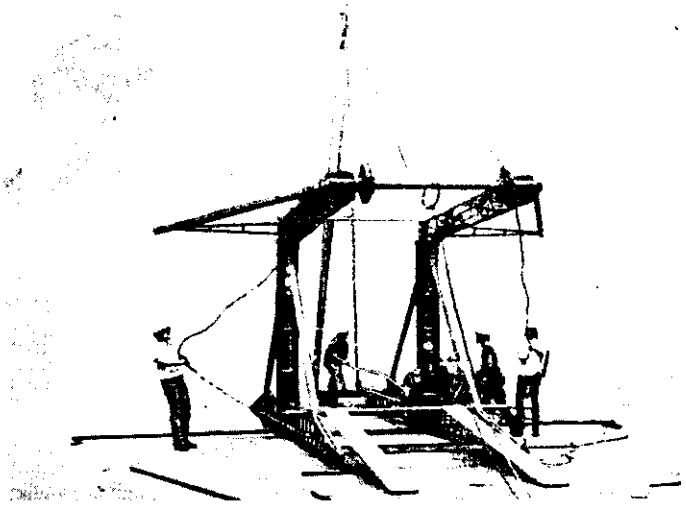

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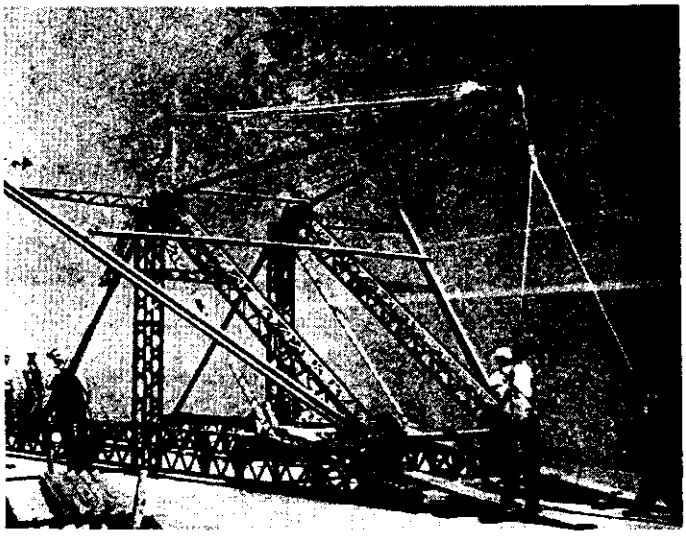

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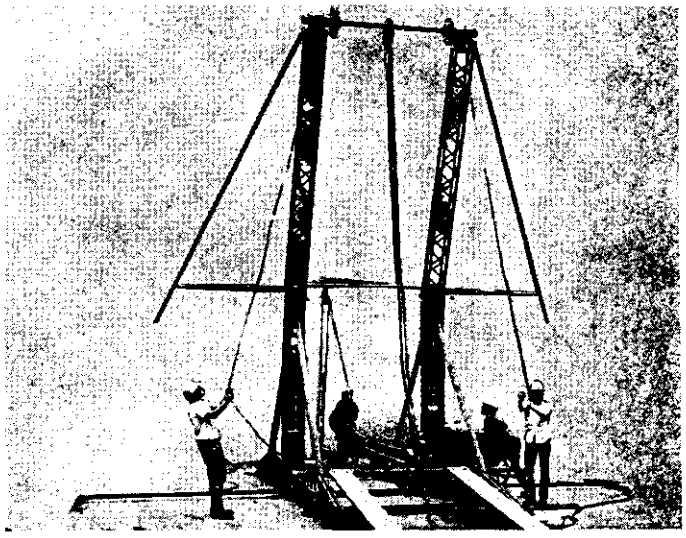

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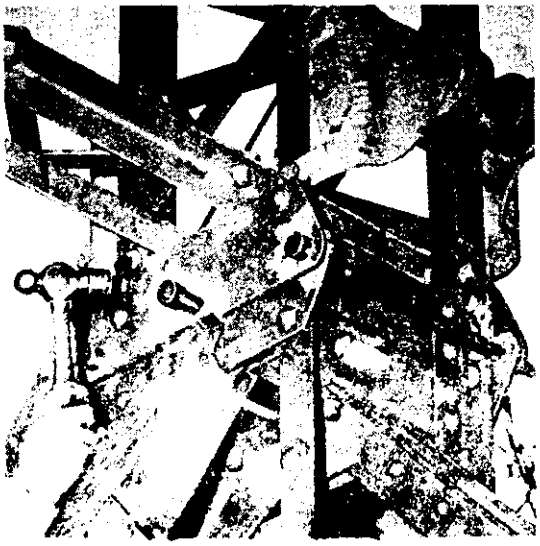
No. 95



No. 96

the small A-frame and you will not be likely to have any more trouble with slack in the ropes. The large A-frame swings over center slightly, and will then hold itself up.

The No. 5 and No. 12 towers are easier to erect because they require only a single A-frame.

For the next operation you will need six men on the No. 16 WHEEL, but four will be sufficient on the No. 5 and No. 12 models. One man operates the clutch and brake. A man pulls each corner guy cable connecting the towers to the front bases back to the side toward the rear of the WHEEL. This will help to keep the corner guy cable hooked on both ends, and will also slow down the towers when they swing up to the vertical position. You will need four wraps of rope around the winding spool to pull up the No. 16 towers, but the other models will require only two or three wraps. As you stand between the towers and face the spool the ropes must be wound on in a counterclockwise direction. Pull the end of the rope straight back to the rear of the WHEEL. The other three men on the No. 16 WHEEL crew then pull on this rope when the clutch is engaged. Only one man is required here when the No. 5 or No. 12 towers are raised. Keep everyone out from under the WHEEL when you raise the towers

(When dismantling the WHEEL and lowering the towers, the ropes are to be wound on the winding spool in the opposite direction. In other words, as you stand between the towers and face the winding spool, the rope is wound on in a clockwise direction. Also, the drive sheave is to be locked in position by engaging the WHEEL brake and by passing a long crowbar between the spokes of the drive sheave and back through the base. The engine is not used. With the spool locked in position, the ropes slip on it as you lower.)

When the towers are almost all the way up, as shown in Picture No. 94, the weight of the A-frame on the back side will swing the towers on up, and the derrick ropes will be loose, so pulling on the corner guy cables will keep the tower hinge plates from striking too hard. When the towers are all the way up, the point of the A-frame will be close to the ground as shown in Picture No. 95.

If at any time while the towers are being raised the engine should die, the man on the clutch should immediately set the brake. The three men on the ropes should not try to hold the No. 16 towers without the engine helping or without the brakes. Trying to hold the load with just ropes could be very dangerous, so do not try it. Just let the towers down as easily as possible, and then start over again when the power failure has been corrected.

As soon as the towers are up, drive in the remaining four hinge pins, keeping the slots in the hinge pins vertical. See Picture No. 96. If the slots in the first hinge pins are not vertical, then drive them out and back in again,

Unhook the cables at the tops of the towers and immediately connect the longer guy cables to the tops of the towers, and to the ends of the bases on the back side of the WHEEL. The doubletree at the rear of the WHEEL must now engage the base hooks that are closer to the towers, so that the corner guy cables can hook to the outer base hooks, as shown in Picture No. 103. With the towers rising high in the air, they should be braced as quickly as possible to avoid damage because of a sudden gust of wind.

On the No. 16 model only:

> About nine feet above the ground some flat plates are riveted to each tower. Pass the wide end of each bottom A-brace through the tower until the notches and slots on the bottom side of the A-brace can be dropped down to engage the flat plates on the tower, as shown in Picture No. 104.

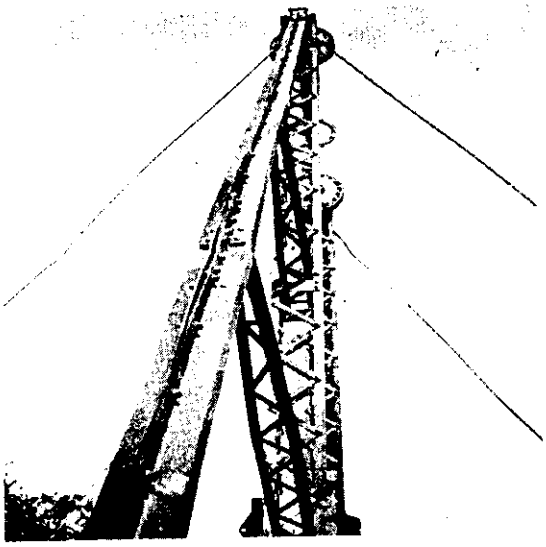
Attaching Bottom Windbraces

Bring into position the bottom windbrace on each side of the WHEEL. As it is guided onto the top windbrace the outer end of the bottom A-brace on the No. 16 model only has to be guided into the slot in the bottom windbrace. Using a No. 70 frame pin connect the A-brace to the windbrace. Then connect the lower end of the windbrace to the windbrace crossbar using the same No. 70 frame pin. See Picture Nos. 105 and 106. Use three of the same kind of pins to connect the two sections of windbrace, as shown in Picture No. 107. Do the same thing on the other side of the WHEEL.

Truing the Towers

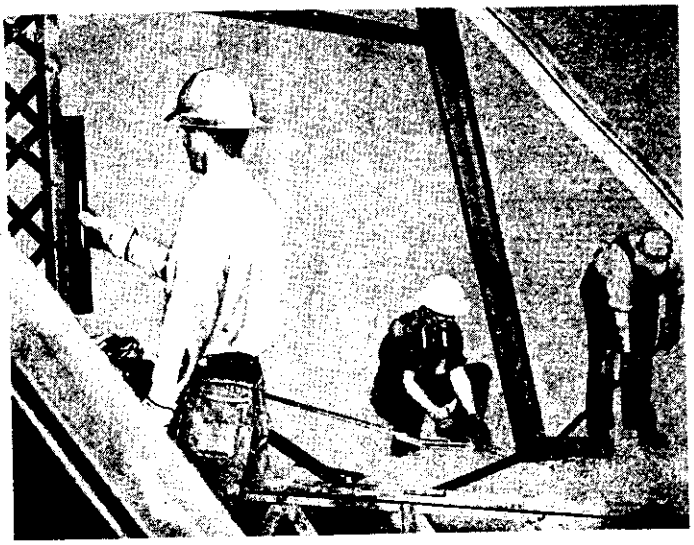
The bases were leveled and the stub towers plumbed at an earlier stage. Now the top towers must be adjusted from front to rear. Put one man on each turnbuckle at the lower end of each corner guy cable. A fifth man stands out to the side at the end of the windbrace where he can sight across the towers. See Picture No. 108. Adjust the turnbuckles until the two towers are parallel to each other. If the turnbuckles on one tower pull the tower more to the front than on the other tower, then the towers will not be parallel. As you sight across one tower to the other, you can see when they are not lined up with each other. See Picture No. 109. If you do not keep the towers parallel the main axle will not be square with the base of the WHEEL, and the drive cable will not track properly.

Tighten the turnbuckles, as shown in Picture No. 110, until there is no slack in the corner guy cables, but do not pull them too tight. Another way to tell how tight to pull them is to sight along the cable and tighten the turnbuckle until there is no sag in the cable. Then turn the turnbuckle two more full turns. Most importantly, try to adjust the tension in all four cables so that they are



No. 109

No. 110



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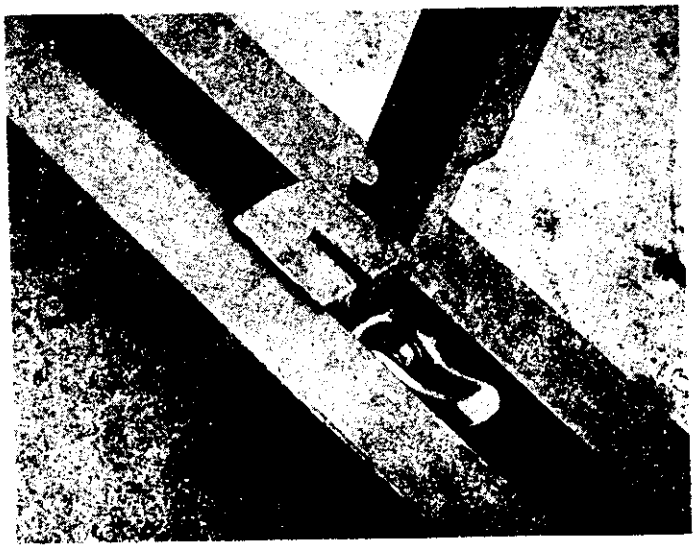


No. 113

No. 114

- On the No. 16 WHEEL:

2 - No. 17 spokes

1 - No. 18-S short spoke crossbar

1 - No. 18-M medium spoke crossbar

1 - No. 18-L long spoke crossbar

2 - No. 191 top spoke cables (long)

2 - No. 192 bottom spoke cables (short)

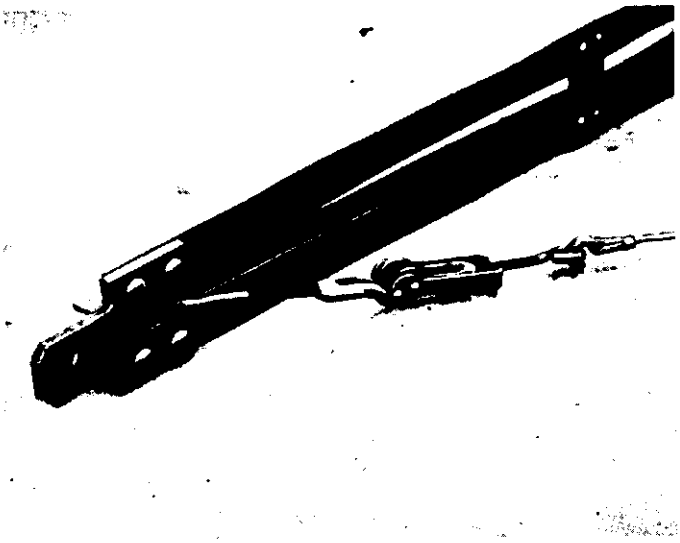
4 - No. 104-105 Sullivan malleable turnbuckles

Begin the assembly at least one spoke length out in front of the bases. Lay one spoke on the ground with the flat side up. The long spoke crossbar connects to the spoke near the tenon end, which fits into the hub. The short spoke crossbar goes near the seat end, and the third one, which is used only on the No. 16 WHEEL, goes in between. It is best to use one man on each spoke crossbar as shown in Picture No. 112. Insert the crossbars so that they engage the cross bolt in the spoke block. See Picture No. 113. There are notches on the end of each crossbar. The notch fits over the bolt that goes through the spoke and spoke block. After the cross bolt is engaged, then the spring-loaded spoke lock will spring down against the crossbar and hold it locked in position.

Lay the assembly on its side and connect the second spoke to the crossbars, as shown in Picture No. 114. The assembly is made easy with the Sullivan adjustable turnbuckles. For anyone using a WHEEL in portable operation, this assembly is simplified since all you have to do is throw open the turnbuckles and the cables can be removed without touching the adjustments. This permits reassembly with very little adjustment of the turnbuckles needed. For a permanent location this removable feature is not as important. Hook a turnbuckle into the slotted hole in each spoke tenon. See Picture No. 115. Then connect the long spoke cables from the turnbuckles to the eyes in the spoke locks diagonally opposite. The spoke locks are in the middle of the spoke, where the spoke crossbar fits, as shown in Picture No. 116.

On the No. 16 model only:

> Hook turnbuckles into the eyes of the spoke locks of the short spoke crossbar near the seat end of the spoke. Using the short spoke cables, connect the turnbuckles to the eyes of the spoke locks diagonally opposite on the middle spoke crossbar. The four Sullivan adjustable turnbuckles should be at the extreme ends of the spoke assembly.



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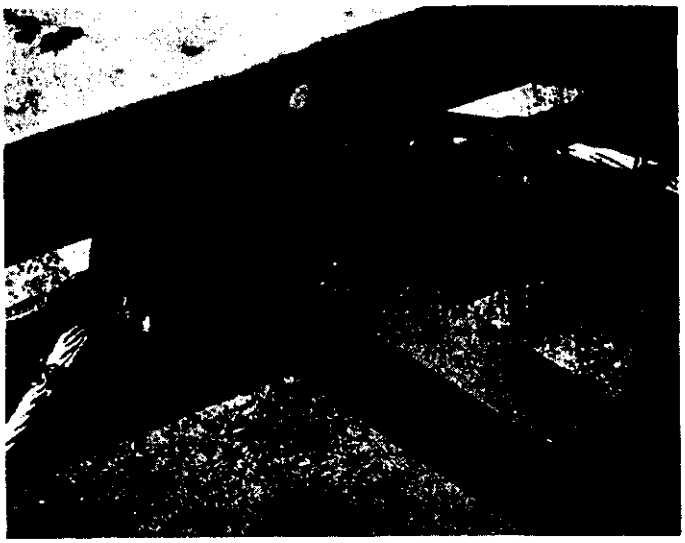

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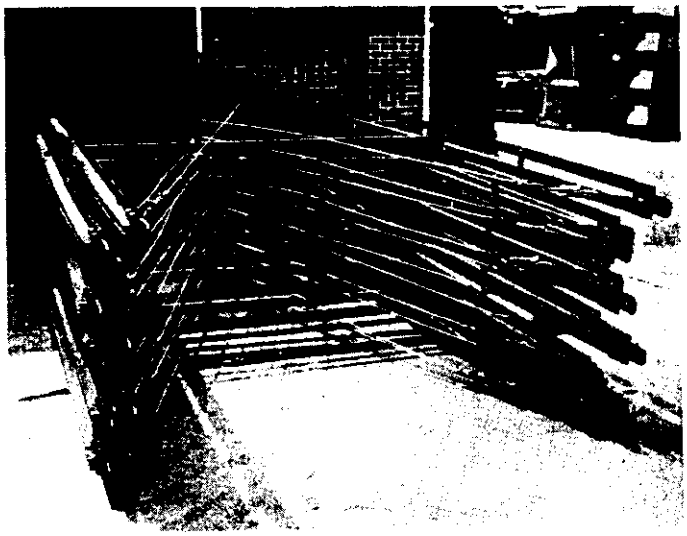

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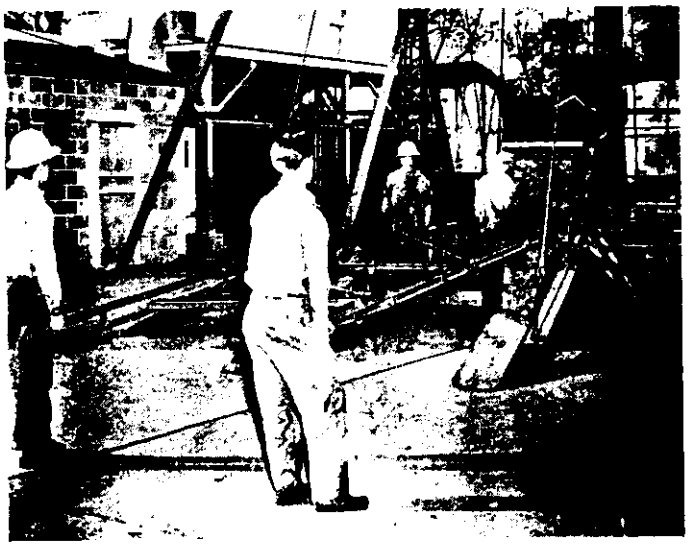
No. 119



No. 120

The 2 x 8 spoke board has a ring in the middle and metal clips on each end. Slip the spoke board between the spoke angles and slide it toward the tenons so that the metal clips hook around the lacing plate (or spoke lace) connecting the spoke angles closest to the spoke tenons.. See Picture No. 121. The spoke cables should be under the spoke board. The ring should be on the tenon side of the board, so that when you hoist on the ring the metal clips will lift the spoke.

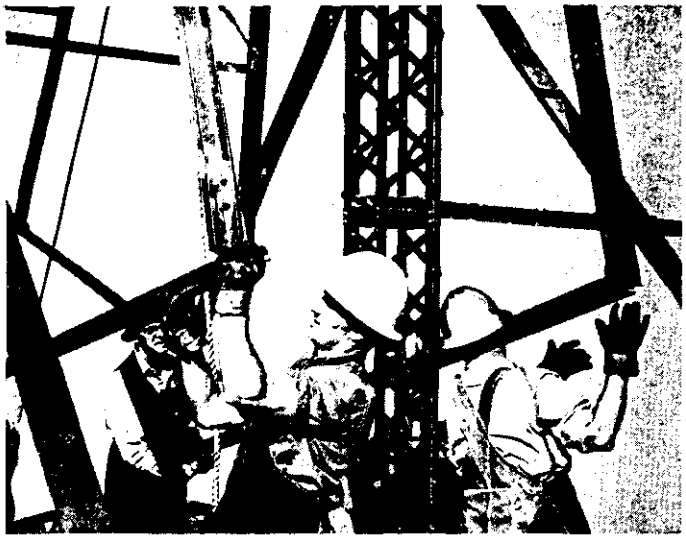
Position one man up on each tower just under the main axle. With two wraps around the winding spool the spoke assembly is raised up to the hubs. As it is raised, the two men on the ground walk their end of the spoke assembly in under the WHEEL. The men on top remove the No. 69 hub pins, guide the spoke tenons into the slots in the hubs, and drive in the pins, as shown in Picture No. 122. Often the men on the ground have to move their end of the spoke assembly up and down, or from side to side, in order to get the spoke tenons all the way into the hub slots so the pin holes will line up.

Do not pull too hard on the spoke rope. With the power you have in the winding spool you can very easily break the rope. A hard pull is not necessary. The tenons will enter the hubs freely if properly lined up. If the tenons will not go in, check the fitting parts for something obstructing the joint. Do not drive or force this joint. If you do, you will just be battering the steel, which will be very troublesome later on.

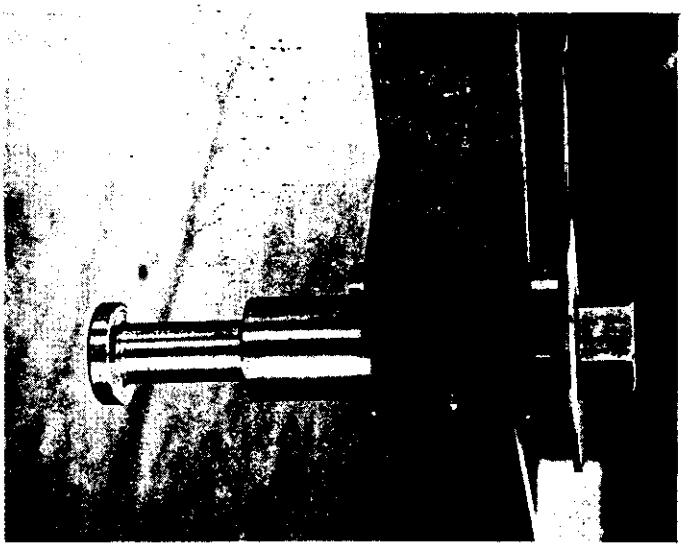
After the first spoke assembly is pinned in place, then the men stand on the top spoke crossbar while pinning in place the next spoke assembly. See Picture No. 123. Then as the WHEEL is turned to each successive position, they step forward to the next top spoke crossbar. They should check to be sure that each long spoke cable is loose after the spoke assembly is pinned to the hub.

The men at the top remove the spoke board from the spoke assembly and the man on the winding spool lowers it for fitting the next spoke assembly. The rope is pulled loose from the winding spool, pulled to the top, thrown over the spoke assembly just pinned in place, and lowered back to the spool. ready for hoisting the second spoke assembly.

Raise the second spoke and pin it to the hubs, as shown in Picture No. 124. Then bolt rim angles to the first spoke assembly using No. 61 seat pins. The rim is to be installed with the long leg up toward the main axle and the short leg turned away from the rotating WHEEL. Push this spoke assembly to the rear with the rims, and set the loose ends of the rims in behind the base crossbars. See Picture No. 125. This will hold the first two spoke assemblies at a position that will allow you to insert the third spoke assembly.



No. 127



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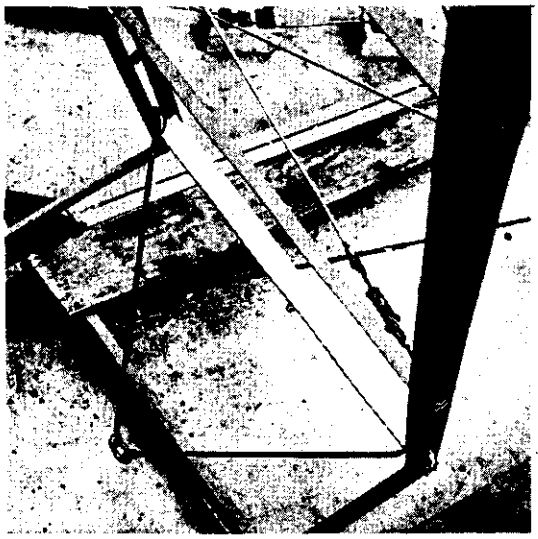

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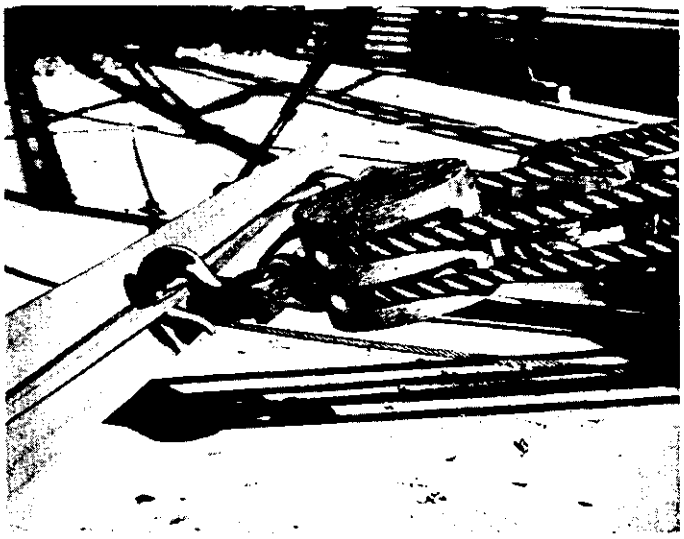

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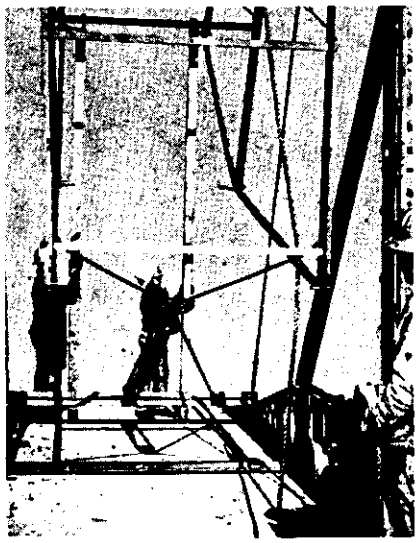

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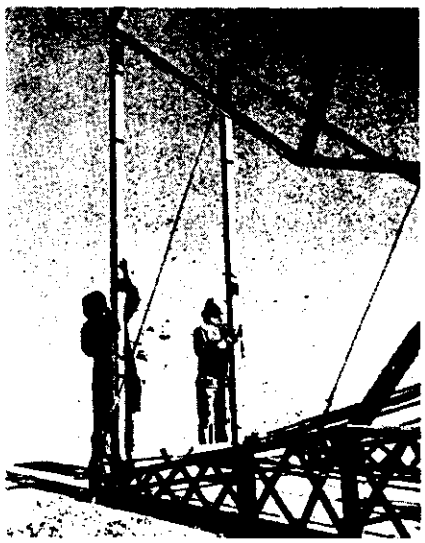


No. 132

As soon as the last spoke assembly is pinned to the hubs, then unhook the spoke block from the hub rings and lower it to the ground. Then press the hub rings down on the hub bolts, compressing the springs on the hub bolts. Turn the rings until the counterbore is under the head of each hub bolt. Then release the ring and it will spring out. The counterbore will then lock the hub ring to the underneath side of the head of each hub bolt. This will insure that none of the hub pins can come out. See Picture No. 138.

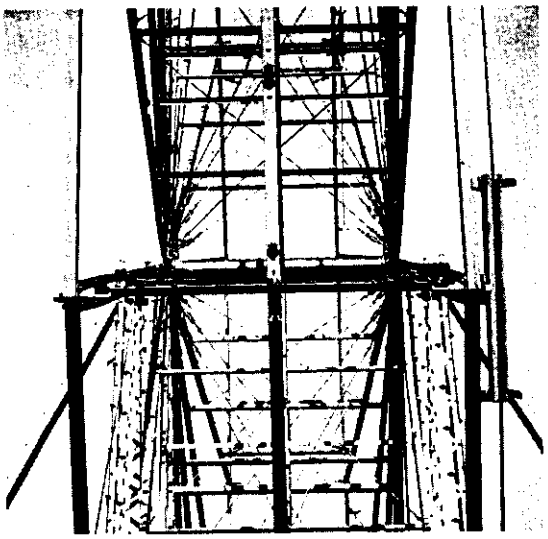
Squaring the WHEEL

The two sides of the WHEEL must be lined up with each other or the seats will not ride level on the seat pins when rising on the back side, or descending on the front side, of the WHEEL. Eight sets of No. 193 bottom cross cables are provided to hold the No. 16 WHEEL square. Six pairs of No. 26 cross cables are furnished with the No. 5 and No. 12 models. Each pair of cross cables forms an "X" brace between alternate pairs of spoke assemblies. No. 195 bottom parallel cables on the No. 16 WHEEL (No. 25 parallel cables on the No. 5 and No. 12 WHEELS) are parallel to the rim angles and go from one "X" braced pair of spoke assemblies to the next "X" braced pair. All of these cables connect at the ends of the short spoke crossbars, which are the ones closest to the seat pins. In addition, sixteen pairs of No. 194 top parallel cables are provided on the No. 16 WHEEL only, to connect all of the spoke assemblies together at the middle spoke crossbar position. However, at this time only two sets of the No. 193 bottom cross cables with turnbuckles are to be installed on the No. 16 WHEEL (No. 26 cross cables for the No. 5 and No. 12 models), and they should be on opposite sides of the WHEEL.

With both pairs of cables in place, tighten the turnbuckles by hand until they are snug. Do not tighten the turnbuckles too much or you will break the cable hook or the turnbuckle. The turnbuckle can exert a strong pull on the cable, and when operators have trouble with cables it is generally because they pull them too tight, or they tighten one and leave the other one loose so that only one cable is carrying the load.

Standing in front of the WHEEL, sight in line with the spoke crossbars on one spoke assembly and in line with the main axle, as shown in Picture No. 139. Adjust the turnbuckles on the cross cables until the spoke crossbars are parallel to the main axle. Turn the WHEEL half way around, and make the necessary adjustments in those cross cables. Then turn the WHEEL back to the first position and re-check your original adjustment.

No other cross or parallel cables should be installed at this time. The two pairs of cross cables will hold the WHEEL square.



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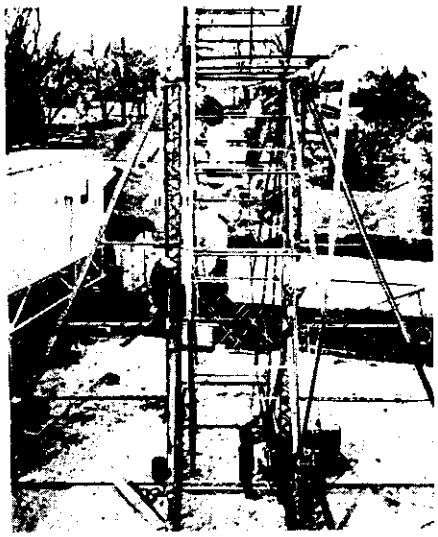

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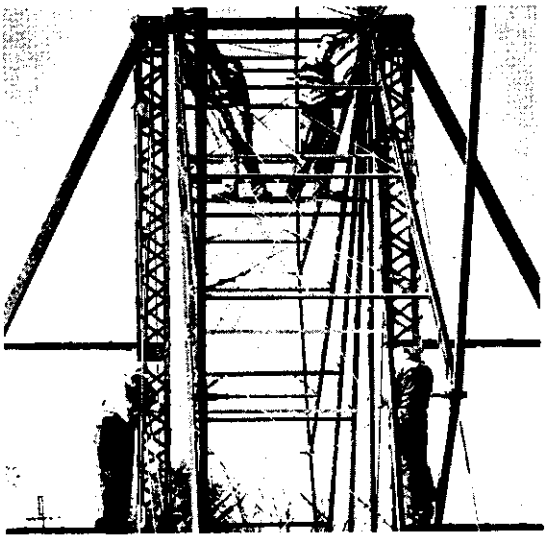
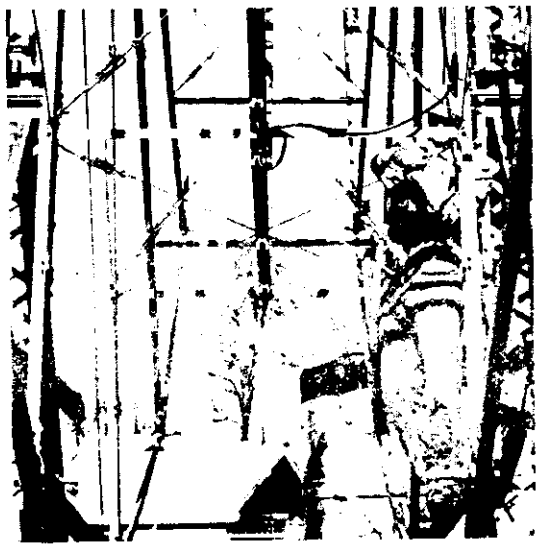


No. 141

No. 142

No. 143



No. 144

a second time. Sometimes it is necessary to go around three or four times before all are adjusted properly. Measure at each seat pin connection only on the gear tower side so that the drive cable will track properly.

It is advisable to re-check the squareness of the WHEEL across the spoke crossbars and main axle at this time, and then check around the WHEEL a final time to make fine adjustments of all turnbuckles for accurate truing.

Install Parallel Cables and Remaining Cross Cables

There are no cross or parallel cables at the top spoke crossbar positions on any BIG ELI WHEELS. On the No. 16 WHEEL only, connect all sixteen pairs of parallel cables at the middle spoke crossbar position as shown in Picture No. 143, and tighten them just enough to take out all looseness. These parallel cables fit together to make a circle on each side of the WHEEL at the middle spoke crossbar position.

At the bottom spoke crossbar position on all WHEELS, put in the remaining pairs of cross cables as shown in Picture No. 144, and all of the parallel cables which run straight from spoke to spoke. At the bottom spoke crossbar position the parallel cables form a circle on each side of the WHEEL, but these circles are not continuous. Between a "first" and "second" spoke assembly, parallel cables which are parallel to the rim angles on each side of the WHEEL go from the "first" bottom spoke crossbar to the "second" bottom spoke crossbar. Cross cables then extend from the "second" bottom spoke crossbar diagonally across the WHEEL to the "third" bottom spoke crossbar. Parallel cables go between the "third" and "fourth" spokes assemblies, and so on, alternating back and forth from parallel to cross cables all the way around the WHEEL at the bottom spoke crossbar position.

If you do not tighten the cables evenly all over the WHEEL, it is possible to pull it out of line and perhaps even bend a spoke with a single cable, so be very careful to adjust all cables to the same tension.

This completes the erection of the rotating structure of the BIG ELI WHEEL.

DIRECTIONS FOR COMPLETING THE CABLE DRIVE

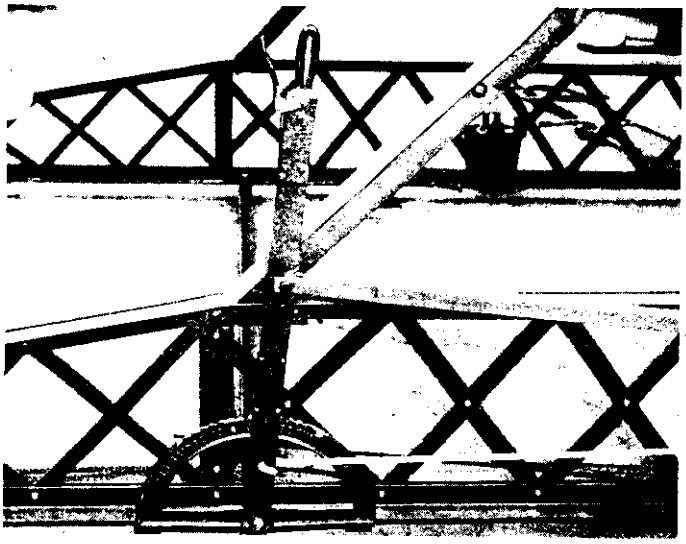
With the entire BIG ELI WHEEL structure completed, the next step is to fit the drive cable to the WHEEL.

There are two short angles that hinge to the top side of the idler stand. These uprights support the idler sheave. At this time, only the upright closest to the base is to be used. Insert a No. 62 idler pin in the top of the angle so that the pin head and grease cup are next to the base. The flat side of the head of the pin will then lie against the other leg of the idler upright angle so that the pin cannot rotate in the pin hole. Slip one No. 62-F fiber idler washer on the idler pin next to the inside of the upright angle. Then slip the No. 33 idler sheave on the pin. Swing the idler sheave and upright angle over toward the drive sheave but do not let them strike each other. Support the bottom of the idler sheave with a block of wood. The other upright angle is not to be connected until after the drive cable has been wrapped around the drive and idler sheaves.

Stand between the towers facing the sheaves. Grasp the cable coming down the back side of the WHEEL and carry it to your right, over the top of the drive sheave, down to the right to the bottom side of the drive sheave, then across to the left to the bottom side of the idler sheave, up around the left side to the top of the idler sheave (see Picture No. 151), straight across to the drive sheave, down on the right to the bottom of the drive sheave, straight scross to the left to the bottom side of the idler, up around the left side of the idler sheave and on to the woodrims on the front side of the WHEEL. In other words, the drive cable is wound two complete turns around both sheaves in a clockwise direction.

Next, slip the other No. 62-F fiber idler washer on the idler pin, next to the idler sheave hub. Raise the remaining upright angle and slip it on the idler pin. Lock the pin with a No. 62-A idler pin tapered key.

Hook the two No. 31-X idler pullback rods into the tops of the upright angles with the turnbuckles next to the idler and hook the other ends into the end ring directly to the rear on the doubletree. To do this you must disengage the doubletree from the base on the "off" tower side, swing the doubletree around toward the front, engage the pullback rods, then pull the doubletree back and slip it over the base hook again. See Picture No. 152. Remove slack from the drive cable by tightening the two turnbuckles of the idler pullback rods. Then start the engine or motor and turn the WHEEL slowly and carefully. Be sure that the drive cable tracks properly in all of the woodrims and the two sheaves. See Picture No. 153. Continue tightening the drive cable until all slack is removed. Do the tightening while the WHEEL is turning. The idler sheave can be angled one way or the other by the way you adjust the turnbuckles on the pullback rods, as shown in Picture No. 154. If the idler sheave is properly lined up with the drive sheave, the drive cable should not ride against the sides of the grooves, and the cable should not rub against itself where it crosses above the two sheaves. If the cable rubs, it is a sure sign that the WHEEL or towers are not perfectly plumb and the bases not level. If you see any kink in the cable, there is a corresponding kink somewhere else to match.



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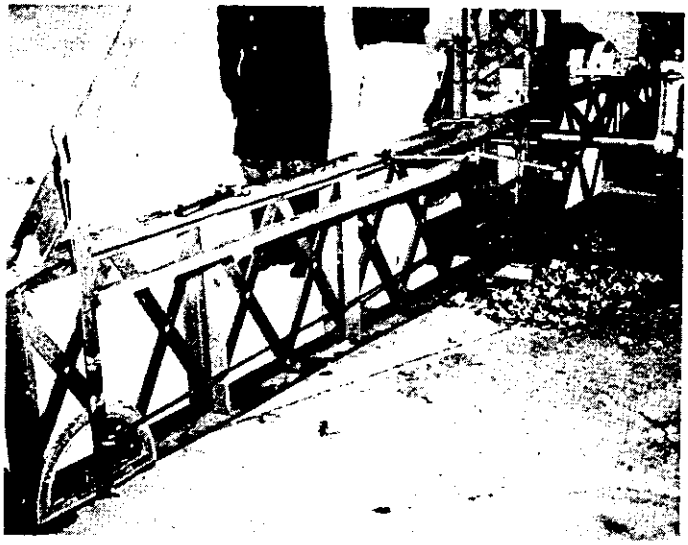

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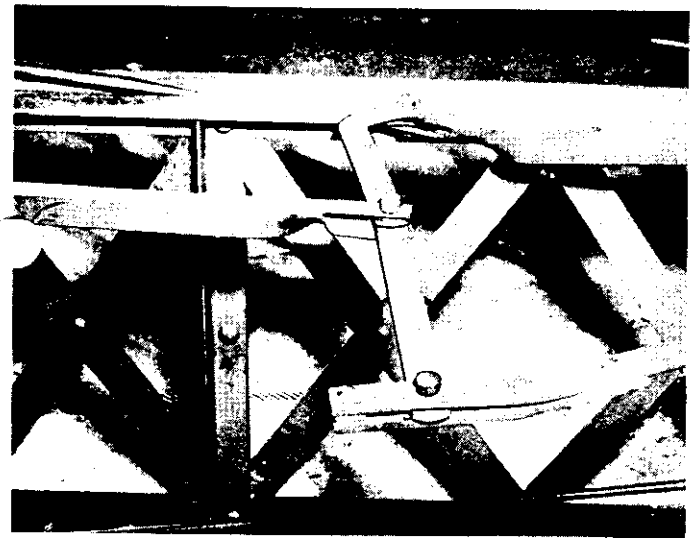

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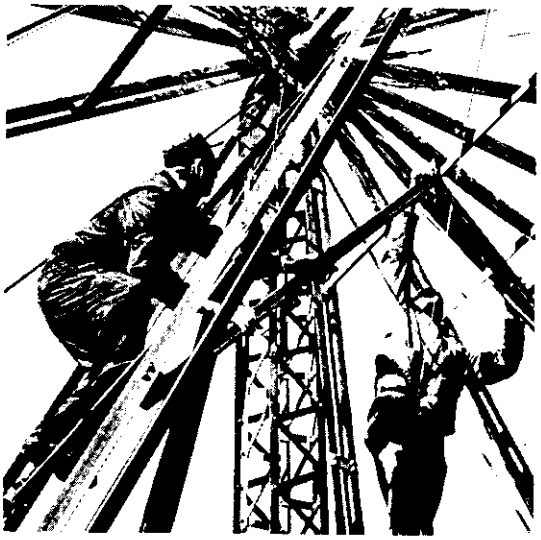


No. 160

No. 161

No. 162

slippage. On the other hand, do not operate it so loosely that it can jump off the woodrims or sheaves. The rubber packing in the drive sheave and woodrims gives excellent traction, and operators sometimes run the cable more loosely than they should. With an out-of-balance load on the WHEEL a loose cable can sometimes develop a great deal of slack on the back side of the WHEEL where it feeds on to the woodrims. A gust of wind or vibration of the cable could cause it to miss the woodrim groove and end up on top of the woodrim. Then when the WHEEL makes one revolution and it is time for the cable to feed off the woodrim it cannot. This can cause the WHEEL to come to a sudden stop, which can be injurious to the passengers and do structural damage to the WHEEL. If you see a lot of slack in the cable on the back side of the WHEEL where the cable is to feed onto the woodrims, tighten the cable at once.

Always relieve the tension on your drive cable during non-operating hours. Lubricate the drive cable with a reasonable amount of pine tar. Pine tar is necessary for the life of the cable, and it is also necessary to prevent unnecessary wear in the idler. As the WHEEL turns, the drive cable wraps in the idler move opposite to each other, and without lubrication the drive cable will literally "saw" the idler in half in a short time. Too much pine tar makes a mess out of the drive, but it is better to clean up the mess than to have to replace expensive parts that are worn out because of too little lubrication.

Final Installation of Brake Ratchet Handle

Hook the No. 53 short stub of the brake rod into the eye of the No. 56 brake bar lever so that the open part of the hook is toward the outside. See Picture No. 156. Hook the long stub of the brake rod in the lower hole of the No. A 44 brake ratchet handle assembly shown in Picture No. 157, so the open side of the hook is toward the outside. Do this before pinning the brake ratchet handle to the base or you will have to take the brake rod apart in order to hook both ends.

Then pin the brake ratchet handle assembly to the bottom angle on the outside of the base in front of the gear tower, using a No. 106 brake ratchet pin. See Picture No. 158.

Next, slip the No. 116-S straight toggle, which is a flat bar with a hole in each end, in between the two bars at the lower end of the clutch lever, as shown in Picture No. 159. Pin the two pieces together with a No. 70 frame pin. Bring the two toggles together in the center. A long angle, with each end formed into a clevis, connects these two toggle bars to the brake ratchet handle. The angle should be placed so that the vertical leg of the angle is toward the outside and pointed down. Slip the two toggle bars in the long clevis and pin all three together with a No. 70 frame pin. Slip the short clevis on the other end of the angle over the brake ratchet handle where the hole is located about half-way up and bolt the two together with a 1/2" bolt. Try the combination

a drop or jumper by connecting a female socket to a male receptacle. Power is fed from a panel by connecting a male plug to a female receptacle. In this way, there can never be a male plug hanging loose with voltage on it.

To assemble the star lighting, start with two dead ends next to each other at an inside point of the star. Bolt them to the hole in the middle of the top spoke crossbar, which is the one closest to the main axle. See Picture Nos. 160 and 161. The light panels then extend diagonally to the middle spoke crossbar of the spoke on either side. This locates two of the eight outside points on the star.

Connect two more light panels as shown in Pictures 162 and 163. Note that on these panels, female receptacles go to the outside points and male receptacles to the inside nearest the main axle. Connect the outside points with jumpers.

Now start directly opposite on the WHEEL with the other two dead end panels, with the dead ends making an inside point directly opposite the first dead end point. Install the two adjacent panels as you did on the opposite side of the WHEEL.

You should now have eight panels installed, establishing four outside star points and six inside star points. Next, go to where the two remaining inside points will be, at the center of the open space on each side. Install two panels at each point with male receptacles at the inside points nearest the main axle. This is where the drops will connect to feed the four panel circuits. Install the remaining panels, making sure that at each point, where one panel has a male receptacle, the other has a female receptacle. Make sure all jumpers are in place.

The star can be assembled quicker by starting at an inside point and working in one direction clear around the WHEEL. To do this, however, you must have a clear understanding of where the dead ends go (opposite each other in pairs), and where the feed points go (all male receptacles, opposite each other in pairs).

Next, install the circle. The circle goes together without any nuts and bolts except for one light panel, which has a No. 207 connection plate fastened on one end with wing nuts. It is shown in Picture Nos. 164 and 165. This is the panel to begin with. Notice that this same end is a dead end. Place this dead end at 90 degrees to the dead ends of the star.

Insert the pin of the No. 207 connection plate in the hole at the center of the bottom spoke crossbar. Lay the other end of the light panel having a No. 206 connection plate over the top of the next bottom spoke crossbar. This plate has a hole in it that matches the hole in the crossbar. Insert the pin on the next light panel through the holes in this plate and in the spoke crossbar. In this way the pin of the next panel locks in place the previous panel.

At eight positions around the circle the cross cables are in the way. To install the light panels in these eight places, the fluorescent tubes must be removed. The cross cables will then lie between the tubes and the metal panel itself. In the other eight locations the parallel cables do not get in the way.

Continue on around the circle, remembering that when you are half-way around you must install two more dead ends next to each other. This will be half-way between dead ends on the star.

When you complete the circle, the last light panel, having one dead end, could not be installed if it were not for the No. 207 pin plate being fastened to the very first panel with wing nuts. Remove the wing nuts, slip the pin plate out of the hole, drop the No. 206 connection plate of the last panel over the spoke crossbar, re-insert the pin plate, and fasten it to the first panel with the wing nuts.

Halfway between the dead ends on each side of the circle connect the long lead wires, and plug the other ends into the electrical boxes mounted on the hubs, as shown in Picture No. 166. All of the lead wires have some extra length, in case they become damaged and need repair. The extra length will permit you to make repairs without making the drop too short. Tape or tie any loose wire to the spokes so it will not flop around. Close to the boxes on the hubs the lead wires have metal clips on them. These are to be slipped under the heads of the hubs ring bolts and against the face of the hub rings so that the weight of the electrical drop is carried by each clip and not by the plug on the end. The spring pressure on the hub ring will hold the clip in place.

Connect the remaining panels with electrical jumpers to complete the installation of the light circle and star as shown in Picture No. 167.

end with the holes in the previously assembled circle and star panels, and in the "second" bottom spoke crossbar. Insert the pin on the end of the second circle panel through the plates on the outer ends of the two star panels, through the plate on the end of the first circle panel, and through the hole in the "second" bottom spoke crossbar. This locks all four panels together at that point. On the "third" spoke the two star panels go together at the inside point, located on the "third" top spoke crossbar, in the same way as if the star were by itself. See Picture No. 161. The second and third circle panels, connecting together at the "third" bottom spoke crossbar, go together in the same way as if the circle were used by itself. See Picture No. 165. Note on the lighting layout drawing where the lead wires are to be connected, and where the dead end panels are to be located. Follow the directions for completing the wiring as described in the section covering the star and the circle on the No. 16 BIG ELI WHEEL.

ELECTRICAL WIRING FOR BIG ELI WHEEL LIGHTING CIRCUITS FOR 110 VOLT POWER

DESCRIPTION

All light fixtures furnished with BIG ELI WHEELS are designed to use 110 volt, 60 cycle power. A "three wire" system is used which provides one "hot" conductor and one neutral conductor for carrying current, plus a third conductor for grounding the ride structure. The sockets in the light panels are individually grounded to the frame, and the jumpers carry the ground connection through the collector rings to the switch box or to a "made" ground. The three collector rings are designed to carry two "hot" lines and one ground. DO NOT CONNECT 220 VOLT POWER TO THE LIGHTING CIRCUITS OR YOU WILL BURN OUT THE FLUORESCENT TUBES AND TRANSFORMERS. DO NOT TRY TO CONNECT "SPLIT 220" POWER, BECAUSE THE WIRING IS NOT ARRANGED TO ACCOMODATE IT.

The 3-conductor drop going between the electric brushes to the switch box carries a black, a white, and a green conductor. The black is the "hot" line, the white is neutral, and the green is the grounding conductor. The "hot" and neutral lines are to be connected into the switch box on the terminals that are fused and switched. The green grounding conductor is to be connect-ed to the solid un-fused, un-switched terminal.

The switch box is of rain-tight construction and has 60 ampere capacity. This is quite adequate for all combinations of standard BIG ELI WHEEL fluorescent lighting circuits. If you add special lighting circuits over and above those

(b) Pipe Electrodes. Electrodes of pipe or conduit shall be not smaller than of the 3/4 inch trade size and, where of iron or steel, shall have the outer surface galvanized or otherwise metal-coated for corrosion protection.

(c) Rod Electrodes. Electrodes of rods of steel or iron shall be at least 5/8 inch in diameter. Approved rods of non-ferrous materials or their approved equivalent used for electrodes shall be not less than 1/2 inch in diameter.

(d) Installation. Electrodes should, as far as practicable, be imbedded below 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 commerical 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 electrode they shall comply with Paragraphs 250-83 (b and c) and shall not be 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 as low as 25 ohms, two or more electrodes connected in parallel shall be used.

Continuous metallic underground 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 well casings, and the like, have, in general, a resistance substantially below 25 ohms. It is recommended that 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 single electrode grounds when installed, and periodically afterwards, be tested for resistance.

Next, hook the ramp on to the front side of the loading platform as shown in Picture No. 169. One end of the ramp has angles extending out of one end. The extended angles have notches in them which hook over bolts on the two sides of the loading platform. The front end of the ramp lies directly on the ground.

Seats

The last thing to do is hang the seats on the WHEEL. Each seat is covered with a seat cover and is transported in its own seat crate. The seat hangs in the crate on two pins in the same way it hangs on the WHEEL.

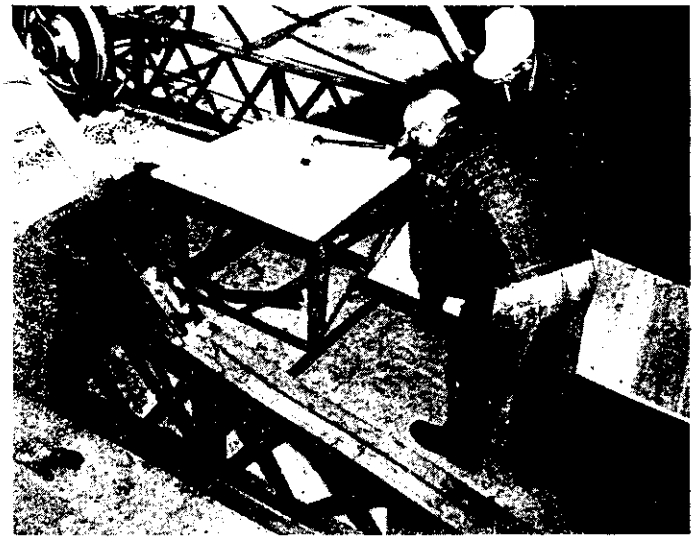
Underneath each pin there is a seat lock slip which fits up into the "Y" seat hanger casting on the end of the seat. The seat lock clip, when properly installed, holds the seat securely to the pin so that it cannot get off regardless of how the seat may swing. Remove the seat lock clip by pulling down and away from the seat.

Leave the seat cover on while two men lift out the seat, carry it to the WHEEL, and hang it on the seat pins. See Picture No. 170. After the seat is hung on the pins, grasp the seat lock clip by the handle and shove it up into the "Y" casting, with the hinged part of the clip toward the outside, as shown in Picture No. 171, until the clip snaps over the lower crossbar of the "Y" casting. The spring in the clip will hold the clip in place. Never install a clip that is damaged or that has a bad spring, and never operate a WHEEL without every seat being locked with a seat lock clip on each side of every seat. With the seat lock clips in place, the seat could be turned over upside down and still not fall off the seat pins.

Do not try to put all of the seats on in rotation. Hang seats one and two, then turn the WHEEL half-way around and hang the seat opposite seat one, then the seat opposite seat two. Move back and forth across the WHEEL to keep it fairly balanced as you add seats in their proper order. The seats should be hung so that as the WHEEL turns they pass by the operator in numerical order.

After all the seats are hung on the WHEEL, go around again and check every seat to be sure that each one has two seat lock clips on it. Do not allow the WHEEL to operate and carry passengers until you see to it personally that all seat lock clips are in place. Be sure that they are in right so that the seat cannot possibly come off the seat pins.

Next, remove the seat covers, fold them, and store them away. When a BIG ELI WHEEL is used portably, the hair guards are stored inside the seat beneath the folded footbottom, as shown in Picture No. 172. Unhook the



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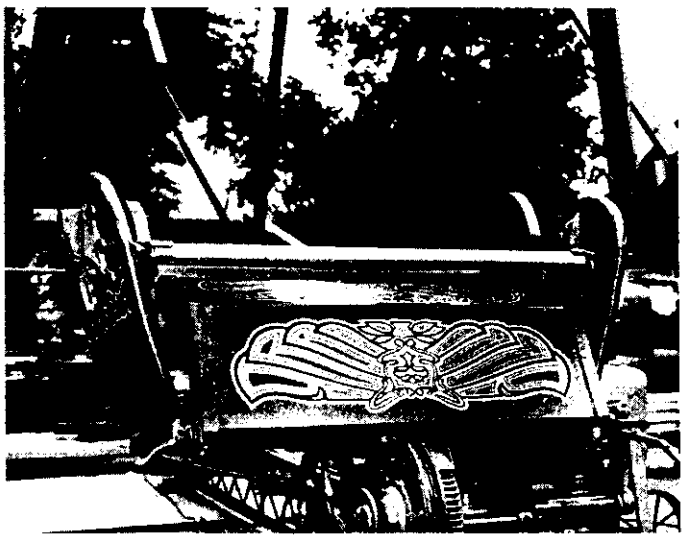
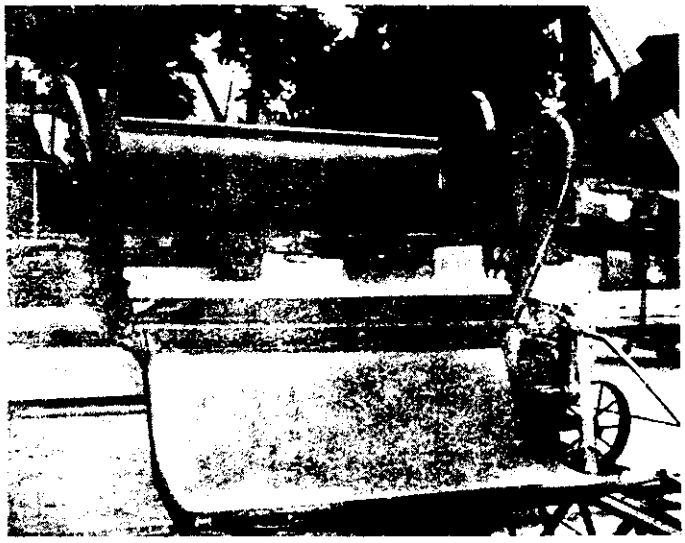


No. 172

No. 173



No. 174

what experience will teach you, the equipment will give you longer service if you will always try to operate the WHEEL as nearly balanced as possible. In starting to load, put two or three passengers in seat No. 1 (See picture No. 178). Then turn the WHEEL half way around to the opposite seat for the next two or three persons. This will leave the WHEEL balanced except for the difference in weight of the passengers in the two seats. Load the next passengers in the next seat, and then turn the WHEEL half way around to the seat opposite that one for the next passengers, and so on, always keeping the passengers loaded opposite each other on the WHEEL to try to come as close to balance as you can. If you have a good line waiting to get on the WHEEL after 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 on 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 have to use care to keep the WHEEL balanced. This is only a matter of a little practice.

Sometimes an inexperienced operator will get his WHEEL so out of balance that he cannot raise the loaded seats up the back side of the WHEEL. In fact, sometimes it cannot be turned at all. When this happens the only thing to do is to unload seats at the bottom until the WHEEL is close enough to "balance" that it can be turned. Releasing the brake will allow the loaded seats to come to the bottom of the WHEEL. However, if the WHEEL rolls backwards, watch the drive cable in the drive sheave very carefully; sometimes the cable rolls over itself on the drive sheave, becomes snarled and locked, and has even rolled right off the drive sheave. Do not allow this to happen, because it can cause you to lose complete control of the WHEEL. If the cable appears to be climbing over itself, have someone guide the cable with a board, held well away from the drive sheave so as not to get the board caught. This should hold it in the proper groove.

Stop each seat so that when you push down on the front edge of the footbottom with your hand, it will bear against the top of the loading platform when it is raised with the foot lever. Before you push on the foot lever, however, pull out the seat plunger and throw open the handlebar as far as it will swing easily. Pushing down on the footbottom tips the seat slightly, which tends to tip the passengers up out of the seat. See picture Nos. 179 and 180. If you do this smoothly, you will speed up the flow of passengers. Remember you are not trying to throw the passengers out, but are merely trying to encourage them to move on out so others can ride. When the first passengers have left and the new ones are seated, release the footbottom, reach across to the handlebar and close it, making sure that the plunger on the side of the seat has securely locked the handlebar shut. Then advance the WHEEL to the next seat to be loaded or unloaded.

Do not jerk the clutch in starting, or the brake in stopping. This rocks the seats and some passengers will not like it. The main purpose of any amusement riding device is to please the passengers so that they will come back and bring their friends with them.

2. HAIRGUARDS SHOULD BE IN PLACE ON EVERY SEAT. IF ANY HAIR GUARDS ARE MISSING, ANY PASSENGER WITH VERY LONG HAIR, COMING DOWN TO THE MIDDLE OF THE BACK, MUST BE CAUTIONED TO HOLD ON TO HIS OR HER HAIR, AND NOT LET IT BLOW OUT TO THE BACK OR SIDE OF THE SEAT. 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 TANGLE THE HAIR VERY BADLY, AND CAN RESULT IN SERIOUS SCALP INJURIES. DO NOT LET THIS HAPPEN. WARN YOUR PASSENGERS WITH LONG HAIR, THEN WATCH THEM AS THEY RIDE, AND IF THEY DO NOT HEED YOUR WARNING, GET THEM OFF THE RIDE. SAVE YOURSELF A LOT OF CONCERN, AND ELIMINATE POSSIBLE INJURIES TO YOUR PASSENGERS, BY ALWAYS HAVING A COMPLETE SET OF HAIR GUARDS ON THE SEATS.

3. If the WHEEL is being misused in any way by the passengers, shut down the WHEEL until the condition is corrected. Do not allow the seats to be rocked.

4. Persons under the influence of alcohol or drugs must not be allowed on the WHEEL.

5. Smoking by passengers should not be permitted, since hot ashes can be dropped or blown into the eyes of other passengers on the WHEEL.

6. Be cautious and ready for the unexpected where children are involved. Underage children should be accompanied by a responsible adult.

7. Passengers waiting for the next ride must be kept away from any of the moving parts of the WHEEL.

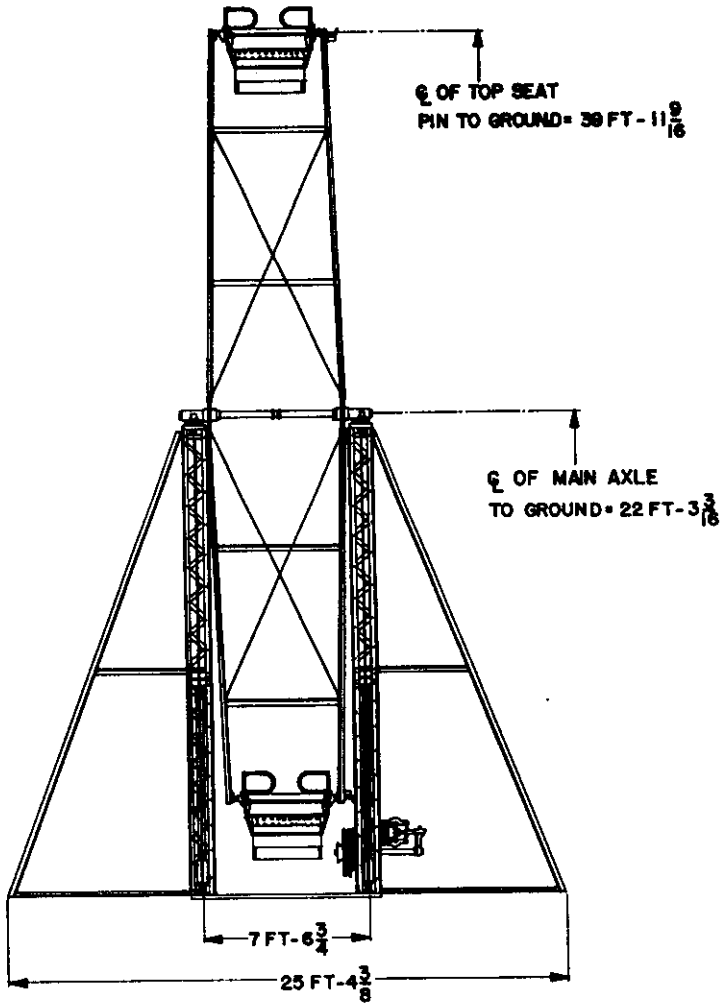
8. Be alert when the WHEEL is operating and be prepared for an emergency stop.

9. Never, under any circumstances, walk away from a WHEEL while it is operating and carrying passengers.

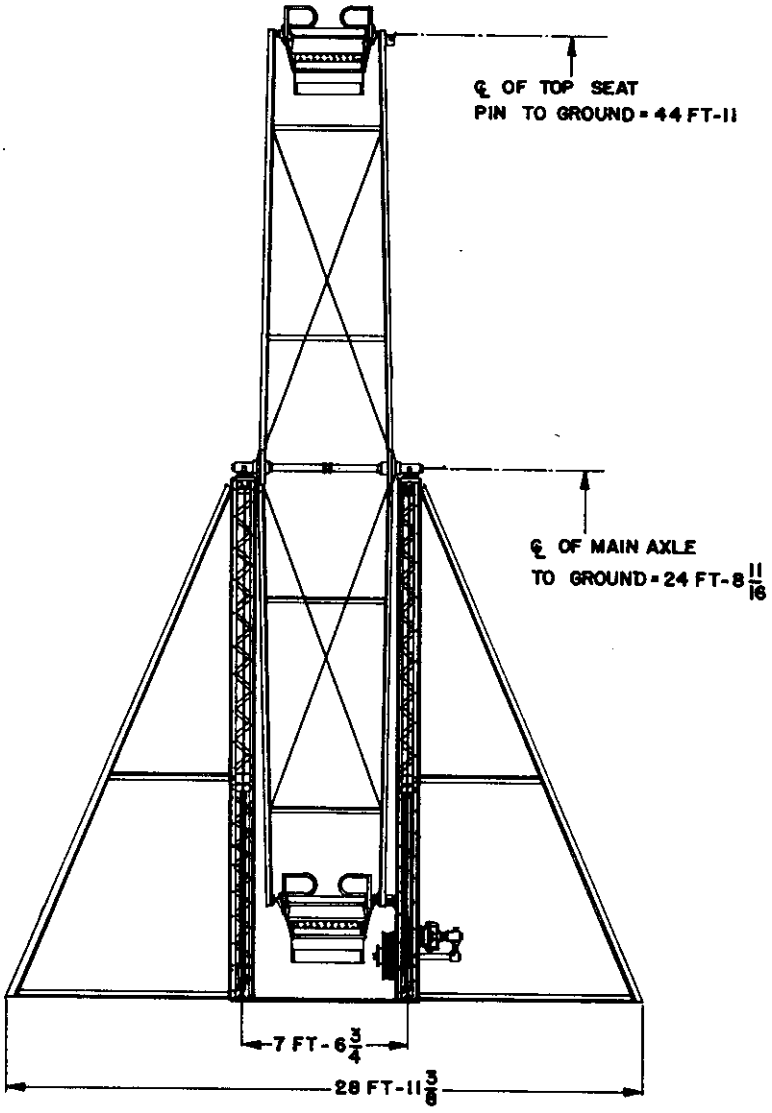
10. Take pride in operating safely; a safe WHEEL is a profitable one.

How fast should a BIG ELI WHEEL turn? All WHEELS have been adjusted at the factory to operate at the speed which experience has shown appeals to young and old alike.

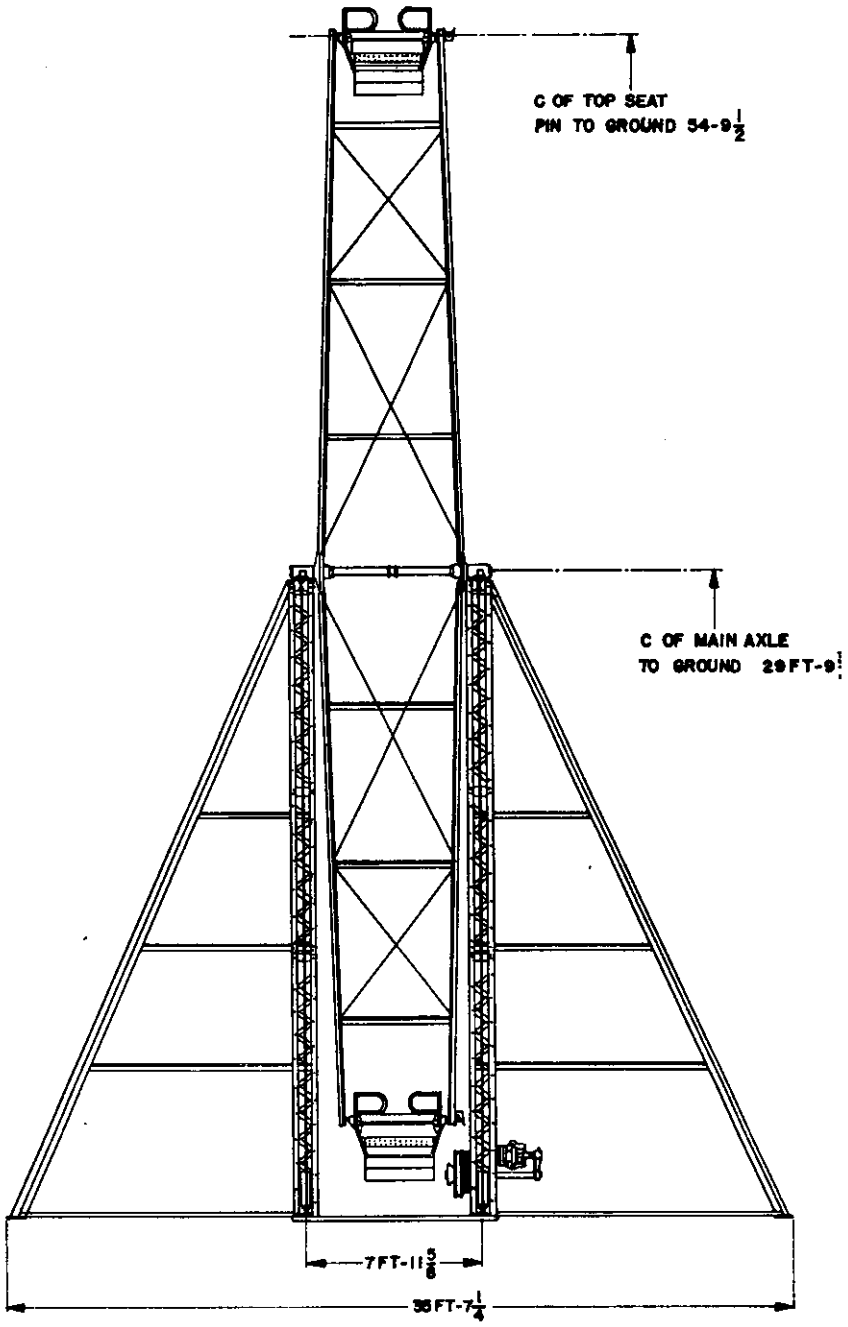
NO. 5 BIG ELI WHEEL - FRONT VIEW



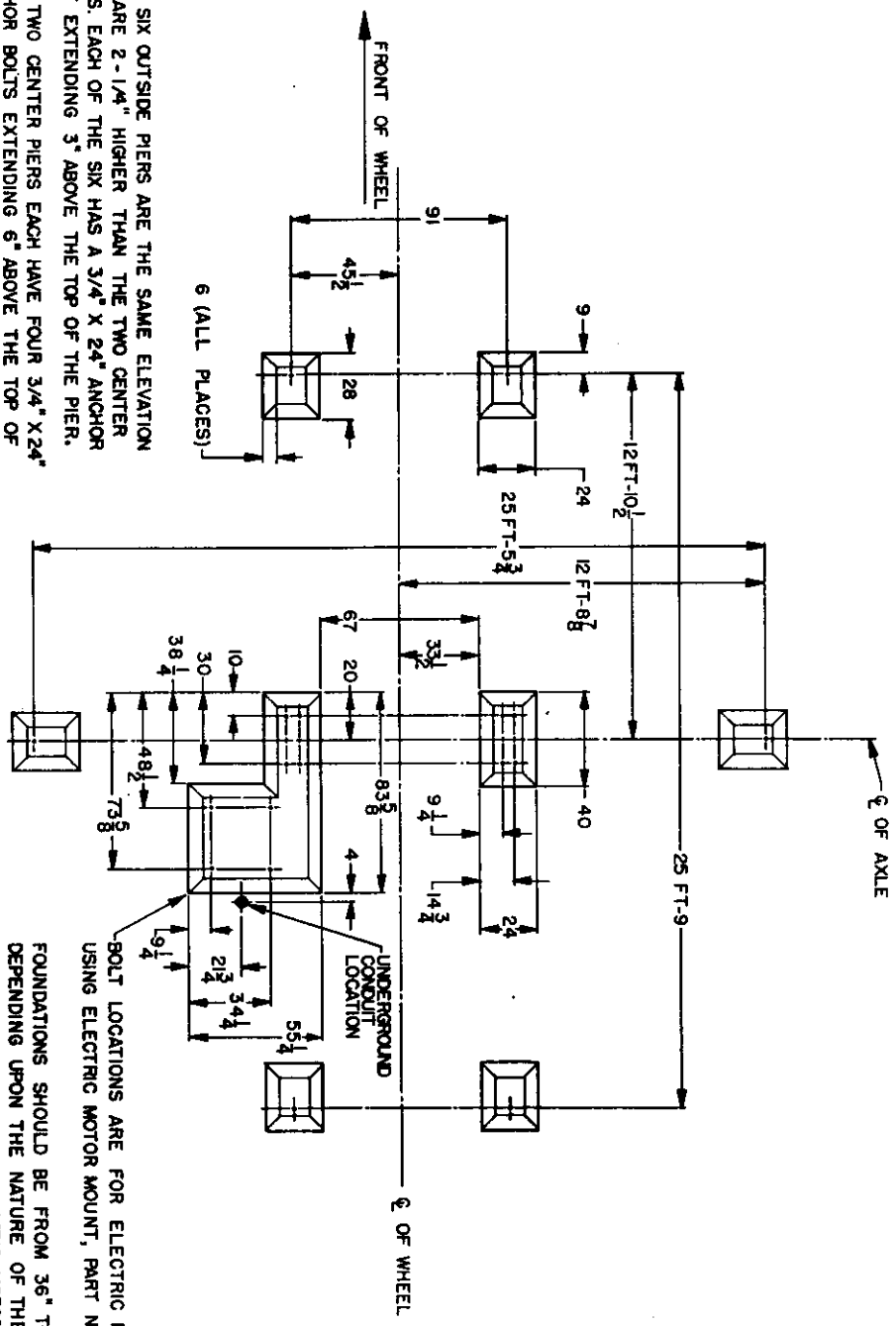
NO. 12 BIG ELI WHEEL - FRONT VIEW



NO. 16 BIG ELI WHEEL - FRONT VIEW



NO. 5 BIG ELI WHEEL - FOUNDATION PLAN



THE SIX OUTSIDE PIERS ARE THE SAME ELEVATION AND ARE 2 - 1/4" HIGHER THAN THE TWO CENTER PIERS. EACH OF THE SIX HAS A 3/4" X 24" ANCHOR BOLT EXTENDING 3" ABOVE THE TOP OF THE PIER.

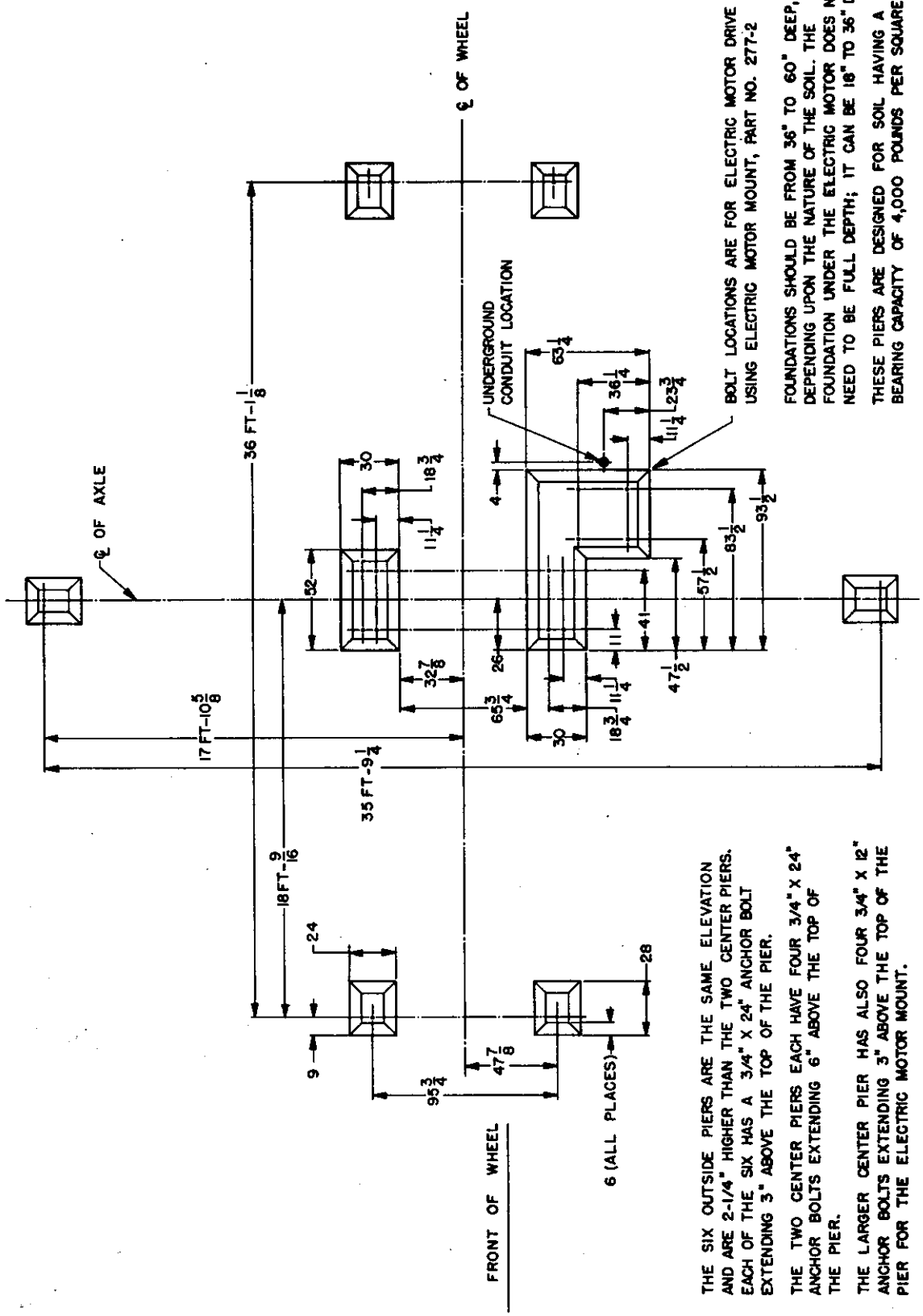
THE TWO CENTER PIERS EACH HAVE FOUR 3/4" X 24" ANCHOR BOLTS EXTENDING 6" ABOVE THE TOP OF THE PIER.

THE LARGER CENTER PIER HAS ALSO FOUR 3/4" X 12" ANCHOR BOLT EXTENDING 3" ABOVE THE TOP OF THE PIER FOR THE ELECTRIC MOTOR MOUNT.

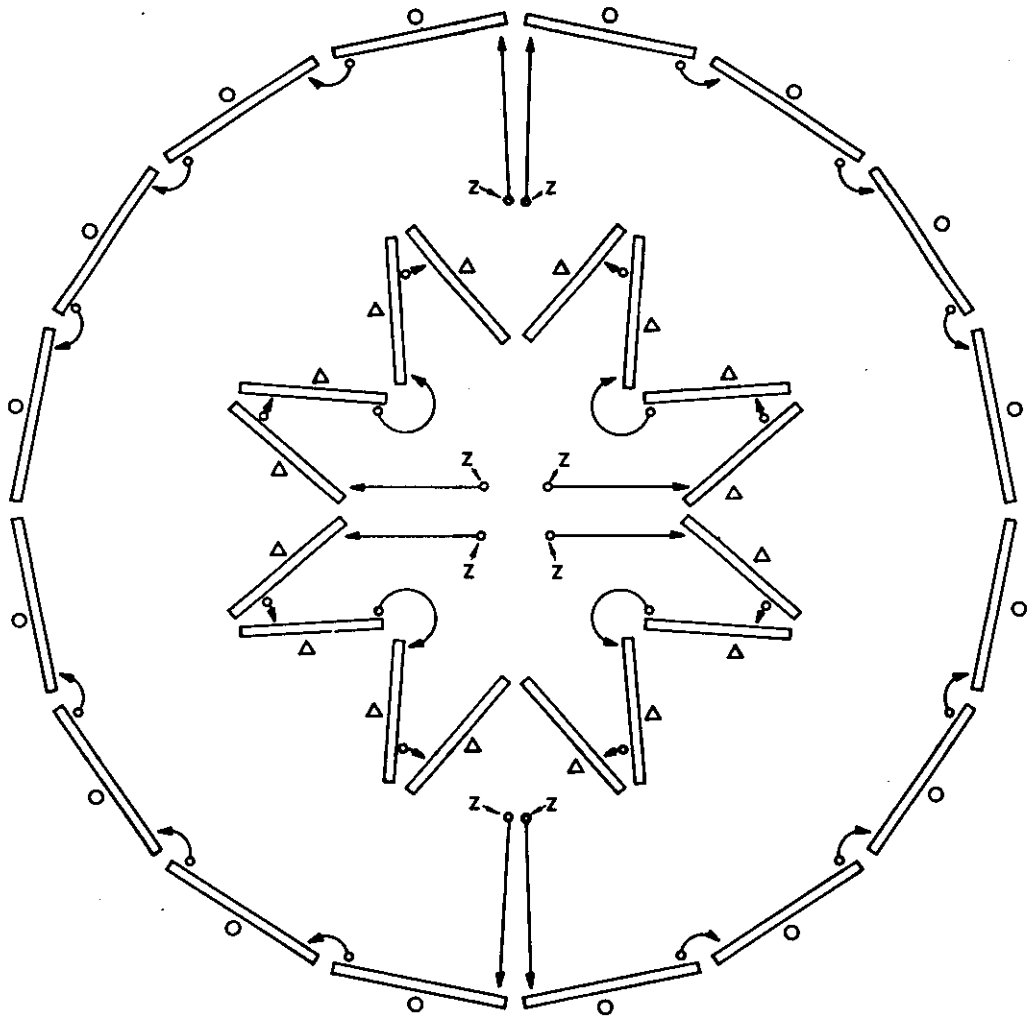
FOUNDATIONS SHOULD BE FROM 36" TO 60" DEEP, DEPENDING UPON THE NATURE OF THE SOIL. THE FOUNDATION UNDER THE ELECTRIC MOTOR DOES NOT NEED TO BE FULL DEPTH; IT CAN BE 18" TO 36" DEEP.

THESE PIERS ARE DESIGNED FOR SOIL HAVING A BEARING CAPACITY OF 4,000 POUNDS PER SQUARE FOOT.

NO. 16 BIG ELI WHEEL - FOUNDATION PLAN



NO. 16 WHEEL LIGHTING LAYOUT



NOTE – THE ENDS OF THE DROPS MARKED "Z" PLUG INTO THE ELECTRICAL BOXES ON THE HUBS.

ALL DROPS COMING FROM THE CIRCLE LIGHTS PLUG INTO ONE HUB.

ALL DROPS COMING FROM THE STAR LIGHTS PLUG INTO THE OTHER HUB.

CODE

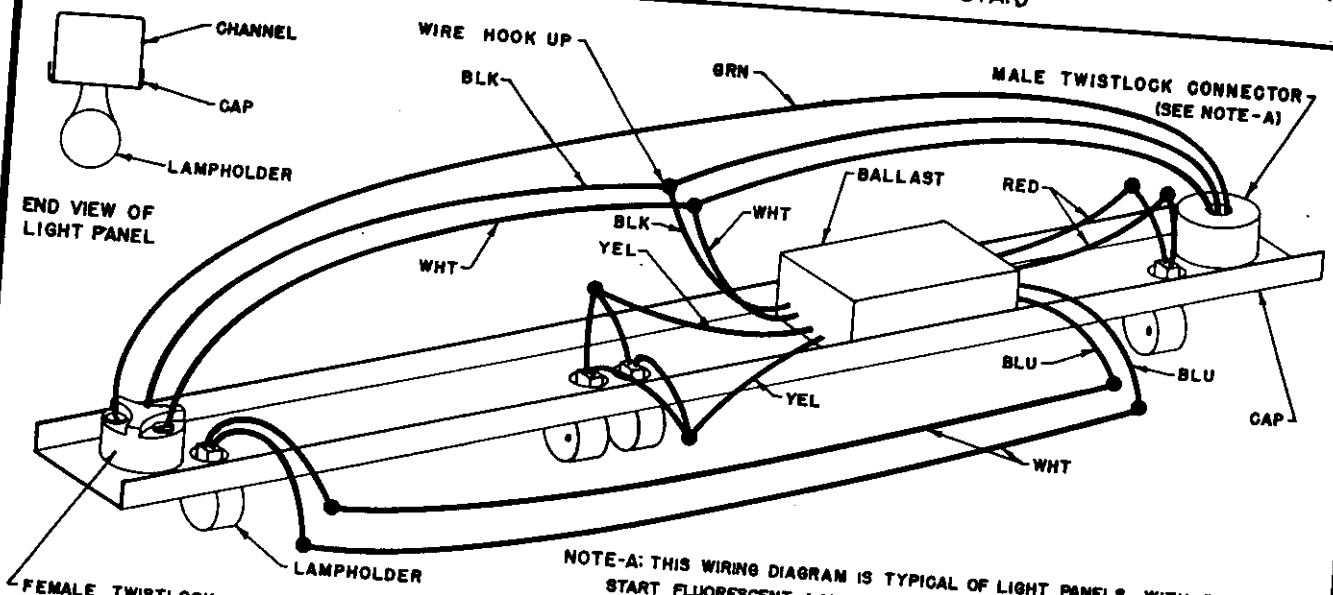
△ – STAR LIGHTS

○ – CIRCLE LIGHTS

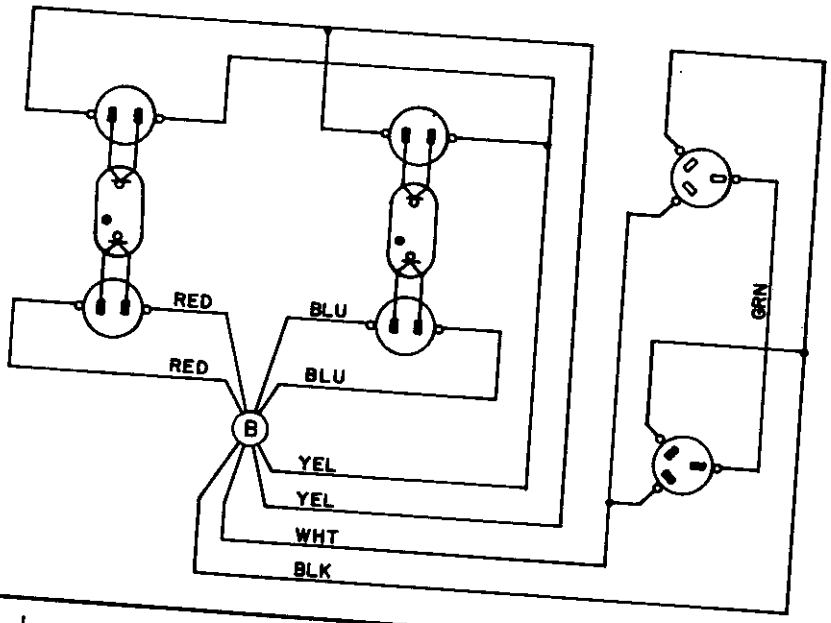
– JUMPER
FEMALE TWISTLOCK CONNECTOR

WIRING DIAGRAM FOR:

NO. 5 CIRCLE OR STAR
NO. 12 CIRCLE
NO. 16 CIRCLE OR STAR
} WITH TWO TWISTLOCKS



NOTE-A: THIS WIRING DIAGRAM IS TYPICAL OF LIGHT PANELS WITH TWO RAPID START FLUORESCENT LAMPS, ONE BALLAST, AND A TWISTLOCK CONNECTOR AT EACH END. THE POSITIONS OF THE TWISTLOCK CONNECTORS WILL VARY, BUT THE WIRE HOOK UPS WILL REMAIN THE SAME. THE VARIATIONS (LIKE FINDING ONE OR BOTH OF THE TWISTLOCK CONNECTORS ATTACHED TO THE CHANNEL) ARE NECESSARY TO EASILY CONNECT THE JUMPERS.

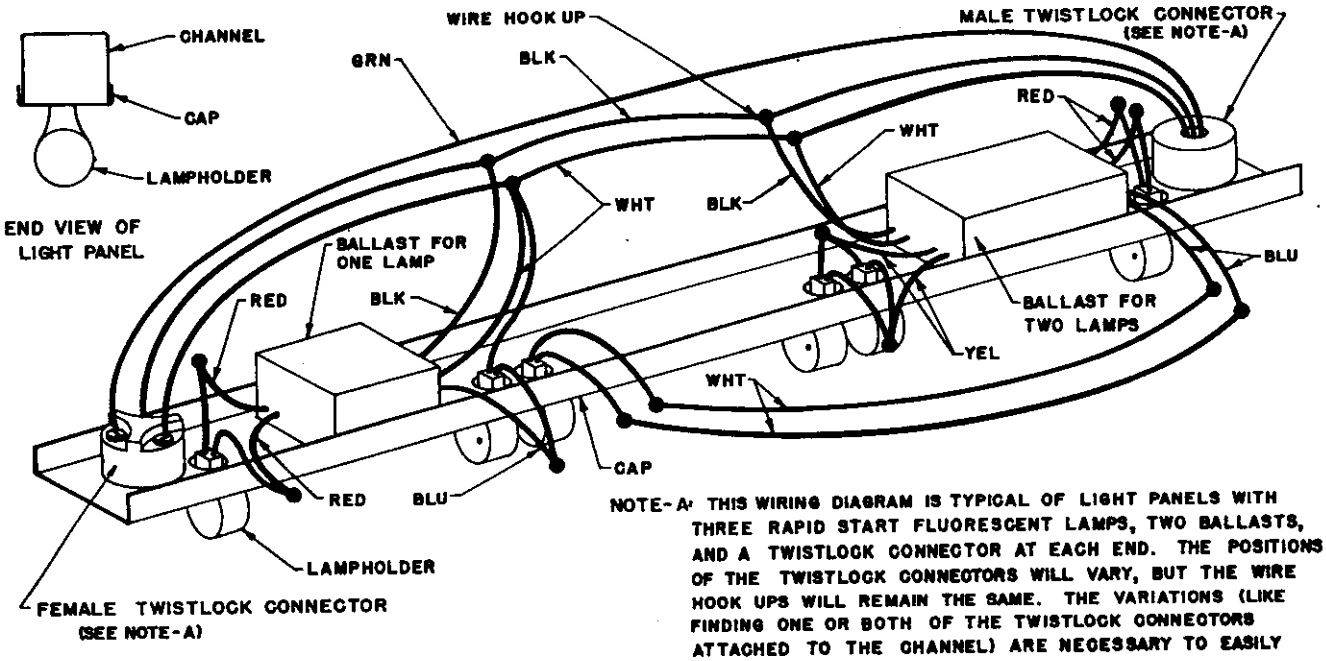


LEGEND

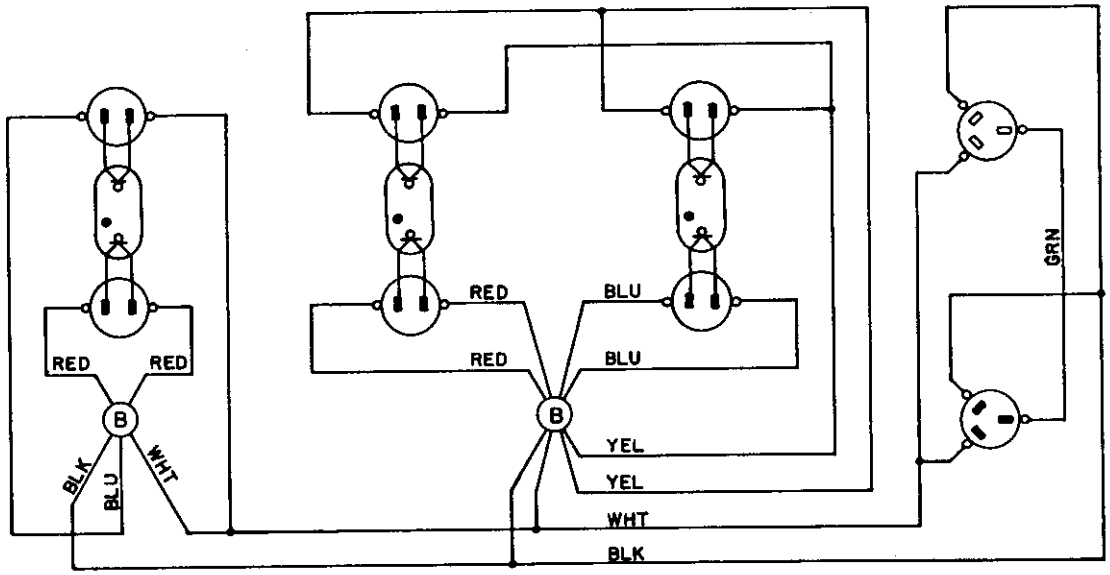
BLK- BLACK WIRE
WHT- WHITE WIRE
RED- RED WIRE
GRN- GREEN WIRE
BLU- BLUE WIRE
YEL- YELLOW WIRE

- ONE CONDUCTOR WIRE
- TWO WIRES CROSSING, NO CONNECTION
- PERMANENT CONNECTION
- WIRES CONNECTING
- GROUND
- SCREW CONNECTION
- THREE CONDUCTOR CABLE
- FOUR CONDUCTOR CABLE
- MALE TWISTLOCK CONNECTOR
- FEMALE TWISTLOCK CONNECTOR
- LAMPHOLDER, ONE PIN
- LAMPHOLDER, TWO PIN
- (B) BALLAST
- (S) STARTER
- FLUORESCENT LAMP, TWO PIN
- FLUORESCENT LAMP, FOUR PIN
- ELECTRIC RING AND BRUSH
- CIRCUIT BREAKER
- FUSE
- SWITCH
- ENCLOSURE

WIRING DIAGRAM FOR: NO. 12 STAR WITH TWO TWISTLOCKS



NOTE-A: THIS WIRING DIAGRAM IS TYPICAL OF LIGHT PANELS WITH THREE RAPID START FLUORESCENT LAMPS, TWO BALLASTS, AND A TWISTLOCK CONNECTOR AT EACH END. THE POSITIONS OF THE TWISTLOCK CONNECTORS WILL VARY, BUT THE WIRE HOOK UPS WILL REMAIN THE SAME. THE VARIATIONS (LIKE FINDING ONE OR BOTH OF THE TWISTLOCK CONNECTORS ATTACHED TO THE CHANNEL) ARE NECESSARY TO EASILY CONNECT THE JUMPERS.



LEGEND

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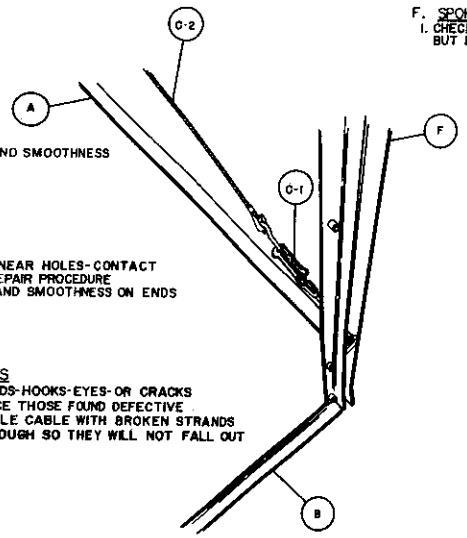


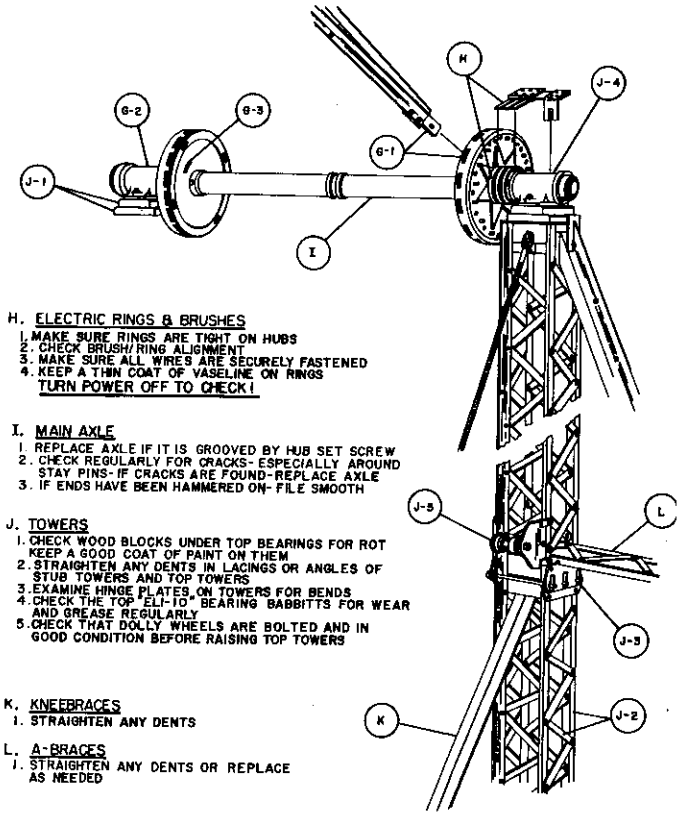
A. CROSSBARS
1. CHECK STRAIGHTNESS AND SMOOTHNESS ON ENDS

B. RIMS
1. IF CRACKS ARE FOUND NEAR HOLES- CONTACT FACTORY FOR PROPER REPAIR PROCEDURE
2. CHECK STRAIGHTNESS AND SMOOTHNESS ON ENDS

C. TURNBUCKLES- CABLES
1. CHECK FOR BAD STUB ENDS- HOOKS- EYES- OR CRACKS IN TURNBUCKLES- REPLACE THOSE FOUND DEFECTIVE
2. REPLACE ANY TURNBUCKLE CABLE WITH BROKEN STRANDS
3. KEEP CABLES TIGHT ENOUGH SO THEY WILL NOT FALL OUT

F. SPOKES
1. CHECK FOR DENTS OR KINKS- STRAIGHTEN BUT DO NOT HAMMER ON THEM

G. HUBS- SPOKE TENONS
1. ELONGATION OF HOLES IN SPOKE TENONS AND HUBS- BOTH NEED REPLACED- TENNONS SHOULD BE REFITTED AT THE FACTORY ON ORIGINAL JIGS
2. LUBRICATE BORE OF HUBS TO EASE SLIDING ON AND OFF AXLE
3. MODEL NO. LOCATED ON INSIDE FACE OF HUB



H. ELECTRIC RINGS & BRUSHES
1. MAKE SURE RINGS ARE TIGHT ON HUBS
2. CHECK BRUSH/ RING ALIGNMENT
3. MAKE SURE ALL WIRES ARE SECURELY FASTENED
4. KEEP A THIN COAT OF VASELINE ON RINGS
TURN POWER OFF TO CHECK!

I. MAIN AXLE
1. REPLACE AXLE IF IT IS GROOVED BY HUB SET SCREW
2. CHECK REGULARLY FOR CRACKS- ESPECIALLY AROUND STAY PINS- IF CRACKS ARE FOUND- REPLACE AXLE
3. IF ENDS HAVE BEEN HAMMERED ON- FILE SMOOTH

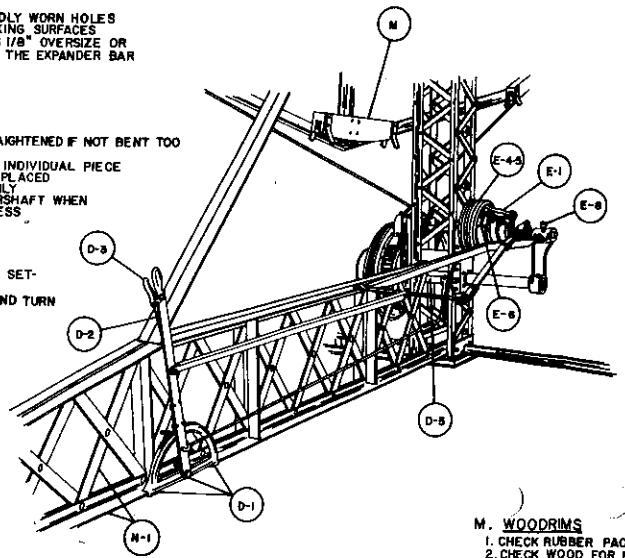
J. TOWERS
1. CHECK WOOD BLOCKS UNDER TOP BEARINGS FOR ROT KEEP A GOOD COAT OF PAINT ON THEM
2. STRAIGHTEN ANY DENTS IN LACINGS OR ANGLES OF STUB TOWERS AND TOP TOWERS
3. EXAMINE HINGE PLATES ON TOWERS FOR BENDS
4. CHECK THE TOP "ELI-10" BEARING BABBITTS FOR WEAR AND GREASE REGULARLY
5. CHECK THAT DOLLY WHEELS ARE BOLTED AND IN GOOD CONDITION BEFORE RAISING TOP TOWERS

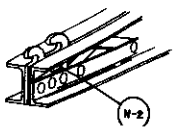
K. KNEEBRACES
1. STRAIGHTEN ANY DENTS

L. A-BRACES
1. STRAIGHTEN ANY DENTS OR REPLACE AS NEEDED

D. BRAKES
1. IF RATCHET CASTING IS LOOSE WHERE IT FITS ON BASE- REBEND SLIGHTLY
2. LIFT WIRE BENT BY NEGLECT IN HANDLING
3. REPLACE NO.43 MALLEABLE RELEASE HAVING BADLY WORN HOLES
4. REPLACE LINERS WHEN RIVETS ARE TOUCHING BRAKING SURFACES
5. BRAKE EXPANDER BAR- IF HOLES ARE AS MUCH AS 1/8" OVERSIZE OR THERE IS A 1/16" GROOVE CUT IN BAR- REPLACE THE EXPANDER BAR AND THE BRAKE BAR PLATES IN THE TOWERS
6. LUBRICATE ALL PIVOTING JOINTS REGULARLY
7. KEEP GREASE OFF OF BRAKING SURFACES

E. CLUTCH
1. BENT NO.84 MALLEABLE CLUTCH ARMS CAN BE STRAIGHTENED IF NOT BENT TOO FAR- CLUTCH LINERS SHOULD THEN BE REPLACED
2. (8) PIN JOINTS IN CLUTCH- IF ANY PIN WOBBLES IN AN INDIVIDUAL PIECE BOTH THE PIN AND PIECE IT GOES IN SHOULD BE REPLACED
3. LUBRICATE BABBITTED COUNTERSHAFT BEARING- DAILY
4. IF NO.12-90 PULLEY HUB WOBBLES ON THE COUNTERSHAFT WHEN THE CLUTCH IS NOT ENGAGED- THE NO.89-A OIL-LESS PULLEY BUSHING IS PROBABLY WORN
5. CHECK FOR CRACKS IN NO.12-90 PULLEY HUB
6. REPLACE CLUTCH LINERS WHEN RIVETS TOUCH THE FRICTION SURFACE OF THE NO.12-90
7. REPLACE ENTIRE SET OF V- BELTS WITH A MATCHED SET- NOT JUST ONE- FOR BALANCED BELT LOAD
8. KEEP GREASE CUP FILLED ON TOP OF STANDJACK AND TURN DOWN REGULARLY TO INSURE LUBRICATION OF THE NO.43 BEARING
9. LUBRICATE ALL PIVOTING PARTS
10. KEEP GREASE OFF OF CLUTCH SURFACES
11. MODEL/ SERIAL NOS. ON PLATE MOUNTED ABOVE CLUTCH ON TOWER





N. BASES
1. STRAIGHTEN ANY DENTS IN ANGLES OR LACINGS
2. MODEL NO. LOCATION ON EACH HOOK PLATE

M. WOODRIMS
1. CHECK RUBBER PACKING FOR WEAR- REPLACE AS NEEDED
2. CHECK WOOD FOR ROT- REPLACE IF ROTTEN
3. KEEP A GOOD COAT OF PAINT ON THE WOOD
4. MAKE SURE NUTS AND BOLTS ARE IN PLACE AND TIGHT

O. DRIVE SHEAVE

1. CHECK BABBITTED BUSHING FOR EXCESSIVE WEAR- IT CAN BE REMOVED- RE-BABBITTED OR REPLACED
2. KEEP GREASE CUP FILLED AND TURN DOWN REGULARLY FOR PROPER LUBRICATION OF DRIVE SHEAVE
3. CHECK RUBBER PACKING FOR WEAR- REPLACE IF BADLY WORN
4. KEEP GREASE GROOVE CLEAN ON SHEAVE

P. SHEAVE AXLE

1. ROTATE TO ONE OF FOUR POSSIBLE MOUNTING POSITIONS REGULARLY FOR EVEN WEAR AND EXTENDED LIFE
2. IF SHEAVE AXLE PLATES IN TOWERS GET WORN- WE RECOMMEND REPLACEMENT AT THE FACTORY

Q. GEARS

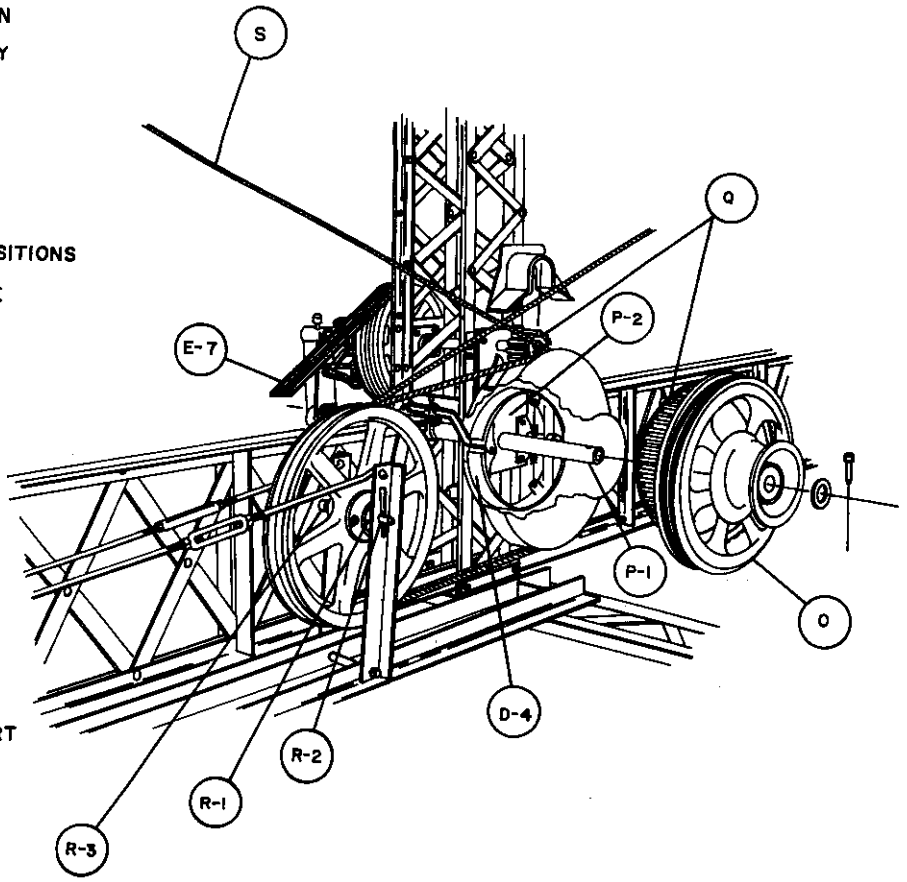
1. CLEAN AND GREASE REGULARLY

R. IDLER SHEAVE

1. CHECK BUSHING FOR WEAR- REPLACE IF NECESSARY (OLD BABBITTED TYPE)
2. REPLACE PIN ON WHICH IDLER TURNS- IF WORN
3. FILL GREASE CUP ON PIN REGULARLY

S. DRIVE CABLE

1. APPLY PINE TAR TO CABLE TO AVOID SLIPPING- TO LUBRICATE THE CABLE- AND TO AVOID HAVING TO OVER TIGHTEN CABLE
2. REPLACE CABLE IF WORN OUT- IF SPLICE PULLS APART OR IF INDIVIDUAL STRANDS BREAK LOOSE AND KEEP POPPING OUT AFTER THEY HAVE BEEN PROPERLY TUCKED BACK INTO CENTER OF CABLE
3. INSPECT FOR KINKS- LAY CABLE OUT FLAT TO REMOVE ANY- TAKE CARE IN HOW CABLE IS COILED AND UNCOILED TO AVOID KINKS



T. SEAT

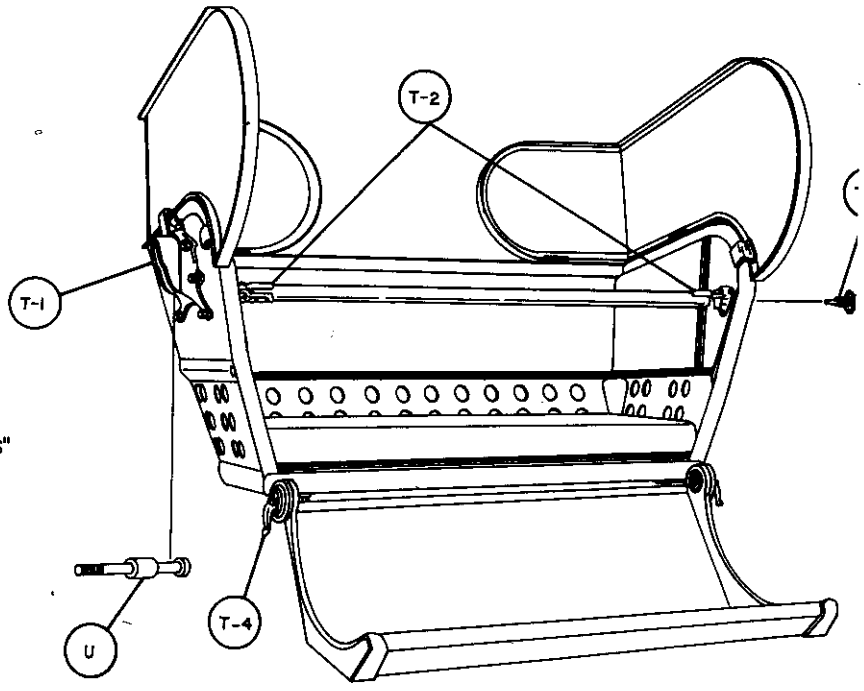
1. CHECK SEAT HANGERS (Y-CASTINGS) TO SEE IF BOLTED SECURELY- CHECK FOR CRACKS OR EXCESSIVE WEAR ON THE INNER SURFACES THAT CONTACT THE SEAT PINS- REPLACE AS NEEDED
2. LUBRICATE HANDLEBAR HINGE AND LATCH- MAKE SURE IT MOVES FREELY AND CATCHES PROPERLY- CHECK ALSO FOR CRACKS IN THESE CASTINGS
3. MAKE SURE SPRING IN THE "AB" PLUNGER ASSEMBLY IS NOT BROKEN
4. CHECK FOOTBOTTOM HINGES TO SEE IF THEY LOCK IN PLACE- CHECK BOLTS AND FOR POSSIBLE CRACKS

U. SEAT PINS

1. SEAT PINS SHOULD BE FREE OF NICKS AND GOUGES
2. RUB GREASE LIGHTLY ON BEARING SURFACES OF ALL PINS TO REDUCE WEAR ON SEAT PINS AND "Y- CASTINGS"
3. REPLACE ANY PIN THAT IS CRACKED OR HAS NOTICEABLE WEAR

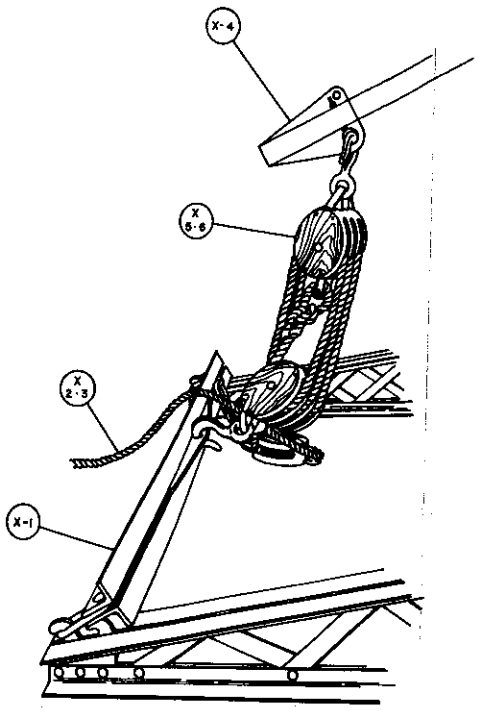
V. PINS- GENERAL

1. GO OVER ALL PINS- IF A RING IS WORN AROUND ANY- DISCARD AND REPLACE
2. IMPORTANT!! BE SURE TO INSTALL ALL PINS IN WHEEL ASSEMBLY! THEY SHOULD ALL BE IN PLACE FOR THE SAFETY OF THE PASSENGERS AND FOR THE LONGEVITY OF WHEEL ITSELF!



W. LOADING PLATFORM

1. WOOD TOP SHOULD BE FREE OF BREAKS, SPLITS, ROT, OR SPLINTERS, ON LEADING EDGES
2. KEEP EN-DUR-LON, R-MIR-DEK, OR OTHER SUITABLE NON-SLIP COATING ON ALL WALKING SURFACES
3. OPERATING LINKAGES MAY SHOW WEAR IN BOLT HOLES- REPAIR OR REPLACE AS NEEDED
4. MAKE SURE ALL BOLTS ARE IN PLACE AND SECURE AND THE PLATFORM RAISES PROPERLY



X. ERECTING EQUIPMENT

1. CHECK DOUBLE TREE FOR WEAR ON LINKS OR BROKEN PARTS
2. CHECK MANILA ROPE- IF THE INSIDE OF THE ROPE IS DIRTY, IF THE STRANDS HAVE BEGUN TO UNWIND, OR IF IT HAS LOST ITS ELASTICITY, DO NOT USE FOR HOISTING PURPOSES
3. PROTECT ROPE FROM WEATHER WHEN NOT IN USE
4. INSPECT LARGE AND SMALL "A" FRAMES FOR WEAR AND FOR PROPER INSTALLATION BEFORE RAISING TOWERS
5. IF THE SHEAVE IN A ROPE TACKLE BLOCK OBVIOUSLY WIGGLES ON IT'S AXLE- DISCARD AND REPLACE TO AVOID POSSIBLE SERIOUS INJURY TO PERSONS ASSEMBLING OR DISMANTLING THE WHEEL
6. LUBRICATE BOTH SHEAVE AND AXLE IN THE TACKLE BLOCKS TO HELP THEM RUN SMOOTH AND REDUCE AXLE WEAR

ELI BRIDGE COMPANY
800-820 CASE AVENUE
JACKSONVILLE, ILLINOIS
62650
TELEPHONE: (217) 245-7145 OR: (800) 637-7444

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Bulletin No. 990609

Release Date: 6/9/99

Effective Date: 6/9/99

BFI 99-10

SAFETY ALERT

Ride Manufacturer: Eli Bridge Company Affected Production Dates: 1989 to Present
Ride Name: HY-5 II Wheels, Affected Serial Numbers: 74-89 through 89-94
Ride Names: Eagle and Double Eagle Wheels, Affected Serial Numbers: 1-89 through 32-98
Ride Names: Rim Drive Ground Model Wheels with 30 h.p. power units and hydraulic loading platforms

The mandatory items in this Bulletin do NOT apply to cable drive Wheels, ground model rim drive Wheels with brake ratchet control handles, rim drive systems with two-15h.p. power units.

Abstract of Issue #1: A customer just called to advise us of a recent incident on a Double Eagle Wheel. During normal operation, the operator pressed the brake release button, which lowers the loading platform and releases the brakes. This occurred a split second before the generator lost power. The loss of power prevented the loading platform from lowering completely, but the brakes had just released. Because the load was unbalanced and therefore moved in the direction of gravitational equilibrium, a footbottom hit the loading platform as the Wheel turned and a passenger's ankle was injured. There is only a split second when this can happen, but we now know that it can. A change is being made in the system to install a limit switch that will not allow the brake to release until the platform is down below the footbottom space.

Abstract of Issue #2: In the same conversation about the above, we also learned that our customer's brakes were not holding the load when power was lost. The customer was not aware that occasionally the brakes need to be adjusted. The brakes on HY-5 II, Eagle and Double Eagle Wheels are designed to hold a load in place, even if there is a power loss to the Wheel. The primary component provided for this safety system is the holding valve. If the valve is not adjusted at a high enough pressure level, it will fail to hold an unbalanced Wheel in place in a power loss situation. This safety system should be tested regularly to prevent the brakes from failing.

Reason for Release #1: Because the loss of power at the wrong moment can cause an incident and Eli Bridge Company has no control over the power source for its Wheels, a change in the system needs to be made to prevent a repeat occurrence of the above incident. A limit switch has been selected and tested to keep the brake from releasing until the platform is down and out of the way of the footbottom space.

Reason for Release #2. It became obvious after talking with several other customers subsequent to the above incident, they also were not aware of the safety feature built into the brake system, nor how to perform the brake adjustment. The unexpected release of the brake when power is lost is preventable when the system is working properly. A simple testing procedure can determine if the brake system is working properly. This procedure will show how an adjustment can be made to put the system back into compliance if it has gone out of adjustment.

Actions to be taken #1: It is necessary for a mandatory change to the ride. A limit switch needs to be ordered from Eli Bridge Company and installed on the loading platform. This will prevent the brakes from releasing until the loading platform is clear of the footbottom space when the Wheel turns. The limit switch kit will be provided free of charge if ordered within 45 days of the date of this bulletin.

Actions to be taken #2: Mandatory testing is necessary each time the Wheel is set up and once each week thereafter until the Wheel is moved again. The testing procedure is relatively simple and the instructions for adjusting the valve, when necessary, are included along with this Bulletin. If this procedure does not result in a properly working brake system, call the factory. A testing log for proper documentation is also included. Customers are urged to fill this out and keep it on file.

FROM: Eli Bridge Company
TO: All HY-5 II, Eagle and Double Eagle Customers
DATE: June 8, 1999

BRAKE: WEEKLY CHECKING PROCEDURE

It is absolutely essential that the brakes on an Eagle, Double Eagle, or HY-5 II be checked at least once a week. Brakes that are out of adjustment can be very dangerous because if they are not operating properly they may not be able to provide you with proper stopping and holding when you need it.

1. After the ride is set up and operating, stop the Wheel from turning and lock the brakes by touching the Brake button on the operator's control panel. Then cut off ALL power going to the ride. ALL electrical connections between the ride and the generator must be cut off. There is a built-in small out-of-balance load on the Wheel, so that if the brakes do not hold, the Wheel will begin to drift. Do not add extra weight to the Wheel for this first step, because if the brakes are not operating properly the Wheel might begin to turn rapidly. If the Wheel moves at all with the brakes set and with all power off, then the brake controls are out of adjustment. If the Wheel does not move, then go to step 2. If the Wheel does move, then go to step 3.

2. Turn the power back on, and put two people in each of two seats next to each other. Our testing procedure uses a 600 pound weight in one seat, but by using four large people you should be able to come close to our test weight. Turn on the Wheel and rotate it until the loaded seats are half way up at the 9 o'clock position. Stop the Wheel and set the brakes by pressing the Brake button on the operator's control panel. Then cut off ALL power going to the ride. The brakes should remain locked and not allow the loaded seats to drift downward. If the Wheel remains properly locked, then the brakes are functioning as they should. If the Wheel drifts at all, then go to the next step.

3. The holding valve may need some adjustment. These valves will be part of the power loss equipment. On some Wheels this power loss equipment, which includes a hand pump, is located on the under side of the loading platform, and on others, where a DC power unit is used, it is located on the left side of the trailer, opposite from where the operator stands. On that power loss equipment the holding valve for the brakes is the one closest to the tower.

On the power loss panel under the loading platform there are two holding valves. One is painted red and the other green. The red holding valve is the one which controls the brake operation, and the green one is for the loading platform. Using the red one, first of all be sure that the needle valve next to it is shut off completely, because any leakage through the needle valve will not allow the holding valve to hold properly. Release the jam nut on the holding valve adjusting screw, and back out the adjusting screw all the way. Then turn in the adjusting screw three complete turns. Turn on the Wheel and raise the loaded seats to the 9 o'clock position. Press the Brake button on the operator's control stand, and then cut off ALL power going to the

ride. If the brake holding valve is properly adjusted, the Wheel will not drift downward. If the Wheel moves at all, go to the next step.

4. Turn on the power and lower the loaded seats to the bottom of the Wheel. Turn in the adjusting screw on the holding valve one more complete turn. The raise the loaded seats to the 9 o'clock position, press the Brake button, and then cut off ALL power going to the ride. If the Wheel does not drift, then the holding valve is properly holding as it is supposed to do. Turn in the adjusting one more quarter turn, and then lock the jam nut to hold the adjusted position.

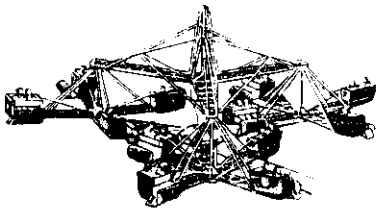
5. If the holding valves will not hold with four complete turns of the adjusting screw, try one more complete turn. If after five complete turns the Wheel will still continue to drift, then most likely the cartridge in the holding valve will need to be replaced. Sometimes a cartridge that has been adjusted many times will not hold the adjustment. A new cartridge when received will be properly adjusted already, so additional adjusting will not be necessary.

6. If you have gone through the adjustment procedure, including replacing the cartridge in the holding valve, and the brakes still do not hold, then call an Eli Bridge Company customer service representative.

7. As with any piece of machinery, All Big Eli Wheels need to be properly maintained at all times in order to function properly. This is certainly true for the brakes and all of the components involved in the brake operation. Watch for loose or abraded wiring and electrical shorts. Be sure that the hydraulic system is able to maintain a pressure of 1,000 pounds per square inch in the braking circuit, and check all fittings for leakage. Air in the hydraulic lines will make the braking spongy. Bleed the air out of the lines by unscrewing the fittings at the brake cylinders to let the air out. There are Belleville washers in the brake linkage, and sometimes they get broken and fall out. If this happens, call the factory for recommendations. The brake shoes will wear in a taper, and it is advisable to reverse the brake pads at the beginning of each season. When the brake pad has worn down so that the metal holder is only ¼ inch from the drive rims, then the brake pad should be replaced. If the drive rims are not lined up properly, they will break out the leading edge of the brake pad.

ALL STEEL PORTABLE
BIG ELI
FERRIS WHEELS

AREA CODE 217 PHONE 245 7145



Scrambler
BIG ELI
ELI POWER UNITS

ELI BRIDGE COMPANY
INCORPORATED
800-820 CASE AVENUE
JACKSONVILLE, ILLINOIS, 62650

May 21, 1973

DEC 1 3 1994

BUREAU OF
FAIR RIDES INSPECTION

RE: BIG ELI Rides that have been trailer-mounted, modified, or otherwise "re-manufactured" elsewhere.

Dear Owner/Operator:

For several years, there have been a number of people across the country who have trailer-mounted their own standard model BIG ELI Wheel, have had someone do this type of modification for them, and/or have purchased such a ride that has been "mounted" somewhere other than at Eli Bridge Company. We are now hearing of similar modifications, "mounting", of BIG ELI Scrambler rides.

As some of these rides are now appearing advertised for sale as "Eli trailer-mounted" equipment, etc., it needs to be said clearly that we have never encouraged, authorized or, in any way, approved such trailer-mounting of standard BIG ELI Wheel or Scrambler rides by any person or persons outside our own organization.

None of these people have consulted with Eli Bridge Company for design approval, even though the major modification being made could greatly change the design, strength and/or operation of the original equipment. It is our personal opinion that some of these modifications, which cut up structural members, reduce critical clearances, and/or relocate important parts of the drive, etc, may actually be dangerous.

If your BIG ELI ride has been so trailer-mounted, or received other major modification, by someone other than Eli Bridge Company, for your own protection you should demand a structural analysis from that person, done by a registered professional engineer.

When a standard BIG ELI ride receives such major modification, especially being trailer-mounted, it is being "re-manufactured." As such, the original BIG ELI ride becomes "raw material" for the resulting re-manufactured product. Be aware that the owner or buyer of such re-manufactured ride must hold himself and/or the person who did the work accountable for such important matters as product safety, product liability, merchantability of the resulting product, etc. Although we continue to be greatly concerned about such matters, as the equipment is no longer of our original design, the responsibility for such matters is in no way Eli Bridge Company's.

Realizing that practically none of the people who have done, or who are presently doing this "mounting" work offer repair and replacement parts service on many of the parts for BIG ELI rides, we will continue, on request and so far as our ability will permit, to offer replacement parts service for

standard BIG ELI parts. However, we have no way of knowing or assuring whether our standard parts will fit a "re-manufactured" BIG ELI ride or that the parts will give the good service on such re-manufactured rides that you normally expect from BIG ELI equipment. In furnishing parts for such a ride, it is clearly understood that we are selling "parts" only--with the expressed understanding that, in doing so, we are in no way implying or warranting the serviceability of the parts furnished or the equipment on which they are to be used.

It has also come to our attention that there are those who have placed on the market for sale such items as Seats for a BIG ELI Wheel. In some cases, we are told, the manufacturer of these seats requests that his customer furnish the old castings and hardware from the old seats for use on the new seats. As, in some cases, these castings may already have 20 to 40, or more, years of use and wear on them, in our opinion, this is a questionable practice.

Then, we understand there are those who will even "recondition" an older model BIG ELI ride, and possibly other rides as well, for the ride owner.

We cannot prevent others from trailer-mounting standard BIG ELI rides, or from going into the business of "reconditioning" equipment of our original manufacture, or even from manufacturing and marketing such items as Seats, or even possibly other items, to be used on BIG ELI ride equipment. However, we cannot, and will not, assume responsibility in any way for equipment that is not of our original manufacture and/or is no longer of our original design.

Friends who know us would be the first to admit that Eli Bridge Company has tried to deserve, and earned, the reputation of "standing behind" equipment of its own manufacture and design--standard model BIG ELI Wheels and Scrambler rides, and the trailer-mounted/hydraulic HY-5 BIG ELI Wheel. We do provide warranty service on new equipment of our own manufacture to the original purchaser, for a stated and reasonable time period. We have long continued to make repair and replacement parts service available to owners of BIG ELI equipment, long after the original warranty period has expired, and even though the ride may have changed hands several times over the years. There have even been times when our parts service department has been called upon for assistance by owners of Wheels that were not of our original manufacture--the original manufacturer of the equipment no longer being in business. When possible, we have responded as best we could to assist.

While we will continue to do our very best to serve our friends in the industry, especially those who own and operate BIG ELI equipment, it is our intention and desire that the above comments will end any misunderstandings that may presently exist on these subjects, and avoid any that might otherwise arise in the future.

Very truly yours,

ELI BRIDGE COMPANY

Lee A. Sullivan, Jr.
President

LAS Jr/rlg

U.S. CONSUMER PRODUCT SAFETY COMMISSION

WASHINGTON, D.C. 20207

12 AUG 1985

IMPORTANT SAFETY NOTICE

Dear State Amusement Ride Inspector

I have enclosed a copy of a letter sent to identified owners of ferris wheels originally manufactured by Eli Bridge Company as a permanent ride and modified by Ferris Wheel, Inc. of Mercedes, Texas for use as a mobile ride. In modifying the ride, the space between the pulley system and the seats were reduced which could allow and occupant of the seat to place their hands or feet in the pulley system.

Owners that could be identified by Ferris Wheel, Inc. (which no longer manufactures rides) are contained on a list which is also attached. In our letter, we encouraged each ride owner to install a guard or shield to prevent rider's feet from being caught in the pulley system. We also encouraged each owner to ensure that hair guards were installed on their wheels.

On the attached list which shows each owner's name and address, we have noted if a response has been received from them, and what, if any action they have taken in response to our request.

This information must not be released to the public. Please be sure to read the summary-cover sheet which contains information on public disclosure of this information.

If you have any questions concerning the attached letter, please feel free to contact me on 301-492-6608.

Marc J. Schoem

Marc J. Schoem, Compliance Officer
Division of Corrective Actions
Directorate for Compliance and
Administrative Litigation

Enclosures

RESTRICTED

CONSUMER PRODUCT SAFETY COMMISSION
AMUSEMENT RIDE SAFETY INFORMATION PROGRAM

Volume 5 . Number 2 Directorate for Compliance and Administrative Litigation SPRING 1985

SUMMARY OF COMMISSION/STATE INVESTIGATIONS

Attached is a summary of Consumer Product Safety Commission and state investigations of various amusement rides. This bulletin is being sent to you as a result of the interest you expressed in receiving such information. PLEASE NOTE THAT THE ENTIRE BULLETIN CONTAINS INFORMATION ON SPECIFIC RIDES IN A WAY THAT ALLOWS THE PUBLIC TO IDENTIFY THE MANUFACTURERS OR PRIVATE LABELERS. THE INFORMATION HAS NOT BEEN PROVIDED TO THE APPROPRIATE FIRMS FOR COMMENT IN ACCORDANCE WITH SECTION 6(b) OF THE CONSUMER PRODUCT SAFETY ACT (15 U.S.C. 2055(b)) AND MUST NOT BE RELEASED TO THE PUBLIC UNDER ANY CIRCUMSTANCES. Section 29(e) of the Consumer Product Safety Act (15 U.S.C. 2078 (e)), however, authorizes the Commission to share this information with federal, state and local agencies. In accordance with that section, no agency to which the information in this bulletin is provided may disclose it to the public until the Commission has complied with the applicable requirements of Section 6(b). Since the Commission has not provided Section 6(b) notice to the manufacturers or private labelers of the rides listed, it is a violation of federal law to disclose this information to the public. It is to be used by appropriate amusement ride officials only. If you wish to make the information contained in this bulletin available to the public, contact Marc J. Schoem on (301) 492-6608 so that he can arrange for the Commission to follow the procedures of Section 6(b). This will take a minimum of 30 days from the date of your request, unless the Commission finds the public health and safety requires a lesser period of notice.

Accident investigations included with this bulletin are those reported by the Commission's field offices and state consumer protection agencies throughout the United States. Many times these reports are based on police reports, newspaper accounts and third party information when the victim or ride operator/owner cannot be located or interviewed. Information reported by these investigations may therefore be unverified with respect to specific defects and/or changes made by the ride operator/owner or manufacturer, as a result of a reported failure. If corrections were made to a ride as a result of a state or CPSC recommendation, these have been noted. These reports are primarily being forwarded to you for your information and assistance when conducting inspections of similar rides in your state. Because a ride is listed in the bulletin, it does not mean that the Commission staff believes that the ride contains a defect which could create a substantial product hazard. If such a determination was made by the staff, it will be noted. Further, by listing these rides and/or owner/operator/manufacturer names in this bulletin, we do not intend to imply that enforcement actions should be taken against those identified rides entering states where the authority exists to take such action. We are only providing this information so that states with inspectional programs will have the benefit of knowing of any problems identified by other states or Commission staff.

Due to an amendment in the Consumer Product Safety Act, the definition of the term "consumer product" has been modified to exclude amusement rides that are permanently fixed to a site. Therefore, CPSC no longer can investigate incidents involving fixed site amusement rides. Any information concerning such incidents which comes to the attention of the Commission will be forwarded to the states involved.

If there are any questions concerning the rides listed in the attached bulletin or if you wish additional information on any of the investigations, please contact either Marc J. Schoem of the Division of Corrective Actions, Consumer Product Safety Commission, or in cases where individual states recommend certain actions be taken the ride owner/operator/manufacturer, the appropriate state official listed in the Directory for Amusement Ride Enforcement Officials.

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U.S. CONSUMER PRODUCT SAFETY COMMISSION

WASHINGTON, D.C. 20207

28 MAY 1985

IMPORTANT SAFETY NOTICE CONCERNING CONVERTED FERRIS WHEELS

Dear Ferris Wheel Ride Owner:

The U.S. Consumer Product Safety Commission is a federal regulatory agency established pursuant to the Consumer Product Safety Act, to protect the public against unreasonable risks of injury associated with consumer products.

As you may be aware, an accident recently occured involving a ferris wheel originally manufactured by Eli Bridge Company as a permanent ride and modified by Ferris Wheel, Inc., Mercedes, Texas for use as a mobile ride. In modifying this ride, the space between the pulley system and the cars on the ride was apparently reduced.

The accident involved a five year old girl who, while seated during the ride, was apparently able to place her foot in the cable/pulley drive system of the ferris wheel. In doing so, her foot became entrapped by the cable and she was pulled from her seat into the cable/pulley system, causing serious bodily and internal injuries.

In discussing the problem with a number of State amusement ride inspectors and the Commission's own technical staff, we believe the problem may be eliminated by installation of a guard or shield which would prevent access to the cable drive system by riders' arms or legs. In addition it has also been brought to our attention that a number of these rides as well as other ferris wheels may not contain a hair guard. The hair guard should be installed so as to prevent entrapment of a rider's hair in the rides pulley system.

Your name has been provided to us by Ferris Wheel, Inc. as being an owner of a ferris wheel that has been converted. We are providing this information to you so that adequate actions can be undertaken if they haven't already to prevent future injuries.

Attached to this letter are a series of drawings depicting the ferris wheel in question and detailing the type of guard which may be appropriate to correct the entanglement hazard. These drawings can be used to assist you in your development and installation of a guard or shield. Also attached is a form which should be completed and returned to me in the self-addressed stamped envelope stating what action you intend to take.

This form should be returned within 14 days from your receipt of this letter. We urge you to take the appropriate corrective action measures immediately and not use your converted ferris wheel until a guard or shield is installed.

You should be aware that Commission field office investigators may be following up with you to ensure appropriate corrective action measures are undertaken. We will also be forwarding copies of this letter to the appropriate state amusement ride inspectors.

If you have any questions or care to discuss our recommendation further, please feel free to contact me on 301-492-6608.

We appreciate your assistance on behalf of consmer safety.

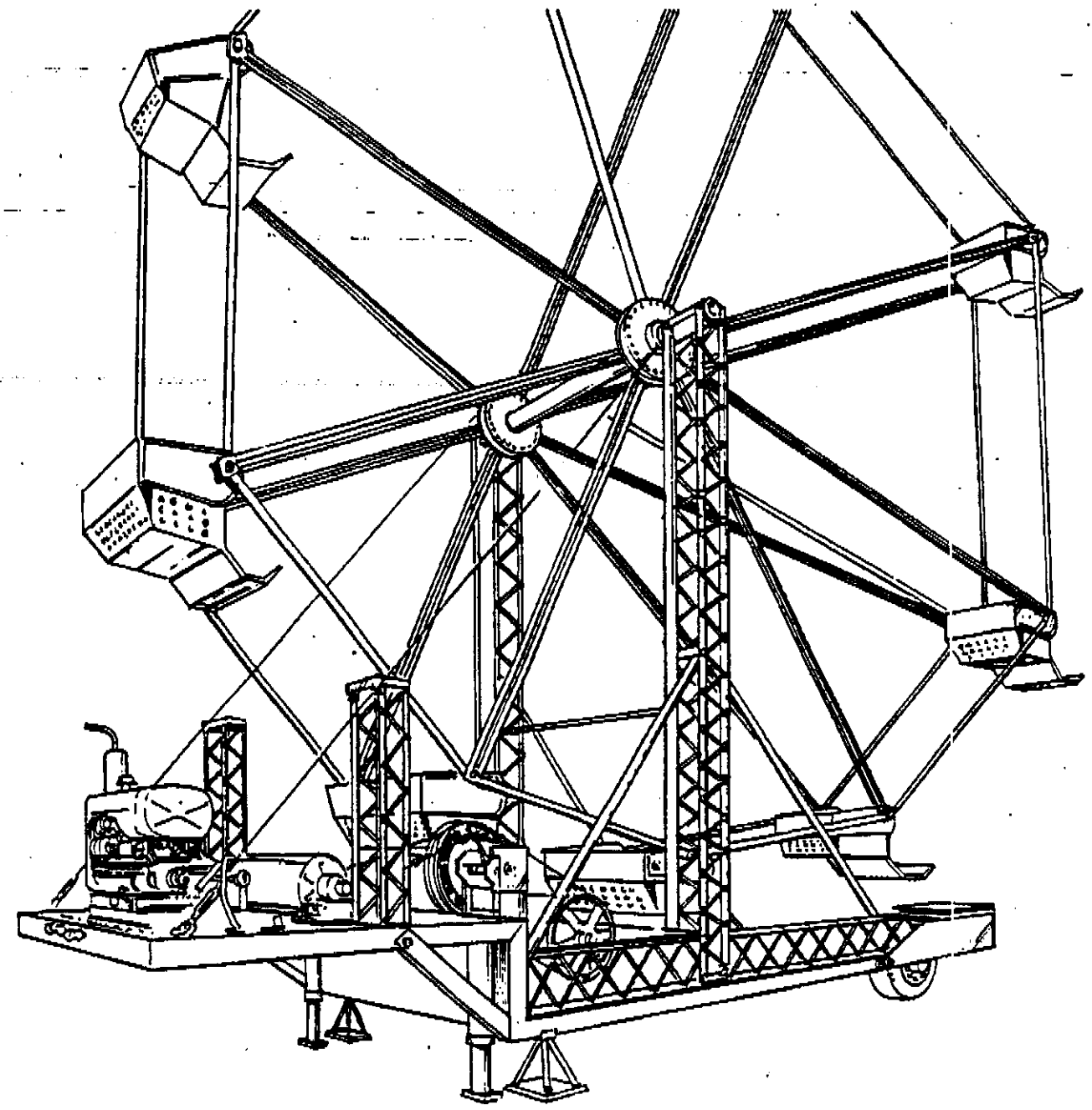
Sincerely,

Marc J. Schoem
Compliance Officer
Division of Corrective Actions
Directorate for Compliance and
Administrative Litigation

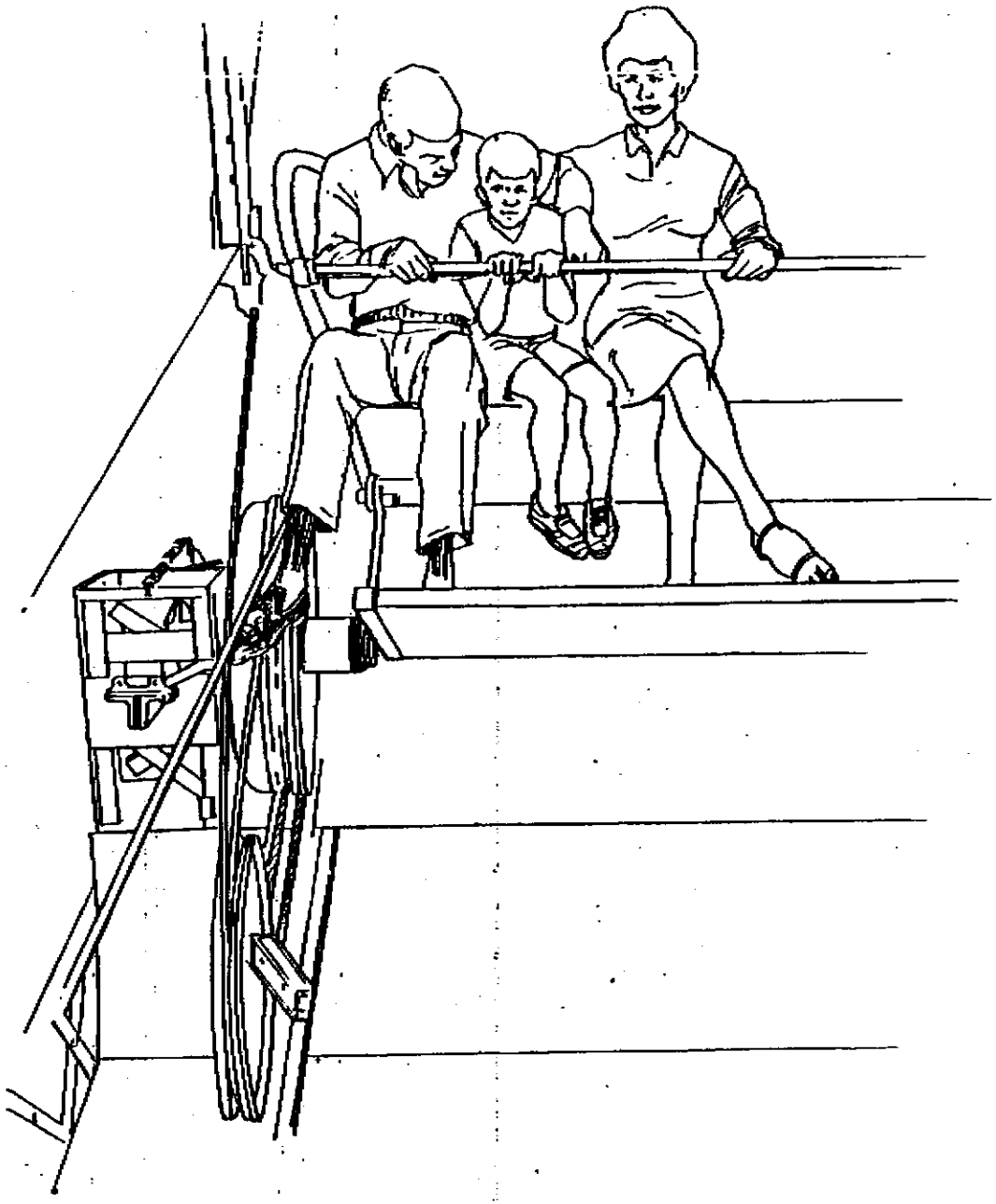
Enclosures

cc: CPSC Regional Offices
State Amusement Ride Inspectors

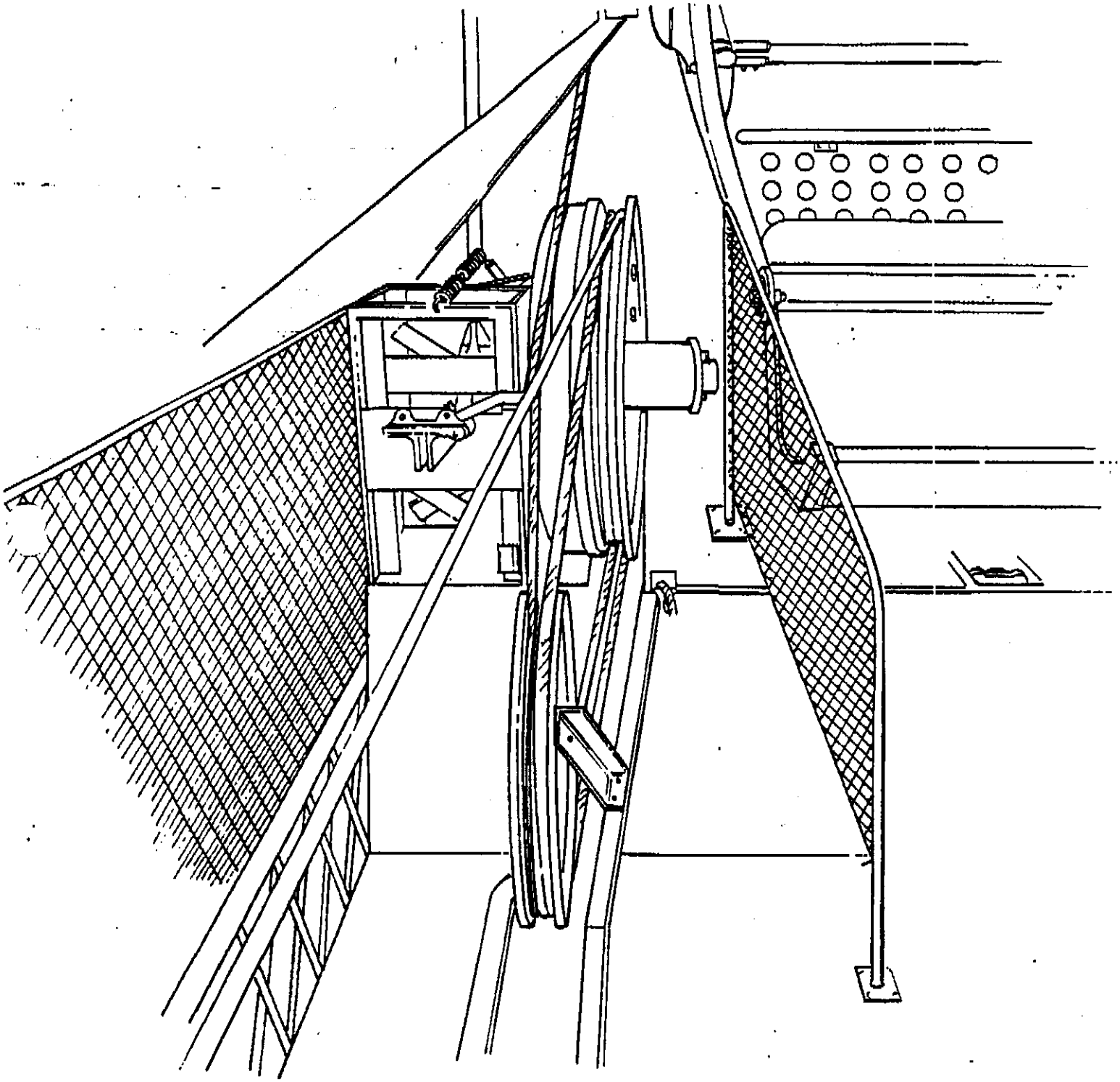
CONVERTED MOBILE FERRIS WHEEL
FRONT VIEW



THE DANGER—OPEN PULLEY ASSEMBLY



SAMPLE OF GUARD OR SHIELD THAT MAY BE APPROPRIATE



RETURN THIS FORM IN THE ATTACHED SELF ADDRESSED STAMPED ENVELOPE WITHIN 14 DAYS FROM RECEIPT OF YOUR LETTER

1. Do you still own the converted ferris wheel ride? If so, print your name address and telephone number.

_____

_____

_____

_____

2. If you no longer own the converted ferris wheel please provide the following information.

Ride Destroyed - Year and Date _____

Ride Sold to (include date ride sold, name, address & telephone no.)

_____

_____

_____

_____

Ride no longer in use _____

3. If correction has been previously made, describe what actions have been taken to prevent entanglement in ferris wheel and indicate date on which corrections were previously made. _____

_____

_____

_____

4. If corrections have not been previously made, do you intend to make corrections in accordance with our recommendations to prevent entanglement? _____

5. Describe corrections to be made. _____

_____

_____

_____

6. Does your ferris wheel contain a hair guard? _____

7. Do you intend to install a hair guard on the ride? _____

Name, address and title of person completing this form.

_____

_____

_____

_____

FERRIS WHEEL, INC. - Converted Ferris Wheels

	Foot/Leg Entrapment	return Receipt	questionnaire returned	foot guard installed	hair guard installed	no longer own
1	Frank Cook 18560 14 Mile Road Fraser, Michigan 48026	✓	yes	yes	yes	
2	Charle G. Pancek 400 So 5th Street Milwaukee, Wis. 53204	✓	mail not deliverable			
3	Don Evans Rt 2 Plattsbury, Mo 64477	✓				
4	Connie Fernandez 1547 Colburn Street, Suite 201 Honolulu, Hawaii 96814	mail	not deliverable			
5	Richard Tinsley 3836 Waco Drive Normandy, Mo. 63121	✓				
6	Charles Kaleel 7850 March Road Marine City, Mich. 48039	✓	yes	yes	yes	
7	Gene Ledel 509 Green River TR. Ft. Worth, TX 76103	✓	yes	yes	yes	
8	Dick Carl 890 Sargent S.E. Ada, Mich. 49301	letter not deliverable				
9	Rex Lew Ellen 13080 Greenwich #88 Witchita, KA 67207	letter NOT	deliverable			
10	Bruce McDanaga 6628 Dixie Highway Brideport, Mich. 48722	✓	yes	yes	yes	
11	Earl Ingalls Box 433-20 Michigan Avenue Coldwater, Mich. 49036		Deceased	not deliverable		
12	Frank Ferguson Box 2402 Lafayette, LA 70501	✓	yes	yes	yes	
13	Larry Wheeler 537 Lado Drive Zephy Hills, Fla. 33599	✓				
14	Dale Thomas Box 11433 Oklahoma City, OK 73111	letter not deliverable				

RESTRICTED

		return receipt	questionnaire return	foot guard	hair guard	no hunt awa
15	Van Hillman Rt. 1, Box 74 Ravenal, South Carolina 29470	✓				
16	Alice English Box 1153 Hendersonville, NC 28793	✓				
17	Joe Williams Box 4284 North Las Vegas Las Vegas, Nev. 89083	✓	yes	yes	yes	
18	Gary Smith Box 157 New Matamoras, Ohio 45767	✓				
19	Ray Guthrie Box 361 Middleboro, KY 40965	✓				
20	Throne Hughes Rt.6, Box 650 Denham Springs, LA 70726	Letter NOT		Deliverable		
21	Deggeller Amus. Co. Box 7, Indian Avenue Stuart, FL 33494	✓				
22	Ken Gambill 156 Riecaet Avenue Wintersville, Ohio 43952	✓				
23	Earl Neuber Rt. 1 Chilton, Wis. 53014	✓	yes	yes	yes	
24	Earnest Mofied Rt. 1, Box 371 A Marion, Ill. 62959	✓				Ride sold 11/81
25	Art Kedrowiez Box 171 Custer, Wis. 54423	✓	yes	yes	yes	
26	Dave Stevens Box 437 Pelican Rapids, Minn. 56572	✓	yes	yes	yes	
27	Gene Hammond 947 Goodson Loup Pine Hurst, TX 77363	Letter	not deliverable			
28	Walt Foster 1206 Highway 56 Dodge City, KS 67801	✓				
29	Deggeller Equit Co. Box 7, Indian Avenue Stuart, Florida 33494	✓				

		return receipt	[illegible] ~~front guard~~ Rtd.	Foot guard	Hair guard	ride sold
30	Bernard Calkins 600 W 19th Avenue Oshkash, Wis. 54901	✓	yes	yes	yes	
31	Joe LuJan Rt. 2, Box 58 A Rush Springs, Okla. 73082	✓	yes	yes	yes	
32	Cunningham Shows Box 123 New Matamoras, Ohio 45767	✓	yes	yes	yes	
33	Jim Neal Jim Neal 2928 West Lake Road Peoria, Ill. 61615	✓	yes	yes	yes	
34	E.J. Kasti Box 1010 El Paso, Tx	Letter	not	Deliverable		
35	Mike Smith Box 68 Worthing, S. Dak	✓				Sold ride in 1967
36	Bill Skerbeck 164 No State Street Berlin, Wis. 54923					
37	Lester Castle Rt. 1, Box 266 A 4338 Schurmier Houston, TX	✓				
38	Charle Miller 55th and LaGrange Road LaGrange, Ill.	✓				
39	Jules Racine Casier Postal 1337 Quebec, P.Q					
40	Fred Thumberg 3157 Fisher Road Columbus, Ohio	✓				
41	JR. Linenfelser Marine, Ill. 62061	✓	yes	yes	yes	
42	Buster Brown Box 1377 Ft. Worth, TX 76101	✓	yes		yes	Ride sold
43	Charle Larkee Box 389 Waupaca, Wis. 54981	✓	yes	yes	yes	
44	Jim Luehrs 6159 So. 38th Street Greenfield, Wis. 53221	✓	yes	yes	yes	

		Return receipt	questionnaire	Foot ground	hair ground	ride sold
45	Bob Vogel Box 108 AAA Crestway Drive, R.R. #3 Brookville, Ohio 45309	Letter	not	deliverable deceased		
46	Jack Thompson 8249 Mess Blvd. N.W. Minneapolis, Minn 55433	✓	yes	??	yes	sold 1-10-85
47	Jack Vinson Box 114 Hallandale, Fla. 33009	Letter	not	deliverable		
48	Jr. W.A. Schafer 731 Parkwood Drive Dallas, TX 75224	✓	yes	yes	yes	
49	Charles Magid 5461 N.E., River Place Chicago, Ill. 60656	Letter	not	deliverable		
50	John Chancey 815 Savin Avenue West Haven, Conn. 06516	✓	yes	yes	yes	
51	Rod Hopp Minnesota					
52	Donald Dine 4057 Martindale Road, N.E. Canton, Ohio 44700	✓	yes			ride sold
53	Charles Scheider 8338 Wales Avenue North Kent, Ohio 44720	✓	yes	yes	no	
54	Van Ballanger 528 North Baird Street Green Bay, Wis. 54302	letter	not	deliverable		
55	Chuck Magid 5461 N.E., River Place Chicago, Ill. 60656					
56	Al Aluy 3413 Kallin Long Beach, Calif. 90808	Letter	not	deliverable		
57	Ester Speroni 3111 E Nettleton Road Jonesboro, Ark. 72401	Letter not		deliverable		
58	Fred Cantrell Box 41 Pinellas Park, Fla. 33565	✓				

		return receipt	questionnaire	Foot guard	Hair guard	ruler plate
59	Jimmy Hoggard S.C. Rt. 2, Box 157 FA Big Strings, TX 79720					
60	Johny Portsmouth Box 1577 Andalusia, ALA. 36420	✓	yes	yes	yes	
61	Floyd & Bexter P.O. Box 702 Lebanon, Tenn. 37087	✓	yes	yes	yes	
62	Jerry Geren Rt.2, Box 372 Valdosta, Georgia 31601	✓	yes	yes	yes	
63	Bill Germain 4026 Connecticut Street St. Louis, MO 63116	letter	not deliverable			
64	Joe Blash 108 Sierra Place Upland, Calif.	✓				
65	Ted Cory # 203 El Camino Road San Benito, TX 785					
66	Rod Link Box 254 Mason, Mich. 48854	✓				
67	W.G. Wade 4126 Nearbrook Bloomfield Hills,	✓				
68.	Vern O'Neilley 123 So. Broadway Church Point, LA					
69.	Tom Hoefling RR # 2 Hornick, Iowa 51026					
70.	Eva Mofield RR # 6 Marion, Illinois 62959					
1.	Ray Cammack Shows 4950 West Southern Ave. Phoenix, Arizona 85009					

72. J & J Amusements / chas. Schneider
John Richardson / wales Rd
Poland, Ohio / Marsillon, Ohio

73. Jim Evans
Evans united Shows
RT 1
Plattsburg Missouri

SPECIFICATIONS FOR ALL RIDES MANUFACTURED BY ELI BRIDGE COMPANY

Prepared For Florida Department of Agriculture & Consumer Service

The Standard No. 5 Big Eli Wheel (cable drive):

1. Height restriction: Passenger must be a minimum of 48" tall to ride alone.
2. Weight restrictions: None, except as limited by the available space in the seat. ASTM Code requires a load capacity of 170 pounds per person.
3. Passenger weight per seat: Three 170 pound persons for a total per seat of 510 pounds. Total passenger weight on the Wheel: twelve seats at 510 pounds per seat for a total of 1,620 pounds.
4. Revolutions per minute: 6.5 RPM
5. Direction of travel: Counterclockwise rotation when viewed from the operator's position.

The Standard No. 5 Big Eli Wheel (rim drive):

1. Height restriction: Passenger must be a minimum of 48" tall to ride alone.
2. Weight restrictions: None, except as limited by the available space in the seat. ASTM Code requires a load capacity of 170 pounds per person.
3. Passenger weight per seat: Three 170 pound persons for a total per seat of 510 pounds. Total passenger weight on the Wheel: twelve seats at 510 pounds per seat for a total of 1,620 pounds.
4. Revolutions per minute: 6.75 RPM
5. Direction of travel: Counterclockwise rotation when viewed from the operator's position.

The Deluxe No. 12 Big Eli Wheel:

1. Height restriction: Passenger must be a minimum of 48" tall to ride alone.
2. Weight restrictions: None, except as limited by the available space in the seat. ASTM Code requires a load capacity of 170 pounds per person.
3. Passenger weight per seat: Three 170 pound persons for a total per seat of 510 pounds. Total passenger weight on the Wheel: twelve seats at 510 pounds per seat for a total of 6,120 pounds.
4. Revolutions per minute: 5.75 RPM.
5. Direction of travel: Counterclockwise when viewed from the operator's position.

The Aristocrat No. 16 Big Eli Wheel (cable drive):

1. Height restriction: Passenger must be a minimum of 48" tall in order to ride alone.
2. Weight restrictions: None, except as limited by the available space in the seat. ASTM Code requires a load capacity of 170 pounds per person.
3. Passenger weight per seat: Three 170 pound persons for a total per seat of 510 pounds. Total passenger weight on the Wheel:

ELI BRIDGE COMPANY

800 CASE
JACKSONVILLE, IL 62650-1493

TO: _____ FAX: 863 425 3477

ATTENTION: Ron Brooks

FROM: Rick Haerle FAX: **217-479-0103**

SUBJECT: Wheel Seat Hanger Lock Pin

DATE: 2-8-01 TIME: _____

TOTAL PAGES: _____ CONFIRMATION REQUESTED: ____ PO # _____

MESSAGE:

To whom it may concern:

In regards to our conversation, I have spoken with our Engineer and we feel that since Mr. Miller has ordered the Locking Pins we would not have a problem with him operating as long as the substitute pin is securely fastened. (Grade 5 or 8 Bolt with a locking nut or a hitch pin or lynch pin with a locking klik pin in the end). If you have any further questions, please call us.

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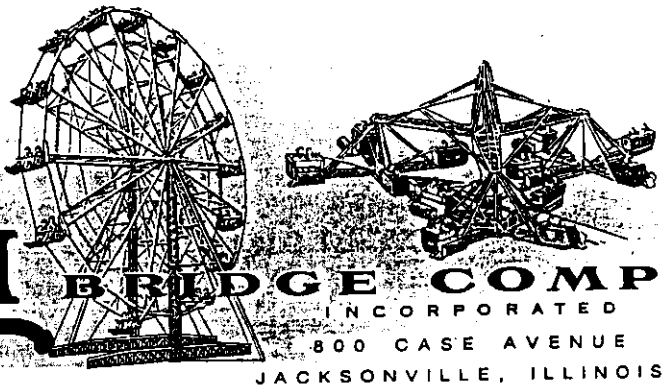

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ELI POWER UNITS

ELI BRIDGE COMPANY
INCORPORATED
800 CASE AVENUE
JACKSONVILLE, ILLINOIS 62650-1493

BIG ELI

Bulletin No. 970129

Applies to all servo-controlled, two-directional HY-5 II, Eagle 16, Double Eagle, No. 5 and No. 16 Wheels

We have been informed that there have been occurrences of servo-controlled Wheels going "out of control", at which time they started running backwards unexpectedly while in the neutral (stop) position. Our position is that if the risk exists, the safest action to take is to shut the Wheel down until the problem is eliminated.

This condition is very dangerous, especially if the ride operator or passengers are on the loading platform or in the path of the Wheel when it starts moving.

There have been several causes suggested for this condition including a) the neutral leg going out on the power source, b) the controller board being bumped loose while traveling or c) burned out, d) water in the joystick device or e) a cracked gasket under the amphenol plug, (which allows hydraulic fluid to leak into the plug which breaks contact and the ride takes off).

The problem is tied in each case to the electronics and computer components. We have, therefore, designed a retrofit kit for the control wherein the servo, the joystick, and the control board are all removed and a mechanical control device is installed. Retrofit kits for the Sundstrand hydraulic transmission are available from us right now for $1,500 F.O.B. our factory, and kits for the OilGear hydraulic transmission will be available the middle of February (which will probably run about $2,000 or less). **We consider this modification to be mandatory.**

We have an alternative available as an immediate solution for OilGear customers. It is to purchase a new Sundstrand hydraulic unit with the retrofit kit (already partially attached). If you have an older OilGear unit this may make the most sense as we have obtained a special pricing on the Sundstrand transmission from our dealer. The transmission and retrofit kit together are $4,000.00 F.O.B. our factory. These prices are in effect until May 1, 1997.
There will be complete installation instructions provided with the kit.

PHONES: 800-274-0211 • 217-245-7145 • FAX 217-479-0103

ELI BRIDGE COMPANY
800 Case Avenue
Jacksonville, IL 62650 USA
Phone: (217)245-7145
FAX: (217) 479-0103

Bulletin No. 970417

Release Date: 4/17/97
Effective Date:4/17/97

SERVICE BULLETIN

Ride Manufacturer: ELI BRIDGE COMPANY
Ride Name: HY-5, HY-5 II, Eagle 16 and Double Eagle Wheels
Model Number: All ELI trailer-mounted Wheels

Affected Production Dates: All
Affected Serial Nos.: ALL

Abstract of Issue: WHEN THE WHEELS ARE DISMANTLED, IT IS IMPERATIVE THAT THE WINCH CABLE IS PROPERLY SEATED IN THE A-FRAMES OR THE WHEEL WILL DROP CAUSING SERIOUS (and EXPENSIVE) DAMAGE AND POSSIBLE INJURY. If the cable looks like it is not directed into the A-frames, the Wheel can be trued by tightening or loosening the corner guy cables to twist the Wheel around until it is lined up with the A-frame. DO assure that the Wheel is properly trued BEFORE the cable misses the A-frame. Once the cable slides down the outside of the A-frame, it is too late and the Wheel will drop.

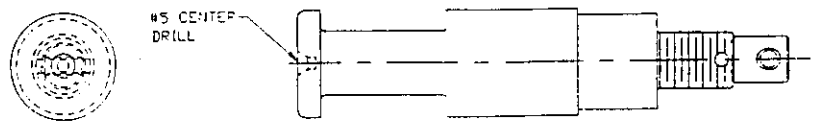
Reason For Release: As the responsibility for moving the Wheel may no longer involve individuals who were factory trained, we see more incidences of Wheels being dropped. We feel it is prudent to remind everyone **(1) to watch the cable, especially while the Wheel is being dismantled, to be sure the cable goes into the A-frames, (2) keep all personnel away from the Wheel where they would be in its path if it fell, and (3) on Eagle 16's and Double Eagles, the seat pin (journal bolt) for the master spoke is different from the others, it has been upgraded to a higher stress material.**

There is a great deal of stress put on the seat pins (journal bolts) on the master spokes. This is where the singletree is attached which is pulled around by the winch cable. The pins are designed to withstand this load. To the best of our knowledge, when the cable is properly seated in the A-frames (derrick) while the Wheel is being lowered by the winch, the pins have not experienced any failure.

However, there have been cases when the seat pins (journal bolts) on the Eagle master spoke were broken from the sudden impact of the drop when the cable missed the A-frames. Since March 1994, we started using a stronger material for the master spoke seat pins to better withstand the multiplied stresses generated by the impact of the drop, if it should occur. The pins are marked on the head by a #5 center drilled hole.

Action to Be Taken: (1) Inform all individuals involved in setting up or dismantling Wheels to ALWAYS watch the cable to see that it seats properly in the A-frame. Failure to do so can cause $30,000 or more in damage to the Wheel. (2) Stay off the spokes and out of the path of the Wheel. Failure to do so can cause death or injury to personnel. (3) When ordering replacement pins for master spokes on Eagles, order the master spoke pins (journal bolts) and be sure they are installed on the proper spokes. **THE MOST IMPORTANT THING IS TO NEVER MISS THE A-FRAME.**

Detail of Issue: Drawing: master spoke seat pin is distinguished by the #5 center drill in the head of the pin.



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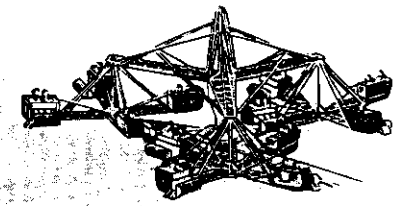

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BIG ELI® WHEEL BULLETIN NUMBER 3

APPLIES TO ALL BIG ELI® WHEEL SEATS
DATE: March 20, 1990
SUBJECT: Mandatory Hairguards and Lapbars

This bulletin makes the application of hairguards and lap bars mandatory on all BIG ELI® WHEEL seats.

Based on seventeen years experience with hairguards, the evidence is abundant that hairguards are effective against hair pulling accidents. There is no need to risk this potential hazard for lack of guards.

Although we do not yet have a comparable length of experience with lap bars, we feel the protection afforded by them far outweighs any reluctance to invest in them.

When installed, the lap bars should reach within five (5) inches of the top edge of the seat bottom structure. There should not be more than two (2) inches gap between the lap bar and the top, front edge of the seat cushion; at its closest point. These dimensions are very important to the effectiveness of the lap bars.

ELI BRIDGE COMPANY

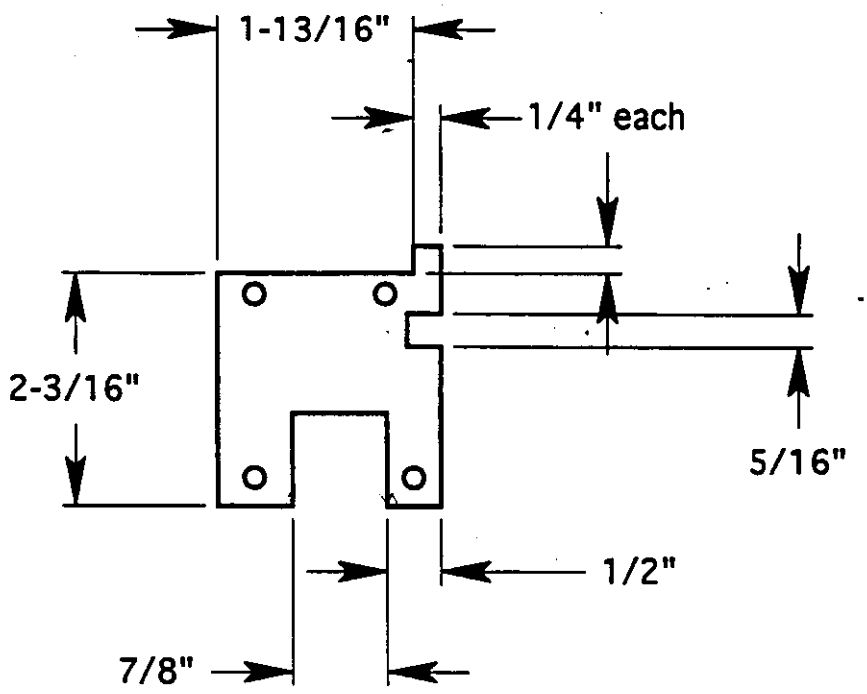
Lee Sullivan
President

PHONES: 800-274-0211 • 217-245-7145 • FAX 217-479-0103

Eli Bridge Ferris Wheel Test Gage*

For Big Eli (tm) Wheels ONLY

NOT FOR USE WITH: Little Eli (tm) Wheels or Big Eli (tm) wheels re-manufactured by other companies.



Material is Aluminum, thickness is 3/16" or greater.

Tolerances are +/- 0.005" for measurements indicated above.

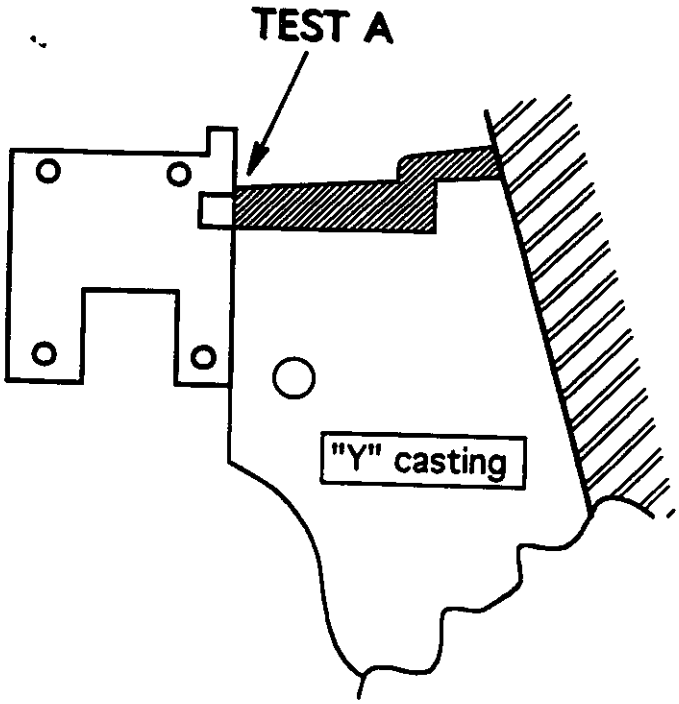
*** This gage provided by NAARSO (National Association of Amusement Ride Safety Officials) as a guide for inspection. This gage shall be used only as a guide and all measurements shall be checked and verified prior to any action being taken. For further information concerning Big Eli (tm) Wheels please contact Eli Bridge Company, (800) 274-0211.**

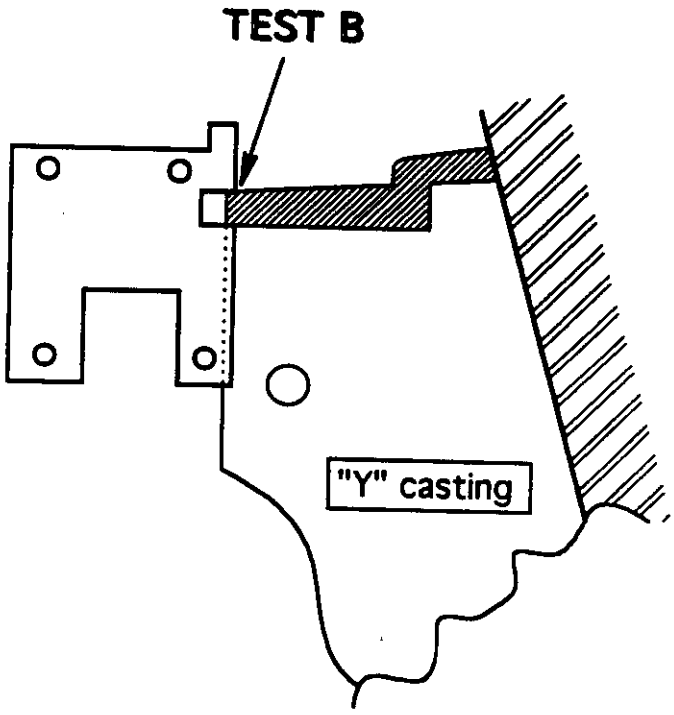
"Y" Casting Tests - Part 1

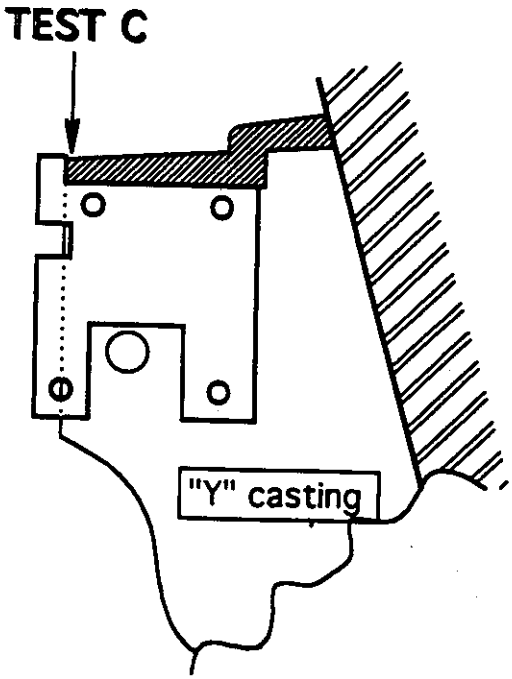
TEST A: The thickness of the casting end shall be greater than 1/4". This test checks to see if thickness is greater than 5/16". If gage does not fit over end of casting, proceed to TEST D.

TEST B: If gage does slip over end of casting, it indicates that thickness is less than 5/16", and requires TEST C be performed.

TEST C: If casting thickness is less than 1/4", which is shown here, it requires the "Y" casting be replaced.







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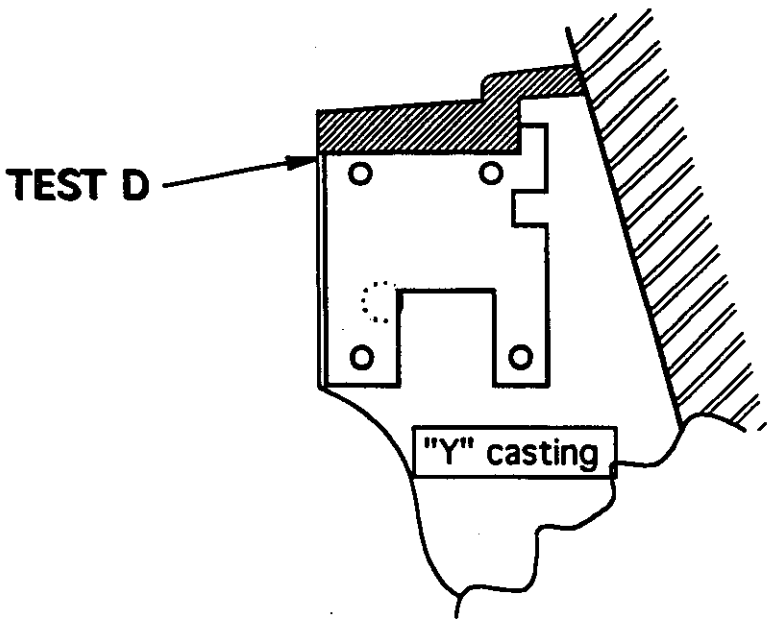
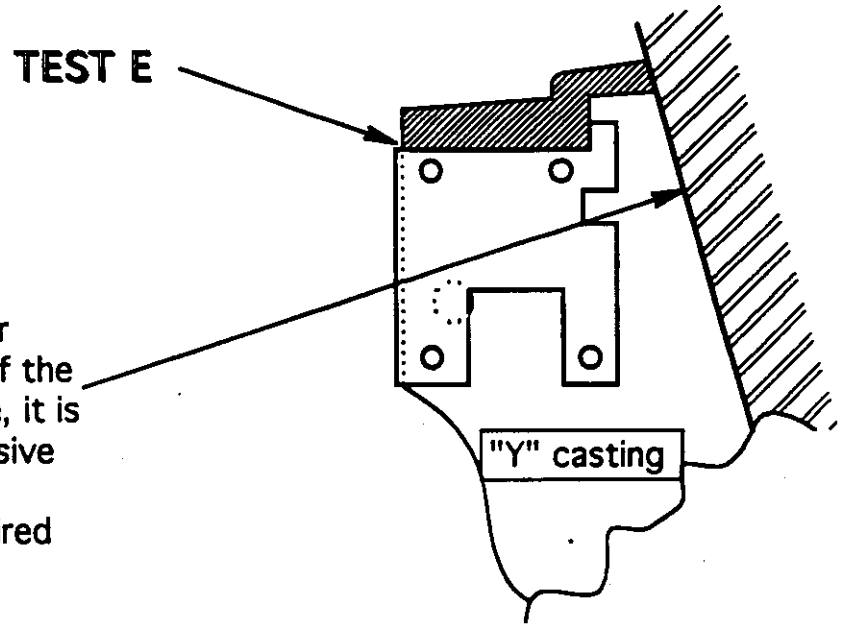
"Y" Casting Tests - Part 2

TEST D: This test checks the depth of the "Y" casting. When the test gage is inserted as shown, the casting end should stick out beyond the edge of the gage. If it does, proceed to TEST F.

TEST E: If the end of the gage sticks out past the end of the casting as shown in the diagram, the "Y" casting shall be replaced.





NOTE: If you see wear occuring on the wall of the seat near this location, it is an indication of excessive wear and should be investigated and repaired promptly.

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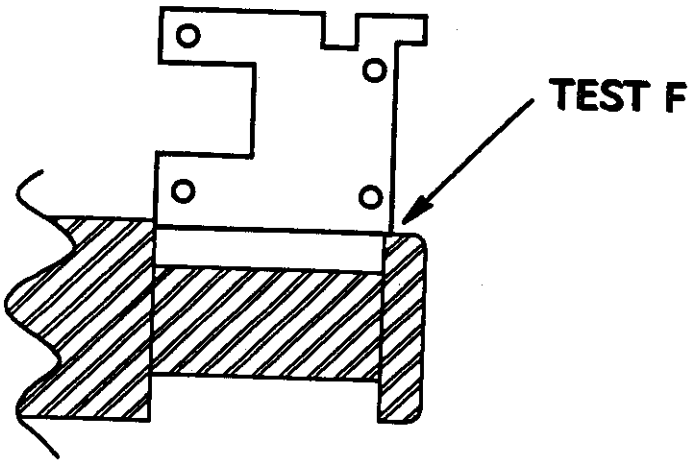
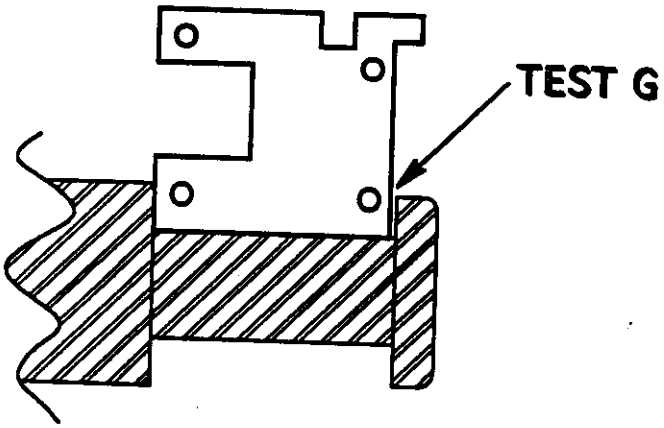
Seat Pin Tests - Part 1



TEST F: This test is designed to measure the wear at the ends of the reduced diameter portion of the seat pin. If the gage does not go inbetween the shoulder and cap/head of the seat pin, as shown, proceed to TEST H. Be sure to check all-the-way around the seat pin, not in just one location.

TEST G: If the gage does go inbetween the shoulder and cap, as shown here, the seat pin shall be replaced.



NOTE: Other tests of the seat pin are required. Please refer to the owner's manual for a complete listing.

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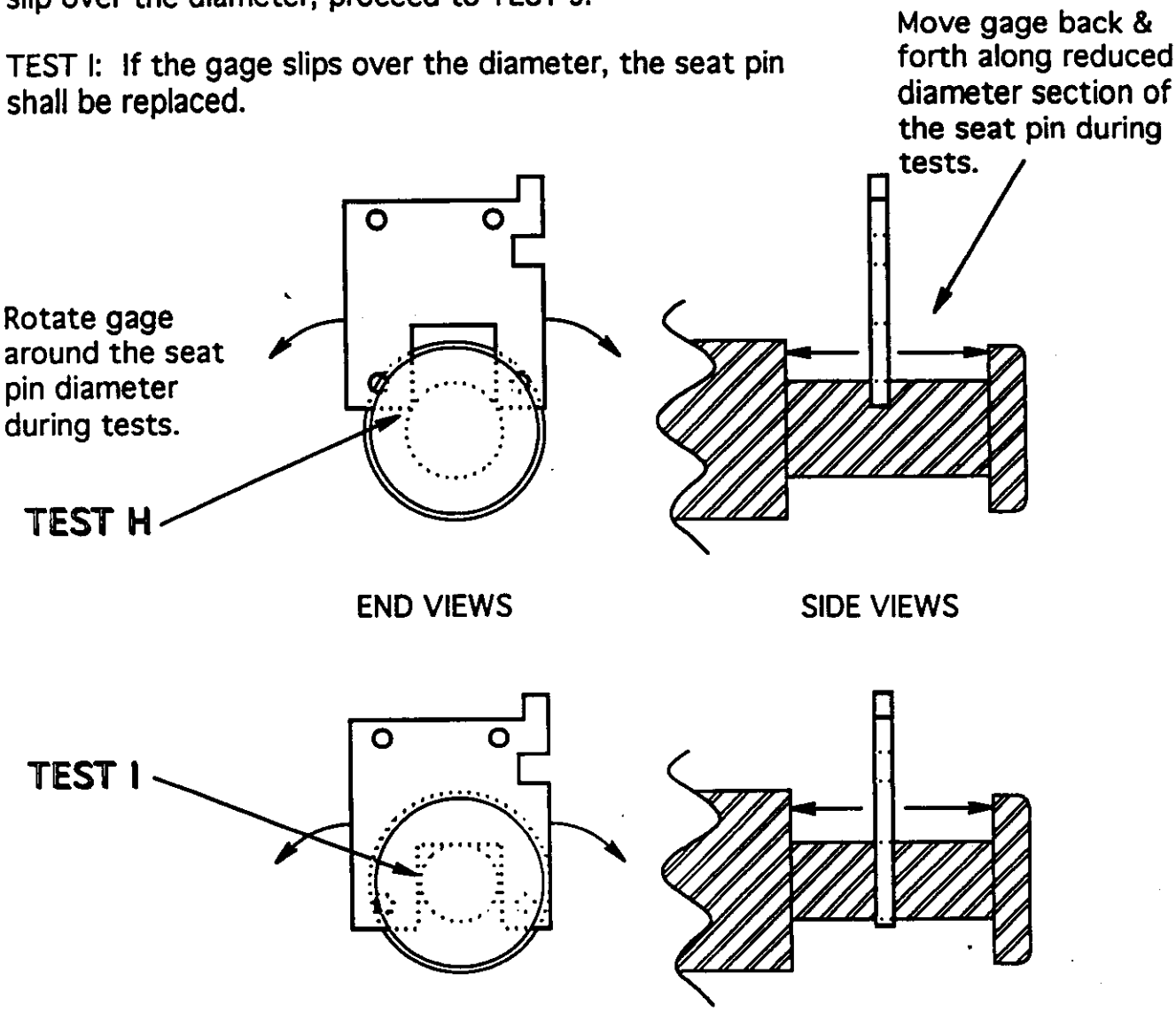
Seat Pin Tests - Part 2

TEST H: This test is designed to measure the wear of the reduced diameter section of the seat pin. The gage should be placed as shown below, while also moving back & forth and around the diameter. If the gage does not slip over the diameter, proceed to TEST J.

TEST I: If the gage slips over the diameter, the seat pin shall be replaced.



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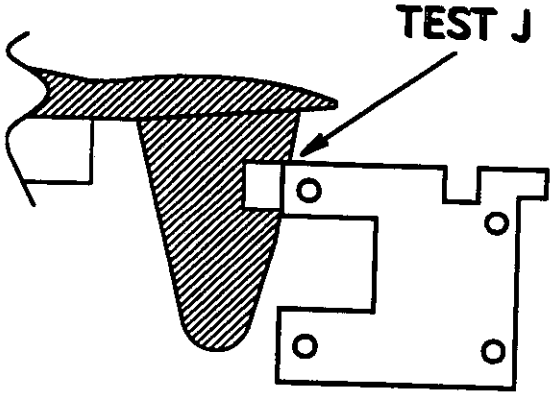
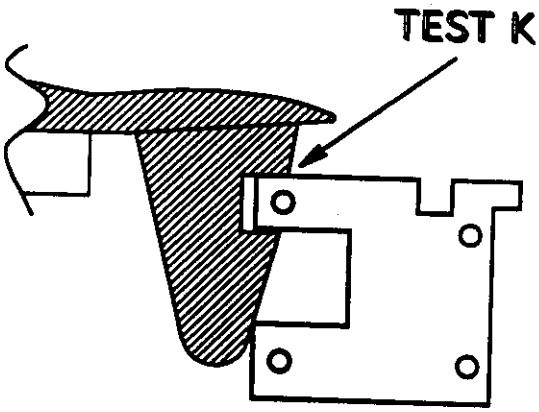
"J" Casting Tests



TEST J: This test is designed to check the size of the slot on the "J" casting. The gage should be used as shown, and if it does not fit inside the slot, proceed to TEST L. (Maximum allowed is 1/2" opening.)



TEST K: If the gage fits into the slot on the "J" casting, the "J" casting shall be replaced.

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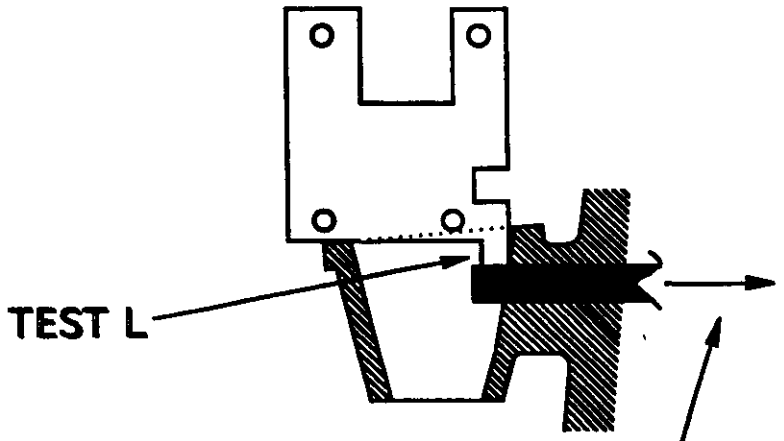
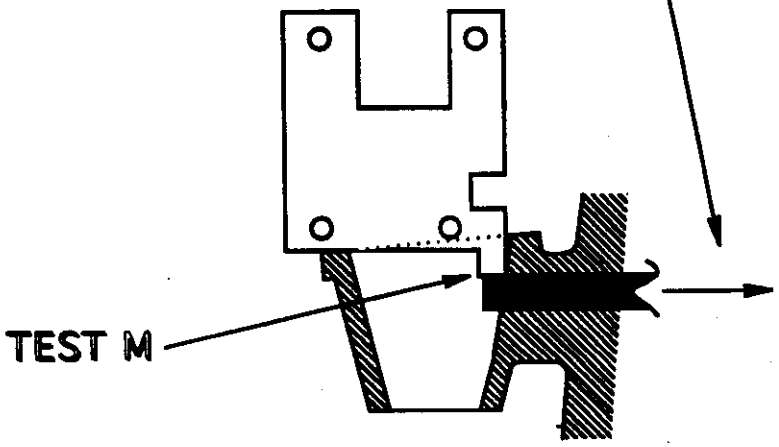
"T" Socket / Seat Handlebar Latch Tests

TEST L: This test is designed to check the length of the plunger rod inside the "T" socket. First, pull and release plunger, then place 'nipple' end of gage into "T" socket as shown. If plunger rod sticks out past gage, proceed to TEST N.



Pull plunger out and release prior to test.

TEST M: If plunger rod does not stick out past gage 'nipple', repair or replace as necessary until TEST L is passed.



NOTE: Other inspection items may be required, please review owner's manual.

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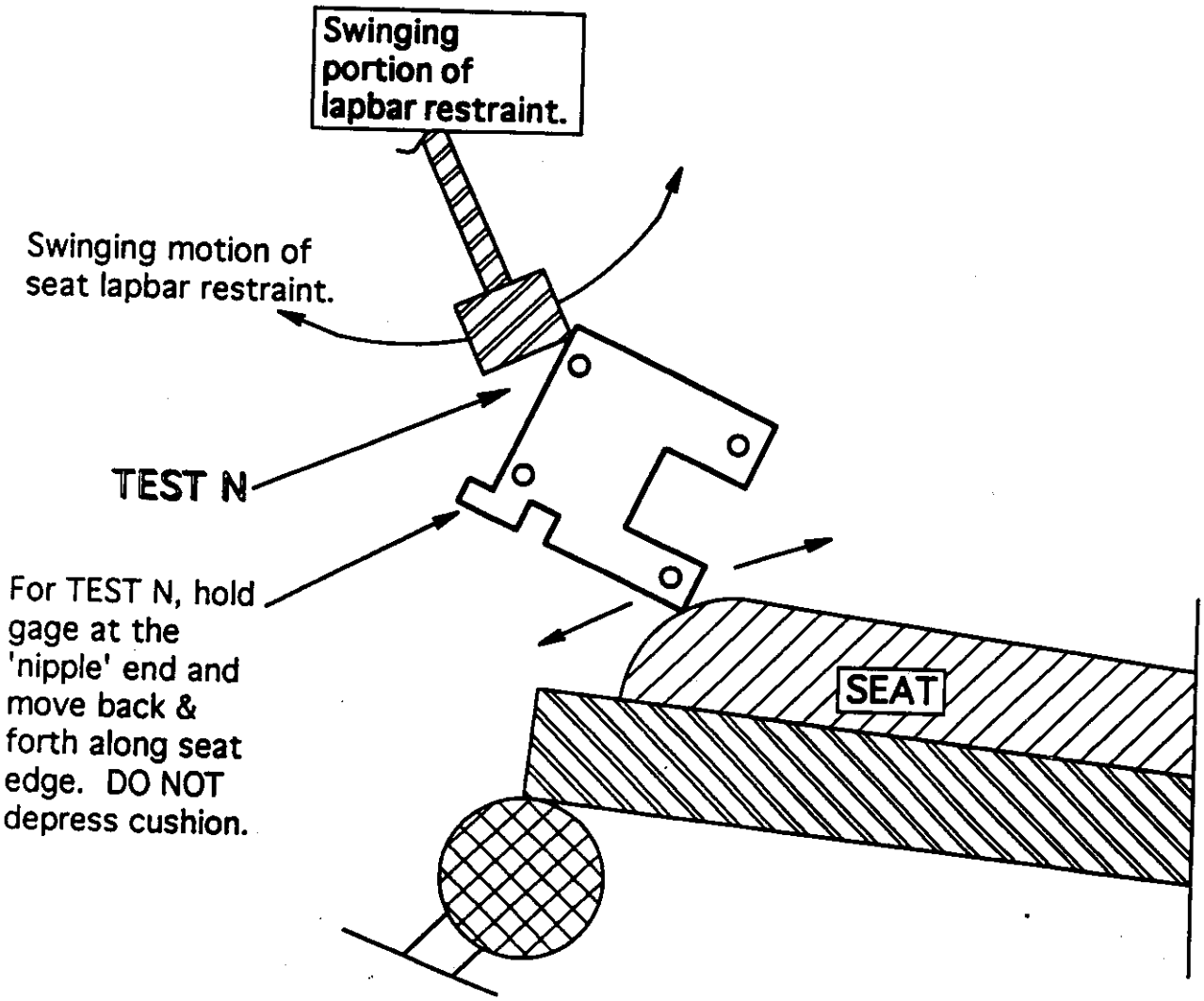
Handlebar / Seat Clearance Test

TEST N: This test is designed to help determine if the proper gap exists between the seat and the swinging lapbar restraint. The maximum allowed distance from the edge of the seat cushion to the swinging portion of the lapbar restraint is 3 inches. If the gage is moved as shown below and firmly contacts the swinging portion of the lapbar, the distance is acceptable. Remember, less distance is better. If the gage does not touch the lapbar, repair and/or replacement of the seat and/or cushion is required.



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Eli Bridge
Big Eli Wheel

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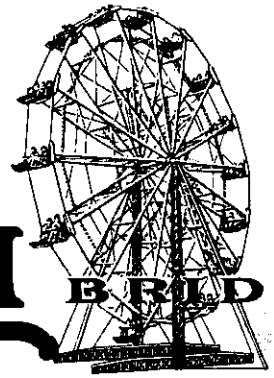

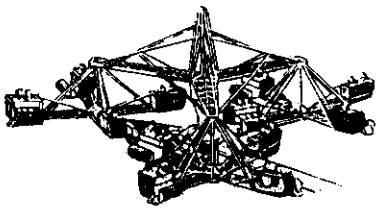

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ELI BRIDGE COMPANY
INCORPORATED
800 CASE AVENUE
JACKSONVILLE, ILLINOIS 62650-1493

RECEIVED
JUL 0 6 1993
BUREAU OF
FAIR RIDES INSPECTION

June 25, 1993

Dear Owner/Operator:

From time to time we get inquiries from owners, operators or inspectors about various aspects of our BIG ELI WHEELS. Most inquiries are covered by our existing "Erecting and Operating" or "Maintenance" manuals. Some involve items that have been changed since the manuals were printed, and others are new.

In order to give you the best information we have, we are sending you this Supplement which we trust will assist you in getting the best performance out of your BIG ELI WHEELS. **Please insert it in one of your manuals for easy reference.**

If you no longer own an ELI WHEEL, we would appreciate hearing from you so we can update our ownership records. If you have the name of the person to whom you sold it and the serial number of the WHEEL, that would be of great help. Please feel free to use our toll-free number if you live in the U.S. - 1-800-274-0211.

Sincerely yours,

William A. Sullivan

William A. Sullivan
President
ELI BRIDGE COMPANY

WAS/lg

PHONES: 800-274-0211 • 217-245-7145 • FAX 217-479-0103

SUPPLEMENT TO THE BIG ELI® WHEEL MANUAL

Since this Manual was last revised there have been several bulletins sent out to owners/operators of record. This supplement will cover that material which was sent out, as well as new information, but which was not covered by this Manual.

WEAR OF "Y" SEAT HANGER CASTINGS

There are two places on the "Y" casting where wear can occur.

The most obvious place is at the top of the casting where the casting rests on the seat pin, as shown in Figure 1. THE THICKNESS ON THE END IS 3/8". WHEN IT IS WORN DOWN TO A THICKNESS OF 5/16" THEN THE CASTING SHOULD BE REPLACED.

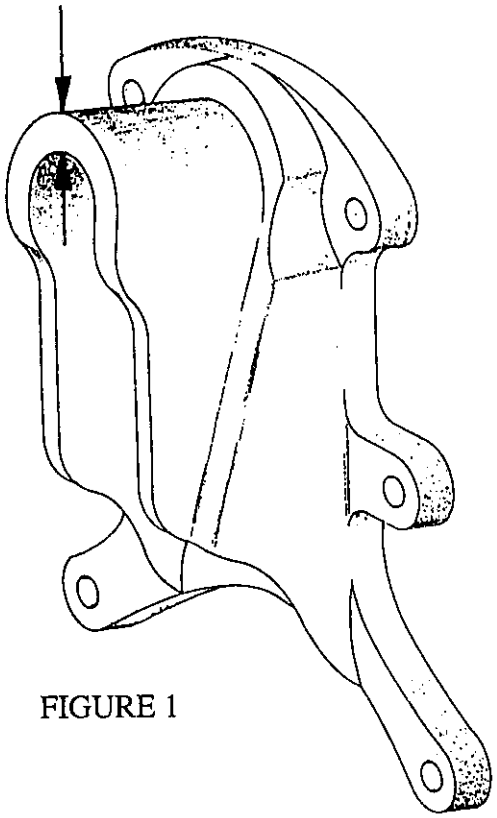


FIGURE 1

Since this is a casting with tapering surfaces for release from the molding sand, some "enterprising" operators have found that by grinding back on the outer end of the casting they get back to where the casting is thicker and where they can meet the thickness requirement of at least 5/16". It is true that as you grind away the casting does become thicker, but this procedure introduces another problem, so DO NOT GRIND AWAY THE END OF THE CASTING.

The seat pin has a reduced diameter where it fits up inside the "Y" casting. See Figures 2 and 3. When the pin is locked in place the head of the pin is held by the recess in the "Y" casting.

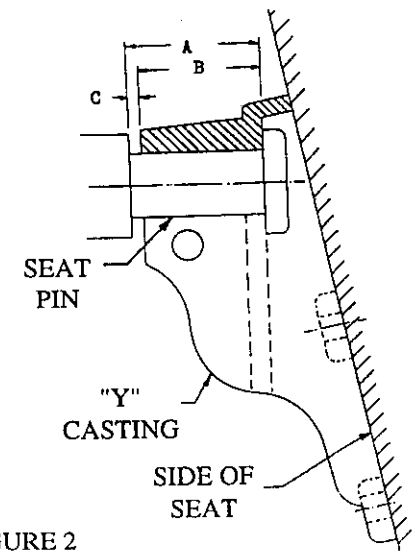


FIGURE 2

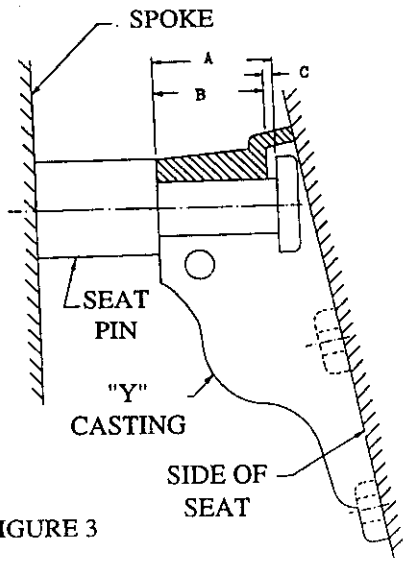


FIGURE 3

On a new pin the length "A" of the reduced diameter is 2-1/8", and the portion of the "Y" casting where it rests, "B", is just 1-7/8" long. Therefore, there is a built-in clearance "C" of 1/4" for the seat pin to move in or out while still locked in position. Figures 2 and 3 show the extreme positions, Figure 2 with the seat pin all the way out, and Figure 3 with it all the way in. Notice that when the seat pin is all the way in, as in Figure 3, the head of the pin is nearly touching the side of the seat. When the outer end of the "Y" casting is worn or ground away the seat pin will actually dig into the side of the seat. There have been cases where the side of the seat has had a circle cut out of it because of the rubbing of the seat pin.

WHEN THE INSIDE LENGTH "B" OF THE CASTING HAS BEEN REDUCED 1/16" IN LENGTH (from 1-7/8" to 1-13/16") THEN THE CASTING SHOULD BE REPLACED.

In recent years all seat pins have had a 1/8" radius machined on the edge of the head of the seat pin, as can be seen in Figures 2 and 3. If your seat pins do not have a radius at this point, grind a 1/8" radius on each one, and this will minimize wear on the side of the seat.

WEAR OF SEAT PINS

Wear of seat pins is extremely slow, and to our knowledge there has never been a failure of a seat pin in service, if it has not been modified by others. Inspectors ask us at what point a seat pin should be replaced, and we list the following reasons for replacing a seat pin:

A. If the pin is bent.

B. If the threads are damaged so that the nut cannot be tightened properly.

C. If the 1" reduced diameter is worn down to 7/8" diameter.

D. If the length of the reduced diameter, "A", which is normally 2-1/8" long, has been worn to a length of 2-3/16".

E. If any part of the 3/8" thick head of the pin is broken off.

F. If there are any cracks anywhere on the pin.

"J" CASTING

The bottom edge of the slot in the "J" casting, as shown in Figure 4, is the surface which engages the "AB" plunger to secure the handlebar in the locked position. THE "J" CASTING SHOULD BE REPLACED IF THIS BOTTOM EDGE IS ROUNDED OR BROKEN AWAY. You may find an indentation where the plunger has pressed against the bottom of the slot, but this will not impair the functioning of the latching mechanism, and is no reason to replace the "J" casting.

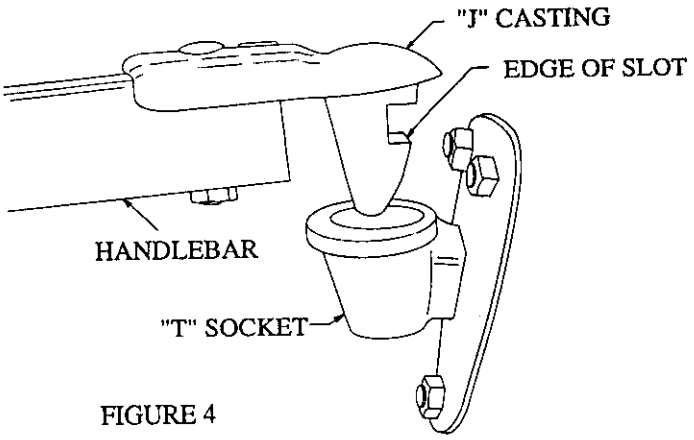


FIGURE 4

SEAT HANDLEBAR LATCH

The "AB" plunger must extend into the "T" socket a minimum of 1/4" for secure latching of the handlebar. The easiest way to check this is to place a 1/4" diameter rod on top of the plunger when it is all the way extended. The plunger should be at least long enough to extend the width of that 1/4" rod. See Figure 5,

IF THE "AB" PLUNGER DOES NOT EXTEND 1/4" INSIDE THE "T" SOCKET, OR IF THE END OF THE "AB" PLUNGER IS BROKEN OR ROUNDED FROM WEAR, THE PLUNGER SHOULD BE REPLACED.

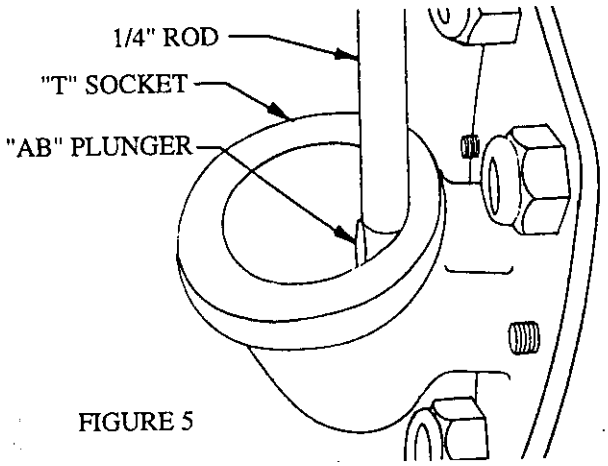


FIGURE 5

PLUNGER SPRING

The spring on the "AB" plunger, shown in Figure 6, must always be maintained in good condition. When you release the plunger knob, the plunger should be forced firmly and completely all the way in until the knob is against the escutcheon. IF THE SPRING IS WEAK OR BROKEN REPLACE IT. DO NOT CARRY PASSENGERS IN A SEAT WHERE THE PLUNGER DOES NOT FIRMLY ENGAGE THE "J" CASTING ON THE HANDLEBAR.

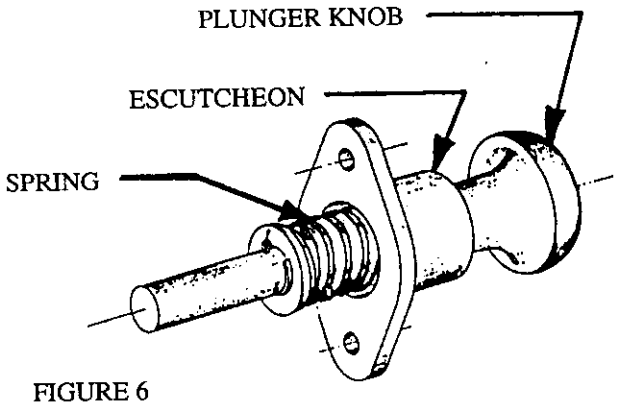


FIGURE 6

PLUNGER COVER

The State of California and a few other jurisdictions require the addition of a cover over the plunger, as shown in Figure 7.

The cover can be added easily by using the screws which hold the escutcheon to the side of the seat.

Covers are available open on the bottom, as specified by California, or on the rear side. Both styles are available from Eli Bridge Company.

This is not considered a mandatory modification by Eli Bridge Company.

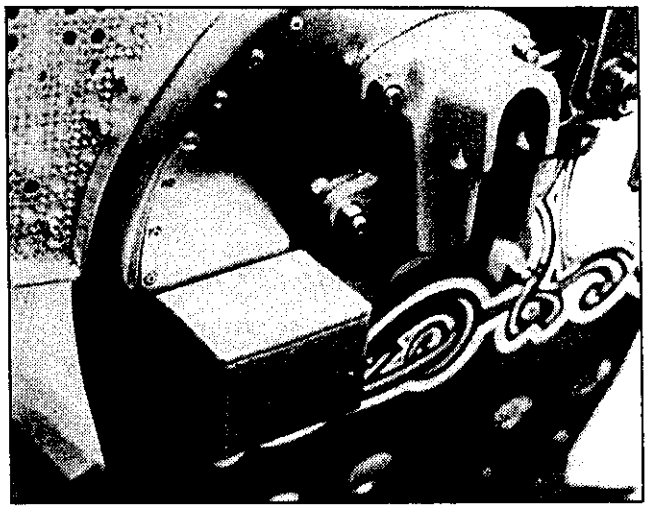


FIGURE 7

HANDLEBAR HINGE

Check all handlebar hinge castings, as shown in Figure 8, to be sure all are free from cracks, and replace any where cracks are showing.

We have received some reports of cracks developing in the side of the seat around the screws which hold the "F" hinge casting to the side of the seat.

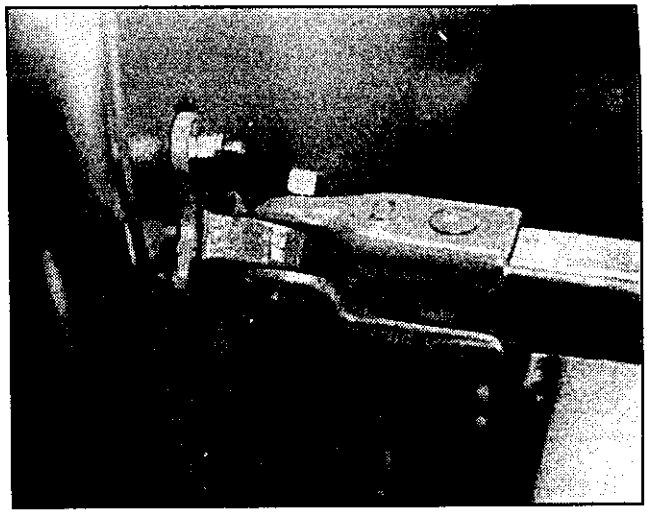


FIGURE 8

We have prepared disks, such as shown in Figure 9, which can be added easily to the outside of the seat to spread the load out. It appears that the cracking is more likely to occur on aluminum seats but there have been some reports of this happening in steel seats.

IF YOU FIND CRACKS AROUND THE SCREWS HOLDING THE "F" HINGE CASTING TO THE SIDE OF THE SEAT, INSTALL HINGE DOUBLER DISKS, WHICH ARE AVAILABLE FROM ELI BRIDGE COMPANY.

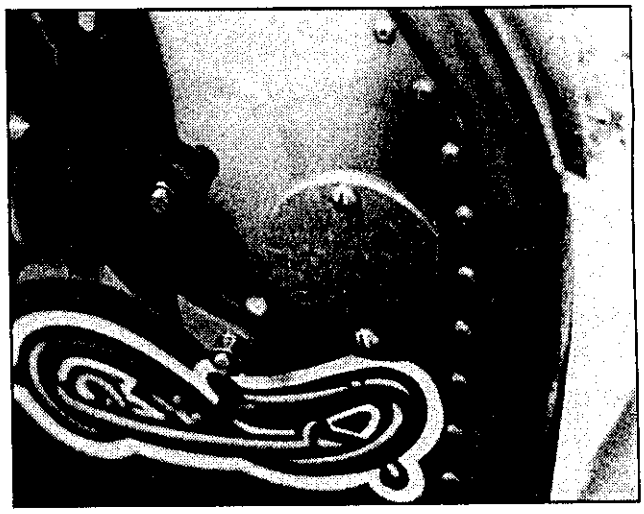


FIGURE 9

Before installation, drill a 1/8" hole at the end of each crack. This will help prevent the crack from growing longer.

FOOTBOTTOM HINGES

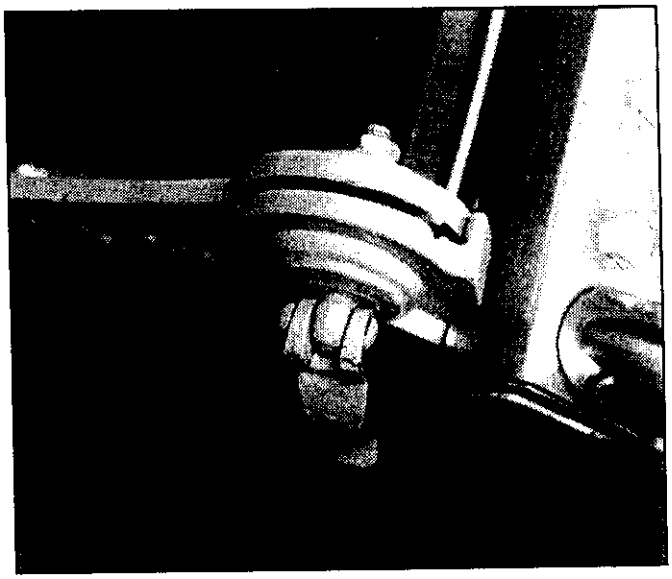


FIGURE 10

Check all of the malleable footbottom hinge castings to be sure that none are cracked. The raised rib in the hinge is sometimes worn smooth so that the footbottom cannot be locked securely. See Figure 10. IF THE LOCKING RIB IS WORN OFF OR IF ANY CASTING IS CRACKED, REPLACE IT.

The "D6" footbottom locks must be adjusted so that when they are levered into the locked position the two parts of the footbottom hinge are firmly clamped together.

SEAT LOCK PIN

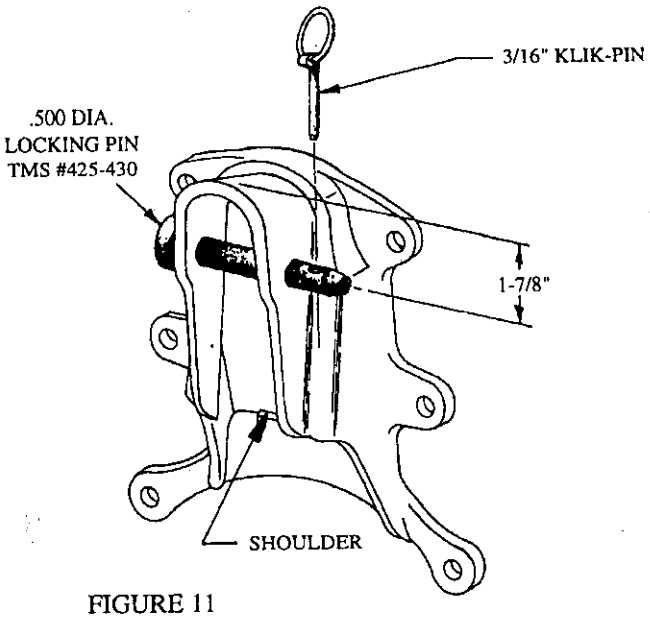


FIGURE 11

The "MYNY" seat locks have been replaced by seat lock pins. The "MYNY" locks were quite satisfactory over many years, but problems with their use prompted the use of the seat lock pin.

Securely locking the "MYNY" seat locks into position required sharp edges on the locating surfaces, and a spring in good condition for wedging the seat lock in the proper locking position. Extended wear tended to round off the sharp edges, and the springs occasionally failed to retain their strength, all of which caused deterioration of the locking capability.

More seriously, on two occasions reported to us operators failed to hang a seat on a seat pin. Instead of the seat pin being inserted up into the "Y" seat hanger casting the end of the seat pin was wedged between the "Y" casting and the hair guard bracket. The operator then reached around and inserted the "MYNY" seat lock without looking at the end of the seat. As the Wheel turned, the seat pin rolled out of its wedged position, letting the side of the seat drop. This then wedged the seat against the other spoke so that it could not swing freely. In both cases serious accidents resulted.

The seat lock pin, shown in Figure 11, cannot be inserted and locked without looking at it, and we believe it is a safer design than when the "MYNY" seat lock was used, simply because the operator has to see the pin to know where to insert the Klik-pin to lock it. Naturally, every seat lock pin must be secured with a Klik-pin.

BECAUSE OF WHAT WE BELIEVE IS IMPROVED SAFETY WE CONSIDER IT MANDATORY THAT ALL BIG ELI® WHEEL SEATS BE EQUIPPED WITH SEAT LOCK PINS, AND THE USE OF THE MYNY SEAT LOCKS IS TO BE DISCONTINUED.

Those seats not already equipped with seat lock pins can be drilled for them using the drill jig which can be obtained from Eli Bridge Company.

HAIR GUARDS

IT IS MANDATORY FOR ALL BIG ELI® WHEEL SEATS TO BE EQUIPPED WITH HAIR GUARDS. FAILURE TO USE THE HAIR GUARDS CAN RESULT IN SERIOUS INJURY TO A PASSENGER.

As can occur to any equipment exposed to the general public, there have been instances where hair guard perforated sheets have been deliberately cut, leaving sharp edges. If this should happen, repair or replace the hair guard or perforated sheet as soon as possible because the cut edges could be very hazardous.

You might want to consider replacing your hair guards with ones in which the perforated metal has been replaced with clear Lexan polycarbonate plastic. This material is virtually unbreakable, and provides a clear unobstructed view. Over a period of years the Lexan when exposed to direct sunlight does tend to become more brittle, but its superior properties easily justify its use. While we do not have long term use data, we believe the impact resistance of the Lexan should be checked after five years of use, and replaced if the impact resistance has been lost.

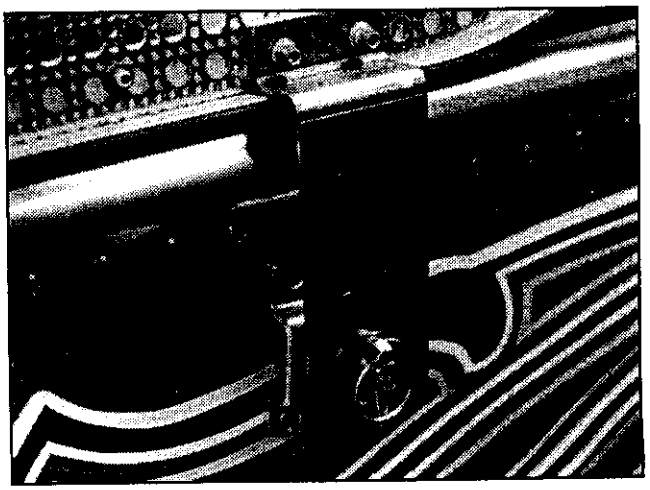


FIGURE 12

Earlier models of the hair guards were each held to the seat with two Air-loc quarter-turn fasteners. These provided secure attachment but for easier assembly the Air-locs were replaced on a later design with studs on the seats over which the hair guards were slipped, and then secured with a Klik-pin on each stud, as shown in Figure 12.

On one occasion which has been reported to us a passenger laid his hand across the back side of the seat behind the hair guard, and removed the Klik-pin, which allowed the hair guard to get loose and jam against other parts of the Wheel. CHECK FREQUENTLY TO BE SURE THAT ALL KLIK-PINS ARE IN EVERY HAIR GUARD. AN UNSECURED HAIR GUARD CAN BE VERY HAZARDOUS TO THOSE IN THE SEAT, THOSE IN OTHER SEATS, OR THOSE ON THE GROUND.

LAP BAR

The lap bar is a mandatory modification which should be on all Big Eli® Wheel seats. The purpose is to provide added protection for young children who may be riding with adults or by themselves. From the bottom of the lap bar to the top front edge of the cushion the distance should be no greater than 3". The measurement should be made on the end of the lap bar closest to the handlebar hinge, as shown in Figure 13.

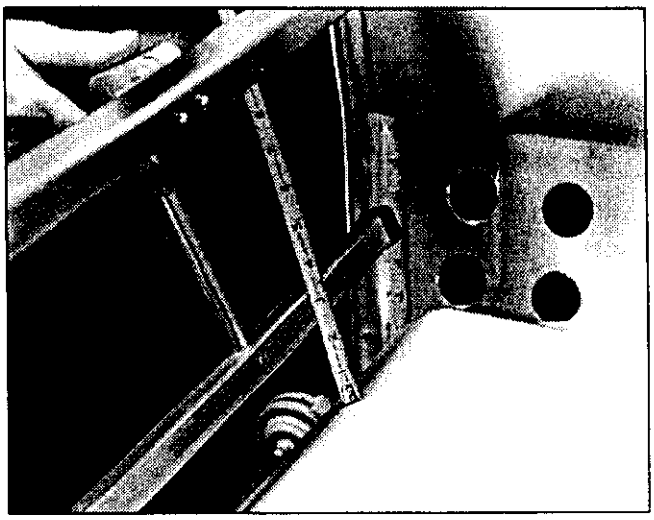


FIGURE 13

SEAT CUSHIONS

Occasionally we receive inquiries about the use of fiberglass shells in Big Eli® Wheel seats. Since we do not manufacture such fiberglass shells, and have no information about their construction, we cannot recommend their use. The cushions which we supply have been time tested, and we are quite ready to recommend their use in any Big Eli® Wheel seats.

IF THE FRONT EDGE OF THE SEAT CUSHION COLLAPSES SOMEWHAT THROUGH HEAVY USE SO THAT THE DISTANCE BETWEEN THE BOTTOM OF THE LAP BAR AND THE SEAT CUSHION INCREASES TO MORE THAN 3", THEN THE SEAT CUSHION SHOULD BE REPLACED.

SEAT BELTS

There are some States which are now requiring the use of seat belts in all Ferris Wheel seats. We have available seat belt kits which can be added to any Big Eli® Wheel steel or aluminum seats. The assembly can be added to the seat using only wrenches; no drilling or cutting is necessary (see Figures 14 & 15).

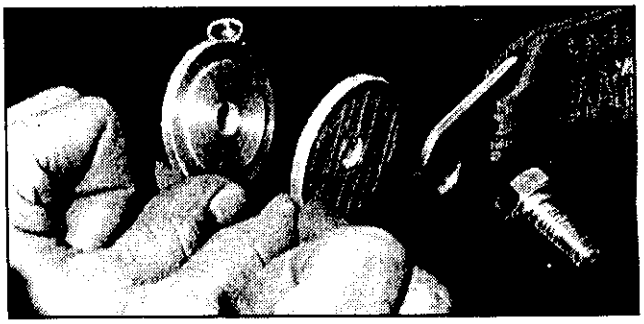


FIGURE 14 - PARTS OF THE SEAT BELT ASSEMBLY

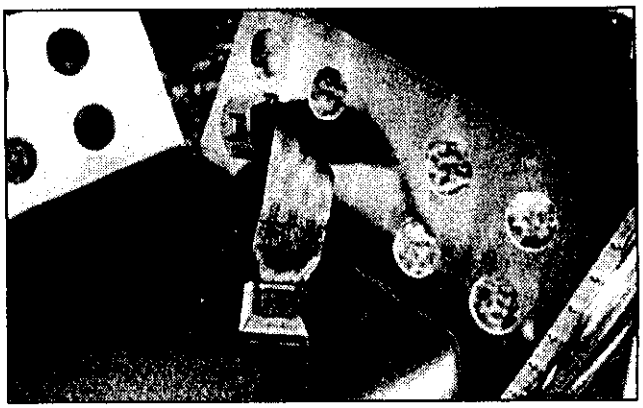


FIGURE 15 - INSTALLED BELT

The seat belts conform to Motor Vehicle Safety Standard 290-302. In our testing the installed seat belt withstood a load in excess of 1500 pounds without breakage or release of the belt.

These seat belts are available as an option on all adult-size Big Eli® Wheels. Seat belts are not considered mandatory by Eli Bridge Company, but you should check to be sure whether or not they may be required where you operate.

No. 16 AXLES

Ground Model No. 16 Aristocrat Big Eli® Wheels were originally equipped with axles made of 3-1/2" tubing with a 1/2" wall. After about 20 years of service an axle broke inside the hub where it could not be seen. There was no immediate hazard to passengers, but the decision was made to review the design of this axle. Subsequently, the new axle was designed as a 4-1/2" tube with a 5/8" wall. This required the use of different hubs and tower bearings. The first delivery of a No. 16 Wheel with a 4-1/2" diameter axle with a 5/8" wall was made in October of 1962. All later deliveries of the No. 16 Wheel utilized the 4-1/2" diameter axle with a 5/8" wall.

WE CONSIDER IT MANDATORY THAT ALL NO. 16 ARISTOCRAT BIG ELI® WHEELS BE EQUIPPED WITH THE 4-1/2" AXLE WITH THE 5/8" WALL, THE NEW TOWER BEARINGS, AND THE NEW HUBS.

DISTANCE BETWEEN SEAT PINS

In Figure 16 the distance "D" between the seat pins is intentionally not a fixed rigid dimension. There is some flexibility in the outer end of each spoke, and each seat will show increasing deflection as weight is added in the seat. The passenger weight tends to deflect the bottom of the seat downward, and this in turn tends to pull the sides of the seat toward each other. If the spoke could not deflect to follow the seat deflection this would cause excessive wear in the "Y" castings and the seat pins.

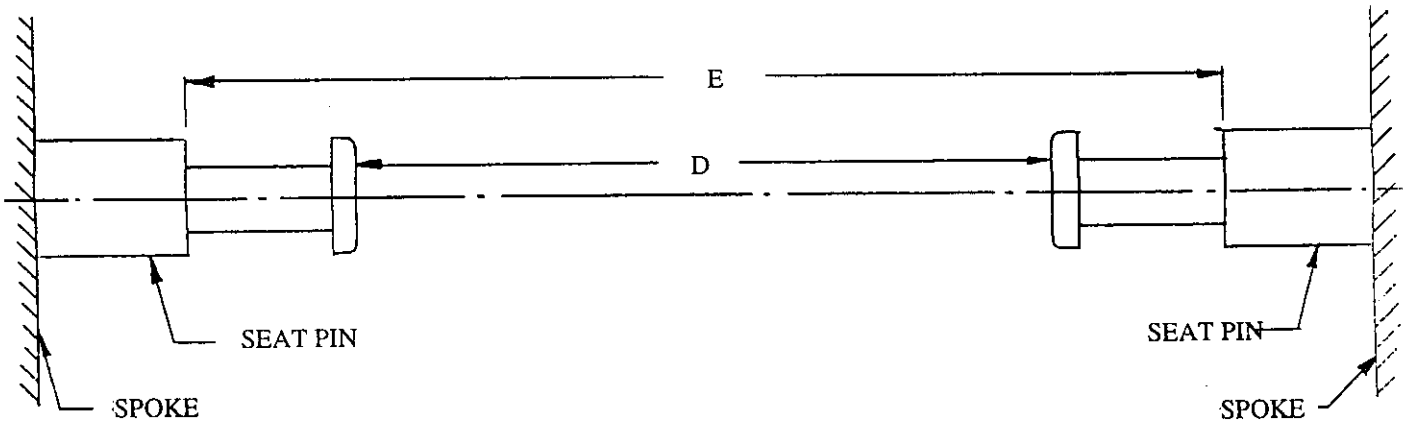


FIGURE 16

Measuring from outside to outside on the "Y" seat hanger castings is a more predictable dimension, but even that has varied depending upon the construction of the seat. The original wooden seats measured 52" outside to outside, the steel seats measured 52-5/16", and the aluminum seats are 51-15/16". With an empty seat hanging on seat pins, the least distance between the outer shoulders of the two seat pins, dimension "E", would be the same as the above seat dimensions since the shoulder on the seat pin would be against the end of the "Y" casting.

If the spoke is as far away from the seat as it can get on each end, then dimension "E" is increased by 1/2". Shoulder-to-shoulder, dimension "E", would then become 52-1/2" for a wooden seat, 52-13/16" for a steel seat , and 52-7/16" for an aluminum seat.

From the end of one seat pin to the end of the other, dimension "D", the dimension would be a maximum of 47-1/2" and a minimum of 47" for a wooden seat. For a steel seat the maximum would be 47-13/16" and the minimum would be 47-5/16". The maximum for the aluminum seat would be 47-7/16", and the minimum would be 46-15/16".

In our view these dimensions are not relevant because of the inherent flexibility of the structures, and because of their ability to conform to each other. If there is significant misalignment this should show up as excessive wear on the inner or outer end of the place where the seat pin rides (dimension "B" of Figures 2 and 3). There may also be wear of the seat pin itself. Evidence of wear is of primary significance, and the nominal distance between the seat pins, dimension "D", is of considerably less importance than evidence of wear.

To cite an example, to insist on a rigid spacing between seat pins would be similar to saying that an airplane wing must not flex in flight, whereas it is well known that a rigid airplane wing could possibly break off during flight if it could not flex.

ROCKING OF SEATS

It has always been the position of Eli Bridge Company that passengers should not rock the seats on Big Eli® Wheels. This has been stated in every manual for more than twenty years. If a passenger refuses to stop rocking the seat, then he should be removed from the ride before he injures himself or others.

We have available decals, shown in Figure 17, which can be applied to the back of each seat at the very bottom, warning against rocking the seat. They can be used on all Big Eli® Wheel seats. THE INSTALLATION OF THESE WARNING DECALS IS MANDATORY ON ALL BIG ELI® WHEEL SEATS.

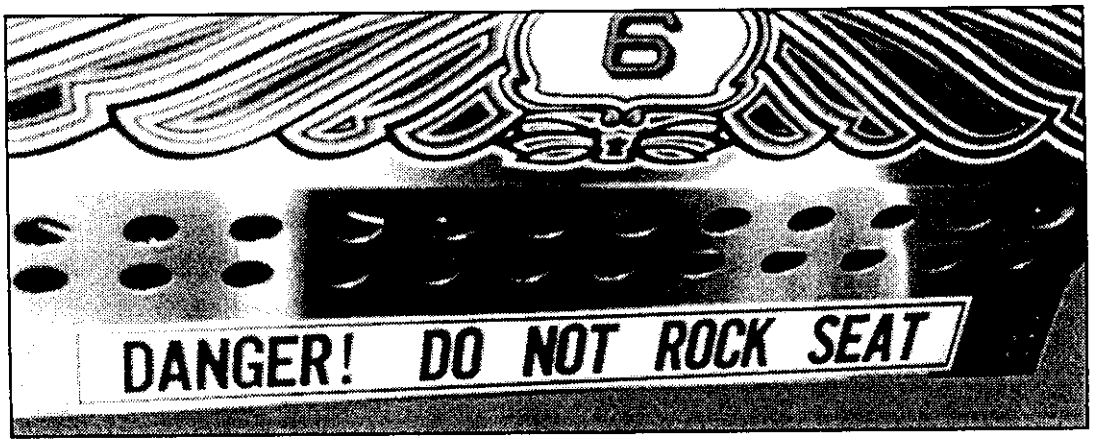
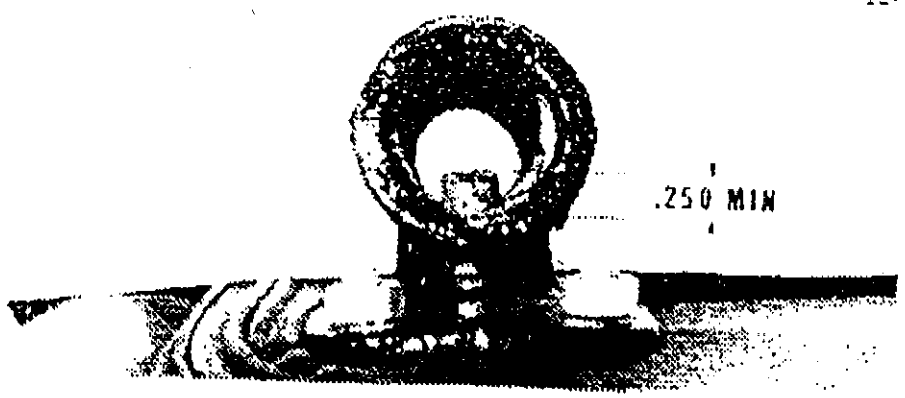


FIGURE 17

NONDESTRUCTIVE TESTING

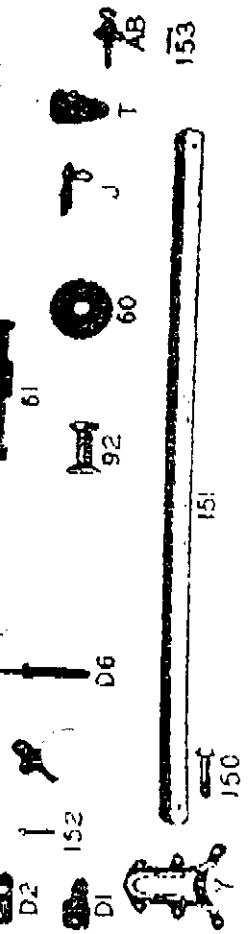
More and more frequently we hear of inspectors requiring nondestructive testing of Big Eli® Wheel components, and we are asked for recommendations of parts which should be tested.

We have no objection to the nondestructive testing of any parts on our Wheels, but we make no recommendations as to which parts should be tested. It is our view that the purpose of nondestructive testing is to anticipate failure, but that the ultimate answer is in the actual use of the equipment. Accordingly, we believe that the many years of use of our Big Eli® Wheels have demonstrated the soundness of our designs, and nondestructive testing will not prove anything that has not already been tested by time and use. The only structural failure ever encountered in our Big Eli® Wheels was the No. 16 axle, and that design was changed more than 30 years ago, with no reported failures since.

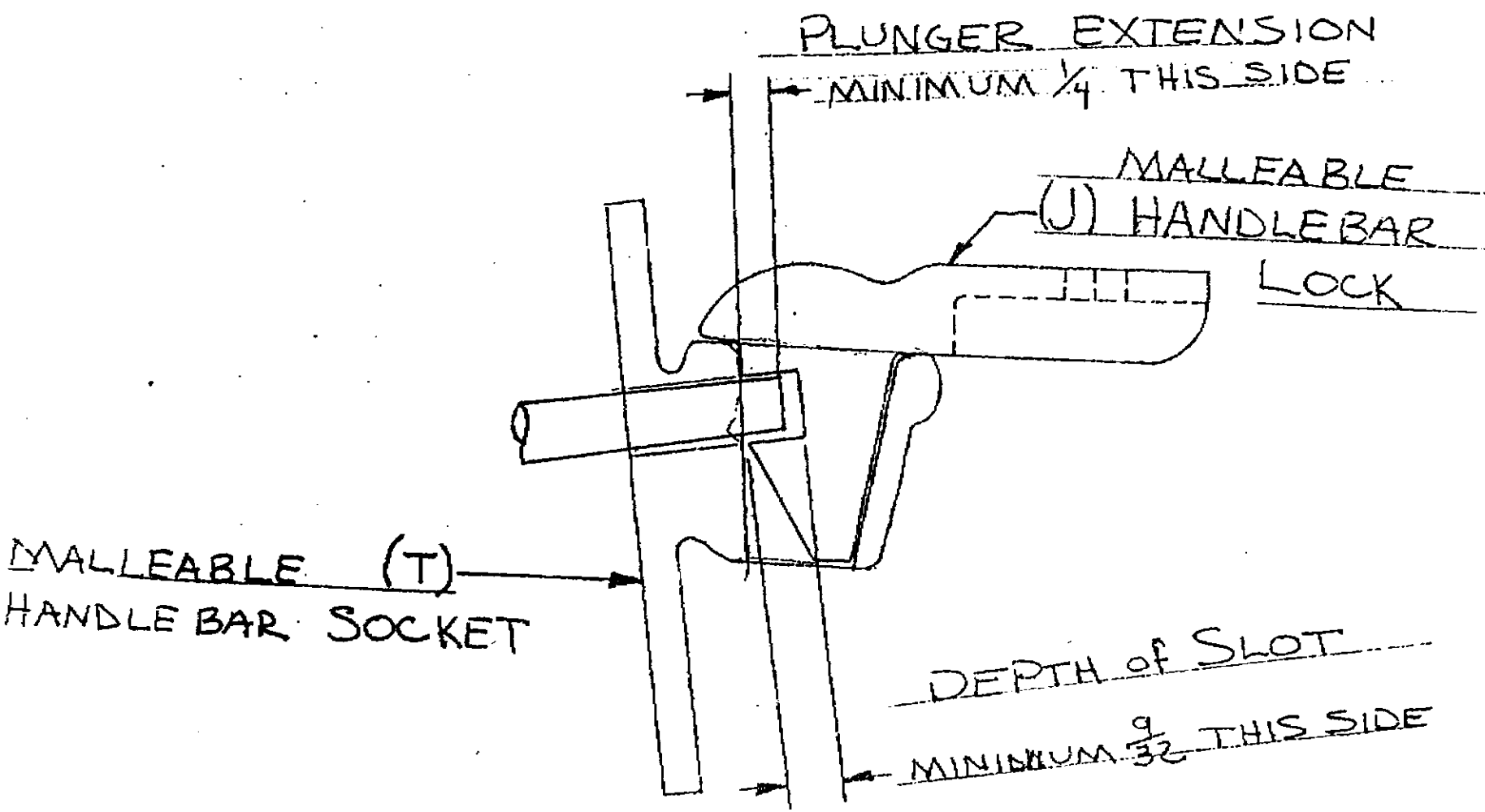


WHEEL HANDLEBAR LATCHES

The handlebar must be properly latched. The "AB" plunger-lock must fully engage the notch in the "J" malleable handlebar lock. The end of the plunger should extend a minimum of 1/4 inch inside the socket as shown. If it does not, replace the plunger. The plunger spring must be able to push the plunger firmly into engagement. If the spring is bad, replace it.



Parts No.	Description	BIG ELI® Wheel Model Number 18	12	6	10
	SEATS				
325 100	All Aluminum Standard BIG ELI® Seat, completely upholstered, with Cushion without plate, seat cloth, cover or hair guards	$1820.00	$1820.00	1820.00	$1820.00
154	Tailored Seat Cover, each	34.15	34.15	34.15	34.15
154-A	Standard Canvas Seat Covers, per set	546.40	409.20	409.20	341.50
154-05	Oversize Canvas Seat Covers, set, for Seats with Hair Guards installed	1020.00	765.00	765.00	637.50
82	Spool for seat plate (with bolt & nut)	3.50	3.50	3.50	3.50
151-38	Aluminum Handlebar, complete with Items D1, D2, J, and Bolt 152	40.35	40.35	40.35	40.35
151	Aluminum Handlebar with Spacers only	16.85	16.85	16.85	16.85
D1	Malleable Hinge End for Handlebar, half not threaded	8.70	8.70	8.70	8.70
D2	Malleable Hinge End with threaded stem	10.75	10.75	10.76	10.75
F	Malleable Hinge for Handlebar	15.75	15.75	15.75	15.75
J	Malleable Handlebar Lock	11.30	11.30	11.30	11.30
T	Malleable Handlebar Socket	39.80	39.80	39.80	39.80
92	Seat Hanger Malleable Casting	28.75	28.75	28.75	28.75
225 132	Seat Lock Pin	4.50	4.50	4.50	4.50
7364	Kick Pin	.40	.40	.40	.40
	Drilling Jig w/instructions	15.00	15.00	15.00	15.00
G5	Seat Hinge, right	21.15	21.15	21.15	21.15
G4	Seat Hinge, left	21.15	21.15	21.15	21.15
150	Seat Hanger Cap Screw	.80	.80	.80	.80
152	Handlebar Cap Screw	1.90	1.90	1.90	1.90
A & B	Seat Escutcheon and Plunger Assembly	12.00	12.00	12.00	12.00
153	Brass Screw for A & B Assembly	.15	.15	.15	.15
H5	Footbottom Hinge, right	41.05	41.05	41.05	41.05
H4	Footbottom Hinge, left	41.05	41.05	41.05	41.05
D6	Malleable Footbottom Lock, comp.	12.25	12.25	12.25	12.25
60	Seat Pin Washer	2.10	2.10	2.10	2.10
61	Seat Pin with hex nut	22.95	22.85	22.85	22.85
61-A	Nut only for Seat Pin	.75	.75	.75	.75
161-10	End Wrench for Seat Pin	24.60	24.60	24.60	24.60
140-5	A & B Cover Box, Aluminum/Steel	9.60	9.60	9.60	9.60
326 525	Aluminum Lap Bar, each	48.50	48.50	48.50	48.50



ELI BRIDGE CO