Crossing Gate

Contents

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Introduction

To the Owner

This manual is your guide to safe, productive operation. Read it carefully. It will help reduce trial and error learning and minimize downtime caused by improper maintenance.

For additional information, contact the Customer Service Department at CHANCE RIDES MANUFACTURING, INC.

NOTE: *Because we try to improve every CHANCE product, specifications and product design are subject to change without notice.*

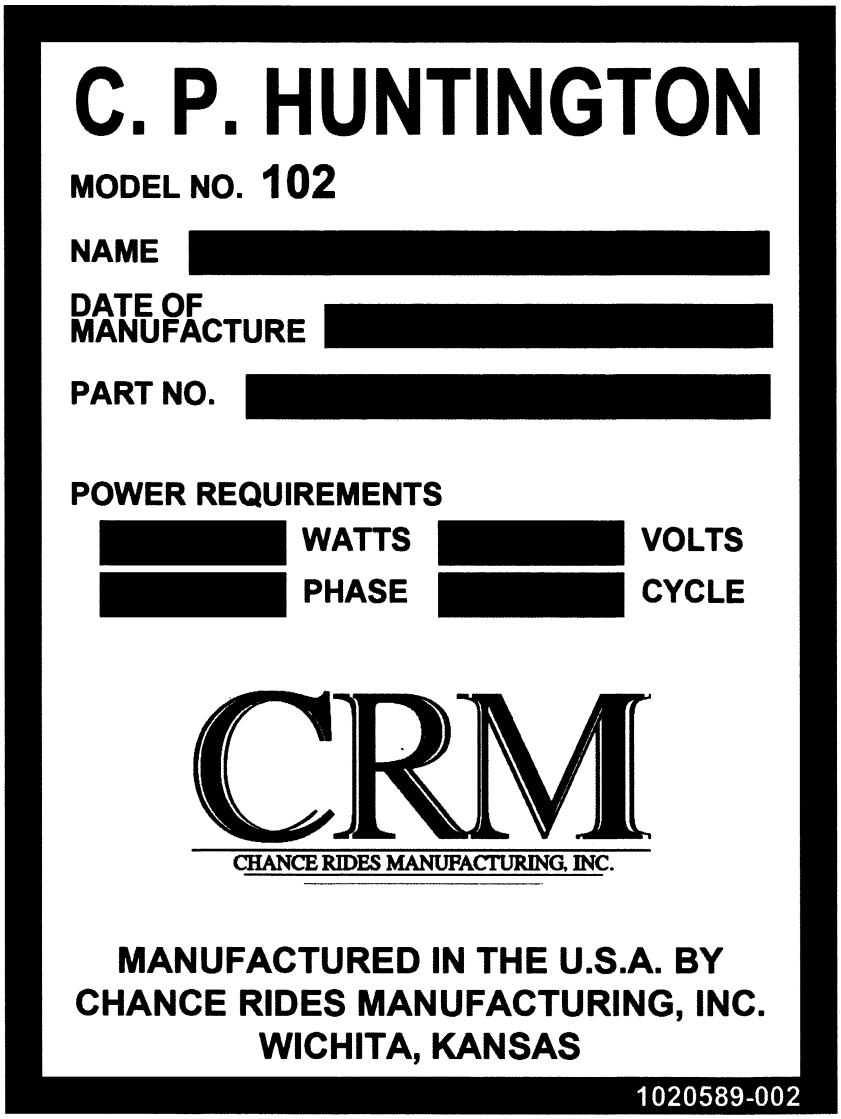
Intended Uses

The equipment described herein is intended to be used by a commercial operator to provide a service to the buyer's customers. As a commercial operator, the buyer agrees to operate and maintain the equipment for its intended use in a professional and competent manner as per CHANCE RIDES MANUFACTURING's recommendations and instructions, ASTM standards on amusement rides and devices, applicable governmental standards, and good commercial practices using professional and competent mechanics and operators. If at any time, and for any reason, the equipment cannot be adequately and safely operated for its intended use, buyer agrees not to operate the equipment until proper repairs or corrections are made.

Ride Information Plaque

The ride information plaque is mounted to the control box on the side of the crossing gate.

IMPORTANT: *Always refer to the ride information plaque on your crossing gate for specifications.*



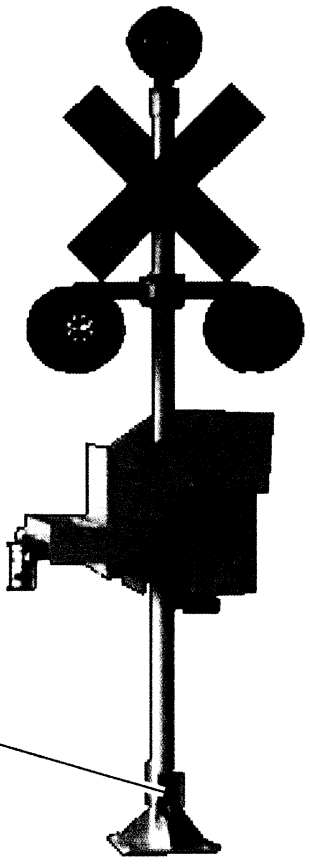
Assembly / Set-Up

IMPORTANT: *The crossing gate is shipped partially assembled. Assembly must be completed on site, as described in the following procedure. All components must be assembled in the proper sequence, and adjustments made as specified to prevent damage to components and ensure proper operation of the crossing gate.*

1. Mount crossing gate base to customer-supplied mounting pad (For mounting pad specifications, refer to *Installation of Components and Track Preparation Guide*, Chance part number 24360800).

2. Connect 110 volt power supply into the junction box near the base of the post in accordance with applicable local codes

3. Wire 24 volt signal control wires from opposite box at the bottom of the post to customer supplied track switches (For diagrams of typical wiring, refer to *Installation of Components and Track Preparation Guide*, Chance part number 24360800).



Make connections here for 110 volt supply and 24 volt signal wiring

4. Activate track switch to start crossing gate and bring gate arm to the down position (horizontal).

5. Disconnect 110 volt power supply at the circuit breaker, leaving gate arm in down position

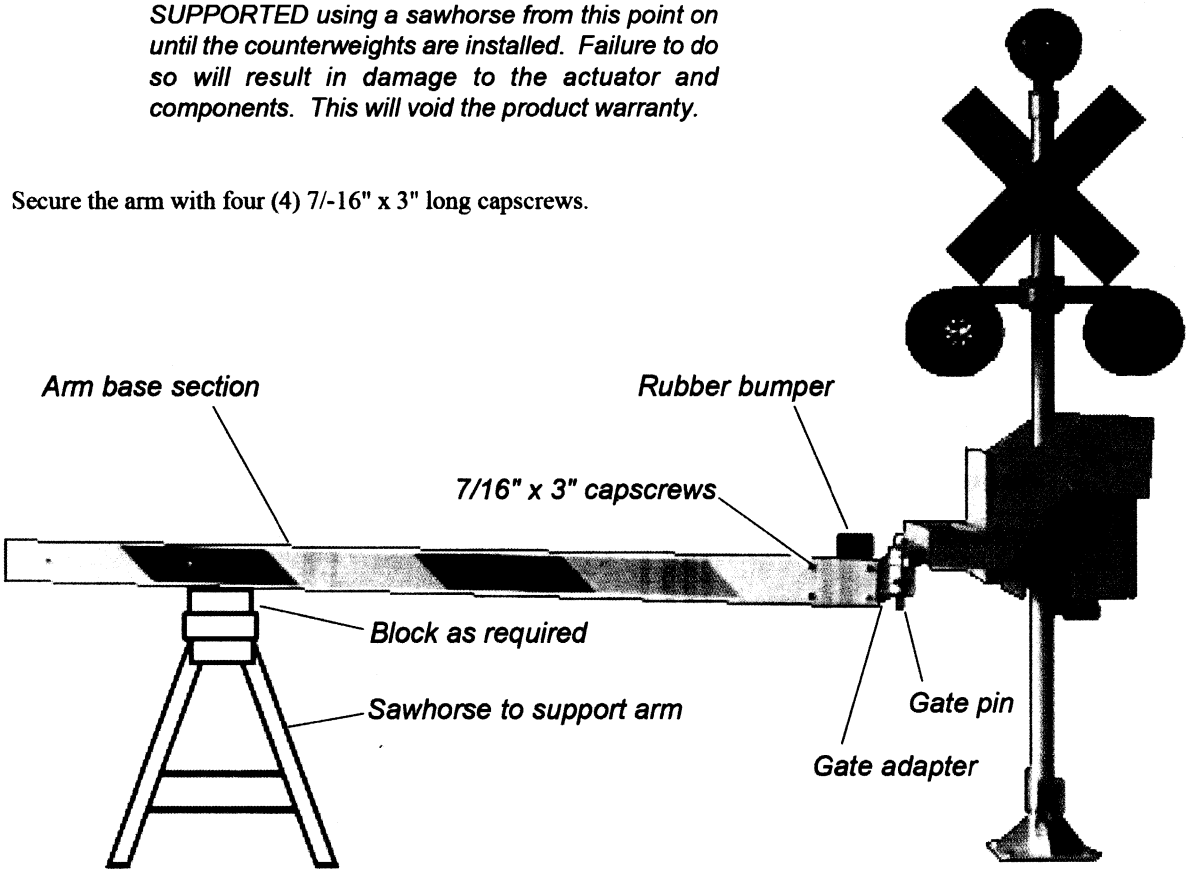
6. Insert cast gate adapter on gate pin at 90 degrees from final gate position. Lift and rotate gate adapter 90 degrees until 5/16 holes in gate adapter and adapter weldment are in line.

7. Insert 5/16" x 2" brass shear bolt into hole securing gate adapter to weldment. Install 5/16" lock washer and nut. Tighten bolt.

8. Slide crossing gate arm base section (8') onto gate adapter with rubber bumper facing up. Use a sawhorse to support the arm to prevent damage to the actuator and components. Depending upon the height of the sawhorse, it may be necessary to use blocks or other spacers as required to support the arm.

IMPORTANT: *The crossing gate arm MUST BE PROPERLY SUPPORTED using a sawhorse from this point on until the counterweights are installed. Failure to do so will result in damage to the actuator and components. This will void the product warranty.*

9. Secure the arm with four (4) 7/-16" x 3" long capscrews.



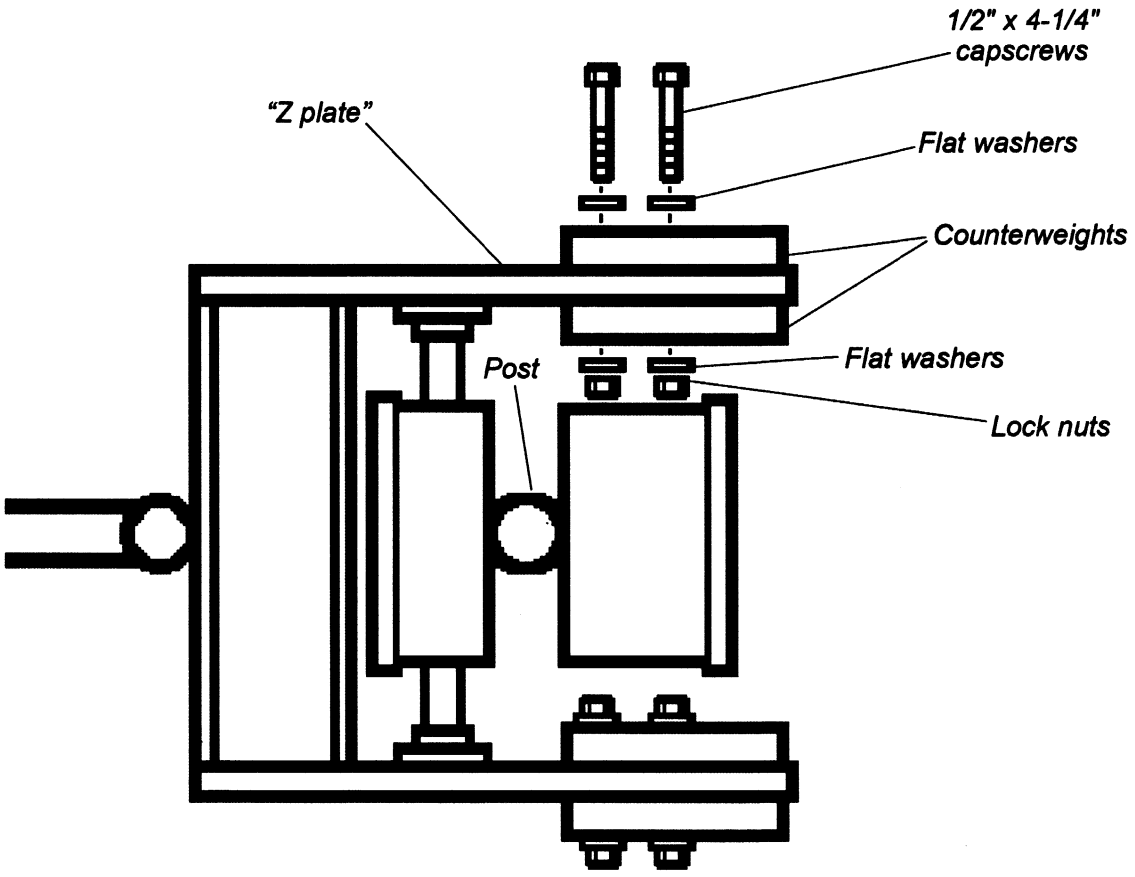
10. Slide the 10' gate arm section into the base section. Extend the gate to the desired length (16 feet maximum) Insert two (2) 3/8" x 2-3/4" capscrews, flat washers and lock nuts through both gate arm sections.

IMPORTANT: *Tighten the capscrews only until snug. Over-tightening will crush the fiberglass gate arms.*

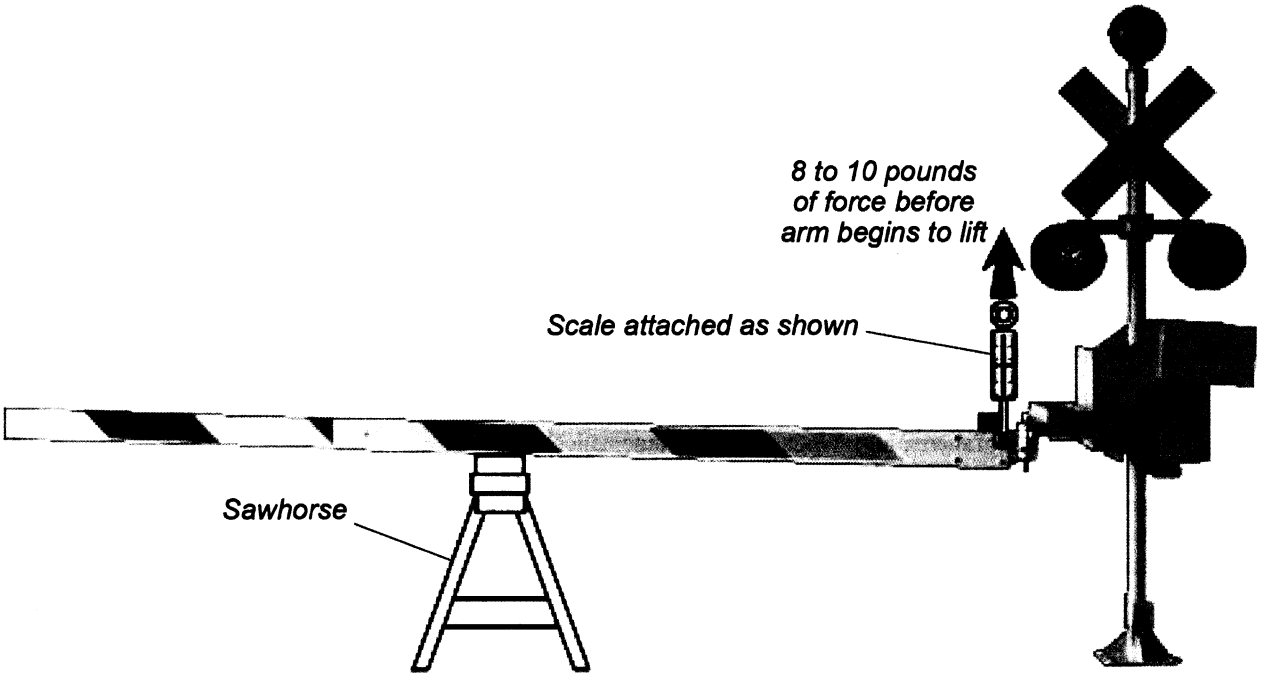
11. Place a counterweight on each side of the "Z plates" as shown in the illustration below. Use two (2) 1/2" x 4-1/4" capscrews, four (4) flat washers and two (2) lock nuts as shown.

NOTE: *Slide the weights toward the post as far as possible to prevent the arm from becoming out-of-balance and rising.*

12. Repeat the process to install the counterweights on the opposite side.



13. Adjust the counterweights using the following steps:
    - Attach a scale to the upper inside arm mounting bolt, closest to the actuator box as shown.
    - Using the scale, pull up on the arm. Adjust the counterweights in or out until the scale shows approximately 8 to 10 pounds of force before the gate arm just starts to rise.
    - Tighten the capscrews to secure the counterweights, making sure the weights do not move.
    - After the weights are tightened, use the scale again to lift the gate and check the pull on the scale. Adjust the counterweights again if necessary.



14. At this point, manually raise the arm and remove the sawhorse. The gate should be almost balanced with a slight free fall to the down position when released.

    NOTE: *Do not allow the gate to free fall against the actuator box..*

15. If the length of the gate arm is changed, repeat steps 8 through 14, making sure the arm is supported until the counterweights are adjusted to balance the gate correctly.

Operation

Basic Operation

The crossing gate is fully automatic. When the train approaches the intersection, a track switch is actuated to start the crossing gate cycle. The lights flash alternately. After approximately 3-5 seconds, the gate will begin to lower.

As the train passes through the intersection, the gate remains down and the lights and bell continue to operate

When the train has cleared the intersection, a second track switch is actuated to raise the gate. When the gate arm is upright, the flashing lights and ringing bell stop.

Fault Operation (Applies only to later production crossing gates with self-resetting circuit breaker)

If the crossing gate has an obstruction or is overloaded when it starts to come up, the circuit breaker in the actuator control box will trip.

When the breaker is tripped, the bell will continue to ring and lights will flash in unison (instead of alternating). When the breaker automatically resets, the lights will return to normal flashing and bell will continue to ring. After a specified time delay in the control system, the gate arm will raise normally if the obstruction or overload is gone. When the arm is upright, the flashing lights and ringing bell will stop.

If the obstruction or overload is still present when the arm starts to raise, circuit breaker will trip again and the reset cycle will repeat.

NOTE: *The self-resetting circuit breaker can be retrofitted to early production crossing gates at the customer's option. Contact the Customer Service Department at CHANCE RIDES MANUFACTURING, INC. for complete information on this retrofit.*

Maintenance

Preventive Maintenance

Preventive maintenance is the easiest and most economical means of assuring many satisfactory, productive hours of operation. Properly scheduled maintenance is the key to lower operating costs and longer service life.

The items listed in this section are separated into approximate service intervals, based on "average" operating conditions. Actual conditions under which the crossing gate is operated are the determining factors when setting up a preventive maintenance schedule. When operating under "severe" conditions, such as excessive heat, cold, dust, mud or water, more frequent servicing is necessary.

In addition to the following items, inspect the crossing gates regularly for overall condition. Look for damage, wear, loose or missing parts.

Scheduled Maintenance

Component	Frequency	Specification
Main pivot bearing zerks (2 places)	Twice each operating season or as required	NLGI No. 2 lithium base grease
Bellcrank bushings	Twice each operating season or as required	Non-detergent motor oil API Speciciation MS 10w
Other moving parts	Twice each operating season or as required	Non-detergent motor oil API Speciciation MS 10w

Crossing Gate Troubleshooting Chart

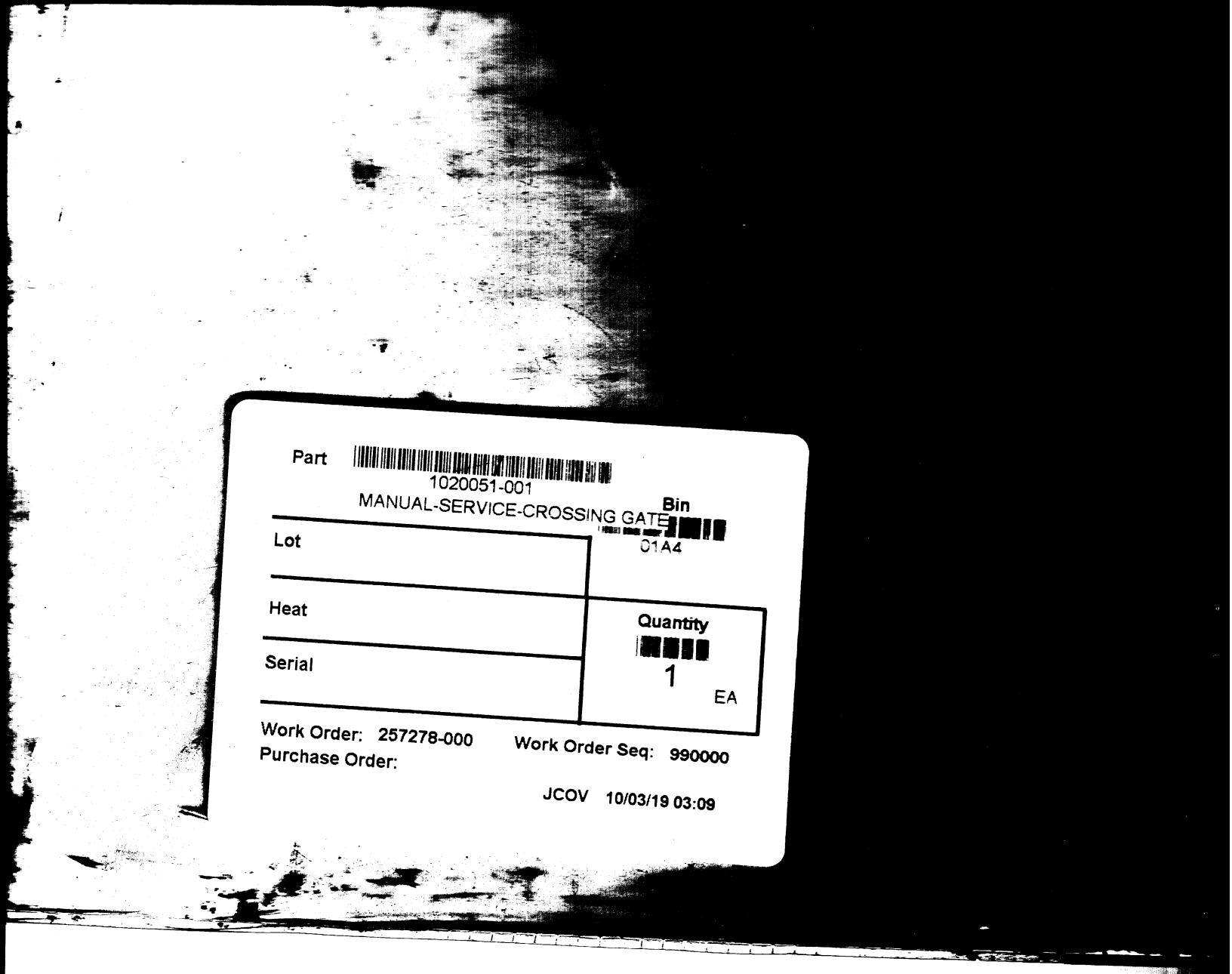
Problem	Possible cause	Remedy
Gate does not operate	1. Loss of 110 volt line power	1. Check for tripped circuit breaker or fuse for line power
	2. Blown fuse in gate actuator control box	2. Replace fuse with 3 amp fuse only. If fusecontinues to blow, see item below "Fuse frequently blows"
	3. Loss of 24 volt signal to actuator control box	3. Check for 24 volt power to switches. Check for proper switch operation.
	4. Damaged actuator or other components	3. Call factory to help determine which components are damaged
Fuse in actuator control box frequently blows (NOTE: Later production crossing gates are equipped with a self-resetting circuit breaker instead of a fuse. The same troubleshooting tips apply)	1. Excessive load on gate as it raises.	1. Possible source of excessive load includes: - Bystanders leaning or "hanging" on gate as it raises. Keep all patrons back from moving gate. - Gate not balanced properly. See "Set-Up/Assembly" procedure in this manual for proper counterweight adjustment.
	2. Mechanical binding of bearings, actuator and/or other components	2. Make sure bearings and other moving parts are properly lubricated. Check all pivots and moving parts for free movement.
Gate arm bounces at the lower stop	1. Some bounce is normal. Excessive bouncing can occur if the gate is not balanced properly	1. Make sure gate is properly balanced. See "Set-Up/Assembly" procedure in this manual for proper counterweight adjustment.
Gate arm is not level when completely down	1. Damage to pin on actuator spring	1. Replace pin and any other damaged components This is often the result of not supporting the gate arm proplerly during the set-up/assembly process.

Replacement Parts

Replacement parts are available from the Customer Service Department at CHANCE RIDES MANUFACTURING, INC. The following is a partial list of replacement parts available for the crossing gate.

NOTE: *Always have the data from the ride information plaque available when contacting the factory.*

Location	Description	Part No.	Qty.
Actuator box	TORSION SPRING	27222600	1
Actuator box	BELLCRANK	1027054-017	1
Actuator box	BUSHING - Bellcrank	20491900	1
Actuator box	ACTUATOR	20118100	1
Actuator box	BEARING - Arm Pivot	20512901	2
Actuator box	COLLAR - Bearing Lock	21761800	2
Actuator box	GAS SPRING	27223600	1
Actuator box	BALL STUD Gas Spring	27536300	2
Actuator box	CLIP - Gas Spring	21679000	2
Actuator Control Box	FUSE - 5A Power supply	22943100	1
Actuator Control Box	FUSE - 3A Actuator	22947200	1
Actuator Control Box	FUSE - 1A Lights & Bell	22947203	3
Light	LENS - Red	24022700	2
Light	LAMP - 24V LED	24083400	2


Part
1020051-001
MANUAL-SERVICE-CROSSING GATE
Bin
01A4
Lot
Heat
Serial
Quantity
1
EA
Work Order: 257278-000
Work Order Seq: 990000
Purchase Order:
JCOV 10/03/19 03:09