



# AutoLOK<sup>™</sup> II Discharge Gate

## AutoLOK II Manual

## **Revision C**

### 10/5/2022



### Section 1

## AutoLOK™ II Discharge Gate

## Section 1

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### AutoLOK<sup>™</sup> II Discharge Gate

Section 2 General Information

This manual consists of information which will be useful in operating and maintaining your AutoLOK II Discharge Gate equipped cars. It includes operating and maintenance procedures, along with illustrations to assist in identifying various components by name and part number.

It is extremely important, before proceeding with operation or maintenance of your cars, that you carefully read and understand the SAFETY PRECAUTIONS SECTION 3 of this manual.

These instructions are issued to supply acceptable methods for the operation, maintenance and troubleshooting of the AutoLOK II Discharge Gate, and to supply safety information to the user, which is in addition to safety, precautions prescribed by the AAR, FRA and individual handling railroads.

It is expressly understood that issuance of these Miner instructions which were prepared in good faith and are believed to be complete and accurate, shall not be construed to mean that Miner Enterprises, Inc. assumes any liability on account of accidents to persons or property involving the AutoLOK II Discharge Gate.

Miner Enterprises is not responsible for car construction or design, including modifications for gate application.





### AutoLOK<sup>™</sup> II Discharge Gate

Section 3 Safety Precautions

In addition to safety precautions prescribed by the car owner, loading site, unloading site, repair shop and handling railroad, the following safety precautions must be observed whenever an AutoLOK II Discharge Gate is operated and whenever any maintenance is performed on it.

- 1) All maintenance, repair, or adjustment must be made on a shop or repair track where the car will not be moved.
- 2) Protective eye and ear wear should be used when gate is operated.
- 3) Read and follow Caution Notes found on the side of the car.
- 4) After unloading, confirm that the gate is completely closed and locked.
- 5) Always report an inoperable or damaged gate to a foreman or supervisor so that it may be properly repaired or replaced.
- 6) An input torque of 2,000 ft-lbs is not to be exceeded. Doing so may result in damage to the gate as well as personal injury.



### **Section 4**

## AutoLOK™ II Discharge Gate

#### Section 4

Gate Description and Operation

**Description** 



The 30 X 30 AutoLOK II shown above is in the closed and locked position. The AutoLOK II is equipped with patented technology to automatically lock and unlock the slide door. Rotating the operating handle will automatically unlock the gate. The AutoLOK II is also equipped with carpet seals, which offer durability and maximum leak protection. The capstan on the operating handle offers a 1-1/2" square opening for powered/automatic gate openers.





### Part Identification





Section 4



#### **Gate Operation**

Manual Operation:

- 1. Insert a bar into the gate handle. Using downward pressure, rotate the handle in the direction shown to unlock the gate.
- 2. Continue rotating the handle to open the gate. Reposition the bar as needed. (*Caution: To prevent injury, assume a stable position and apply downward pressure using body* weight).



- 3. Position the door to adjust flow of commodity as needed.
- 4. To close the gate, again insert the bar into the gate handle and rotate the handle in the direction shown.



5. The lock hook will snap against the door top as the door completely shuts, locking the door.



**Section 4** 

Power Equipment:

1. To open, insert a 1 <sup>1</sup>/<sub>2</sub>" male square drive into the operating handle. If using a tapered drive tool, ensure the tool is completely inserted into the handle before operating the gate. Rotate in the direction shown.

(Caution: Do not continuously apply torque to gate when it is completely open. Damage may occur to the entire gate).



- 2. Position the door to adjust flow of commodity as needed.
- 3. To close the door, insert a 1  $\frac{1}{2}$ " male square drive into the operating handle. Rotate in the direction shown.

(Caution: Do not continuously apply torque to gate when it is completely closed. Damage may occur to the entire gate).



4. The lock hook will snap against the door top as the door completely shuts, locking the door.





## AutoLOK<sup>™</sup> II Discharge Gate

Section 5 Maintenance

#### Carpet Seal Maintenance:

The Miner AutoLOK II outlet gate is a sealed gate using carpet seals on all four sides. Follow this guide for assistance in inspecting and maintaining the carpet seals on your AutoLOK II outlet gate.

#### To Inspect AutoLOK II Seals:

The door should open and close while locking freely with a two-foot-long bar.

Run hand along bottom of seal frame: The carpet should feel flat from <sup>3</sup>/<sub>4</sub>" to 1" wide around seal frame bottom perimeter. You should <u>Not</u> feel a rounded rod below the seal frame slot level.

The door closing should compress carpet. Seals should be free of tears, heat damage, paint, and excessive commodity build-up.

#### To Inspect Individual Seals for Wear:

If any heat damage, excessive commodity build-up, paint, tears or pile wrap separations (gaps) greater than <sup>1</sup>/<sub>4</sub>" appear, replace seals. Contact W.H. Miner Customer Service for replacement seals.









#### To Remove AutoLOK II Seals:

- 1. Completely open door exposing the seal frame. If rear seal is not exposed with door open, remove door completely.
- 2. Remove side seals by inserting cotter pin puller between the seal frame top and carpet seal; insert tool through one seal frame bottom slot end. Rotate cotter pin puller until the carpet seal end protrudes out of the bottom seal frame slot. Pull carpet seal downward by hand until it pulls out. It is not recommended to reuse carpet seals after removal.
- 3. Repeat step 2 to remove the end seals. Bend the seals downward around the door runners until the seals pull out.



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#### To Insert Seals:

- 1. Thoroughly clean out seal frame and outlet gate areas where seals will seat.
- 2. Starting with a side seal, slide the seal end into the seal frame slot. Tap into final position with a 1x1x 8 piece of steel along the length of seal. Be careful not to bend or otherwise damage the seal frame while hammering the seal into position.
- 3. If the seal will not seat easily, squeeze seal into tubing with a tongue & groove pliers before tapping into final seated position. Insert end seals between the side seals. Position end seals on door runners as shown on page 9. Repeat step 2 to seat the end seals into final position.
- Inspect installed seals. Run hand along bottom of seal frame: The carpet should feel flat from <sup>3</sup>/<sub>4</sub> "to 1" wide around seal frame. You should <u>Not</u> feel a rounded rod below the seal frame level. Door closing should compress carpet.
- 5. Door should open and close while locking freely with a two-foot-long bar.





### <u>UHMW Runner Maintenance (If Equipped):</u>



#### To Remove UHMW-PE Runner:

- 1. Completely open door exposing the runner assemblies.
- 2. If equipped with welded runner stop, remove the UHMW-PE runner stop by carefully cutting the runner stop weld.
- To remove the UHMW-PE runner, slide it out of the runner channel end, bend the runner as shown above, and pull out & upward. NOTE: Apply downward pressure on runner at arrow to loosen.
- 4. Inspect the runner channel for damage.
- 5. If damaged, call Miner Customer Service for replacement UHMW-PE runners.

#### To Reinstall UHMW-PE Runners:

- 2. Crimp the end of the runner channel.
- 3. Roll the door shut and check the gate operation.



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Section 5

### Removal of Slip Pinions:

1. Unbolt handle from one side only. (DO NOT torch cut)



2. Remove handle from operating shaft.



3. Pull remaining handle and shaft out of unit; slip pinions will fall.





#### To Install Slip Pinions (Slip Pinion Timing):

- 1. Completely close and lock door.
- 2. Determine if handles or operating shaft require replacement. Visually inspect operating handles for excessive wear. Visually inspect operating shaft for damage or bowing. Replace if needed.
- 3. Attach one operating handle to operating shaft with elastic stop nut and bolt.



4. Slide operating shaft/handle through one bearing and let open shaft end hang down.





5. Slide two slip pinions onto the shaft. Pivot the operating shaft up to other bearing. Slide the operating shaft into the other bearing. Allow shaft to rest on the bottom of the gate frame bearings.



6. Rotate the slip pinions to the position shown below. Slide the pinions along operating shaft into racks, holding their rotation.



- 7. Notice that the seal slots are vertically aligned; the operating handle cam & shaft flats are horizontal.
- 8. Lift the shaft, inserting the pinions (rotated as shown) into the racks. Slide handle into bearing. Slide other handle on shaft & insert into bearing.
- 9. Bolt other handle to the operating shaft with elastic stop nut.



- 10. Rotate handle as shown in below to verify lock operation.
- 11. If lock operates incorrectly, remove one handle and repeat steps 5 through 9.



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#### Slip Pinion Timing Verification:

- 1. Close the slide door completely.
- 2. The flat part of the activation cam on the operating handle should be horizontal.
- 3. The operating handle should not rotate any further in the "closing" direction.
- 4. From beneath the gate, verify that the slip pinions are in the orientation shown in the figure above.

#### <u>Cleaning:</u>

Using a broom, air gun, or water hose (if acceptable) clean out the following places:

- 1. Clean front interior of outlet of any commodity build-up.
- 2. Clean all door tracks and door plate.
- 3. Clean seals and seal area (see seal maintenance).

For commodities (cement, fly ash, etc.) that build up excessively, it is recommended that you clean or remove commodity build-up whenever necessary. This will eliminate any potential operational problems.



#### Inspection:

Improper usage and general wear and tear may affect gate functionality. Routine inspection and maintenance should be performed to identify and replace worn components before they fail. Some areas to focus would be:

- 1. Ensure that the operating shaft does not show considerable bending or bowing. This is often a symptom of over-torquing the gate and can both affect functionality and indicate damage elsewhere. Bent operating shafts should be replaced as noticed.
- 2. The area where the operating shaft and pinions contact can become worn due to excessive torque. Ensure that no rounding has occurred on the faces of the operating shaft or the interior of the pinions. Rounded out pinions and operating shafts should be replaced.
- 3. Verify that the bearings on the frame are level. Significant bending in any direction will affect operation. Gate frames with bent bearings should either be replaced or repaired if possible.
- 4. Verify that there is not excessive wear on the inside of the bearings or operating handles. The bearings can be inspected by trying to move the operating handles up/down & left/right. New gates will have very little movement at the base of the handle. Significant movement at the base of the handle would indicate that either the bearing, handle, or both are worn. If this is noted, the functionality of the gate should be verified. Replacing the operating handle may reduce the movement in the bearing.
- 5. Check the racks and pinions for any chipped teeth or excessive corrosion/wear. Replace pinions as needed. Should the racks be damaged, the entire door should be replaced. It is not recommended to weld a new rack onto the existing door.
- 6. Ensure lock hooks make contact with the door and that the lock shaft is not bent. Lock assembly should be repaired or replaced as needed.

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### AutoLOK<sup>™</sup> II Discharge Gate

Section 5 Troubleshooting

#### If the Gate Does Not Open

Manually lift lock hooks located above the door near the gate sides. Try opening the gate again. See pages 5 - 7 for part location and operation of opening gate. Outlet gate may need to be re-timed per page 13.

#### If the Gate Does Not Close

Check front of gate for commodity build-up. Clean front and door tracks if necessary. Ensure front Carpet Seal is not sagging. If gate needs to be re-timed, see page 13 for assistance.

### **CAUTION**

- 1. DO NOT strike or use heat on outlet gate or door to force unit open.
- 2. Use of powered gate opening units to force doors open may damage outlet gate.
- 3. Use of other mechanical devices (Car pullers, come-a-longs, hydraulic jacks) to open units may damage outlet gate.
- 4. Use recommended operating procedures specified in this manual.

#### NEED HELP?

For further assistance or information, contact Miner at 630-232-3000. Please have your gate model number handy.