



## **POWERBRACE CORPORATION**

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### **MANUAL M-85-50 FOR AutoLOK™ II Discharge Gates**

05 Sept 2006



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**GATE IDENTIFICATION  
CONSUMER INFORMATION**

**MINER AutoLOK® II GATES ONLY**

| <b>MODEL NO.</b> | <b>DRAWING NO.</b> | <b>RUNNER TYPE</b> | <b>GATE SIZE*</b>       |
|------------------|--------------------|--------------------|-------------------------|
| MKE-10100        | M-85-24            | UHMW-PE            | 30" x 30"               |
| MKE-10101        | M-108-6            | UHMW-PE            | 30" x 30"               |
| MKE-10200        | M-85-59            | UHMW-PE            | 30" x 30"               |
| MKE-10201        | M-108-9            | UHMW-PE            | 30" x 30"               |
| MKE-10162        | M-130-11           | UHMW-PE            | 30" x 30"               |
| MKE-10106        | M-98-10            | UHMW-PE            | 28" x 36" Canadian W.P. |
| MKE-10114        | M-99-30            | STEEL              | 13" x 42"               |
| MKE-10116        | M-99-30            | STEEL              | 13" x 42"               |
| MKE-10150        | M-99-30            | STEEL              | 13" x 42"               |
| MKE-10152        | M-99-30            | STEEL              | 13" x 42"               |
| MKE-10161        | M-99-41            | STEEL              | 13" x 42"               |
| MKE-10165        | M-99-41            | STEEL              | 13" x 42"               |
| MKE-10180        | M-99-32            | STEEL              | 13" x 42"               |
| MKE-10181        | M-99-32            | STEEL              | 13" x 42"               |
| MKE-10182        | M-99-32            | STEEL              | 13" x 42"               |
| MKE-10183        | M-99-32            | STEEL              | 13" x 42"               |
| MKE-10231        | M-99-51            | STEEL              | 13" x 42"               |
| MKE-10232        | M-99-51            | STEEL              | 13" x 42"               |

| <b>MODEL NO.</b> | <b>WORKING POINT (W.P.)*</b> | <b>GATE APPLICATION</b> |
|------------------|------------------------------|-------------------------|
| MKE-10100        | 45-3/8 x 43-3/8              | 66-HOLE BOLT-ON         |
| MKE-10101        | 37-3/16 x 35-1/8             | 45* WELD-ON             |
| MKE-10200        | 45-3/8 x 43-3/8              | 66-HOLE BOLT-ON         |
| MKE-10201        | 37-3/16 x 35-1/8             | 45* WELD-ON             |
| MKE-10162        | 38-11/32 x 36-1/4            | 40* WELD-ON             |
| MKE-10106        | 28" x 36"                    | 45* WELD-ON             |
| MKE-10114        | 27-1/8 x 62-3/4              | 32-HOLE BOLT-ON         |
| MKE-10116        | 27-1/8 x 62-3/4              | 64-HOLE BOLT-ON         |
| MKE-10150        | 27-1/8 x 62-3/4              | 32-HOLE BOLT-ON         |
| MKE-10152        | 27-1/8 x 62-3/4              | 64-HOLE BOLT-ON         |
| MKE-10161        | 27-1/8 x 62-3/4              | 32-HOLE BOLT-ON         |
| MKE-10165        | 27-1/8 x 62-3/4              | 64-HOLE BOLT-ON         |
| MKE-10180        | 27-1/8 x 62-3/4              | 32-HOLE BOLT-ON         |
| MKE-10181        | 27-1/8 x 62-3/4              | 64-HOLE BOLT-ON         |
| MKE-10182        | 27-1/8 x 62-3/4              | 32-HOLE BOLT-ON         |
| MKE-10183        | 27-1/8 x 62-3/4              | 64-HOLE BOLT-ON         |
| MKE-10231        | 27-1/8 x 62-3/4              | 32-HOLE BOLT-ON         |
| MKE-10232        | 27-1/8 x 62-3/4              | 64-HOLE BOLT-ON         |

\* Indicates all dimensions stated as nominal longitudinal x lateral measurements

# SECTION 1 GATE DESCRIPTION AND OPERATION

## CONTENTS

|  |   |
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| GATE DESCRIPTION .....                 | 1 |
| GATE OPERATION - CLOSED POSITION ..... | 2 |
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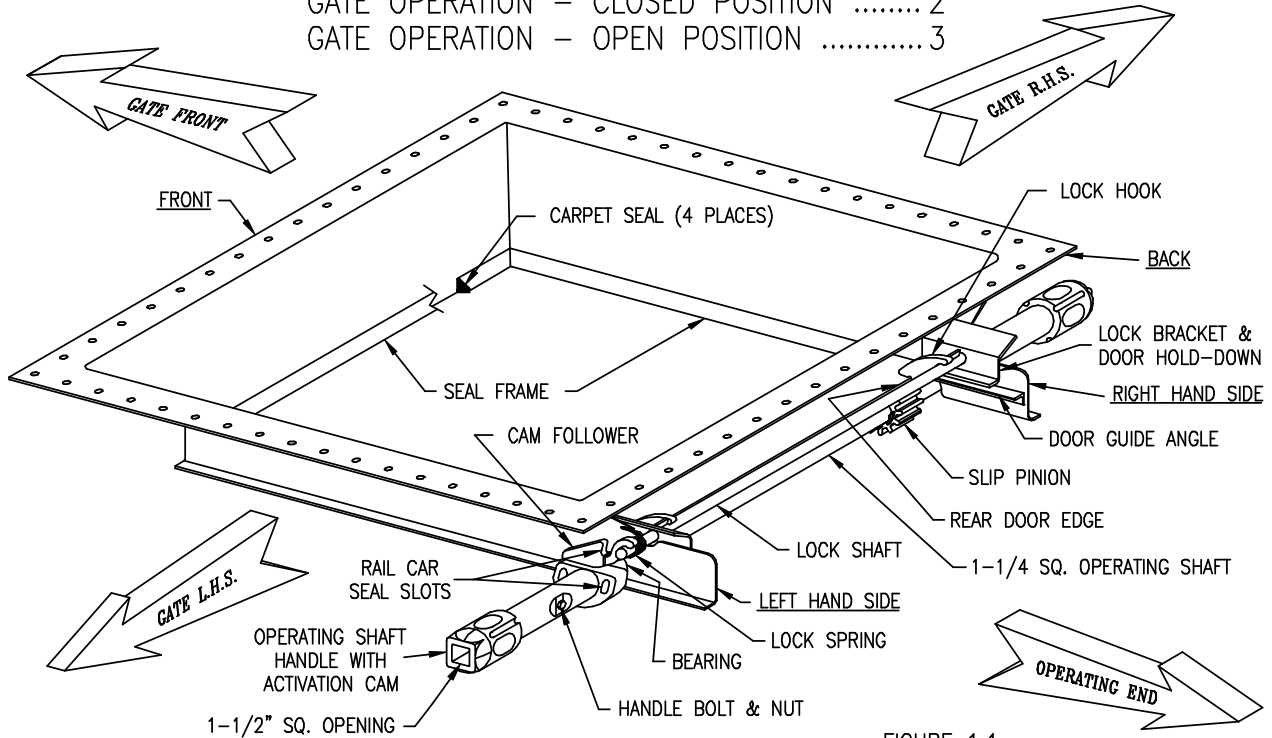


FIGURE 1.1  
CLOSED & LOCKED POSITION

## GATE DESCRIPTION

SEE INTRODUCTION, PAGE ii FOR IDENTIFICATION OF AVAILABLE MINER AutoLOK™ II DISCHARGE OUTLET GATE SIZES.

THE DISCHARGE GATE ILLUSTRATED THROUGHOUT THIS MANUAL IS THE 30 x 30 BOLT-ON MODEL MKE10100.

THE 30 x 30 AutoLOK™ II SHOWN ABOVE IS IN THE CLOSED POSITION. THE RAIL CAR SEAL SLOTS ARE VERTICALLY ALIGNED WITH EACH OTHER. THE LOCK HOOK EXTENDS BELOW THE REAR DOOR EDGE PROVIDING APPROXIMATELY 3/16" CLEARANCE GAP (SEE FIGURE 1.5). THE NAME TAG IS ON THE RIGHT HAND SIDE OF THE GATE.

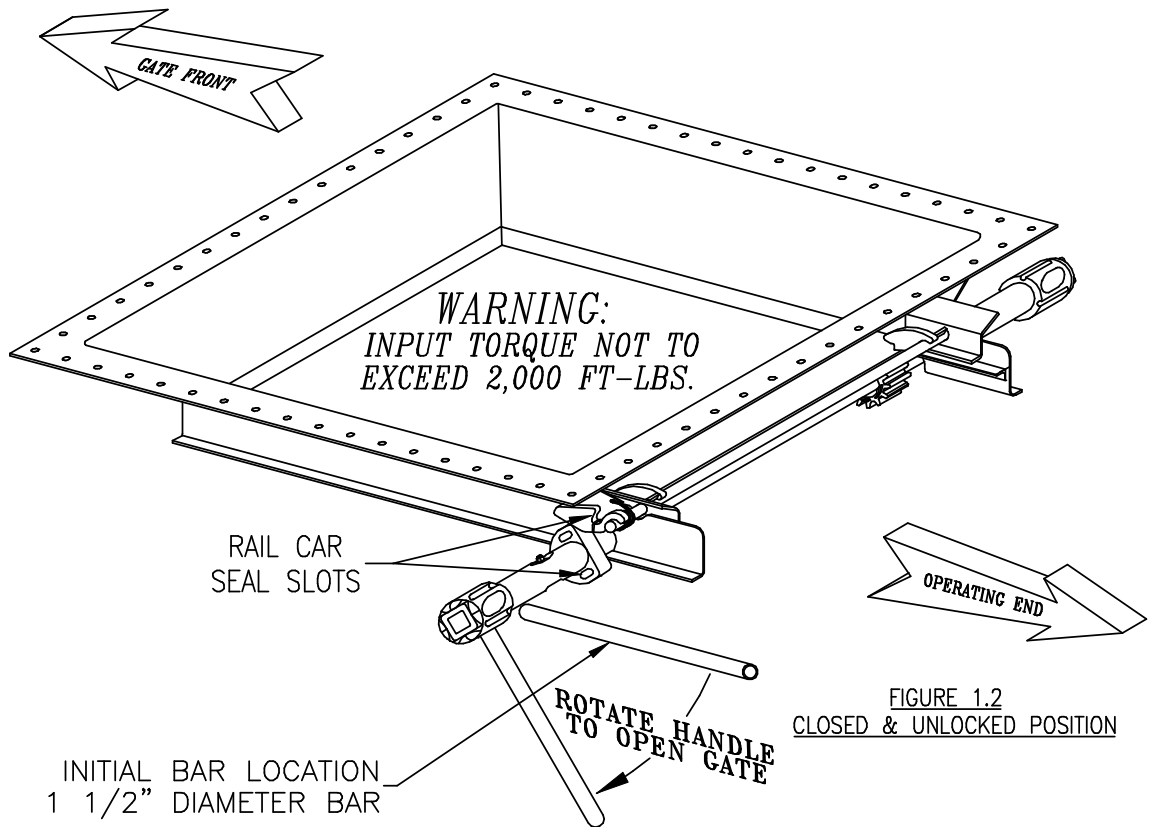


FIGURE 1.2  
CLOSED & UNLOCKED POSITION

## GATE OPERATION – CLOSED POSITION

THE ABOVE GATE IS SHOWN IN THE CLOSED AND UNLOCKED POSITION.  
(SEE FIGURE 1.1 ON PAGE 1 TO VIEW GATE IN CLOSED AND LOCKED POSITION.)  
NOTICE THAT THE RAIL CAR SEAL SLOTS NO LONGER LINE UP AND THE LOCK  
HOOK STOP EDGE IS ABOVE THE DOOR BEFORE ANY DOOR MOVEMENT OCCURS.

### TO OPEN GATE:

1. MANUAL OPERATION: INSERT A 1 1/2" DIAMETER BAR INTO THE GATE HANDLE AND ROTATE AS SHOWN. CAUTION: TO PREVENT INJURY, ASSUME A PROPER STABLE POSITION AND APPLY DOWNWARD PRESSURE USING BODY WEIGHT.
2. POWER EQUIPMENT: INSERT A 1 1/2" MALE SQUARE DRIVE INTO THE OPERATING HANDLE END HOLE AND ROTATE IN DIRECTION SHOWN. CAUTION: DO NOT CONTINUOUSLY APPLY TORQUE TO GATE WHEN IT IS COMPLETELY OPEN, DAMAGE WILL OCCUR TO ENTIRE GATE.

## NOTE ABOVE TORQUE WARNING!

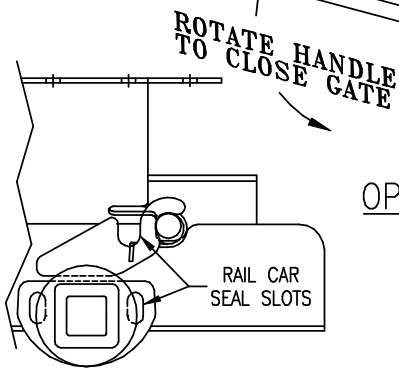
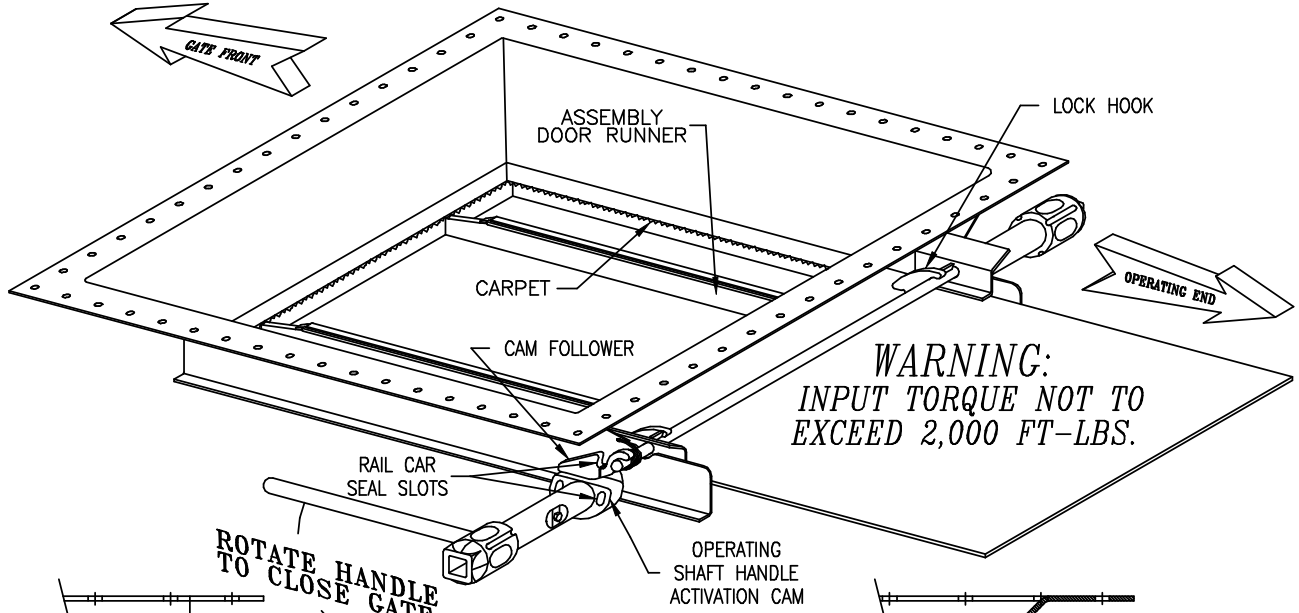


FIGURE 1.4  
CLOSED & LOCKED

FIGURE 1.3  
OPEN & UNLOCKED POSITION

GATE OPERATION

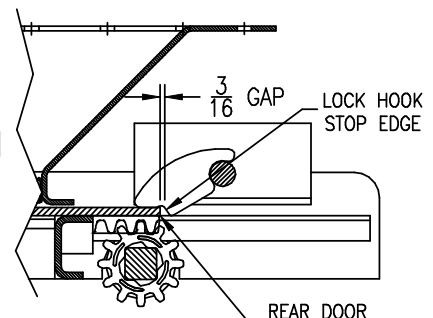


FIGURE 1.5  
CLOSED & LOCKED

TO CLOSE GATE:

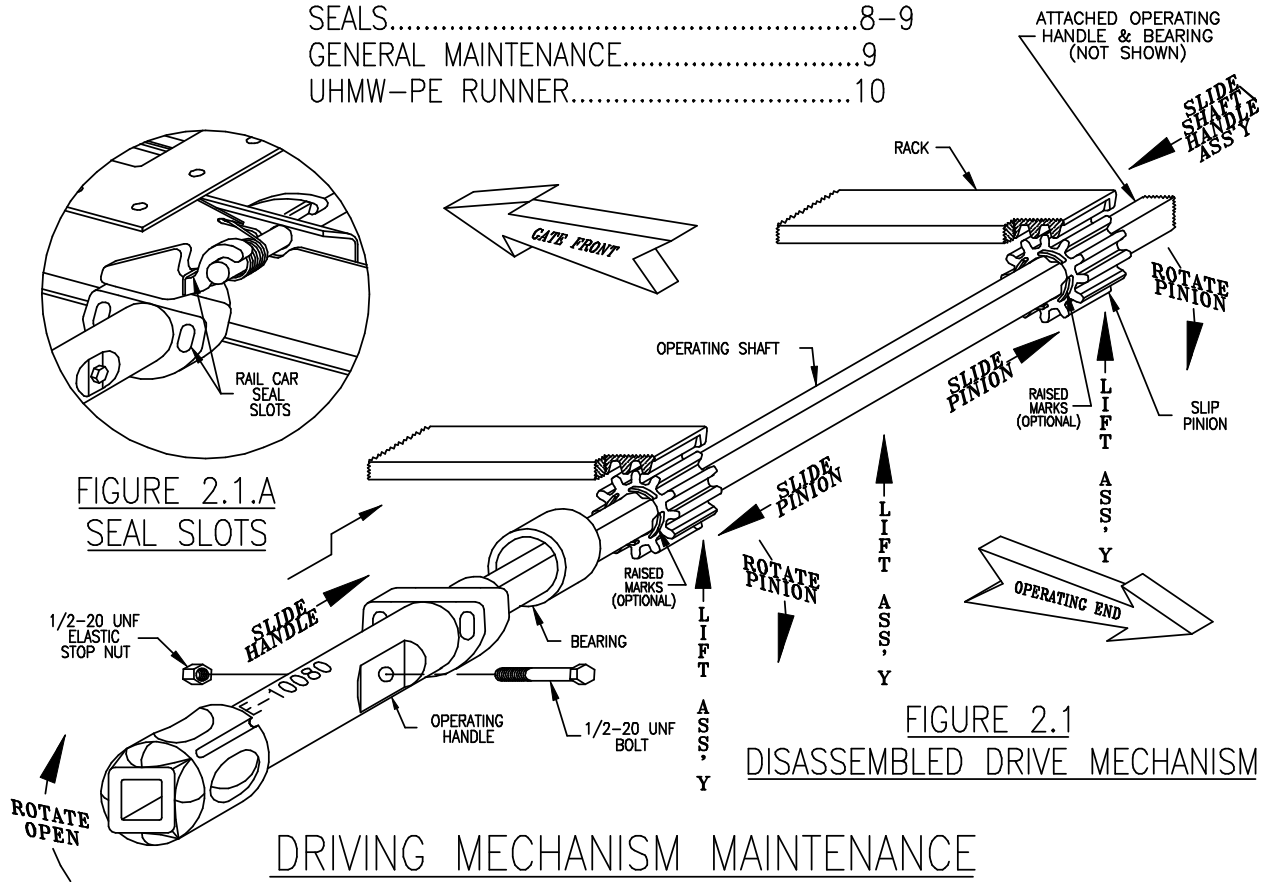
1. MANUAL OPERATION: INSERT A 1 1/2" DIAMETER BAR INTO THE GATE HANDLE AND ROTATE AS SHOWN UNTIL THE DOOR REAR EDGE TRAVELS PAST THE LOCK HOOKS' STOP EDGE SHOWN IN FIGURE 1.5 ABOVE. THE GATE LOCK HOOKS WILL SNAP AGAINST THE DOOR TOP AS THE DOOR COMPLETELY SHUTS LOCKING THE DOOR. IMPORTANT: WHEN THE DOOR IS COMPLETELY CLOSED AND LOCKED, SEAL SLOTS WILL AGAIN ALIGN VERTICALLY AS BOTH THE CAM FOLLOWER LOWER FLAT EDGES AND HANDLE CAM FLATS WILL BE HORIZONTAL. (SEE FIGURE 1.4 ABOVE) IF NOT, THE DOOR IS NOT COMPLETELY CLOSED, OR THE GATE IS "OUT OF TIME". SEE RE-TIMING INSTRUCTIONS ON PAGES 4-5.
2. POWER EQUIPMENT: INSERT A 1 1/2" MALE SQUARE DRIVE INTO THE OPERATING HANDLE END HOLE AND ROTATE IN DIRECTION SHOWN. CAUTION: DO NOT CONTINUOUSLY APPLY TORQUE TO GATE WHEN IT IS COMPLETELY OPEN, DAMAGE WILL OCCUR TO ENTIRE GATE.

NOTE ABOVE TORQUE WARNING!

# SECTION 2 MAINTENANCE

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## DRIVING MECHANISM MAINTENANCE

THE GATE SIDES, BOTTOM, & DOOR ARE NOT SHOWN TO SIMPLIFY THIS ARRANGEMENT. SLIDE THE DOOR COMPLETELY INTO THE GATE AS SHOWN ON PAGE 1 OF THIS MANUAL.

### 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 OUT.

NOTE:  
 THE GATE SIDES,  
 BOTTOM, HANDLE  
 & DOOR ARE NOT  
 SHOWN TO SIMPLIFY  
 THIS ARRANGEMENT.

WEAR SPECIFICATIONS: REPLACE IF:  
 OPERATING SHAFT BOW: GATE INOPERABLE  
 HANDLE BUSHING OD: LESS THAN  $\phi 2 \frac{5}{16}$

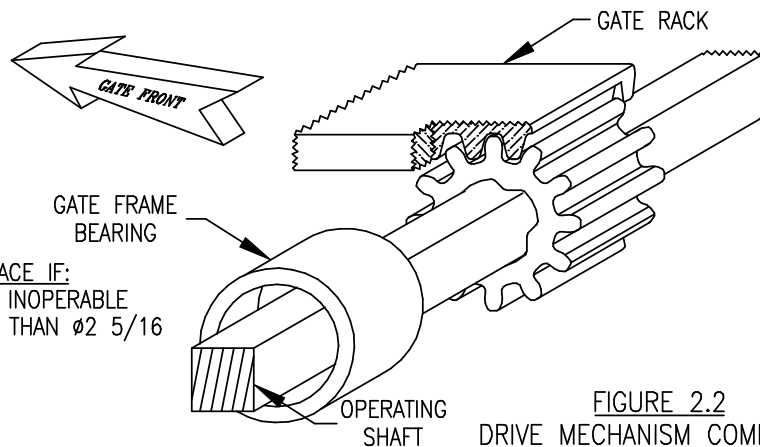


FIGURE 2.2  
DRIVE MECHANISM COMPONENTS

INSPECT ALL PARTS REMOVED FOR WEAR AND BREAKAGE. CHECK PARTS PER SPECIFICATIONS LISTED ABOVE. PLEASE CONTACT W. H. MINER SALES DEPARTMENT FOR REQUIRED REPLACEMENT PARTS. (SEE SECTION 4)

TO INSTALL SLIP PINIONS (SLIP PINION TIMING)

*(SEE FIGURE 2.1 & VIEW 2.1.A ON PAGE 4)*

1. COMPLETELY CLOSE AND LOCK DOOR. SEE FIGURE 1.5 ON PAGE 3.
2. DETERMINE IF HANDLES OR OPERATING SHAFT REQUIRE REPLACEMENT. ATTACH ONE OPERATING HANDLE TO OPERATING SHAFT WITH ELASTIC STOP NUT AND BOLT.
3. SLIDE OPERATING SHAFT/HANDLE THROUGH ONE BEARING (WELDED ON THE GATE) AND LET OPEN SHAFT END HANG DOWN.
4. SLIDE TWO SLIP PINIONS ONTO THE SHAFT. PIVOT OPERATING SHAFT UP TO OTHER BEARING. SLIDE OPERATING SHAFT INTO THE OTHER BEARING. ALLOW SHAFT TO REST ON THE BOTTOM OF THE GATE FRAME BEARINGS SHOWN ON FIGURE 2.1.
5. ROTATE THE SLIP PINIONS AS SHOWN ABOVE. SLIDE PINIONS ALONG OPERATING SHAFT INTO RACKS, HOLDING THEIR ROTATION.
6. NOTICE THAT THE SEAL SLOTS ARE VERTICALLY ALIGNED; THE OPERATING-SHAFT-HANDLE CAM & SHAFT FLATS ARE HORIZONTAL (SEE VIEW 2.1.A).
7. LIFT THE SHAFT, PINIONS (ROTATED AS SHOWN) INTO RACKS: SLIDE HANDLE INTO BEARING. SLIDE OTHER HANDLE ON SHAFT & INSERT INTO BEARING.
8. BOLT OTHER HANDLE TO THE OPERATING SHAFT WITH ELASTIC STOP NUT.
9. ROTATE HANDLE AS SHOWN IN FIGURE 1.2 TO VERIFY LOCK OPERATION.
10. IF LOCK OPERATES INCORRECTLY, DISASSEMBLE AND REPEAT STEPS 2 THRU 9 OR VERIFY GATE TIMING WITH TIMING GAGE (PB-5-20) IF AVAILABLE. SEE PAGE 6 FOR TIMING GAGE USE.

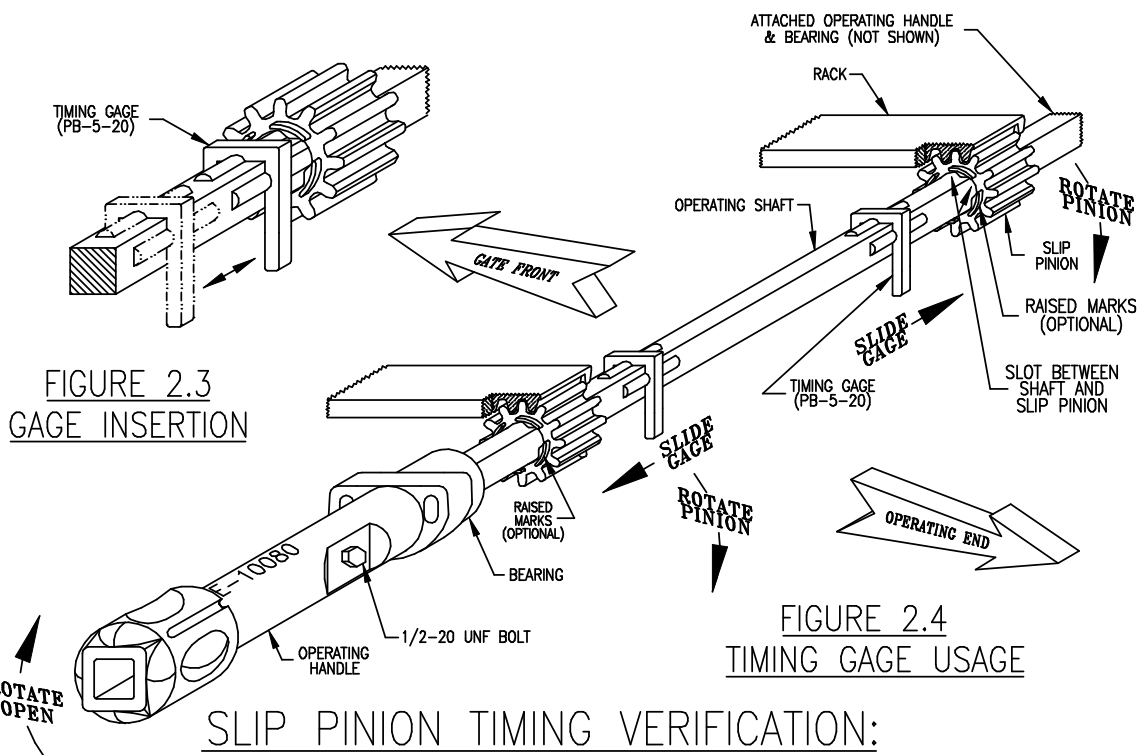


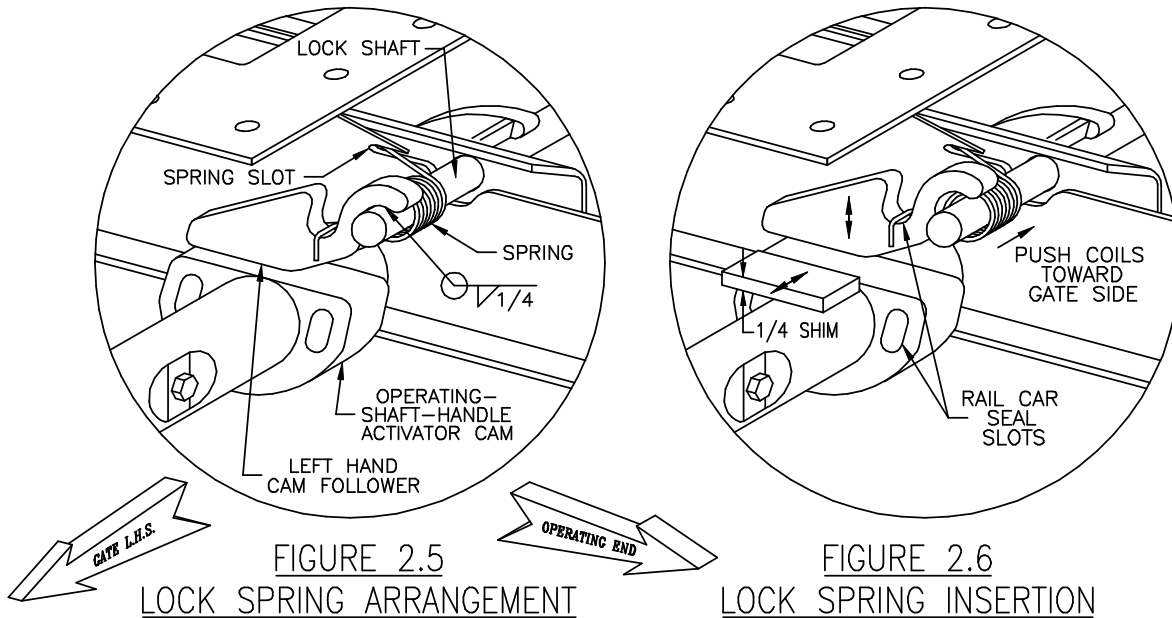
FIGURE 2.3  
GAGE INSERTION

FIGURE 2.4  
TIMING GAGE USAGE

### SLIP PINION TIMING VERIFICATION:

THE GATE SIDES, BOTTOM, AND DOOR ARE NOT SHOWN TO SIMPLIFY THIS ARRANGEMENT. NOTE: THE TIMING VERIFICATION GAGE PB-5-20 IS NOT REQUIRED TO ASSEMBLE DRIVE MECHANISM.

1. CLEAN EXCESSIVE PAINT OR COMMODITY OFF THE SQUARE SHAFT IF THE PAINT OR COMMODITY PREVENTS GAGE INSERTION INTO THE PINION SLOTS.
2. PLACE THE THE TIMING GAGE ON THE OPERATING SHAFT AS SHOWN IN TWO (2) PLACES.
3. SLIDE THE GAGE ALONG SHAFT AS SHOWN INSERTING THE HALF ROUND EXTENSIONS OF THE GAGE INTO THE SLOTS BETWEEN THE SLIP PINIONS AND SHAFT. (SEE FIGURE 2.3 ABOVE)
4. ADJUST THE SLIP PINION BY ROTATING OR JIGGLING THE SLIP PINIONS TO ALLOW THE GAGE TO SLIDE INTO POSITION. DO NOT HAMMER INTO GAP!
5. IF THE GAGE HALF ROUND EXTENSIONS ENTER THE SLOTS PARTIALLY OR FULLY, THE SLIP PINIONS ARE IN TIME AND THE GATE WILL FUNCTION NORMALLY.
6. IF THE GAGE HALF ROUND EXTENSIONS DO NOT ENTER THE SLOTS PARTIALLY OR FULLY, THE SLIP PINIONS ARE "OUT OF TIME".
7. IF SLIP PINIONS ARE "OUT OF TIME", THE GATE WILL NOT LOCK/UNLOCK PROPERLY. DISASSEMBLE THE SHAFT ASSEMBLY AND REASSEMBLE ACCORDING TO THE OPERATING INSTRUCTIONS ON PAGE 5.



## LOCK SPRING REPLACEMENT

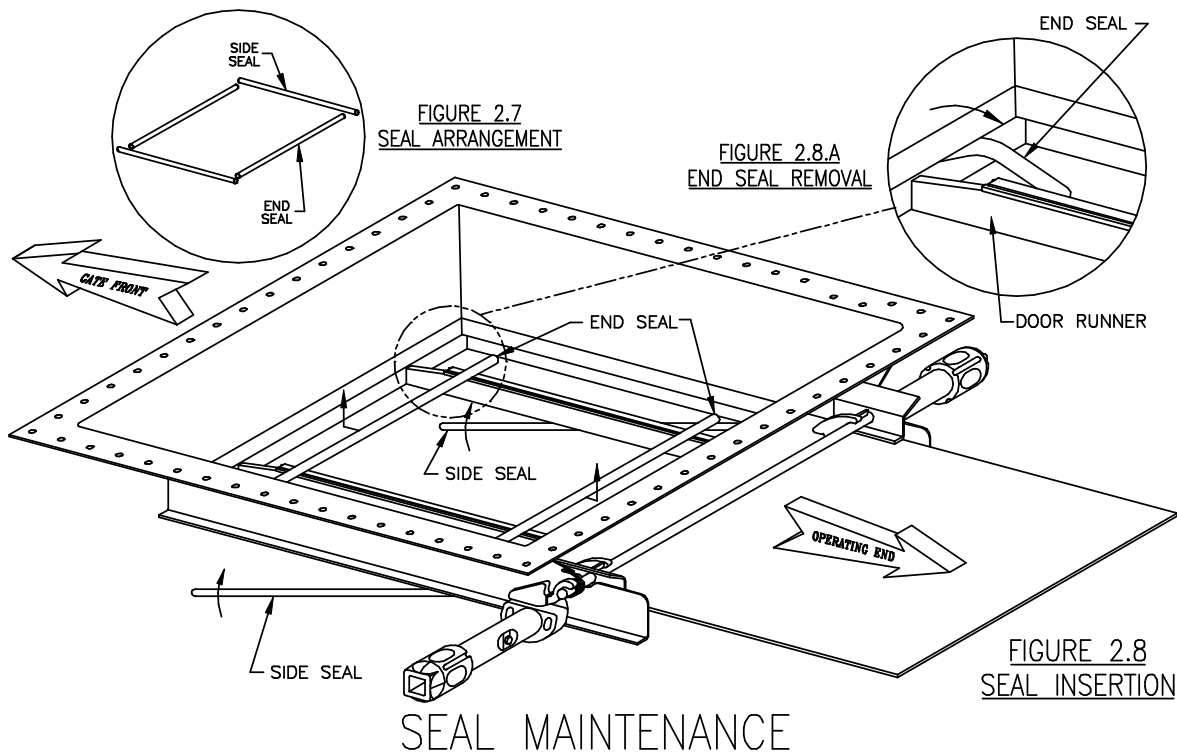
THE MINER AutoLOK™ II OUTLET GATE USES STAINLESS STEEL TORSION SPRING WRAPPED AROUND THE LOCK SHAFT ON THE GATE LEFT HAND SIDE ONLY. REMOVE AND REPLACE LOCK SPRING IF NO TENSION REMAINS ON THE LOCK HOOK AND CAM FOLLOWER. CHECK THE TENSION BY LIFTING THE CAM FOLLOWER AND ALLOW IT TO SNAP DOWNWARD. LOCK HOOKS SHOULD "SNAP!" AGAINST THE DOOR.

TO REMOVE LOCK SPRING:

1. COMPLETELY CLOSE GATE & ENSURE THAT THE GATE IS LOCKED. SEE GATE OPERATION ON PAGES 2 & 3.
2. TORCH-CUT OR GRIND OFF THE LEFT HAND CAM FOLLOWER ONLY.
3. CLEAN OFF THE REMAINING WELD FROM THE LOCK SHAFT END SHOWN IN FIGURE 2.5 ABOVE.
4. ROTATE THE LOCK SPRING STRAIGHT END OUT OF THE GATE SIDE SLOT.

TO REINSTALL LOCK SPRING:

1. SLIDE THE LOCK SPRING ON THE LEFT LOCK SHAFT END.
2. REPLACE THE CAM FOLLOWER BY INSERTING 1/4 SHIM BETWEEN THE CAM FOLLOWER BOTTOM SURFACE AND OPERATING-SHAFT-HANDLE CAM FLAT AS SHOWN IN FIGURE 2.6. HOOK THE SPRING LEG AROUND THE CAM FOLLOWER.
3. WELD THE CAM FOLLOWER TO THE LOCK SHAFT ALL AROUND, SHOWN IN FIGURE 2.5. CAUTION: KEEP WELD HEAT AWAY FROM THE LOCK SPRING BY PUSHING THE SPRING COILS TOWARD THE GATE SIDE, SHOWN IN VIEW B.
4. OPERATE GATE TO VERIFY GATE TIMING AND LOCK OPERATION.



THE MINER AutoLOK™ II OUTLET GATE IS A SEALED GATE USING CARPET SEALS ON ALL FOUR SIDES. FIGURES 2.7 & 2.8 SHOW THE SEAL INSTALLATION PROCEDURE.

TO INSPECT AutoLOK™ II SEALS: (SEE PAGE 9, FIGURE 2.9.3)

DOOR SHOULD OPEN AND CLOSE WHILE LOCKING FREELY WITH A 1-1/2 DIAMETER BAR. RUN HAND ALONG BOTTOM OF SEAL FRAME: THE CARPET SHOULD FEEL FLAT FROM 3/4" TO 1" WIDE AROUND SEAL FRAME BOTTOM PERIMETER. YOU SHOULD NOT FEEL A ROUNDED ROD BELOW THE SEAL FRAME SLOT LEVEL. DOOR CLOSING SHOULD COMPRESS CARPET. SEALS SHOULD BE FREE OF TEARS, HEAT DAMAGE, AND PERMANENT COMMODITY BUILD-UP.

FOR 13 x 42 AutoLOK™ II GATES ONLY:

1. REMOVE DOOR TO EXPOSE THE SEAL FRAME. SEE PAGES 4 AND 5.

TO REMOVE AutoLOK™ II SEALS:

1. COMPLETELY OPEN DOOR EXPOSING THE SEAL FRAME.
2. REMOVE SIDE SEALS BY INSERTING COTTER PIN PULLER BETWEEN THE SEAL FRAME TOP AND CARPET SEAL; INSERT TOOL THRU 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. CAUTION: A PLIERS MAY TEAR OR SEPARATE CARPET.
3. REPEAT STEP 2 TO REMOVE THE END SEALS. BEND THE END SEALS DOWNWARD AROUND THE DOOR RUNNERS UNTIL THE SEAL PULLS OUT SHOWN IN VIEW A. STRAIGHTEN SEALS BEFORE REINSERTION.

TO INSPECT INDIVIDUAL SEALS FOR WEAR:

IF ANY HEAT DAMAGE, PERMANENT COMMODITY BUILD-UP, TEARS OR PILE WRAP SEPARATIONS (GAPS) GREATER THAN 1/4" APPEAR, REPLACE SEALS. SEE SECTION 4 TO CONTACT W. H. MINER SALES FOR SEAL REPLACEMENT PARTS. A CARPET SEAL IN GOOD CONDITION IS SHOWN IN FIGURE 2.9.1. (THE CARPET WRAPS AROUND ROD LENGTH AT 45°.)

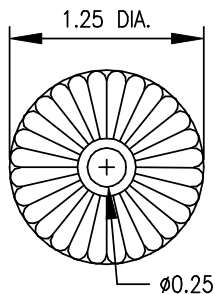


FIGURE 2.9.1  
CARPET SEAL

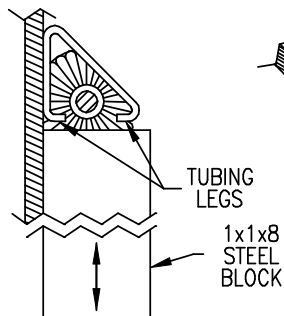


FIGURE 2.9.2  
HAMMER INSERTION

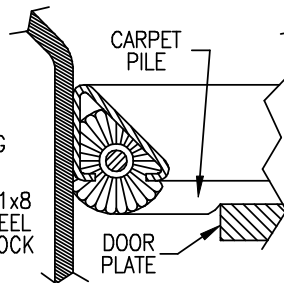


FIGURE 2.9.3  
CARPET FINAL POSITION

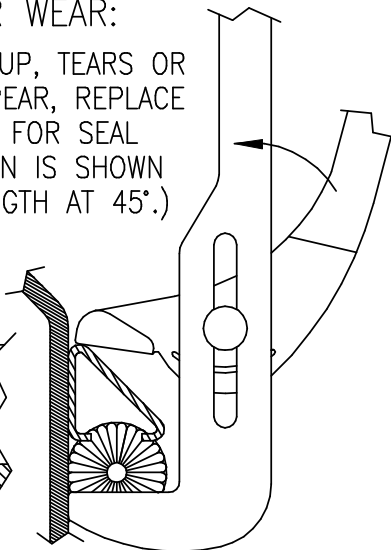


FIGURE 2.9.4  
PLIER INSERTION

TO INSERT SEALS:

1. THOROUGHLY CLEAN OUT SEAL FRAME AND OUTLET GATE AREAS WHERE SEALS WILL SEAT.
2. TO INSERT, BEGIN WITH SIDE SEALS. SEE MAIN DIAGRAM ON PAGE 8.
3. SLIDE SEAL END INTO SEAL FRAME SLOT. TAP INTO FINAL POSITION WITH A 1x1/8 PIECE OF STEEL ALONG THE LENGTH OF SEAL; THE SLIDE HAMMER OR STEEL BLOCK SHOULD SLIDE AGAINST THE VERTICAL GATE WALL AND CONTACT BOTH TUBING LEGS SHOWN IN FIGURE 2.9.2 ABOVE.  
CAUTION: DO NOT ALLOW STEEL BLOCK TO ENTER TUBING SLOT.
4. IF THE SEAL WILL NOT EASILY INSERT, SQUEEZE SEAL INTO TUBING WITH A PIPE WRENCH PLIERS (90° CHANNEL LOCK WRENCH) BEFORE TAPPING INTO FINAL SEATED POSITION. SEE FIGURE 2.9.4. DO NOT ALLOW WRENCH TO ENTER TUBING SLOT. SEE FIGURE 2.9.3 FOR FINAL CARPET POSITION.
5. INSERT END SEALS BETWEEN SIDE SEALS. POSITION END SEALS ON DOOR RUNNERS AS SHOWN ON PAGE 8. REPEAT STEP 3 TO SEAT THE END SEALS INTO FINAL POSITION.
6. INSPECT INSTALLED SEALS. SEE FIGURE 2.9.3. RUN HAND ALONG BOTTOM OF SEAL FRAME: THE CARPET SHOULD FEEL FLAT FROM 3/4" TO 1" WIDE AROUND SEAL FRAME. YOU SHOULD NOT FEEL A ROUNDED ROD BELOW THE SEAL FRAME SLOT LEVEL. DOOR CLOSING SHOULD COMPRESS CARPET.
7. DOOR SHOULD OPEN AND CLOSE WHILE LOCKING FREELY WITH A TWO FOOT BAR.

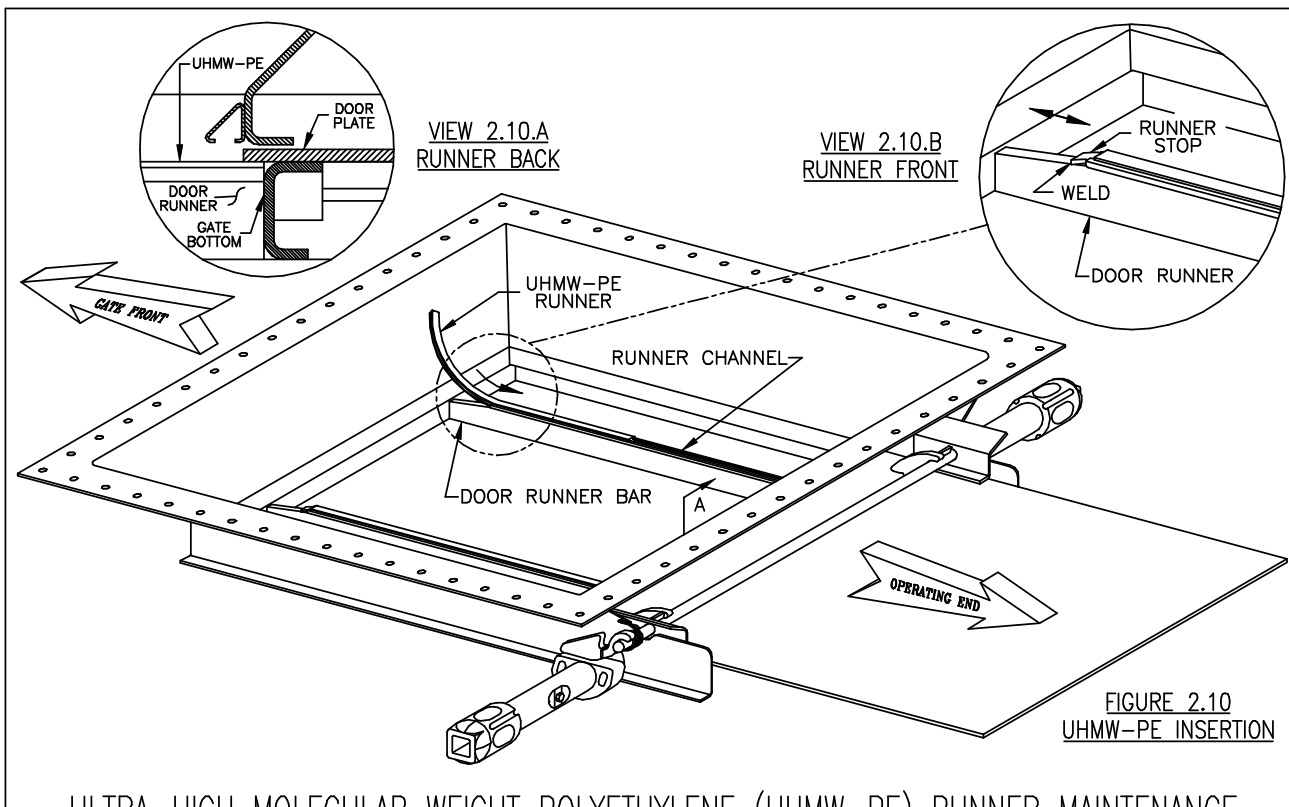


FIGURE 2.10  
UHMW-PE INSERTION

## ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE (UHMW-PE) RUNNER MAINTENANCE

SEE INTRODUCTION, PAGE ii TO DETERMINE IF THE MINER AutoLOK™ II OUTLET GATE IN QUESTION USES EITHER A UHMW-PE COMPOSITE RUNNER SYSTEM SHOWN ABOVE OR A STEEL RUNNER SYSTEM.

### TO REMOVE UHMW-PE RUNNER:

1. COMPLETELY OPEN DOOR EXPOSING THE RUNNER ASSEMBLIES.
2. REMOVE THE UHMW-PE RUNNER STOP BY CAREFULLY CUTTING THE RUNNER STOP WELD SHOWN IN VIEW 2.10.B ABOVE.
3. 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 W. H. MINER SALES FOR REPLACEMENT UHMW-PE RUNNERS.

### TO REINSTALL UHMW-PE RUNNERS & RUNNER STOPS:

1. TO REINSTALL THE UHMW-PE RUNNER, SLIDE IT IN THE RUNNER CHANNEL END, BEND THE UHMW-PE RUNNER (SHOWN ABOVE) DOWNWARD AND INWARD. THE RUNNER SHOULD GO COMPLETELY TO THE GATE BOTTOM AND UNDER THE DOOR LEADING EDGE WHEN THE DOOR IS COMPLETELY OPEN. (SEE VIEW 2.10.A)
2. REPLACE THE UHMW-PE RUNNER STOP BY TACK-WELDING THE STOP FRONT TO THE RUNNER BAR SHOWN IN VIEW 2.10.B ABOVE.
3. ROLL THE DOOR SHUT AND INSPECT THE GATE OPERATION.



## GENERAL MAINTENANCE

### CLEANING

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

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

It is recommended that commodity build-up be cleaned or removed whenever necessary. This will eliminate any potential operational problems.



SECTION 3  
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 1 and 2 for part location and operation of opening gate. Outlet gate may need to be retimed. See pages 4 through 6 for additional assistance.

IF THE GATE DOES NOT CLOSE

Check front of gate for commodity build-up. Clean front and door tracks if necessary. See page 9 for additional information. If gate needs to be retimed, see pages 4 through 6 for assistance.

**CAUTION**

1. Do not strike or heat the outlet gate or door in order 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-alongs, 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 the parties listed in the Customer Assistance Section found on page 13.



**SECTION 4**  
**CUSTOMER ASSISTANCE**

**FIELD SERVICE ASSISTANCE**

Miner Enterprises, Inc.  
Technical Services  
1200 East State Street  
P.O. Box 471  
Geneva, IL 60134

Telephone: (630) 232-3050  
FAX: (630) 232-3055  
[www.tekstrom@minerent.com](mailto:www.tekstrom@minerent.com)

**REPLACEMENT PARTS**

Miner Enterprises, Inc.  
Sales Department  
1200 East State Street  
P.O. Box 471  
Geneva, IL 60134

Telephone: (630) 232-3046  
FAX: (630) 232-3055  
[www.lkeller@minerent.com](mailto:www.lkeller@minerent.com)

**ENGINEERING ASSISTANCE**

Miner Enterprises, Inc.  
Powerbrace Corporation  
Engineering Department  
7640 60<sup>TH</sup> Avenue  
Kenosha, WI 53142

Telephone: (262) 697-5337  
FAX: (262) 694-7780  
[www.rfortuna@powerbrace.com](mailto:www.rfortuna@powerbrace.com)