

INTRODUCTION

The information contained in this manual will allow you to operate and maintain your Rytec® Turbo-Seal® Door in a manner which will ensure maximum life and trouble-free operation.

Any unauthorized changes in procedure, or failure to follow the steps as outlined in this manual, will automatically void the warranty. Any changes in the working parts, assemblies, or specifications as written that are not authorized by Rytec Corporation, will also cancel the warranty. The responsibility for the successful operation and performance of this door lies with the owner of the door.

DO NOT OPERATE OR PERFORM MAINTENANCE ON THIS DOOR UNTIL YOU READ AND UNDERSTAND THE INSTRUCTIONS CONTAINED IN THIS MANUAL.

If you have any questions, contact your Rytec representative or call the Rytec Technical Support Department at 800-628-1909. Always refer to the serial number of the door when calling the representative or Technical Support. The serial number plate is located inside one of the side columns.

The wiring connections and schematics in this manual are for general information purposes only. A wiring schematic is provided with each individual door specifically covering the control panel and electrical components of that door.

DOOR SERIAL NUMBER(S)

Your **DOOR SERIAL NUMBER** information can be found in three universal locations. These are at the inside of either side column (approximately eye level), on the drive motor, and on the inside door of the System 4 control panel. (See Figure 1)

IMPORTANT: *When installing multiple doors of the same model but different sizes, verify the serial number in the control panel with the one in the side column.*

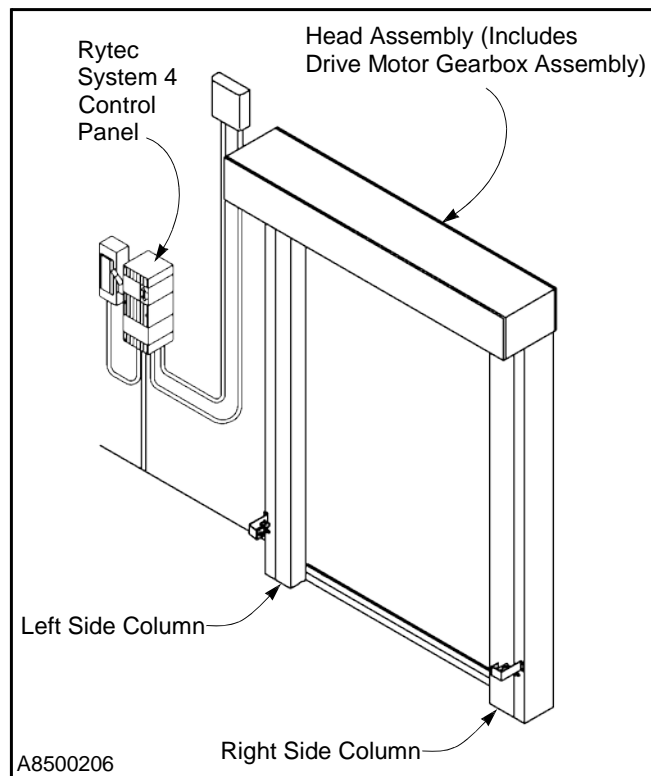


Figure 1

HOW TO USE MANUAL

Throughout this manual, the following key words are used to alert the reader of potentially hazardous situations, or situations where additional information to successfully perform the procedure is presented:



WARNING is used to indicate the potential for personal injury, if the procedure is not performed as described.



CAUTION is used to indicate the potential for damage to the product or property damage, if the procedure is not followed as described.

IMPORTANT: *IMPORTANT is used to relay information CRITICAL to the successful completion of the procedure.*

NOTE: *NOTE is used to provide additional information to aid in the performance of the procedure or operation of the door, but not necessarily safety related.*

PLANNED MAINTENANCE—GENERAL ARRANGEMENT OF DOOR COMPONENTS

GENERAL ARRANGEMENT OF DOOR COMPONENTS

Figure 2 shows the location of the major components of the door and the general placement of the associated control sub-assemblies for a typical installation.

This illustration is provided to you for informational purposes only. It should not be relied upon solely for operating or performing maintenance on your door and its sub-assemblies.

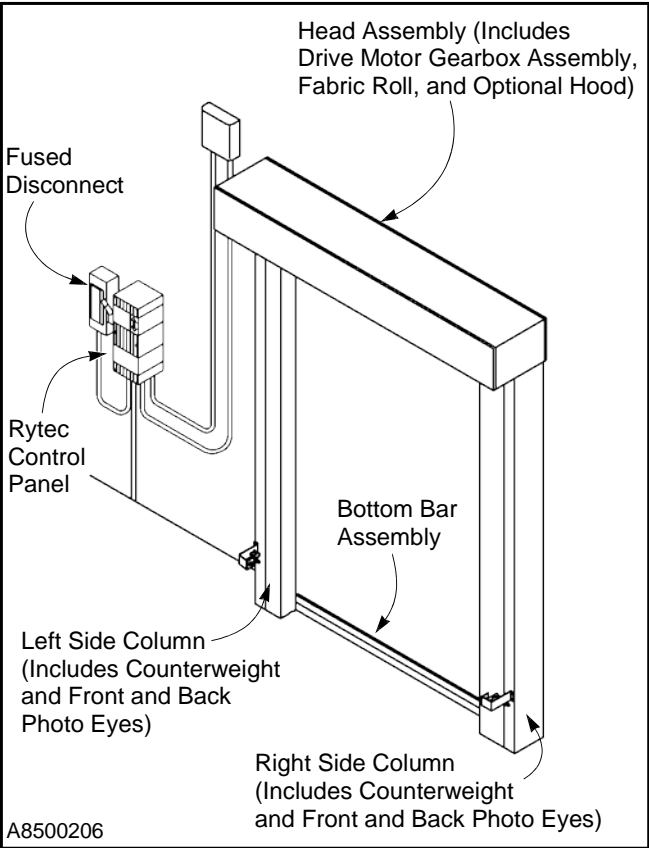


Figure 2

NOTE: Figure 2 shows the front side of the door. Left and right are determined when viewing the front side of the door.

PLANNED MAINTENANCE
RECOMMENDED SCHEDULE

NOTE: The following maintenance schedule is recommended.

	Daily	Quarterly
Visual Damage Inspection		
Check Door Operation		
Reversing Edge Inspection		
Photo Eye Inspection (Front and Rear)		
Hardware Inspection		
Wall Anchor Inspection		
Fabric Inspection		
Weather Seal Inspection		
Close-Limit Inspection		
Open-Limit Inspection		
Drive Chain Inspection		
Motor Brake Inspection		
Bottom Bar Inspection		
Kill Switch Inspection		
Counterweight Inspection		
Counterweight Strap Inspection		
Activator and Control Panel Inspection		
Electrical Connection Inspection		
Lubrication		

DAILY INSPECTION

Visual Damage Inspection

Visually inspect the door to see that components have not been damaged. Example: bent bottom bar assembly, torn fabric panel, damage to side columns, etc. (See Figure 3)

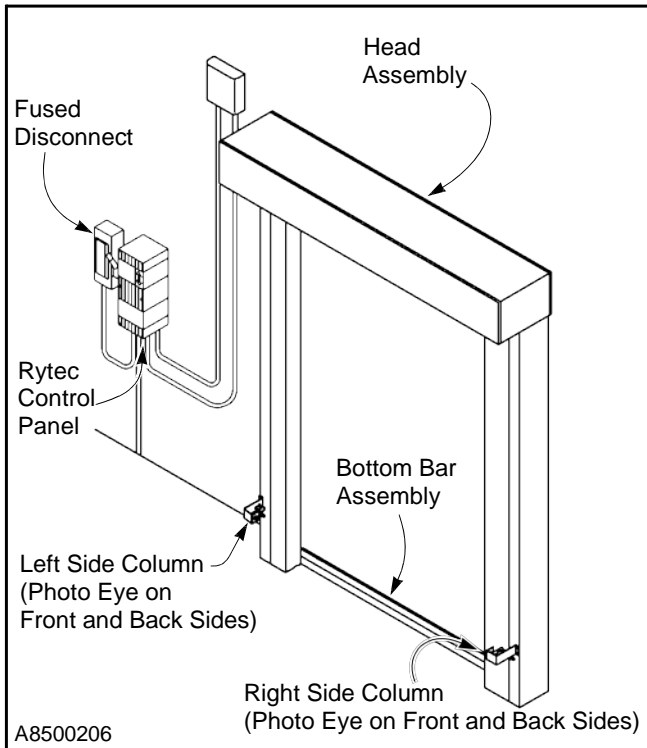


Figure 3

Head Assembly: Inspect for dents or damage that may prevent the door from opening or closing properly.

Door Panel: Inspect panel for holes, tears, and worn areas. If equipped with windows, inspect them for damage or dirt that may impair vision — clean or replace as required.

Side Columns and Covers: Inspect for damage that may prevent the door from operating properly.

Photo Eyes: Inspect the lens of each photo eye for damage or dirt that may prevent the photo eyes from working properly — clean or replace as required.

Bottom Bar: Inspect the bottom bar for damaged, missing, or loose hardware. Inspect the yellow vinyl seal along the lower edge of the bottom bar for tears and holes. Inspect the edge itself.

Counterweights and Straps: Counterweights must be properly adjusted. Counterweight straps must be in good working condition, securely attached to the counterweights and the drum assembly, and tracking properly on all rollers.

Check Door Operation

Run the door through four or five complete cycles to verify that the door is operating smoothly and efficiently, and that binding or unusual noises do not exist. **DO NOT** continue to operate the door if it is not running properly, as this could compound the damage.

Reversing Edge Inspection



Do not stand under the door panel while testing the door reversing function. If the reversing edge switch is not working properly, the panel could strike the person performing the test. Also, do not continue to use the door if the reversing edge is not operating properly.

While the door is running through the down cycle, tap the bottom of the reversing edge. If the reversing edge is operating properly, the door will immediately reverse and run to the fully open position. Push the control panel down key to close the door after the inspection is complete. If the reversing edge is not working properly, see “PNEUMATIC REVERSING EDGE SWITCH ADJUSTMENT” on page 12 for the adjustment procedures.

Photo Eye Inspection

NOTE: Photo eyes act as a safety device to prevent the door from closing if an object or person is within either photo eye beam. The photo eyes are not meant to be used as door activators.

With power on, the green light indicates the photo eye module is powered up. When the yellow light on the receiver module is also lit, the emitter and receiver modules are properly aligned.

Placing your hand in front of the receiver breaks the light path and causes the yellow light to go out. Removing your hand causes the yellow light to come back on. (See Figure 4)

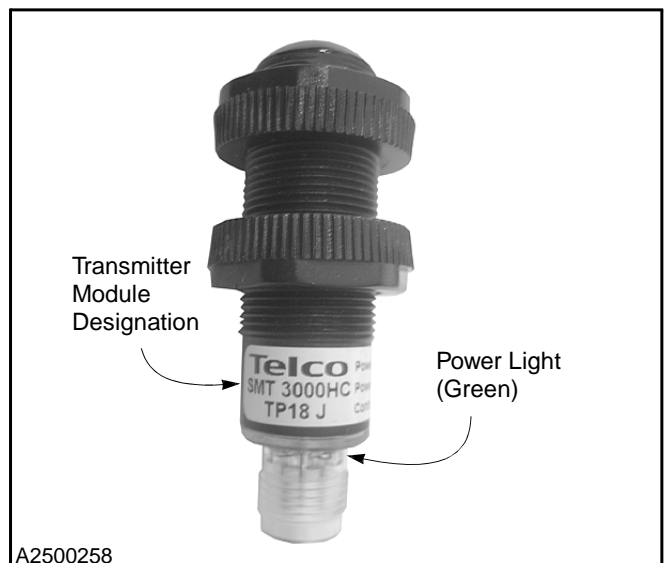


Figure 4

PLANNED MAINTENANCE—QUARTERLY INSPECTION



Figure 5

QUARTERLY INSPECTION



The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

Hardware Inspection

Make sure all nuts, bolts, set screws, and anchors are tight throughout the door. Example: motor mounting bolts, wall mounting hardware, floor anchors, sprocket set screws, etc. (See Figure 6 through Figure 10)

DRIVE SPROCKETS

NOTE: If your door has a hood cover, it will be necessary for you to remove it to access the drive sprockets. (See Figure 6)

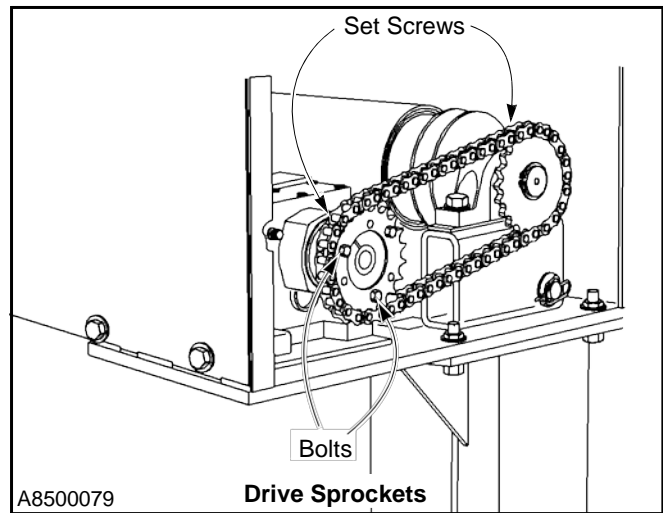


Figure 6

HEAD ASSEMBLY

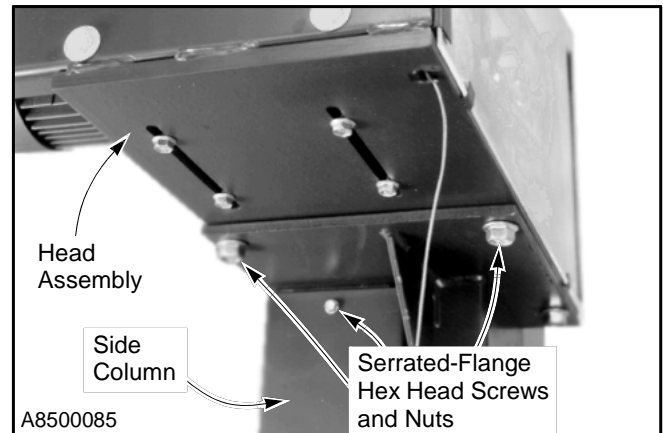


Figure 7

SIDE COLUMN ANCHORS

NOTE: To access the floor and wall anchors, it will be necessary for you to first remove the cover from each side column.

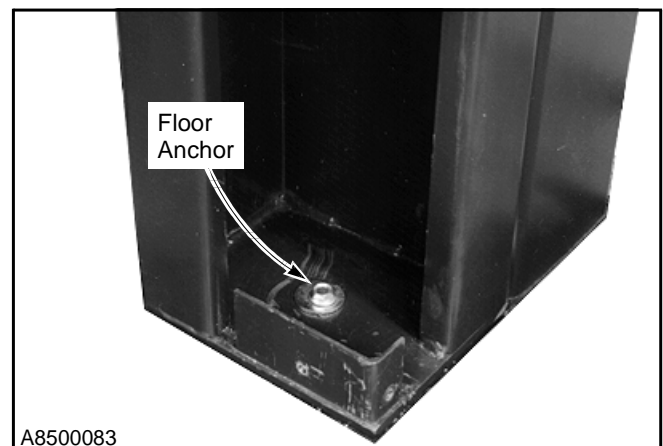


Figure 8

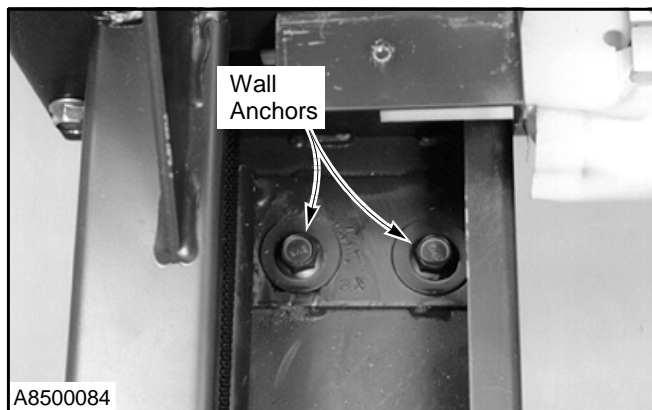


Figure 9

BOTTOM BAR

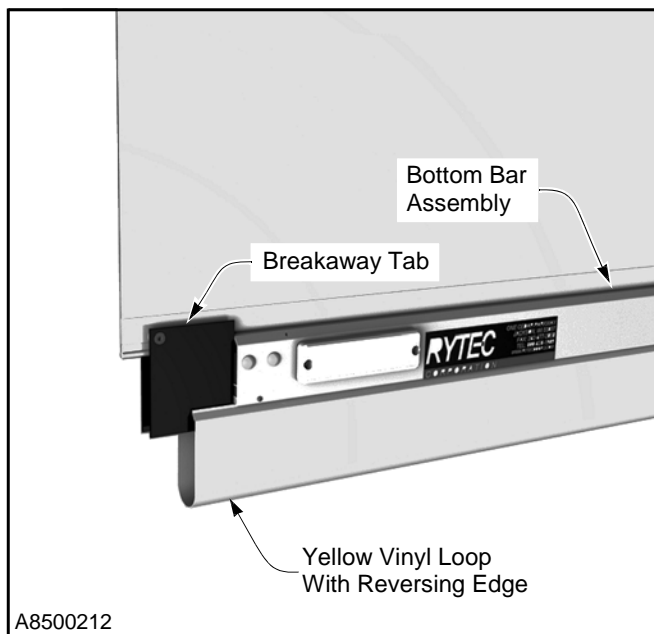


Figure 10

Wall Anchor Inspection

1. Turn off power to the door.



The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

2. Gain access to wall anchors.
3. Inspect for loose or worn wall anchor(s).
4. Tighten, repair, or replace wall anchor(s) as needed.

NOTE: Remove door from service if any repairs are needed. All repairs must be done in accordance with building code.

5. Restore power to the door and return to service.

Fabric Inspection

1. Check the fabric for tears. Repair or replace as required.
2. Check the windows (optional). If windows were supplied in your door panel, check for dirt or damage which may impair vision. Clean or replace as required.

IMPORTANT: Use any good brand of window cleaner to clean the windows. **DO NOT** use abrasive cleaners or petroleum-based solvents.

3. Ensure the panel is securely fastened to the bottom bar assembly. Tighten or replace loose or damaged mounting hardware as required.
4. If the door is configured with wind ribs, make sure they are in place and tightly secured.

Weather Seal Inspection and Replacement

HEAD ASSEMBLY

NOTE: A weather seal is mounted on the underside of the head assembly, on the back side of the fabric roll.

Inspect the entire length of the weather seal for wear and damage. Replace if necessary. (See Figure 11)

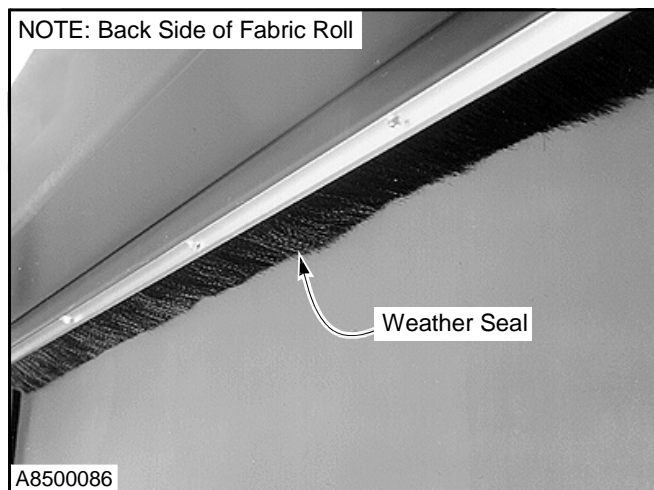


Figure 11

PLANNED MAINTENANCE—QUARTERLY INSPECTION

SIDE COLUMNS

NOTE: A weather seal is mounted on the inside lip of each side column cover.

Inspect the entire length of both weather seals (side column cover and side column) on both sides of the door for wear and damage. Replace if necessary. (See Figure 12)

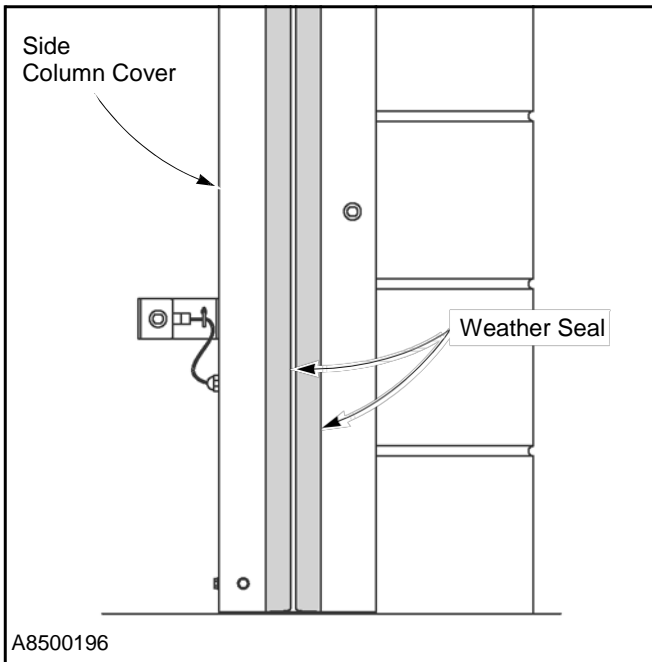


Figure 12

If it becomes necessary to replace the weather seal on a side column cover, perform the following procedure.

1. Remove the cover from the side column.
2. Spread the crimp on the ends of the track that holds the weather seal in place.
3. Remove the old weather seal by sliding it out of the track.
4. Slide a new weather seal into the track.
5. Crimp the track at each end to lock the new weather seal in place.

Door Limit Inspection

CLOSE LIMIT

With the door in the closed position, check the yellow vinyl loop on the bottom bar. It should be in the position shown in Figure 13.



Damage to the rubber reversing edge or other bottom bar parts can occur if the door seal is allowed to seal too tightly against the floor. (See Figure 13)

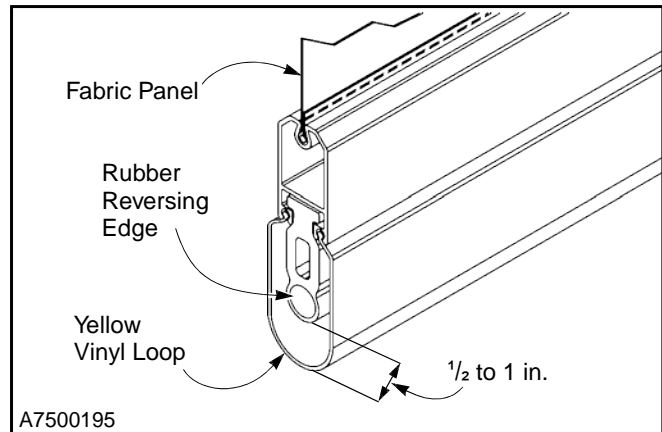


Figure 13

If the reversing edge does not seal properly against the floor, see the Rytec System 4 Drive & Control Installation & Owner's Manual for proper adjustment procedure.

OPEN LIMIT

The open-limit position should be adjusted so that the door travel allows the top of the plastic breakaway tab on the end of the bottom bar assembly to stop approximately 1 1/2 to 2 in. from the bottom of the guide block on each side column. (See Figure 14)

If the panel does not stop in the proper location, see the Rytec System 4 Drive & Control Installation & Owner's Manual for proper adjustment procedure.

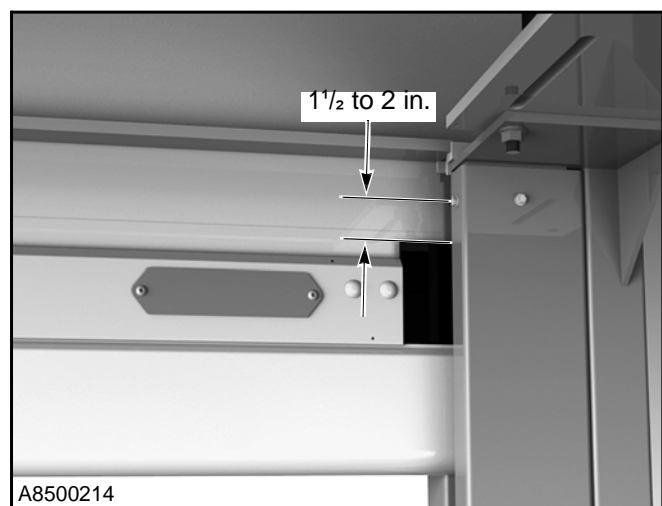


Figure 14

Drive Chain Inspection

NOTE: If your door has a hood cover, it will be necessary for you to remove it to access the drive chain.

The drive chain should be adjusted for a maximum $\frac{1}{4}$ -in. deflection at its midpoint. The two sprockets the chain is stretched across must be parallel with each other. And the master link and retainer clip used to join the ends of the chain together must be in place and secured. (See Figure 15)

If the chain requires adjustment, see “DRIVE CHAIN ADJUSTMENT” on page 17.

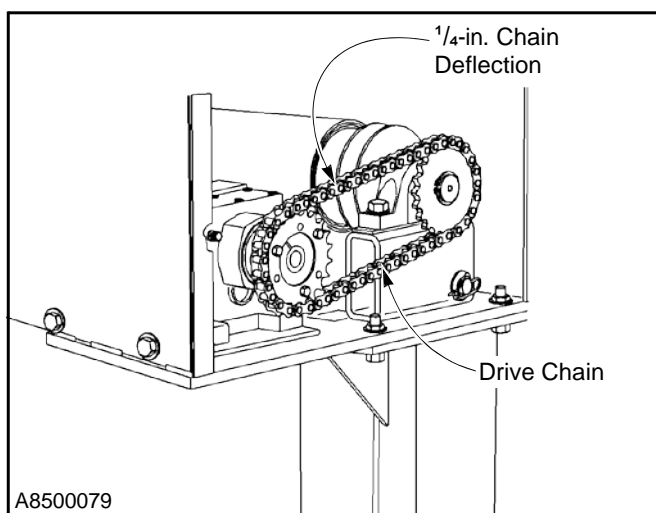


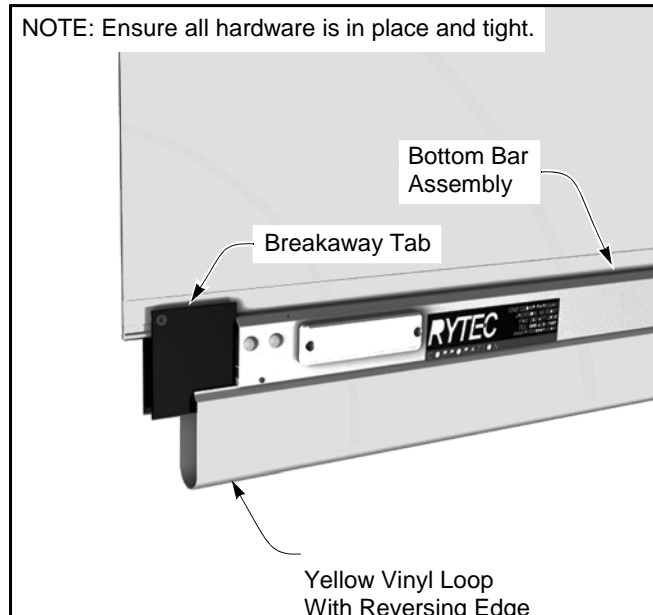
Figure 15

Motor Brake Inspection

The power drive brake assembly is designed to stop the door panel travel at the locations indicated in the limit switch inspection section. If the limit switches are set properly and the door drifts past the set limits, the brake should be adjusted. (See “MOTOR BRAKE ADJUSTMENT” on page 16)

Bottom Bar Inspection

1. Inspect the hardware used to secure the breakaway assembly to the bottom bar. Tighten hardware as required. (See Figure 16)
2. Inspect the reversing edge to ensure that it is tightly secured to the bottom bar. Tighten hardware as required. (See Figure 16)
3. Inspect the yellow vinyl seal along the bottom bar assembly for tears and abrasion. Replace any worn or damaged parts as required. (See Figure 16)



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Figure 16

Kill Switch Inspection

A kill switch has been mounted at each end of the bottom bar assembly. The purpose of these switches is to prevent the door from being operated if the bottom bar becomes separated from either side column. To inspect the kill switches, perform the following procedure.



Take precautions to prevent the door from being opened or closed while performing the following procedure.

1. Lower the door to approximately head or chest height and then stop the door.
2. Push one end of the breakaway bottom bar out of the side column. It should not be possible to operate the door through the control panel.

If the kill switch operated properly: Reattach the bottom bar to the side column. (See “BOTTOM BAR ASSEMBLY” on page 11)

If the kill switch did not operate properly: Adjust the kill switch. (See “KILL SWITCH ADJUSTMENT” on page 14)

3. Repeat the kill switch test on the opposite end of the bottom bar assembly. After all the kill switch tests and adjustments are complete, reattach the bottom bar to each side column.

PLANNED MAINTENANCE—QUARTERLY INSPECTION

Counterweight Inspection

IMPORTANT: The 16- to 20-in. mounting height for each counterweight, as indicated in Figure 17, is adequate for most Turbo-Seal doors. However, for extra-wide or -short doors, the counterweights may have to be adjusted closer to the bottom of the side column.

WARNING

The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

1. Release the motor brake by pulling on the brake release cable. Then manually move the door to the fully closed position.
2. Remove the cover from each side column.
3. Measure the distance between the top of each counterweight and the top of its associated side column. The clearance between each weight and column must be at least 2 inches.

If an adjustment is necessary, move the door to the fully open position. After placing a support block under the counterweight, readjust the strap, as required, until the 2-in. clearance is achieved.

If either counterweight requires an adjustment, see “COUNTERWEIGHT ADJUSTMENT” on page 18.

4. Manually move the door in the fully open position.
5. Measure the distance between the bottom of each counterweight and the base of the side column. The distance between each counterweight and associated base plate should be 16 to 20 inches. (See Figure 17)

If either counterweight requires an adjustment, see “COUNTERWEIGHT ADJUSTMENT” on page 18.

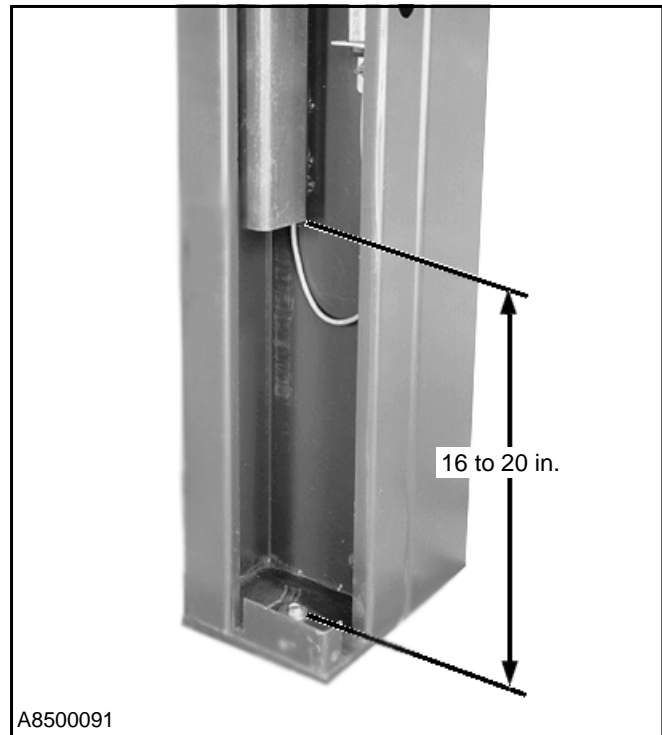


Figure 17

Counterweight Strap Inspection

WARNING

The disconnect must be in the “OFF” position and properly locked and tagged before performing the following procedure.

1. Remove the side column covers.
2. Inspect both counterweight straps for tears and frayed edges. Also inspect each strap for abrasions that might indicate a seized pulley or misaligned drum roll. (See Figure 18)

Inspect the entire length of each strap by releasing the motor brake and manually moving the door to the fully open and fully closed positions.

If either strap needs to be replaced, see “COUNTERWEIGHT STRAP REPLACEMENT” on page 19.

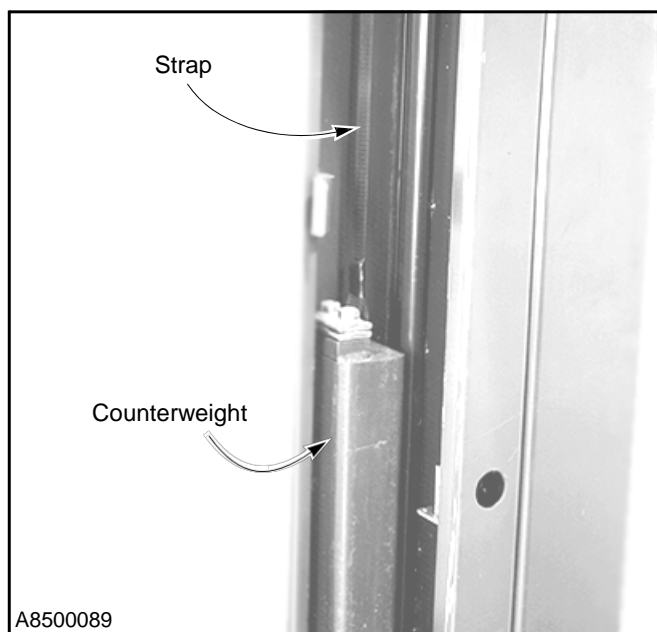


Figure 18

Activator and Control Panel Inspection

1. Inspect all warning and safety labels. All labels should be intact, clean, and clearly legible. Replace any label when necessary.
2. Operate the door five or six complete open and close cycles with each activator installed with the door. Make any necessary adjustments or repairs. Refer to the associated manual supplied with each activator installed with your door.

Typical activators may include a floor loop, pull cord, push button, motion detector, radio control, or photo eye. The door open cycle is controlled by the activator. The door close cycle can be controlled by an activator or by a timer internal to the control panel.

3. Check the control panel for proper operation. If an adjustment or repair is necessary, refer to the Rytec System 4 Drive & Control Installation & Owner's Manual that was shipped with your control panel.

Electrical Connection Inspection



The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

1. Turn of power to the door.
2. Inspect all electrical connections to the power drive system. All connections must be secure and tight.
3. Inspect the electrical connections in the junction box located in the head assembly. All connections must be secure and tight.
4. For the proper control panel electrical connection inspection procedure, see the Rytec System 4 Drive & Control Installation & Owner's Manual.

Lubrication



The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

1. Turn off power to the door.
2. Remove the hood and the side covers (if hood and covers are installed).
3. **Drive Chain:** The main drive chain should be lubricated with a good grade of heavy lubricating oil. (See Figure 19)

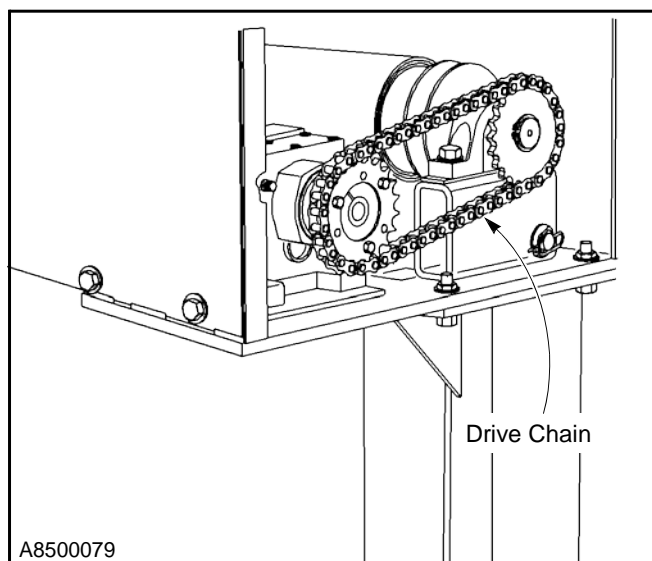


Figure 19

OPERATION—CONTROL PANEL

4. **Pillow Block Bearings:** The drum roll is supported by a pillow block bearing located at each end of the drum roll. Each pillow block has a lubrication fitting. (See Figure 20)

The bearings should be lubricated quarterly using a lithium-based grease conforming to NLGI grade 2 standard. It should be a medium-viscosity, low-torque rated grease, with an approved operating temperature range of -30°F to 200°F .

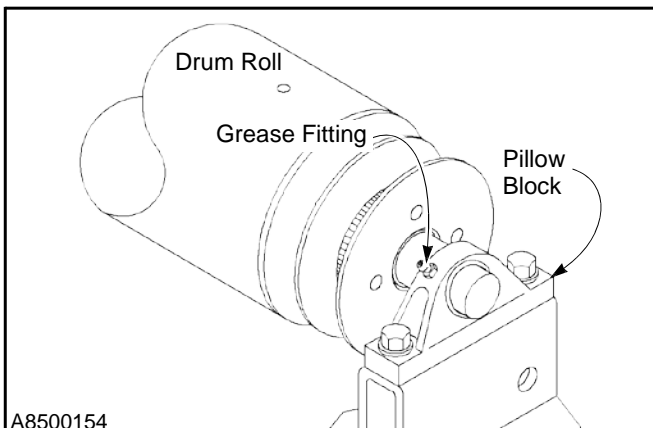


Figure 20

5. **Drive Motor Gearbox Assembly:** The oil level in the gearbox should be checked regularly. The oil level is checked at the plug located on the gearbox. (See Figure 21)

Recommended oil for refilling the gearbox is SHC 630 synthetic gear oil. The gearbox is full when a small amount of oil runs out of the lower plug hole. Replace the O-ring on the refill plug as needed to maintain a tight seal.

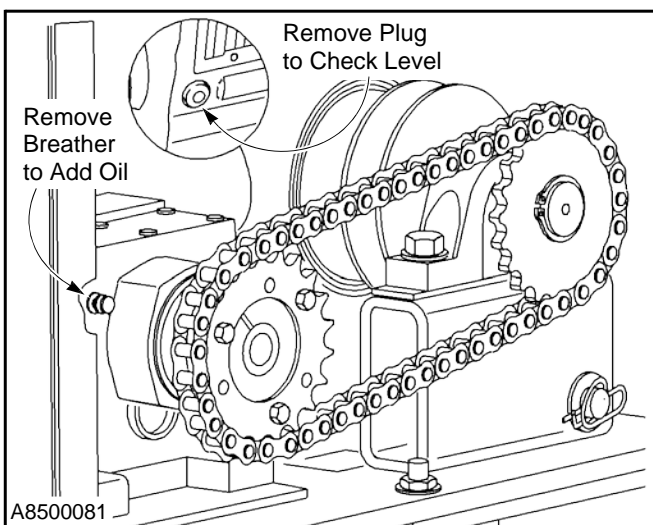


Figure 21

6. Install the hood and side covers (if used).
7. Turn on power to the door.

OPERATION

CONTROL PANEL

The Turbo-Seal door is equipped with the Rytec System 4 Drive & Control, a solid-state, micro-processor-based control system designed exclusively to operate Rytec high-performance doors. It provides connections for multiple activators, close-delay timers, and status indicators. All command functions to operate the drive and control system are software controlled.

For information on control panel operation see the Rytec System 4 Drive & Control Installation & Owner's Manual.

PHOTO EYES

Doors are equipped with two sets of photo eyes to monitor the front and back sides of the door. Each set of photo eyes consist of an emitter (transmitter) photo eye and a receiver photo eye. (See Figure 22)

The purpose of the photo eyes is to hold the door open or, if the door is closing, reverse the direction of the door if a person or object crosses the path of either photo eye beam. After the obstruction breaking the photo eye beam is removed:

- If the door was originally opened by an automatic activator, the door will close automatically.
- If the door was originally opened by a non-automatic activator, the door will remain open until it is closed by the non-automatic activator.

NOTE: The safety photo eyes are not intended to be used as door activators and will not open the door when it is closed.

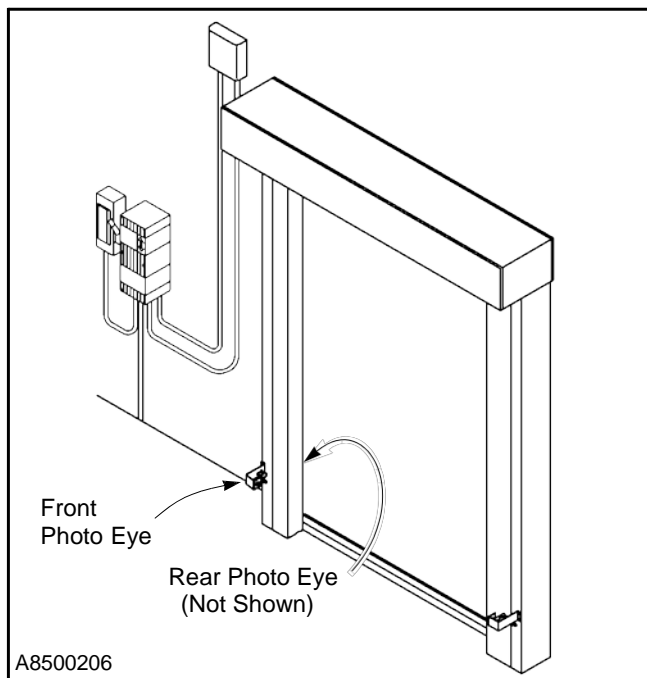


Figure 22

BOTTOM BAR ASSEMBLY

The bottom bar assembly has two features: breakaway capability and a reversing edge.

Breakaway Capability

IMPACT

Plastic breakaway tabs mounted at each end of the bottom bar assembly provide adequate strength to keep the bottom bar in place during normal operation. The tabs however, are flexible enough to allow the bottom bar to separate from either side column should it be struck by a vehicle or load passing through the door.

A kill switch assembly, made up of air bladders and a pressure switch, is mounted in the bottom bar. It will cut off electrical power to the door should the bottom bar become separated from a side column. (See Figure 23)

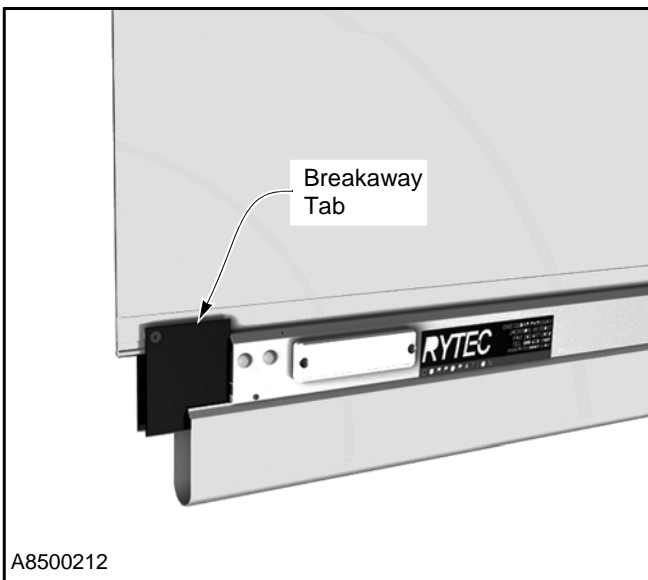


Figure 23

RECONNECTING BOTTOM BAR (RETURN TO NORMAL OPERATING POSITION)



The disconnect must be in the “OFF” position and properly locked and tagged before performing the following procedure.

1. Turn off power to the door.

NOTE: If necessary, the door can be manually raised or lowered to a comfortable height to make reconnection more convenient.

2. If necessary, disengage the motor brake and position the door to a comfortable working height.
3. Raise the disconnected end of the bottom bar

assembly and then slip the plastic breakaway tabs on that end into the channel of the side column. If the other end of the bottom bar was also disconnected, repeat the process on that end.

(See Figure 24)

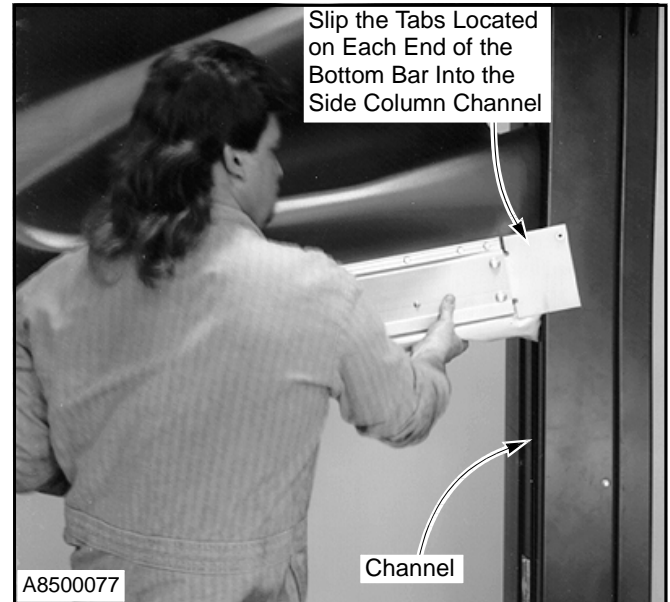


Figure 24

4. Make sure both sides of the door fabric are tucked inside each channel.
5. Turn power ON.

NOTE: When a kill switch is activated, it should not be possible to restart the door until the door is reassembled and the control panel is reset.

6. Cycle the door one time to verify that the door and bottom bar assembly operate correctly.

Reversing Edge

A pneumatically operated reversing edge is mounted in the bottom bar assembly. It helps prevent damage to the door panel in the event that the door comes in contact with an object left in its path while it is closing. If the pressure sensitive edge detects an object, the door will automatically reverse direction and move to the full open position. (See Figure 25)

ADJUSTMENTS—POWER DRIVE SYSTEM

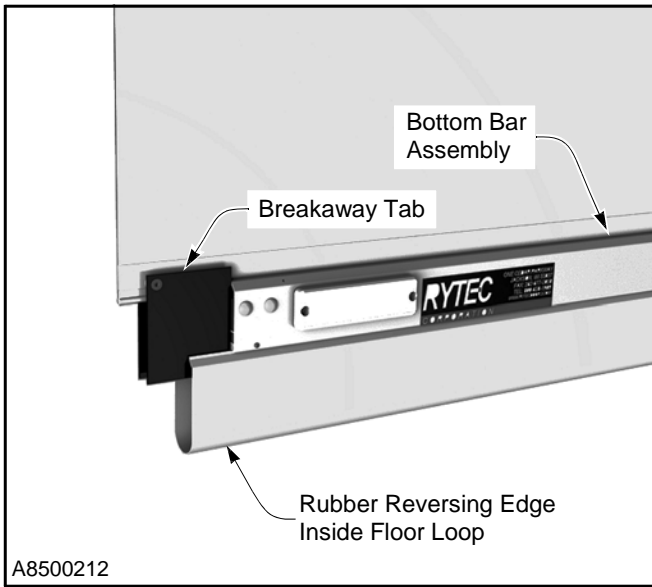


Figure 25

POWER DRIVE SYSTEM

The Turbo-Seal power drive system consists of a drive motor gearbox assembly and an electric brake system.

The power drive system incorporates an electric brake used to stop the door travel when electrical power to the door is shut off. A manual brake release is provided for manual opening or closing of the door should there be a power failure, or if routine maintenance needs to be done with the power disconnected.

The drive chain is easily adjustable by moving the power drive system on a sliding plate assembly. (See Figure 26)

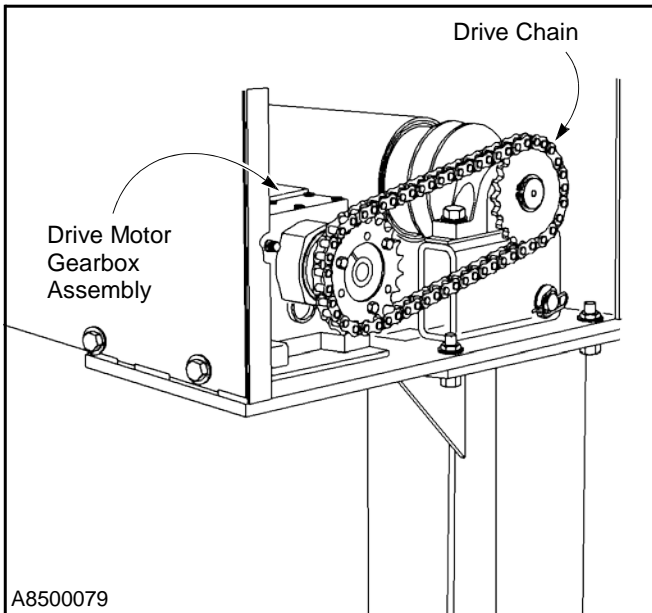


Figure 26

COUNTERBALANCE SYSTEM

The door is counterbalanced by means of a counterweight on a pulley system that is installed in each side column assembly. The counterbalance is designed to reduce the effort required to open and close the door. (See Figure 27)

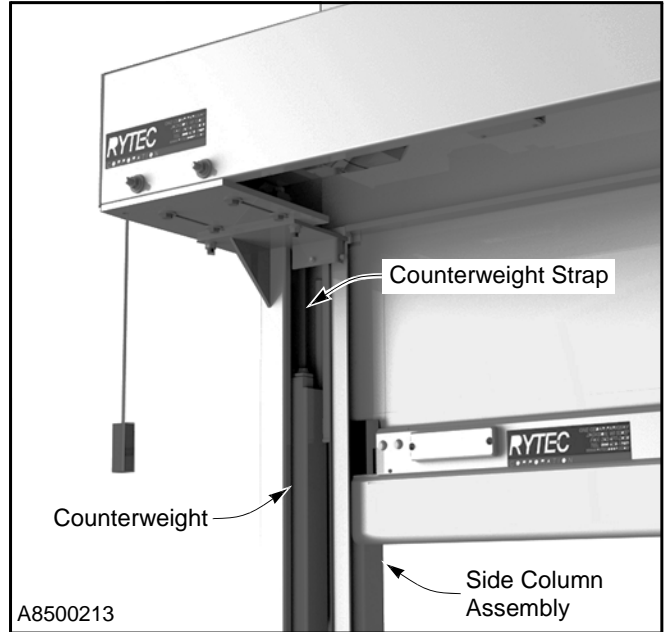


Figure 27

ADJUSTMENTS

PNEUMATIC REVERSING EDGE SWITCH ADJUSTMENT



Do not stand under the door panel when making check. If reversing edge switch is not working properly, panel could strike person performing check.

To check the reversing edge switch operation, run the door through the down cycle. As the door is lowering, tap the bottom of the reversing edge. If the reversing edge switch is operating properly, the door should immediately reverse and run to the fully open position. Reset the control system after the check is completed.

If the door does not reverse, check the air bleed and sensitivity of the reversing edge switch. The switch is in the bottom bar on the side opposite the coil cord.

ADJUSTMENTS—PNEUMATIC REVERSING EDGE SWITCH ADJUSTMENT

Reversing Edge Switch Air Bleed Check

1. The reversing edge switch is located inside the bottom bar assembly. To inspect and/or adjust the switch, remove the access cover from the face of the bottom bar assembly. (See Figure 28)

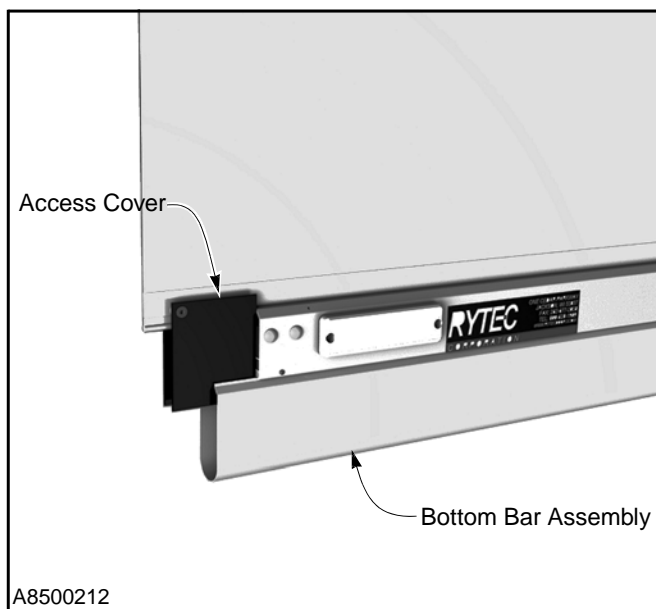


Figure 28

2. Make sure the clear PVC hose is in tight contact with the air input post so that air leakage cannot occur and vibration will not cause the hose to fall off. Make sure the hose is not kinked. (See Figure 29)
3. The air bleed has been set at the factory and should not require adjustment. To check the air bleed, turn the air bleed adjustment screws located on the front and back of the switch fully clockwise but do not overtighten. Then turn the screws back counterclockwise one full turn. (See Figure 29)

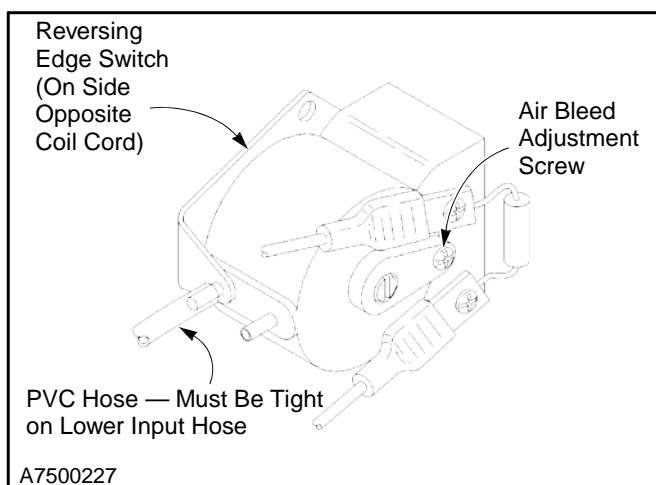


Figure 29

Reversing Edge Switch Sensitivity Adjustment

1. The reversing edge switch is a normally open contact. The PVC hose is on the lower air input post. To adjust the switch, first remove the wires and resistor from the contact terminals and attach an ohmmeter across the two terminals. (See Figure 30)
2. Turn the adjustment screw, located on the face of the switch, clockwise or counterclockwise until continuity is achieved. Then turn the screw $\frac{3}{4}$ turn counterclockwise. Ohmmeter should no longer show continuity. Turning the screw counterclockwise decreases sensitivity. Turning the screw clockwise increases sensitivity. (See Figure 30)

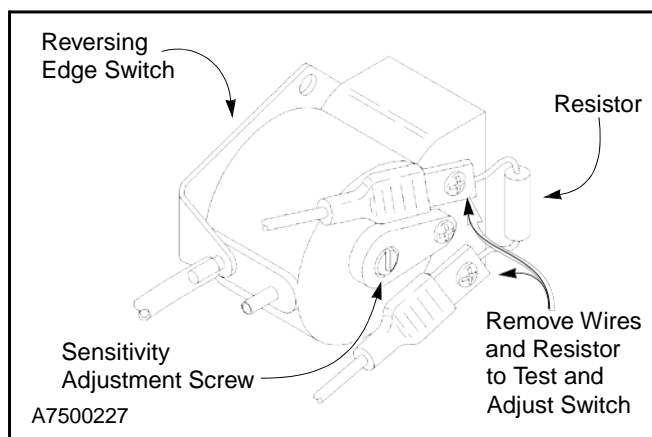


Figure 30

3. Reattach resistor and wires and then replace the access cover on the bottom bar.

NOTE: If the reversing edge is set too sensitive, the door may reverse direction during the closing cycle, without the reversing edge coming in contact with an object. If this occurs, readjust the reversing edge switch.

ADJUSTMENTS—KILL SWITCH ADJUSTMENT

KILL SWITCH ADJUSTMENT

Air Bleed Adjustment

1. The kill switch is mounted near the coil cord end of the the bottom bar assembly. To access the switch, first remove the access cover. (See Figure 31)

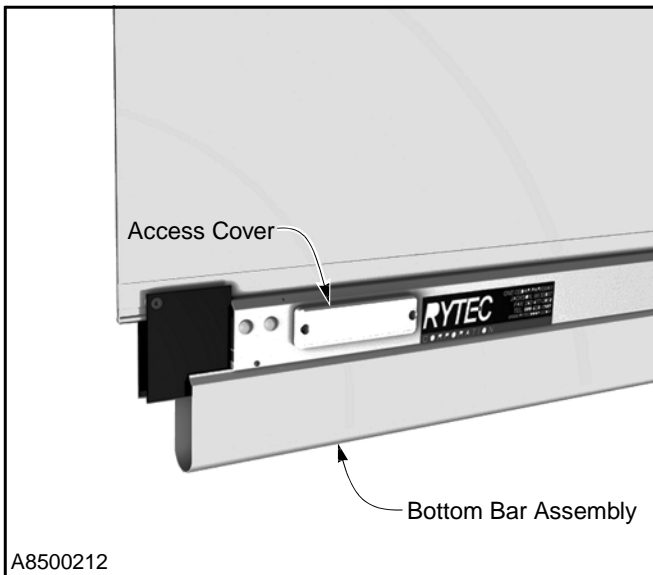


Figure 31

2. Make sure the clear PVC hose is tight on the air input post so that air leakage cannot occur and vibration will not cause the hose to fall off. Also make sure the hose is not kinked. (See Figure 32)

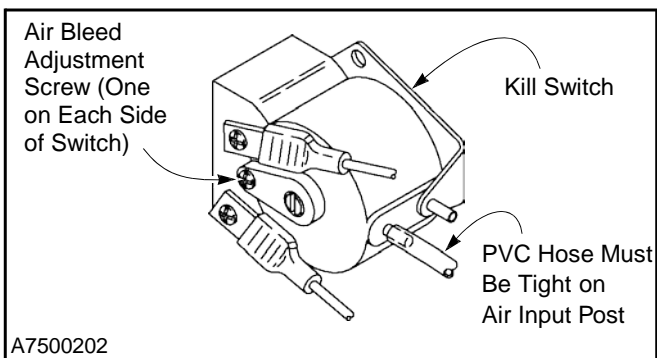


Figure 32

3. The air bleed has been set at the factory and should not require adjustment. If adjustment is necessary, turn the air bleed adjustment screws located on the front and back of the switch fully clockwise — but do not overtighten. Then turn each screw back (counterclockwise) one full turn. (See Figure 32)

Sensitivity Adjustment

NOTE: The kill switch assembly is a normally closed contact. The PVC hose is on the upper air input post.

1. Remove the wires from the contact terminals and attach an ohmmeter across the two terminals. (See Figure 33)

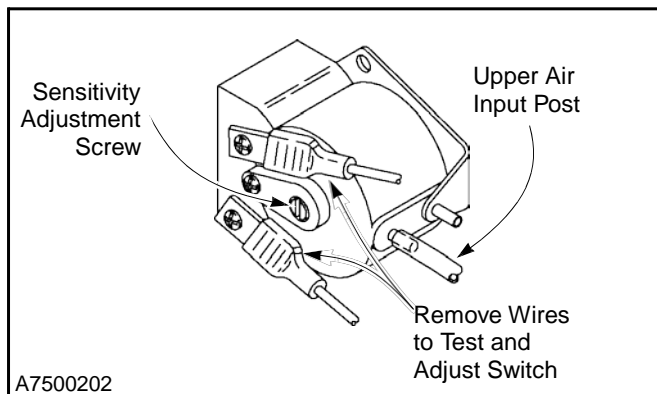


Figure 33

2. To adjust the switch, turn the small adjusting screw, located on the face of the switch, clockwise or counterclockwise until continuity is achieved. Then turn the screw two turns clockwise for final adjustment. Adjusting the screw clockwise decreases sensitivity, counterclockwise increases sensitivity. (See Figure 33)
3. Reattach the wires and replace the access cover.

NOTE: If the kill switch is set too sensitive, it may cause the door to stop during the opening or closing cycle. If this occurs, readjust the kill switch sensitivity setting.

PHOTO EYE ADJUSTMENT

The door is equipped with two sets of photo eyes that monitor the front and back sides of the door. Each set of eyes consists of an emitter module and a receiver module.

To prevent one set of photo eyes from interfering with the other set of eyes, the emitters and receivers are mounted diagonally across from each other — the side columns each have an emitter module and a receiver module, from each set of eyes. (See Figure 34)

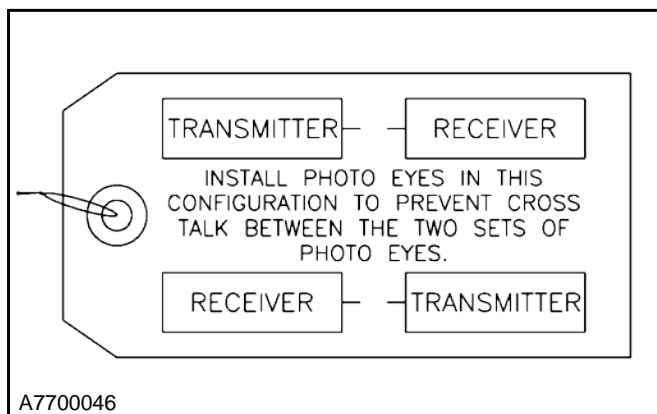


Figure 34

1. Verify that the photo eye emitter mounted on the front side of the door is aligned with the receiver on the opposite side of the door opening. The yellow light on the photo eye receiver will light when the emitter and receiver are properly aligned. (See Figure 35)

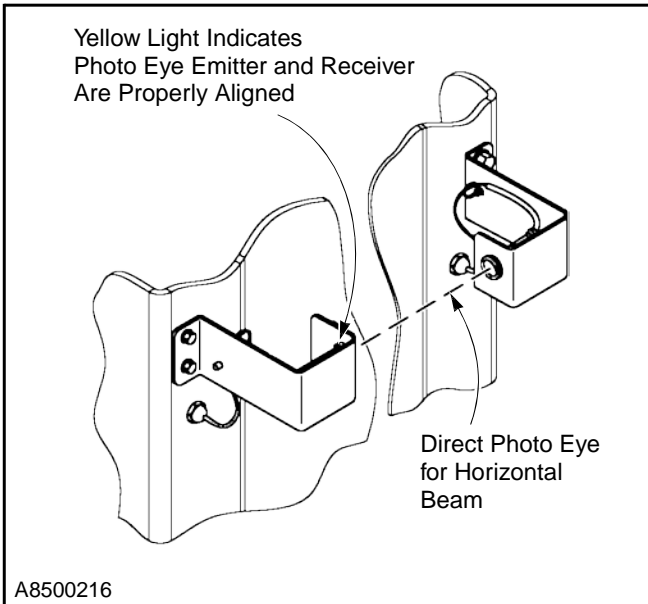


Figure 35

2. If an alignment is necessary, first verify that the mounting brackets supporting the photo eye emitter and receiver are perpendicular to the side column and that the emitter and receiver are aligned. If the photo eye emitter and receiver are not aligned, bend the mounting brackets as needed.
3. Verify that the factory-installed photo eyes on the back side of the door are aligned as described above. Make any necessary adjustments until the photo eye emitter and receiver are aligned.
4. After all adjustments are made and both sets of photo eyes are properly aligned, clean the lens of each photo eye using window cleaner and a soft, clean cloth.

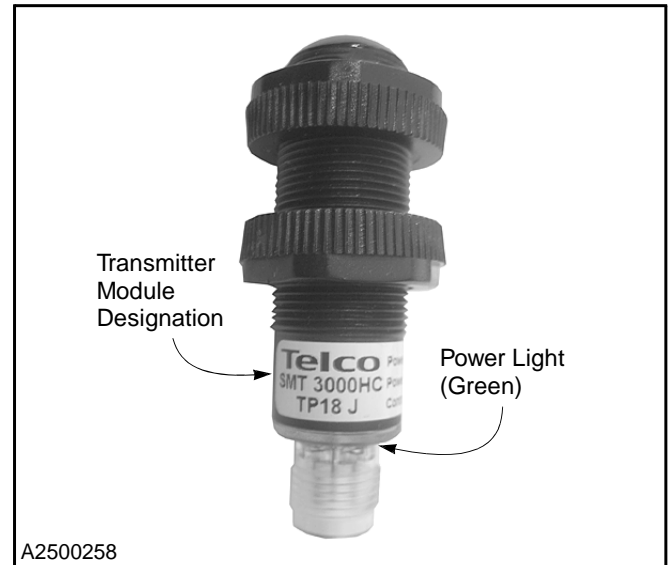


Figure 36



Figure 37

Testing Photo Eyes

With power on, the green light indicates the photo eye module is powered up. When the yellow light on the receiver module is also lit, the emitter and receiver modules are properly aligned.

Placing your hand in front of the receiver breaks the light path and causes the yellow light to go out. Removing your hand causes the yellow light to go back on.

ADJUSTMENTS—MOTOR BRAKE ADJUSTMENT

Troubleshooting

If any of the green lights are not lit, check to make sure that power is turned on and that all wiring has continuity and is installed and connected correctly. If the green lights are on but the yellow light is off, check the alignment of the emitter and receiver modules and clean each eye using window cleaner and a soft, clean cloth.

1. Turn on the power to the door.
2. Move the door to the half-open position.

WARNING

Take precautions to prevent the door from being operated as you perform the following procedure. Also, be cautious around the moving parts exposed in the side columns.

3. Locate the front set of photo eye modules. They are mounted in the heavy-duty mounting brackets located along the front of each side column. (The rear set of eyes is installed inside the columns.) (See Figure 38)

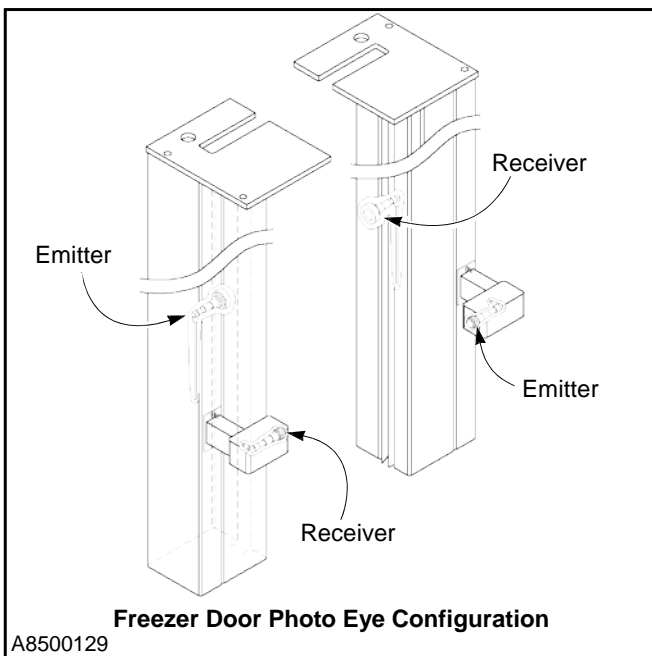


Figure 38

4. If either bracket appears bent or out of position, readjust the bracket as required. (The rear set of photo eyes is mounted directly to the side columns. It is unlikely that these eyes will ever require aligning unless serious damage to either side column occurs.)
5. Observe the indicator lights to verify that both sets of photo eyes are aligned. The green light indicates the photo eye modules are powered up. When the yellow light on the receiver module is also lit, the emitter and receiver modules are properly aligned.

MOTOR BRAKE ADJUSTMENT

WARNING

The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

1. Remove the manual brake release lever.
2. Loosen hex-head bolts retaining the dust cover to the motor assembly. Remove the cover. (See Figure 39)

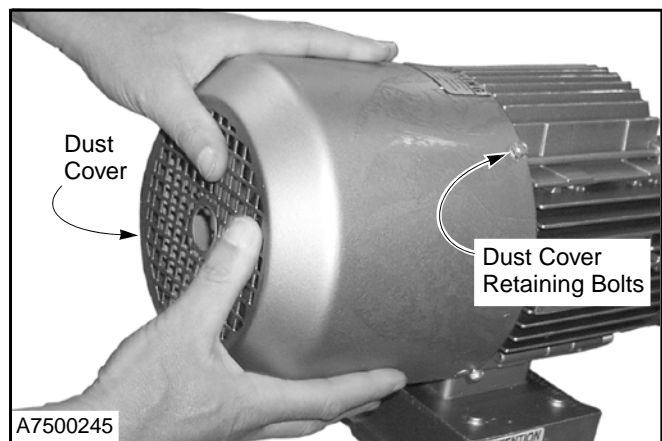


Figure 39

3. Remove sealing band. (See Figure 40)

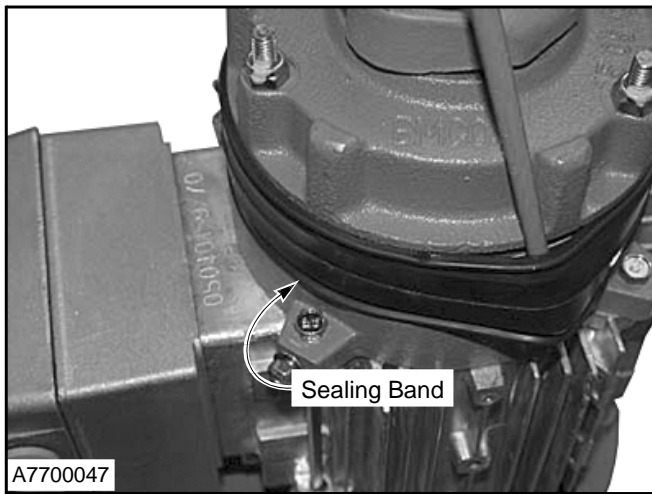


Figure 40

4. Using a feeler gauge and a nut driver, adjust the retaining nuts until you achieve the proper air gap (0.010–0.024-in.). (See Figure 41 and Figure 42)

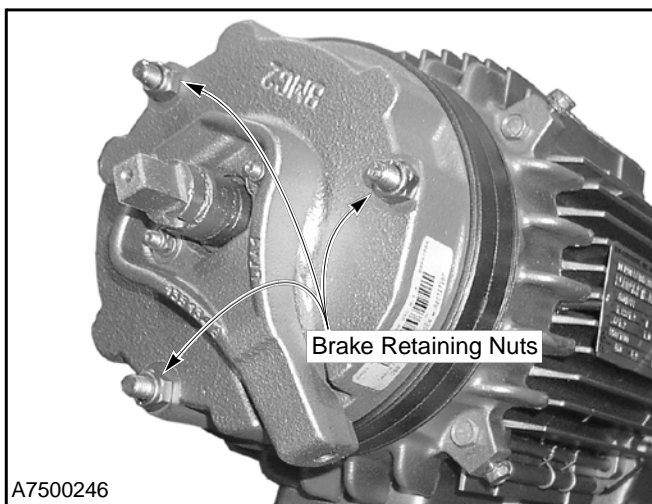


Figure 41

CAUTION

All retaining nuts and air gap must be equally set throughout the entire circumference of the brake, or the parts will wear unevenly.

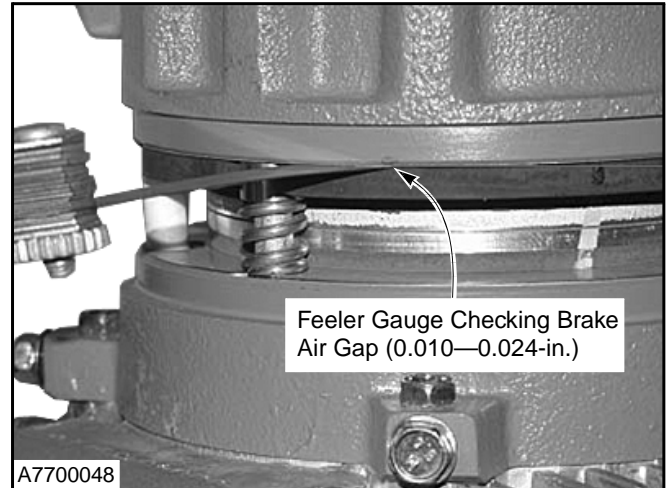


Figure 42

5. Reinstall the dust cover and the manual brake release lever.
6. Restore power to the door and perform an operations check.

DRIVE CHAIN ADJUSTMENT

WARNING

The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

1. Turn off power to the door.
2. Loosen the four drive motor mounting bolts securing the motor mount plate to the top plate assembly.
3. Release the brake.
4. While holding the brake in the released position, turn the adjustment bolts to increase or decrease the chain tension. (See Figure 43)
 - Turn bolts clockwise to increase tension.
 - Turn bolts counterclockwise to decrease tension.

ADJUSTMENTS—COUNTERWEIGHT ADJUSTMENT

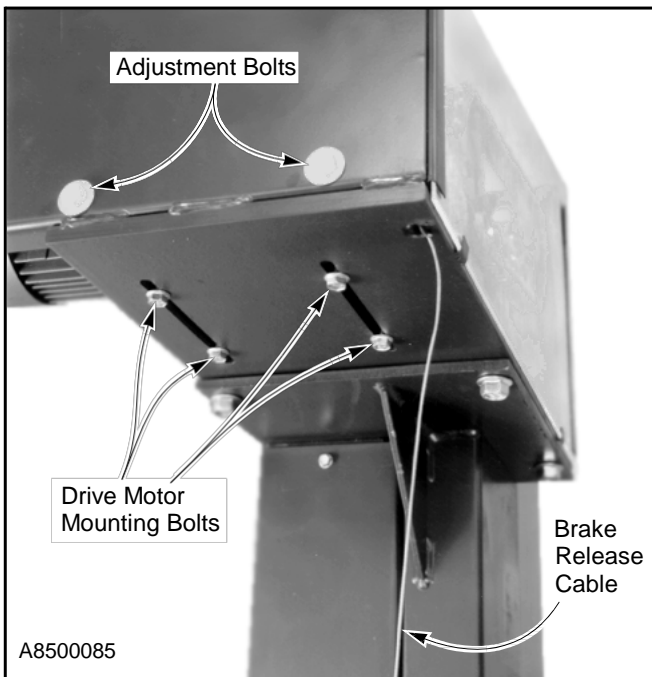


Figure 43

5. Retighten the motor mounting bolts.
6. Check the alignment of the motor and the drum roll sprockets.
7. Turn on power to the door.

COUNTERWEIGHT ADJUSTMENT

1. Raise the door panel to the fully open position.
2. Remove the side column covers.
3. Turn off power to the door.

⚠ WARNING

The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

NOTE: The 16- to 20-in. dimension shown in Figure 44 is adequate for most Turbo-Seal doors. However, for some very wide or short doors, the counterweight may have to be adjusted closer to the bottom of the side column. Also, make sure the counterweight guides are behind the conduit guides located in the side column.

4. With the door panel in the fully-open position, the counterweights should be positioned 16 to 20 in. above the bottom of the side column. (See Figure 44)

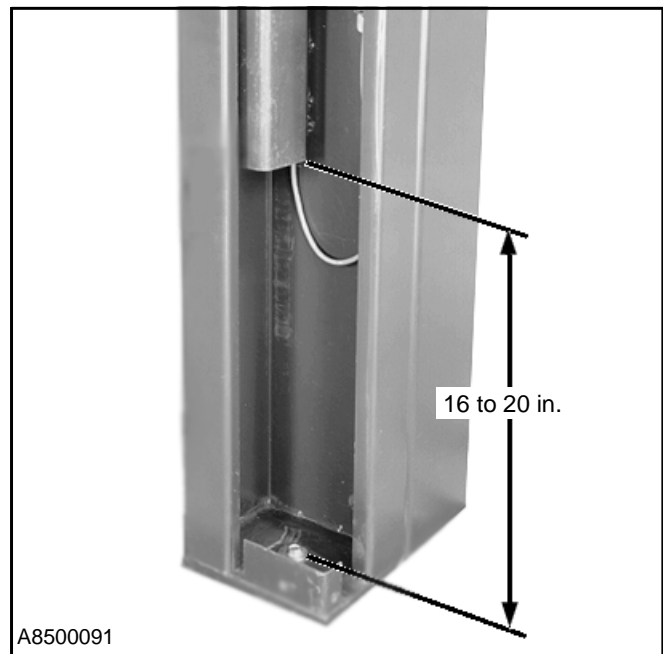


Figure 44

5. To adjust the counterweights, securely block the counterweights in the position indicated in Figure 44 above.

⚠ WARNING

Counterweights must be securely blocked and the fabric roll locked (motor brake set) before any adjustments can be made.

6. Remove the tape wrapped around the end of the counterweight strap.
7. Loosen the clamp bars that secure the strap to the counterweight. (See Figure 45)

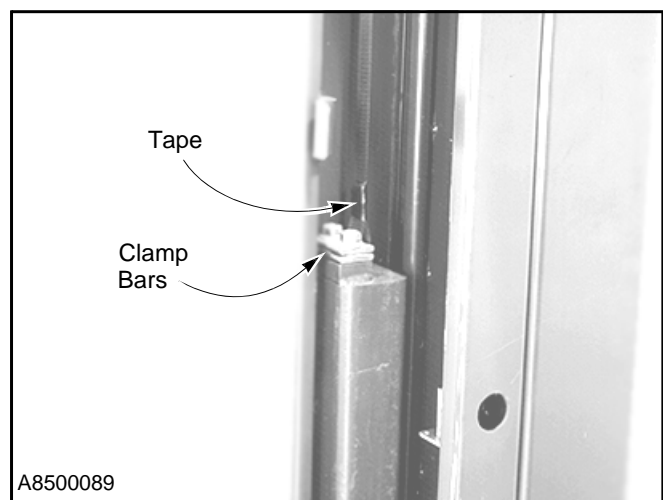


Figure 45

REPLACEMENT PROCEDURES—COUNTERWEIGHT STRAP REPLACEMENT

8. Raise or lower the counterweight by adjusting the strap through the clamp bars as required.
9. Secure the strap by tightening the clamp bars.
10. Wrap tape around the end of the strap to prevent it from fraying.
11. Remove the blocking from under the counterweight.

NOTE: Use care when removing the blocking to ensure the strap does not come off the roller. The strap can become pinched between the roller and the roller bracket, which can prevent the door from moving. Also, the strap can be cut by coming in contact with the edges of the roller.

! WARNING

Take precautions to prevent the door from being operated as you perform the following procedure. Also, be cautious around the moving parts exposed in the side columns.

12. Turn on the power to the door and cycle the door panel several times.

NOTE: With the door fully closed, there should be 2 in. of clearance between the top of the counterweight and the upper end of the side column. With the door fully open, the counterweight guides must be behind the side column conduit guides. Make any necessary adjustments to properly position either counterweight.

13. Check the position of each counterweight with the door in the fully open and fully closed positions. Make any necessary adjustments.
14. Once the counterweights are adjusted, install the side column covers.

REPLACEMENT PROCEDURES COUNTERWEIGHT STRAP REPLACEMENT

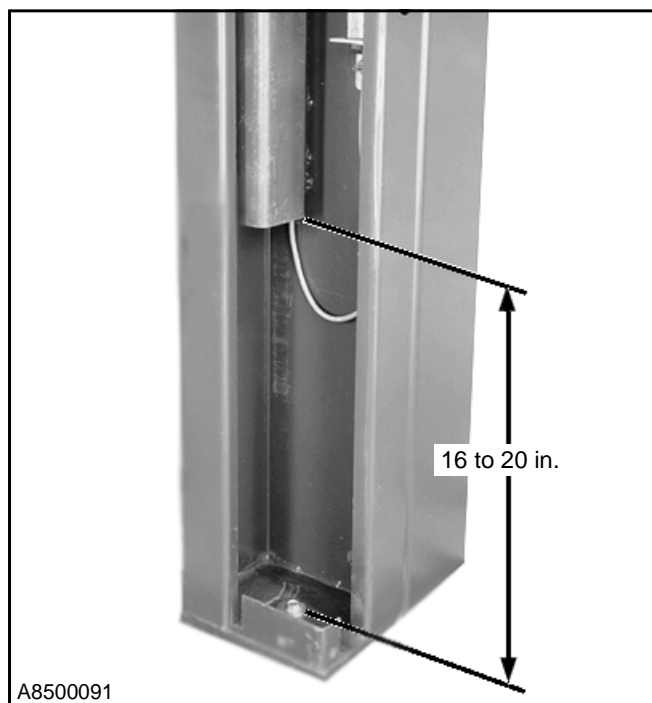
1. Raise the door to the fully open position.

! WARNING

The disconnect must be in the OFF position and properly locked and tagged before performing the following procedure.

2. Turn off power to the door.
3. Make sure the motor brake is set and locked.
4. Remove the hood and the side covers (if hood and covers are installed).
5. Remove the side column cover.
6. Securely block the counterweight in the position shown in Figure 46.

IMPORTANT: The 16- to 20-in. mounting height for each counterweight, as indicated in Figure 46, is adequate for most Turbo-Seal doors. However, for extra-wide or -short doors, the counterweights may have to be adjusted closer to the bottom of the side column. Also, the guides on the counterweight must be behind the conduit guides in the side column.



A8500091

Figure 46

REPLACEMENT PROCEDURES—COUNTERWEIGHT STRAP REPLACEMENT

CAUTION

A counterweight can weigh in excess of 100 pounds. Make sure that safe handling procedures are followed and that each counterweight is securely supported during the following procedure. If not handled properly, a counterweight can damage door components and cause serious personal injury.

7. Remove the tape wrapped around the loose end of the strap. (See Figure 47)

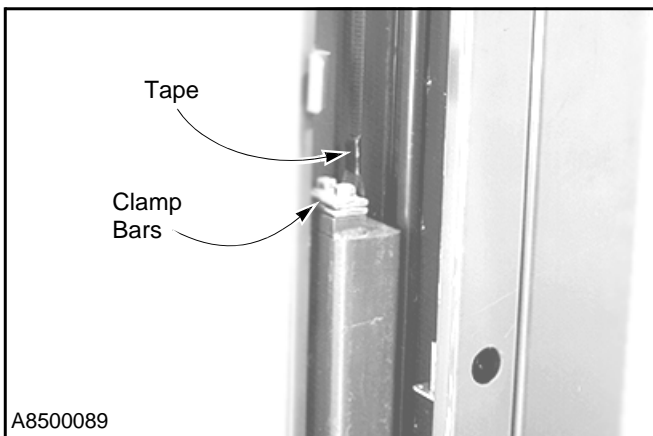


Figure 47

8. Loosen the serrated-flange hex screws to release the clamp bars that secure the strap to the counterweight. (See Figure 48)

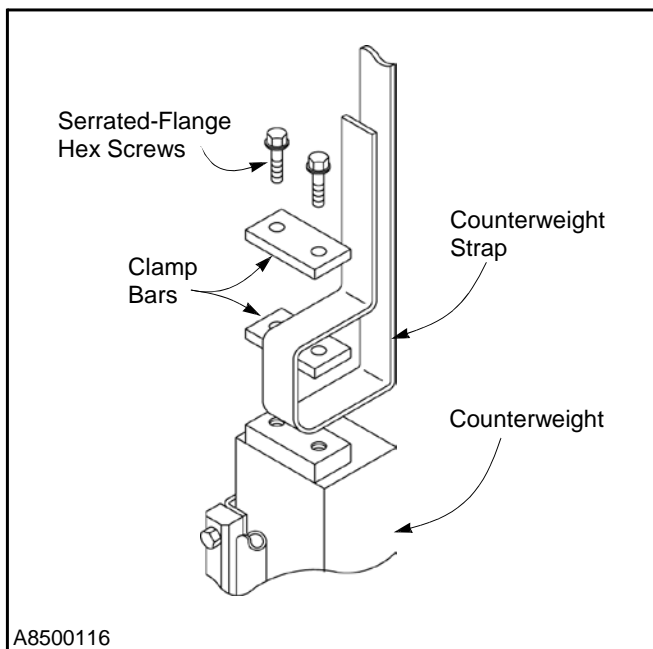


Figure 48

9. Remove and save the screw securing the strap to the drum spool. (See Figure 49)

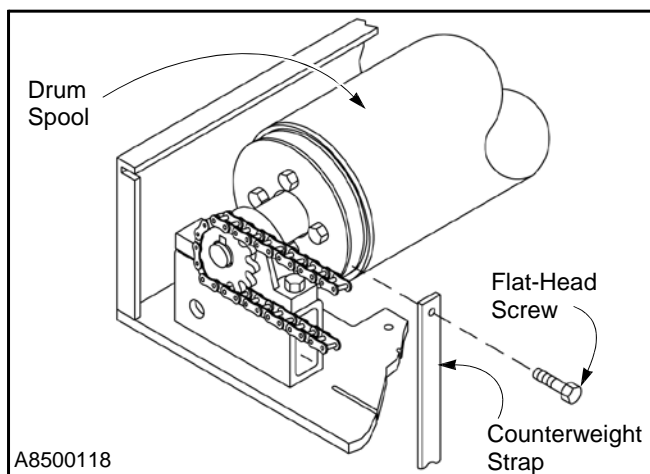


Figure 49

10. Attach the new strap to the drum spool in the same manner as the old strap using the saved screw. (See Figure 49)

CAUTION

The door must be in the fully open position before the strap can be installed. Also, the strap must be installed with three initial wraps around the spool and it must hang off the front of the spool.

11. Wrap the strap around the spool three times. The strap must hang off the front of the spool. (See Figure 50)
12. Route the strap over to, and behind, the idler pulley. The strap must hang off the back of the pulley.

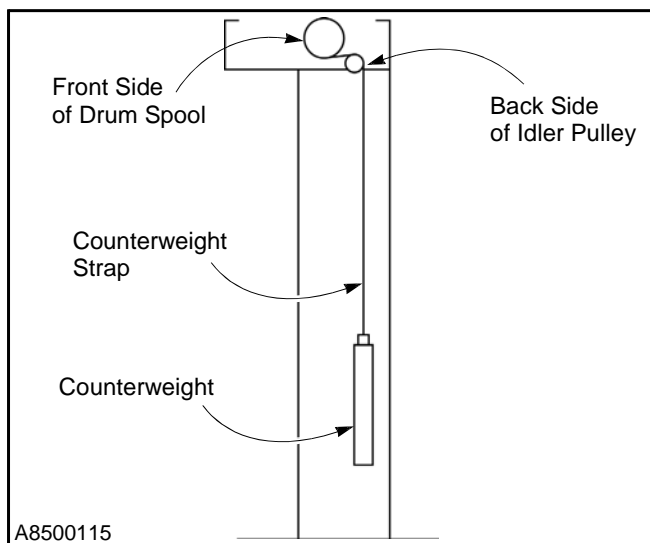


Figure 50

REPLACEMENT PROCEDURES—COUNTERWEIGHT STRAP REPLACEMENT

13. Attach the new strap to the counterweight by routing the strap through the clamp bars in the same manner as the old strap. Tighten the hex screws to clamp the strap to the weight. (See Figure 51)

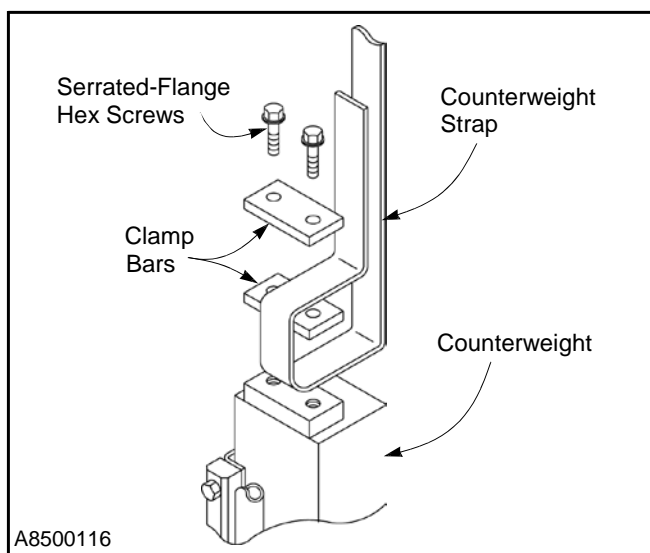


Figure 51

14. Remove the blocking from under the counterweight.
15. Adjust the counterweight as required. (See "COUNTERWEIGHT ADJUSTMENT" on page 18)
16. Wrap tape around the loose end of the strap to prevent it from fraying. Cut off any excess strap hanging past the taped end. Then, to hold the loose end of the strap out of the way, tape it to the main length of strap.

WARNING

Take precautions to prevent the door from being operated as you perform the following procedure. Also, be cautious around moving parts exposed in the side columns.

17. Turn on the power to the door.
18. Cycle the door several times to verify that the strap is operating correctly. Verify that the counterweight is properly adjusted. Then make any necessary adjustments (with power turned off).
19. After all adjustments are complete, reinstall the hood and the side covers (if hood and covers were installed) and the side column cover.

PARTS LIST—PARTS ORDERING INFORMATION

PARTS LIST

PARTS ORDERING INFORMATION

How to Order Parts

1. Identify the parts required by referring to the following pages for part numbers and part descriptions.
2. To place an order, contact your local Rytec representative or the Rytec Technical Support Department at 800-628-1909 or 262-677-2058 (fax). Rytec Corporation also has an on-line store at WWW.Rytecparts.com access to this on-line store requires an invitation from Rytec. The on-line store is open 24/7, 365 days. Some items are available to ship next day. Not all Rytec parts are carried in the on-line store.
3. To ensure the correct parts are shipped, please include the serial number of your door with the order. The serial number is located on the front of both the left and right side column covers @ about eye level, on the drive motor gearbox in the head assembly, or on the door of the System 4 Control Panel. All these serial numbers should match. (See Figure 57)

Substitute Parts

Due to special engineering and product enhancement, the actual parts used on your door may be different from those shown in this manual.

Also, if a part has been improved in design and bears a revised part number, the improved part will be substituted for the part ordered.

Return of Parts

Rytec will not accept the return of any parts unless they are accompanied by a Return Merchandise Authorization (RMA) form.

Before returning any parts, you must first contact the Rytec Technical Support Department to obtain authorization and an RMA number.

IMPORTANT: *Obtain an incident number from the Rytec Technical Support Technician.*

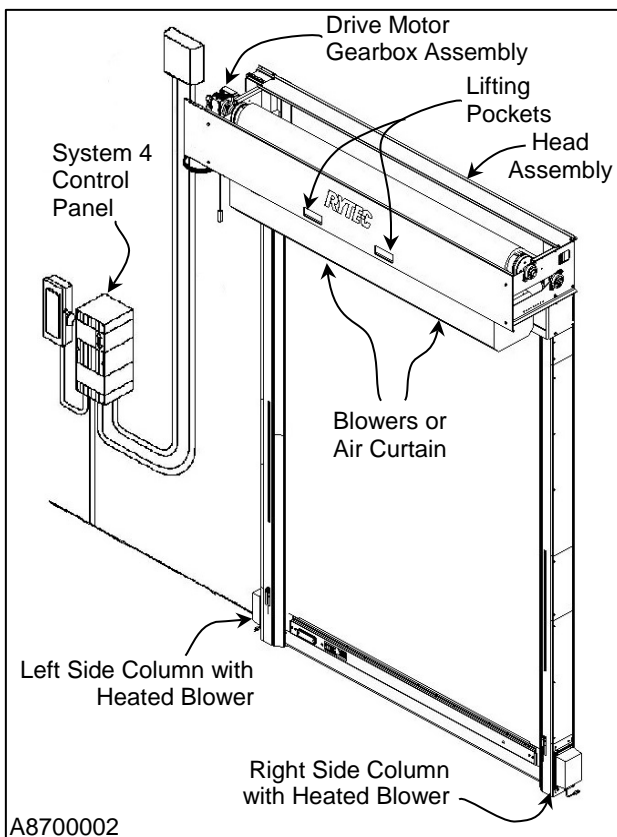


Figure 1

RYTEC TECHNICAL KNOWLEDGE CENTER

At WWW.Rytecdoors.com under the "Contact Us" pull down tab, a link to the Rytec Technical Knowledge Center can be found by selecting the "Customer Support" option. You will be directed to the Customer Support webpage. Within the "Technical Documents and Manuals" section you will find the link "Rytec Technical Knowledge Center". This knowledge center contains on-line manuals, service bulletins, and video presentations of various Rytec models and repair information.

RYTEC ON-LINE WEBSTORE

Rytec Corporation in partnership with Amazon have developed an on-line webstore for purchasing Rytec replacement parts.

Access to the Rytec webstore is by invitation only. Invitations are processed through the following e-mail address, webstore@Rytecdoors.com. Please include name and contact information (account holder). All inquiries will be reviewed however, Rytec maintains the authority to grant or deny access to the webstore at all times. The Rytec webstore is open 24/7/365. Parts available on-line require a credit card for purchase. Items in stock routinely ship the same day. The account is strictly for the account holder. All ship to, bill to and ordering information is the responsibility of the account holder. Currently, over one hundred Rytec parts are available at the on-line store. Shipping rates for the products on line are the lowest rates available.

RETURNS POLICY FOR ON-LINE WEBSTORE

Customer may return new, unopened items within 30 days of delivery for a full refund.

Items should be returned in their original packaging. The buyer will need to pay for the return shipments; return shipping costs will be refunded if the return is a result of merchant or Amazon error.

All refunds go to the original purchaser. A full refund will be due provided the return is received within the return window.

Replacements and exchanges are not supported; customers can return their original order for a refund and create a new order for the replacement.

Items classified as hazardous are not returnable. Please contact merchant; concerning these items.

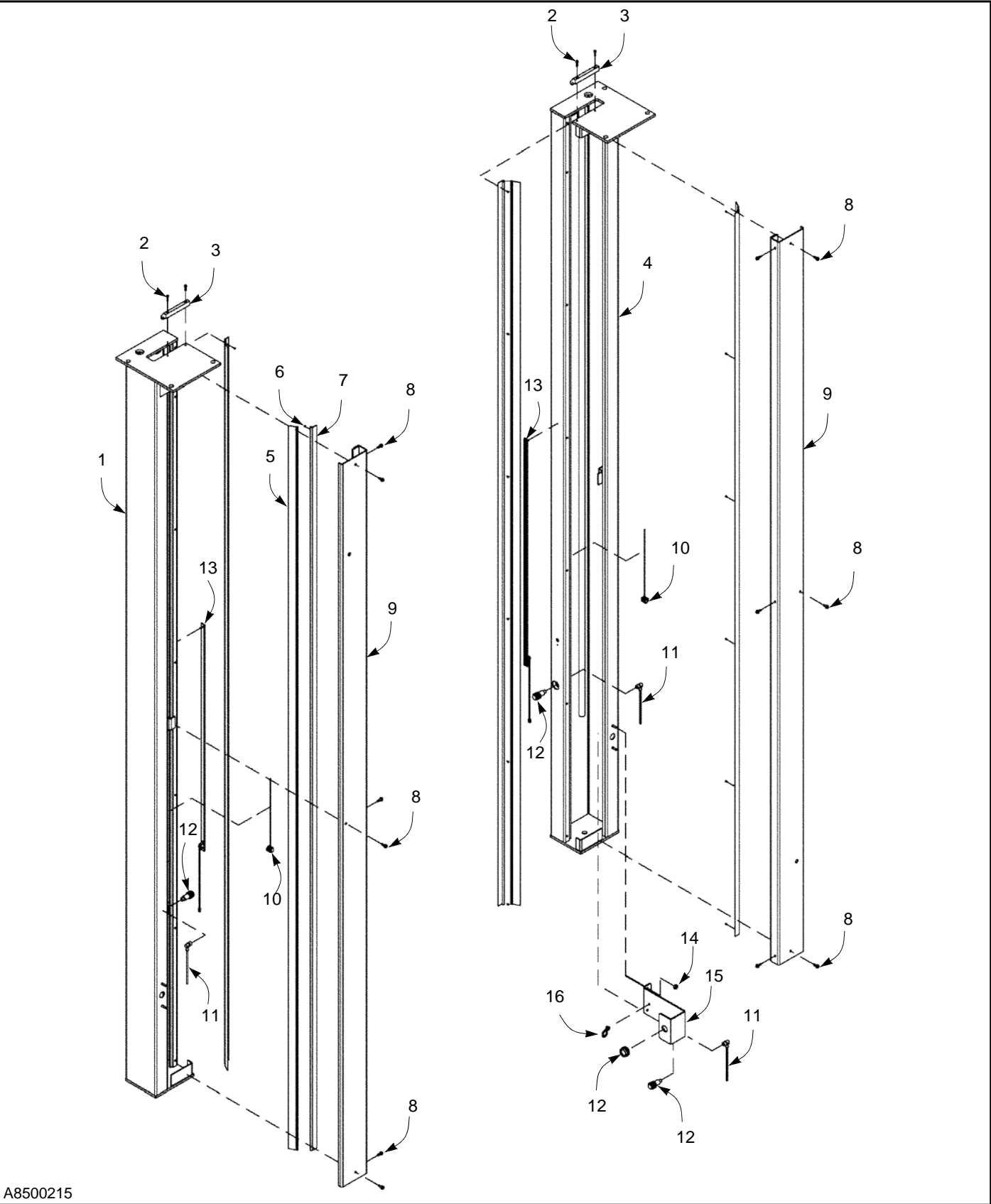
WEBSTORE ITEM RETURN INSTRUCTIONS:

1. Visit return center within your account to create a return merchandise authorization.
2. Print the returns slip and the shipping label.
3. Include the returns slip inside the box and affix the shipping label to the box.
4. Ship package.

Prices are subject to change.

PARTS LIST—SIDE COLUMN ASSEMBLY

SIDE COLUMN ASSEMBLY



A8500215

Figure 53

PARTS LIST—SIDE COLUMN ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	1	1050069-1Z01*	Weldment, Side Column, Left
2	2	0550256	Screw, 10-32 x 3/4-in. Hex Socket Cap
3	1	0805023	Guide Block
4	1	1050069-2Z01*	Weldment, Side Column, Right
5	2*	0009176*	Track, 45° Aluminum
6	A/R	0556323	Rivet, 1/8 dia. x 1/4 grip
7	2*	007178	Seal, 1 1/4-in.
8	A/R	0550158	Self Drilling Screw,
9	1*	0899032*	Weldment, Front Cover
10	1	00111219	Terminal Block, 3 pole
11	1	0012053	Cable, 4 Pole
12	1	00141087	Photo Eye, Transmitter
		00141088	Photo Eye, Receiver
13	1	1210173-0	LED, Strip Kit
14**	4	0553103	Nut, 1/4-20 Serrated-Flange
15	1	1210032-0	Bracket, Mounting, Photo Eye
16	1	0005401	Tie, Cable, Push Stud

A/R = as required

N/A = not applicable to this assembly

**Items are produced based on manufactured height and width of door.*

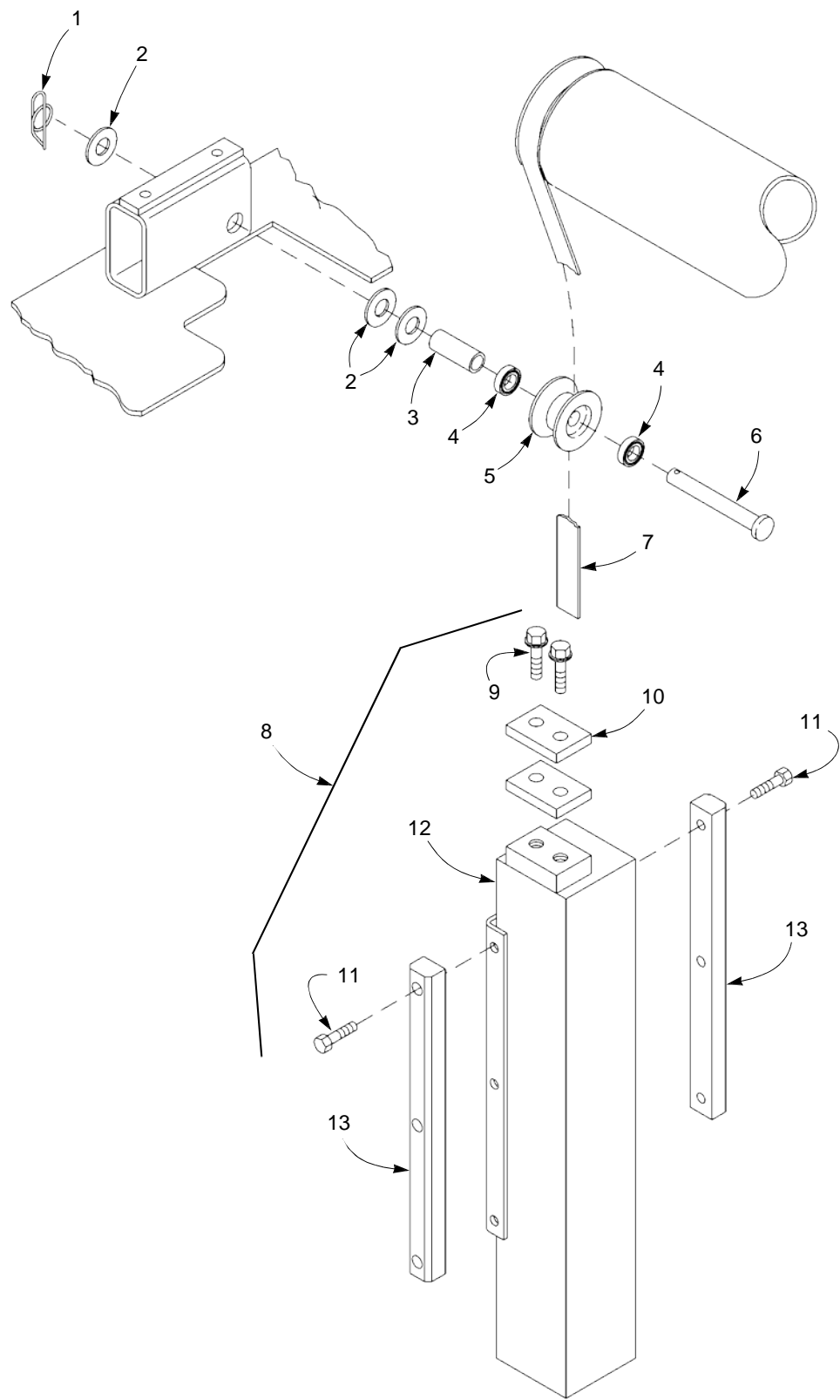
***Not part of assembly.*

ALWAYS INCLUDE SERIAL NUMBER OF DOOR WHEN PLACING ORDER

Due to product enhancement, the actual parts on your door may be different from those shown in this manual.

PARTS LIST—COUNTERWEIGHT ASSEMBLY

COUNTERWEIGHT ASSEMBLY



A8500107

Figure 54

PARTS LIST—COUNTERWEIGHT ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	1	0552001	Cotter Pin, RUE-40
2	3	0555144	Washer, $\frac{3}{4}$ -in. Flat
3	1	0003068	Washer, Thrust, 1.375 O.D. x 0.753 I.D. x 0.0625
4	2	0204039	Bearing, Roller
5	1	R1160210-0	Pulley, 2-in. Dia.
6	1	0552003	Clevis Pin, $\frac{3}{4}$ -in. Dia. x 3 $\frac{3}{4}$ -in.
7	1	0804220*	Strap, Counterweight
8	2	0899047*	Counterweight Assembly (includes items 9 thru 13)
9	2	0550187	Screw, $\frac{1}{2}$ -13 x 1-in.
			Serrated-Flange
10	2	0803370	Clamp Bar, Counterweight
11	6	0550016	Screw, $\frac{1}{4}$ -20 x $\frac{3}{4}$ -in. Serrated-Flange
12	1	0899028*	Counterweight Weldment
13	2	0805140	Guide Block, Counter- weight

A/R = as required

N/A = not applicable to this assembly

**Items are produced based on manufactured height and width of door.*

***Not part of assembly.*

ALWAYS INCLUDE SERIAL NUMBER OF DOOR WHEN PLACING ORDER

Due to product enhancement, the actual parts on your door may be different from those shown in this manual.

PARTS LIST—HEAD ASSEMBLY

HEAD ASSEMBLY

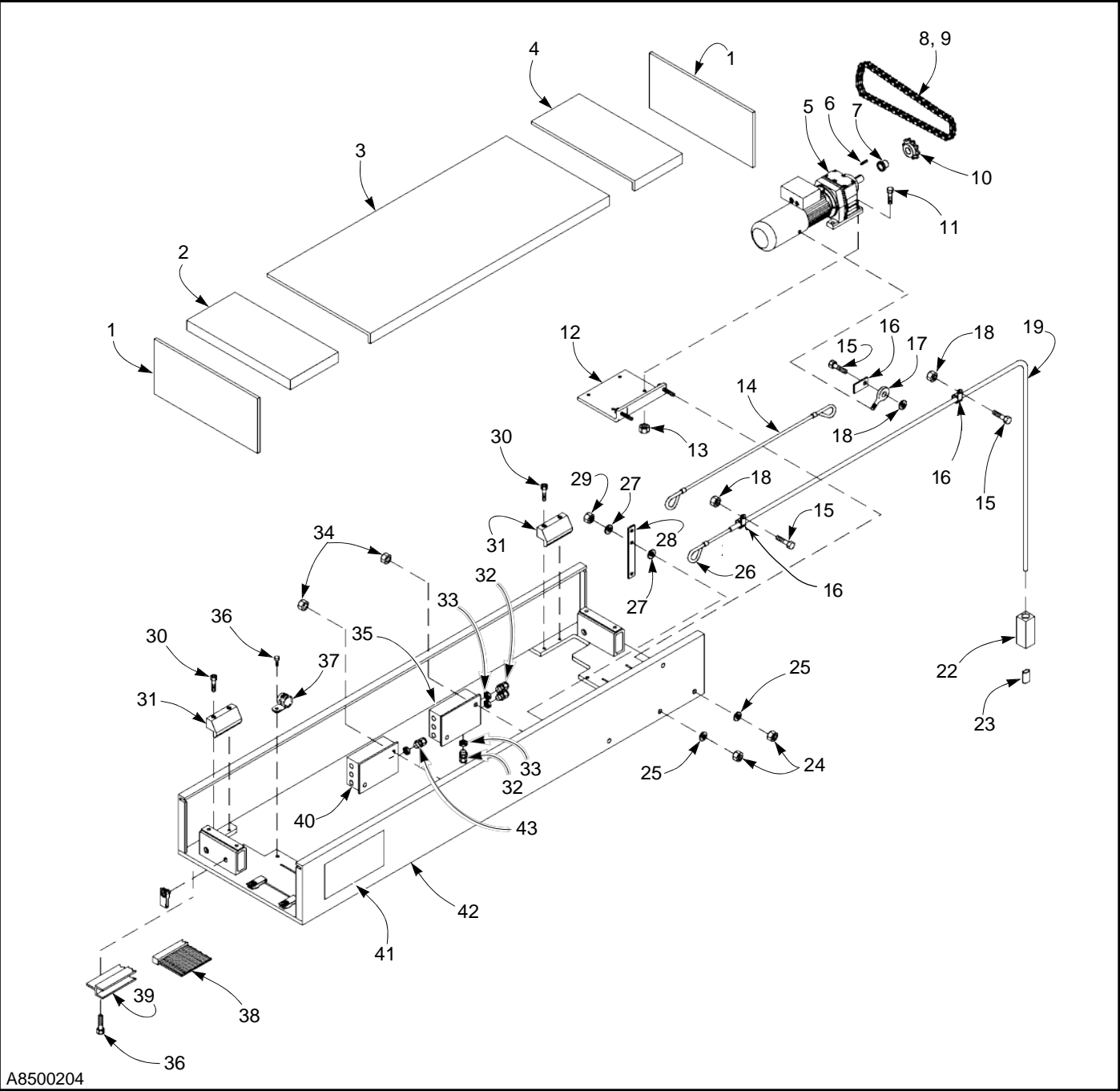


Figure 55

PARTS LIST—HEAD ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION	ITEM	QTY.	PART #	DESCRIPTION
1	2	0805005	Side Cover, Flat Hood, Lexan	24	2	0553100	Nut, 1/2-13 Serrated- Flange
	2	0805021	Side Cover, Slanted Hood Lexan	25	2	0555145	Washer, 1/2-in. Flat
2	A/R	0802201	Cover, Left	26	1	0804227	Cable, Brake Release, 1/16-in. Dia.
	A/R	Consult Factory	Cover, Slanted Left	27	3	0555146	Washer, 3/8-in. Flat
3	A/R	0802199*	Hood, Center	28	1	0803354	Lever, Brake Release
	A/R	Consult Factory	Hood, Center Slanted	29	1	0553315	Nut, 3/8-16 Nylon Collar
4	A/R	0802200	Cover, Right	30	4	0550256	Screw, 10-32 x 3/4-in. Hex Socket Cap
	A/R	Consult Factory	Cover, Right Slanted				Guide Block
5	1	Consult Factory	Motor/Gearbox Assembly	31	2	0805023	Cord Grip, 1/2 NPT
6	1	Consult Factory	Key (included w/ item 5)	32	3	0014491	Nut, Cord Grip, 1/2 NPT
7	1	0204420	Bushing, SDS 1 1/4-in. Bore	33	3	0014492	Nut, Hex 1/4-20
8	1	0001096	Drive Chain, #50 x 5/8-in. Pitch	34	4	0553103	Junction Box
				35	1	0104840	Screw, 1/4-20 x 1-in. Self-Tapping
9	1	0004022	Master Link, #50 Chain	36	A/R	0551041	Clamp, Coil Cord, Stain- less Steel (P-Clip)
10	1	0204417	Sprocket, Taperlock				Weather Seal, 3-in. Brush
11	4	0550030	Screw, 1/2-13 x 2-in. Serrated-Flange	37	1	S021732	Retainer, Weather Seal
12	1	02992178	Motor Plate				Junction Box
13	4	0553100	Nut, 1/2-13 Serrated- Flange	38	1	0009177*	Decal, Rytec
14	1	0804227	Cable, 1/16-in. Dia. x 17-in. Brake Release	39	1	0009008*	Head Weldment, No Hood
15	3	0550016	Screw, Hex Hd 1/4-20 x 3/4-in.	40	1	0104840	Head Weldment, Flat Hood
16	3	0804229	Clip, Casing Retainer	41	1	0416087	Head Weldment, Slant Hood
17	1	0550278	Eye Bolt, Brake Release	42	1	0899843*	Cord Grip, 1/2 NPT
18	3	0553103	Nut, 1/4-20 Serrated- Flange				
19	1	0804228	Casing, Brake Release	43	1	0014791	
20							
21							
22	1	1210467-0	Assy, Brake Release Pull Cord w/ Magnet Handle				
23	1	0204560	Loop Sleeve				

A/R = as required

N/A = not applicable to this assembly

**Items are produced based on manufactured height and width of door.*

***Not part of assembly.*

ALWAYS INCLUDE SERIAL NUMBER OF DOOR WHEN PLACING ORDER

Due to product enhancement, the actual parts on your door may be different from those shown in this manual.

PARTS LIST—MOTOR AND GEARBOX ASSEMBLY

MOTOR AND GEARBOX ASSEMBLY

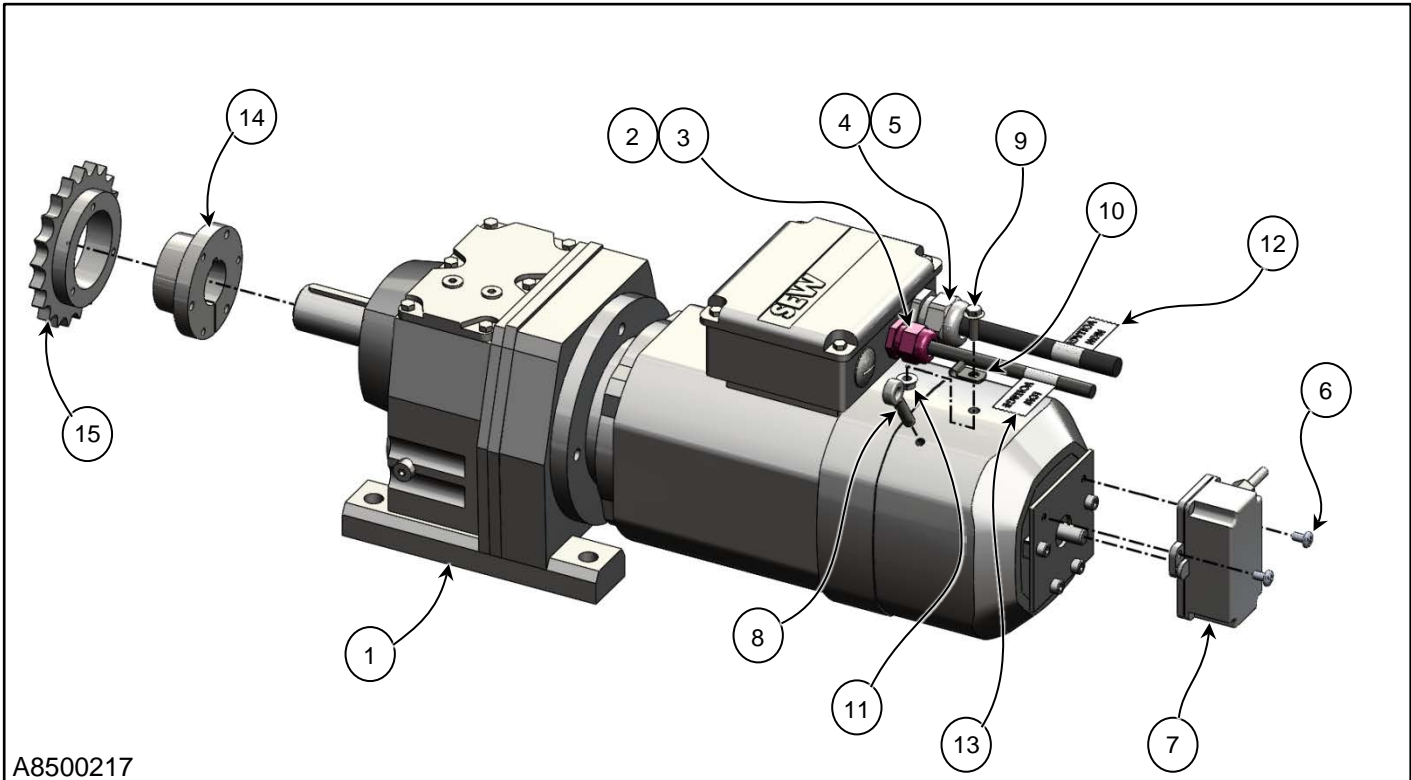
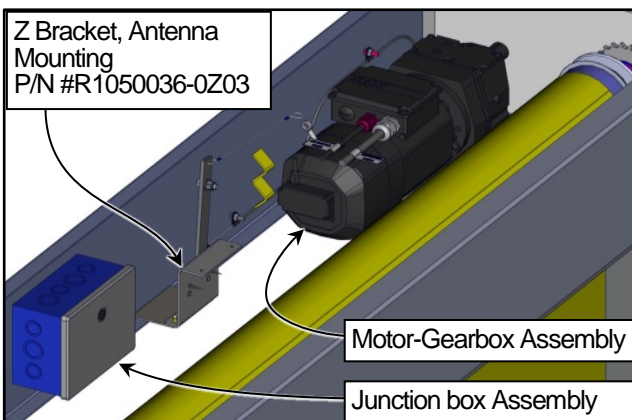
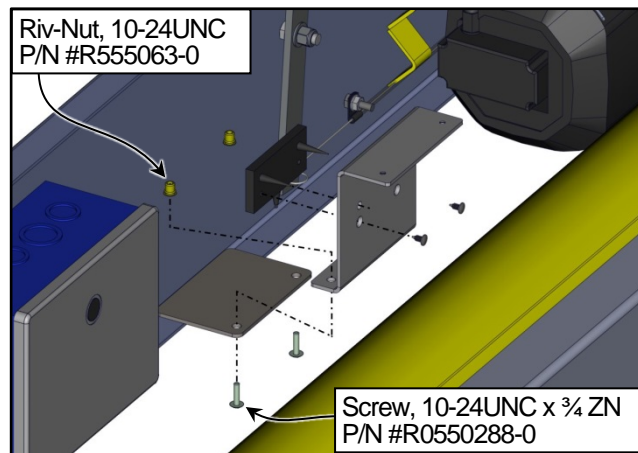
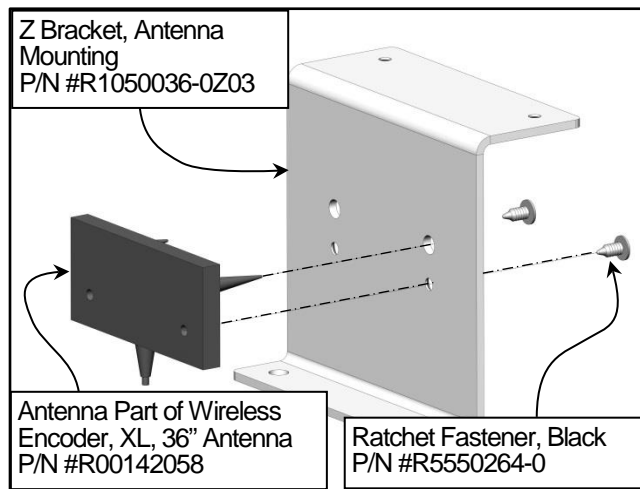


Figure 56



PARTS LIST—MOTOR AND GEARBOX ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	1	Consult Factory	Motor/Gearbox Assembly
2	1	0014791	Cord Grip, 1/2-in. NPT
3	1	00142017	Cable, 18 Ga., 2 Conductor Non-Shielded, Type SEOOW, 600V, 90C
4	1	00142023	Cord Grip, 3/4-in. NPT
5	1	00142016	Cable, 16 Ga., 4 Conductor Shielded, Type SEOOW, 600V, 90C
6	2	0553021	PPMS, Phil Pan Mach Screw, 10-24 UNC x 3/8, STL ZN
7	1	00142058	Encoder, FEIG Wireless, Extended Range
	1	00141057	Encoder, FEIG Wireless
	1	00141134	Encoder, FEIG Non-Wireless
8	1	0550278	Brake Release Eye Bolt
9	1	0550016	HFSMS, 1/4-20 x 3/4, Hex Serr. Flg'd Machine Screw
10	1	0804229	Retainer Clip, Cable Casing
11	1	0553103	Nut, 1/4-20, Hex Flg'd Lock, ZN
12	1	00112020	Label, High Voltage
13	1	00112021	Label, Low Voltage
14	1	0204420	Bushing, QD Type, SDS 1-1/4"
15	1	0204417	Sprocket, Roller Chain, 21 Tooth, #50

A/R = as required

N/A = not applicable to this assembly

**Items are produced based on manufactured height and width of door.*

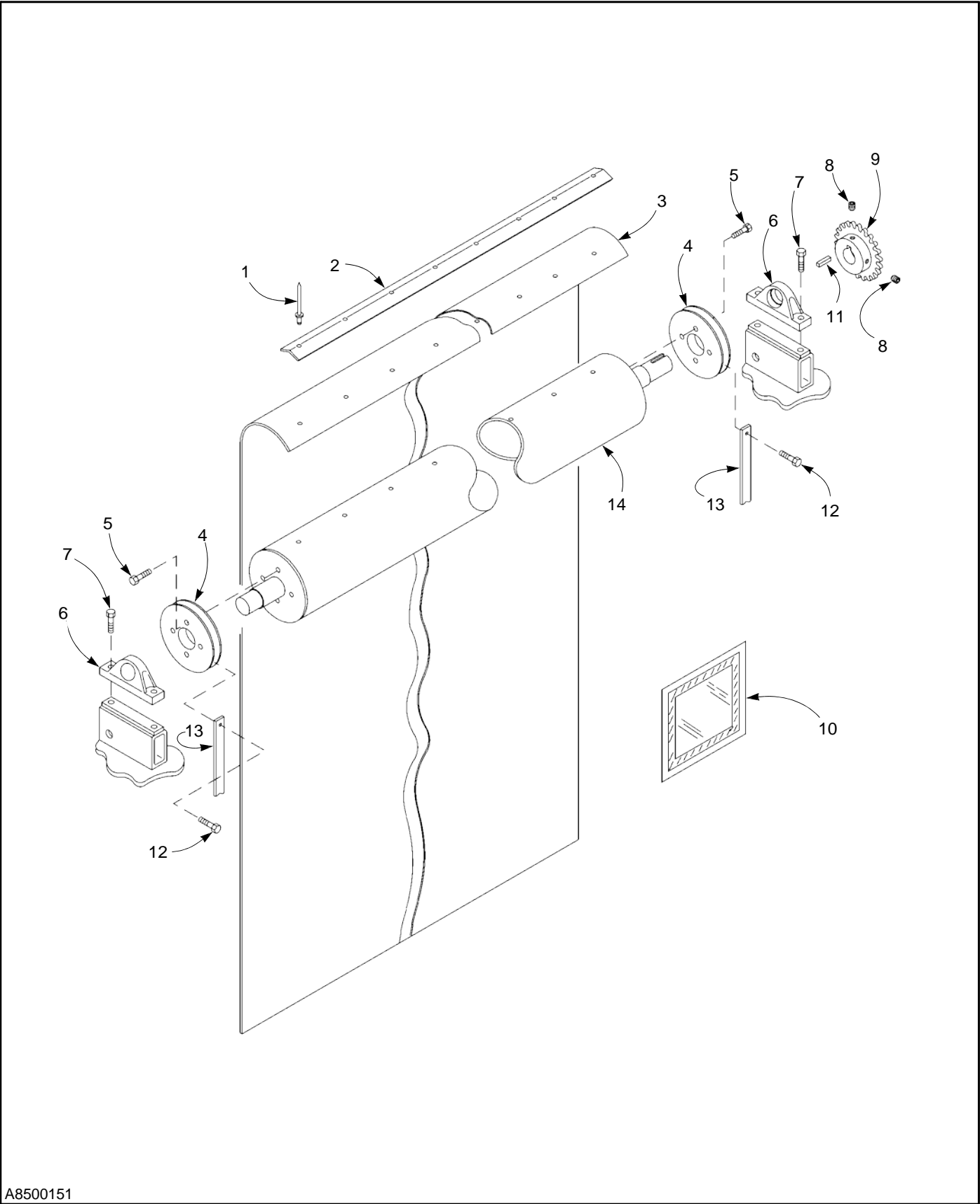
***Not part of assembly.*

ALWAYS INCLUDE SERIAL NUMBER OF DOOR WHEN PLACING ORDER

Due to product enhancement, the actual parts on your door may be different from those shown in this manual.

PARTS LIST—DRUM WELDMENT AND DOOR PANEL ASSEMBLY

DRUM WELDMENT AND DOOR PANEL ASSEMBLY



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Figure 57

PARTS LIST—DRUM WELDMENT AND DOOR PANEL ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	A/R	0556167	Rivet, $\frac{3}{16}$ -in. Dia., Stainless Steel
2	1	0802034*	Strap, Panel Mounting
3	1	Consult Factory*	Door Panel
4	2	0803362	Spool, Counterbalance
5	8	0550309	Screw, $\frac{3}{8}$ -16 x $1\frac{1}{2}$ -in. Serrated-Flange
6	2	0804113	Bearing, $1\frac{1}{4}$ -in. Dia. Pillow Block
7	4	0550029	Screw, $\frac{1}{2}$ -13 x $1\frac{3}{4}$ -in. Serrated-Flange
8	2	0551044	Screw, $\frac{5}{16}$ -in. x $\frac{3}{8}$ -in. Set Cone Point
9	1	0804922	Sprocket
10	A/R	0207129	Window, 17-in. x 17-in. (Optional)
	A/R	0007801	Window, 17-in. x 17-in., Low Temperature (Optional)
	A/R	0207926	Window, 24-in. x 24-in., Low Temperature (Optional)
11	2	0803030	Key, $\frac{1}{4}$ x $\frac{1}{4}$ x $1\frac{1}{4}$ -in.
12	2	0551191	Screw, $\frac{5}{16}$ -18 x $\frac{5}{8}$ Phillips, Flat-Head
13	2	0804220*	Strap, Counterweight
14	1	0899417*	Drum Weldment, Right Drive
	1	08991010*	Drum Weldment, Left Drive (not shown)

A/R = as required

N/A = not applicable to this assembly

**Items are produced based on manufactured height and width of door.*

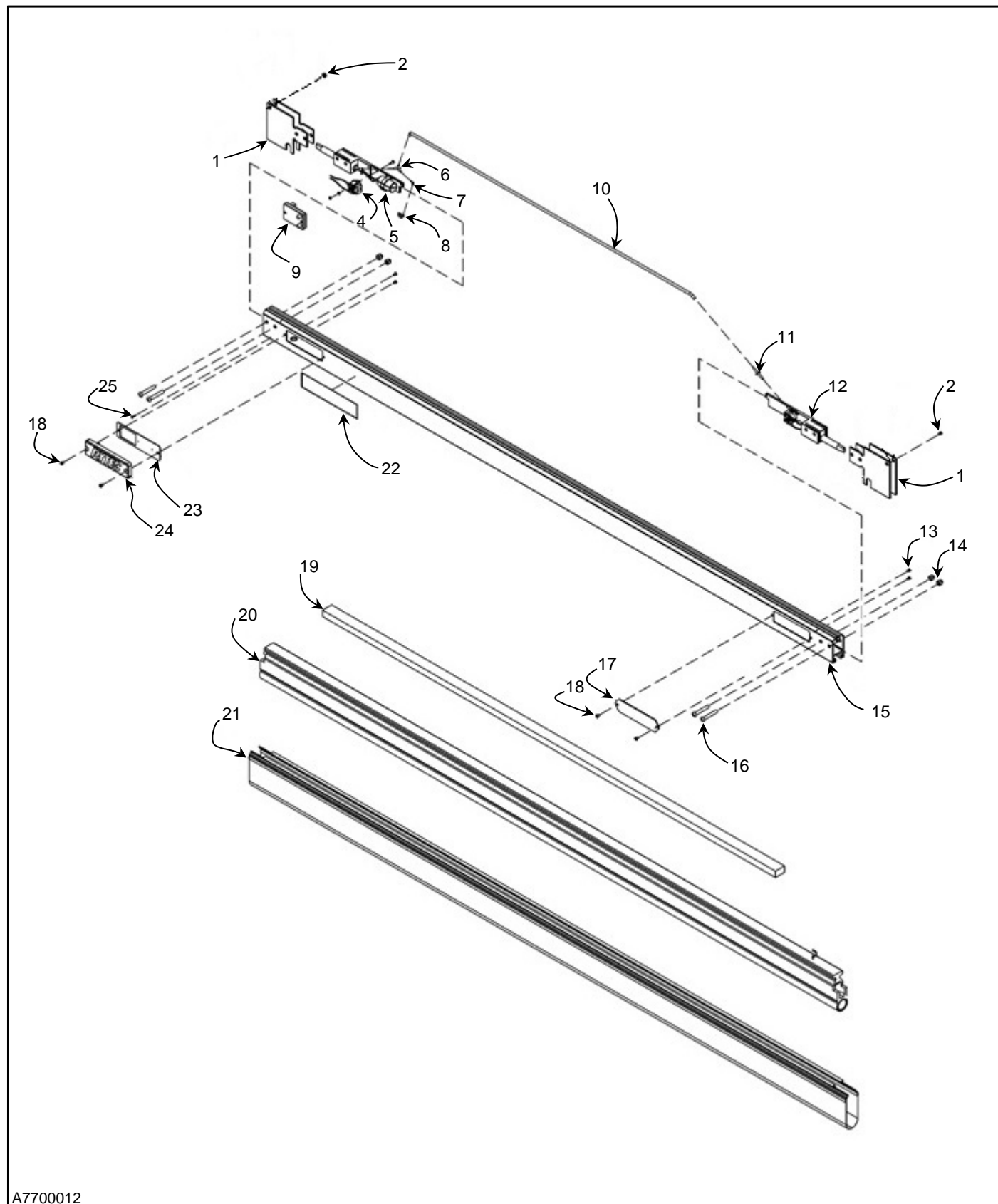
***Not part of assembly.*

ALWAYS INCLUDE SERIAL NUMBER OF DOOR WHEN PLACING ORDER

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PARTS LIST—BOTTOM BAR ASSEMBLY

BOTTOM BAR ASSEMBLY



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Figure 58

PARTS LIST—BOTTOM BAR ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	4	1060048-0B	Breakaway Tab (4 Pack)
2	2	0553103	Nut, Lock, 1/4-20 Serrated-Flange
3	1	1060121-0	Holder, End Tab/Air Switch Assembly
4	1	0211397	Pressure Switch
5	1	00111193	Battery, Lithium, 3.6 Volt, 19 AH
6	1	0804336	Y-Connector Tube, 3/16 in.
7	1	0204552	Connector, Tube, 90°
8	A/R	0007321	Tube, 4mm OD x 2mm ID, Vinyl
9	1	00141058	Mobile Unit
10	1	0804219*	Tube, 3/16 in. I.D. Vinyl
11	1	0804337	Connector Tube, 3/16 in. Union
12	1	1060121-0	Holder, End Tab/Air Switch Assembly
13	4	S021032	Screw, Thread Cutting, Phillips Pan Head, 10-32 x 0.375, F
14	4	S021070	Nut, 3/8-16 UNC Acorn, Stainless Steel
15	1	Consult Factory	Bottom Bar
16	4	5550026-0Z04	Screw, Button Head Socket, 0.375-16 x 2.50
17	1	1060061-001	Cover, Bottom Bar, Wireless
18	4	5550025-0Z01	Screw, Button Head Socket, 1/4-20 x 3/8 in., SS
19	1	1060058-0*	Weight, Bottom Bar
20	1	07991755*	Foam Reversing Edge Assembly
21	1	07991752*	Loop Seal, Yellow Vinyl
22	1	0016658	Decal, Rytac
23	1	1060119-0	Gasket, Cover, Wireless NXT
24	1	1060117-0	Cover, Assy, Wireless NXT
25	1	S551230	Screw, #6 x 5/8 Long, Self Tapping Pan Head

A/R = as required

N/A = not applicable to this assembly

**Items are produced based on manufactured height and width of door.*

***Not part of assembly.*

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Due to product enhancement, the actual parts on your door may be different from those shown in this manual.

NOTES
