R Y T E C

Powerhouse XL®

Owner's Manual

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POWERHOUSE XL® LIMITED WARRANTY

Rytec Corporation ("Seller"), an Illinois corporation with its principal place of business at One Cedar Parkway, PO Box 403, Jackson, WI 53037, warrants to the original registered end-user commercial purchaser ("Buyer") that the **Powerhouse XL** ("Product") sold to the Buyer will be free of defects in materials and workmanship (ordinary wear and tear excepted) for the time periods set forth below:

- **Mechanical** components for a period of **Two (2) Years** from the date of shipment of the Product from the Seller's plant ("Shipment").
- **Electrical** components for a period of **Two (2) Years** from Shipment.
- **Standard door panel**, including SBR, **lifetime limited warranty** limited only to SBR panel material.
- **Optional door panel**, including EPDM, for a period of **Two (2) Years** from Shipment.
- **Panel wind locks, vertical panel seams/stripes, bottom edge rubber, loop seal, wireless mobile unit battery**, are considered wear items and are not covered under this Limited Warranty.
- **Aftermarket parts, accessories and assemblies** for a period of ninety (90) days from the date of Shipment.

Remedies. Seller's obligation under this Limited Warranty is limited to repairing or replacing, at Seller's option, any part which is determined by Seller to be defective during the applicable warranty period. Such repair or replacement shall be the Seller's sole obligation and the Buyer's exclusive remedy under this Limited Warranty.

Labor. Except in the case of aftermarket parts, accessories and assemblies, labor is warranted for one year. This means that Seller will provide warranty service without charge for labor in the first year of the warranty period. Thereafter, a charge will apply in to any repair or replacement under this Limited Warranty. In the case of aftermarket parts, accessories and assemblies, Seller will provide replacement parts only.

Claims. Claims under this Limited Warranty must be made (i) within 30 (thirty) days after discovery and (ii) prior to expiration of the applicable warranty period. Claims shall be made in writing delivered to the Seller at the address provided in the first paragraph of this warranty. Buyer must allow Seller and Dealer, or their agents, a reasonable opportunity to inspect any Product claimed to be defective and shall, at Seller's option, either (x) grant Seller and Dealer or their agents access to Buyer's premises for the purpose of repairing or replacing the Product or (y) return of the Product to the Seller, f.o.b. Seller's factory.

Original Buyer. This Limited Warranty is made to the original Buyer of the Product and is not assignable or transferable. This Limited Warranty shall not be altered or amended except in a written instrument signed by Buyer and Seller.

Not Warranted. Seller does not warrant against and is not responsible for, and no implied warranty shall be deemed to cover, damages that result directly or indirectly from: (i) the unauthorized modification or repair of the Product, (ii) damage due to environmental conditions such as ice and frost on the Product, (iii) damage due to misuse, neglect, accident, failure to provide necessary maintenance, or normal wear and tear of the Product, (iv) failure to follow Seller's instructions for installation, operation or maintenance of the Product, (v) use of the Product in a manner that is inconsistent with Seller's guidelines or local building codes, (vi) movement, settling, distortion, or collapse of the ground, or of improvements to which the Products are affixed, (vii) fire, flood, earthquake, elements of nature or acts of God, riots, civil disorder, war, or any other cause beyond the reasonable control of Seller, (viii) improper handling, storage, abuse, or neglect of the Product by Buyer or by any third party.

DISCLAIMERS. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER REPRESENTATIONS AND WARRANTIES, EXPRESS OR IMPLIED, AND THE SELLER EXPRESSLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PURPOSE. SELLER SHALL NOT BE SUBJECT TO ANY OTHER OBLIGATIONS OR LIABILITIES, WHETHER ARISING OUT OF BREACH OF CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE AND STRICT LIABILITY) OR OTHER THEORIES OF LAW, WITH RESPECT TO THE PRODUCTS SOLD OR SERVICES RENDERED BY THE SELLER, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO.

LIMITATION OF LIABILITY. IN NO EVENT WILL SELLER BE RESPONSIBLE FOR, OR LIABLE TO ANYONE FOR, SPECIAL, INDIRECT, COLLATERAL, PUNITIVE, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Such excluded damages include, but are not limited to, personal injury, damage to property, loss of goodwill, loss of profits, loss of use, cost of cover with any substitute product, interruption of business, or other similar indirect financial loss.

Product Descriptions. Any description of the Products, whether in writing or made orally by the Seller or the Seller's agents, including specifications, samples, models, bulletins, drawings, diagrams, engineering or similar materials used in connection with the Buyer's order, are for the sole purpose of identifying the Product and shall not be construed as an express warranty. Any suggestions by the Seller or the Seller's agents regarding the use, application, or suitability of the Product shall not be construed as an express warranty unless confirmed to be such in writing by the Seller.

Limited Warranty Void. This Limited Warranty shall be void in its entirety if:

a) The Product is modified in a manner not approved in writing by Seller; or
b) Buyer fails to maintain the Product in accordance with instructions contained in the Owner's Manual for the Product.

TABLE OF CONTENTS

INTRODUCTION

The information contained in this manual will allow you to maintain your Rytec Powerhouse XL® Door in a manner that will ensure maximum life and trouble-free operation.

Any unauthorized changes to these procedures, or failure to follow the steps as outlined, will automatically void the warranty. Any changes to 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.

DO NOT INSTALL, OPERATE, OR PERFORM MAIN- TENANCE ON THIS DOOR UNTIL YOU READ AND UNDERSTAND ALL THE INSTRUCTIONS IN THIS MANUAL.

If you have any questions, contact your Rytec representative or call the Rytec Technical Support Department at 1-800-628-1909. Always refer to the serial number of the door when calling your representative or technical support. The location of the serial number is on the left side of the head assembly.

The wiring connections and schematics in this manual are for general information purposes only. The actual schematic for your custom installation is located in the crate when the door is delivered.

HOW TO USE MANUAL

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

⚠ WARNING

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

⚠ CAUTION

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 that is 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.

DOOR SERIAL NUMBER(S)

To obtain your DOOR SERIAL NUMBER, there are three (3) universal locations that this information can be attained. These are on the left side column assembly (at approximately eye level), on the head assembly, and on the right side column assembly.

⚠ CAUTION

When installing multiple doors of the same model, verify & match the serial numbers of all the components for each door (i.e. control panel, side columns, drive assembly, etc.). Mark any items not previously marked.

NOTE: The following illustration shows the front side of the door. Left and right sides are determined when viewing the front side of the door.

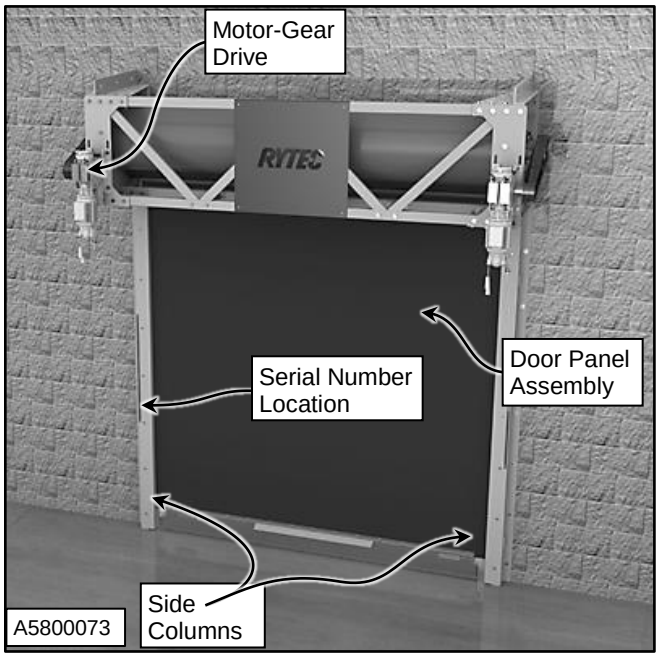

Figure 1

GENERAL ARRANGEMENT OF DOOR COMPONENTS

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

NOTE: These illustrations are for informational purposes only. They should not be relied upon solely during the installation of your door and its sub-assemblies.

IMPORTANT: The surface of the wall on which the door is to be installed must be free of any obstructions. Also, any existing door framing on the wall should be removed or the side columns will require shimming before installing.

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

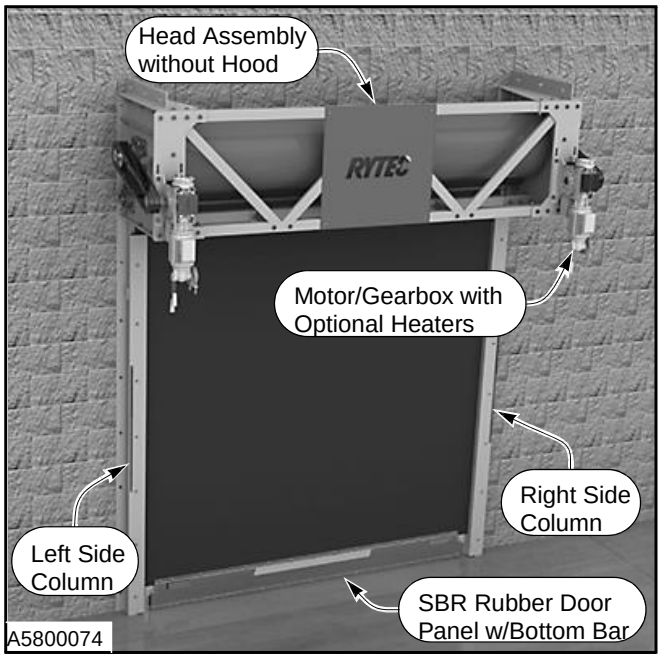

Figure 2

SAFETY

MECHANICAL

- This is a breakaway, partially self-repairable door. Upon impact, the door panel will pop out of the side column guide(s) and will need to be operated to the fully open position to allow the door to reset. The door panel has an edge that may bind in the side column if not completely broken away. Therefore, the motor may stall while trying to operate the door to the fully open position. If the operator is unable to get the door to the fully open position using the control panel, the side column cover(s) may have to be opened to allow the panel to travel. (See Figure 3)

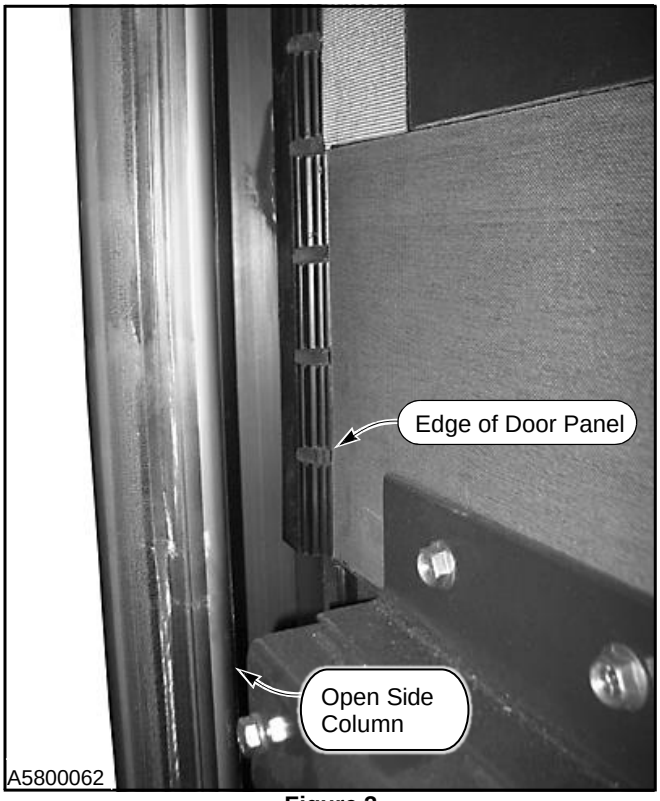

Figure 3

ELECTRICAL

- When working with electrical or electronic controls make sure that the power source has been locked out and tagged according to OSHA regulations and approved local electrical codes.
- Qualified electricians must do all electrical wiring. Wiring must meet all local, state, and federal codes.
- Please check the documentation for what voltage is specified. Confirm power supply to be as required: 208V, 230/240V, 460/480V, or 575V. Voltage and fuses or breakers should be checked before connecting to the main power supply.

OPERATION

CONTROL PANEL

The Powerhouse XL Door is equipped with the Rytec System 4 Drive & Control, a solid-state, microprocessor-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

Your Powerhouse XL is optioned with two sets of photo eyes, one set mounted on the front and another set installed on the back of the door. The purpose of these photo eyes is to hold the door open or, if the door is closing, reverse the door to the open position if a vehicle, person, or any object is in the path of the photo eye beam.

The photo eye is not active when the door is closed. After the obstruction breaking the photo eye beam is removed:

The door will remain open if it was originally opened by a non-automatic activator until it is closed by a non-automatic activator.

The door will close automatically if it was originally opened with an automatic activator.

BOTTOM BAR ASSEMBLY

The bottom bar assembly houses the wireless reversing edge.

Breakaway Capability

IMPACT

End tabs mounted at each end of the bottom bar provide adequate strength to keep the assembly in contact with the side columns during normal operation. The tabs, however, are flexible enough to allow the bottom bar to separate from either or both of the side columns should the bottom bar be struck by a vehicle or load passing through the door. Open the side columns and use the chain fall to manually open the door to the full open height allowing for the panel to reset itself. The motor(s) must be placed into the manual mode prior to any chain fall movement. When the panel has been reset, place the motor(s) back into automatic operation. (See "MOVE THE DOOR MANUALLY" on page 4)

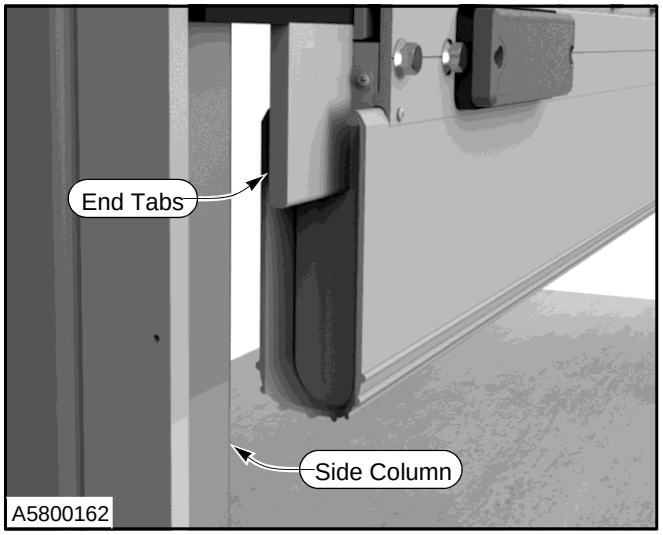

Figure 4

RESET BOTTOM BAR ASSEMBLY

⚠ CAUTION

If the bottom bar or door panel assembly has been damaged, remove door from service.

Turn off power to the control and open both side columns. (See Figure 5)

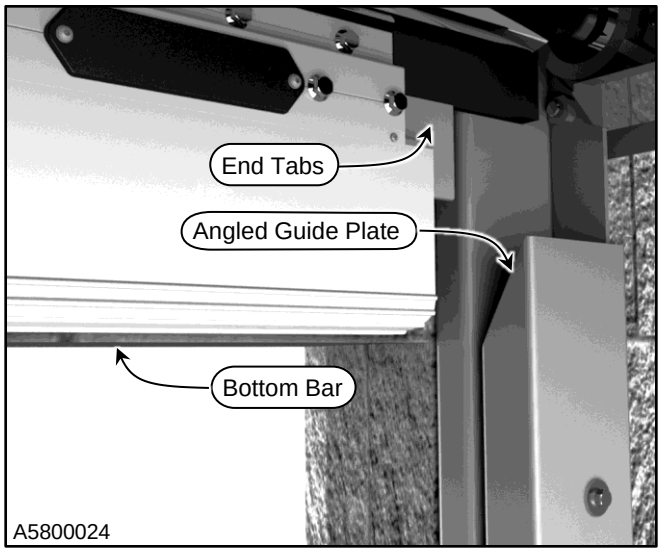

Figure 5

Place operator(s) into manual mode and raise the door to the full open position with the chain fall(s).

Close both side columns and place the operator(s) back into automatic mode.

NOTE: Check to make sure that the fabric is inside each channel.

Check operation of door.

Reversing Edge

The door is equipped with a pneumatic reversing edge mounted at the bottom of the bottom bar assembly. If an object is left in the path of the door panel as it closes, the pressure-sensitive edge will sense the contact with the object and automatically reverse the door to the open position, thus preventing damage to the bottom bar. (See Figure 6)

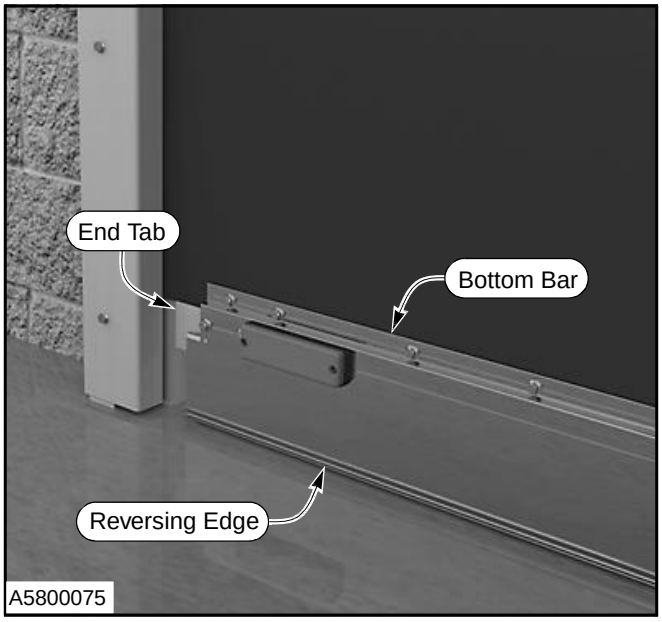

Figure 6

POWER DRIVE SYSTEM

The Powerhouse XL power drive system consists of an electric motor/brake assembly, reduction gear assembly, and encoder. The standard Powerhouse XL is equipped with a variable-speed motor. The control system will vary the door speed depending on door position. The power drive system can be mounted on either the right or left end of the fabric roll.

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 when routine maintenance needs to be performed with the power disconnected.

An encoder, mounted on the end of the gearbox, generates electrical signals as the door panel moves. These signals are used by the control system to monitor the position of the door.

MOVE THE DOOR MANUALLY

⚠WARNING

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

DO NOT stand under the door panel when moving the door.

The drive motor has red and green handles hanging from the bottom of the motor. When the green handle is pulled or in the lowest position, the drive motor is engaged to run on electrical power. When the red handle is pulled or in the lowest position, electrical power has been disengaged and manual door operation is required, using the chain. Also, when the red handle is pulled, a sensor is engaged and will not allow electrical power to the door.

Electrical power can be shut off anytime to operate the electric motor in manual mode. Control panel limit settings will not be affected when switching the power off and back on. The door will return to a normal operating mode. (See Figure 7)

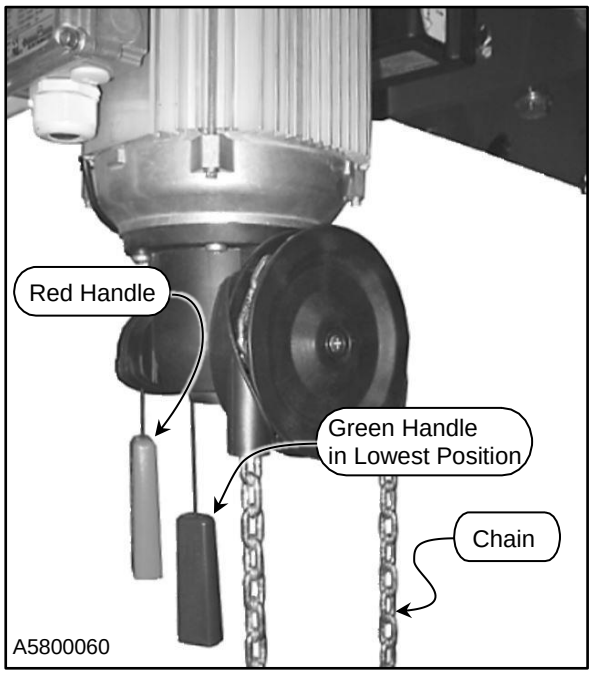

Figure 7

LIGHT CURTAIN

Operation

Your Rytec Powerhouse XL Door is equipped with a pair of light curtains for monitoring the door, an emitter module, and a receiver module. The purpose of these light curtains is to hold the door open or, if the door is closing, reverse the direction of the door if a person or object breaks the beam of light between the light curtains. After the obstruction breaking the beam of light 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 light curtains are not intended to be used as a door activator and will not open the door when it is closed.

PLANNED MAINTENANCE

RECOMMENDED SCHEDULE

NOTE: The following maintenance schedule is recommended for the Rytec Cycle-Plus maintenance program.

	Daily	Quarterly
Visual Damage Inspection		
Check Door Operation		
LED Inspection		
Photo Eye Inspection		
Reversing Edge Inspection		
Hardware Inspection		
Wall Anchor Inspection		
Welds (If Applicable)		
Fabric Inspection		
Bottom Bar Inspection		
Brush Seal Inspection		
Door Limit Inspection		
Motor Brake 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 8)

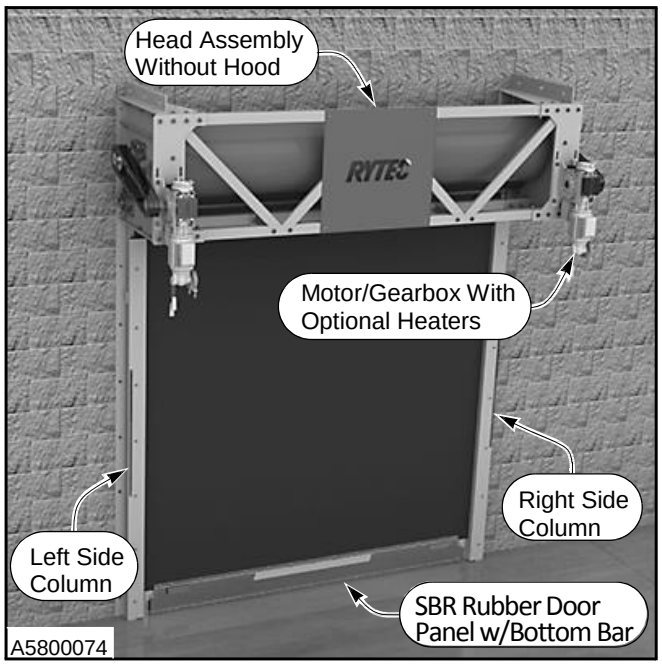

Figure 8

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: Inspect for damage that may prevent the door from operating properly.

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.

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.

LED (Light Emitting Diode)

Inspect the lens of each LED for damage or dirt that may prevent the lights from working properly — clean or replace as required. (See Figure 9)

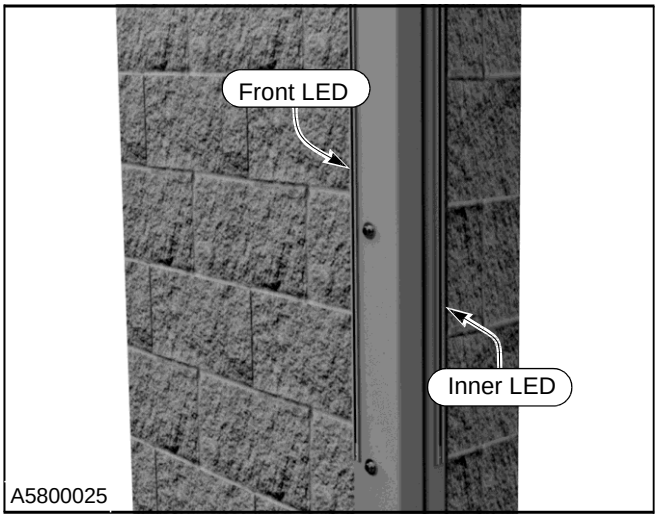

Figure 9

Photo Eye Inspection

The photo eyes are provided as a safety feature. If the photo eyes are installed correctly, any object in the path of the photo eye beam while the door is closing will cause the door to reverse direction and remain in the fully open position until the obstruction is removed.

The transmitter and receiver can be identified in two ways. The transmitter is designated SMT 3000 on the white label or by a single green light that comes on at the clear end of the transmitter. (See Figure 10) The receiver is designated SMR 3215 on the white label or by a yellow light that illuminates only when it is in proper alignment with the transmitter. (See Figure 11)

NOTE: When the cable is connected to the photo eye, there is only a ¼-in. window to see the green or yellow LED light.

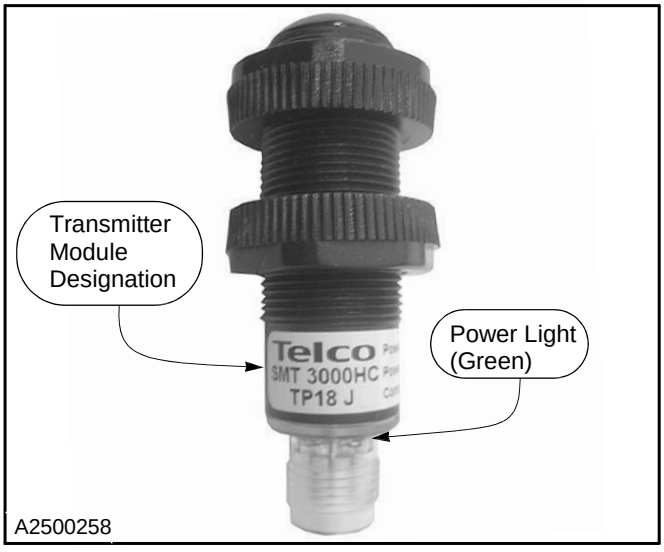

Figure 10

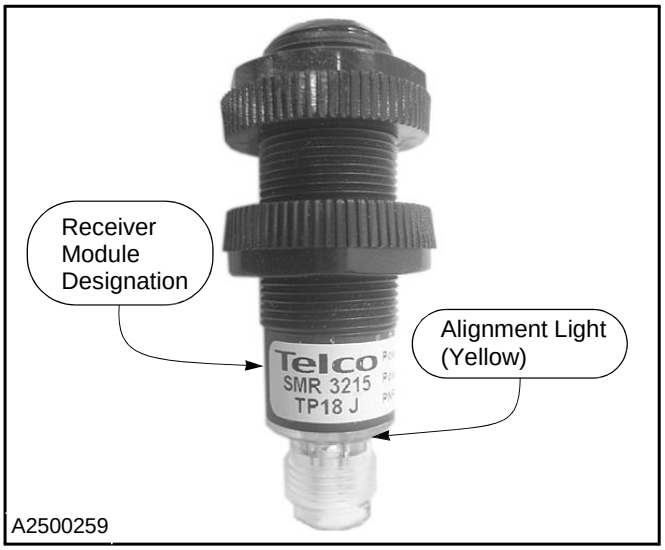

Figure 11

Check the front and rear photo eye assemblies for:

a. Good wire cable connections at the photo eye.

b. Secure and solid mounting bracket.

c. Photo eye installed properly in the mounting bracket.

d. Check for green and yellow lights.

e. Cracked photo eye housing.

f. Clean photo eye lens.

1. Repair or replace items as needed.
2. After all work is complete, clean the lens of each photo eye using window cleaner and a soft, clean cloth.

TESTING PHOTO EYES

With the power on, the green light on the transmitter indicates that the photo eye module is powered up. When the yellow light on the receiver module is also lit, the transmitter 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.

Reversing Edge Inspection

⚠ WARNING

DO NOT stand under the door when performing the following test. If the reversing edge sensor is not working properly, the door could strike the person performing the procedure. DO NOT use the door if the sensor is not working properly.

1. Move the door to the open position by pressing the door open button located on the control panel.
2. Press the door close button.
3. When the door is a few feet from the fully closed position, hit the rubber reversing edge that runs along the bottom edge of the door. Stand outside the photo eyes to avoid activating the photo eye circuit. (See Figure 12)

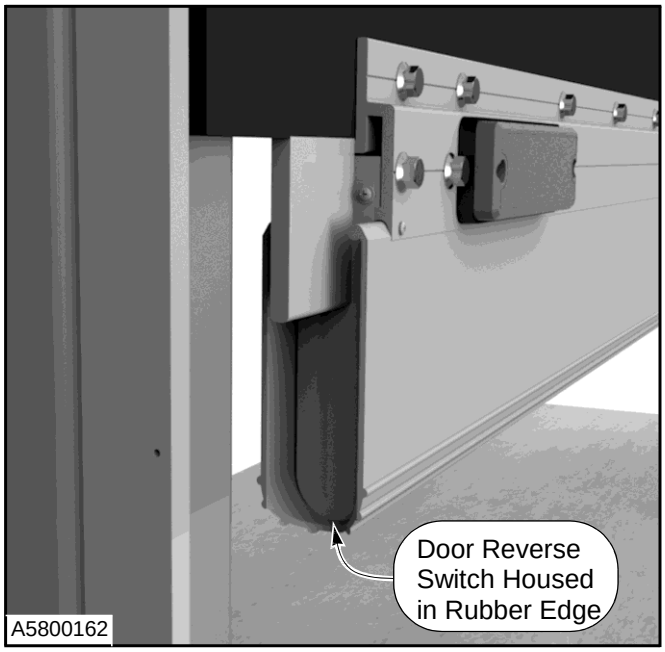

Figure 12

While the door is running through the down cycle, strike the bottom of the reversing edge. If the reversing edge is operating properly, the door should immediately reverse and run to the full-open position. Press the control panel down key to close the door after the inspection is complete.

If the reversing edge sensor is not working properly, the control system will only allow the door to open and the control panel will display the associated error code.

NOTE: A normal resistance measurement across the reversing edge sensor will read approximately 8.2 k-ohms. With the rubber edge compressed, the resistance will drop to about zero ohms.

4. Check the mobile unit assembly. Make sure that it is tight and secure. Inspect terminal block for damage and replace any missing or damaged hardware. (See Figure 13)

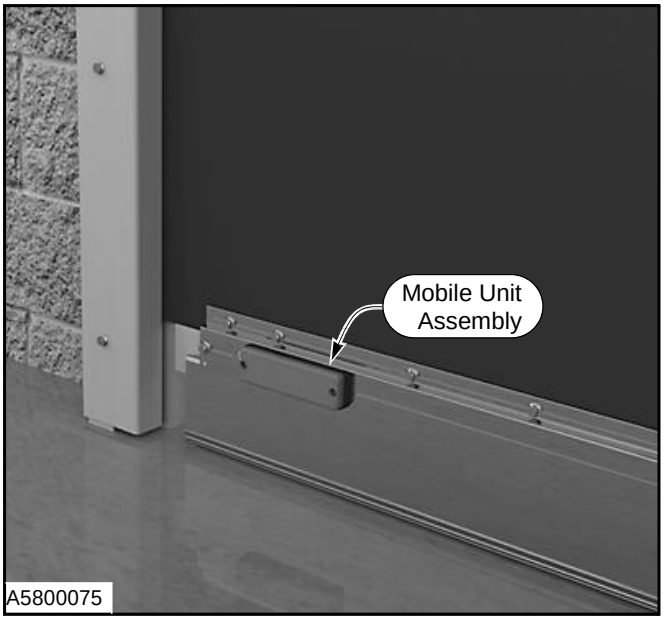

Figure 13

5. Inspect the rubber reversing edge. It should be in good condition with no visible holes, cracks, or tears. Replace the rubber reversing edge if necessary.

WIRELESS REVERSING EDGE INSTALLATION

The wireless reversing edge has been programmed at Rytec Corporation. Wire the wireless reversing edge receiver per the schematic received with your control panel. In the event the wireless reversing edge appears not to function, perform the total reset procedure and manual programming steps.

Manual Programming

Press the receiver programming button for 1 sec. and an acoustic signal will be heard. The receiver will enter standard programming. Every time a transmitter is programmed, the receiver will issue an acoustic signal for 0.5 sec. After 10 sec. without programming or pressing the first two transmitter buttons or pressing the PROG button, the receiver will exit programming mode, issuing two acoustic signals of 1 sec. If upon programming a transmitter the receiver memory is full, it will issue 7 acoustic signals of 0.5 sec. and exit programming.

Total Reset

In programming mode, the programming button is held down and a reset jumper is bridged for 3 sec. The receiver will issue 10 short acoustic warning signals followed by others at a faster pace to indicate that the operation has been successful. The receiver is now in programming mode. (See Figure 14)

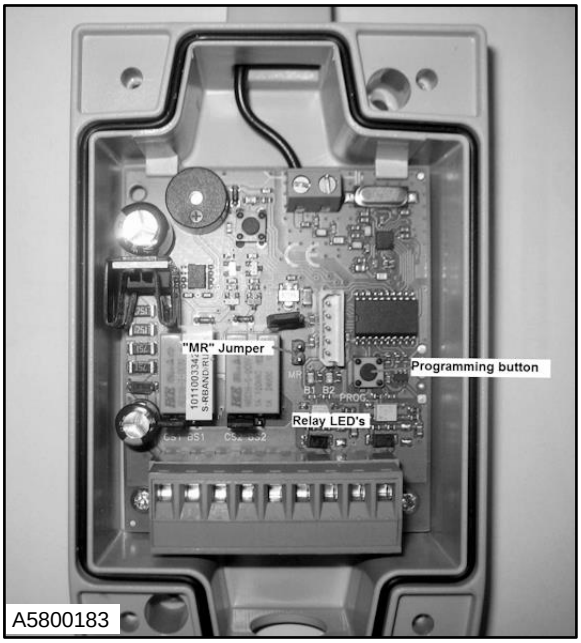

Figure 14

After 10 sec. without programming or quickly pressing the programming button, the receiver will exit programming mode, issuing two acoustic signals of 1 sec.

QUARTERLY INSPECTION

WARNING

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, snap rings, and anchors are tight throughout the door. Example: motor mounting bolts, wall mounting hardware, pillow block bearing hardware, floor anchors, set screws, etc. (See Figure 15 and 16)

HEAD ASSEMBLY

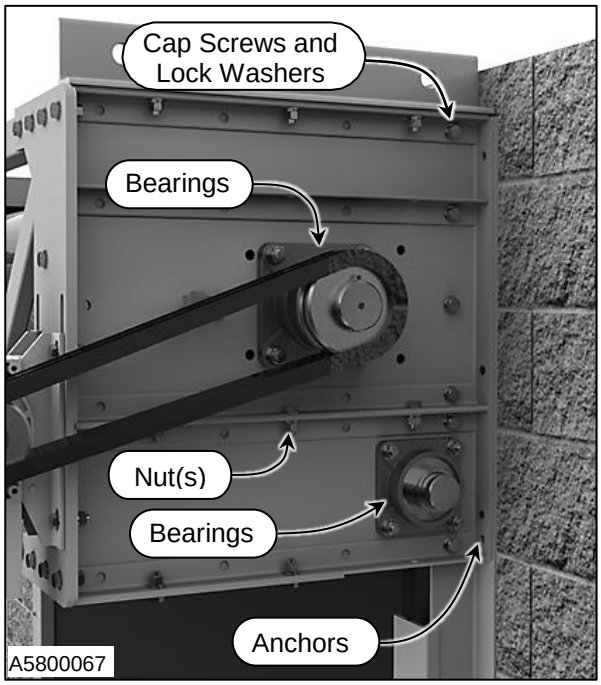

Figure 15

REAR SPREADER

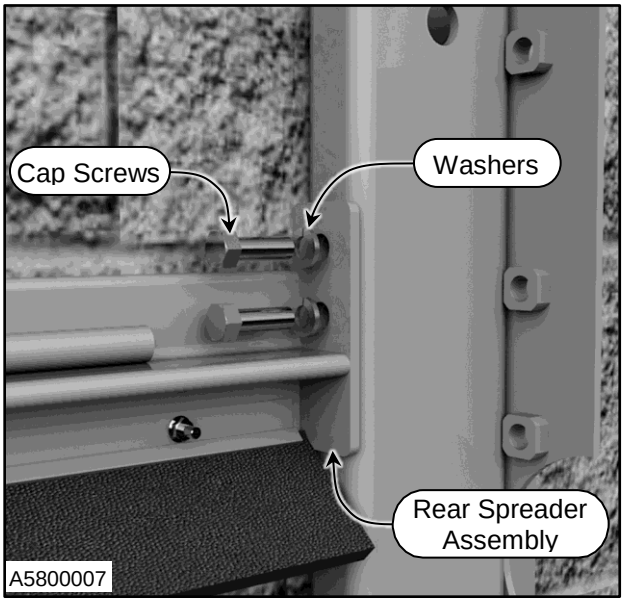

Figure 16

Wall Anchor Inspection

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. Gain access to wall and rear spreader anchors.
3. Inspect for loose or worn anchor(s). (See Figure 17 and 18)

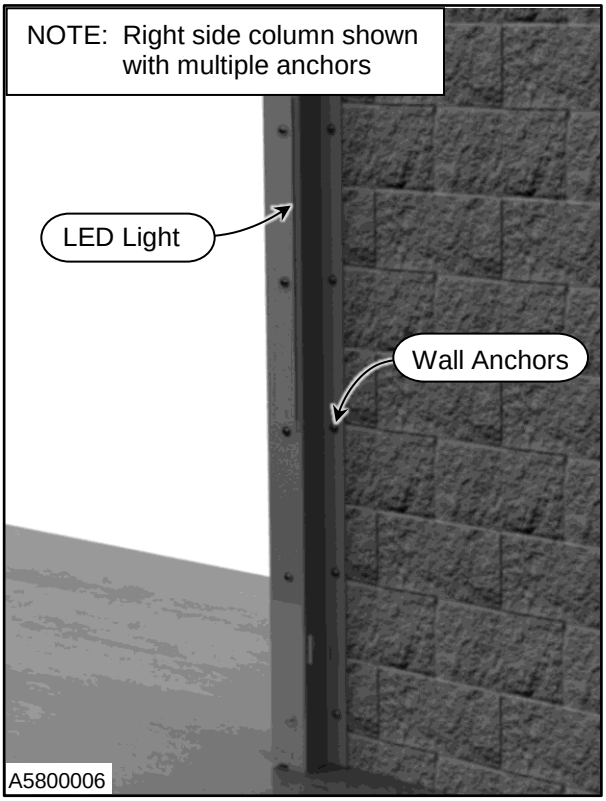

Figure 17

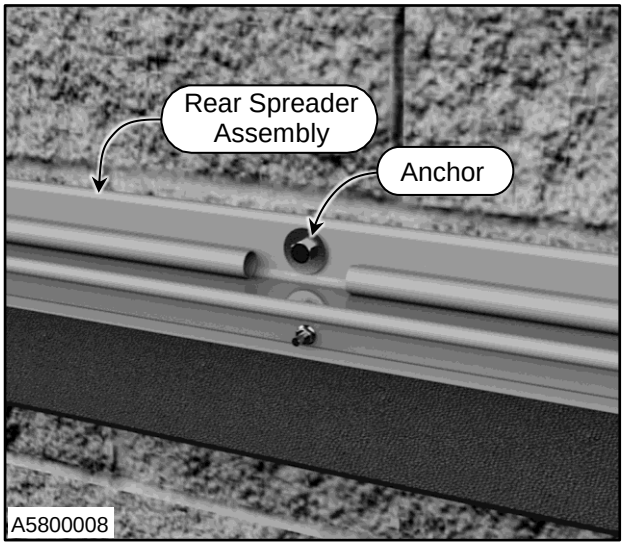

Figure 18

4. Tighten, repair, or replace anchor(s) as needed.

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

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

Welds (If Applicable)

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. Inspect broken or cracked welds on side column assemblies. Rework the weld as needed. (See Figure 19)

NOTE: The door assembly, walls, and building structure MUST BE properly grounded.

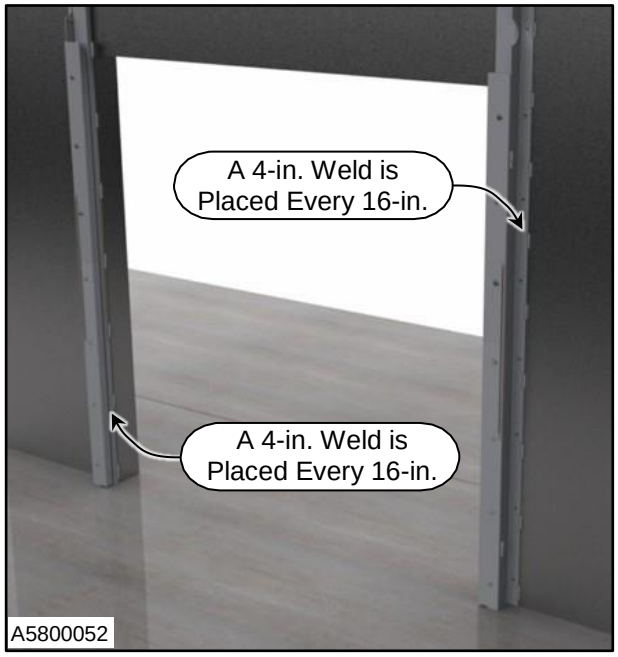

Figure 19

Figure 20

Fabric Inspection

1. 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.

2. Check the fabric for holes, tears, and worn areas. Repair or replace as required.
3. If your door panel is equipped with windows, inspect them for damage or dirt that 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.

4. Ensure the panel is securely fastened to the bottom bar assembly. Tighten or replace loose or damaged mounting hardware as required. (See Figure 20.)

Bottom Bar Inspection

1. Move the bottom bar of the door to a convenient height for inspection and turn off power. Remove hardware and open side column doors.

⚠ WARNING

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

2. Inspect hardware used to secure the breakaway assembly to the bottom bar. Tighten or replace hardware as required.
3. Check all hardware. Tighten or replace loose or damaged mounting hardware as required.
4. Check for bent or damaged bottom bar.
5. Check the hardware on the mobile unit and vibration sensor. Both assemblies should be mounted solid and sturdy, especially the vibration sensor. Any excess movement will give a false reading and send an error code to the control panel.
6. Inspect the reversing edge to ensure that it is tightly secured to the bottom bar.
7. Inspect sealed reversing edge for tears or abrasions. An improper seal will make the door malfunction and not change direction upon impact. (See Figure 21)

NOTE: The door assembly, walls, and building structure MUST BE properly grounded.

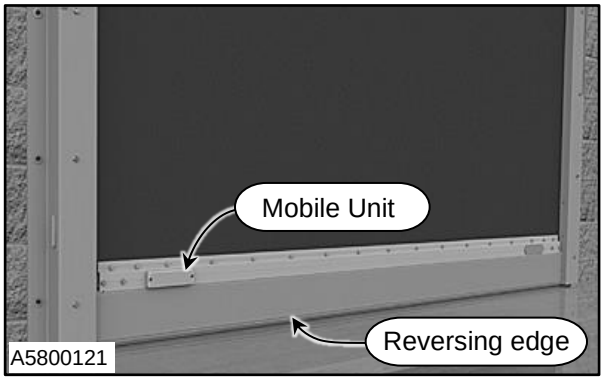

Figure 21

Brush Seal Inspection

NOTE: The brush seal is mounted on the rear spreader.

1. Inspect brush seal for wear and tear. Replace as necessary. (See Figure 22)

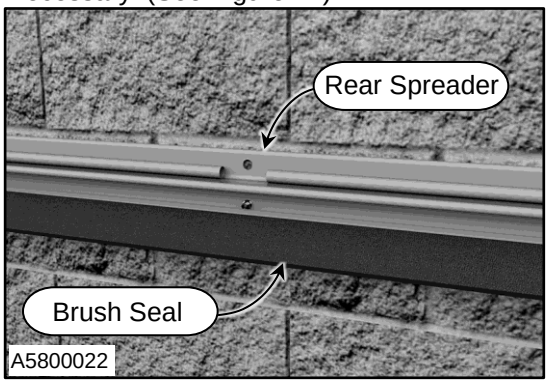

Figure 22

Door Limit Inspection

CLOSE LIMIT

With the door in the closed position, check the reversing edge. It should be in the position shown in Figure 23.

⚠ CAUTION

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 23)

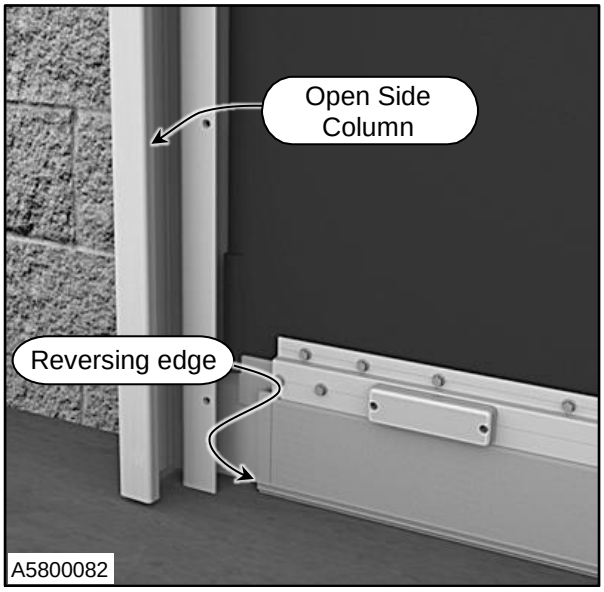

Figure 23

OPEN LIMIT

The open-limit position should be adjusted so that the door travel allows the bottom bar assembly to stop even with the lintel. (See Figure 24)

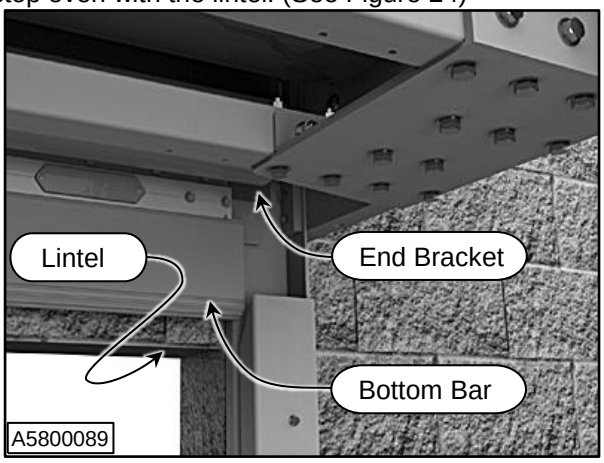

Figure 24

PLANNED MAINTENANCE—QUARTERLY INSPECTION

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 replaced.

MANUAL DOOR OPERATION

With door power turned off, pull the red handle to the motor/gearbox to engage chain drive operation. Manually move the door panel up and down making sure the operation is smooth and friction free. Pull the green handle to re-engage electrical operation. Restore power to the system and perform operations check.

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, mag card, 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.

Electrical Connection Inspection

⚠ 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. 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 near the head assembly. All connections must be secure and tight.
4. For the proper door operator electrical connection, see the wire diagram or schematic that came with the door.
5. Clean or replace weak connection point.

Lubrication

⚠ WARNING

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

The Rytec Powerhouse XL door is maintenance free when it comes to lubrication. Although a visual inspection should be performed to analyze any mechanical problems that have gone unnoticed. Operate the door and observe for any unusual noises or erratic operation. If a sealed bearing has gone bad, it will have a tendency to make a grinding or growl noise. This is a good indication that the bearing needs to be replaced.

Pillow Block: The idler is supported by a pillow block bearing located at each end. The bearings are normal duty, self-aligning, and sealed pre-lubricated steel cage cast iron housings. A general purpose grease should be used. (See Figure 25)

NOTE: "F" head assembly shown.

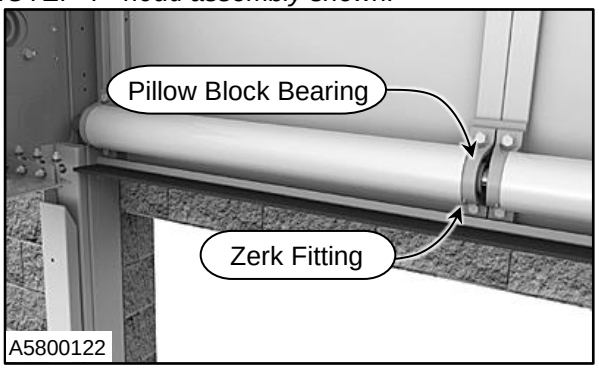

Figure 25

Bearing Block: The drum and idler are supported by a bearing block located at each end. The bearings are normal duty, self-aligning, and sealed pre-lubricated steel cage cast iron housings. They do not require any lubrication. (See Figure 26)

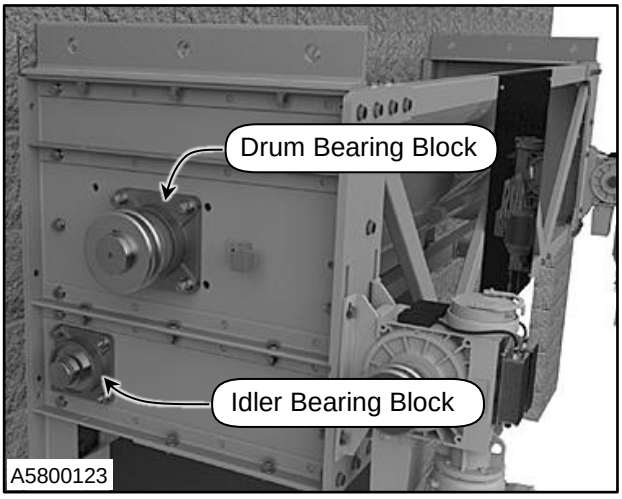

Figure 26

Drive Motor Assembly: The motor assembly is a sealed unit and doesn't require any lubrication of oil or grease.

NOTE: Do not lubricate the chain drive.

ADJUSTMENT

DOOR LIMITS

Setting Door Limits

A 2.5 mm hex wrench (included) is required to adjust the limit switch cams. Two set screws are on each cam. One is the locking set screw for coarse adjustment, and the other is for very fine adjustment of the cam.

IMPORTANT: ***If the limits are set in reverse order, close limit before open limit, there is the potential of over traveling the door in the opening position. Use the chain fall or jog mode when the bottom bar is within 2 in. of the limit position.***

NOTE: When using the chain fall, disengage both motor/gearboxes. (See "MANUAL DOOR PANEL MOVEMENT" on page 16.) Chain falls should be used in tandem, never one gearbox at a time unless there has been a catastrophic failure. If one gearbox has to be used, both brakes have to be mechanically disengaged.

1. Open the door using jog mode. Move the door panel until the bottom bar is set as shown in Figure 27.

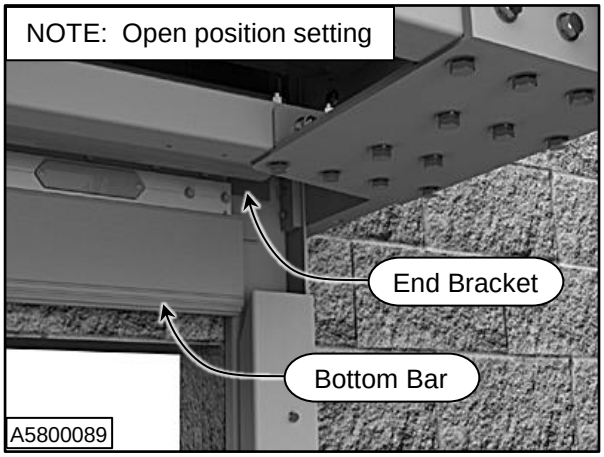

Figure 27

2. Rotate the open-limit cam switch (S3) clockwise until you hear the micro-switch click, and tighten the coarse adjustment locking set screw using the supplied hex key. (See Figure 29 & Figure 30)
3. Rotate the safety close-limit cam switch (S1) clock- wise until you hear the micro-switch click. (See Figure 29 & Figure 30)

NOTE: The micro-switch click point for the safety switches (S1 and S2) must be corrected using the fine adjustment screw. The door must stop safely if the direction of rotation is reversed or if the operating limit switch fails.

4. Close the door using jog mode. Lower the door panel until the bottom edge makes light contact with the floor across the entire opening. (See Figure 28)

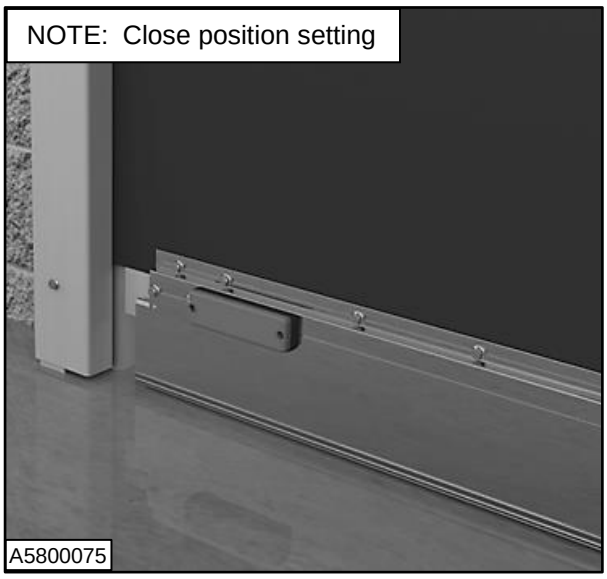

Figure 28

5. Rotate the close-limit cam switch (S4) clockwise until you hear the micro-switch click, and tighten the coarse adjustment locking set screw using the supplied hex key. (See Figure 29 & Figure 30)
6. Rotate the safety close-limit cam switch (S2) clock- wise until you hear the micro-switch click. (See Figure 29 & Figure 30)

Limit Switch Designations

- **S1** — Safety Open

IMPORTANT: ***Each limit wheel, except S1 and S2, has a coarse adjustment screw. S1 is fine adjustment only. This should be very close to the open limit; less than 1 in. This is used as a backup; set only if open limit fails.***

- **S2** — Safety Close

IMPORTANT: ***Each limit wheel, except S1 and S2, has a course adjustment screw. S2 is fine adjustment only. This should be very close to the close limit; less than 1 in. This is used as a backup; set only if close limit fails.***

- **S3** — Open
- **S4** — Close
- **S5** — Spare (Unused at this time)
- **S6** — Photo Eye Bypass

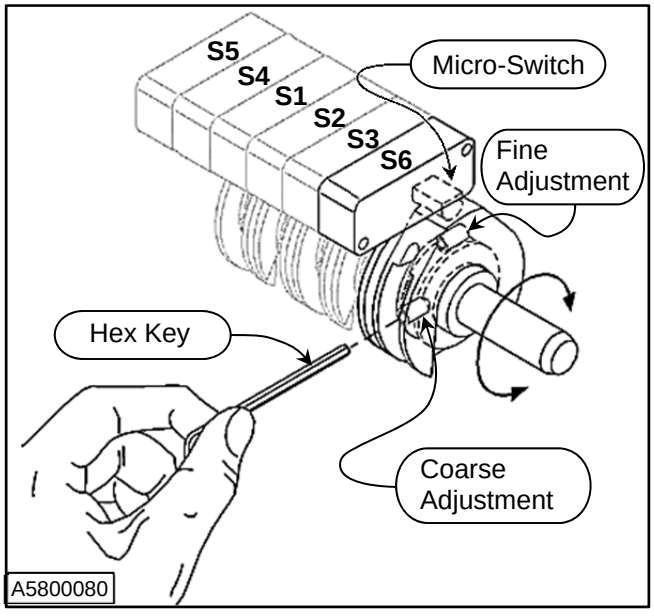

Figure 29

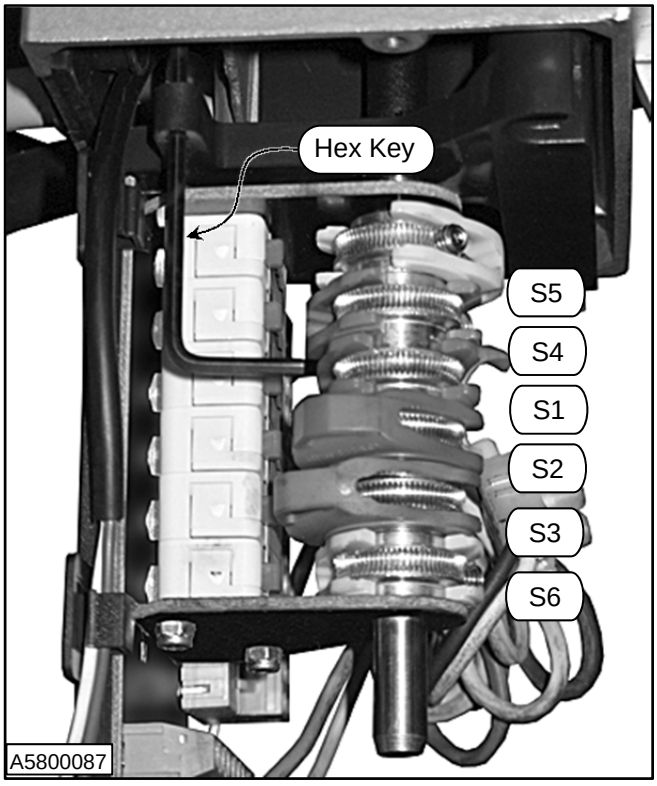

Figure 30

CHAIN TENSION

The chain tension is set at the factory. If the chain starts skipping or if the door is not operating smoothly and efficiently, an adjustment is required.

⚠ 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. Gain access to the chain drive.
3. Verify the amount of tension in the drive chain. A correctly-tensioned chain will deflect no more than two in. (See Figure 31)

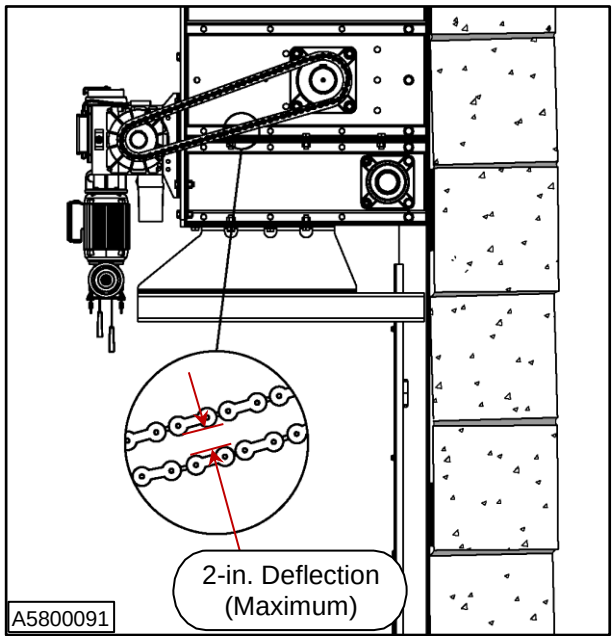

Figure 31

4. Loosen the four pieces of hardware that mount the motor/gearbox to the head assembly. (See Figure 32)

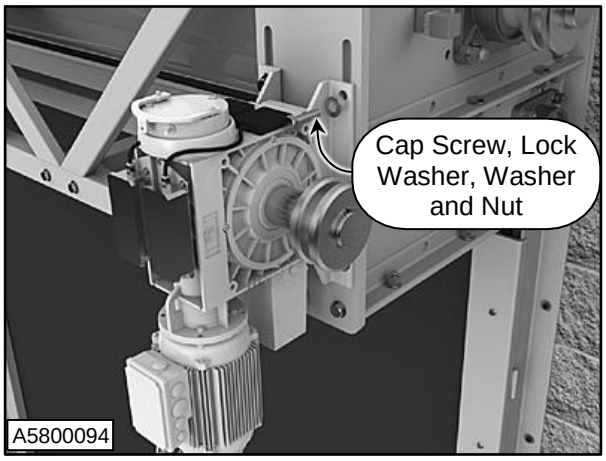

Figure 32

5. Adjust the motor/gearbox assembly. Moving the assembly down will increase the tension and decrease deflection. The exact opposite will result from moving the assembly up.
6. Tighten hardware when proper chain deflection has been attained.
7. Perform operations check on the door. Adjust if needed.
8. Return door back to service.

PROXIMITY SENSORS

The proximity sensors are part of an emergency stop circuit. If a chain breaks, the proximity sensor opens the emergency stop circuit and the controller stops the door. There is one on each side if there are dual motors, or one for a single. These proximity sensors (#1600435-0) may come loose over time and need to be readjusted.

1. Loosen the appropriate adjustment screws for a vertical (up or down) or horizontal (in or out) adjustment.
2. Center the proximity sensor on the chain. This would be a vertical adjustment.
3. Adjust the proximity sensor to an operating distance 0.62–0.78 in. (16–20 mm). This would be a horizontal adjustment. (See Figure 33)

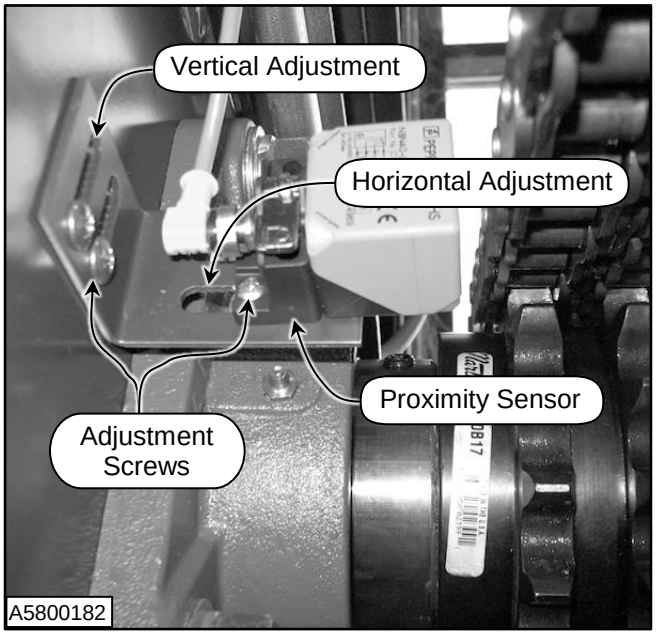

Figure 33

REPLACEMENT PROCEDURES

BRUSH SEAL(S)

⚠ WARNING

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

1. Raise the door panel and leave in the open position. Turn off power to the door.
2. Gain access to the rear spreader by lifting the bottom bar with door panel and moving it to the other side of the idler roller. (See Figure 34)

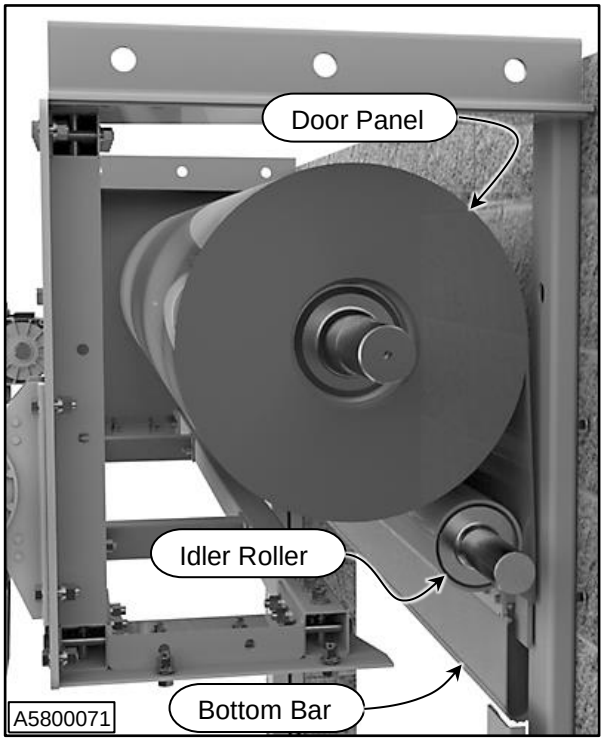

Figure 34

3. Remove serrated flange lock nuts and rear spreader track. (See Figure 35)

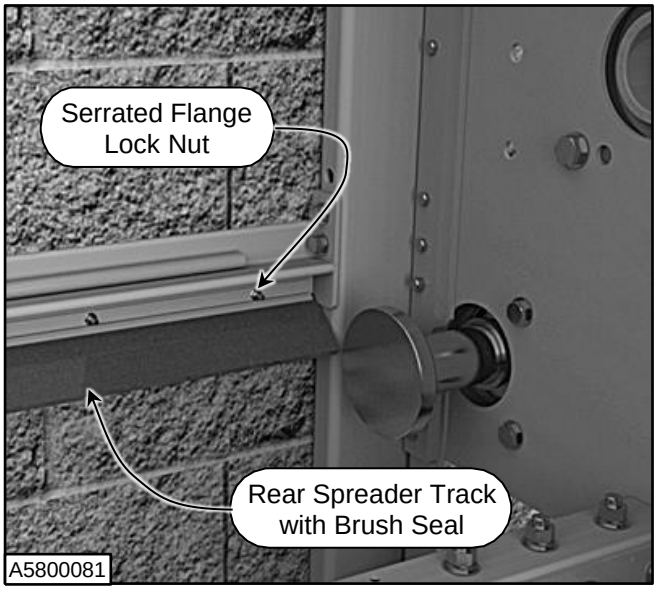

Figure 35

4. Remove the old brush seal and replace with a new one.
5. Install rear spreader track and serrated flange lock nuts.
6. Reposition the bottom bar with door panel to its original routing over the idler roller.
7. Restore power to the door.

NOTE: The door panel will reset itself after the power has been restored.

8. Perform operations check. Adjust door limits as needed.

MISCELLANEOUS

MANUAL DOOR PANEL MOVEMENT

The drive motor has red and green handles hanging from the bottom of the motor. When the green handle is pulled or in the lowest position, the drive motor is engaged to run on electrical power. When the red handle is pulled or in the lowest position, electrical power has been disengaged and manual door operation is required, using the chain. Also, when the red handle is pulled, a sensor is engaged and will not allow electrical power to the door.

Electrical power can be shut off anytime to operate the door in manual mode. Control panel limit settings will not be affected when switching the power off and back on. The door will return to a normal operating mode. (See Figure 36)

NOTE: When using the chain fall, disengage both motor/gearboxes. Chain falls should be used in tandem, never one gearbox at a time unless there has been a catastrophic failure. If one gearbox has to be used, both brakes have to be mechanically disengaged.

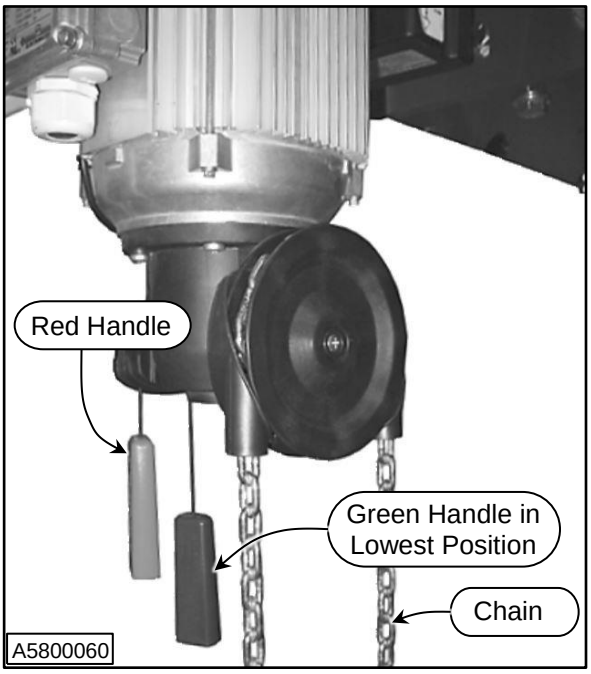

Figure 36

Head Assembly: Check that all mounting hardware is in place and tight.

Side Columns: Check that the side columns are plumb and square and that all anchor bolts are tightly secured.

Activators: Check to see that the activators operate as specified by the manufacturer.

Open and Close Limits: Check open and close limits. See “DOOR LIMITS” on page 13.

Caulk: Ensure that all edges of the jamb and header frames and pullouts are sealed where they meet the wall of the building. Use a high-quality caulk rated for the environment in which the door is installed, as required.

WIRE SCHEMATIC

GENERAL

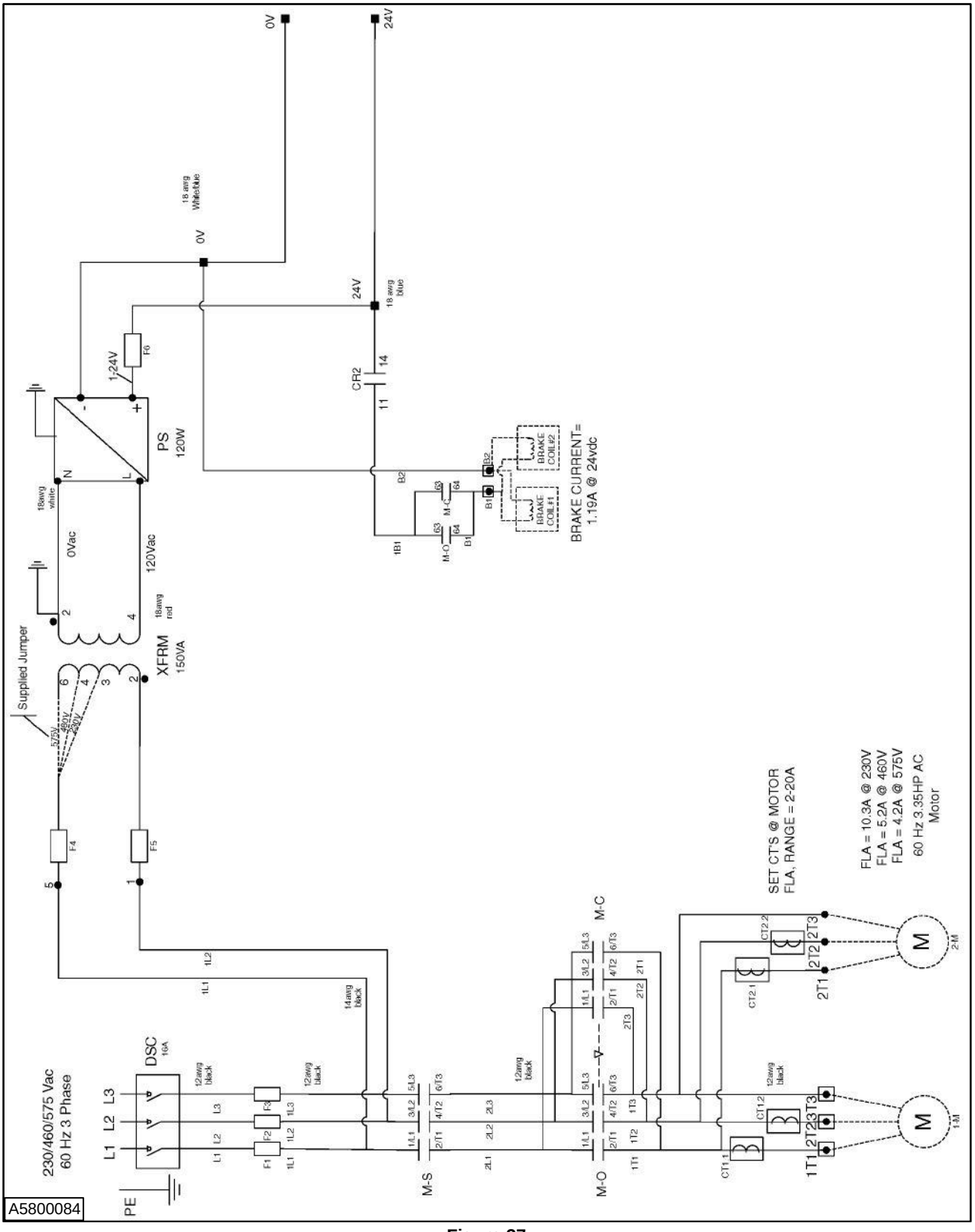

Figure 37

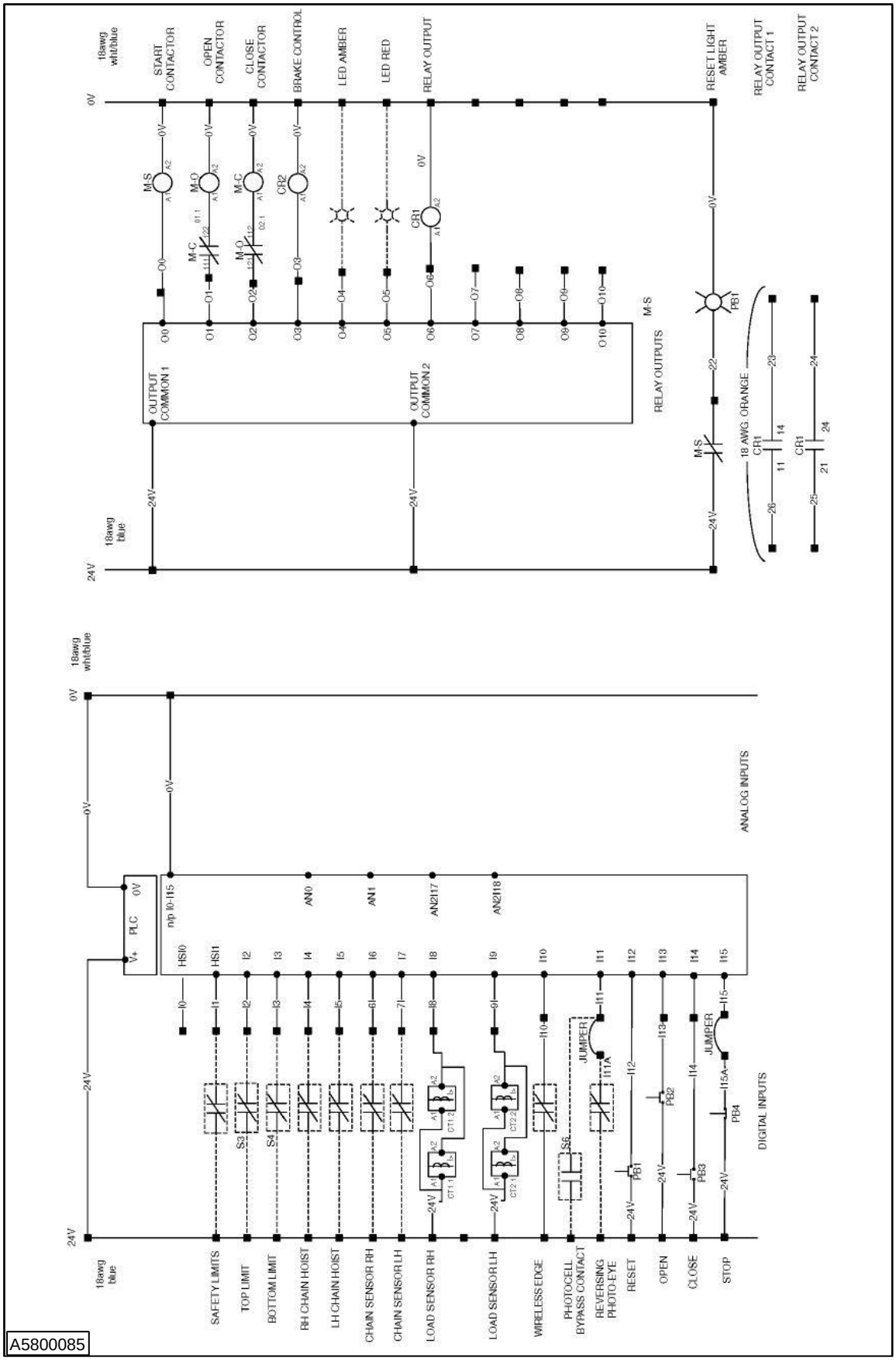
A5800085
18awg wht/blue
0V
START CONTACTOR
OPEN CONTACTOR
CLOSE CONTACTOR
BRAKE CONTROL
LED AMBER
LED RED
RELAY OUTPUT
RESET LIGHT AMBER
RELAY OUTPUT CONTACT 1
RELAY OUTPUT CONTACT 2
M-S
M-O
M-C
CR2
CR1
O0
O1
O2
O3
O4
O5
O6
O7
O8
O9
O10
OUTPUT COMMON 1
OUTPUT COMMON 2
RELAY OUTPUTS
18awg blue
24V
18 AWG. ORANGE
PB1
PB2
PB3
PB4
PLC
V+
mp 10-115
HSI0
HSI1
AN0
AN1
AN2117
AN2118
I0
I1
I2
I3
I4
I5
I6
I7
I8
I9
I10
I11
I11A
I12
I13
I14
I15
I15A
ANALOG INPUTS
DIGITAL INPUTS
JUMPER
S2
S3
S4
S6
CT1 1
CT1 2
CT2 1
CT2 2
SAFETY LIMITS
TOP LIMIT
BOTTOM LIMIT
RH CHAIN HOIST
LH CHAIN HOIST
CHAIN SENSOR RH
CHAIN SENSOR LH
LOAD SENSOR RH
LOAD SENSOR LH
WIRELESS EDGE
PHOTOCELL BYPASS CONTACT
REVERSING PHOTO EYE
RESET
OPEN
CLOSE
STOP

Figure 38

WIRE SCHEMATIC—BOTTOM BAR

BOTTOM BAR

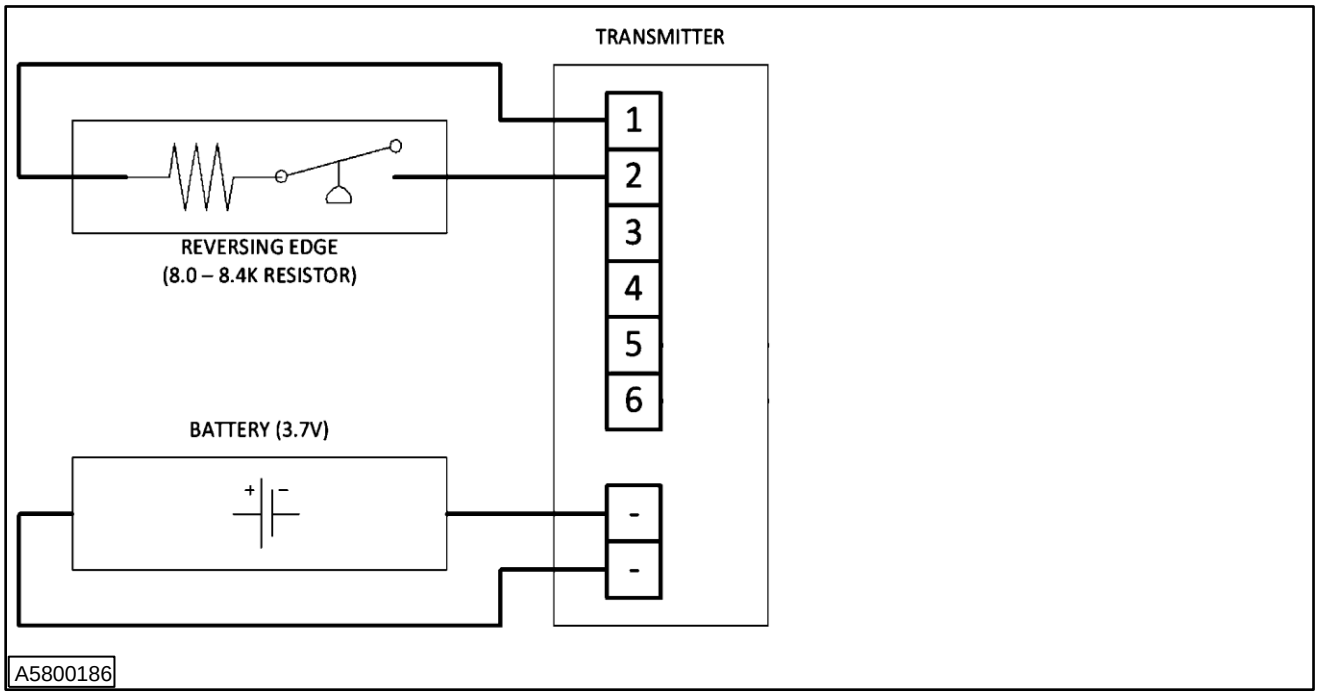

Figure 39

DIRECT DRIVE MOTOR

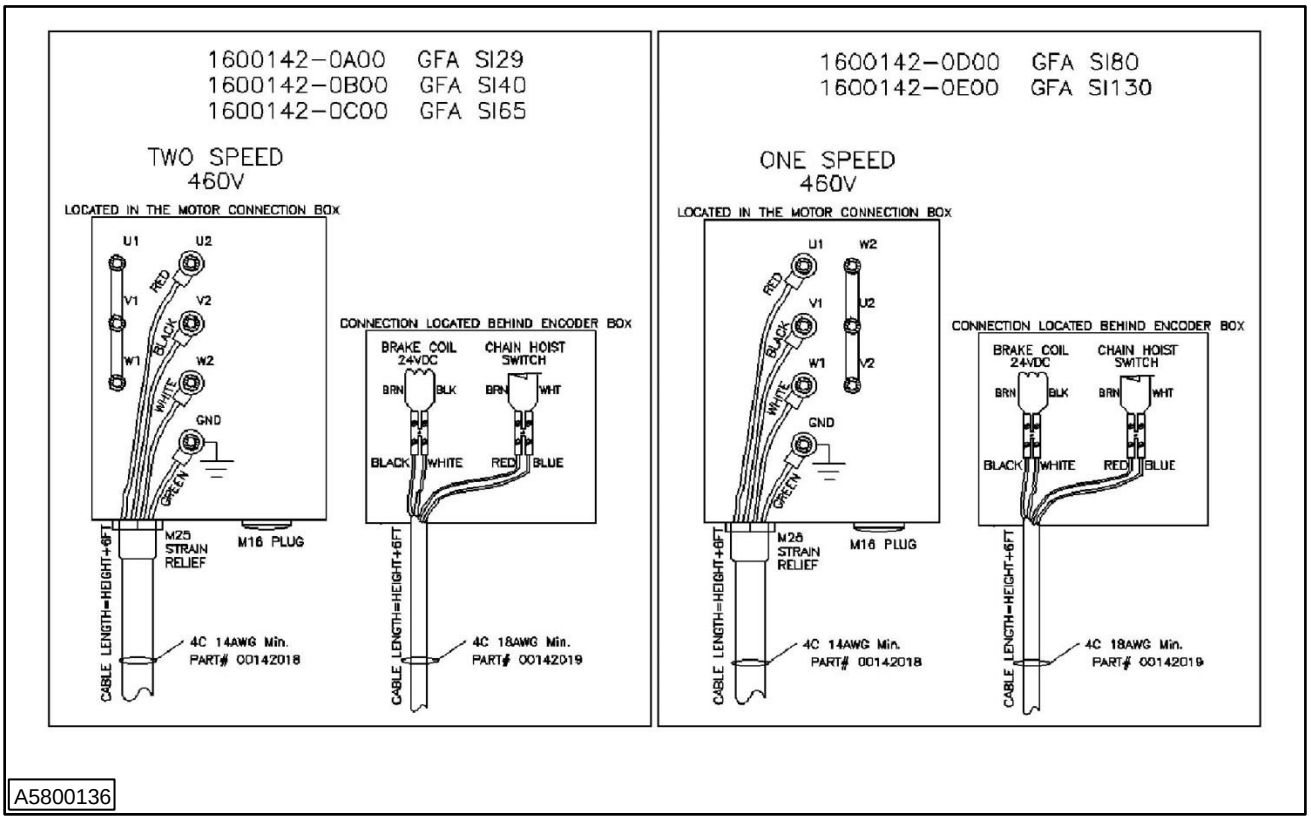

Figure 40

CHAIN DRIVE MOTOR

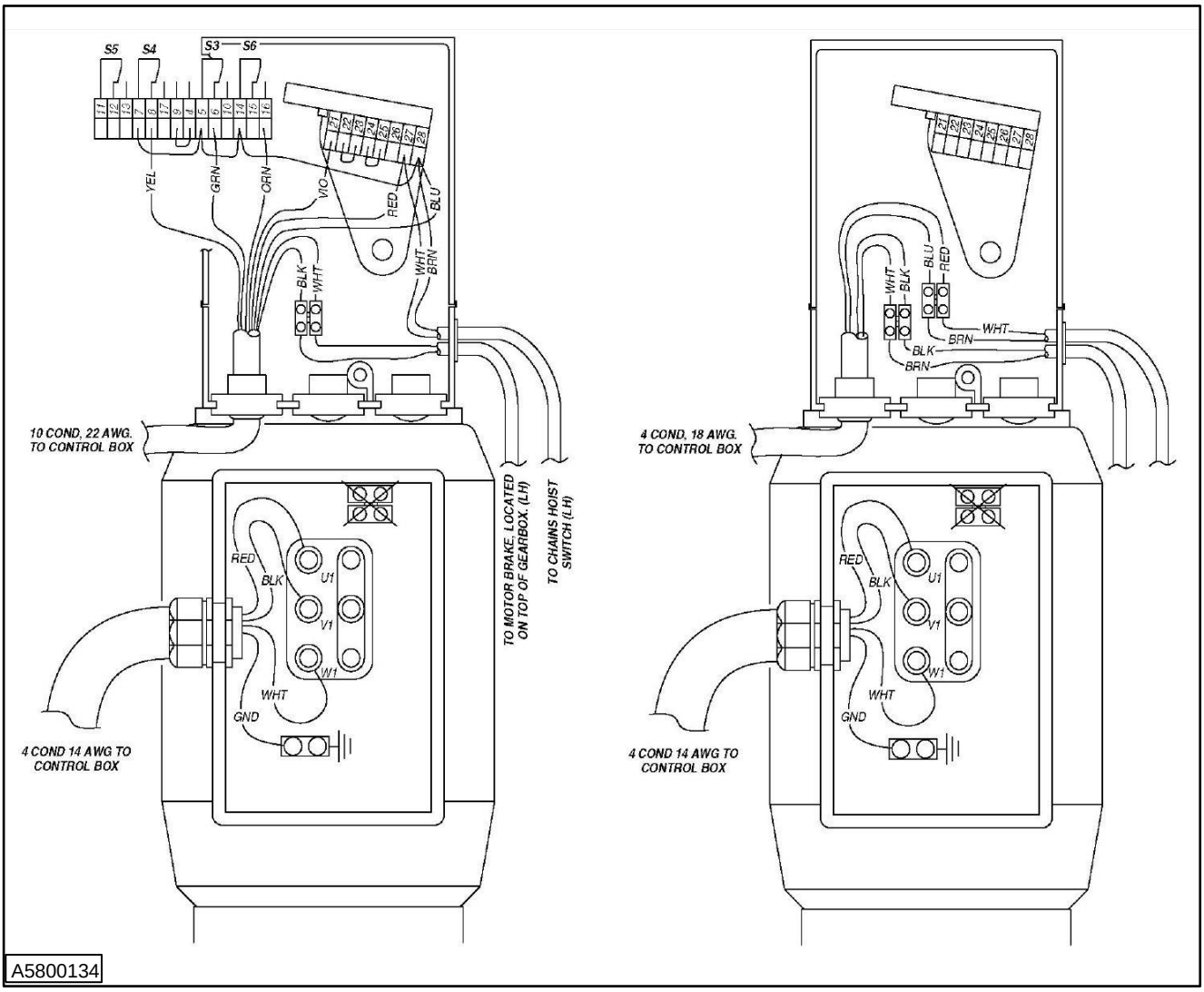

Figure 41

NOTES

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 door in several locations per the “DOOR SERIAL NUMBERS” section (See page 1). All these serial numbers must match. (See Figure 41)

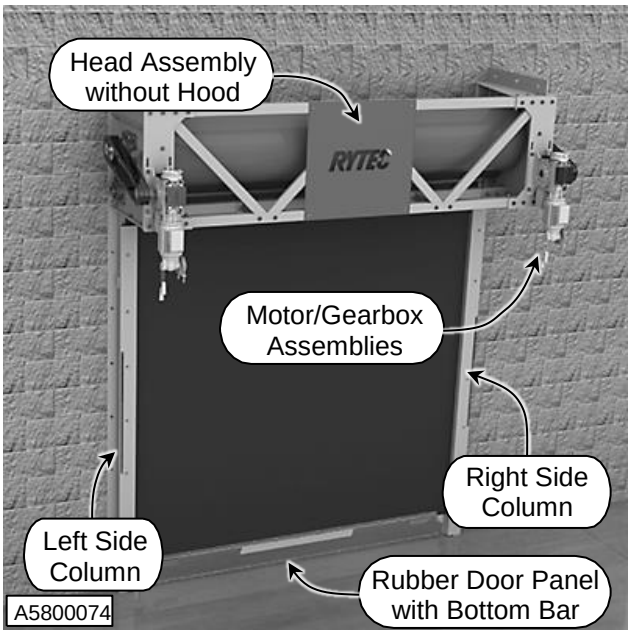

Figure 41

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.

RYTEC TECHNCIAL 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.

PARTS LIST—REAR SPREADER WITH IDLER

REAR SPREADER WITH IDLER

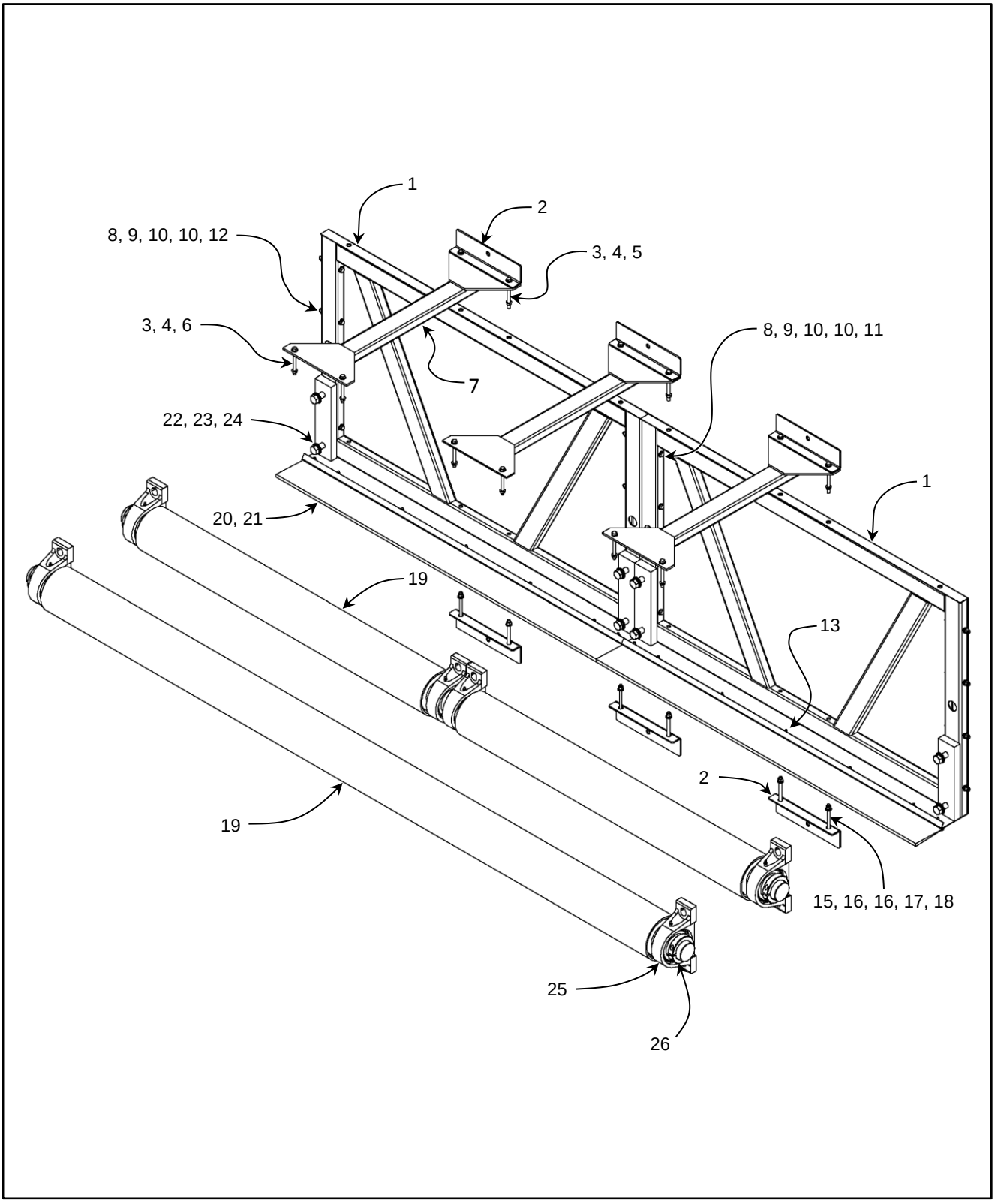

Figure 43

ITEM	QTY.	PART #	DESCRIPTION
1	1	160078-0	Assembly, Rear Spreader
		1600459-1E00	Assembly, Rear Spreader, E-Head, LH
		1600459-2E00	Assembly, Rear Spreader, E-Head, RH
		1600459-1F00	Assembly, Rear Spreader, F-Head, LH
		1600459-2F00	Assembly, Rear Spreader, F-Head, RH
2	A/R	1600501-0	Support Angle, Spreader
3	A/R	0553229	Hex Lock Nut Serrated Flange, $^3/_8$-16
4	A/R	0555146	Washer, Flat, Ø$^3/_8$
5	A/R	5550192-0Z01	Hex Head Cap Screw, $^3/_8$-16 x 4.50
6	A/R	0550138	Hex Head Cap Screw, $^3/_8$-16 x 4.00
7	A/R	1600497-0	Weldment, Upper Strut
8	12	0553091	Nut, $^3/_8$-16
9	12	0554118	Washer, Split Lock, $^3/_8$-in.
10	24	0555146	Washer, Flat, $^3/_8$-in.
11	4	5550196-0Z01	Hex Head Cap Screw, $^3/_8$-16 x 7.00
12	8	5550138	Hex Head Cap Screw, $^3/_8$-16 x 4.00
13	A/R	0550016	Hex Flange Serrated Machine Screw, $^1/_4$-20 x $^3/_4$
14			
15	A/R	0550138	Hex Head Cap Screw, $^3/_8$-16 x 4.00
16	A/R	0555146	Washer, Flat, $^3/_8$-in.
17	A/R	0554118	Washer, Split Lock, $^3/_8$-in.
18	A/R	0553091	Nut, $^3/_8$-16
19	1	1600304-0E00	Assembly, Idler Roller, Single, E-Head
	2	1600304-0F00	Assembly, Idler Roller, Dual, F-Head
20	1	1600465-0	Brush, Rear Spreader
21	1	1600466-0	Track, Aluminum
22	A/R	0555144	Washer, 0.781 x 1.50 x 0.120
23	A/R	0554184	Washer, Lock, $^3/_4$-in.
24	A/R	5550163-0Z01	Hex Head Cap Screw, $^3/_4$-10 x 2.75
25	A/R	1600560-0	Bearing, Idler Pillow Block, Vertical Zerk Fittings
26	2	5550124-0Z01	Shaft Collar, Split, 4.00 (OD) x 2.75 (ID) x .88 (T)

CF = Consult Factory
A/R = As Required

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.

HEAD ASSEMBLY–DIRECT DRIVE

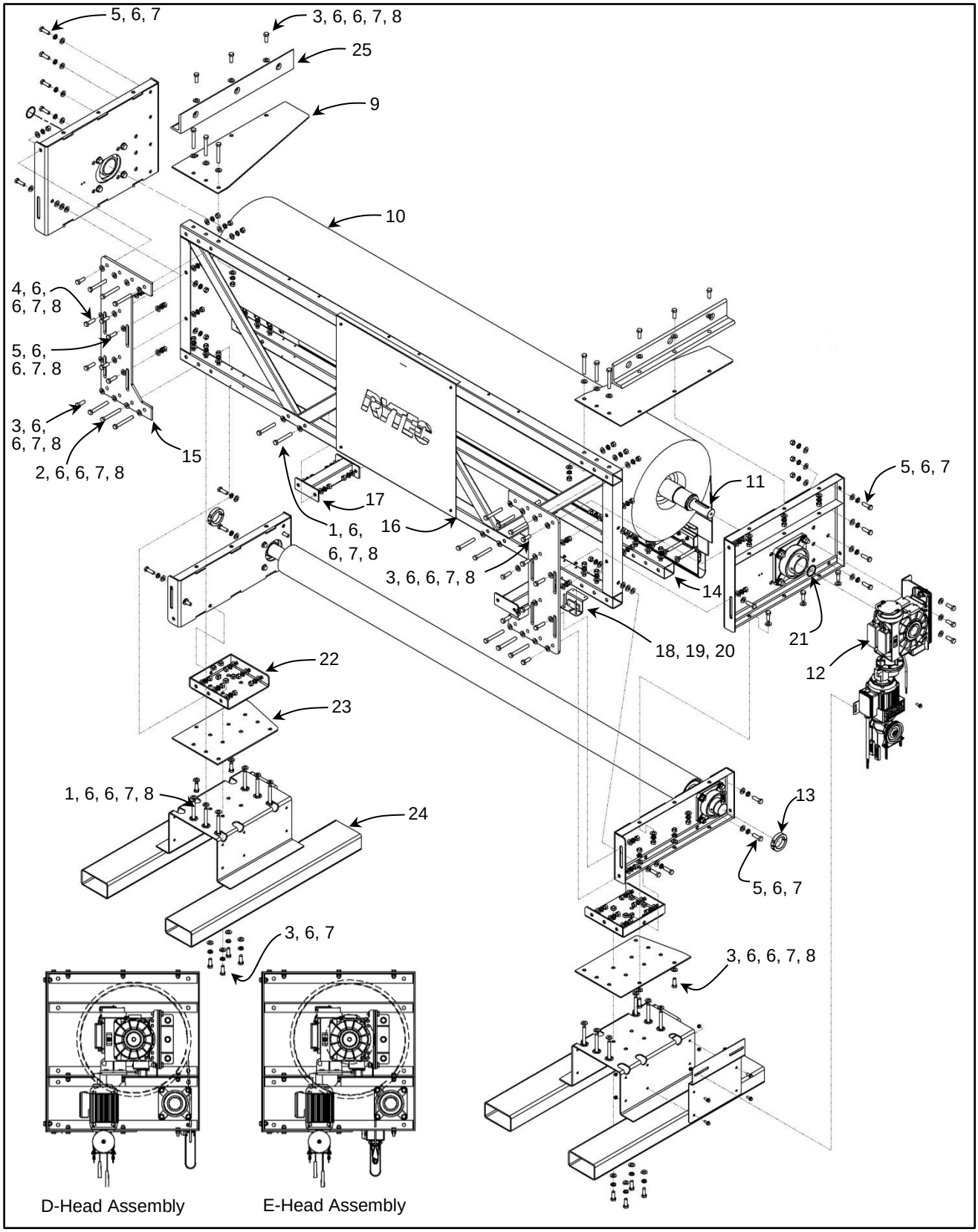

Figure 44

ITEM	QTY.	PART #	DESCRIPTION
1	38	5550176-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 4.50
2	6	5550177-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 5.00
3	32	5550175-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 1.75
4	4	5550111-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 2.25
5	10	5550170-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 2.00
6	182	5550128-0Z01	Washer, Flat, $^5/_8$-in.
7	90	0554120	Washer, Lock, $^5/_8$-in.
8	80	0553092	Hex Nut, $^5/_8$-in. UNC
9	2	1600297-0	Top Plate, Head
10	1	Consult Factory	Drum Assembly
11*	1 (REF)	1600152-0	Key, Shaft Motor Drive - *contained in Item 10
12	2	Consult Factory	Motor-Gearbox
13	2	5550124-0Z01	Shaft Collar, Split, 4.00 (OD) x 2.75 (ID) x 0.88 (T)
14	1	1600316-0	Horizontal Truss, Lower
15	2	1600298-0	Front Plate, Head
16	1	1600313-0	Front Truss Assembly
17	2	1600476-0	Spreader Bar Tie-In
18	1	1600094-0	Antenna Bracket Assembly
19*	2 (REF)	5550134-0Z01	Hex Flanged Socket Mach. Screw 1/4-20 x 3.50 ZN
20*	2 (REF)	0553103	Nut, Hex Serrated Flanged Lock, 1/4-20 ZN
			*Items 19 & 20 are contained in Item 18
21	2	5550161-0Z01	Snap Ring, 3.50 ID
22	2	1600421-0	Bottom Plate
23	2	1600401-0	Bottom Plate
24	2	1600833-X	Cradle, Lifting
25	2	1600451-0Z01	Angle, Lifting

CF = Consult Factory
A/R = As Required

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.

HEAD ASSEMBLY–CHAIN DRIVE

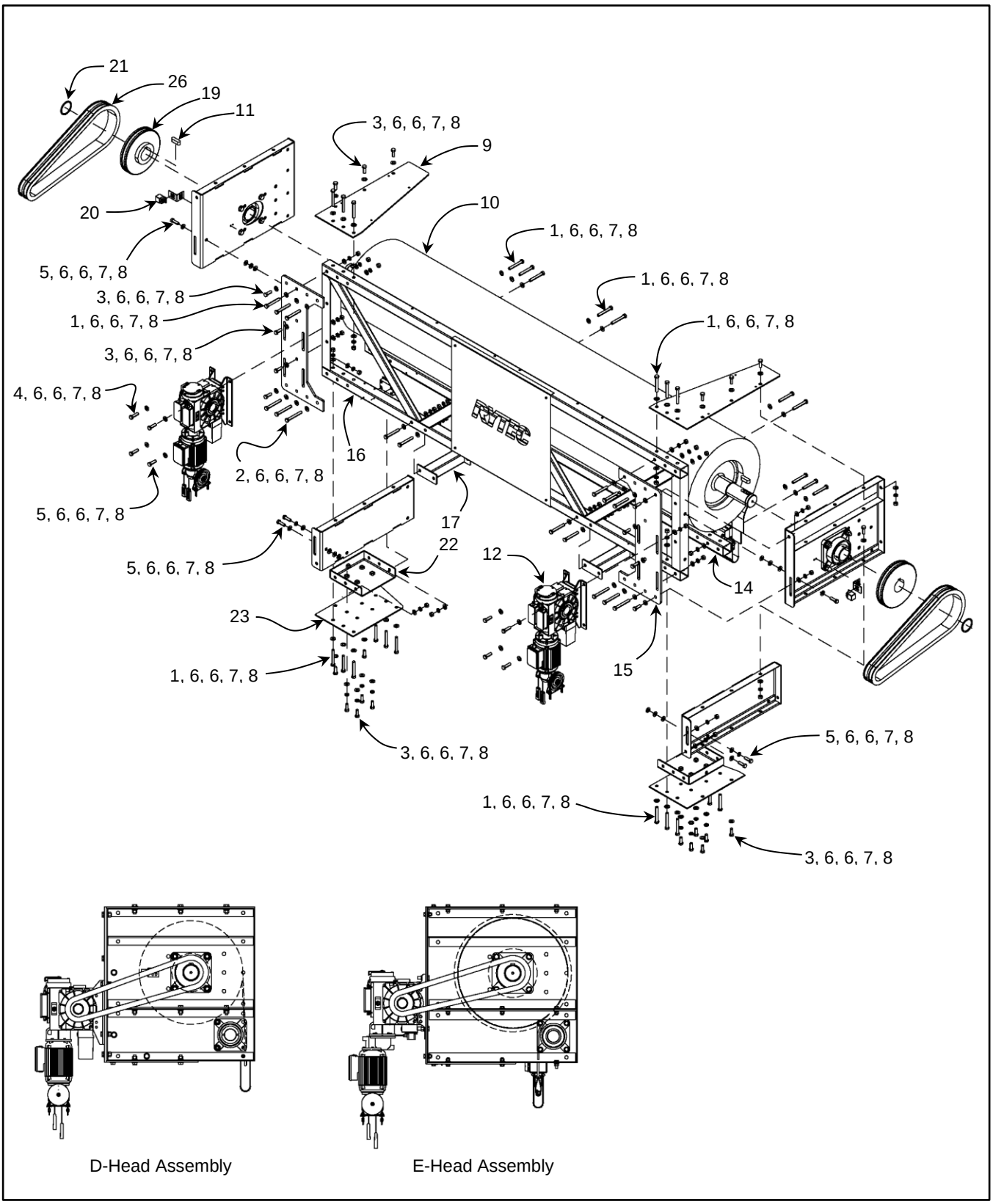

Figure 45

ITEM	QTY.	PART #	DESCRIPTION
1	38	5550176-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 4.50
2	6	5550177-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 5.00
3	32	5550175-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 1.75
4	4	5550111-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 2.25
5	10	5550170-0Z01	Hex Head Cap Screw, $^5/_8$-11 x 2.00
6	182	5550128-0Z01	Washer, Flat, $^5/_8$-in.
7	90	0554120	Washer, Lock, $^5/_8$-in.
8	80	0553092	Hex Nut, $^5/_8$-in. UNC
9	2	1600297-0	Top Plate, Head
10	1	Consult Factory	Drum Assembly
11	2	1600370-0	Key, Large Sprocket
12	2	Consult Factory	Motor-Gearbox
13	2	5550124-0Z01	Shaft Collar, Split, 4.00 (OD) x 2.75 (ID) x 0.88 (T)
14	1	1600316-0	Horizontal Truss, Lower
15	2	1600298-0	Front Plate, Head
16	1	1600313-0	Front Truss Assembly
17	2	1600476-0	Spreader Bar Tie-In
18	1	1600617-0	Assembly, ASO Wireless Receiver, Cord, and Hardware XL
19	2	1600329-0	Drum Sprocket, Dual Strand, 17T
20	2	1600829-0	Assembly, Proximity Sensor and Bracket
21	2	5550161-0Z01	Snap Ring, 3.50 ID
22	2	1600421-0	Bottom Plate
23	2	1600401-0	Bottom Plate
24	2	1600833-X	Cradle, Lifting
25	2	1600451-0Z01	Angle, Lifting (Not Shown)
26	2	1600269-0	Chain, 72.50-in. long
27	2	1600833-X	Cradle, Lifting (Not Shown)

CF = Consult Factory
A/R = As Required

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—SIDE COLUMN ASSEMBLY

SIDE COLUMN ASSEMBLY (“D” SIZE HEAD)

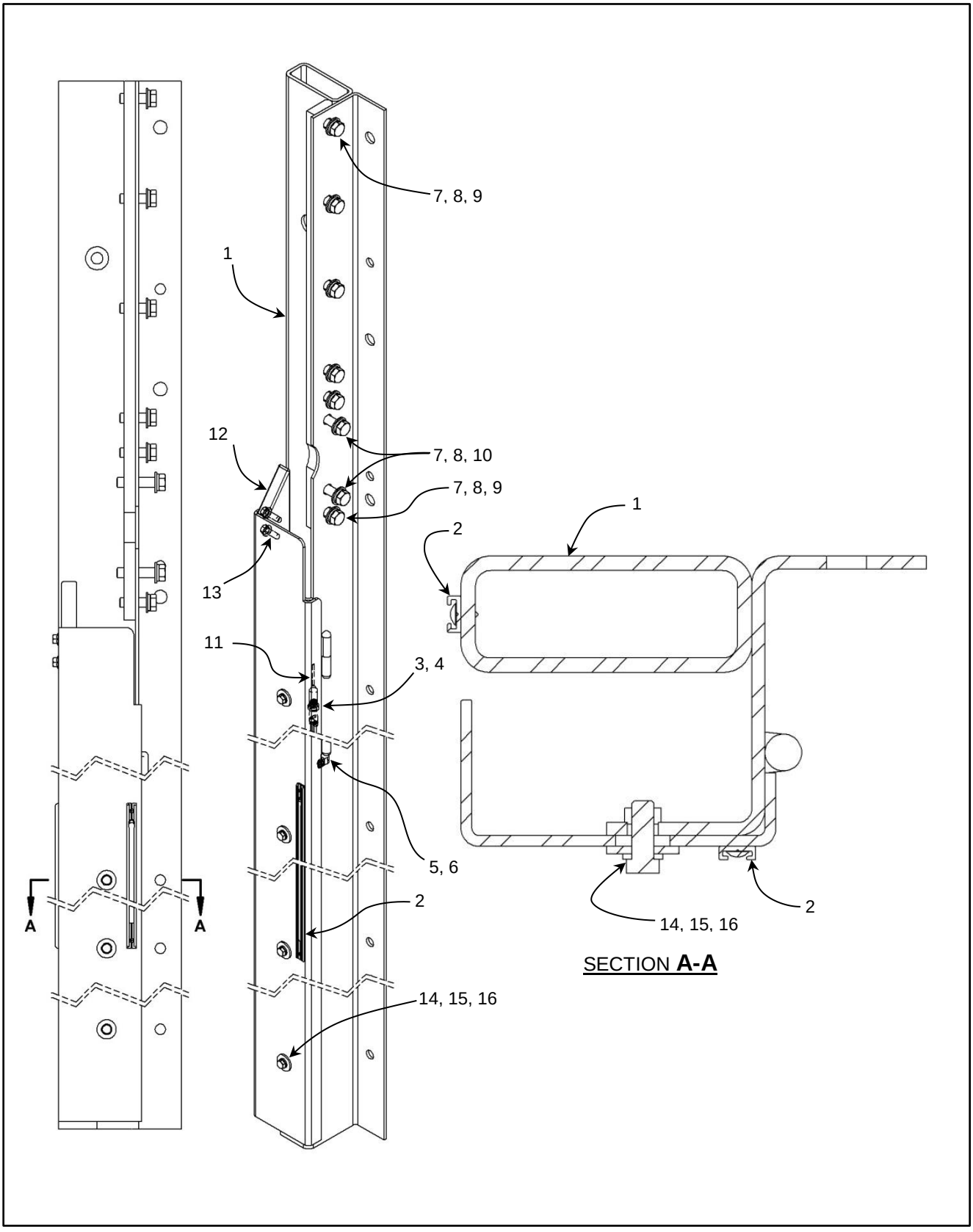

Figure 46

ITEM	QTY.	PART #	DESCRIPTION
1	1	Consult Factory	Weldment, LH Side Column
		Consult Factory	Weldment, RH Side Column
2	2	1600140-0	LED Assembly
3	1	00142010	LED Split Connector
4	1	0012807	Cable, M12 Micro Connector, 15 M, Female 5 Conductor
		0012869	Cable, M12 Micro Connector, RKT 5-612-30M, Female
5†	1	0904030	Cable Clip, ⅜ ID
6†	1	0553103	Nut, ¼-20 UNC Hex Flanged Lock, ZN
7	8	5550128-0Z01	Washer, Flat, Ø$^{5}/_{8}$-in. ZN
8	8	0554120	Washer, Lock, $^{5}/_{8}$-in.
9	6	5550170-0Z01	Hex Head Cap Screw, $^{5}/_{8}$-11 x 2.00, ZY
10*	2	5550178-0Z01	Hex Head Cap Screw, $^{5}/_{8}$-11 x 2.75, GR8, ZN
11	1	1600633-0	Wire Protector, Powerhouse
12	1	1600639-1	Guide, side column cover, 90° Windlock, LH
		1600639-2	Guide, side column cover, 90° Windlock, RH
13	2	5550330	Hex Head Flanged Machine Screw, ⅜-16 x 1.00, GR5.2, ZN
14	A/R	5550145-0Z01	Hex Head Cap Screw, ⅜-16 x 1.00, GR8 ZN
15	A/R	5550140-0Z01	Washer, Flat ⅜ ID x 1.25 OD x 1/8 Thk, ZN
16	A/R	0554225	Washer, Split Lock, Ø⅜-in. SS
17	1	1600338-0	Cord Organizer, Spiral Wrapping (Not Shown)
18**	1	0553092	Nut, $^{5}/_{8}$-11 UNC Hex, ZN
19**	1	5550175-0Z01	Hex Head Cap Screw, $^{5}/_{8}$-11 x 1.75, GR5, ZN

CF = Consult Factory
A/R = As Required
N/A = not applicable to this assembly
† NOT Used only on “E” & “F” size Side Column Assembly
* Used only on “D” size head Side Column Assembly
** Used only on “E” & “F” size head Side Column Assembly

NOTE: Also refer to Figure 47.

ALWAYS INCLUDE SERIAL NUMBER OF DOOR WHEN PLACING ORDER
To ensure you receive the correct parts when placing an order, always include the serial number of your door. Also, due to product enhancement, the actual parts on your door may be different from those shown in this manual.

PARTS LIST—SIDE COLUMN ASSEMBLY

SIDE COLUMN ASSEMBLY (“E” & “F” SIZE HEAD)

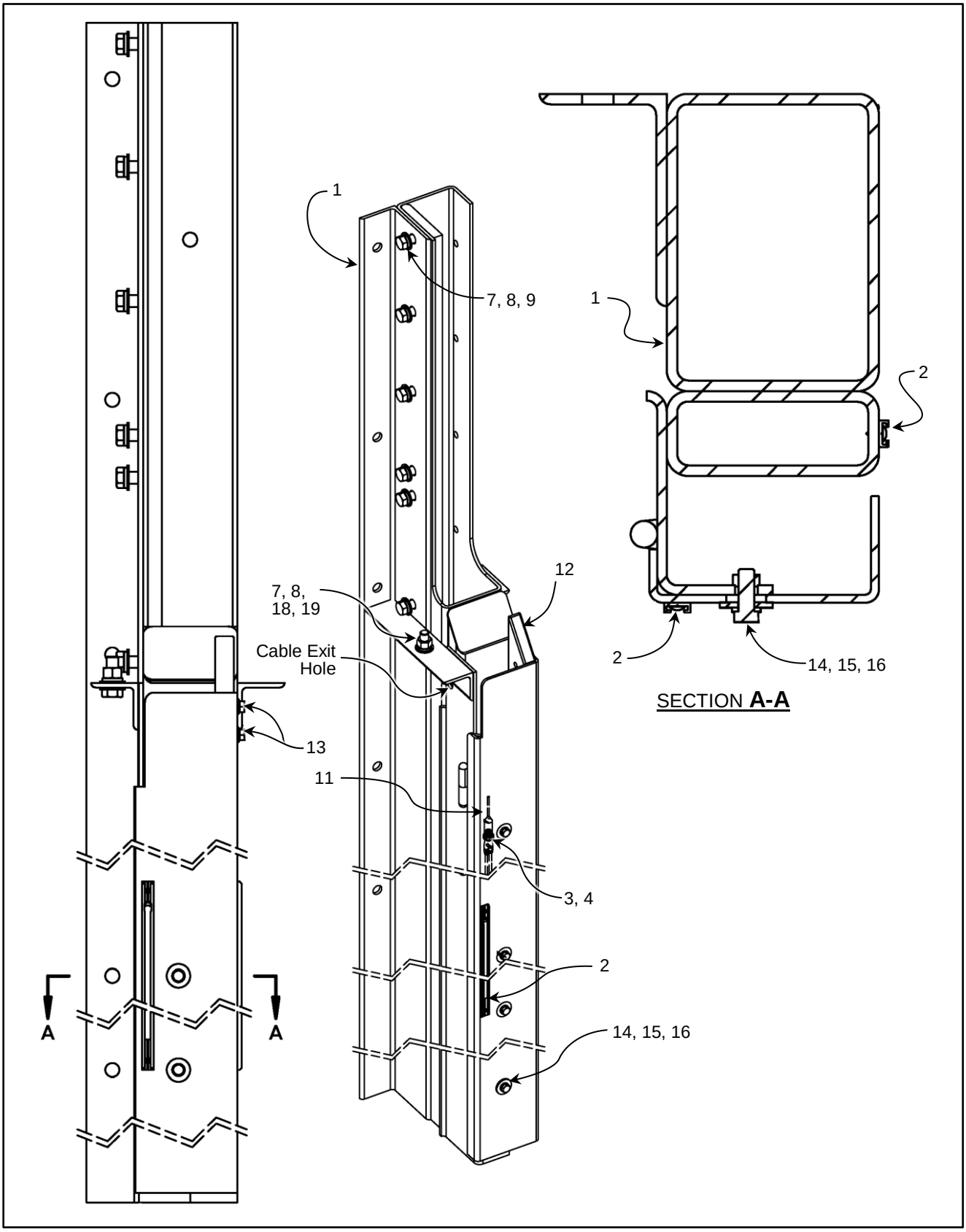

Figure 47

ALWAYS INCLUDE SERIAL NUMBER OF DOOR WHEN PLACING ORDER

To ensure you receive the correct parts when placing an order, always include the serial number of your door. Also, due to product enhancement, the actual parts on your door may be different from those shown in this manual.

PARTS LIST—HOOD ASSEMBLY

HOOD ASSEMBLY

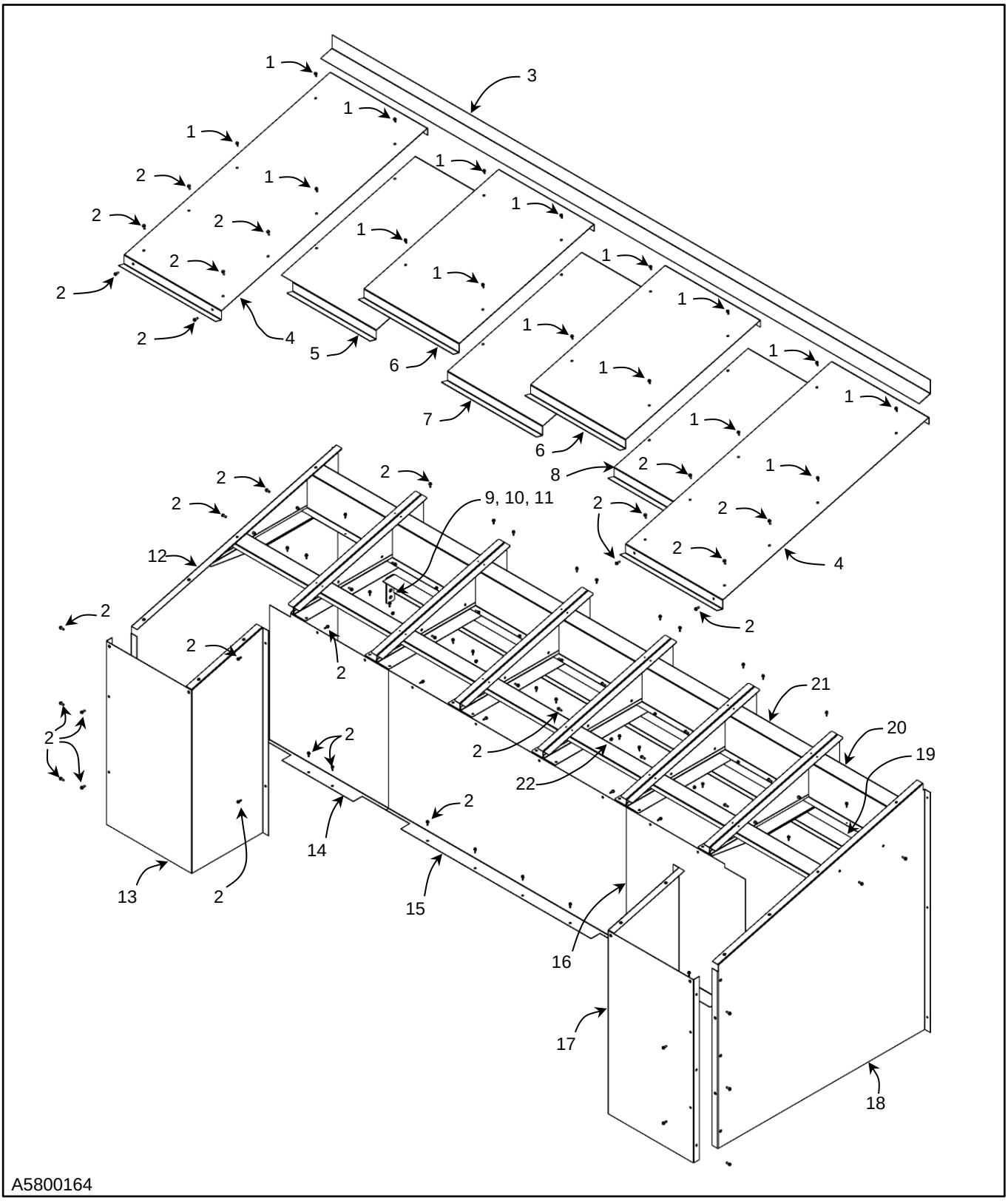

Figure 48

ITEM	QTY.	PART #	DESCRIPTION
1	60	5550209-0Z01	Hex Head Self Drilling Screw with Rubber Washer, $^1/_4$-14 x $^3/_4$
2	38	0550016	Hex Flange Serrated Machine Screw, $^1/_4$-20 x $^3/_4$
3	1	1600574-0	Flashing, Hood, Dual Drive
4	2	1600555-0	Hood, Outer
5	1	1600557-1	Hood, Inner, LH
6	2	1600559-0	Hood, Outer, Center
7	1	1600557-0	Hood, Inner, Center
8	1	1600557-2	Hood, Inner, RH
9	4	0550303	Hex Head Serrated Cap Screw, $^1/_2$-13 x 1-¼
10	4	0554121	Washer, Split Lock, $^1/_2$-in.
11	4	5550129-0Z01	Washer, Flat, $^1/_2$-in.
12	1	1600548-1	Motor End Cover, LH, Dual Drive
13	1	1600551-1	Motor Cover, LH, Dual Drive
14	1	1600566-1	Front Cover, Hood, LH
15	1	1600566-0	Front Cover, Hood, Center
16	1	1600566-2	Front Cover, Hood, RH
17	1	1600551-2	Motor Cover, RH, Dual Drive
18	1	1600548-2	Motor End Cover, RH, Dual Drive
19	A/R	1600568-0	Rear Mounting Spreader Hood
20	2	1600553-1	Hood Frame, Dual Drive
21	8	1600553-0	Center Hood Frame, Dual Drive
22	8	0553103	Hex Flange Lock Nut, $^1/_4$-20

CF = Consult Factory
A/R = As Required

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.

DRUM AND DOOR PANEL ASSEMBLY

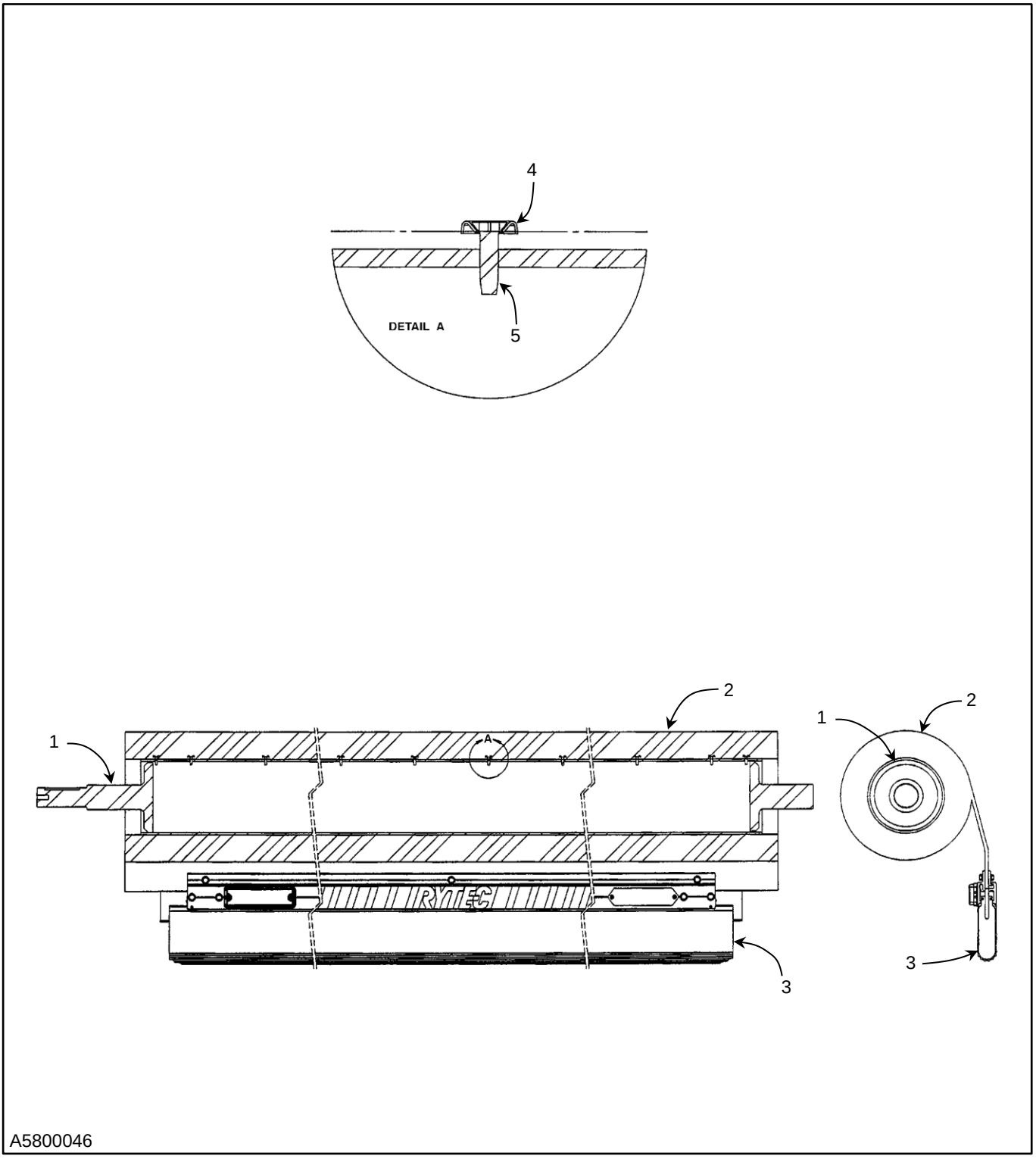

Figure 49

DRUM AND DOOR PANEL ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	1	Consult Factory	Drum Weldment
2	1	Consult Factory	Panel Assembly
3	1	Consult Factory	Bottom Bar Assembly
4	A/R	5550135-0Z01	Washer, Finish 3/8 in. Steel Plated
5	A/R	5550185-0Z01	Screw, Self-Tapping 5/16-18 X 2.00 Lng

CF = Consult Factory
A/R = As Required

ALWAYS INCLUDE SERIAL NUMBER OF DOOR WHEN PLACING ORDER

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BOTTOM BAR ASSEMBLY

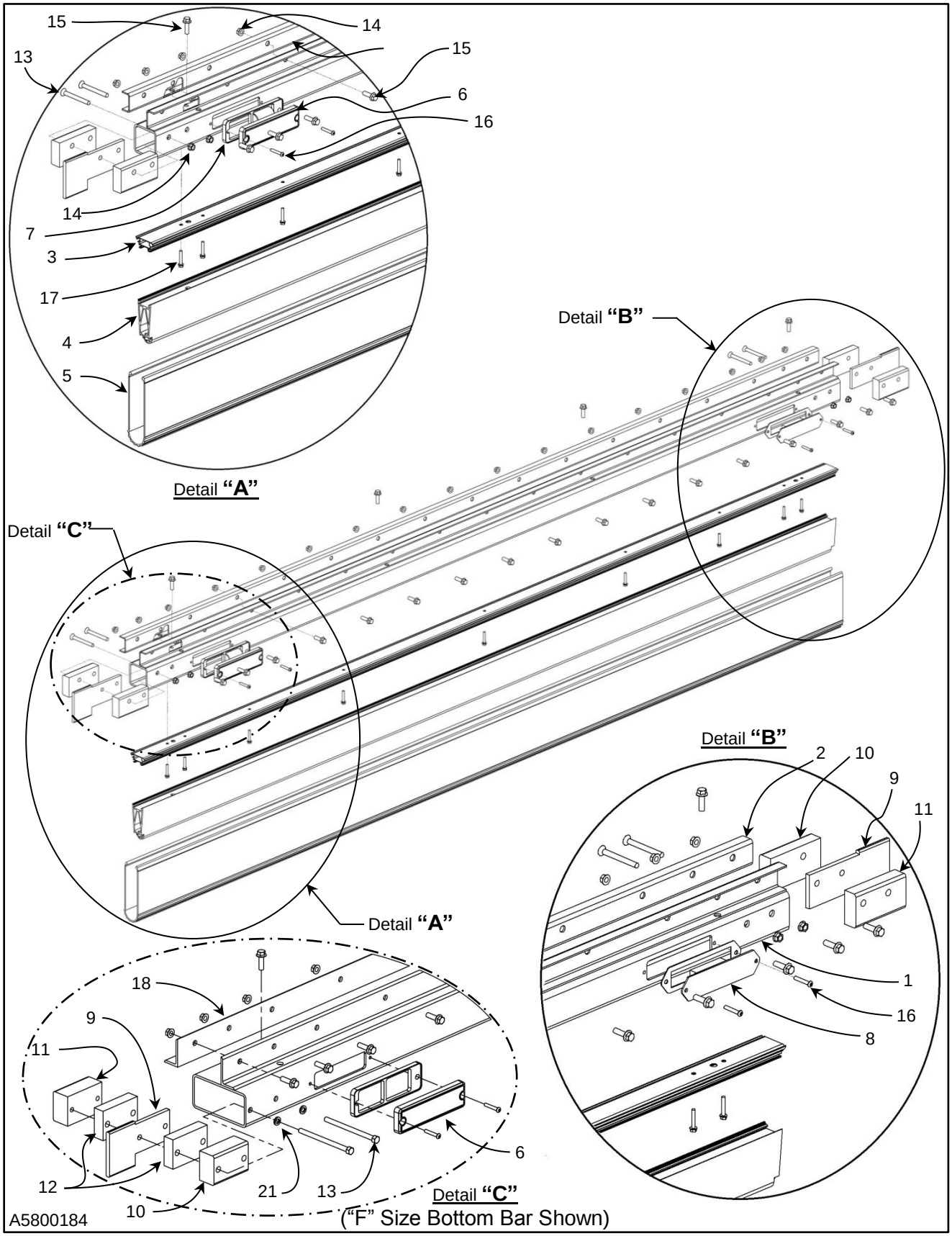

Figure 50

BOTTOM BAR ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	1	Consult Factory	Weldment, Bottom Bar Tube & Mounting Angle
2	1	Consult Factory	Angle, Mounting, Bottom Bar D-Size
3	1	1600353-0	Bottom Edge Track, Machined, Bottom Bar
4	1	1600151-0D00	Reversing Edge Assembly
5	1	1600265-0D00	Bottom Loop Extrusion
6	1	1600514-0	Cover Assy, Mobile Unit, Molded, Potted (Single Motor Drive)
		1600629-0	Assy, ASO Wireless Unit, Battery, Gasket & Cover (Dual Motor Drive)
7	(1) REF	1070625-0	Gasket, Wireless Cover (Item contained in #6)
8	1	1600107-0	Assembly, Vibration Sensors
9	2	1600723-0	End Bracket, Bottom Bar, D-Size
		1600349-0Z01	End Bracket, Bottom Bar, E & F-Size
10	2	1600721-1	End Block, Front End Bracket
		1600350-0Z01	Plug, Front, Bottom Bar Tube, XL
11	2	1600721-2	End Block, Rear End Bracket
		1600351-0Z01	Plug, Rear, Bottom Bar Tube, XL
12**	4**	1600352-0Z01	Spacer, Plug, 6 x 3 Bottom Bar Tube, F-Size Head, XL
13	4	5550114-0Z04	Screw, $^3/_8$-16 x 3½, Flat Head Cap, SS
		5550225-0Z01	Screw, $^3/_8$-16 x 3½, Hex Head Cap, GR5.2
		5550226-0Z01	Screw, $^3/_8$-16 x 5½, Hex Head Cap, GR5.2
14*	A/R	0553229	Hex Lock Nut Serrated Flange, $^3/_8$-16
15	A/R	0550261	Screw, $^3/_8$-16 x $1^1/_4$, Hex Serrated Flange, GR5.2
16	4	S021793	Screw, ¼-20 UNC x 1-½ Lng Pan Head, SS
17	A/R	5550169-0Z01	Screw, $^1/_4$-20 x $1^1/_2$ Lng, Hex Washer Self Tapping
18†	1†	CF	Angle, Mounting, E & F Size, Bottom Bar, LH Splice
19†	1†	CF	Angle, Mounting, E & F Size, Bottom Bar, Center Splice (Not Shown)
20†	1†	CF	Angle, Mounting, E & F Size, Bottom Bar, RH Splice (Not Shown)
21†	4†	0554118	Washer, Ø3/8" Lock, Split, ZN

CF = Consult Factory
A/R = As Required
* NOT Used on "E" & "F" size head Bottom Bar Assembly
** Used only on "F" size head Bottom Bar Assembly
† Used only on "E" & "F" size head Bottom Bar 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—BOTTOM BAR ASSEMBLY

BEARING PLATE ASSEMBLY

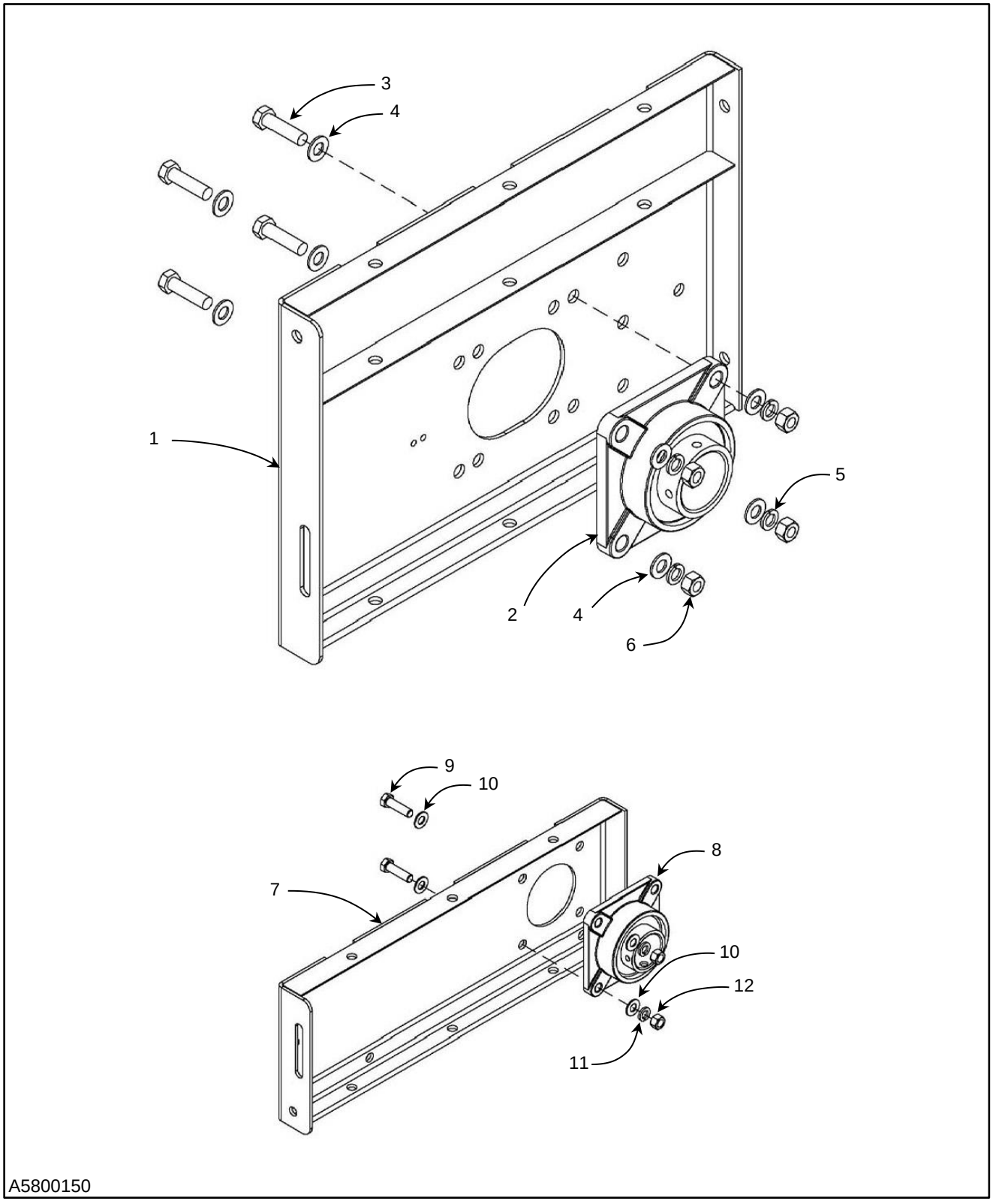

Figure 51

ITEM	QTY.	PART #	DESCRIPTION
1	1	Consult Factory	Weldment, Bearing Plate, RH
		Consult Factory	Weldment, Bearing Plate, LH
2	1	1600258-0	Bearing, Drum, Ø3½
3	4	5550163-0Z01	Screw, ¾-10 x 2-¾, Hex Head Cap, GR8
4	4	S021019	Washer, Ø¾ Flat, SS
5	4	0554184	Washer, Ø¾ Lock
6	4	0553093	Nut, ¾-10 UNC Hex
7	1	Consult Factory	Weldment, Idler End Plate, RH
		Consult Factory	Weldment, Idler End Plate, LH
8	1	1600043-0	Bearing, Drum
9	2	5550111-0Z01	Screw, ⅝-11 x 2-¼, Hex Head Cap, GR8
10	2	5550128-0Z01	Washer, Ø⅝ Flat
11	2	0554120	Washer, Ø⅝ Lock
12	2	0553092	Nut, ⅝-11 UNC Hex

CF = Consult Factory
A/R = As Required

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 GEARBOX DIRECT DRIVE ASSEMBLY

MOTOR GEARBOX DIRECT DRIVE ASSEMBLY

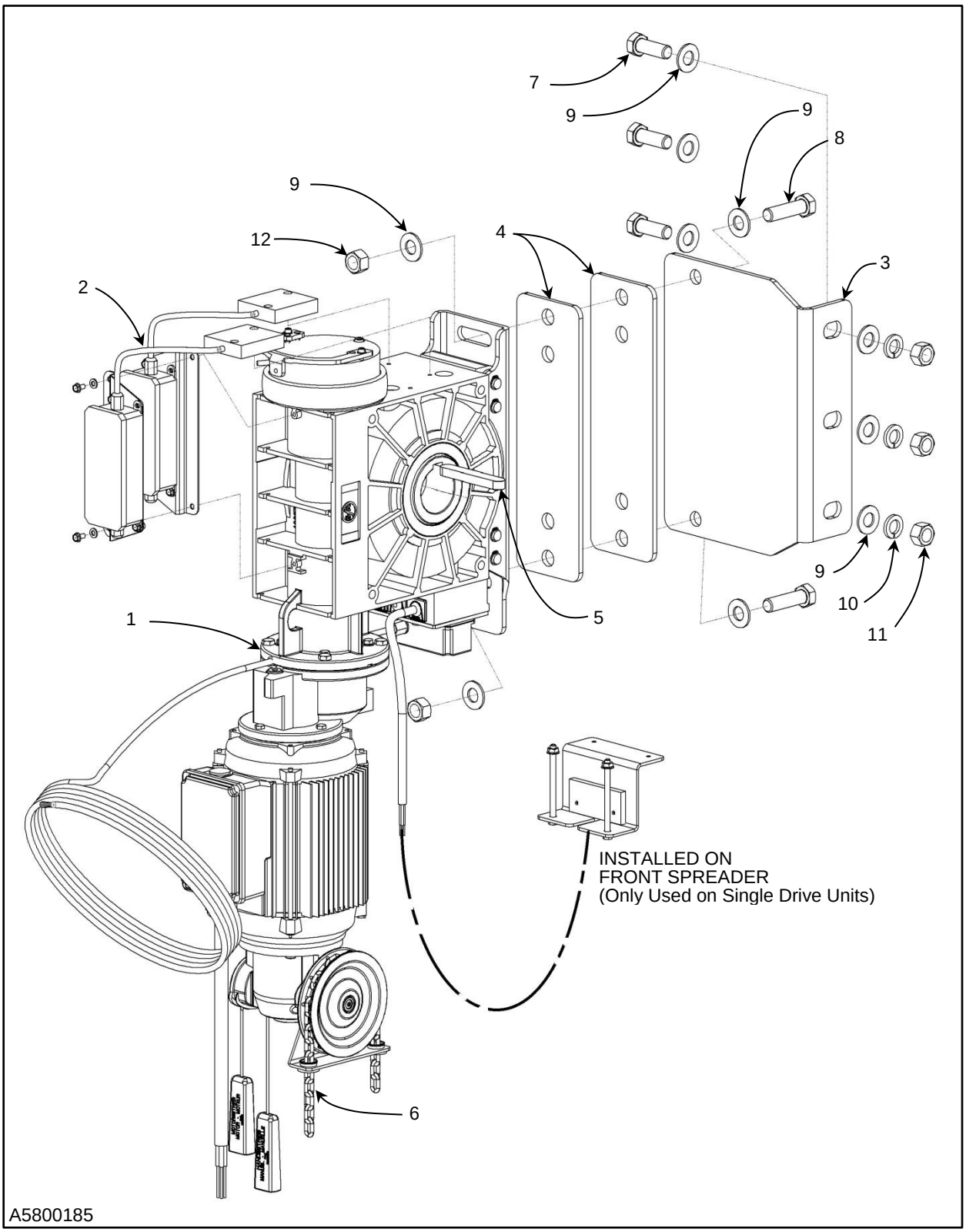

Figure 52

PARTS LIST— MOTOR GEARBOX DIRECT DRIVE ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	1	Consult Factory	Assembly, Motor & Gearbox Drive
2*	1(REF)	1600160-1	Assembly, Motor Heater, LH (Optional-Included in item #1)
	1(REF)	1600160-2	Assembly, Motor Heater, RH (Optional-Included in item #1)
3	1	1600332-0	Weldment, Motor Bracket, Direct Drive
4	2	1600054-0	Pad, Motor Mount
5	1	1600152-0B01	Key, Drive, 55mm Shaft Motor
6	1	1600524-0	Assembly, Chain Hoist (Chain & Link)
7	3	5550110-0Z01	Screw, ⅝-11 x 1-3/4, Hex Head Cap, GR8
8	2	5550111-0Z01	Screw, ⅝-11 x 2-1/4, Hex Head Cap, GR8
9	10	5550128-0Z01	Washer, Ø⅝ Flat
10	3	0554120	Washer, Ø⅝ Lock
11	3	0553092	Nut, ⅝-11 UNC Hex
12	2	5550190-0Z01	HLNNI 5/8-11 Stl ZN (Lock Nut)

CF = Consult Factory
A/R = As Required

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 GEARBOX CHAIN DRIVE ASSEMBLY

MOTOR GEARBOX CHAIN DRIVE ASSEMBLY

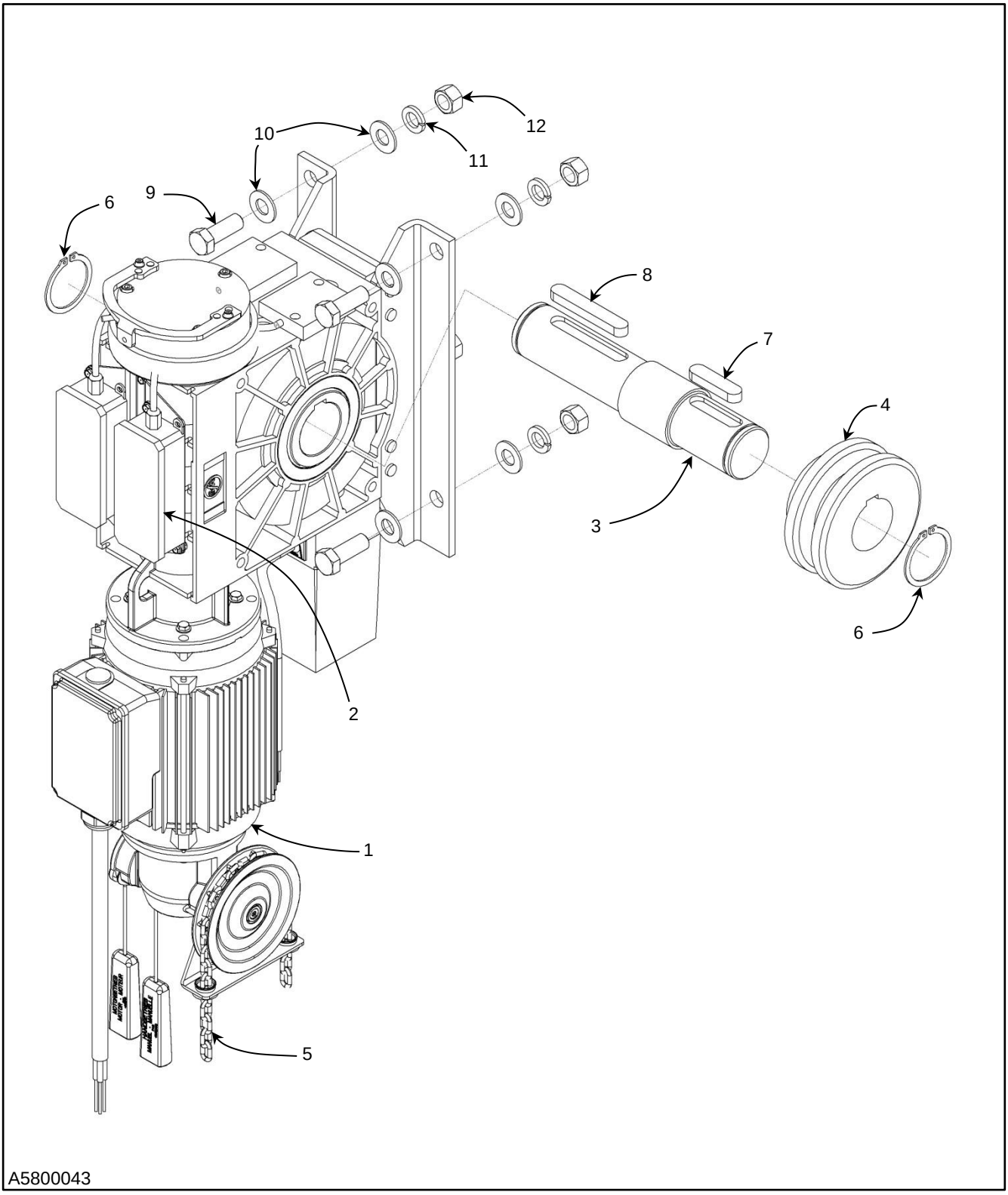

Figure 53

PARTS LIST—MOTOR GEARBOX CHAIN DRIVE ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	1	Consult Factory	Assembly, Motor & Gearbox Drive
2*	1(REF)	1600160-1	Assembly, Motor Heater, LH (Optional-Included in item #1)
	1(REF)	1600160-2	Assembly, Motor Heater, RH (Optional-Included in item #1)
3	1	1600270-0Z01	Motor Shaft, Chain Drive
4	1	1600328-0	Motor Sprocket, Machined, RS100 Dual Strand Chain, 12T
5	1	1600524-0	Assembly, Chain Hoist (Chain & Link)
6	2	5550162-0Z01	Snap Ring, RR Ext. M55ID
7	1	1600371-0Z01	Key, Small Sprocket
8	1	1600152-0Z01	Key, Drive, 55mm Shaft Motor
9	4	5550111-0Z01	Screw, ⅝-11 x 2-1/4, Hex Head Cap, GR8
10	8	5550128-0Z01	Washer, Ø⅝ Flat
11	4	0554120	Washer, Ø⅝ Lock
12	4	0553092	Nut, ⅝-11 UNC Hex

CF = Consult Factory
A/R = As Required

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.

NOTES