

R Y T E C

Fast-Fold[®] Pneumatic Door

Owner's Manual



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WARRANTY

The Fast-Fold High-Speed Door purchased by you (Buyer) should not be installed or operated before you read all associated product manuals explaining the proper method of installing, operating, and maintaining the equipment. This warranty is applicable for all Fast-Fold models other than FF4A and FF4AS.

Rytec Corporation (Seller) warrants that the Fast-Fold High-Speed Door (Product) sold to the Buyer will be free of defects in materials and workmanship under normal use for a period of twelve (12) months from the date of shipment of the Product from the Seller's plant. Electrical components are warranted for a period of ninety (90) days from the date of shipment. In addition, the Seller offers an extended warranty on the following items: BFGS track and rollers - nine (9) years and GS track and rollers - four (4) years. This extended warranty covers parts only. PVC knobs, rope ties and Hypalon panel seals are considered wear items and, as such, are not covered under warranty. Quartz heat lamps and sleeves are not covered under warranty. This extended warranty covers parts only. If within the applicable period any Products shall be proved to the Seller's satisfaction to be defective, such Products shall be repaired or replaced at the Seller's option. Such repair or replacement shall be the Seller's sole obligation and the Buyer's exclusive remedy hereunder and shall be conditioned upon the Seller receiving written notice of any alleged defect within ten (10) days after its discovery and, at the Seller's option, return of such Product to the Seller, f.o.b. its factory. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER REPRESENTATION AND WARRANTIES, EXPRESS OR IMPLIED, AND THE SELLER EXPRESSLY DISCLAIMS AND EXCLUDES ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

PARTS AND ASSEMBLIES sold separately by Rytec Corporation that fail due to defects in material or workmanship within ninety (90) days from the date of shipment will be replaced under warranty provided installation has been carried out in accordance with all Rytec procedures. This warranty is limited to providing a replacement part only. This warranty does not cover freight, special charges, or any costs associated with the installation of the replacement part.

Any description of the Product, whether in writing or made orally by the Seller or the Seller's agents, 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.

The Seller's liability with respect to the Product sold to the Buyer shall be limited to the warranty provided herein. THE 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 PRODUCTS SOLD OR SERVICES RENDERED BY THE SELLER, OR ANY UNDERTAKINGS, ACTS, OR OMISSIONS RELATING THERETO. Without limiting the generality of the foregoing, the Seller specifically disclaims any liability for property or personal injury damages, penalties, special or punitive damages, damages for lost profits or revenues, services, downtime, shutdown, or slowdown costs, or for any other types of economic loss, and for claims of the Buyer's customers or any third party for any such damages. THE SELLER SHALL NOT BE LIABLE FOR AND DISCLAIMS ALL CONSEQUENTIAL, INCIDENTAL, AND CONTINGENT DAMAGES WHATSOEVER.

This warranty shall be void in its entirety if the failure of any product shall be caused by any installation, operation, or maintenance of the Product which does not conform with the requirements set forth by the Seller in the applicable product manuals or is the result of any cause other than a defect in the material or workmanship of the Product.

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INTRODUCTION

The information contained in this manual will allow you to operate and maintain your Rytec® Fast-Fold® Pneumatic 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 our warranty. Any changes in the working parts, assemblies, or specifications as written that are not authorized by Rytec Corporation, will also cancel our warranty. The responsibility for the successful operation and performance of this door is yours.

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

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

The electrical connection information and wiring diagram in this manual are for general information purposes only. Due to varying requirements for individual customers, a wiring diagram was prepared for your installation. That diagram was originally shipped inside your control panel.

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.

GENERAL ARRANGEMENT OF DOOR COMPONENTS

Figure 1 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 the operation and maintenance of your door and its sub-assemblies.

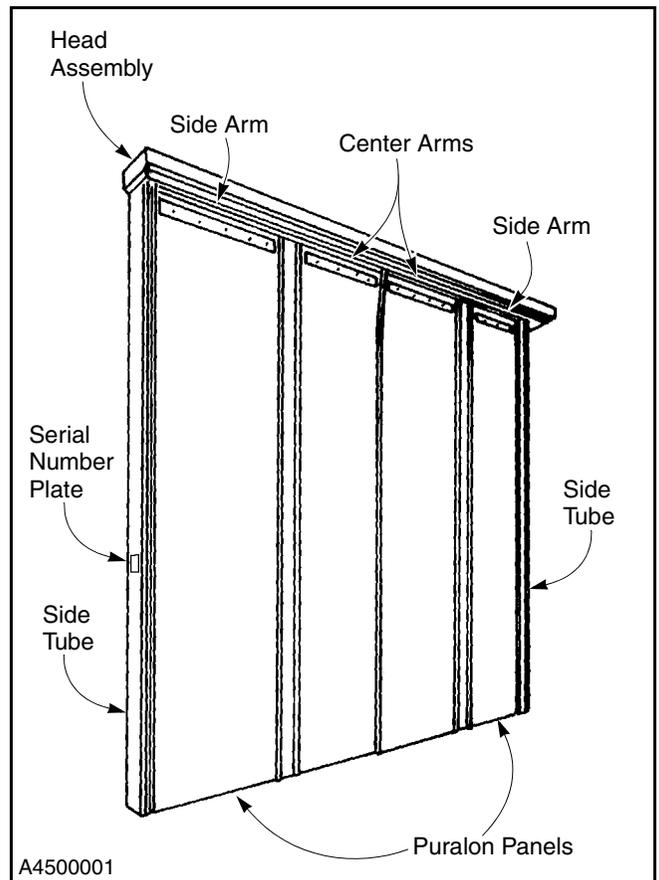


Figure 1

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

OPERATION

CONTROL BOX

The Fast-Fold Pneumatic Door is equipped with an electro-pneumatic control box. This control box includes a manual control, while also providing connections for external manual and automatic activators.

The control box also includes an auto-close timer (for automatic operation) and a cycle counter. (See Figure 2.)

Attached to the control box is the air pressure regulator-filter assembly with automatic water dump and replaceable filter. This allows the supply air pressure to be adjusted to the proper level and contaminants removed to ensure consistent operation and long life.

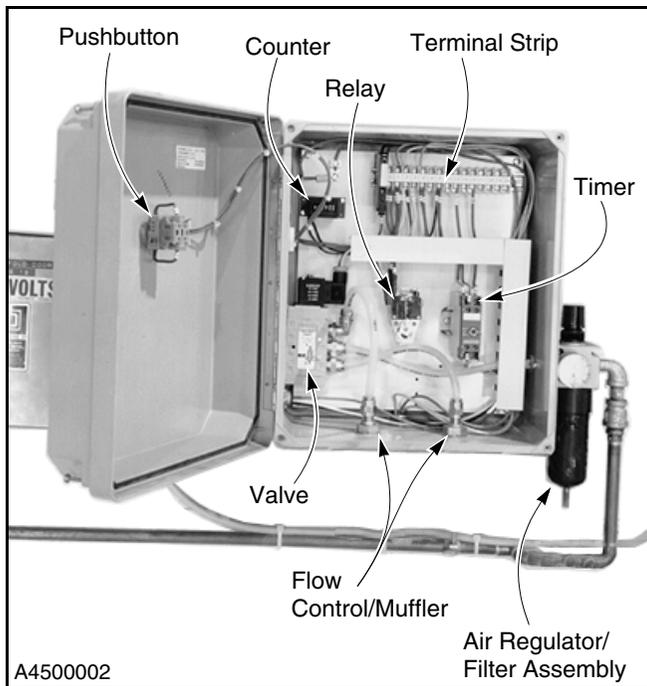


Figure 2

The control box provides for both automatic and non-automatic operation.

Automatic Operation

NOTE: If momentary contact activators are connected to control box terminals 15 and 16, they will act as automatic activators. (See "CONTROL BOX" on page 18.)

If a momentary contact activator, such as a pushbutton, pull cord or radio is used to activate the door:

1. The door will open when the device is activated.
2. The timer will start timing out as soon as the door is opened.

3. When the timer reaches its set time, it will automatically close the door.

If a maintained contact activator, such as a floor loop, photo eye or motion detector is used to activate the door:

1. The door will open and remain open when the device is activated.
2. The timer will start timing out as soon as the activator is no longer activated.
3. When the timer reaches its set time, it will automatically close the door.

In this mode, any time the timer is timing out and the activator being used to open the door is reactivated, or if another activator in the system is activated, the timer will reset and the door will not close until the timer times out again.

In summary, automatic operation requires that an activator be used to open the door, and closing of the door is controlled by a timer in the control box.

Non-Automatic Operation

NOTE: If momentary contact activators are connected to control box terminals 1 and 3, they will act as manual activators. (See "CONTROL BOX" on page 18.)

If a momentary contact activator, such as a pushbutton, pull cord or radio is used to activate the door:

- The door will open when the device is activated.
- After passing through the door, the same type of activator must be used to initiate the closing of the door. The door will not close automatically as it does when the automatic mode is used.

In summary, when the nonautomatic mode is used, an activator must be used to open and close the door.

DRIVE SYSTEM

The Fast-Fold Pneumatic Door drive system consists of two pneumatic cylinders, center and side arm assemblies (two each) and two trolley assemblies. (See Figure 3.)

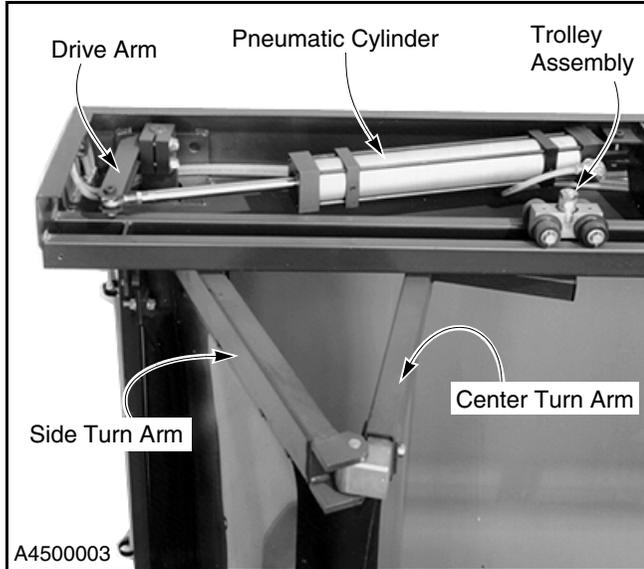


Figure 3

NOTE: The doors will open automatically if power to the door is turned off.

As the door is activated, air pressure from the control box is routed to the pneumatic cylinders. This causes the cylinder ram to extend, causing the drive arms connected to the end of the rams to pivot. As the drive arms pivot, the turn arms connected to the drive arms also pivot, pulling the door panels open.

The center (inner) turn arms are supported by a trolley assembly. These assemblies include rollers that allow the panels to open and close smoothly.

The door is designed with a cushioning feature to slow the door travel approximately 12 in. from the full open and closed positions. A lag adjustment causes the left turn arms to close slower than the right, allowing the center panels to seal properly.

DOOR PANEL MATERIAL

Rytec uses a specially formulated type of PVC called Puralon™ for its door panels. This material can be extruded in different thicknesses and chemical make-ups for specific applications:

- 3/8-in. thick — standard on most doors.
- 1/2-in. thick — high wind or large door applications.

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		
Mounting Hardware Inspection		
Cylinder Adjustment Inspection		
Door Panel Inspection		
Top Weather Seal Inspection		
Air Line and Fitting Inspection		
Pneumatic Cylinder Inspection		
Air Regulator Filter Inspection		
Trolley Inspection		
Lubrication		
Activator Inspection		
Electrical Connection Inspection		

DAILY INSPECTION

Visual Damage Inspection

Visually inspect the door to see that components have not been damaged. (Example: torn panels, damage to side panels or head, panel seals or rope ties, turn arm assembly, etc.) (See Figure 4.)

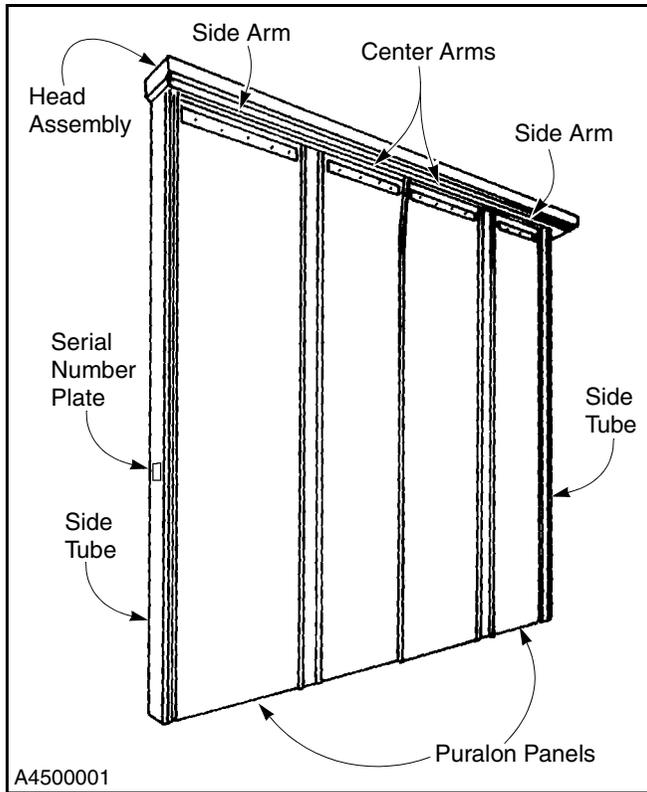


Figure 4

Check Door Operation

Run the door through four or five complete cycles to see 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 operating properly, as this could complicate any damage.

This door is designed with a cushioning feature to slow door travel approximately 12 in. from the full open and closed positions. If the door panels do not slow as they reach the last 12 in. of travel, see “DOOR CUSHION” on page 10 for the adjustment procedure.

Also, the left panels should close approximately one second slower than the right panels. This prevents the leading edges of the center panels from binding as the door closes. If the left door panels do not close slower than the right panels, see “LAG CONTROL” on page 11 for the adjustment procedure.

In the closed position, the side and center arms should be parallel with the front of the head assembly. If the panels are not closing correctly, adjust the door panels.

QUARTERLY INSPECTION

Mounting Hardware Inspection



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

NOTE: On doors equipped with hoods, the hood may have to be removed to gain access to head components.

Check all mounting hardware to ensure all nuts, bolts and set screws are tight. (Example: head assembly mounting hardware, anchor or through-wall bolts, etc.) (See Figure 5 through Figure 7.)

HEAD ASSEMBLY MOUNTING HARDWARE

Normal vibration during the operation of the door can cause hardware to work loose. Inspect all hardware to ensure that it is in place and tight. (See Figure 5.)

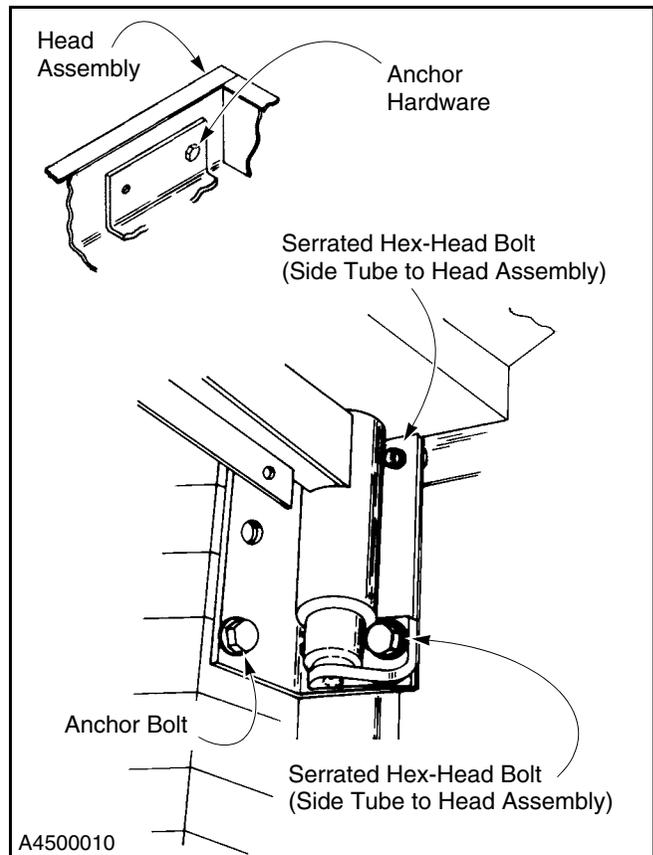


Figure 5

SIDE TUBE MOUNTING HARDWARE

All hardware must be in place and tight. (See Figure 6.)

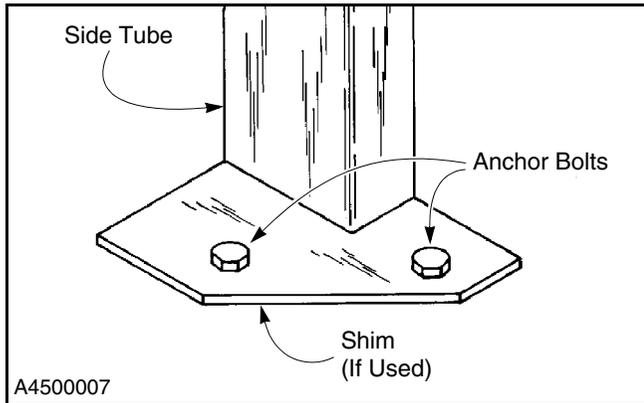


Figure 6

CENTER AND SIDE ARM MOUNTING HARDWARE

To allow the panels to move freely, all arm hardware must be in place and tight. (See Figure 7.)

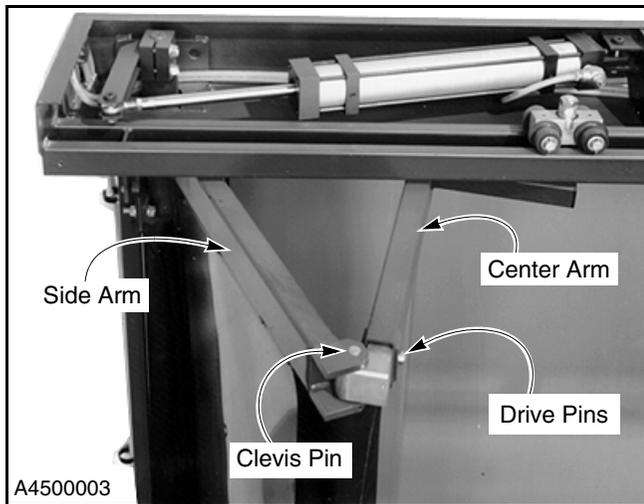


Figure 7

DRIVE ARM AND PNEUMATIC CYLINDER MOUNTING HARDWARE

All hardware must be in place and tight. (See Figure 8.)

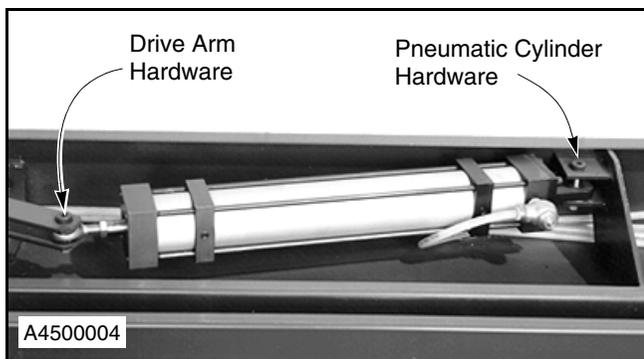


Figure 8

Cylinder Adjustment Inspection

The side and center arms should be parallel with the front of the head assembly with the door closed. ("CYLINDER POSITION" on page 11.)

Door Panel Inspection

1. Check panel alignment. The panels should hang vertically and parallel to each other top to bottom. If panels are not in alignment, check for tears in panels or damage to side or center arms which may be causing misalignment. (See Figure 9.) Repair or replace as required. See "PANEL REPLACEMENT" on page 12.)
2. Check panel-to-floor clearance. The panels should not drag on the floor. Trim if required. (See "WIRING DIAGRAMS" on page 17.)
3. Check all panel mounting hardware. Tighten if necessary.

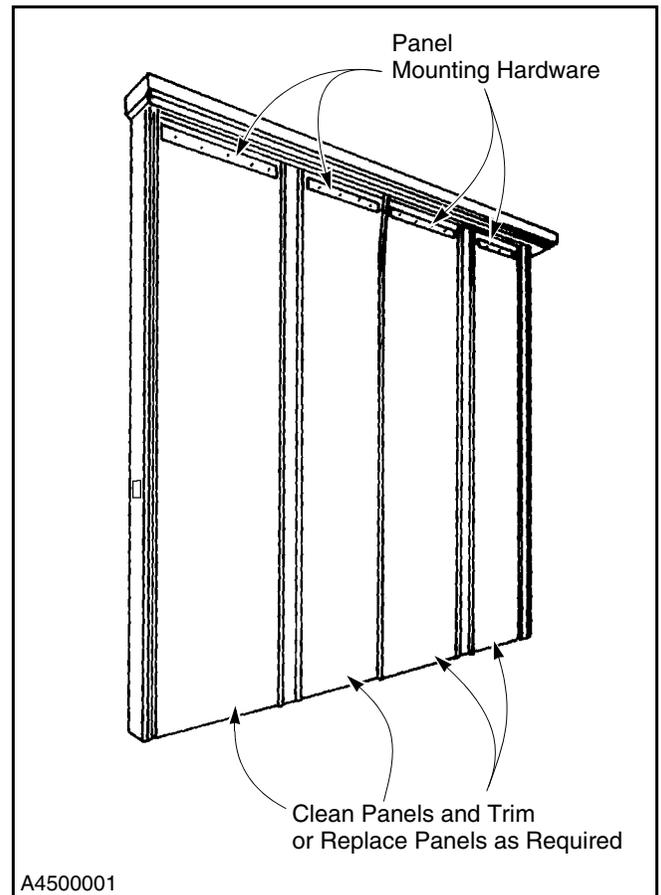


Figure 9

PLANNED MAINTENANCE—QUARTERLY INSPECTION

Top Weather Seal Inspection/Replacement

The top weather seal should be tight against the arms and locked into the extrusion. Inspect for tears and wear spots in the seal. Replace as necessary. (See Figure 10.)

(See Figure 10.)

If it is necessary to replace the weather seal, loosen the crimps and slide the weather seal out of the channel.

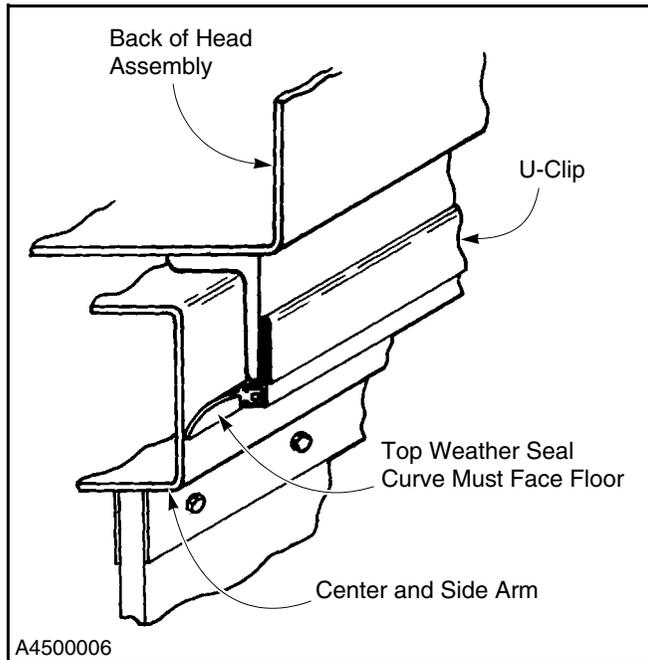


Figure 10

Air Line and Fitting Inspection

To ensure proper operation of this door, all air line fittings and hoses must be free of leaks or damage. (See Figure 11.)

(See Figure 11.)

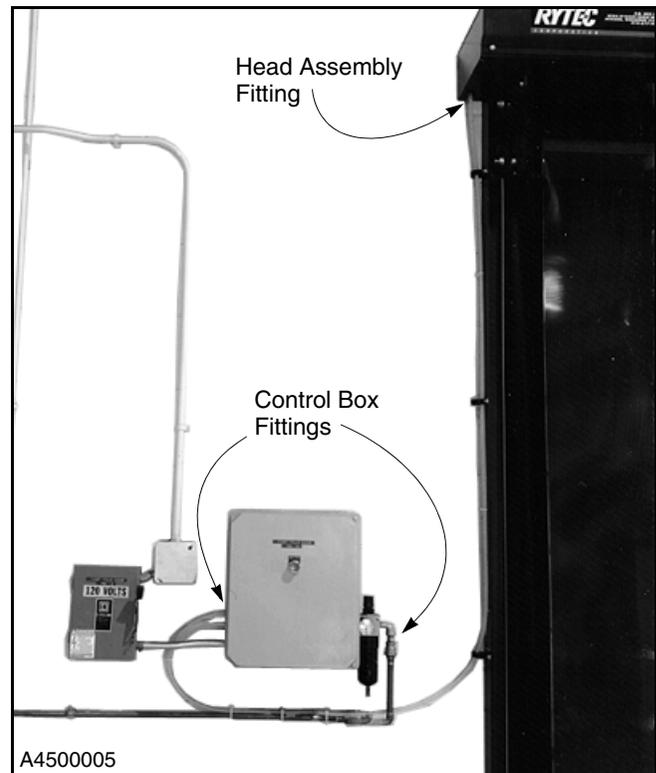


Figure 11

Pneumatic Cylinder Inspection

1. Check cylinder rod for nicks and rust. Clean rod and apply light oil as needed. Replace cylinder if necessary. (See Figure 12.)
2. Inspect fittings for leaks or damage. Repair as necessary.

NOTE: If pneumatic cylinder seals are worn, air will leak out of exhaust valve on the control box.

3. Inspect pneumatic cylinders for worn seals. Replace seals or cylinder as necessary.

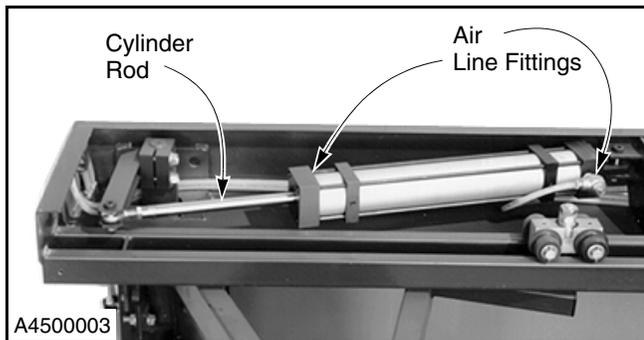


Figure 12

Air Regulator Filter Inspection

NOTE: If the air pressure setting is correct and the door still opens slowly, the filter may be plugged.

1. Turn off air supply to regulator.
2. Remove the cover, bowl/drain and filter. (See Figure 13.)

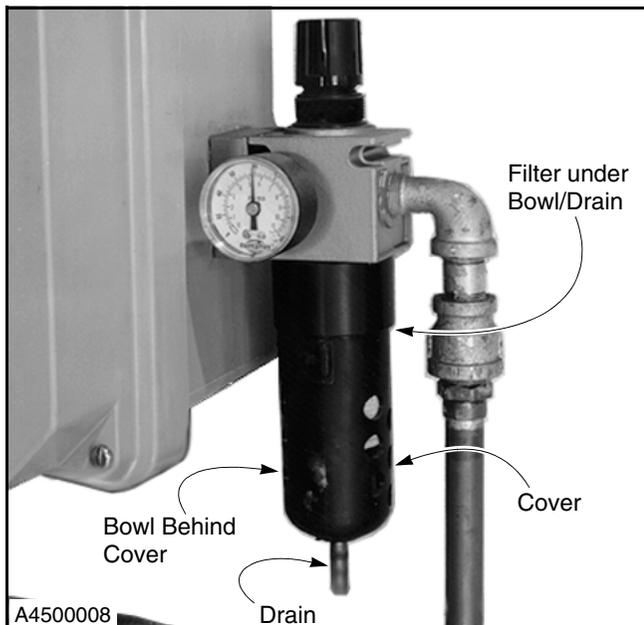


Figure 13

3. Visually inspect filter for contamination. Replace filter as necessary.

Trolley Inspection

To allow the panels to move freely, all trolley hardware must be in place and properly adjusted. (See Figure 14.)

1. Check rollers for flat spots or other damage. Replace as necessary.
2. Inspect plastic guide roller between the guides for flat spots or damage. Replace as necessary.

NOTE: DO NOT overtighten nuts, as this could cause the trolley to bind.

3. Check nut adjustment. When properly adjusted, the rollers will maintain contact with the guides.
4. Check drive pins on roller shafts and on the lower end of the trolley shaft.

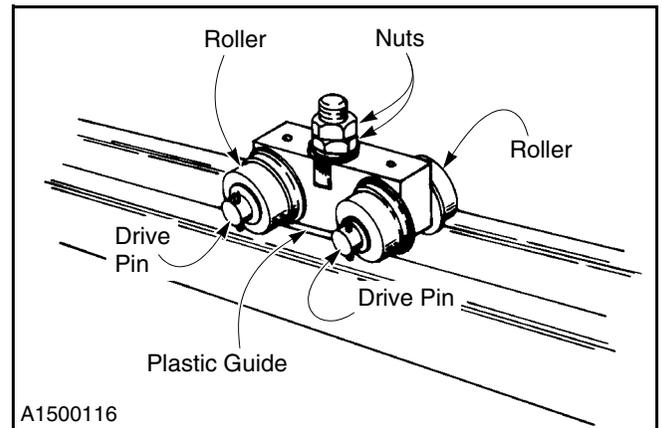


Figure 14

Lubrication



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

Side and Center Arms

Apply light oil to the pivot points. (See Figure 15.)

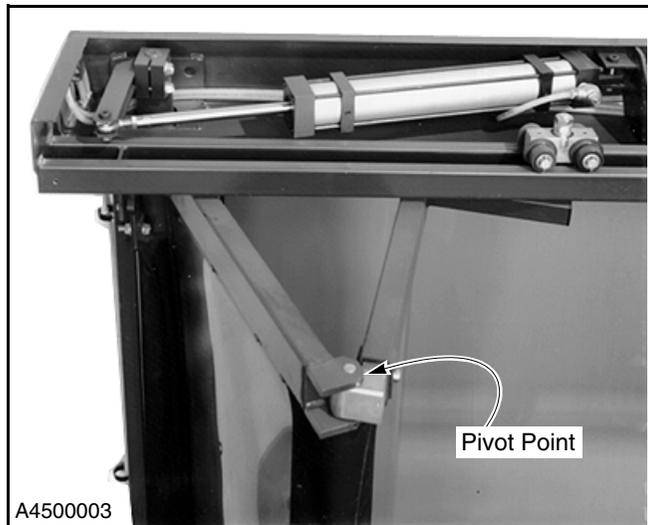


Figure 15

TROLLEY ASSEMBLY

Apply light oil to the roller shafts, lower end of the trolley shafts and upper bearing. (See Figure 16.)

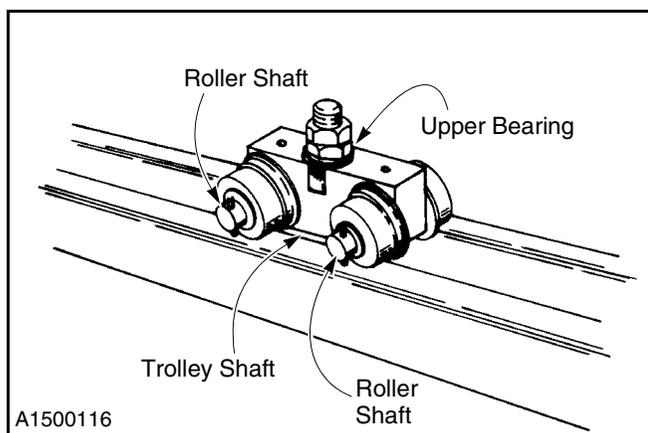


Figure 16

Activator Inspection

Operate the door five or six complete cycles with each activator that has been installed on the door. Check the control box for proper operation.

If adjustment or repair is required, see the activator instructions or control box information.

Typical activators may be floor loops, pull cords, push-buttons, motion detectors, radio controls, photo eyes, etc. The opening is controlled by the activator and closing may be controlled by the activator or a timer in the control box.

Electrical Connection Inspection



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 the internal wiring in the control box. Connections must be tight. (See Figure 17.)

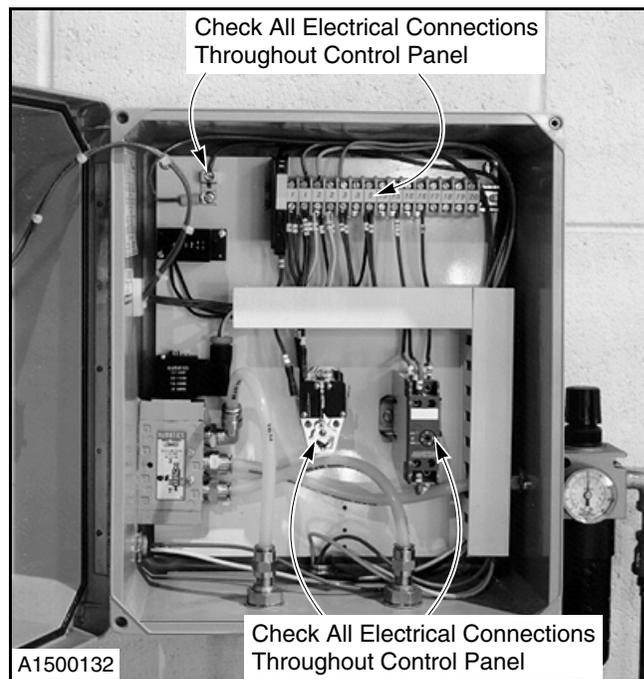


Figure 17

3. Turn on power to the door.

ADJUSTMENTS

AIR PRESSURE

NOTE: Initial air pressure setting may be adjusted to fit customer's application.

1. Check regulator for proper adjustment. Normal air pressure setting is 50 psi. (See Figure 18.)
2. If adjustment is required, turn adjustment knob until the gauge reads approximately 50 psi.

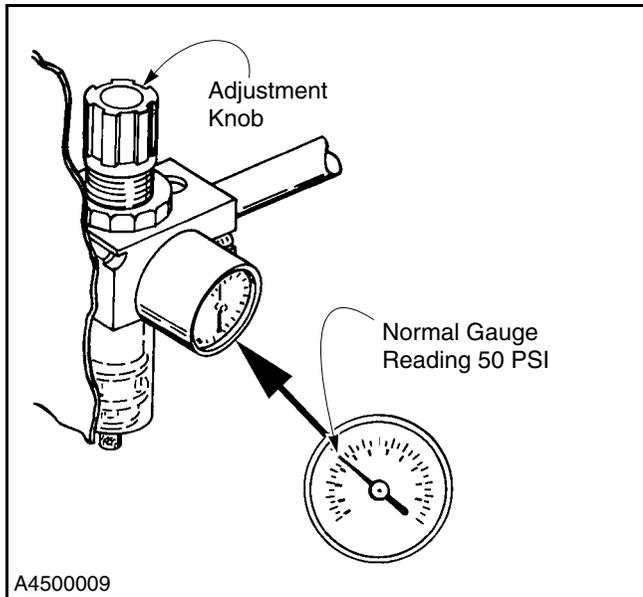


Figure 18

OPENING AND CLOSING SPEED

NOTE: Check air pressure to filter-regulator before making adjustments. If pressure is normal and operating speed is reduced, filter may need changing.

Opening Speed

⚠ WARNING

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

NOTE: The opening speed (quick exhaust valve) is located in the head assembly. (See Figure 19.)

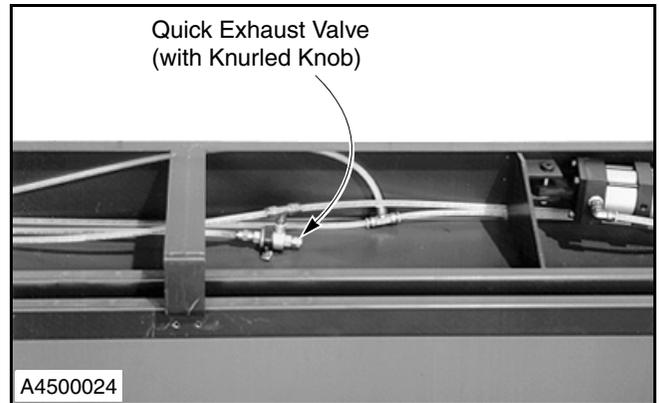


Figure 19

1. Turn off power to the door.
2. Remove hood.
3. The opening speed for the door was preset at the factory. If a faster or slower opening speed is desired, turn the knurled knob on the quick exhaust valve as described below. (see Figure 20.)

Increase speed: turn knob counterclockwise (in).

Decrease speed: turn knob clockwise (out).

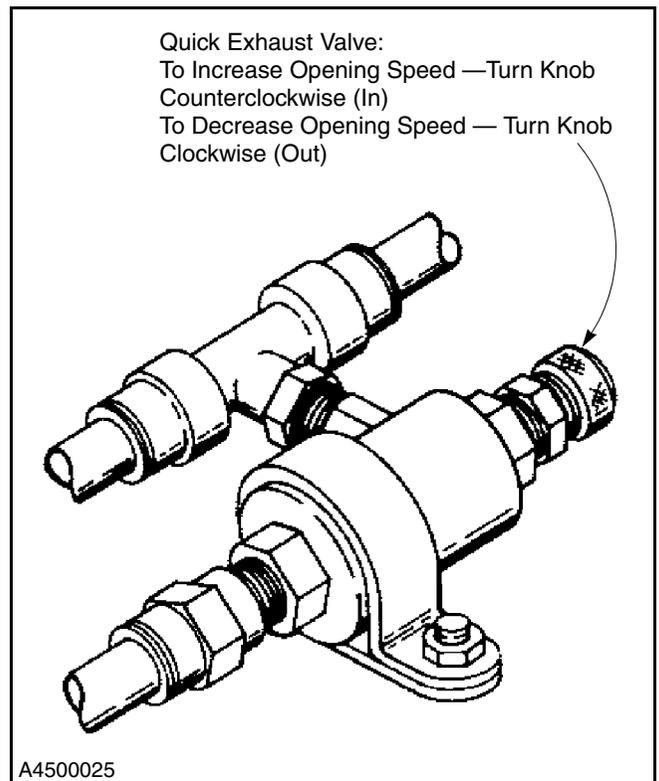


Figure 20

4. Install hood after adjustment is complete.
5. Turn on power to the door.

ADJUSTMENTS—DOOR CUSHION

Closing Speed

Normal door closing speed is four to five seconds. If an adjustment is required, turn the knurled knob on the closing speed valve located on the bottom of the control box. (See Figure 21.)

Increase speed: turn knob counterclockwise (in).

Decrease speed: turn knob clockwise (out).

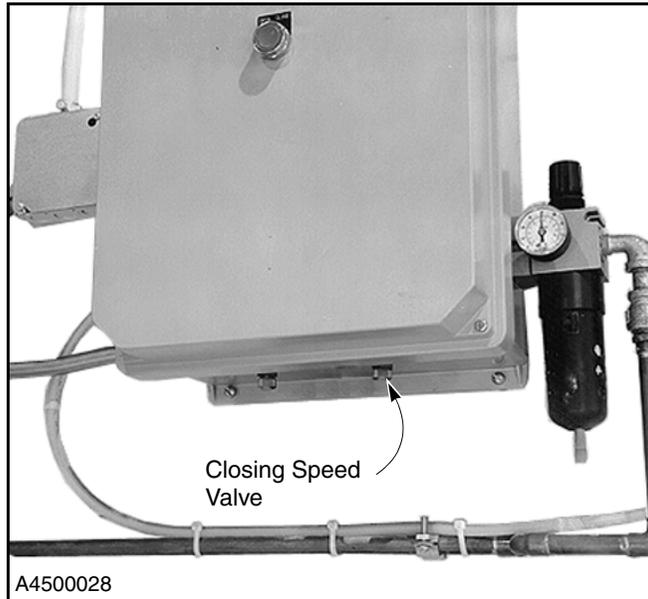


Figure 21

DOOR CUSHION

This door is designed with a cushioning feature to slow the door travel approximately 12 in. from the full open and closed positions.

If the door panels do not slow down as they reach the last 12 in. of travel, adjust the screws located at the rod end (opening) and pivot end (closing) of both cylinders using the following procedure.

⚠ 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. Remove hood.

3. Adjust the appropriate cushion adjustment screw as necessary to change the door open or door close travel speed. (See Figure 22 and Figure 23.)

NOTE: Adjust each screw in ¼-turn increments.

Decrease speed: turn screw clockwise (in).

Increase speed: turn screw counterclockwise (out).

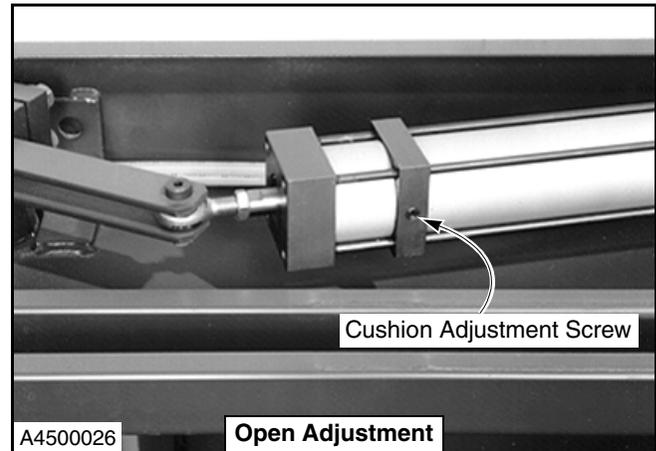


Figure 22

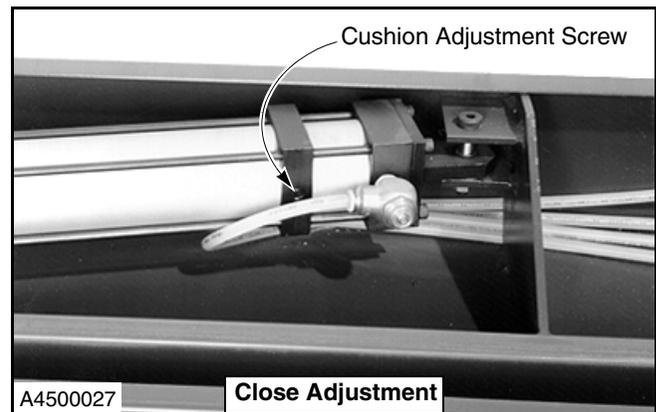


Figure 23

4. Install hood after adjustment is complete.
5. Turn on power to the door.

LAG CONTROL

The panels on the left side of the door must close approximately one second behind the panels on the right side. This lag prevents the leading edge of both center panels from binding against each other as the door comes to a complete stop during a close cycle. If the door does not close properly, perform the following adjustment procedure.



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 hood.
3. Adjust the knurled knob on the lag control located at the rear of the left air cylinder, as required, to achieve the proper lag between the center panels. (See Figure 24.)

NOTE: *Adjust the knob in 1/4-turn increments.*

Decrease speed: turn knob clockwise (in).

Increase speed: turn knob counterclockwise (out).

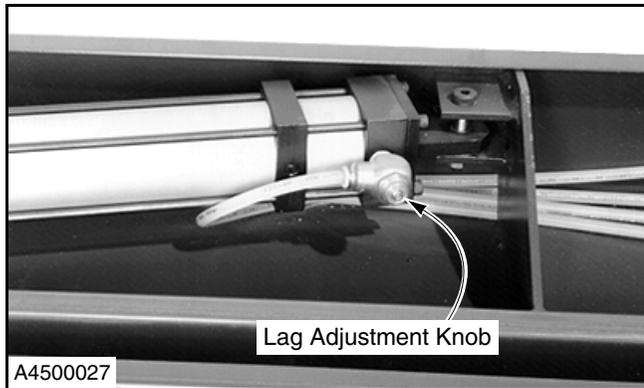


Figure 24

4. Install hood after adjustment is complete.
5. Turn on power to the door.

CYLINDER POSITION

1. Move door to the OPEN position.



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. Remove hood.
4. Check the position of the drive arm. With the door in the open position, the drive arm should be approximately 1/8-in. from the inside edge of the head assembly. (See Figure 25.)
5. If an adjustment is required:
 - a. Loosen the lock nut.
 - b. Turn the cylinder rod in or out, as required.
 - c. Tighten the lock nut when the gap is correct.

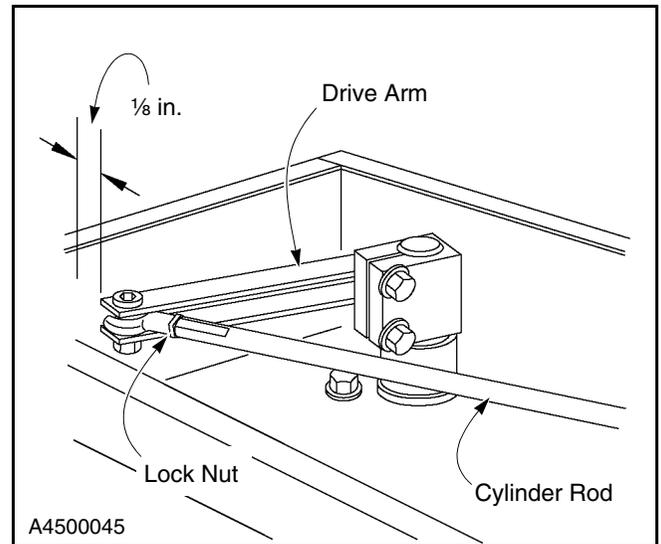


Figure 25

6. Install hood after adjustment is complete.
7. Turn on power to the door.

REPLACEMENT PROCEDURES—PANEL REPLACEMENT

REPLACEMENT PROCEDURES

PANEL REPLACEMENT

⚠ WARNING

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

⚠ CAUTION

Storing or rolling the Puralon incorrectly may damage the Puralon. This can cause problems with the way the door panels seal.

NOTE: The panels are numbered from left to right facing the front of the door. Each panel is marked with a position number. The panels must be installed by the assigned position numbers. The clamp flange assemblies, used to fasten the panels to the side tubes and center arms, have also been marked. (See Figures 26 and 27.)

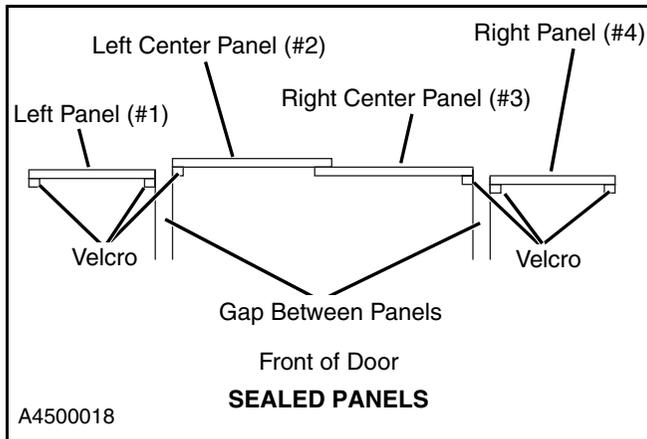


Figure 26

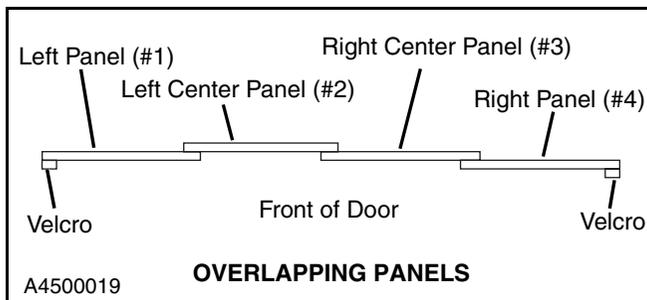


Figure 27

1. Insert the studs on the right end clamp flange (#4) through the holes in the upper edge of the right end panel (#4). (See Figure 28.)

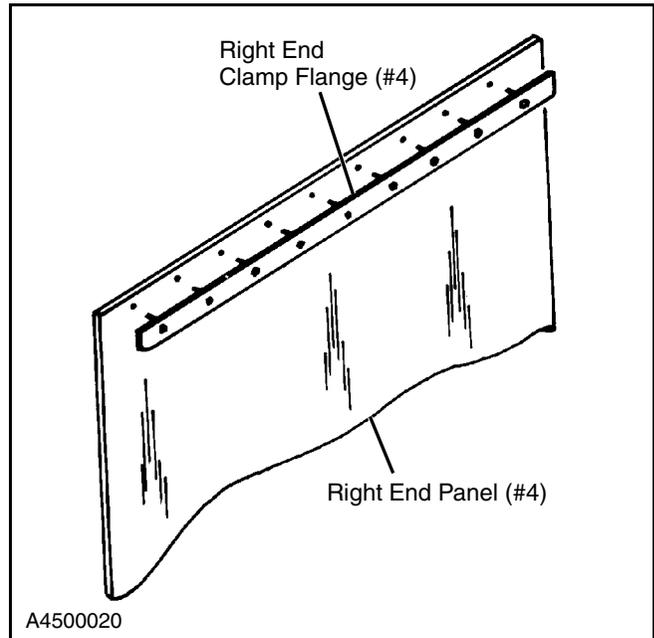


Figure 28

2. Attach the panel and clamp flange to the right side arm with 5/16-18 serrated-flange hex nuts provided with the door. (See Figure 29.)

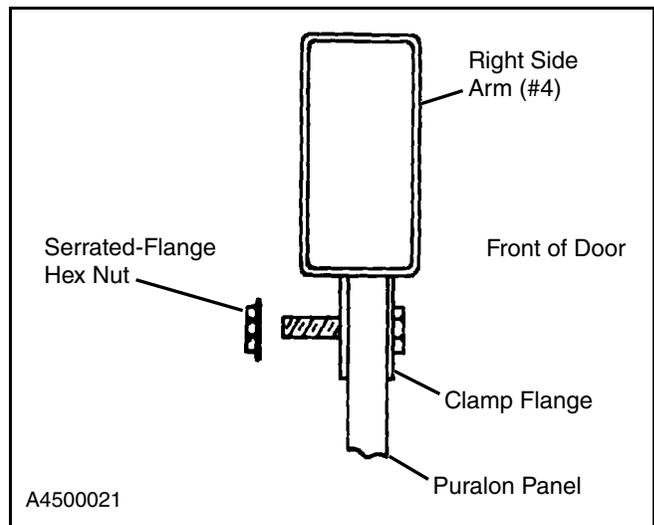


Figure 29

3. Mount the left end panel (#1) using the same procedures as outlined in steps 1 and 2.

4. Insert the right center clamp flange (#3) through the right center panel (#3). (See Figure 30.)

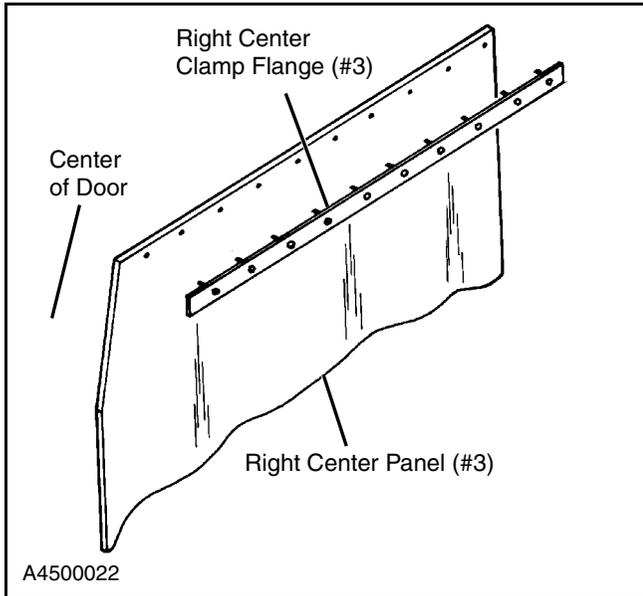


Figure 30

5. Attach the right center panel and clamp flange to the center arm with 5/16-18 serrated-flange hex nuts provided with the door. (See Figure 31.)

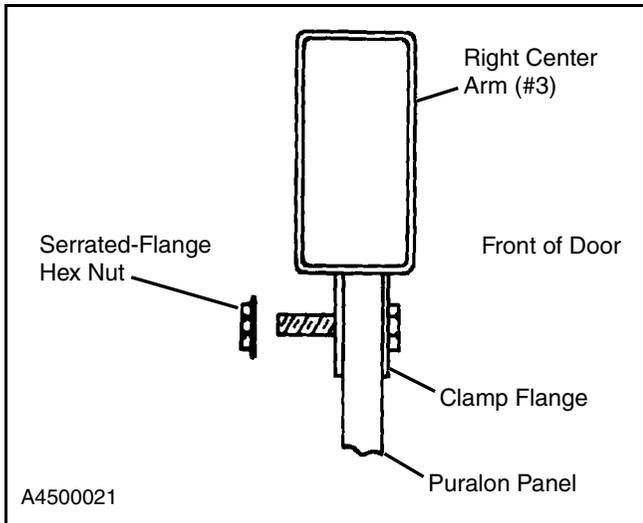


Figure 31

6. Mount the left center panel (#2) using the same procedures as outlined in steps 4 and 5.

Trim the Bottom of the Panels



Failure to trim the bottom of the panels will cause the panels to drag on the floor. This can cause door sealing problems.

NOTE: To make cutting the Puralon easier, pull the excess material away from the knife blade. This will allow the blade to move freely through the material.

Using a utility knife, trim the bottom of all the panels to within 1/4 inch of the floor. (See Figure 32.) The panels may stretch after the initial installation. Allow the panels to hang for at least 24 hours and recheck gap. Trim as required.

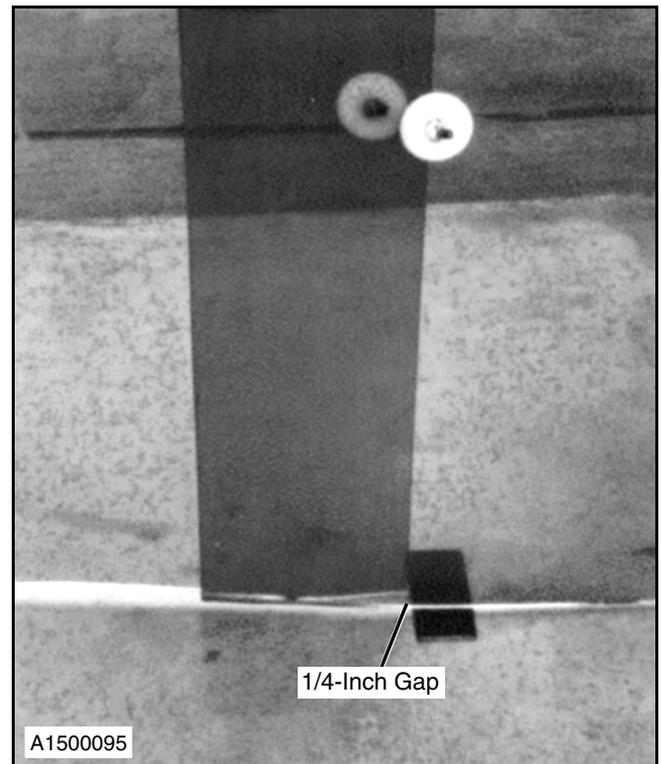


Figure 32

REPLACEMENT PROCEDURES—PANEL REPLACEMENT

Rope and Tie Installation (Rope Tie Doors)

1. Make sure the door is completely closed.
2. Determine how many rows of knobs and rope ties are required for the door and their location from the following chart. The distance shown is from the floor.

Door Height (Feet)	Dim. "A" (Inches)	Dim. "B" (Inches)	Dim. "C" (Inches)
6	24	48	—
7	24	60	—
8	24	72	—
9	24	72	—
10	24	72	—
11	24	72	—
12	24	72	120

3. Mark the position of the holes for the knobs on the panels. Each panel has a straight edge and an edge with a 45° cut at the top. Measure from the straight edge to locate the pair of holes. (See Figure 33.)

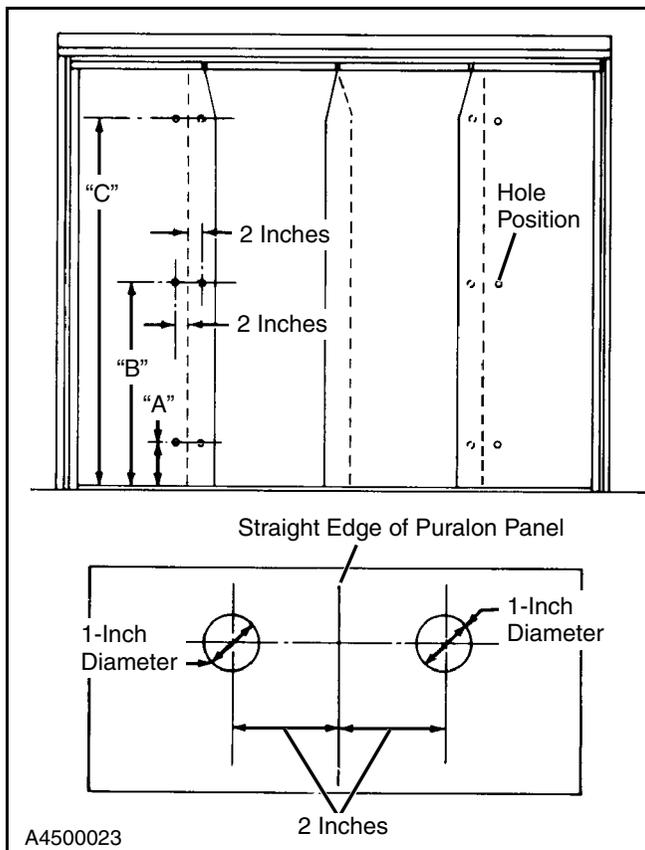


Figure 33

NOTE: The distance between the edge of the Puralon Panel and the center of the 1-inch diameter holes is 2 inches.

4. Drill 1-inch diameter holes in the panels. Use a hole saw or wood spade bit. The holes should be drilled from the front of the door. (See Figure 34.)
5. Insert the small end of the knob(s) into the holes from the front of the door. Press into place. (See Figure 34.)

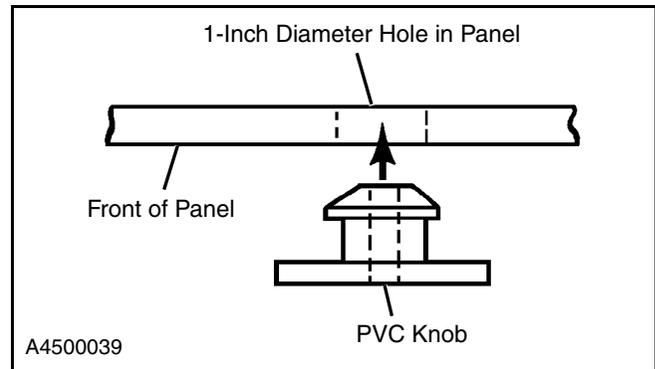


Figure 34

6. Tape approximately 1/2–1 inch of both ends of the rope supplied with the door.
7. Install a crimp close to one end of the rope. Lock it in place by crimping the two sides with a side cutter or other suitable tool.
8. Tie a knot next to the crimp.
9. Insert the end of the rope without the knot through the wide face of the first knob. To make tying the second knot easier, the first knob should be the one under the panel overlap. Run the rope through the knob beside it from the hinge side and pull the rope tight. (See Figure 35.)

REPLACEMENT PROCEDURES—PANEL REPLACEMENT

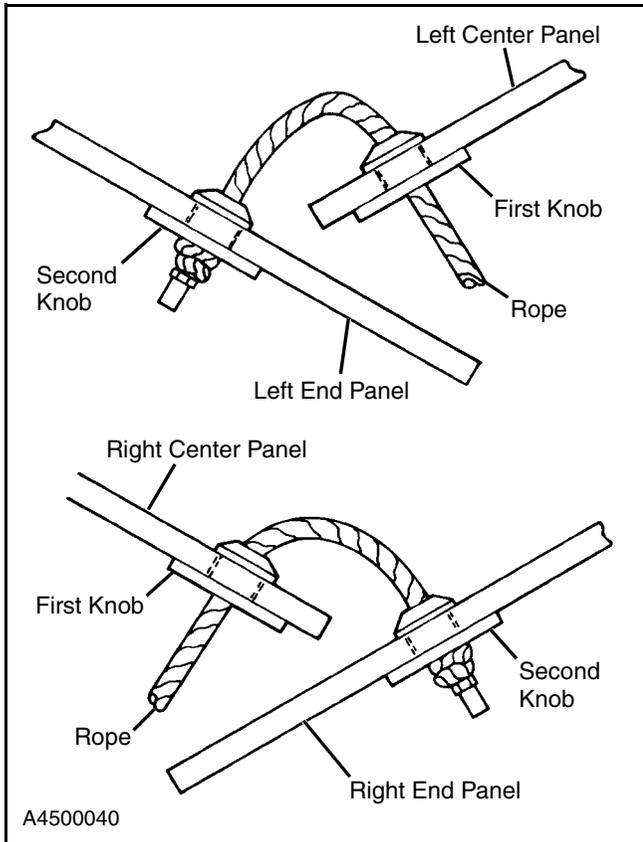


Figure 35

10. Hold the rope taut and tie a knot close to the wide face of the second knob. There should be very little slack in the finished rope tie assembly. (See Figures 36 and 37.)

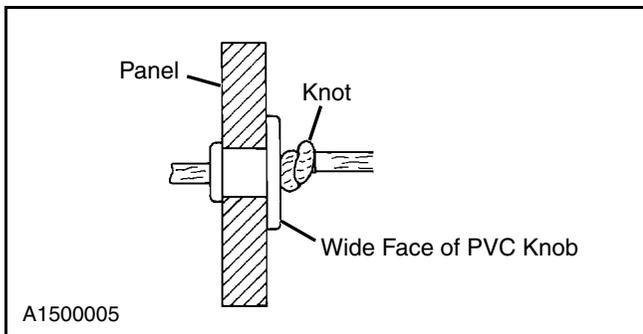


Figure 36

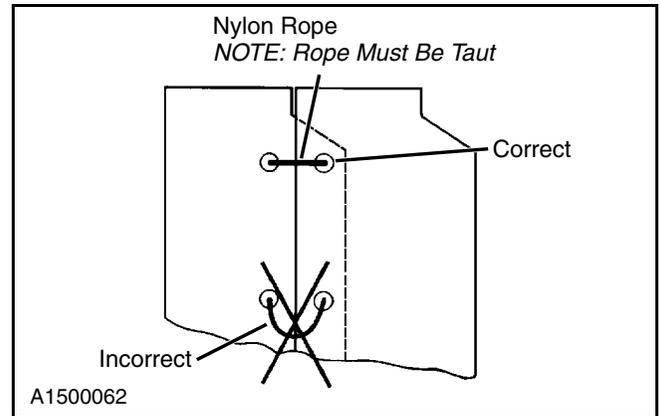


Figure 37

11. To prevent the rope from fraying, tape a section of the rope after the knot and cut in the center of the tape.
12. Install a crimp next to the knot. Lock the crimp in place by crimping the two sides with a side cutter or other suitable tool. (See Figure 38.)

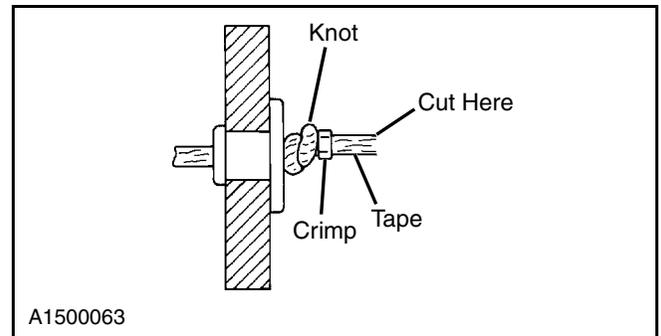


Figure 38

13. Repeat these steps for each set of knobs. Figure 39 shows a completed set of knobs, rope and crimps.

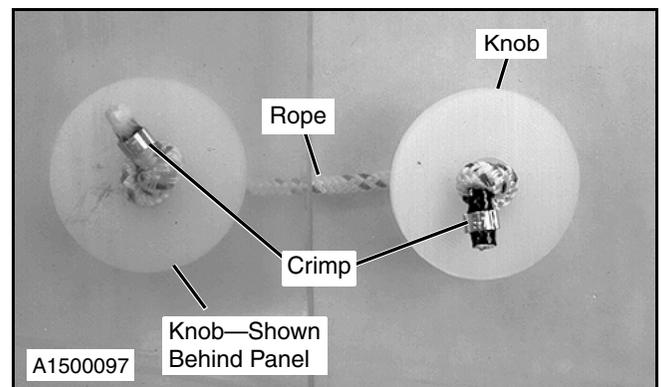


Figure 39

14. Cut a slight bevel, about four inches long, on the edge of the Puralon panel where the nylon rope contacts the Puralon. (Figure 40 shows a complete assembly.)

REPLACEMENT PROCEDURES—PANEL REPLACEMENT

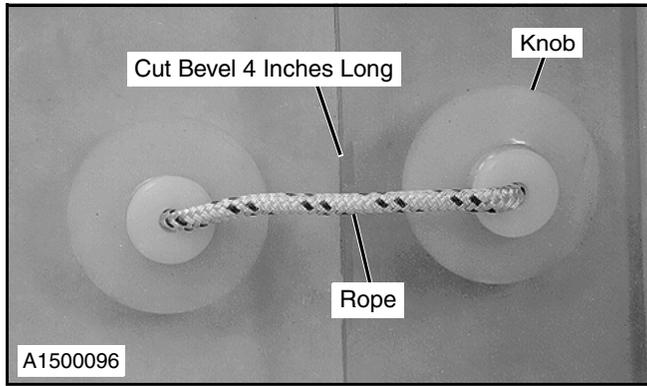


Figure 40

Side Seal Installation

NOTE: Side seals are seals that close the area between the outside Puralon panels and the side tubes.

1. The side Hypalon seals are factory installed on the side tubes. Attach the side Hypalon seals to the end Puralon panels.
2. Install the UHMW strips to the bottom of the side seals using three 1/4-20 x 1/2-inch round-head slotted screws. (See Figure 41.)

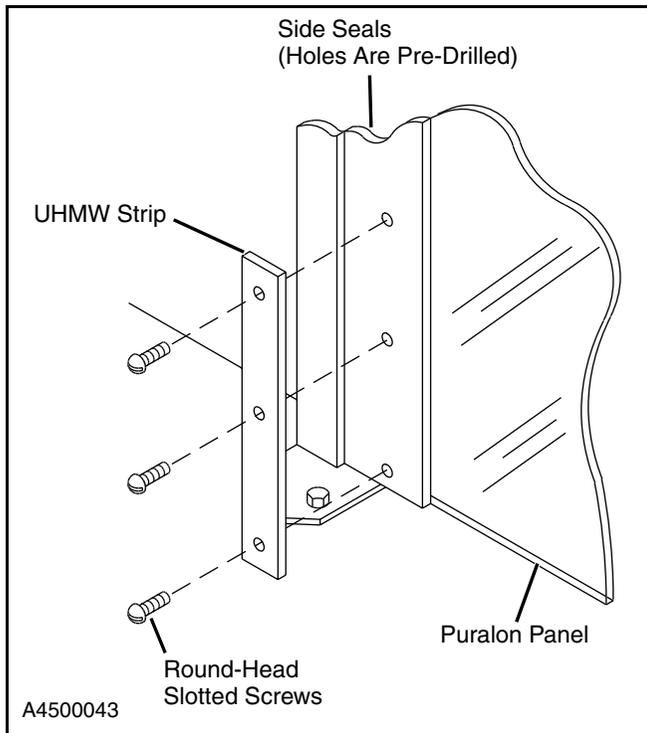


Figure 41

Hypalon Seal Installation (Doors with Sealed Panels)

NOTE: Center seals are seals that close the area between two adjacent Puralon panels.

1. Locate the center Hypalon seals. (See Figure 42.)
2. Attach the Hypalon seals to the edges of the Puralon panels. The Velcro™ strips on the panels should match the strips on the Hypalon seals. Start installing the seal at the bottom and work up. (See Figure 42.)

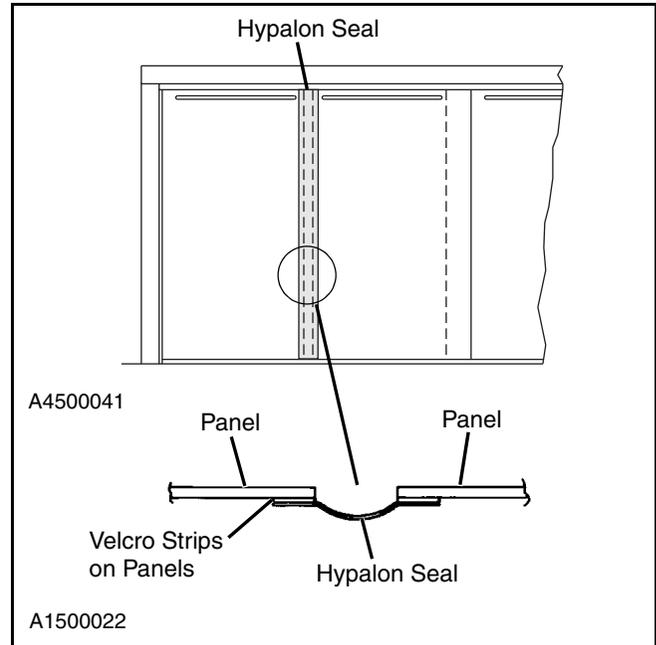
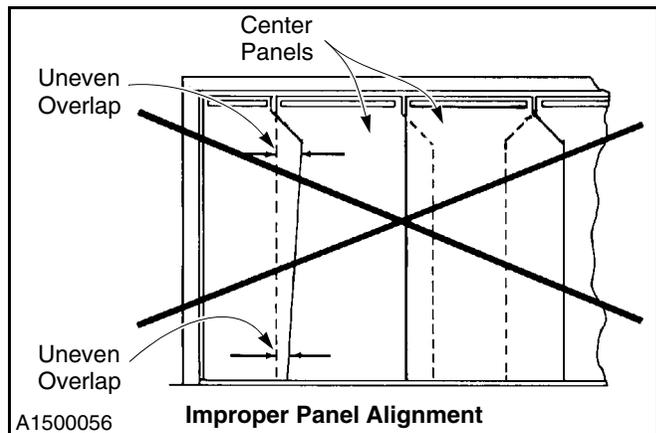


Figure 42

NOTE: Because replacement panels are shipped from the factory slightly longer than necessary, it is important that you lift (roll up) the bottom edge of a new panel just enough so that it will not drag on the floor when it is checked for level and square. Later on, it will be trimmed to finished length.



WIRING DIAGRAMS

AIR LINE SCHEMATIC

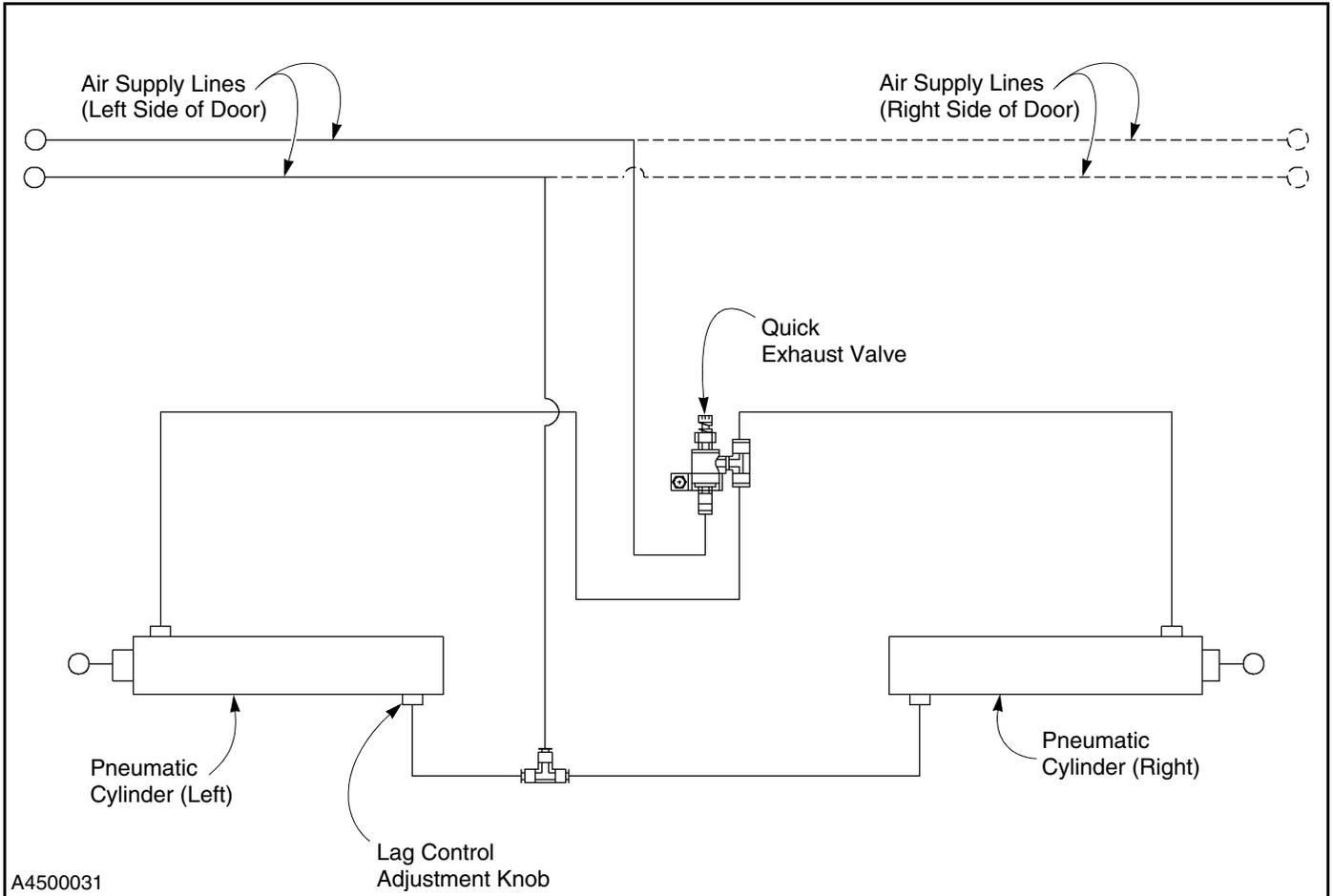
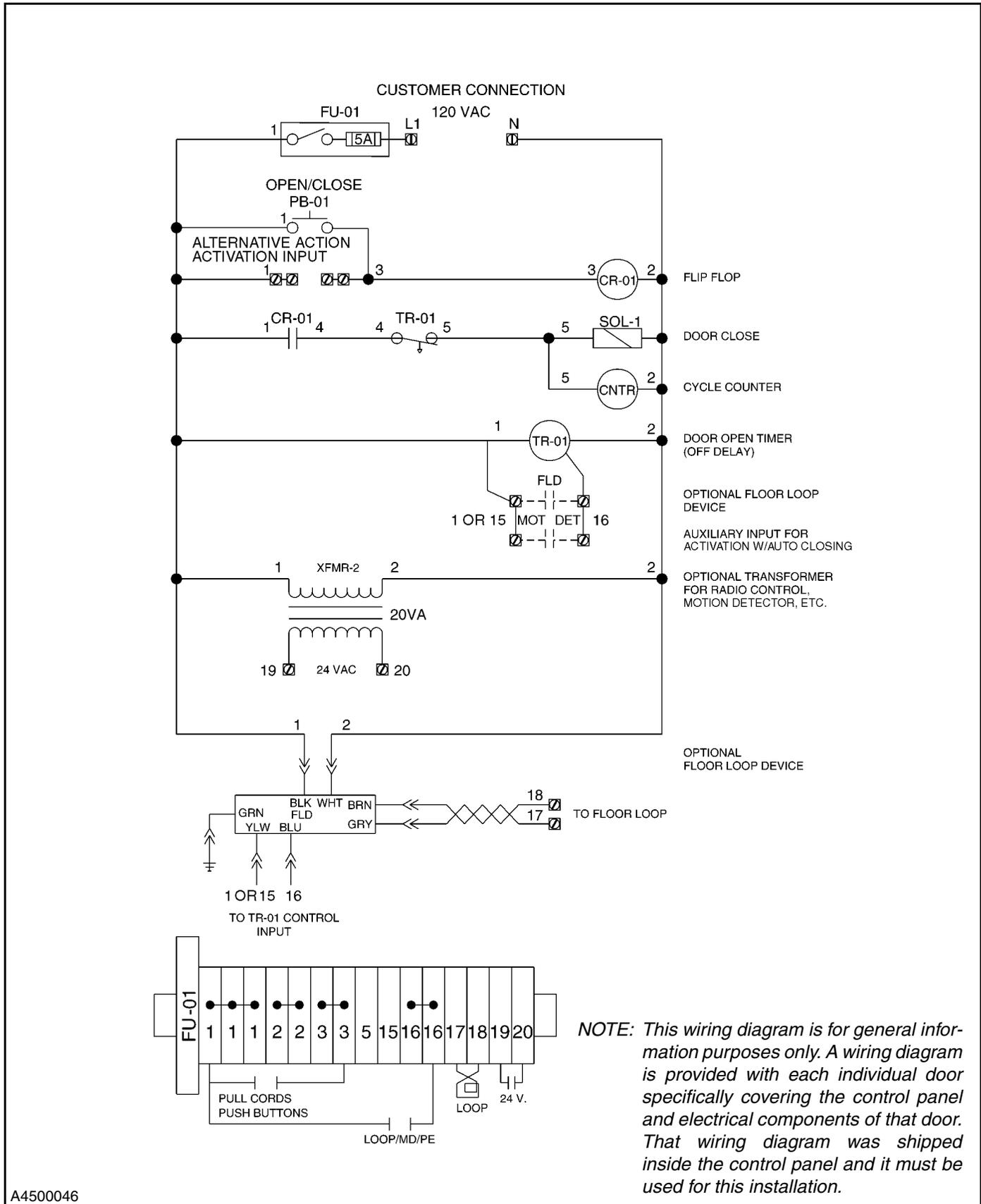


Figure 43

CONTROL BOX



A4500046

Figure 44

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 Customer Support Department at: 800-628-1909 or 262-677-2058 (fax).
3. To ensure the correct parts are shipped, please include the serial number of your door with the order. The serial number is located inside one of the side panels. (See Figure 51.)

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 Customer Support Department to obtain authorization and an RMA form.

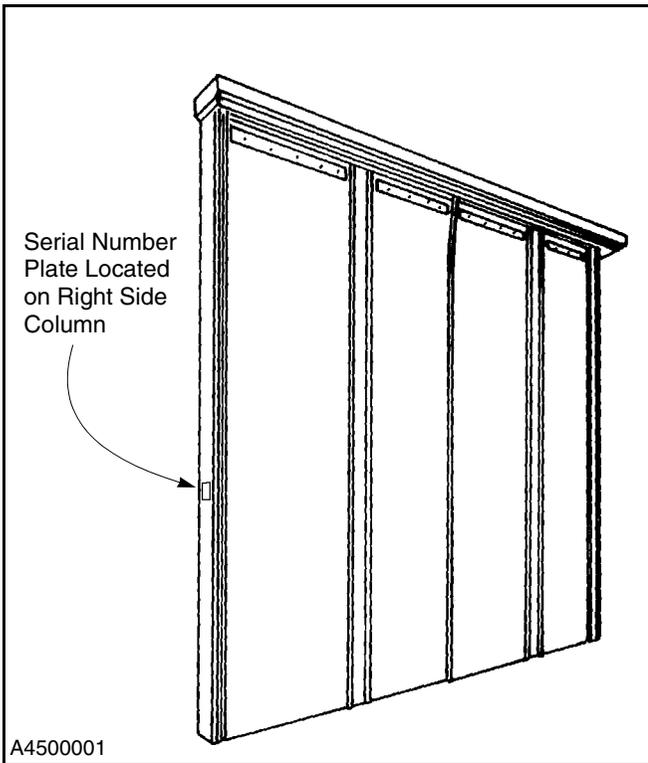


Figure 51

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.

PARTS LIST—CONTROL BOX ASSEMBLY

CONTROL BOX ASSEMBLY

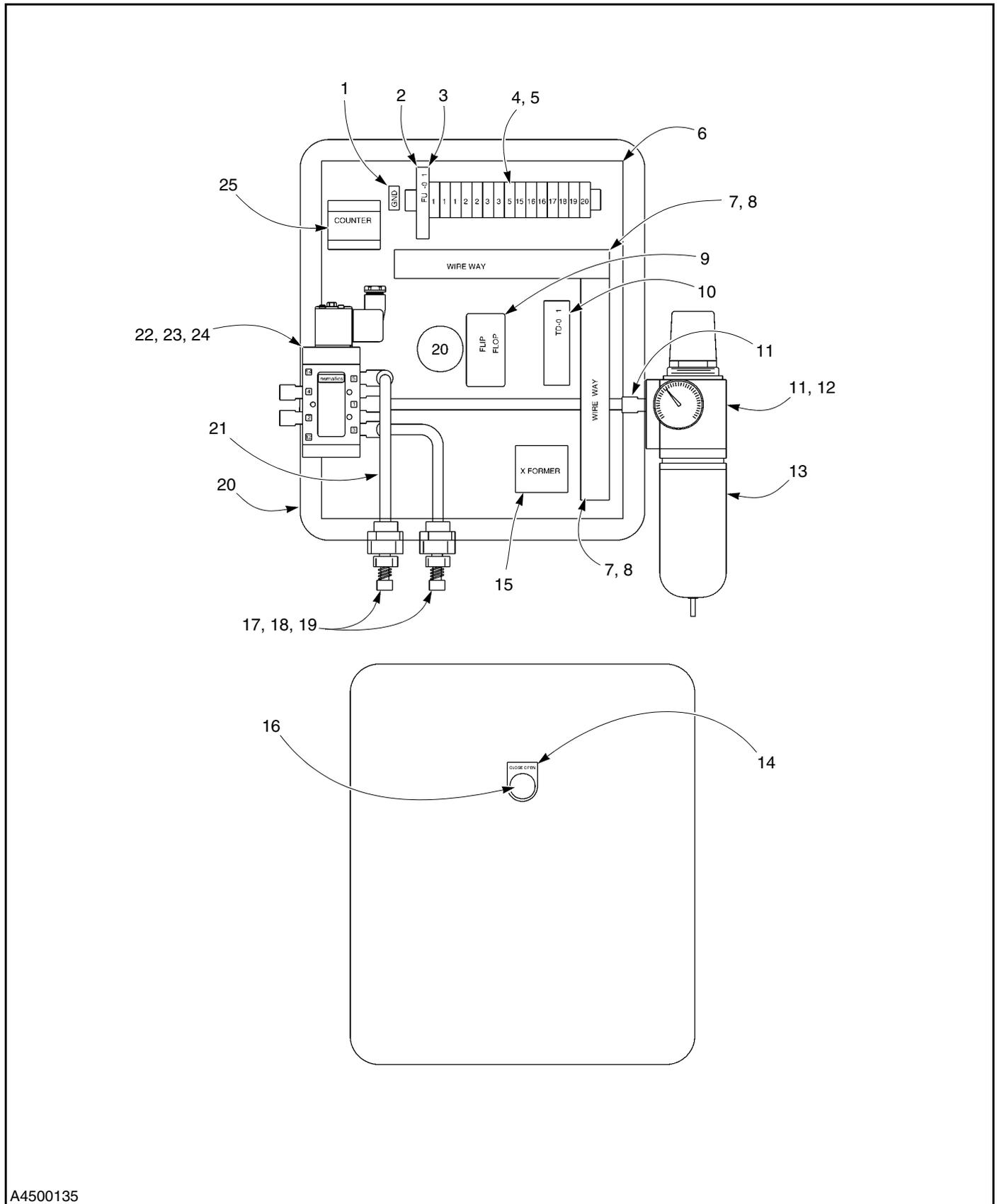


Figure 52

PARTS LIST—CONTROL BOX ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
–	1	0-499-088	Control Panel Assembly (Includes Items 1 thru 25)
1	1	0-414-250	Ground Lug
2	1	0-414-202	Terminal, Fuse/Switch
3	1	0-414-009	Fuse, 5 amp
4	1	0-414-204	Barrier
5	15	0-414-095	Terminal
6	1	0-414-003	Sub-Panel
7	A/R	0-414-251	Wireway, 1-in. x 2-in.
8	A/R	0-414-252	Cover, Wireway, 1-in.
9	1	0-414-201	Relay, Flip-Flop, 120 Volt
10	1	0-414-008	Timer, OFF-DELAY, 120 V ac
11	5	0-404-232	Fitting
12	1	0-414-004	Filter/Regulator, Auto Drain
13	1	0-414-216	Filter Element (not shown)
14	1	0-414-007	Nameplate
15	A/R	0-011-216	Control Transformer
16	1	0-414-006	Push Button, N.O.
17	2	0-404-246	Flow Control Muffler
18	2	0-404-231	Fitting
19	2	0-404-236	Fitting
20	1	0-414-002	Enclosure, 14-in. x 12-in. x 6-in.
21	A/R	0-404-076	Polytube, $\frac{3}{8}$ -in.
22	1	0-414-089	Valve, Control
23	1	0-414-199	Solenoid Plug
24	1	0-404-247	Fitting
25	1	0-414-005	Counter

A/R = as required

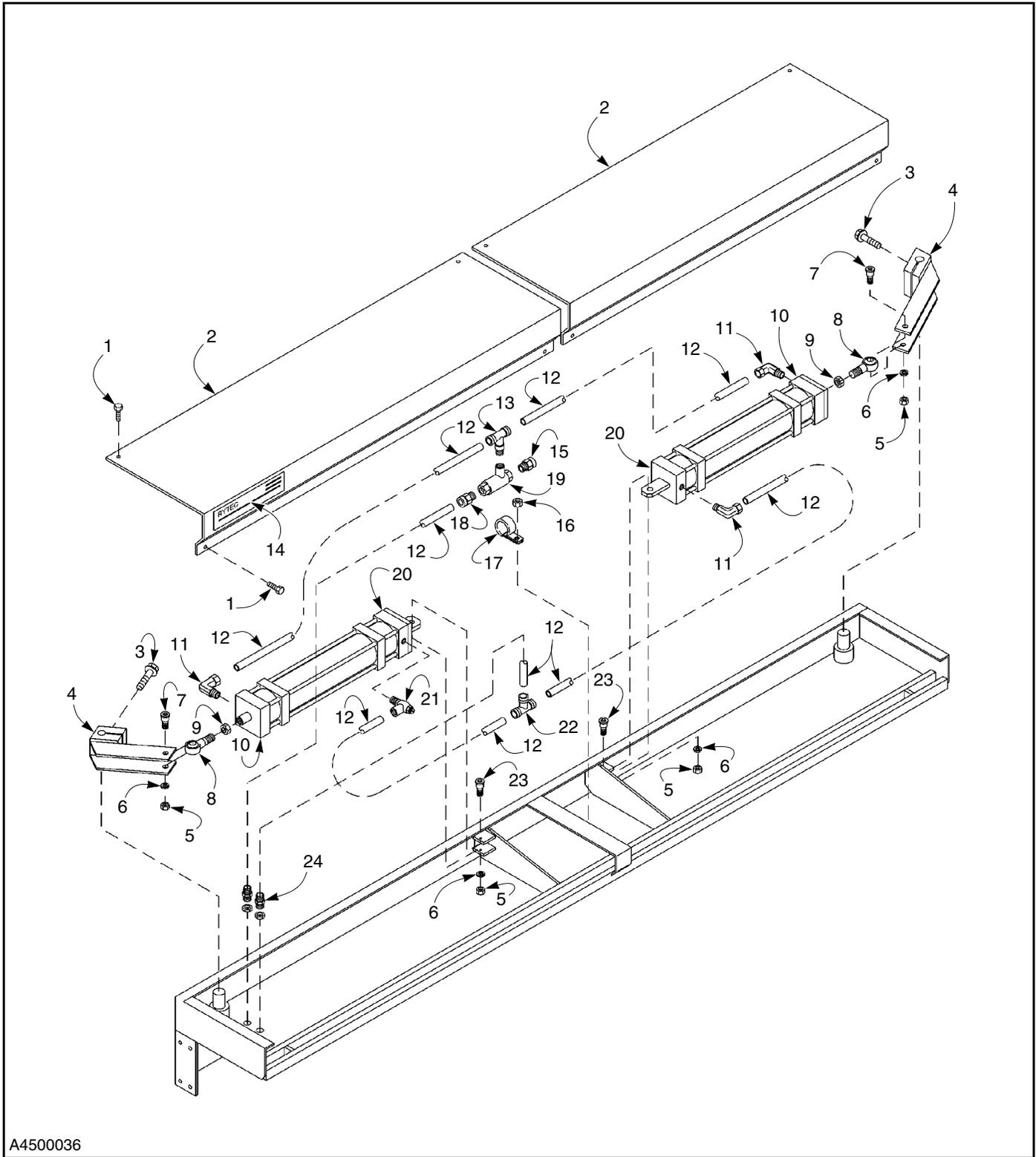
** Items are produced based on manufactured height and width of door.*

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—PNEUMATIC CYLINDER ASSEMBLY

PNEUMATIC CYLINDER ASSEMBLY



A4500036

Figure 53

PARTS LIST—PNEUMATIC CYLINDER ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	8	0-551-041	Screw, ¼-20 x 1-in. Self-Tapping
2	2	0-401-062*	Cover
3	4	0-550-029	Screw, ½-13 x 1¾-in. Serrated-Flange
4	2	0-499-042	Weldment, Drive Arm
5	4	0-553-091	Nut, ⅜-16 Hex
6	4	0-554-118	Lock Washer, ⅜-in.
7	2	0-550-204	Shoulder Screw, ½-13 x 1-in. Socket-Head
8	2	0-404-082	Rod End, ½-20 UNF Male
9	2	0-550-197	Nut, 1/2-20 UNF-3A Jam
10	2	0-404-001	Cylinder, 2½-in Bore
11	3	0-404-073	Fitting, 90° Air Push-Type
12	A/R	0-404-076	Tube, ⅜-in. O.D., Poly
13	1	0-404-241	T-Connector, ⅜-in. x ¼-in. Swivel Male Branch
14	1	0-416-087	Decal, Rytec
15	1	0-404-246	Muffler, Flow Control Exhaust
16	1	0-553-257	Nut, ¼-20 Lock
17	1	0-404-243	Clip, Control Valve
18	1	0-404-242	Male Connector, ⅜-in. Tube
19	1	0-404-244	Valve, Quick Exhaust
20	2	0-404-078	Bushing, ½-in. I.D. x ⅝-in. O.D.
21	1	0-404-077	Air Valve, ⅜-in. Flow Control
22	1	0-404-074	Fitting, ⅜-in. Male Tee
23	2	0-550-205	Shoulder Screw, ½-13 x 1¾-in. Socket-Head
24	2	0-404-075	Bulkhead Fittings
25	1	0-499-081	Cylinder Assembly, Right (Includes Items 8, 9, 10, 11 and 20)
26	1	0-499-080	Cylinder Assembly, Left (Includes Items 8, 9, 10, 11, 20 and 21)

A/R = as required

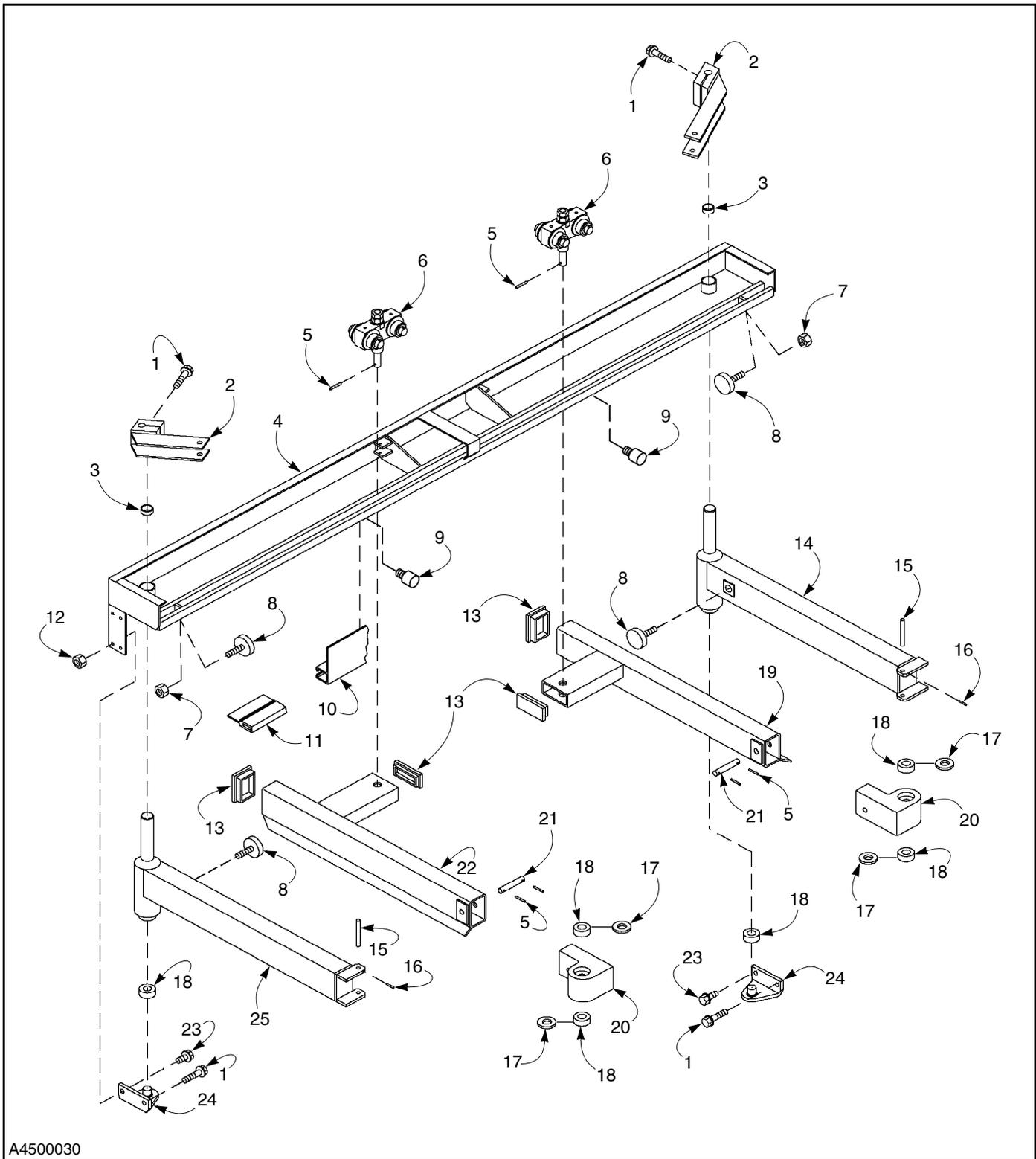
** Items are produced based on manufactured height and width of door.*

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—TURN ARM ASSEMBLY

TURN ARM ASSEMBLY



A4500030

Figure 54

PARTS LIST—TURN ARM ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	6	0-550-029	Screw, 1/2-13 x 1 3/4-in. Serrated-Flange
2	2	0-499-042	Weldment, Drive Arm
3	2	0-404-049	Bearing, Spherical Sealed 1 1/4-in. Bore
4	1	0-499-066*	Weldment, Head
5	6	0-552-194	Spring Pin, 3/16-in. Dia. x 1-in.
6	2	0-499-002	Trolley Assembly (See "TROLLEY ASSEMBLY" on page 26)
7	2	0-553-257	Nut, 1/4-20 Locking
8	2	0-404-058	Bumper, Rubber
9	2	0-013-013	Bumper, Rubber
10	1	0-009-129	Retainer, 90° Seal
11	1	0-804-080	Seal, Vinyl
12	2	0-553-100	Nut, 1/2-13 Serrated-Flange Hex
13	4	0-404-067	End Cap, Tube
14	1	0-499-034*	Weldment, Right Side Arm (Overlapping Door)
	1	0-499-291*	Weldment, Right Side Arm (Sealed Door)
15	2	0-403-022	Hinge Pin, Vertical
16	2	0-552-000	Pin, 3/16-in. Dia. x 2-in.
17	4	0-552-283	Thrust Washer, 5/8-in. I.D. x 1 1/8-in. O.D.
18	6	0-004-452	Bearing, Hinge
19	1	0-499-045*	Weldment, Right Center Arm (Overlapping Door)
	1	0-499-295*	Weldment, Right Center Arm (Sealed Door)
20	2	0-499-256	Hinge Block
21	2	0-403-021	Hinge Pin, Horizontal
22	1	0-499-046*	Weldment, Left Center Arm (Overlapping Door)
	1	0-499-296*	Weldment, Left Center Arm (Sealed Door)
23	2	0-550-198	Screw, 1/2-13 x 3/4-in. Serrated-Flange
24	2	0-499-186	Weldment, Pivot Angle
25	1	0-499-035*	Weldment, Left Side Arm (Overlapping Door)
	1	0-499-294*	Weldment, Left Side Arm (Sealed Door)

A/R = as required

** Item is produced based on manufactured height and width of door.*

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—TROLLEY ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
	1	0-499-002	Trolley, Assembly
1	2	0-551-195	Nut, $\frac{5}{8}$ -11 Jam
2	12	0-404-044	Bushing, $\frac{5}{8}$ -in. I.D. x 14 GA Narrow Rim
3	1	0-403-006	Shaft, Trolley
4	1	0-404-043	Spherical Bearing, Sealed $\frac{5}{8}$ -in. Bore
5	1	0-403-005	Body, Trolley
6	4	0-405-003	Wheel, Trolley
7	5	0-404-027	Sleeve, $\frac{5}{8}$ -in. x $1\frac{3}{16}$ -in. x 1-in. Oil Lube
8	9	0-552-194	Spring Pin, $\frac{3}{16}$ -in. Dia. x 1-in.
9	2	0-403-007	Axle, Trolley
10	1	0-405-004	Guide Roller, Trolley

A/R = as required

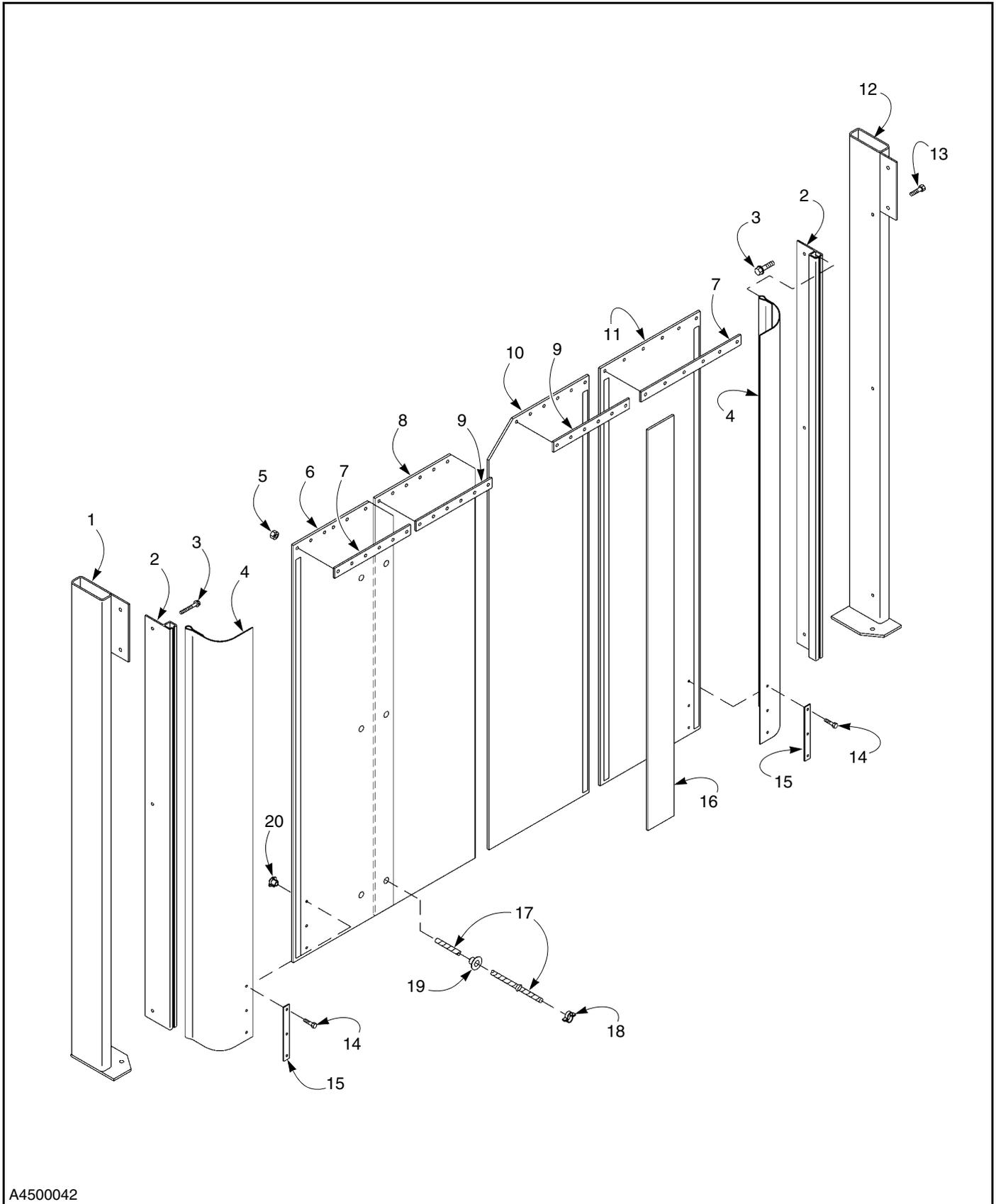
** Items are produced based on manufactured height and width of door.*

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 TUBES AND DOOR PANEL ASSEMBLY

SIDE TUBES AND DOOR PANEL ASSEMBLY



A4500042

Figure 56

PARTS LIST—SIDE TUBES AND DOOR PANEL ASSEMBLY

ITEM	QTY.	PART #	DESCRIPTION
1	1	0-499-038*	Weldment, Left Side Tube
2	2	0-009-618	Retainer
3	A/R	0-551-041	Screw, 1/4-20 x 1-in. Self-Tapping
4	2	0-499-162*	Side Seal
5	A/R	0-553-104	Nut, 5/16-18 Serrated Flange
6	1	Consult Factory*	Puralon Panel, Left (Rope Tie Door)
	1	Consult Factory*	Puralon Panel, Left (Sealed Panel Door) (not shown)
7	2	0-499-050	Clamp Flange, Side Arm
8	1	Consult Factory*	Puralon Panel, Left Center (Rope Tie Door)
	1	Consult Factory*	Puralon Panel, Left Center (Sealed Panel Door) (not shown)
9	2	0-499-051	Clamp Flange, Center Arm
10	1	Consult Factory*	Puralon Panel, Right Center (Sealed Panel Door)
	1	Consult Factory*	Puralon Panel, Right Center (Rope Tie Door) (not shown)
11	1	Consult Factory*	Puralon Panel, Right (Sealed Panel Door)
	1	Consult Factory*	Puralon Panel, Right (Rope Tie Door) (not shown)
12	1	0-499-037*	Weldment, Right Side Tube
13	2	0-550-198	Screw, 1/2 x 3/4-in. Serrated-Flange
14	6	0-550-290	Screw, 1/4-20 x 1/2-in. Slotted
15	2	0-205-001	Strip, UHMW
16	2	0-407-304*	Seal
17	A/R	0-007-140	Rope, Panel Ties
18	A/R	0-004-181	Crimp, Rope
19	A/R	0-107-120	Knob, PVC
20	6	0-553-099	TEE Nut, 14/20

A/R = as required

** Item is produced based on manufactured height and width of door.*

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.

