

Crane 2000-M and 3000-M

Manual revolving doors
Overhead speed control

Installation Manual

RL6000-001 – 07-2022

| EN |

 **Crane**
dormakaba Group

dormakaba 

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1 General information

1.1 Installation instructions.

This document contains important instructions for installation and operation of Crane 2000-M and 3000-M series revolving doors with overhead speed control.

Review these instructions, along with the Crane Shop Drawings, thoroughly prior to installation, and follow them carefully during installation, commissioning, troubleshooting and maintenance.

NOTICE

Crane Shop Drawings for specific job.

- Refer to the Crane Shop Drawings for revolving door design and installation requirements for job.

1.2 Manual storage.

This document must be kept in a secure place, and accessible for reference as required.

If the door system should be transferred to another facility, insure that this document is transferred as well.

1.3 dormakaba.us website.

Manuals are available for review, download, and printing on the dormakaba.us website.

1.4 Symbols used in these instructions.



WARNING

This symbol warns of hazards which could result in personal injury or threat to health.

NOTICE

Draws attention to important information presented in this document.

CAUTION

This symbol warns of a potentially unsafe procedure or situation.



TIPS AND RECOMMENDATIONS

Clarifies instructions or other information presented in this document.

NOTICE

Revolving door order custom requirements.

- Installation instructions may need to be modified or replaced.
- Installation illustrations may not reflect assembly or part customization.

Revolving door optional equipment.

- Installation instructions and illustrations may not reflect installed optional equipment.

NOTICE

Installation manual images.

- Images may not reflect actual hardware or assemblies for a specific installation.

1.5 Dimensions

Unless otherwise specified, all dimensions are given in inches (").

1.6 Environment

Crane 2000-M and 3000-M revolving doors are designed to operate on a building interior or exterior application..

2 Product description

2.1 Crane 2000-M series

2.1.1 Enclosure

- Welded construction.
- Aluminum; anodized finish, painted finish.
- Bronze
- Stainless steel

2.1.2 Door wings.

- Bolted construction
- Aluminum; anodized finish, painted finish, or cladded.

2.2 Crane 3000-M series.

2.2.1 Enclosure

- Custom
- Fully formed and welded construction.
- Aluminum, stainless steel, bronze, and wood.

2.2.2 Door wings.

- Custom
- Fully formed and welded construction.
- Aluminum, stainless steel, bronze and wood.

2.3 Available options

2.3.1 Canopy assemblies.

Reference Chapter 8.

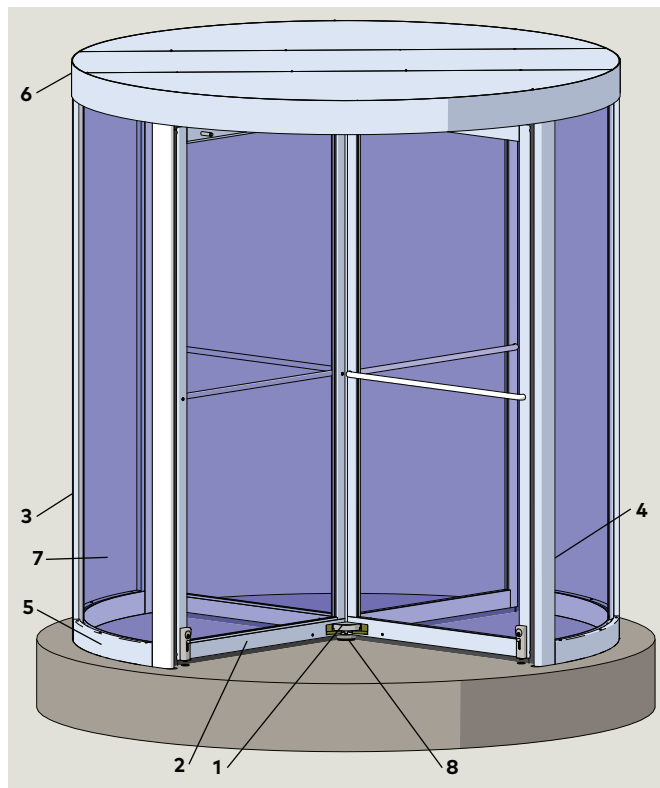
- 3 1/8" canopy
- Other canopy heights available.

2.3.2 2000-M and 3000-M available options.

Reference Chapter 9.

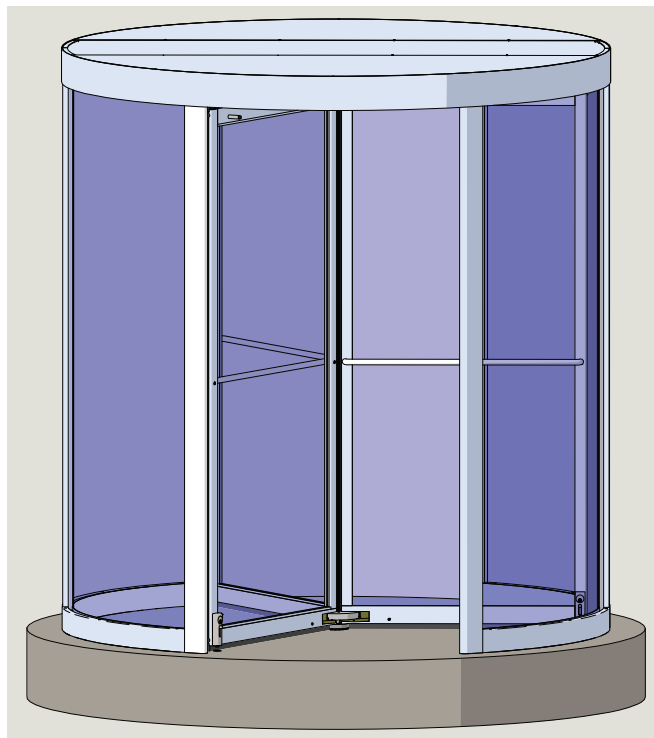
- Welded floor grills
- Self-positioning closer
- Custom push bars
- LED lights

Fig. 2.1 Four wing manual revolving door example



- | | |
|-------------------------|-------------------|
| 1 Center shaft assembly | 5 Base assembly |
| 2 Wing assembly | 6 Canopy assembly |
| 3 Center post | 7 Enclosure glass |
| 4 Quarter post/end wall | 8 Pivot bearing |

Fig. 2.2 Three wing manual revolving door example



3 Safety information

3.1 General safety information

3.1.1 Safety instructions.

Observe safety warnings as they are presented in this manual.

3.1.2 Safety warnings.



WARNING

Damage to equipment or incorrect equipment operation may result from an incorrect installation.



WARNING

Hazard to mechanical processes by use of control settings, elements, or procedures not documented in this manual!



WARNING

Electric shock hazard!
By use of control elements, settings, or procedures not documented in this manual!



WARNING

Work on electrical equipment and 115 Vac wiring installation must be performed only by qualified personnel!



WARNING

Metallic doors must be grounded per national and local codes!



WARNING

Hand pinch point and crushing hazards!



WARNING

Crushing hazards!

3.1.3 Residual hazards



WARNING

After installation, hazards such as minor crushing, impact with limited force, and risk to unsupervised children may exist depending on structural design of door area, type of door, and any safeguards that have been implemented.

4 2000-M series

4.1 2000-M series model comparison

	AL2000	SS2000	BZ2000
Material	Aluminum	Aluminum / Stainless steel	Aluminum / Bronze
Wing configuration	3 wings , 4 wings		
Enclosure diameter	3 section canopy		
	3 wing	4 wing	
Enclosure diameter	Minimum ID: 7' 7 3/4"	Maximum OD: 9'	Minimum ID: 6'6" Maximum OD: 9'
Door opening height	Minimum 7'	Maximum: 9' 4 1/4"	Minimum: 7' Maximum: 10'
Enclosure diameter	4 section canopy		
	3 wing	4 wing	
Enclosure diameter	Minimum ID: 8' 7 3/4"	Maximum OD: 10' 4 1/4"	Minimum ID: 8' 7 3/4" Maximum OD: 10' 4 1/4'
Door opening height	Minimum 7'	Maximum: 9' 4 1/4"	Minimum: 7' Maximum: 10'
Maximum total wing assembly and center shaft assembly weight	750 pounds aluminum 850 pounds SS	Total weight may vary depending on application.	
Finish	<ul style="list-style-type: none"> • Clear anodized • Custom anodized • Dark bronze anodized • Painted 	<ul style="list-style-type: none"> • #4 satin • #6 fine satin • Mirror • Non-directional "Jitterbug" • Custom 	<ul style="list-style-type: none"> • Satin and lacquered • Satin no lacquer • Mirror and lacquered • Statuary and lacquered • Custom
Operation	Manual, mechanical speed adjuster to limit speed. To be adjusted to comply with ANSI/BHMA A156.27.		
Attachment Types	A, B, C, D, F,H,I,J,K as indicated on the drawings. Reference Chapter 6.		
Enclosure material	<ul style="list-style-type: none"> • Glass • Aluminum panels 	<ul style="list-style-type: none"> • Glass • Solid metal 	<ul style="list-style-type: none"> • Glass • Solid metal
Enclosure glass	7/16" or 9/16" clear or tinted Full quadrant glass (Fig. 6.1: H, I J) requires 9/16" thickness.		
Canopy material	<ul style="list-style-type: none"> • Aluminum 	<ul style="list-style-type: none"> • Stainless steel 	<ul style="list-style-type: none"> • Bronze
Fascia height	a) 3 1/8" [3.2] minimum b) 6" [15.2]	c) 10" [254] d) 24" [610] maximum	
Speed Control	Manual speed control (Para. 7.9). <ul style="list-style-type: none"> • Uses 100:1 gear ratio • Sealed unit is mounted in canopy • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code. 		

5 3000-M series

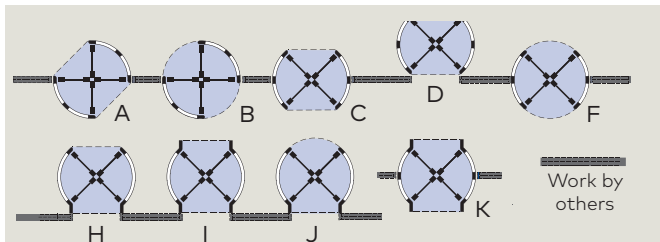
5.1 3000-M series model comparison

	AL3000	SS3000	BZ3000
Material	Aluminum	Aluminum / Stainless steel	Aluminum / Bronze
Wing configuration	3 wings, 4 wings		
Enclosure diameter	3 section canopy		
	3 wing	4 wing	
Enclosure diameter	Minimum ID: 7' 7 3/4"	Maximum OD: 9'	Minimum ID: 6'6" Maximum OD: 9'
Door opening height	Minimum 7'	Maximum: 9' 4 1/4"	Minimum: 7' Maximum: 10'
Enclosure diameter	4 section canopy		
	3 wing	4 wing	
Enclosure diameter	Minimum ID: 8' 7 3/4"	Maximum OD: 10' 4 1/4"	Minimum ID: 8' 7 3/4" Maximum OD: 10' 4 1/4'
Door opening height	Minimum 7'	Maximum: 9' 4 1/4"	Minimum: 7' Maximum: 10'
Maximum total wing assembly and center shaft assembly weight	750 pounds aluminum 850 pounds SS	Total weight may vary depending on application.	
Finish	<ul style="list-style-type: none"> • Clear anodized • Custom anodized • Dark bronze anodized • Painted 	<ul style="list-style-type: none"> • #4 satin • #6 fine satin • Mirror • Non-directional "Jitterbug" • Custom 	<ul style="list-style-type: none"> • Satin and lacquered • Satin no lacquer • Mirror and lacquered • Statuary and lacquered • Custom
Operation	Manual, mechanical speed adjuster to limit speed. To be adjusted to comply with ANSI/BHMA A156.27.		
Attachment Types	All, custom. Reference Chapter 6.		
Enclosure material	<ul style="list-style-type: none"> • Glass • Aluminum panels 	<ul style="list-style-type: none"> • Glass • Solid metal 	<ul style="list-style-type: none"> • Glass • Solid metal
Enclosure glass	7/16" or 9/16" clear or tinted Full quadrant glass (Fig. 6.2: H, I J examples) requires 9/16" thickness.		
Canopy material	<ul style="list-style-type: none"> • Aluminum 	<ul style="list-style-type: none"> • Stainless steel 	<ul style="list-style-type: none"> • Bronze
Fascia height	a) 3 1/8" [3.2] minimum b) 6" [15.2]	c) 10" [254] d) 24" [610] maximum	
Speed Control	Manual speed control (Para. 7.9). <ul style="list-style-type: none"> • Uses 100:1 gear ratio • Sealed unit is mounted in canopy • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code. 		

6 Door attachment types

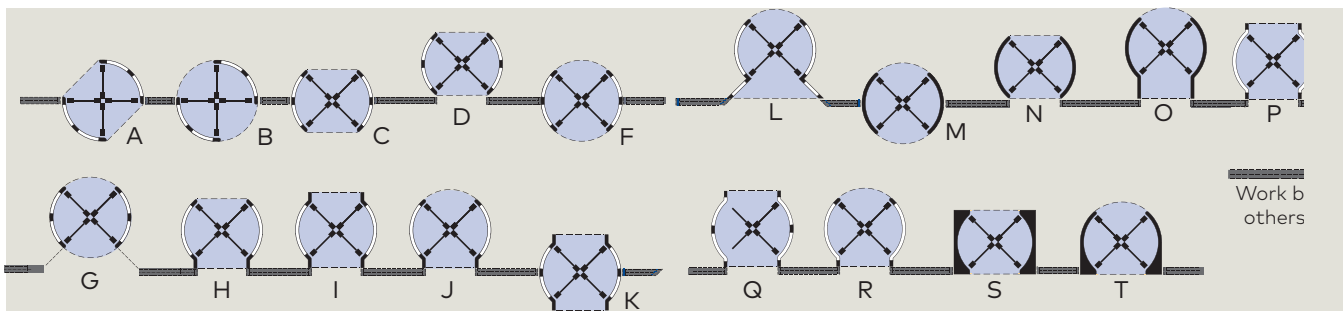
6.1 2000-M series

Fig. 6.1.1 Crane 2000-M attachment types



6.2 3000-M series

Fig. 6.2.1 Crane 3000-M attachment types



7 Assembly and hardware examples

7.1 6" canopy 3 piece design; door OD diameters under 8 feet, shipped as a single unit

Fig. 7.1.1 6", 3 piece canopy assembly, top view

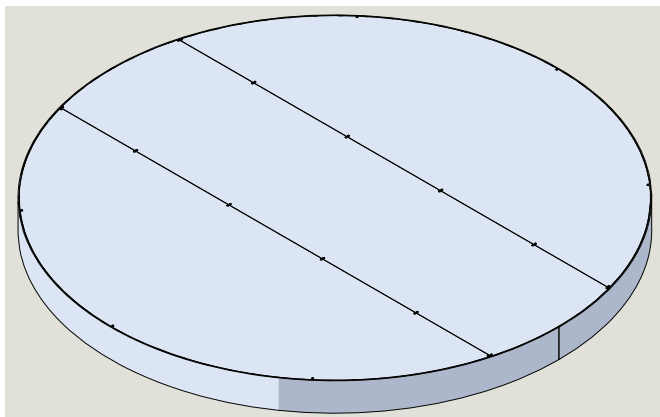


Fig. 7.1.2 3 piece canopy assembly, top view, covers removed

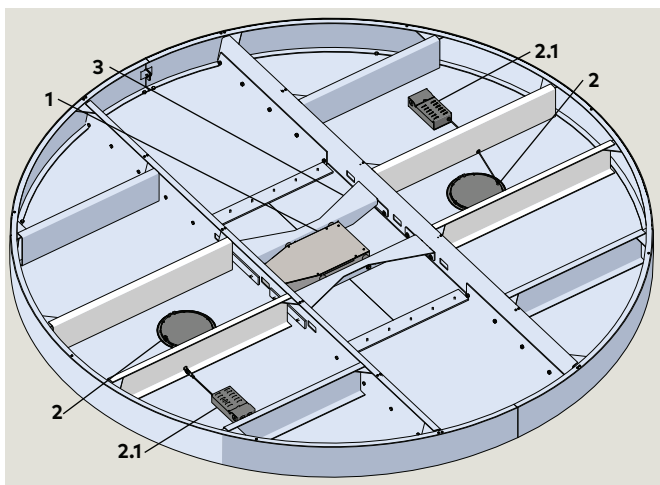
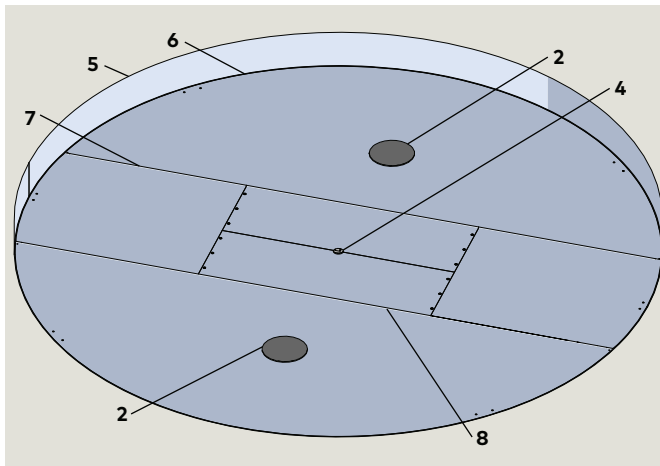


Fig. 7.1.3 3 piece canopy assembly, bottom view



NOTICE

Refer to Crane Shop drawings for canopy detail for specific job!

Table 7.1.1 6" inch canopy bearing and LED lights

Part / Assembly	Description
1	RS6079-010 Overhead speed control assembly
2	RC7030-001 LED light (option)
2.1	RC7032-001 Box, junction, with LED driver (option)
3	RC6071 Speed control brace
4	Overhead speed control drive shaft
5	Fascia
6	Outer soffit
7	Outer center soffit
8	Inner center soffit

7.2 Door posts



TIPS AND RECOMMENDATIONS

Reference Crane shop drawings for quarter post/end wall and center post design for specific job.

NOTICE

Refer to Crane Shop drawings quarter post/end wall and center post design for specific job.

Fig. 7.2.1 Quarter post/end post

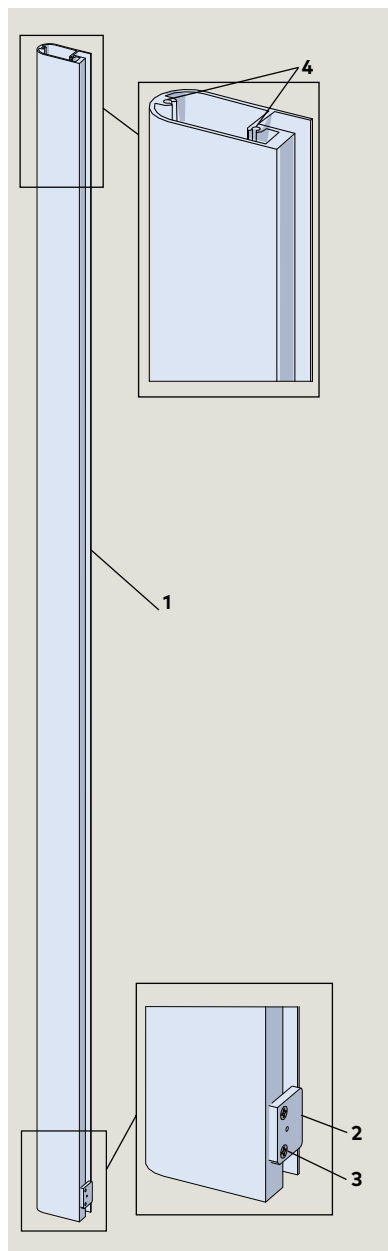


Fig. 7.2.2 Center post

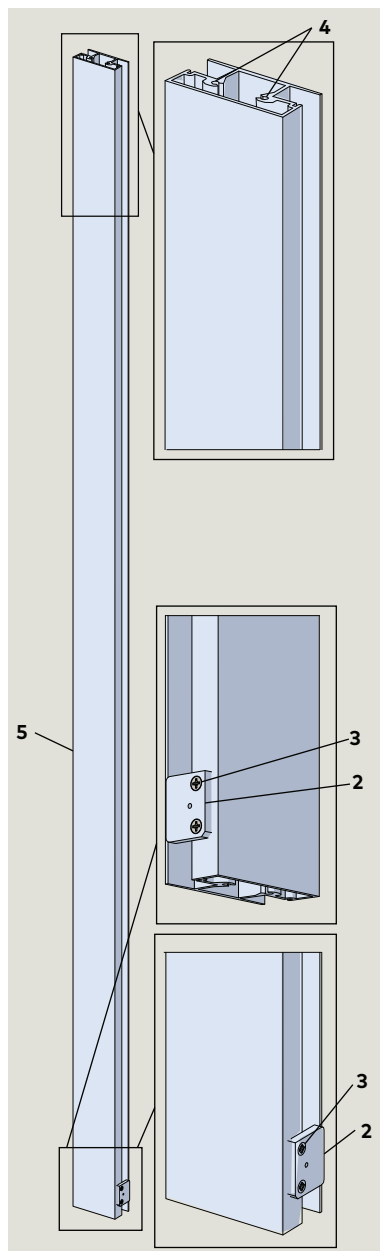
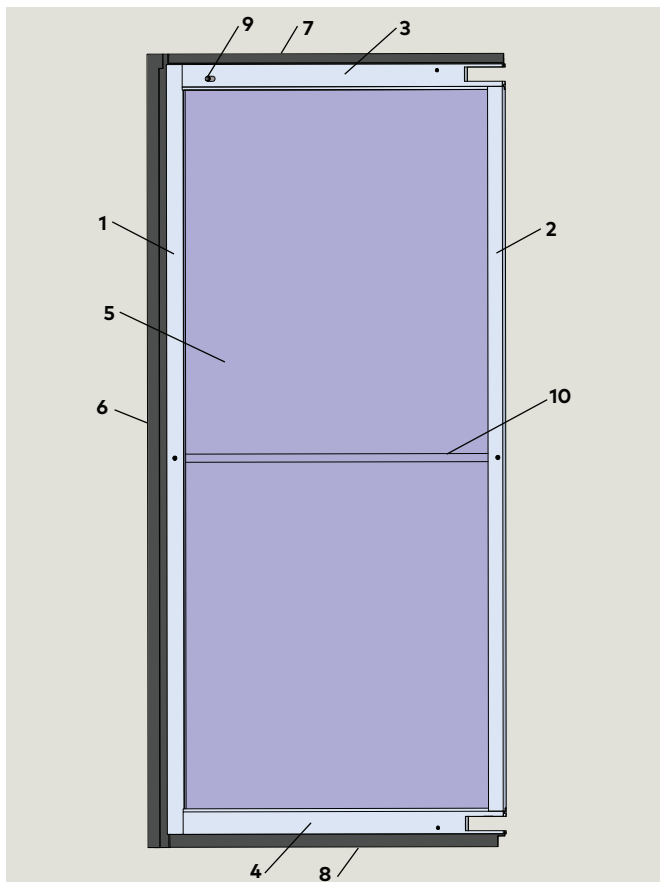


Table 7.2.1 Quarter post and center post

Part / Assembly	Description
1 RF6009-0X0	Quarter post
2 RF6020-010	Rail to post attachment block
3 RF6115-01G	10-24 x 3/8" Phillips PHMS
4	1/4-20 tapped holes for canopy HHCS
5 RF6007-0X0	Center post

7.3 Door wings

Fig. 7.3.1 Wing assembly, 4 wing door example



NOTICE

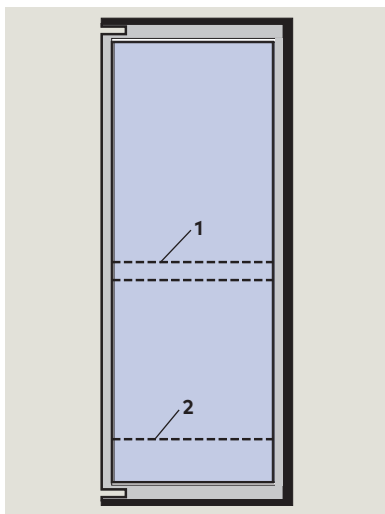
Refer to Crane Shop drawings for wing detail for specific job!

Table 7.3.1 Door wing assemblies and part examples

Part / Assembly	Description
1 RE6022-0X0	Front stile, AL
2 RE6031-0X0	Center stile, AL
3 RE6024-0X0	Rail end, Herc
4 RE6024-0X0	Rail end, Herc
5	Wing glass
6	Sweep felt vertical
7 RC6389	Sweep felt top
8	Sweep felt bottom
9 RF2961	Wing bumper assembly
10	Wing push bar Push bars ordered job specific for each order

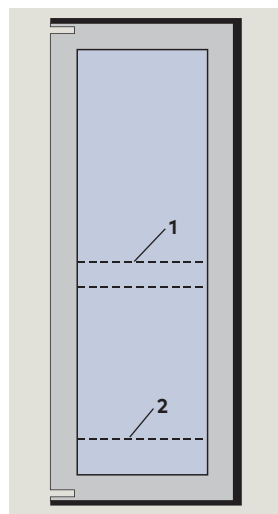
7.4 Door wing types

Fig. 7.4.1 Narrow stile



- 1 Optional center muntin
- 2 Optional tall bottom rail

Fig. 7.4.2 Medium & Wide stile



- 1 Optional center muntin
- 2 Optional tall bottom rail

Fig. 7.4.3 Patch fitting type wing

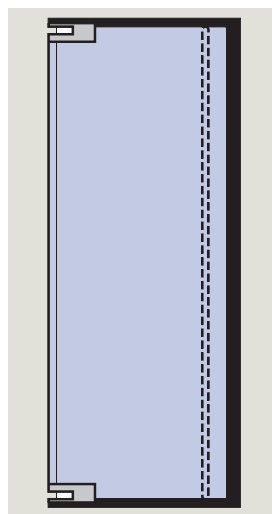
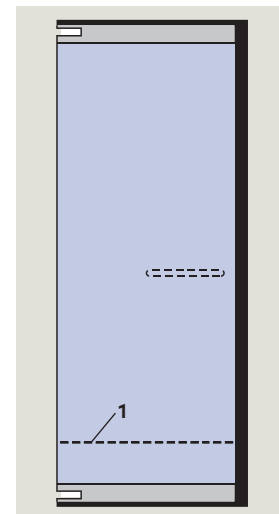


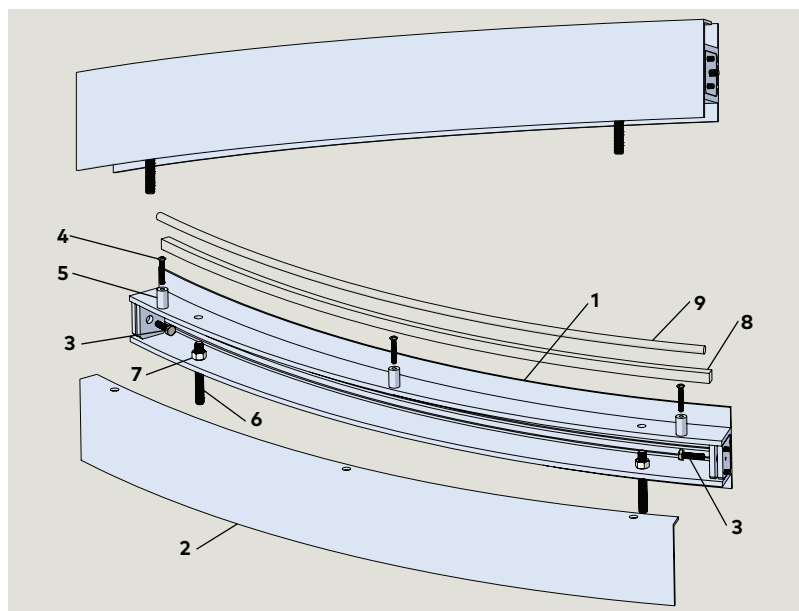
Fig. 7.4.4 Herculite type wing



- 1 Optional tall bottom rail

7.5 Enclosure base assembly

Fig. 7.5.1 Enclosure base assembly, AL



NOTICE

Refer to Crane Shop drawings for post and base detail for specific job.

Table 7.5.1 Enclosure base parts

Part / Assembly	Description
1 RE6016-0X0	Enclosure base, inner 3", AL
2 RE6015-0X0	Enclosure base, outer 3" AL
3 RF6055-02G	1/4-20 x 1" HH cap screw
4 RF6118-01G	10-24 x 1.25" POHMS
5 RC6390-010	Cover support spacer tube, 1/2" OD x 1/16" wall x 7/8" long, PL
6 DC2569-020	3/8 x 3" stud
7 DF0857-00G	3/8-16" hex nut
8	Glazing block (by others)
9	Backing rod (by others)

7.6 Center shaft assemblies

NOTICE

Refer to Crane Shop drawings for center shaft design for specific job.

Fig. 7.6.1 Four wing center shaft assembly RS6041-001

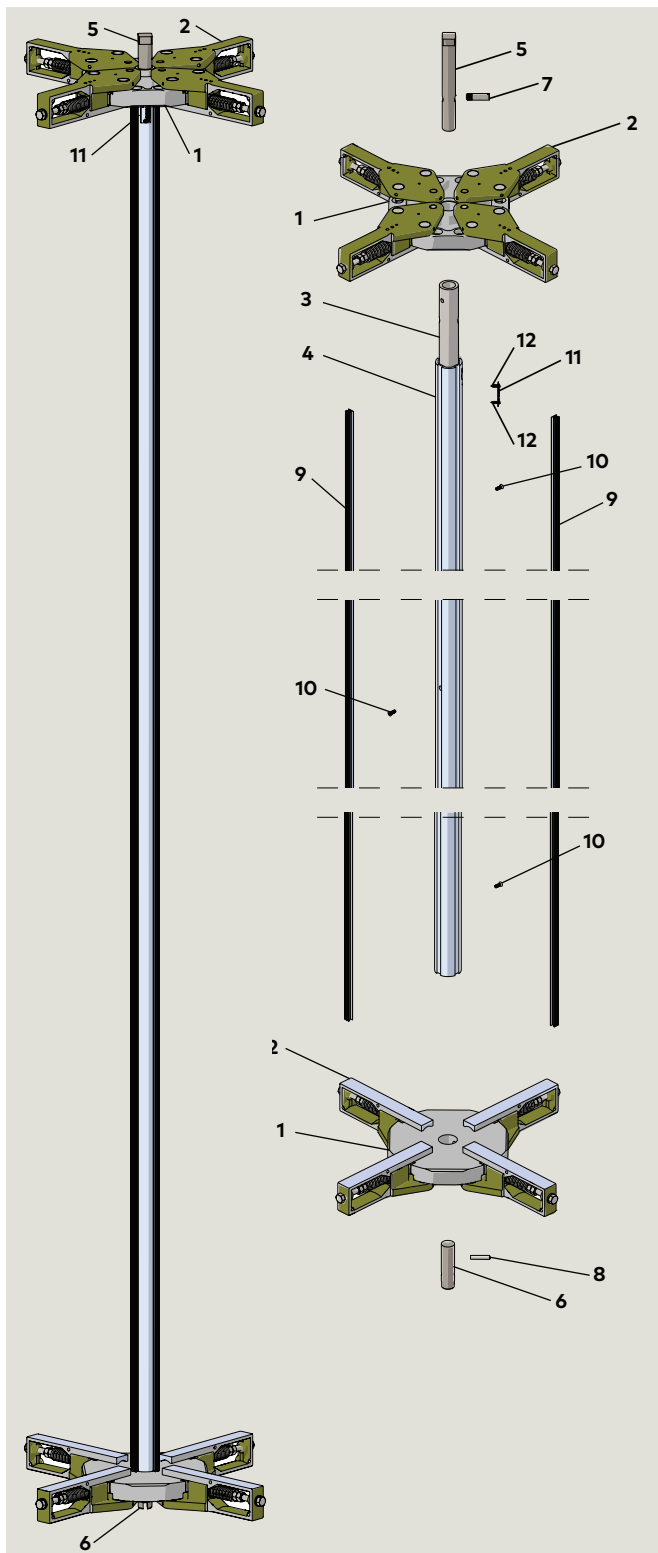


Table 7.6.1 RS6041-001 assemblies and parts

Part / Assembly	Description
1 RS6043-001	4 wing disc assembly
2 RS6045-001	Hanger assembly
3 RC6073-001	Steel center shaft, 4 wing, overhead speed control
4 RC6074-001	Steel shaft cover 4 wing
5 RC6076-001	Top plug, steel shaft, overhead speed control
6 RC6077-001	Bottom plug, steel shaft, floor bearing
7 RF6052-001	Steel shaft cross pin, 1 1/2" long
8 RF6053-01G	.1/4 OD x 1 1.4" spring pin slotted
9 RC6078-001	Weatherstrip, steel shaft
10 RF6054-01G	8-32 x 1/2" Phillips FH machine screw
11 RD6001-001	Shaft ID tag
12 RF6008-01G	#6 x 1/2" SS Phillips pan head screw

Fig. 7.6.2 Shaft ID tag

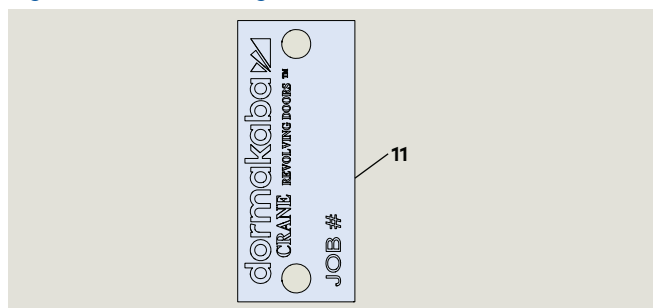


Fig. 7.6.3 Center shaft fasteners

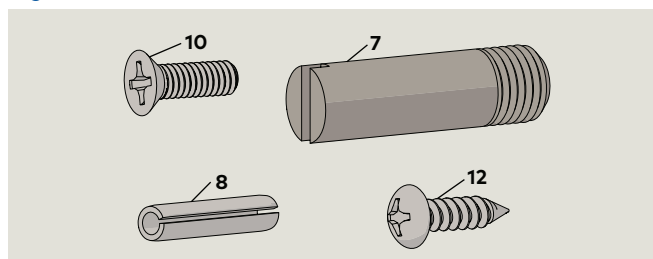


Fig. 7.6.4 Three wing center shaft assembly RS6042-001

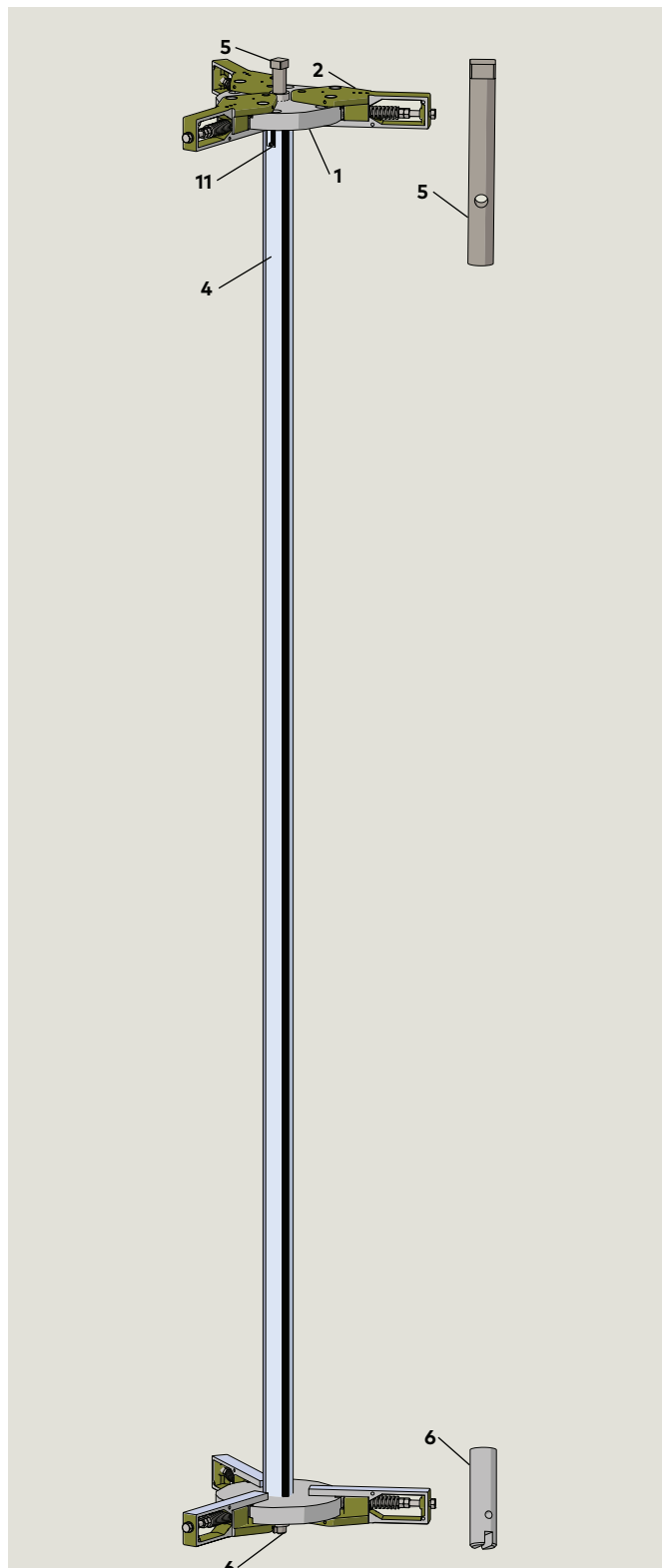


Table 7.6.2 RS6042-001 assemblies and parts

Part / Assembly	Description
1 RS6044-001	3 wing disc assembly
2 RS6045-001	Hanger assembly
4 RC6075-001	Steel shaft cover 4 wing
5 RC6076-001	Top plug, steel shaft, overhead speed control
6 RC6077-001	Bottom plug, steel shaft, floor bearing
11 RD6001-001	Shaft ID tag

Fig. 7.6.5 Shaft ID tag

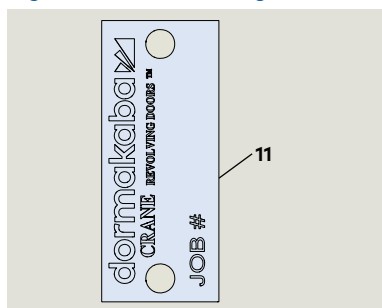
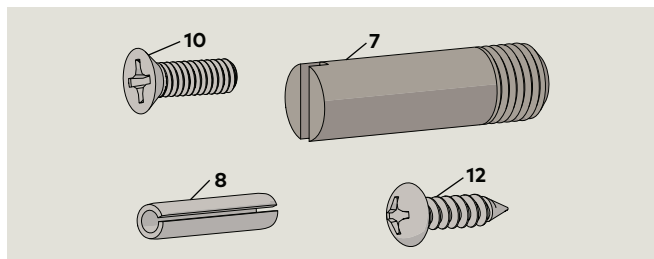


Fig. 7.6.6 Center shaft fasteners



7.7 Hanger assembly, steel shaft RS6045-0X0

Fig. 7.7.1 Center shaft hanger assembly

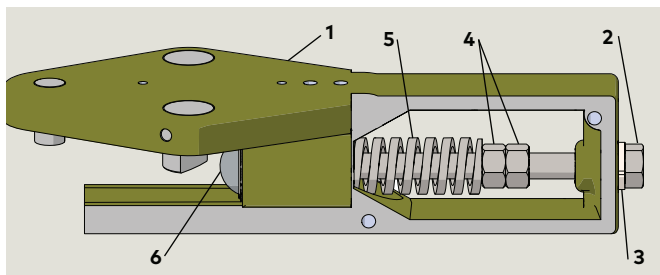


Table 7.7.1 RS6045 shaft hanger assemblies and parts

Part / Assembly	Description
1	RC6369-0X0 Hanger body
2	RC6156-01G Hex bolt, 0.375" - 16 x 4"
3	Lock washer, 3/8"
4	Hex nut, 0.375" - 16
5	Spring
6	Ball, 7/8" diameter

7.8 Floor bearing assemblies for center shaft

Fig. 7.8.1 Floor pivot assembly RS6076-010

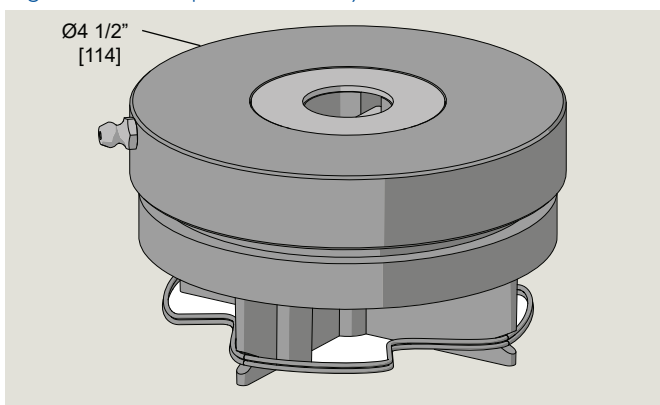
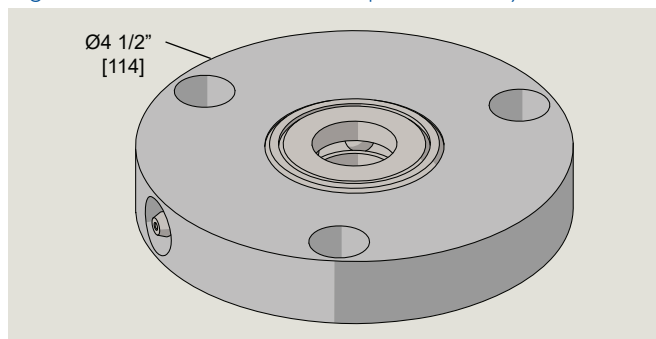
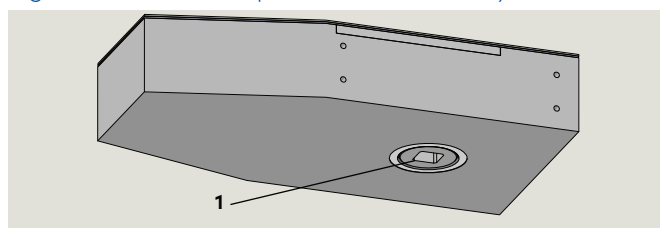


Fig. 7.8.2 Surface mounted floor pivot assembly RS3423-010



7.9 Overhead speed control

Fig. 7.9.1 Overhead speed control assembly



1 Overhead speed control
RS6079-010

7.9.1 Overhead speed control.

1. Sealed unit mounted in canopy.
2. Centrifugal force brake slowly engages as the door reaches maximum allowable RPM set by code.

7.10 Bookfold mechanism

Fig. 7.10.1 Bookfold mechanism

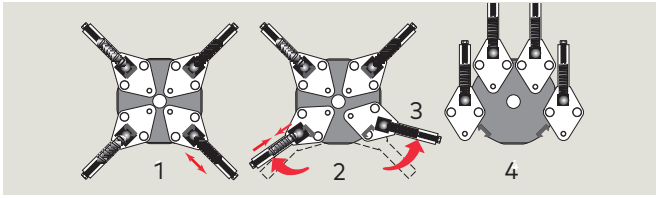
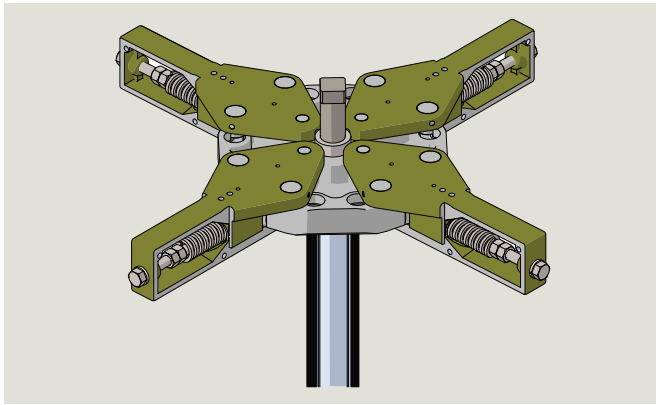


Fig. 7.10.2 4 wing hanger assembly

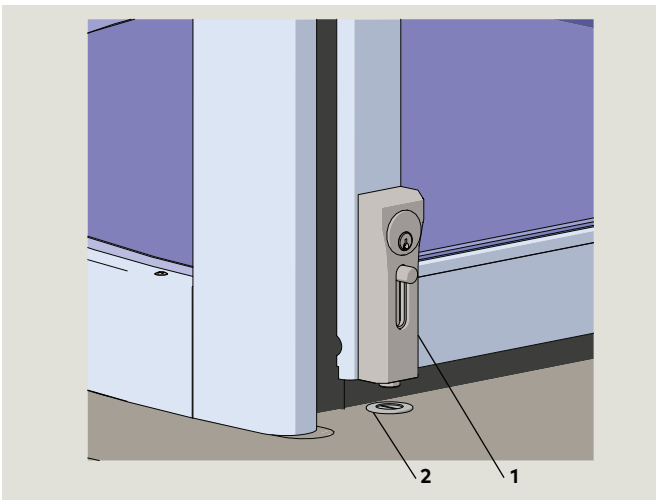


7.10.1 Bookfold mechanism operation.

1. During normal operation, hanger spring tension holds wings in radial position by means of steel balls in hangers engaging in detent blocks in center shaft top and bottom discs.
2. Spring tension is field adjusted to meet breakout force requirements as specified in ANSI/BHMA A156.27, Standard for Power and Manual Operated Revolving Pedestrian Doors.
3. Breakout force is adjustable in pressure from 60 to 180 lbs [265 to 800 N].
4. Excess pressure on wing compresses spring (to breakout force), ball is rotated from detent block.
5. Minimal pressure is then required to continue bookfolding. Wings bookfold either way, providing a clear passage on both sides.

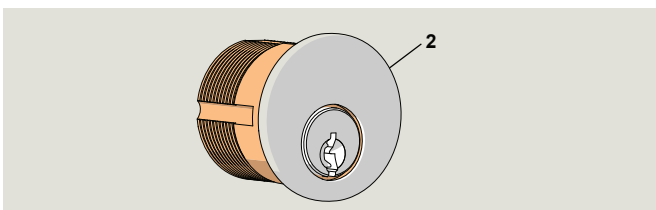
7.11 Wing locks

Fig. 7.11.1 Surface mounted lock body



- 1 Lock body assembly
RC6259-010
- 2 Floor strike
RC6265-0X0

Fig. 7.11.2 Concealed lock



- 2 Cylinder assembly
76019184

7.11.1 Type of wing locks.

1. Lock body surface mounted (Fig. 7.11.1).
 - Narrow, medium, wide and patch fit herc wings.
 - Lock by customer
2. Concealed locks, mounted in rail (Fig. 7.11.2).
 - Herc wings.

7.11.2 Factory installed.

- Lock body or concealed lock is factory installed.



TIPS AND RECOMMENDATIONS

Rehab kits with surface mounted locks.

Locks are shipped loose. AL500, SS500 and BZ500.

7.11.3 Number of wing locks and location.

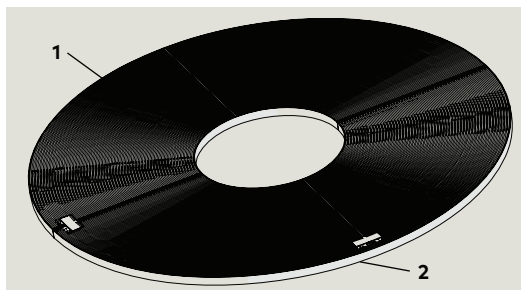
- Two wing lock bodies are supplied, one located in adjacent wing bottom rails for interior locking into floor.
- Lock bodies or concealed locks are factory installed.
- Doors over 7' high, locks installed in bottom rails unless otherwise specified.

9 Optional assemblies

9.1 Floor grill and pan assembly

- 1 Floor grill
- 2 Pan

Fig. 9.1.1 Floor grill and pan assembly

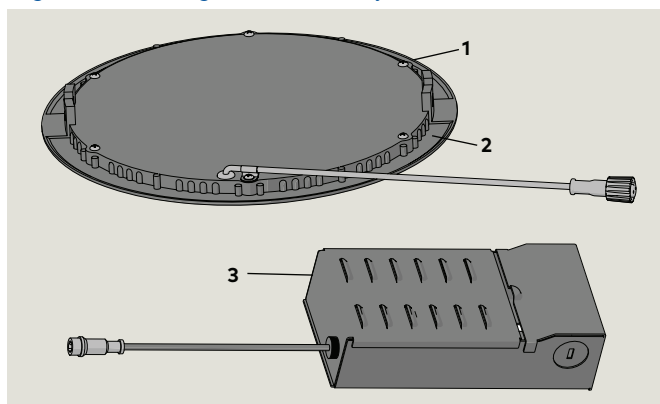


9.1.1 Welded floor grilles

- Fabricated from concentrically rolled bars of 1/4" x 1" stainless steel.
- Integrated into revolving door design.
- Recessed grille pan welded from 12 ga. stainless steel, a drainage fitting can be added.

9.2 Ceiling light with LED driver

Fig. 9.2.1 LED light fixture and junction box



9.2.1 Ceiling light with LED driver.

- Reference Chapter 15 for LED light installation and wiring.

Table 9.2.1 LED light and junction box/LED driver

Part / Assembly	Description
1 RC7030-001	LED light (option)
2	Tape
3 RC7032-001	Box, junction, with LED driver (option)

9.3 Overhead speed control with self positioning closer (SPC)

Fig. 9.3.1 OHSC with self positioning closer

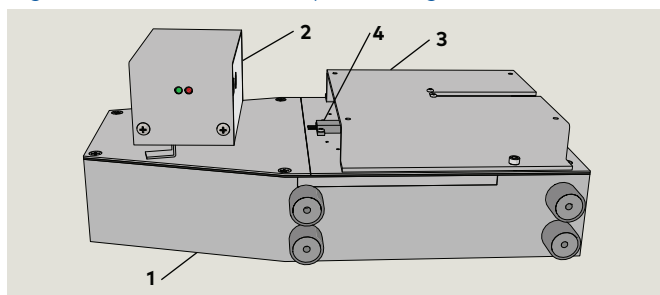


Table 9.3.1 Self positioning closer assembly

Part / Assembly	Description
1	Overhead speed control assembly
2	Self positioning closer (SPC) motor assembly
3	Positioning wheel cover
4	Positioning wheel sensor

9.3.1 Self positioning closer.

- Automatically resets the revolving door to its home (X) position after every use.
- Provides optimal weather seal while door is idle.

9.3.2 Self positioning closer features.

1. Requires a minimum 6 1/2" canopy height.
2. Requires a 115 Vac power source.
3. Feature is compliant with ANSI/BHMA A156.27.
4. Works in conjunction with the manual speed control and spins the door in a CCW direction.
5. Self-positioning closer functions independently of the manual speed control, assuring the door's safe and compliant operation at all times even if the closer is turned off or removed.



TIPS AND RECOMMENDATIONS

Reference Appendix A for SPC installation.

10 Fastener hardware

10.1.1 Fastener hardware

- 3 1/4-20 x 5/8" hex head bolt, SS
RF6055-01G
- 3.1 .25-20 hex nut, SS
RF6121-01G

Fig. 10.1.1 Canopy fastening hardware

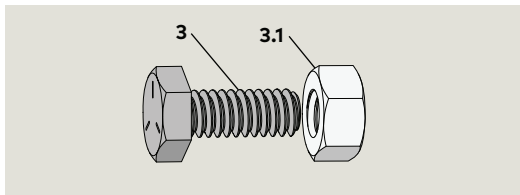


Fig. 10.1.3 Aluminum post to canopy fastening hardware

- 4 1/4-20 x 1" hex head bolt, SS
RF6055-02G

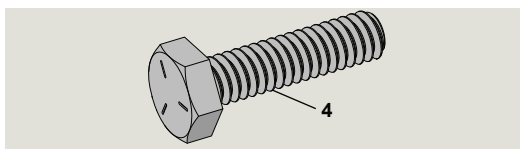


Fig. 10.1.4 Base assembly threaded rod

- 7 3/8" x 3" threaded rod DC2569-020

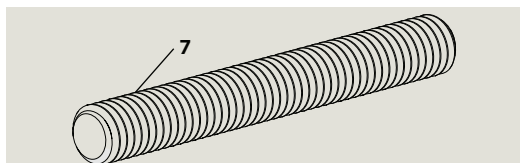


Fig. 10.1.5 Base to post fastening hardware

- 4 1/4-20 x 1" hex head bolt, SS
RF6055-02G

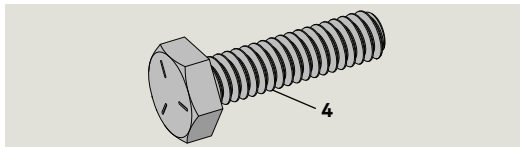


Fig. 10.1.6 Wing attachment hardware

- 10 1/4-20 x 1/2" Truss head machine screw, SS
RF6119-01G
- 10 .25-20 x 1/2" Bronze Truss head machine screw

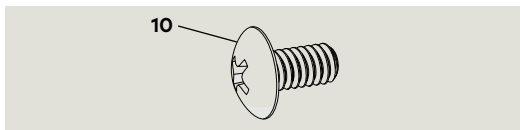
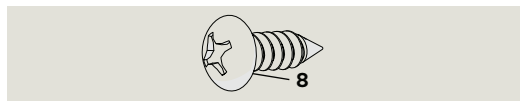


Fig. 10.1.7 Canopy cover fastener

- 8 8-15x 1/2" Phillips pan head sheet metal screw
RF3016-01Z



TIPS AND RECOMMENDATIONS

- Fastener hardware is contained in cardboard boxes.
- Boxes are packaged in the center shaft shipping crate.
- Each box is labeled with job number, job name and a description of its contents.

10.1.1 Canopy fastening hardware; canopy shipped in two sections.

- Fig. 10.1.1
- Reference Chapter 15.

10.1.3 Aluminum post to canopy fastening hardware.

- Fig. 10.1.3
- Reference Chapter 16.

10.1.4 Base assembly floor threaded rods.

- Fig. 10.1.4
- Reference Chapter 17.

10.1.5 Base to post fastening hardware.

- Fig. 10.1.5
- Reference Chapter 17.

10.1.6 Wing to center shaft hanger fastening hardware.

- Fig. 10.1.6
- Reference Chapter 24 and 25.

10.1.7 Canopy cover fastening hardware.

- Fig. 10.1.7
- Reference Chapter 15.

11 Recommended Tools And Materials

11.1 Recommended tools

Fig. 11.1.1 Recommended tools



Table 7111.1 Recommended tools

1	Plumb bob with string.
2	Tape measure
5	Screwdriver, flat blade
6	Screwdriver, Phillips #2, #3
7	Socket wrench and extensions
8	Open end wrench, 9/16"
9	Small insulated flat blade screwdriver
10	Spirit level, 72"
11	Rubber hammer
12	Needle nose pliers
13	Bent glass 9" suction cups (Wood's Pwr-Grip N5450 or equivalent) ASIN# B007IAB3TM
14	Hammer drill
15	Rotary hammer core bit, 5", Bosch or equivalent
16	Cordless drill with drill bit and socket set
17	Razor knife or box cutter
18	Angle grinder with 5" grinding wheel, ASIN# B00EMFOKSC
19	Masonry drill bits, 1 1/4" required for floor strike
20	Manual deburring tool
21	Digital multimeter
22	Force gauge for breakout, Chatillon DG-200, 0 - 200 lbf, or equivalent
23	Portable work lights
24	Wire strippers, 16 AWG to 22 AWG
25	Pin holding pin insertion tool, 1/4"

11.2 Recommended installation materials and installation hardware

Fig. 11.2.1 Recommended installation materials



Fig. 11.2.2 Recommended installation hardware



Table 11.2.1 Recommended installation Materials

	Description
1	Neoprene setting block assortment, 1/16" to 1/2", CRL, ASIN# B001G0UG1Q
2	Backer rod, 5/8" diameter, 100' roll, CRL
3	Silicone building sealant, 6 cartridges per door. Dow Corning 795 or equivalent. ASIN# B000NY76MI
4	Glazing tape. 1/8" x 3/8", black, single sided, CRL, ASIN# B000WRZCZE
5	Wedgit 5/16" glass centering springs, CRL W516, ASIN# B006JFMQUM
6	White lithium grease - for center shaft assembly, ASIN# B06XY6QK57
7	Posi-Twist Bundle kit, ASIN# B000JP3GB6
8	Rockite quick drying cement, ASIN# B000BO9JRK

Table 11.2.2 Recommended installation hardware

	Description
10	Metaltech wall hauler 2000 series drywall cart, ASIN# BMD2131YGR
11	Genie Hoist, GH-3.8 Portable lift, 300 pound capacity, lift height 12', ASIN# B004QTPJHU
12	Genie material lift, GL-8, 400 pound capacity, lift height 10', 5"
13	Extension ladder, 13'

*ASIN: Amazon numbers

12 Entrance opening and floor preparation

12.1 Cordon off work area



WARNING

Cordon off installation area for the complete revolving door installation process.

12.2 Entrance opening

12.2.1 Entrance opening requirements

1. Documentation:
 - Crane shop drawing detailing revolving door attachment plan to building and required dimensions (elevation and plan views).
 - Contractor or architect drawings detailing revolving door entrance opening.
2. Verify entrance opening dimensions and associated framing with documentation in (1).

NOTICE

Refer to Crane Shop Drawings for job!

12.3 Door building attachment plan

12.3.1 Crane shop drawings.

NOTICE

Refer to Crane Shop Drawings for job!

12.3.2 Contractor/architect drawings.

- Contractor or architect drawings detailing revolving door center point and building interface.

12.4 Revolving door floor surface

12.4.1 Floor surface.

1. Finished floor at revolving door site must be finished, level and flat.

NOTICE

The operation and structural integrity of Crane revolving doors depend on their being mounted on a level floor.

Do not proceed if floor is not flat and level.

NOTICE

Carpet should not be installed on the revolving door floor surface.

12.4.2 Determine if floor is flat.

1. Use level to check floor flatness.

CAUTION

High spots cannot be above bottom edge of adjacent work that will abut the revolving door enclosure base.

CAUTION

Any floor flatness issues must be resolved before starting door installation.

12.4.3 Determine if floor is level.

1. Using level, determine if floor is level (parallel to adjacent building work).

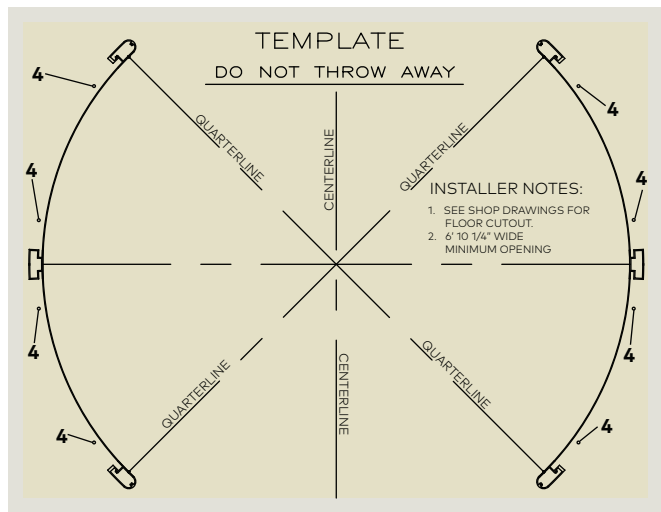
NOTICE

All Crane warranties are void if door is installed on a floor that is out of level, or if proper clearances are not maintained.

13 Installation template

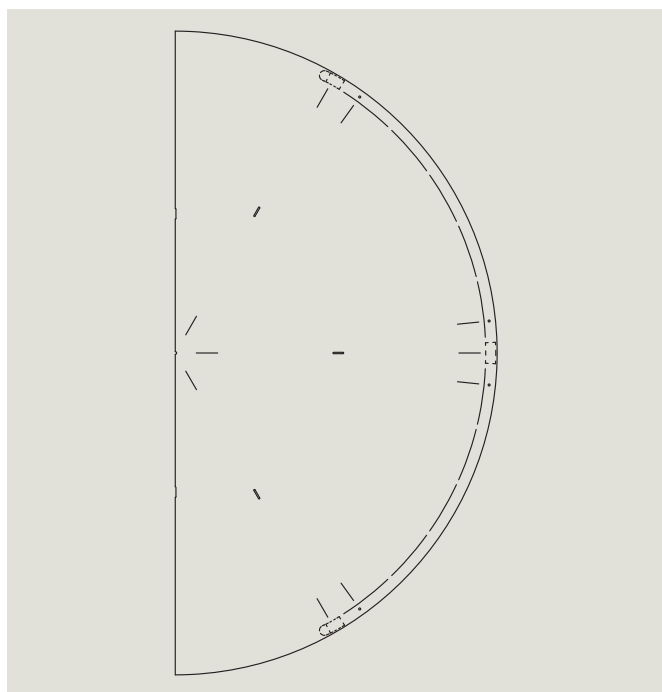
13.1 Installation template

Fig. 13.1.1 Full size cardboard installation template



4 Stud hole locations
in enclosure base

Fig. 13.1.2 Full size Masonite installation template;
9' OD example



13.1.1 Locate full size installation template.



TIPS AND RECOMMENDATIONS

Templates for canopy diameters greater than 6'6" I.D. are custom made and cut out of Masonite material to match door conditions.

1. Locate full size template.
 - Template shipped in canopy shipping crate.
2. Reference Crane shop drawing for template orientation at building attachment.

14 Mark door position on floor

14.1 Mark door position on floor using floor template

Fig. 14.1.1 Template placed on floor

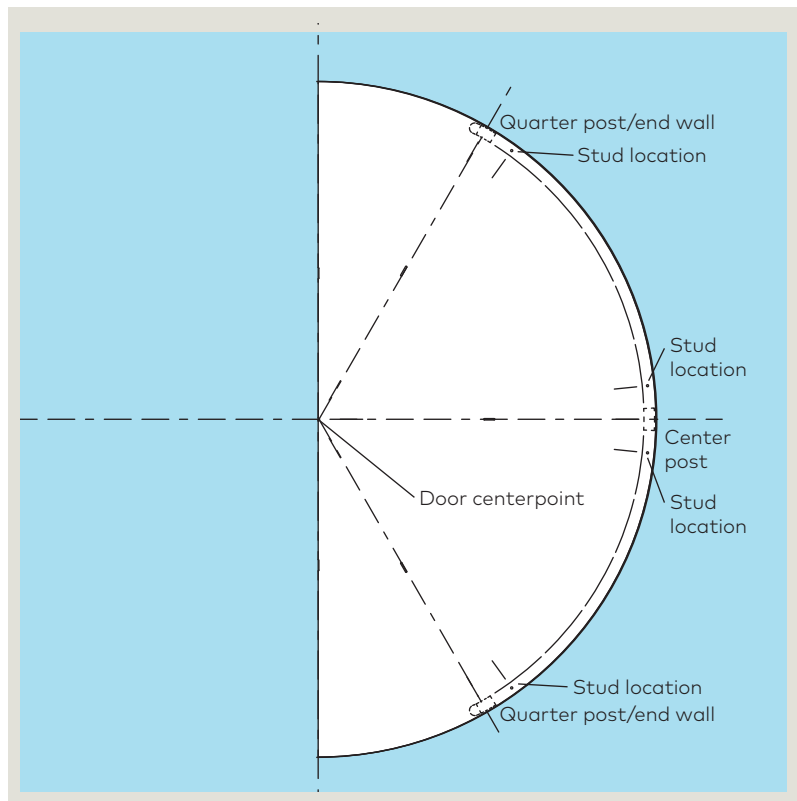
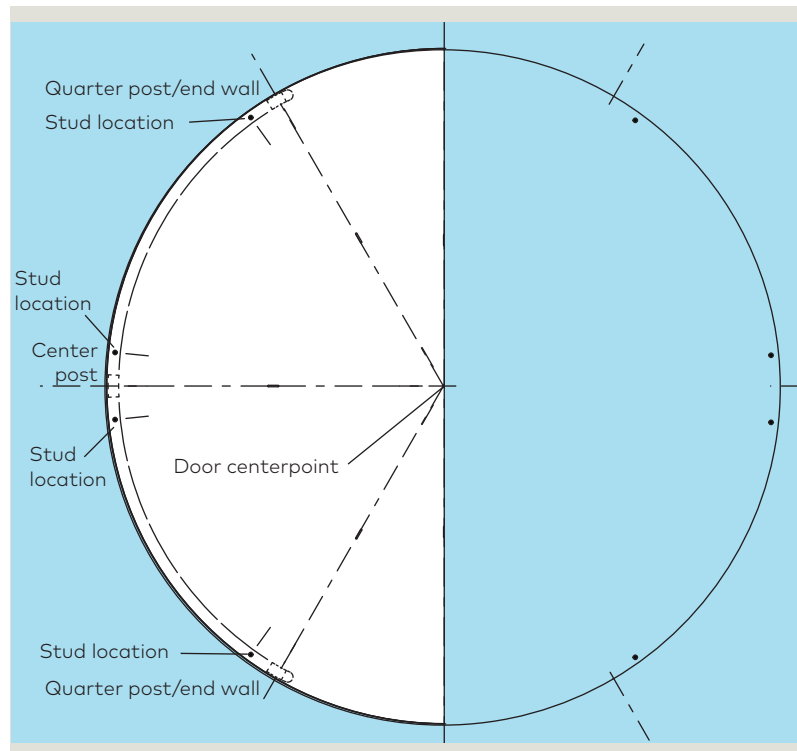


Fig. 14.1.2 Template position reversed on floor



14.1.1 Position floor template.

1. Position template at door centerpoint and orient template to building interface.

CAUTION

Use centerpoint dimensions as shown on Crane shop drawings and contractor documentation.



WARNING

Orient floor template to building interface!

Refer to shop drawings for template to building interface position.

2. Secure template to floor.

CAUTION

Once template secured to floor, recheck alignment with door center point and centerlines and/or quarter lines to building interface!

NOTICE

It is good practice to verify template location with contractor or owner's representative.

14.1.2 Mark lines on floor.

1. Draw door centerlines.
2. Mark quarter post and center post centerlines,
3. Mark mounting base stud locations.
4. Trace door outside radius.

14.1.3 Reverse template position on floor.

1. Recheck that template is at door centerpoint.
2. Secure template to floor.

14.1.4 Mark lines on floor.

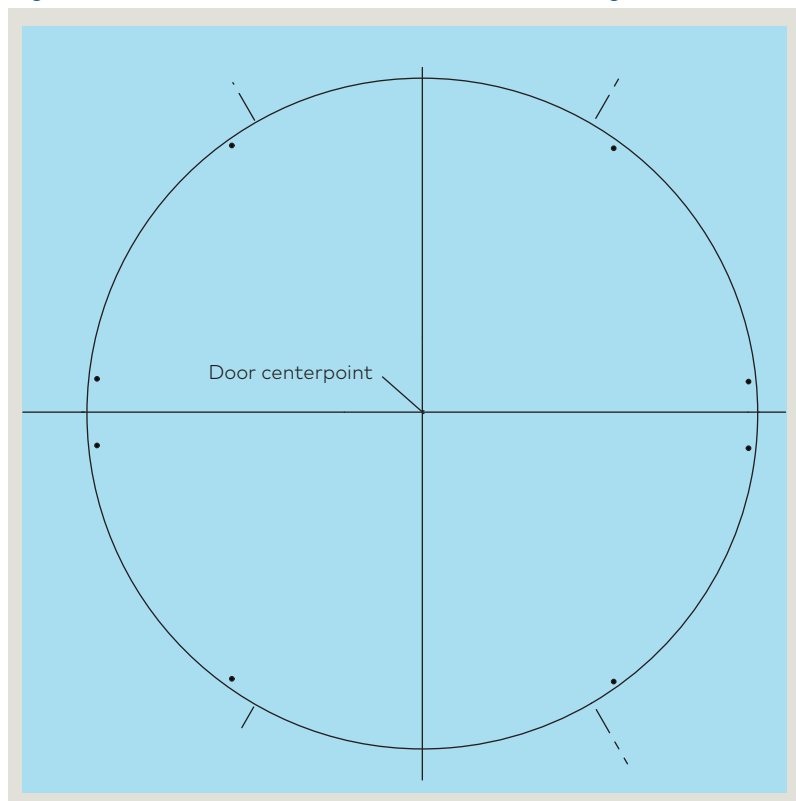
1. Draw door centerlines.
2. Mark quarter post and center post lines.
3. Mark mounting base stud locations.
4. Trace door outside radius.

14.1.5 Remove template.

1. Remove template.

14.2 Drill pilot and anchor holes for mounting base studs

Fig. 14.2.1 Floor marked with door location and mounting base holes



14.2.1 Drill pilot holes in floor.



WARNING

Protective equipment required!
Risk of injury due to improper drilling.

14.2.2 Drill mounting base pilot holes.

1. Drill pilot holes at each mounting base stud hole location.

14.2.3 Drill anchor holes in floor.

1. Drill anchor holes at each pilot hole location.



TIPS AND RECOMMENDATIONS

Use 1/2" masonry drill bit with hammer drill.
Drill anchor holes to a depth of 2 1/2".

14.3 Drill pilot hole at door centerpoint

14.3.1 Drill pilot hole in floor at door centerpoint.



WARNING

Protective equipment required!
Risk of injury due to improper drilling.

1. Drill pilot hole at door centerpoint.

15 Canopy assembly and installation

15.1 6" 3 section canopy shipped as single assembly under 8' OD.

15.1.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific canopy and canopy installation detail for job!

NOTICE

Canopies 8' 0" O.D. or larger are shipped in two sections.
Reference Para. 15.3.

Fig. 15.1.1 Canopy assembly, cover view

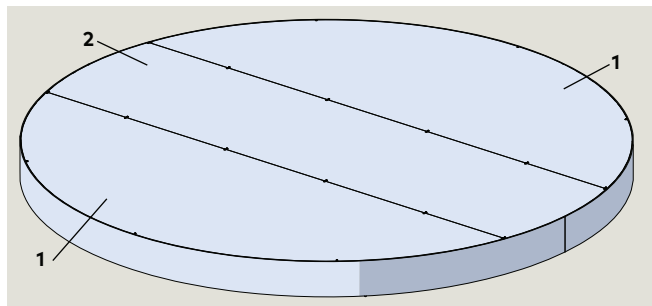


Fig. 15.1.2 Canopy assembly, soffit view

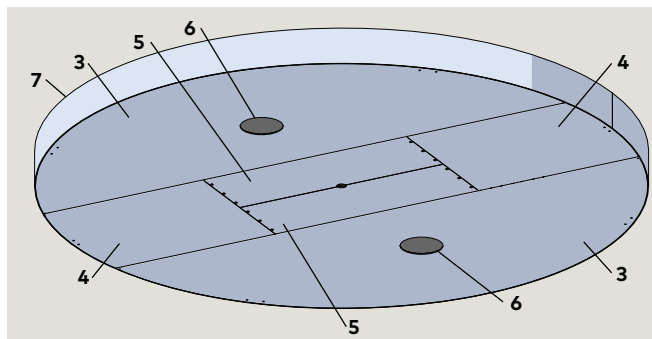


Fig. 15.1.3 #8 x 1/2" PPHMS



Fig. 15.1.4 Canopy cover screws

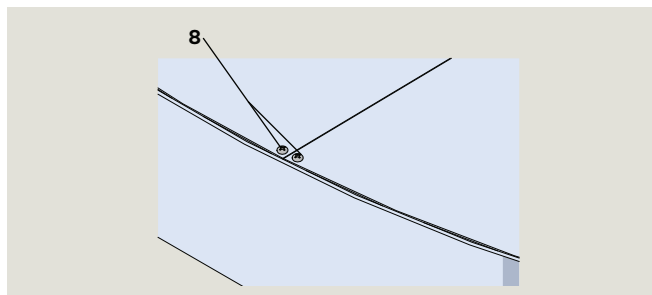


Table 15.1.1 6" 4 wing canopy parts and assemblies

Part / Assembly	Description
1	Outer canopy cover
2	Inner canopy cover
3	Outer soffit
4	Outer center soffit, center section
5	Inner center soffit
6 RC6320-010	LED light, 9" (option)
7	Canopy fascia
8 RF3016-01Z	#8 x 1/2" Phillips round head sheet metal screw, canopy covers

15.1.2 Uncrate canopy shipping crate

1. Uncrate canopy shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

CAUTION

Place canopy assembly on elevated smooth surfaces.

- Prevents damage to optional lights.
- Prevents damage to soffit surfaces.

15.1.3 Remove outer and center section top covers.

1. Remove all #8 x 1/2" Phillips pan head sheet metal screws securing top covers to canopy
2. Remove two outer section and inner section covers and set aside.



TIPS AND RECOMMENDATIONS

Mark outer section covers with their location on canopy so that they can be reinstalled in their original positions.

15.1.4 Overhead speed control.

1. Canopy is typically shipped with overhead speed control (Fig. 15.2.1) installed.
2. If speed control is shipped separately, refer to Fig. 15.3.4 for installation.

15.1.5 Addition of oil to speed control.

CAUTION

Oil must be added to overhead speed control. 22 oz. bottle of multigrade synthetic oil is supplied. Part number RC6175-010.

- Remove overhead speed control cover and add entire contents of bottle to speed control case.
- Replace speed control cover.

15.1.6 Installation of canopy covers.

1. Leave covers off canopy until door installation is completed unless top of canopy is not accessible with canopy in its installed position.

15.1.7 Canopy light wiring.

1. Plan for canopy light wiring before canopy is installed. See Para. 15.8.

15.1.8 Raise canopy in place.

1. Go to Para. 15.7.

15.2 Overhead speed control mounting in 6" canopy

Fig. 15.2.1 Overhead speed control mounting views

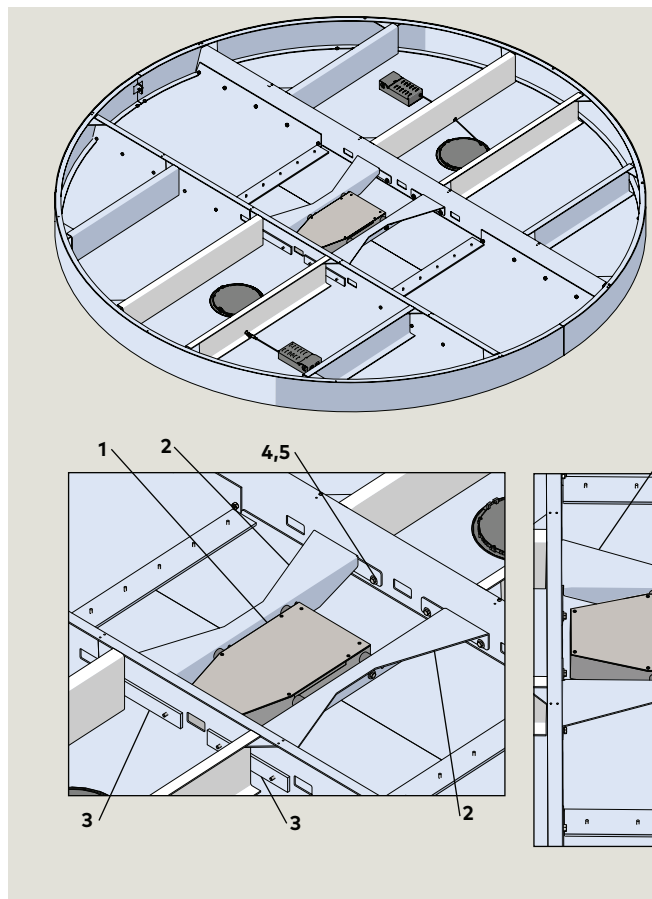


Table 15.2.1 6" 4 wing overhead speed control parts

Part / Assembly	Description
1 RS6079-010	Overhead speed control
2 RC6071	Speed control brace
3	Support plate
4 RF6055-02G	1/4-20 x 1" hex head bolt
5 RF6056-01G	Flat washer
6 RC6080-001	Rubber grommet
7 RF6055-01G	1/4-20 x 5/8" hex head bolt

15.3 6" 3 section canopy shipped in two sections; 8' to 9' OD

15.3.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific canopy and canopy installation detail for job!

15.3.2 Unpack canopy shipping crates.

1. Uncrate both canopy sections from their shipping crates.

CAUTION

Refer to warning tag on shipping crates regarding unpacking procedure

CAUTION

Place canopy assemblies on elevated smooth surfaces.

- Prevents damage to optional lights.
- Prevents damage to soffit surfaces.

15.3.3 Remove top covers from canopy sections

1. Remove all Phillips #8 x 1/2" long pan head sheet metal screws (Fig. 15.3.2) securing top covers to canopy sections



TIPS AND RECOMMENDATIONS

Mark outer section covers with their location on canopy so that they can be reinstalled in their original positions.



TIPS AND RECOMMENDATIONS

If overhead speed control shipped separately, reference Para. 15.2 for installation in canopy.

15.3.4 Addition of oil to speed control.

CAUTION

Oil must be added to overhead speed control. 22 oz. bottle of multigrade synthetic oil is supplied.

- Remove overhead speed control cover and add entire contents of bottle to speed control case.
- Replace speed control cover.

15.3.5 Installation of canopy covers.

1. Leave covers off canopy until door installation is completed unless top of canopy is not accessible with canopy in its installed position.

15.3.6 Canopy light wiring.

1. Plan for canopy light wiring before canopy is installed. See Para. 15.8.

Table 15.3.1 6" 4 wing split canopy

Part / Assembly	Description
1 RD2016-01Z	#8 x 1/2" Phillips pan head sheet metal screw
RC7030-001	LED light (option)
8 RC7032-001	Box, junction, with LED driver (option)

Fig. 15.3.1 Split canopy sections

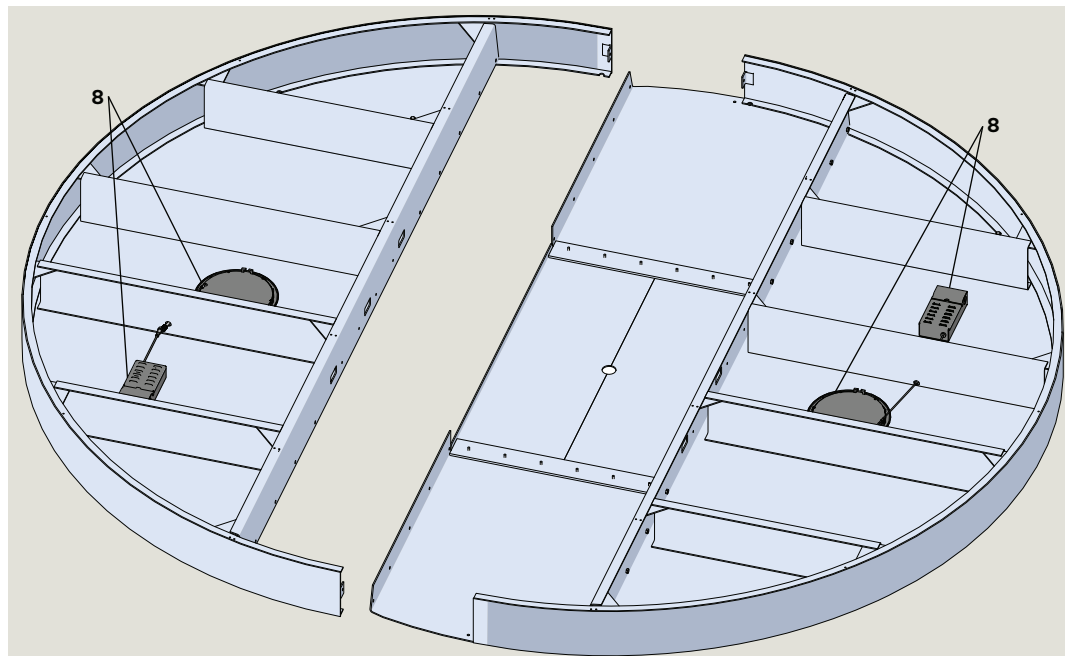
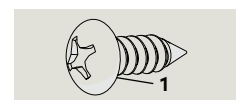


Fig. 15.3.2 #8 x 1/2" PPHMS



15.3.7 Attach the two canopy sections together.

1. Attach canopy sections and fascias together using 1/4-20 x 5/8" SS hex head cap screws and 1/4-20 SS nuts.

Fig. 15.3.3 Assembled canopy sections

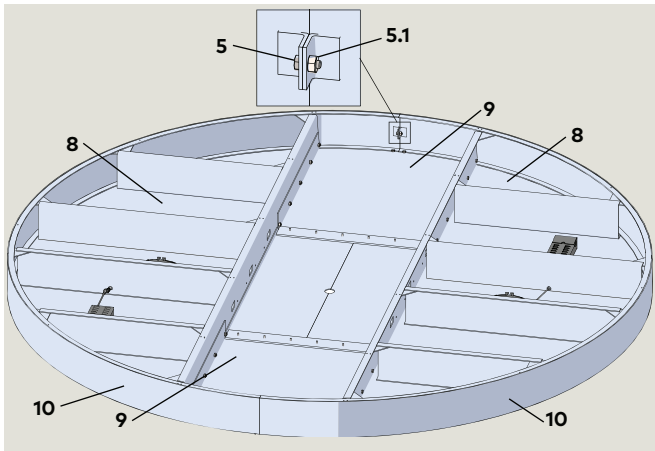


Fig. 15.3.4 Canopy fasteners

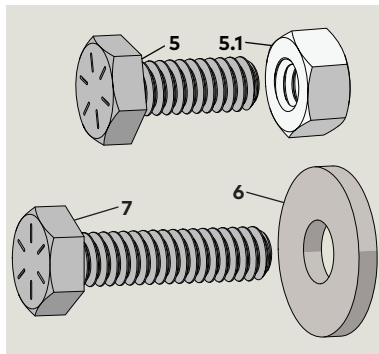
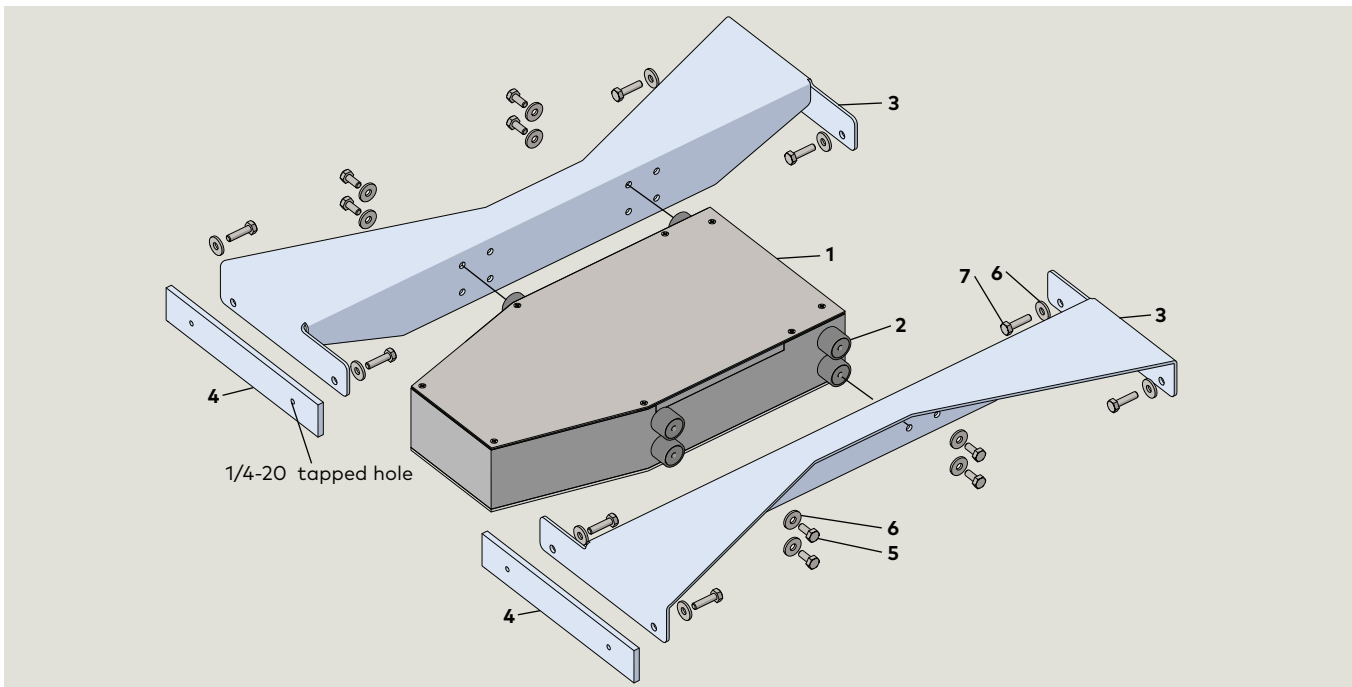


Fig. 15.3.5 Overhead speed control and mounting hardware



15.3.8 Install overhead speed control assembly into canopy

1. Assemble OHSC and mounting hardware (Fig. 15.3.4). in canopy

CAUTION

Speed control mounting braces.

Note OHSC orientation and mounting holes used for OHSC (Fig. 15.3.4).

2. For assembled canopy view with OHSC, refer to Fig. 15.3.2

Table 15.3.2 6" 4 wing overhead speed control parts

Part / Assembly	Description
1	RS6079-010 Overhead speed control
2	RC6080-001 Rubber grommet
3	RC6071 Speed control brace
4	Support plate
5	RF6055-01G 1/4-20 x 5/8" hex head bolt
5.1	RF6121-01G 1/4-20 hex nut
6	RF6056-01G Flat washer
7	RF6055-02G 1/4-20 x 1" hex head bolt
8	Outer soffit
9	Outer center soffit
10	Fascia

15.7 Raise canopy into place

NOTICE

Lifting equipment requirements will depend on canopy installation height and physical space around door installation location.



WARNING

Lift equipment requirements:

- Load capacity: 300 lb [136 kg] minimum.
- Lifting height: Based on canopy installation height.
- Wheel brakes



WARNING

Cordon off canopy installation area!

15.7.1 Move canopy to approximate door centerpoint.

1. Position canopy at door centerpoint, orienting canopy to building interface.



WARNING

A minimum of two persons are required when handling canopy!



WARNING

Use caution when handling canopy!

15.7.2. Place canopy on lifts.

1. Place canopy on lifts.

CAUTION

Canopy installation orientation.

1. Identify canopy quarter post mounting hole locations from Crane shop drawings.
2. Orient canopy on lifts based on Crane shop drawing.

CAUTION

When placing canopy assembly on lifts

- Prevent damage to optional lights.
- Prevent damage to soffit surfaces.

CAUTION

Canopy post mounting holes.

Place lift equipment between canopy post mounting hole areas. Reference Chapter 16.



WARNING

Lock lift wheels once lifts are in place!

15.7.3 Raise canopy to installation height.

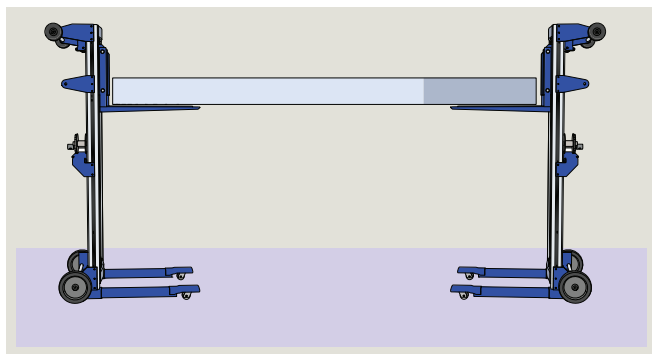
1. Raise canopy to height for post installation (Chapter 16).



WARNING

Use caution when raising canopy!

Fig. 15.7.1 Canopy on lift equipment example



15.8 Canopy light wiring, LED fixtures

Table 15.8.1 LED light and junction box/LED driver

Part / Assembly	Description
1 RC7030-001	LED light (option)
2 RC7032-001	Box, junction, with LED driver (option)
4	NM cable connector or equivalent
5	Wire nut

Fig. 15.8.1 LED light fixture and junction box

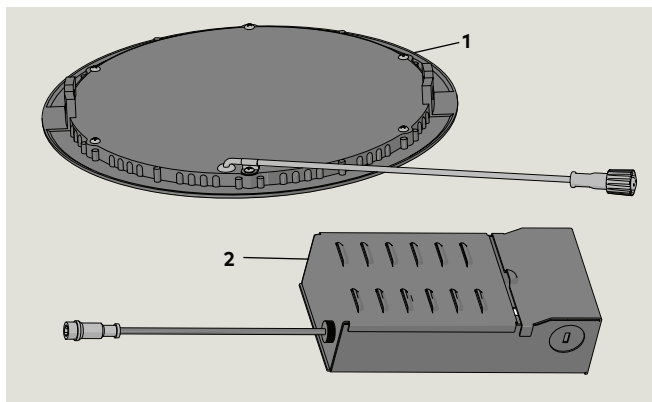
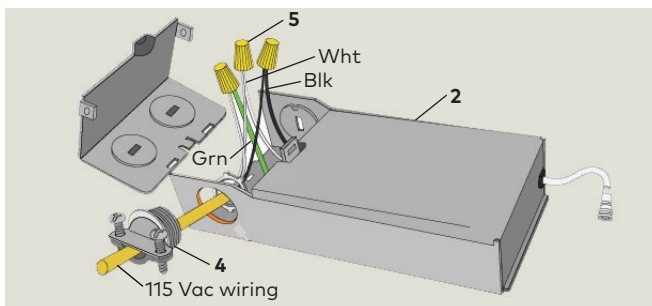


Fig. 15.8.2 115 Vac wiring to LED driver



15.8.1 LED light fixtures (option).

- Each light is supplied with an LED junction box / driver (Fig. 15.8.2).
- 3 wing and 4 wing canopies: two LED lights.

15.8.2 LED light installation.

- Lights are factory installed.

15.8.3 LED driver installation.

1. Place LED driver in canopy near its light.
2. Mate connector on LED driver with connector on LED light.

15.8.4 Customer 115 Vac wiring at LED drivers.



WARNING

Work on 115 Vac wiring must be performed only by qualified personnel!

1. Use 4 conductor 18 AWG cable (Blk, Red, Grn, Wht) at each driver.
2. Splice cable wires to LED driver 115 Vac wiring inside driver junction box using 3 wire nuts supplied with driver.

15.8.5 Contractor-supplied junction box.

1. Contractor must supply:
 - Appropriately sized junction box for all LED driver 115 Vac cables.
 - All required wiring connectors for 115 Vac wiring into the junction box.
2. Junction box must be accessible for any future maintenance requirements.

15.8.6 115 Vac wiring to customer lighting circuit.

1. Customer must supply 115 Vac lighting power to junction box (Para. 15.8.5).

16 Enclosure post installation

16.1 Enclosure posts

16.1.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific post and post installation detail for job!

16.2 Open post shipping crate

Fig. 16.2.1 Post shipping crate

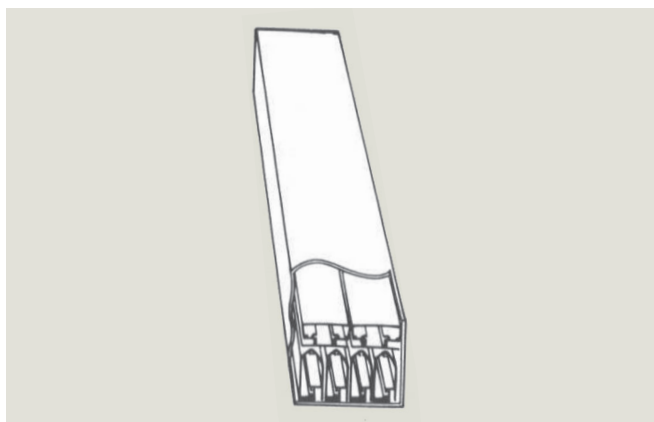


Fig. 16.2.2 Enclosure post numbering



16.2.1 Center posts and quarter posts.

1. Uncrate center posts and quarter posts/end walls from their shipping crate .

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

2. Center post and quarter post/end wall numbering.
 - Each post's wrapping material is marked with numbers (Fig. 16.2.2) indicating where the center posts and quarter posts/end walls are to be located in the door installation.
 - Insure post is marked with its location number on the top and bottom of the post. Reference Para. 16.3.



TIPS AND RECOMMENDATIONS

Refer to Para. 16.5 for enclosure post and base numbering examples.

16.3 Quarter post/end wall and center post assemblies

Table 16.3.1 LED light and junction box/LED driver

Part / Assembly	Description
1 RE6009-0X0	Quarter post/end wall
3	1/4-20 tapped holes for canopy HHCS
4 RE6007-0X0	Center post
5 RE6020-010	Rail to post attachment block
6 RF6115-010	1/4-20 x 3/8" FHMS

16.3.1 Quarter post/end wall and center post aluminum extrusions

Fig. 16.3.1 Quarter post/end wall

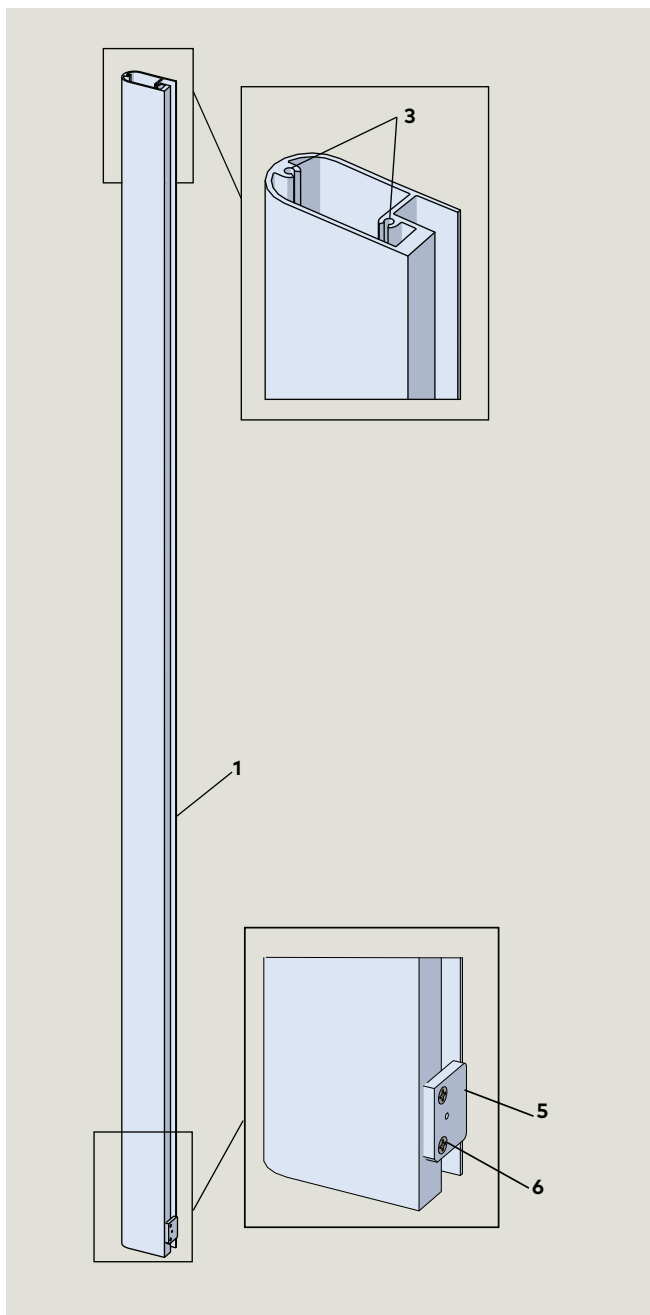
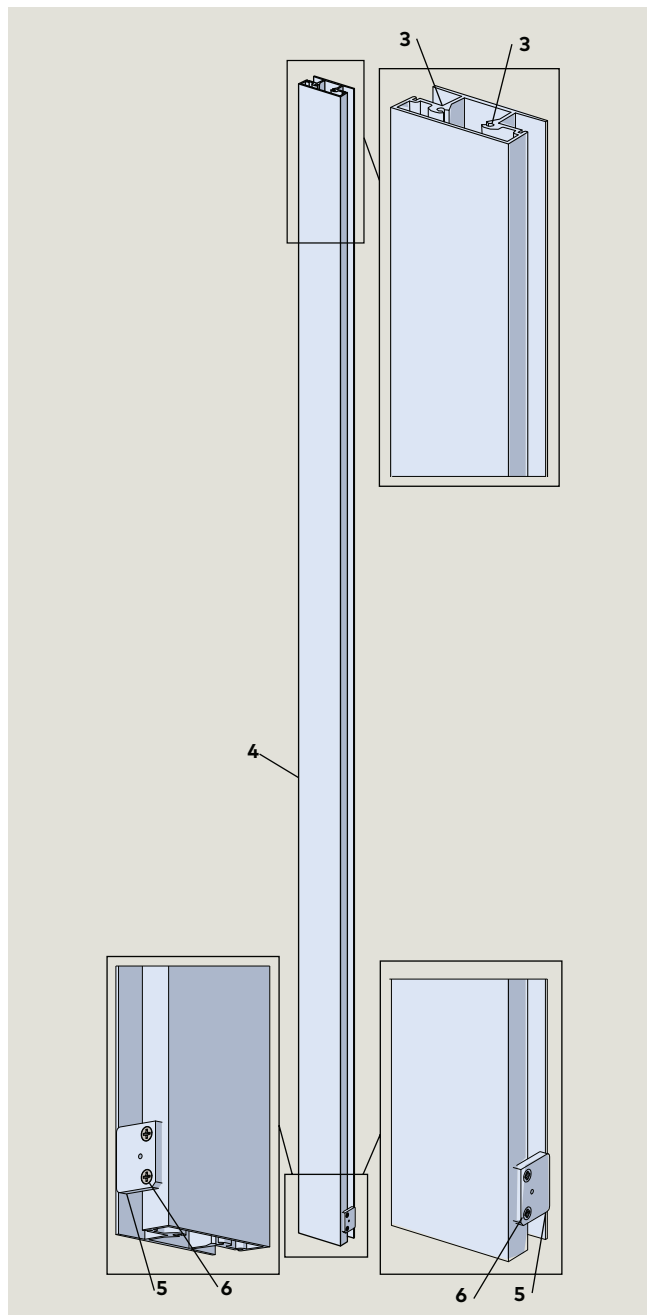


Fig. 16.3.2 Center post



16.4 Attach posts to canopy

Fig. 16.4.1 Quarter post canopy fasteners

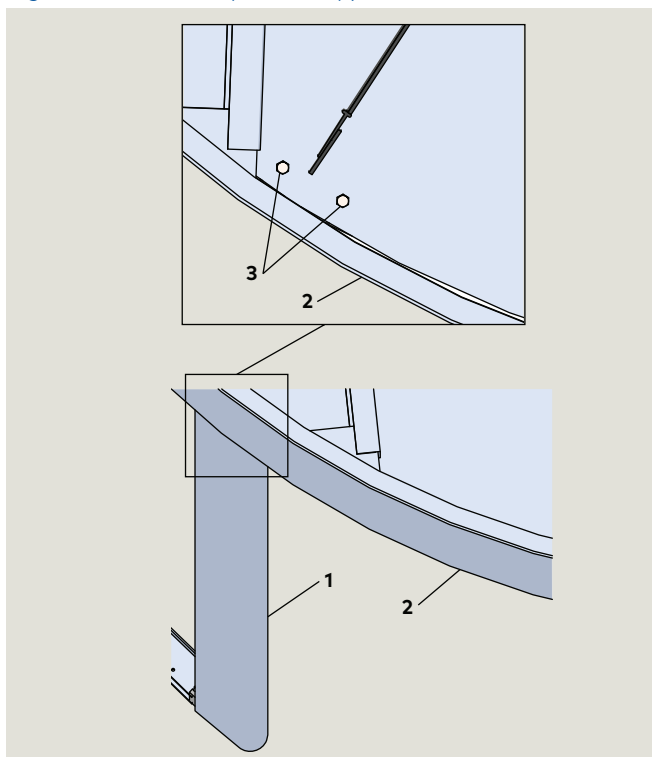


Fig. 16.4.2 Center post canopy fasteners

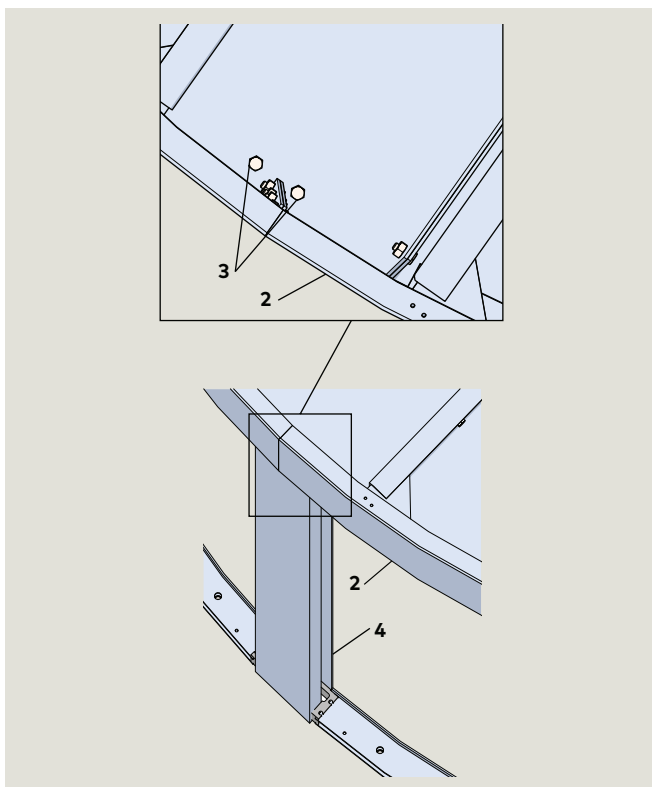


Table 16.4.1 Quarter post and center post fasteners

Part / Assembly	Description
1	RE6009-0X0 Quarter post/end wall
2	Canopy fascia
3	RF6055-02G 1/4-20 x 1" hex head bolt
4	RE6007-0X0 Center post

16.4.1 Fasten posts to canopy.

1. Fasten posts to canopy using 1/4-20 x 1" hex head cap screws (Fig. 16.4.3) through soffit holes into posts.

CAUTION

Match post number to number in canopy.
Refer to Para. 16.5 for post numbering locations.



TIPS AND RECOMMENDATIONS

Use 7/16" socket or box end wrench for tightening of 1/4-20 x 1" hex head screws.



WARNING

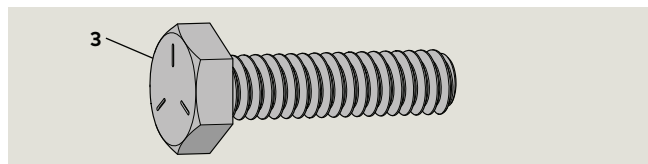
Use caution while working with the posts in the canopy area!



TIPS AND RECOMMENDATIONS

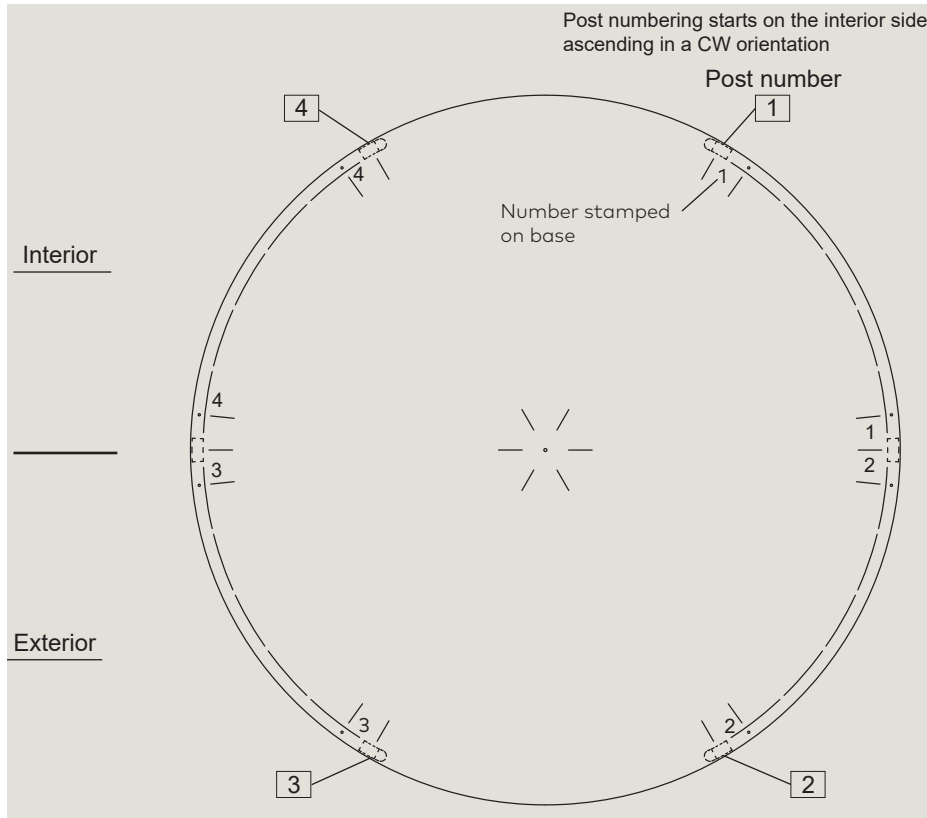
Hex head screws packaged in center shaft shipping crate (See Chapter 11).

Fig. 16.4.3 1/4 -20 x 1" hex head cap screw



16.5 Enclosure base and post numbering

Fig. 16.5.1 Standard post installation numbering

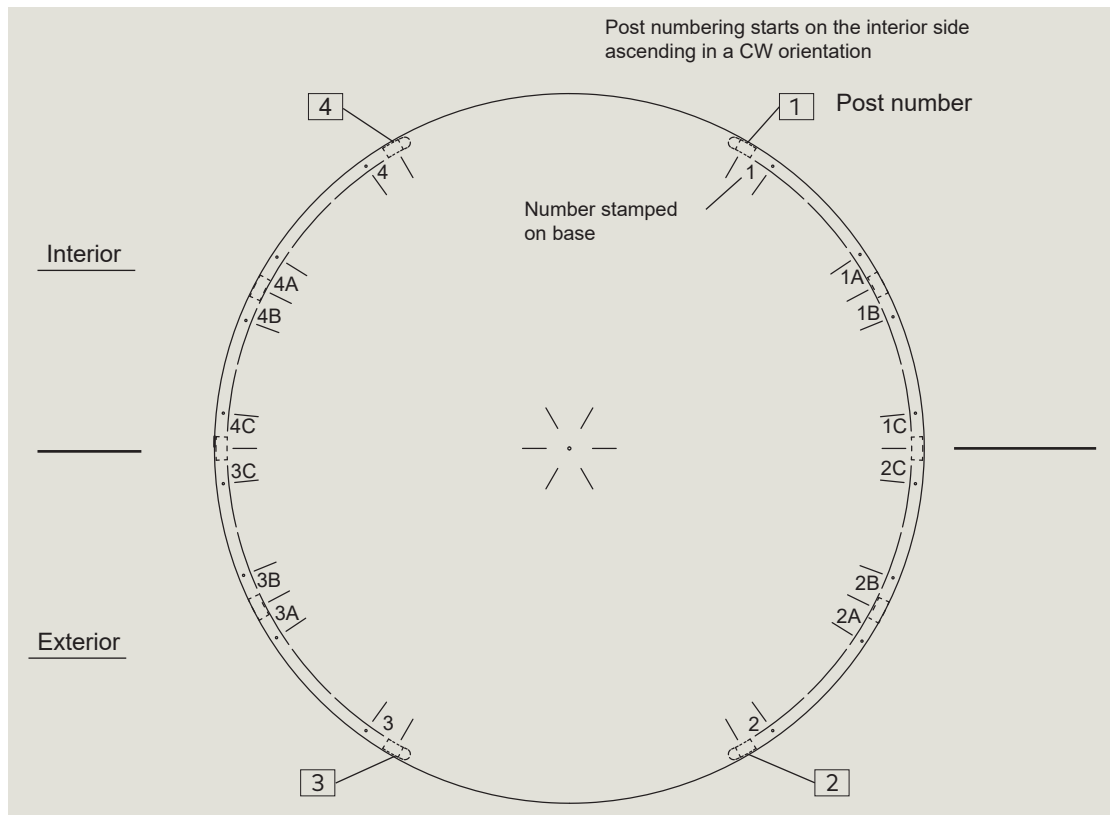


16.5.1 Post numbering, multiple revolving door installation.

Table 16.5.1 Post numbering

	Post numbers			
Door 1	1	2	3	4
Door 2	Post numbers			
	5	6	7	8
Door 3	Post numbers			
	9	10	11	12
Door 4	Post numbers			
	13	14	15	16

Fig. 16.5.2 Additional center post installation numbering



17 Enclosure base installation

17.1 Enclosure base

NOTICE

Refer to Crane shop drawings for specific base installation detail for job!

NOTICE

Stainless steel base installation.

Refer to Crane shop drawings for stainless steel base installation detail.

17.2 Open base enclosure shipping crate

Fig. 17.2.1 Base crate

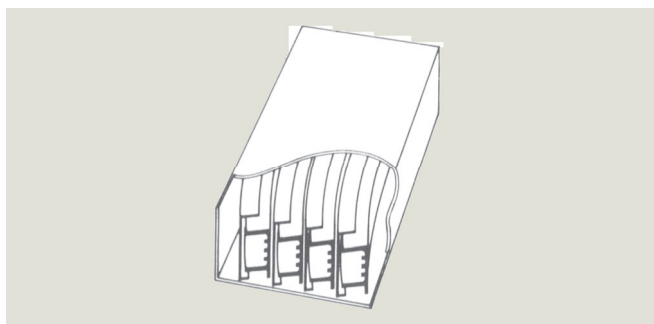
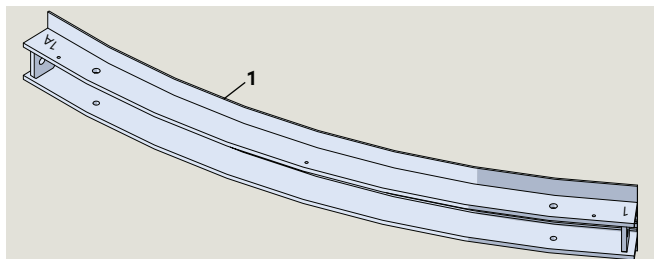


Fig. 17.2.2 Base shipping crate



Fig. 17.2.3 Enclosure base numbering



- 1 Enclosure base assembly with location numbers

17.2.1 Unpack enclosure base assemblies from shipping crate.

1. Uncrate enclosure base assemblies from their shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

2. Enclosure base numbering:
 - Enclosure base wrapping material is marked with two numbers indicating where the base is to be located in the door installation (Fig. 17.2.2).
 - The numbers are stamped on the base (Fig. 17.2.3).
 - Insure base numbers match those on wrapping material.

17.3 Base assembly installation

Table 17.3.1 Quarter post/end wall and center post

Part / Assembly	Description
1 RE6016-010	Enclosure base inner
2 RE6021-010	Attachment block, post/base
3 RE6015-010	Enclosure base outer
4 RF6118-01G	10-24 x 1 1/4" Phillips oval head MS
5 RC6390-010	Cover support spacer Tube, 1/2" OD x 1/16" wall x 7/8" long, PL
6 DC2569-020	Rod, threaded, 3/8-16 x 3"
7 DF0857-00G	3/8" hex nut
8 RF6055-02G	1/4-20 x 1" SS hex head machine screw

Fig. 17.3.1 Aluminum mounting base with 3" studs installed

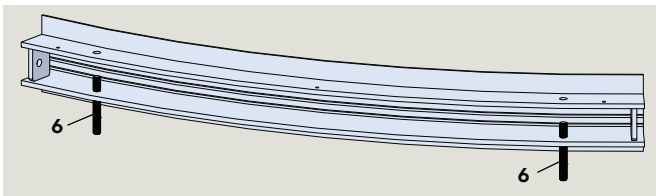


Fig. 17.3.2 S21 0334

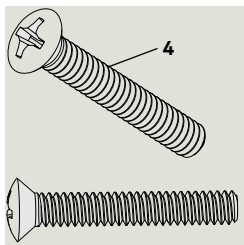


Fig. 17.3.3 Spacer

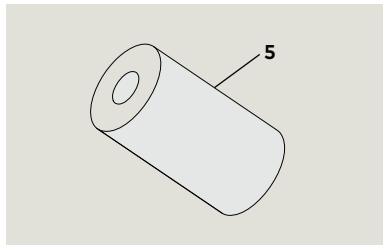


Fig. 17.3.4 HHMS

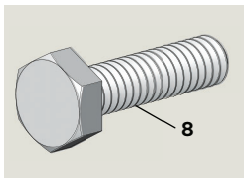


Fig. 17.3.5 3" threaded rod

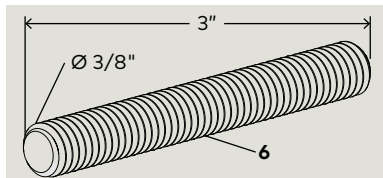
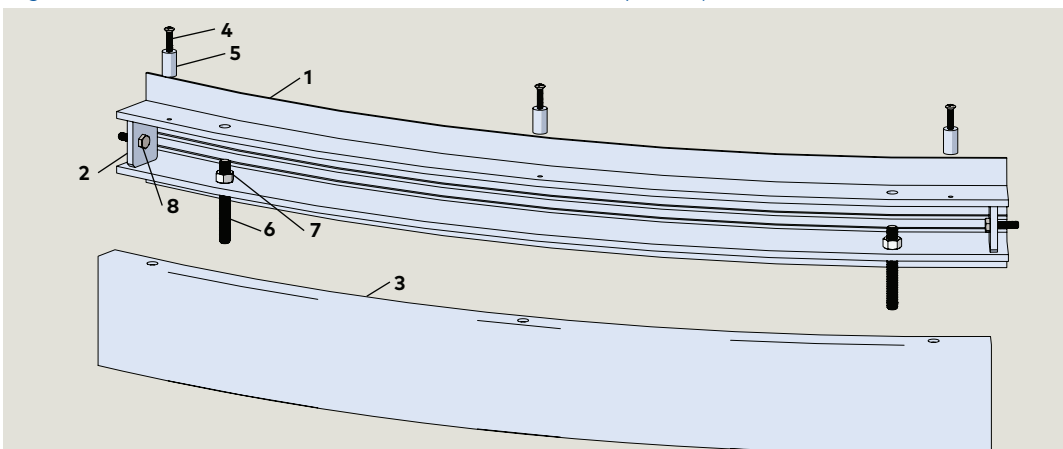


Fig. 17.3.6 Aluminum enclosure base and cover assembly example



17.3.1 Remove cover from each base enclosure assembly.

1. Remove Phillips oval head screws and spacers from each base enclosure.
2. Remove cover from each base enclosure.



TIPS AND RECOMMENDATIONS

Number cover and mounting base (matching set)



WARNING

Use caution working in door installation area.

17.3.2 Prepare stud anchor holes.

- Stud anchor holes drilled in Para. 11.3.
1. Use vacuum or blower to remove any dust or debris.

17.3.3 Thread two 3" threaded rods into each base assembly.

1. Thread two 3" threaded rods into the mounting holes of each base (Fig. 17.3.6), leaving 3/4" above bottom base rail.

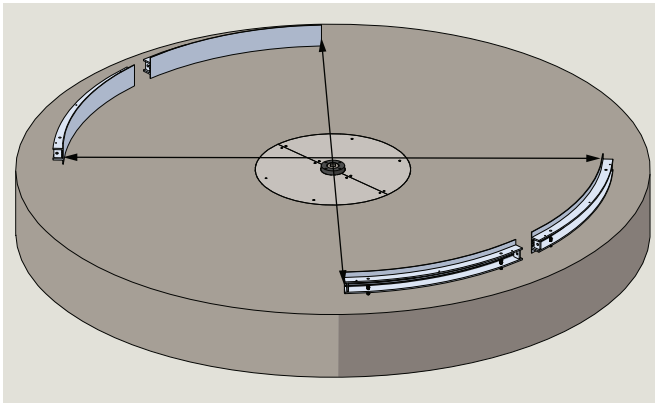
17.3.4 Dry fit each base assembly to the floor.

1. Place each base section on the floor, checking rod depths in the floor rod mounting holes.

CAUTION

Enclosure base numbers must match adjacent post numbers.

Fig. 17.3.7 Bases installed on floor



17.3.5 Verify door inside diameter.

1. Verify inside diameter at opposite quarter posts and at center posts.

17.3.6 Remove bases.

1. Remove bases from floor.

17.3.7 Partially fill anchor holes with anchoring epoxy.

1. Use an anchoring epoxy such as Quikrete high strength anchoring epoxy.

17.3.8 Reinstall base assemblies

1. Reinstall bases on floor, inserting base threaded rods into anchor holes.

17.4 Lower canopy and post assembly; fasten posts to bases

Table 17.4.1 Quarter post/end wall and center post

Part / Assembly	Description
1 RE6016-010	Enclosure base, inner
2 RE6021-010	Attachment block, post/base
6 DC2569-020	3/8" x 3" threaded rod
8 RF6055-02G	1/4-20 x 1" SS hex head machine screw
9 RE6055-0X0	Center post
10 RE60XX-0X0	Quarter post/end wall

17.4.1 Lower canopy and post assembly.



WARNING

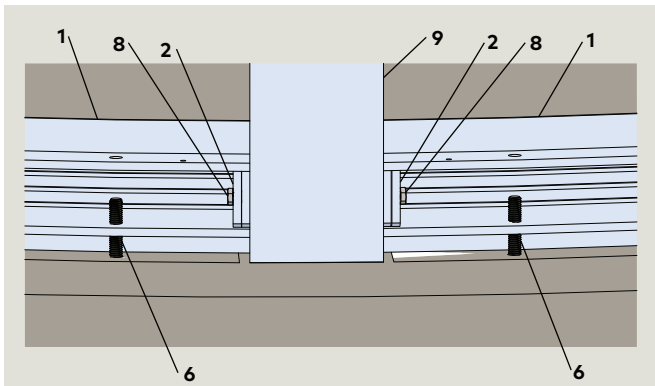
Use caution when lowering assembly!

1. Carefully lower assembly until base mounting holes line up with mounting holes in posts.

CAUTION

Monitor post alignment with mounting bases as assembly is lowered.

Fig. 17.4.1 Bases attached to center post



17.4.2 Fasten the two center post to their adjoining base assemblies.

1. Fasten each center post to each of its adjacent bases using a 1/4 x 1" SS hex head machine screw.

- Snug, do not tighten fasteners.

17.4.3 Fasten the four quarter post to their adjoining base assemblies.

1. Fasten each quarter post to its base using a 1/4 x 1" SS hex head machine screw.

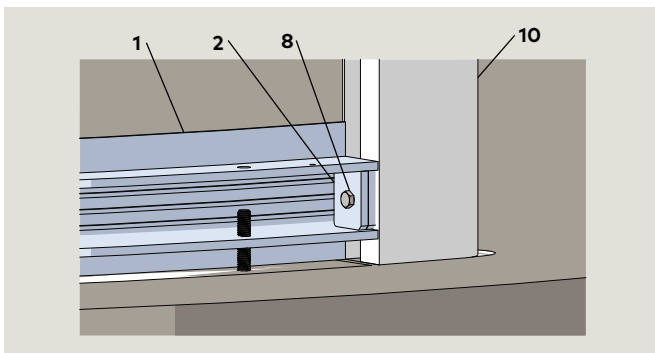
- Snug, do not tighten fasteners.



TIPS AND RECOMMENDATIONS

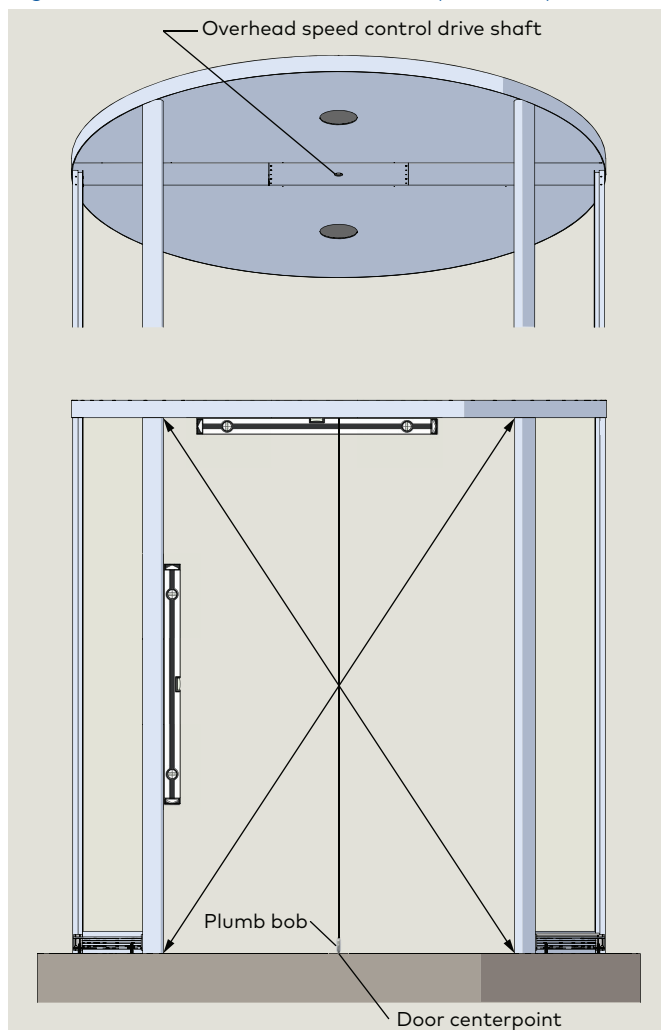
Use 7/16" socket or box end wrench for tightening of hex head machine screws.

Fig. 17.4.2 Base attached to quarter post



17.5 Set enclosure level, square and plumb

Fig. 17.5.1 Enclosure, check for level, square and plumb



17.5.1 Set enclosure level, square and plumb.

CAUTION

Shim each base assembly with horseshoe shims as required to obtain level, square and plumb door installation.

CAUTION

Check revolving door to building interface!



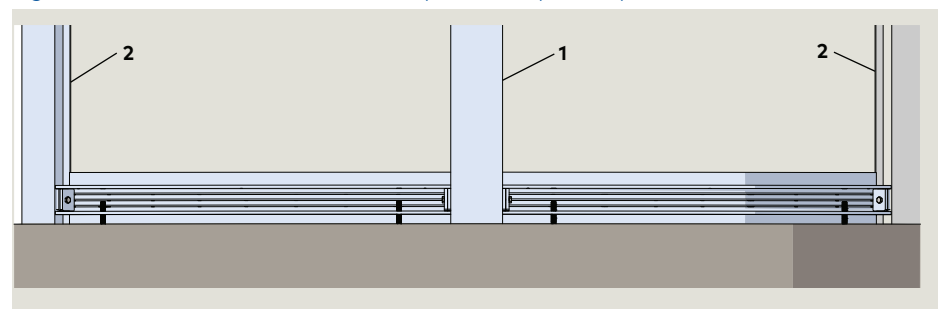
WARNING

Using plumb bob with string, verify canopy overhead speed control drive shaft centerpoint is plumb with floor door centerpoint.

17.5.2 Tighten posts to base assemblies.

1. Tighten all fasteners installed in Para. 17.4.2 and 17.4.3.

Fig. 17.5.2 Bases fastened to center post and quarter posts

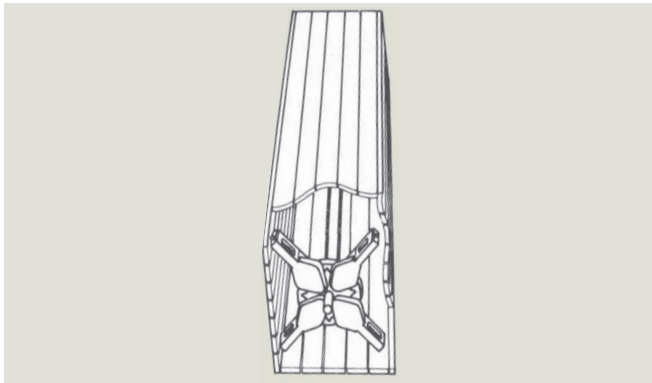


- 1 Center post
RE6007-0X0
- 2 Quarter post
RE6009-010

18 Center shaft shipping crate

18.1 Unpack center shaft shipping crate

Fig. 18.1.1 Center shaft shipping crate



18.1.1 Unpack center shaft assembly from shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure

18.1.2 Unpack center shaft assembly.

- 4 wing center shaft assembly.
- 3 wing center shaft assembly

18.1.3 Remove floor pivot assembly from its carton.

- Floor pivot assembly (Para. 19.2).
- Surface mounted floor pivot assembly (Para. 19.3).

Fig. 18.1.2 3 wing center shaft assembly

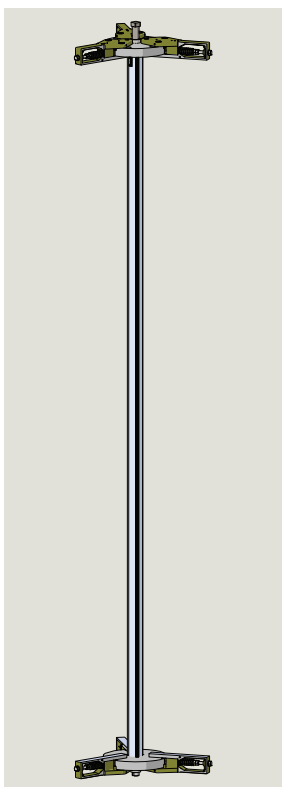
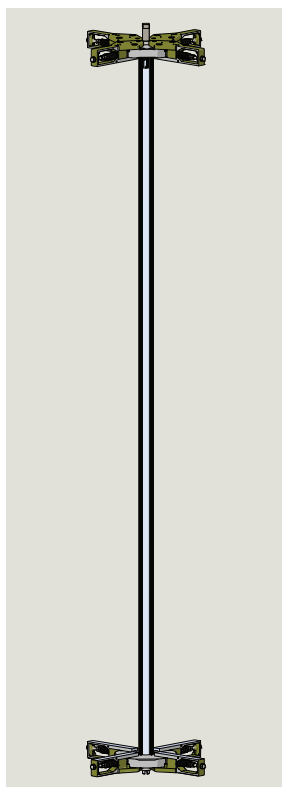


Fig. 18.1.3 4 wing center shaft assembly



19 Install floor pivot assembly

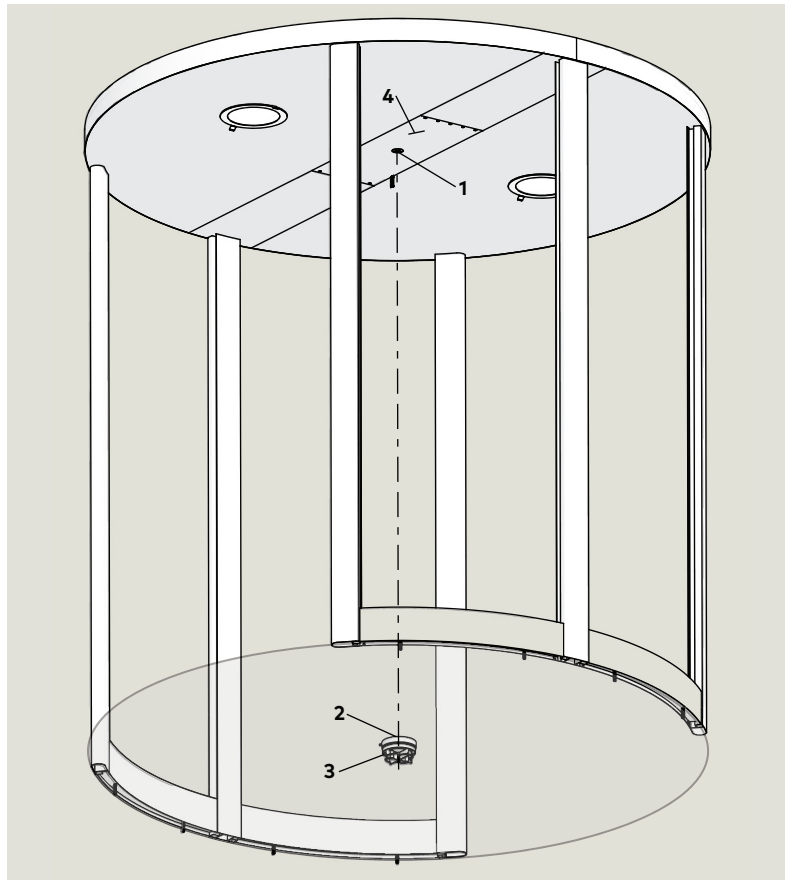
19.1 Check canopy and door centerpoint

19.1.1 Check canopy and door centerpoint

1. Using plumb bob with string, check door centerpoint with centerpoint of overhead speed control drive shaft.

Fig. 19.1.1 Canopy speed control drive shaft centerpoint

- 1 Overhead speed control drive shaft
- 2 Plastic pivot top
- 3 Plastic pivot bottom
- 4 Canopy soffit



19.2 Install floor pivot assembly

Fig. 19.2.1 Floor pivot assembly RS6076-010

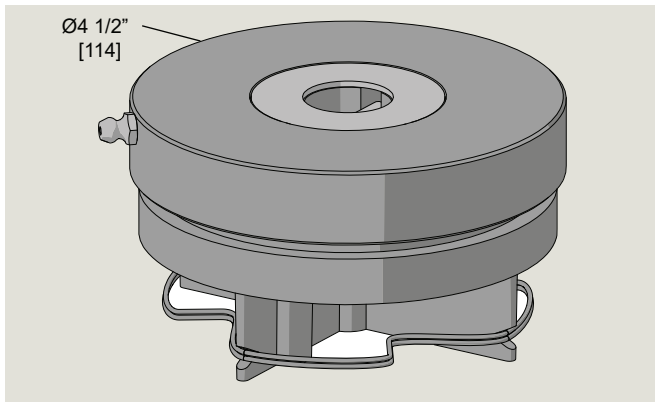
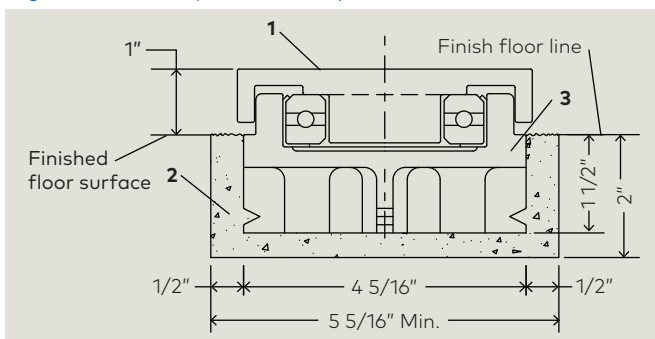


Fig. 19.2.2 Floor pivot assembly installed in floor



- 1 Plastic pivot top
- 2 Non-shrink grout
- 3 Floor pivot assembly RS6076-010

19.2.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific floor pivot installation and center shaft installation detail for job!

19.2.2 Install floor pivot assembly.

1. Mark floor cutout for floor pivot assembly at door centerpoint.

NOTICE

Contractor note: provide minimum $\text{Ø}5 \frac{5}{16}$ " x 2" deep cutout to accept floor pivot bearing.

2. Position pivot assembly in floor cutout:
3. Using plumb bob with string, center floor pivot assembly under canopy overhead manual speed control drive shaft centerpoint.
4. Shim under plastic pivot bottom to obtain 1" height of floor pivot bearing above finished floor surface.



TIPS AND RECOMMENDATIONS

Refer to Crane shop drawing for floor pivot assembly to canopy soffit height.

NOTICE

Floor pivot assembly must be level and at canopy speed control drive shaft centerpoint..

5. Fill floor pivot assembly cutout to finish floor level with non-shrink grout (Fig. 19.2.2).

CAUTION

Use non-shrink grout. Follow manufacturer's directions.

19.2.3 Grease floor pivot.

1. Grease floor pivot using grease gun with multipurpose grease.

19.3 Install surface mounted floor bearing assembly

Fig. 19.3.1 Surface mounted floor pivot assembly
RS3423-010

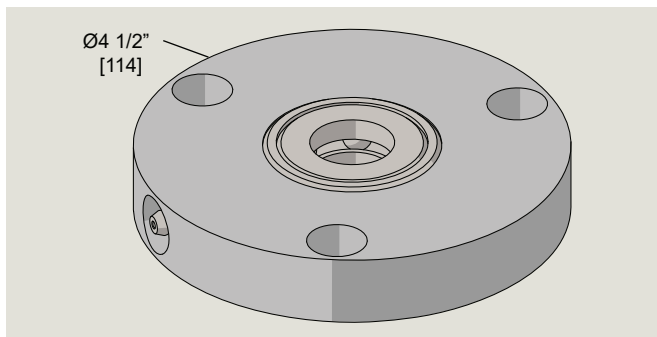
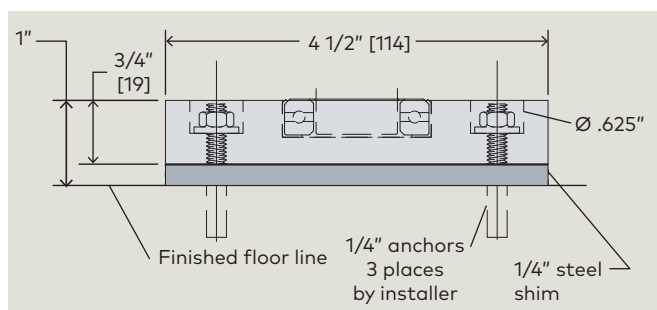


Fig. 19.3.2 Floor surface-mounted pivot assembly installed on floor



19.3.1 Install floor surface-mounted pivot assembly.

NOTICE

Refer to Crane shop drawings for specific floor pivot detail for job!

1. Position pivot assembly at door centerpoint.
2. Mark 3 holes for 1/4" floor anchors (Fig. 19.3.2).
3. Using plumb bob with string, check that pivot assembly is at speed control drive shaft centerpoint.
4. Drill 3 holes for 1/4" floor anchors.
5. Install anchors.
6. Install 3 fasteners through bottom pivot assembly mounting holes and into floor anchors.

NOTICE

Floor pivot assembly must be level and at canopy overhead speed control drive shaft centerpoint.

7. Install 1/4" steel shim (Fig.19.3.2) to obtain top of pivot height of 1" above finished floor.
8. Shim to make pivot surface flat and level, and 1" above finished floor surface.

19.3.2 Grease floor pivot.

1. Grease floor pivot using grease gun with multipurpose grease.

20 Center shaft installation

20.1 Install center shaft

Table 20.1.1 Center shaft top hanger assembly

Part / Assembly	Description
1 RC6169-001	Top plug
2	Steel center shaft assembly
3 RD6001-001	Nameplate, job number tag
4 RF6008-01G	#6 x 1/2" Phillips pan head screw
5 RC6052-010	Steel shaft cross pin

Fig. 20.1.1 Center shaft top plug

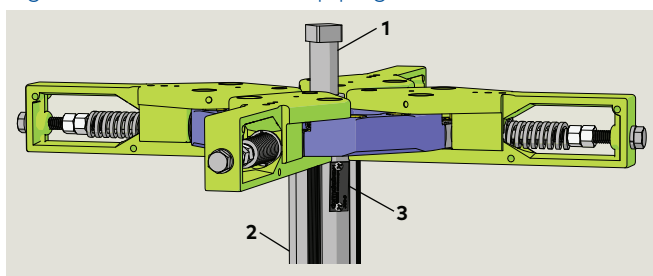


Fig. 20.1.2 Nameplate removed

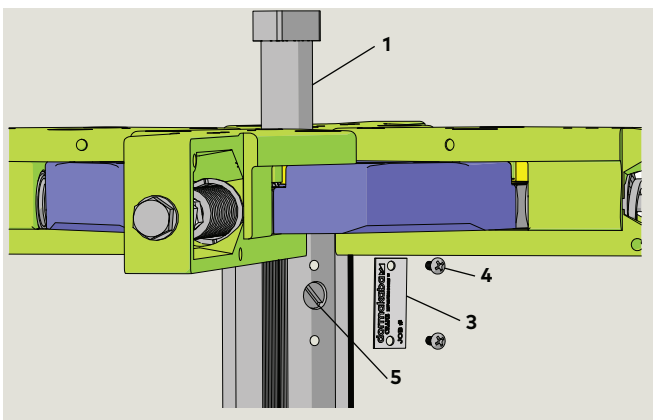
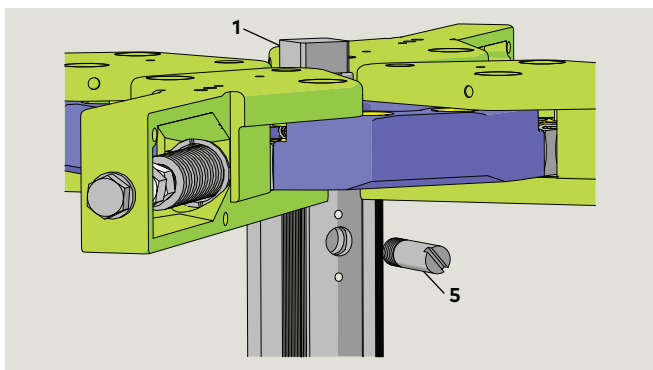


Fig. 20.1.3 Top plug lowered against steel center shaft



WARNING

Use caution when lifting and positioning center shaft assembly!



WARNING

Risk of injury from heavy loads!

The center shaft is lifted and moved during assembly. Improper lifting and transport operations may cause accidents with serious injuries and material damage.

- A minimum of two persons are always required to lift or move the center shaft assembly.

20.1.1 Remove nameplate/job number tag.

1. Remove two Phillips pan head screws securing nameplate to center shaft. (Fig. 20.1.2) and set aside.
2. Remove nameplate and set aside.



TIPS AND RECOMMENDATIONS

Nameplate tag must be retained and reinstalled after installation of center shaft. Refer to Para. 20.3.

20.1.2 Lower top plug.

1. Remove steel shaft cross pin.
2. Remove top plug.



TIPS AND RECOMMENDATIONS

Apply anti-seize lubricant to top plug shaft.

3. Insert top plug in shaft and lower until square portion of plug is against steel center shaft (Fig. 20.1.3).
4. Snug cross pin against top plug.

Fig. 20.1.4 Center shaft installation position

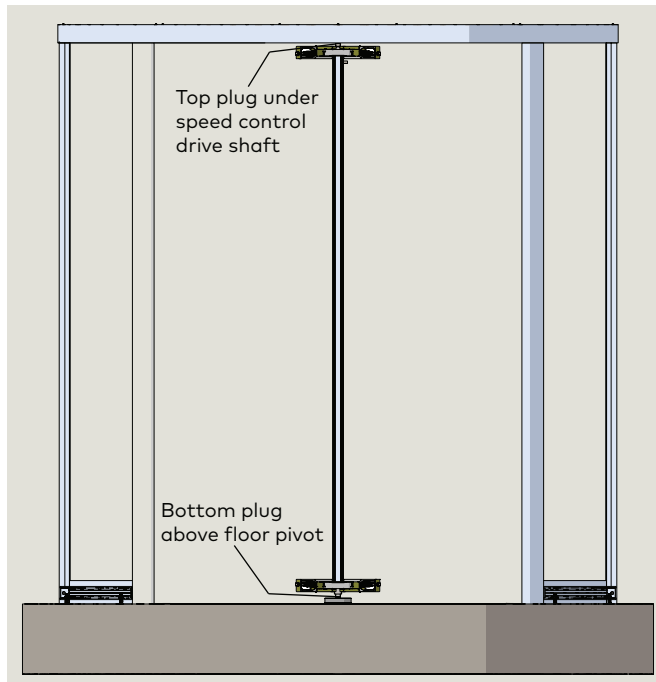


Fig. 20.1.5 Center shaft bottom plug above floor pivot

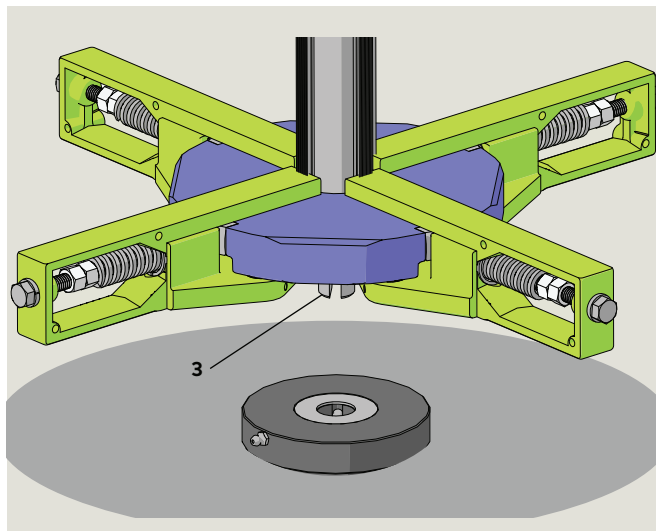
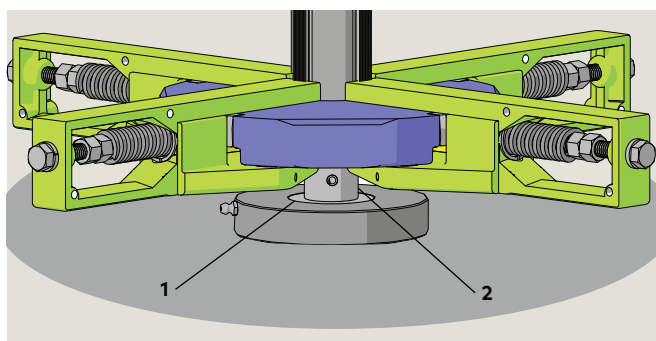


Fig. 20.1.6 Center shaft bottom plug installed in floor pivot



20.1.3 Set hanger initial breakout tension.

1. Prior to raising center shaft, set hanger initial tension for all 8 hangers. Reference Chapter 21.

20.1.4 Raise center shaft and position over floor pivot.

1. Position center shaft vertically over floor pivot.



WARNING

Use caution when lifting and positioning center shaft assembly!



WARNING

Risk of injury from heavy loads!

Improper lifting and transport of center shaft assembly may cause accidents with serious injuries and material damage.

- Two persons are always required to lift or move the center shaft assembly.

20.1.5 Install center shaft bottom plug into in floor pivot bearing.

1. Lower center shaft bottom plug into floor pivot bearing.
 - If in-ground floor pivot used, insert slot in bottom plug into floor pivot cross pin.
2. Lower center shaft assembly until steel center shaft cover is resting on bearing assembly (Fig. 20.1.6).



WARNING

Damage to the floor pivot assembly due to incorrect insertion of bottom plug into floor pivot bearing.

- Always insert the bottom plug vertically into floor bearing.

Table 20.1.2 Center shaft top hanger assembly

Part / Assembly	Description
1	Floor pivot
2	Steel center shaft cover
3 RC6368-010	Bottom plug

Table 20.1.3 Center shaft top hanger assembly

Part / Assembly	Description
1 RC6169-001	Top plug
2	Overhead speed control drive shaft
3	Center shaft and top plug holes for cross pin

Fig. 20.1.7 Top plug aligned with overhead speed control drive shaft

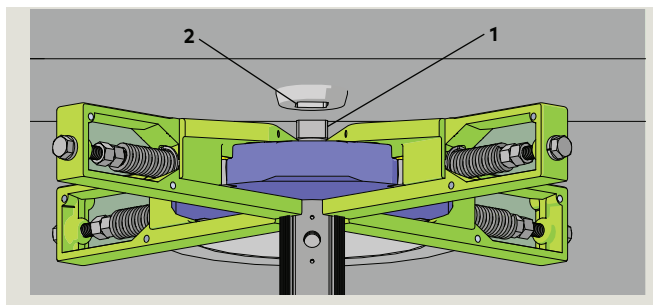


Fig. 20.1.8 Top plug secured in overhead speed control drive shaft

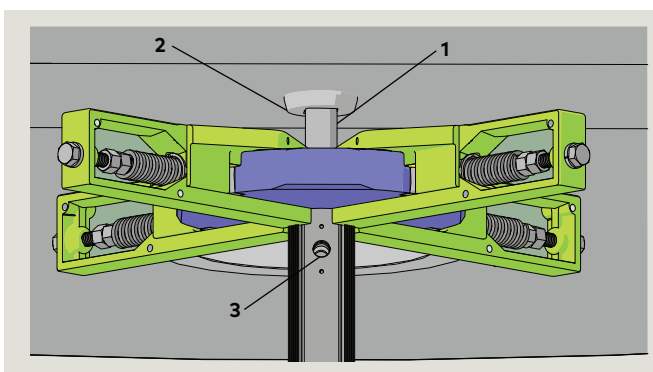


Fig. 20.1.9 Cross pin installed

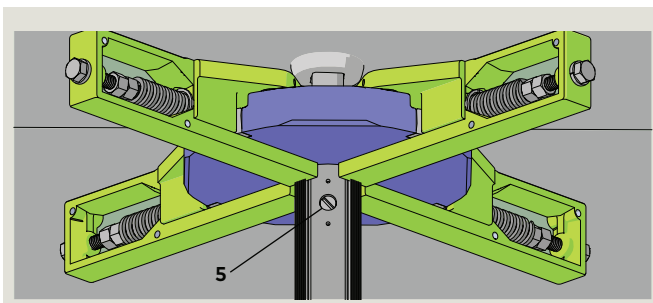
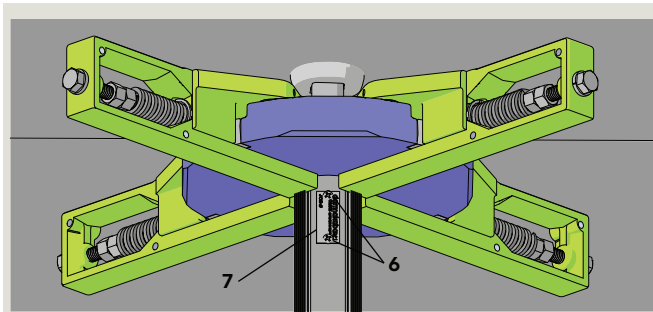


Fig. 20.1.10 Nameplate/job number tag installed



5	RC6052-010	Steel shaft cross pin
6	RF6008-01G	6-32 x 1/2" Phillips pan head screw
7	RD6001-001	Nameplate/job ID tag

20.1.6 Install center shaft assembly top plug into overhead speed control drive shaft.

1. Remove cross pin (Fig. 20.1.9) and align center shaft top plug with square hole in overhead speed control drive shaft (Fig. 20.1.7).
2. Extend top plug into square hole in drive shaft, aligning top plug and center shaft set screw holes (Fig. 20.1.8).
3. Thread cross pin into top plug hole and tighten. (Fig. 20.1.9).

20.1.7 Install nameplate/job number tag.

1. Place job number tag over cross pin and secure with two 6-32x1/2" Phillips pan head screws (Fig. 20.1.10).



TIPS AND RECOMMENDATIONS

Nameplate tag must be reinstalled after installation of center shaft. Tag contains Crane job number.

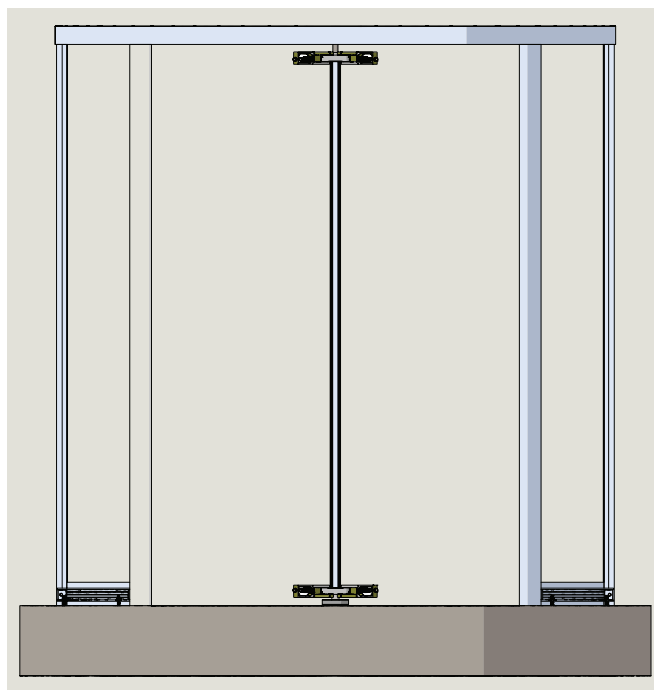
20.1.8 Check center shaft assembly rotation.

1. Check that center shaft rotates freely in both directions.

20.1.9 Set hanger initial bookfold tension.

Go to Chapter 21, Set hanger initial bookfold tension.

Fig. 20.1.11 Center shaft installed



21 Set initial hanger breakout tension

21.1 Set hanger initial hanger breakout tension

Fig. 21.1.1 Hanger breakout tension adjustment

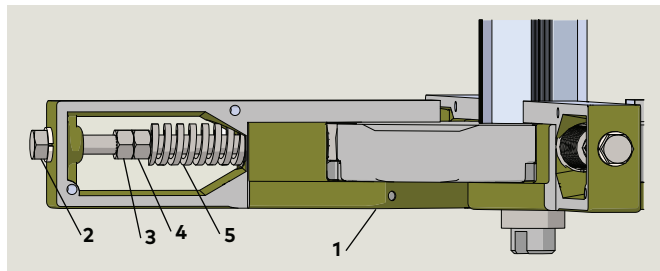


Table 21.1.1 RS6045 shaft hanger assemblies and parts

Part / Assembly	Description
1 RC6369-0X0	Hanger body
2 RC6156-01G	Hex bolt, 0/375" - 16 x 4"
3	Hex nut, 0.375"-16
4	Hex nut, 0.375"-16
5	Spring

21.1.1 Breakout tension (Ref. Chapter 11).

CAUTION

Breakout tension is not preset. Breakout tension:

- Must be checked by installers once wings are installed.
- Must be set to meet building conditions to conform to ANSI/BHMA A156.27 breakout force requirements.

Reference: Chapter 25.

21.1.2 Initial breakout hanger tension.

1. Loosen hex nut (3) and hex nut (4) away from spring.
2. Turn hex nut (4) so that it is finger tight against spring.
3. Using open end 9/16" box wrench, turn hex nut (4) four turns CW to tension spring.
4. Turn hex nut (3) until it is against (4).
5. Use 9/16" wrenches to lock hex nuts in place.

NOTICE

Reference Chapter 25 for breakout force check after wings are installed.

Further adjustment of spring tension on all hangers may be required to achieve required wing breakout force.

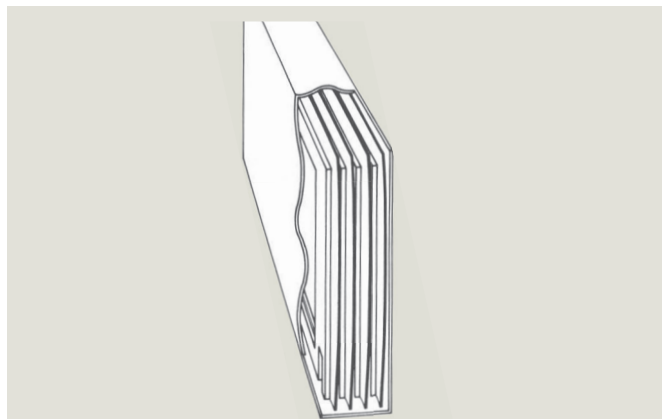
21.1.3 Remaining hangers.

1. Repeat hanger tension adjustment for remaining seven hangers.

22 Wing installation

22.1 Unpack wing shipping crate

Fig. 22.1.1 Wing shipping crate



22.1.1 Crane shop drawings.

NOTICE

Refer to Crane shop drawings for specific wing and wing installation details for job!

22.1.2 Unpacking shipping crate.

1. Uncrate wing assemblies from shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

CAUTION

Use caution when handling wing assemblies to prevent scratching or damage to wing or glass surfaces.



WARNING

Use caution while working with wing assemblies!



WARNING

Risk of injury due to improper handling of wing assemblies!

- A minimum of 2 people are required to lift and transport wing assemblies!

Fig. 22.1.2 Wing assembly example

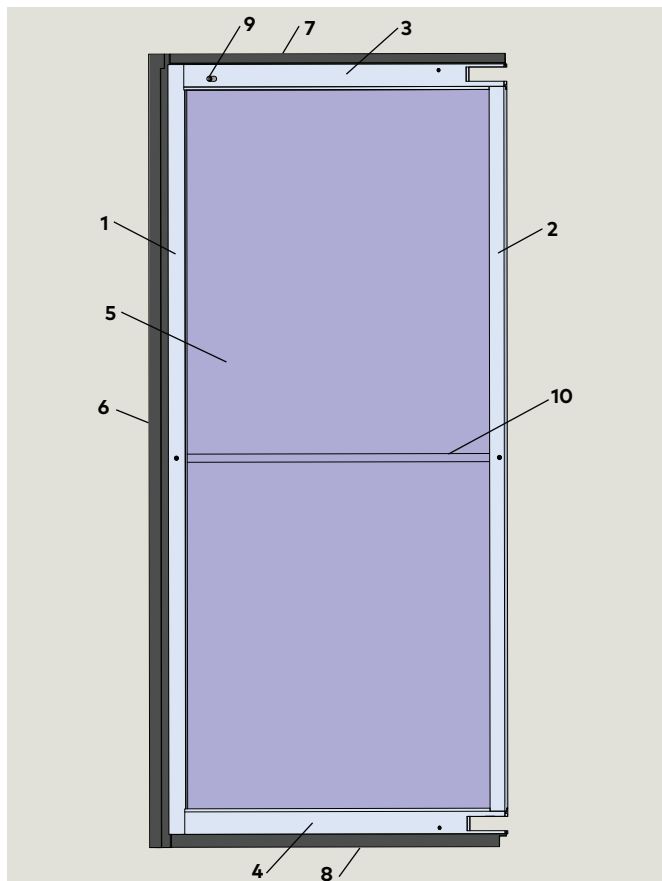


Table 22.1.1 Door wing assemblies and part examples

Part / Assembly	Description
1 RE6022-0X0	Front stile, AL
2 RE6031-0X0	Center stile, AL
3 RE6024-0X0	Rail end, Herc
4 RE6024-0X0	Rail end, Herc
5	Wing glass
6	Sweep felt vertical
7 RC6389	Sweep felt top
8	Sweep felt bottom
9 RF2961	Wing bumper assembly
10	Wing push bar – Push bars ordered job specific for each order

22.2 Install wing lock bodies on two interior door wings

Fig. 22.2.1 Wing lock body and mounting hardware

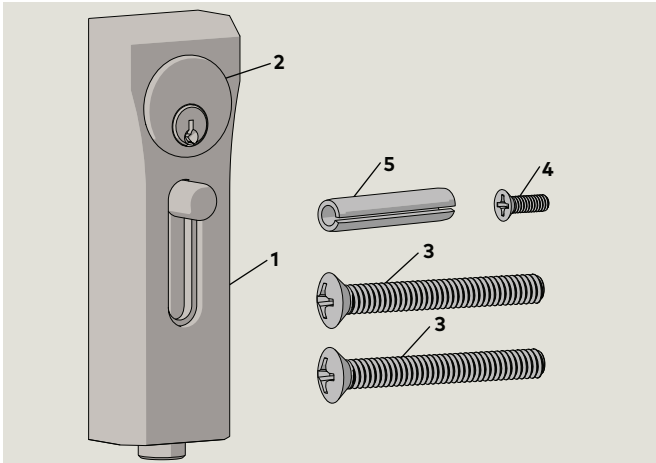


Fig. 22.2.2 Wing lock body mounting holes

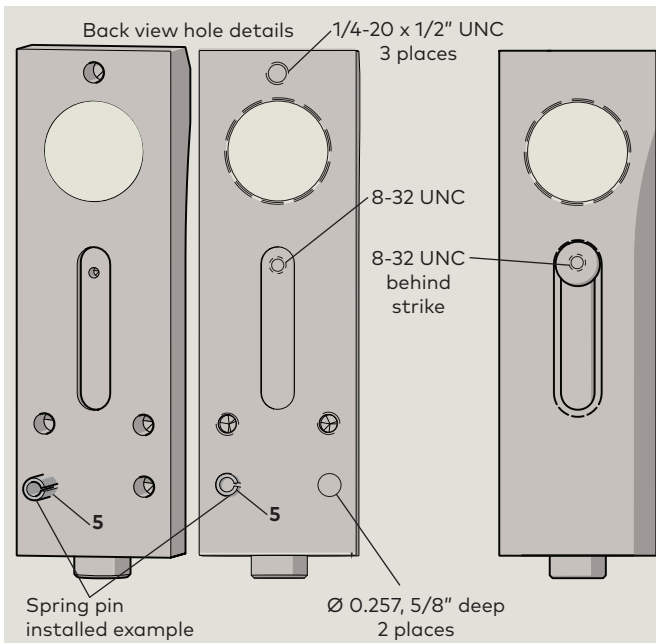


Fig. 22.2.3 Wing lock body installed

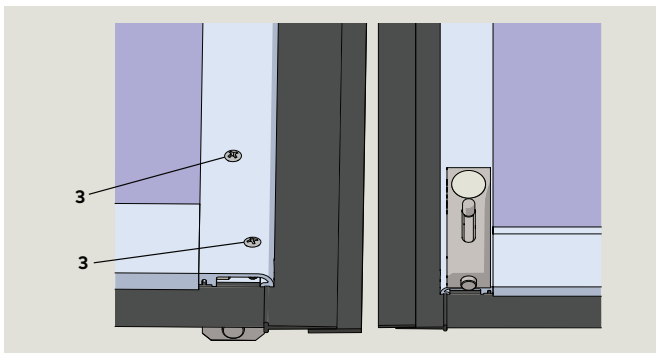


Table 22.2.1 Wing lock hardware

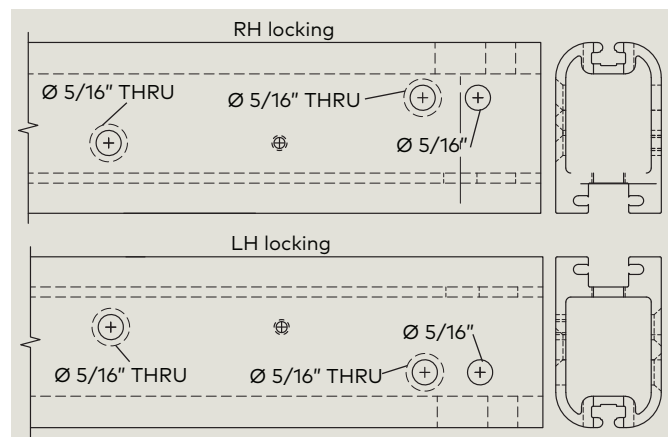
Part / Assembly	Description
1	RC6259-0X0 Lock body
2	Lock cylinder (by others)
3	RF6120-01G 1/4-20 x 2" 18-8 oval head screw
4	RF6054-01G 8-32 x 1/2" 18-8 flat head screw
5	RF6053-01G 1/4 x 1 1/4" spring pin

22.2.1 Install wing locks.

NOTICE

Install bottom 1/4-20 x 2" OHS and 1/4 x 1 1/4" spring pin based on installation into RH or LH lock stile.

Fig. 22.2.4 Wing RH and LH lock stiles



- Using pin insertion tool, install spring pin into wing lock bottom .257 x 5/8" hole.
- Install wing lock on lock stile, pressing spring pin into 5/16" hole in lock stile.
- Slide strike down to access 8-32 tapped hole in wing lock.
- Thread 8-32 x 1/2" flat head screw into wing lock and tighten into lock stile.
- Slide two 1/4-20 x 2" oval head screws into back of lock stile, thread into wing lock 1/4-20 x 1/2" mounting holes and tighten.

22.2.2 Lock cylinder (by others).

NOTICE

Crane shop drawings.

Reference Crane shop drawings for lock cylinder requirements for job!

22.3 Install wings onto center shaft hangers

Fig. 22.3.1 First wing installation

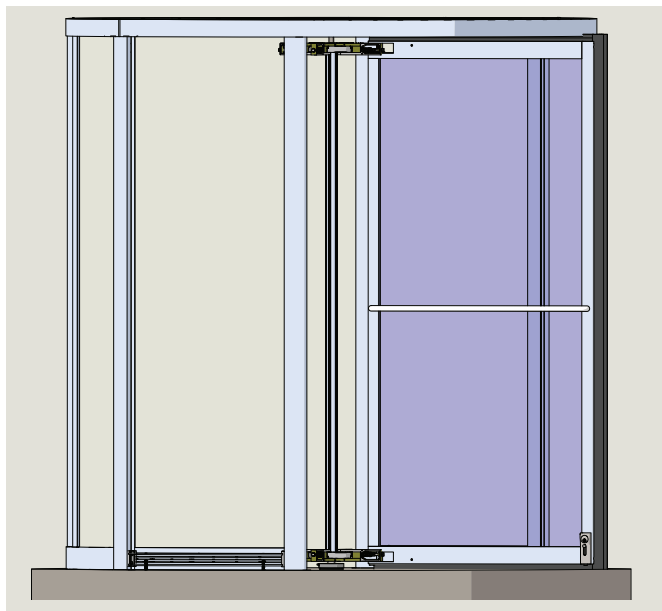


Table 22.3.1 Hanger and wing mounting hardware

Part / Assembly	Description
1	Wing hanger mounting hole, both sides
2	Hanger wing mounting hole, both sides
3 RF6119-01G	1/4-20 x 1/2" Truss head machine screw

Fig. 22.3.2 Wing and hanger mounting holes

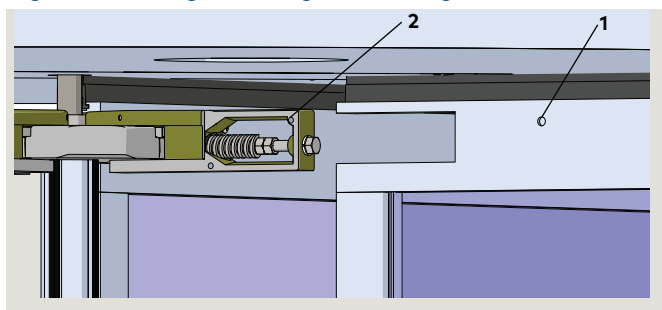


Fig. 22.3.3 Wing installation on hanger

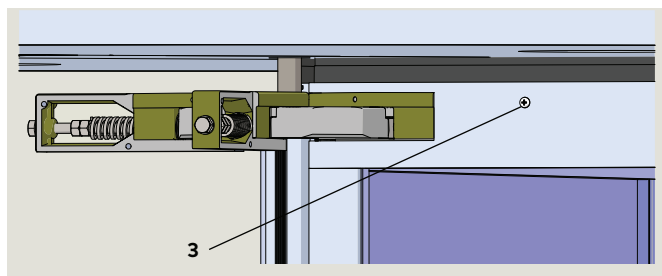
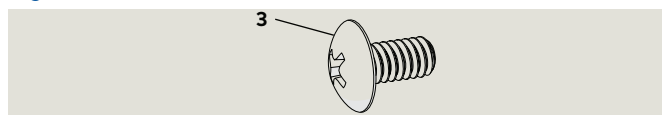


Fig. 22.3.4 Truss head machine screw



22.3.1 Install first wing on center shaft hangers.

CAUTION

Use caution when handling wing assemblies to prevent scratching or damage to wing or glass surfaces.



WARNING

Use caution installing wing assemblies!



WARNING

Risk of injury due to improper handling of wing assemblies!

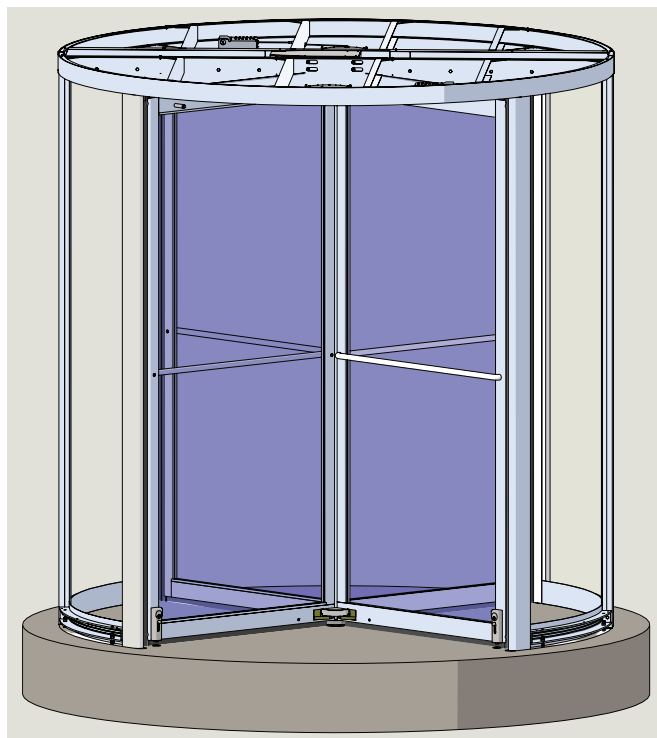
A minimum of two people are required to lift and transport wing assemblies.

1. Slide wing over top and bottom hangers.
2. Secure wing to top hanger with two truss head machine screws.
3. Secure wing to bottom hanger with two truss head machine screws.

22.3.2 Install remaining wings on center shaft hangers.

1. Install remaining wings.

Fig. 22.3.5 4 wing door –wings installed on hangers



23 Install floor strikes

23.1 Install floor strikes

Fig. 23.1.1 Floor strike RC6265-0X0

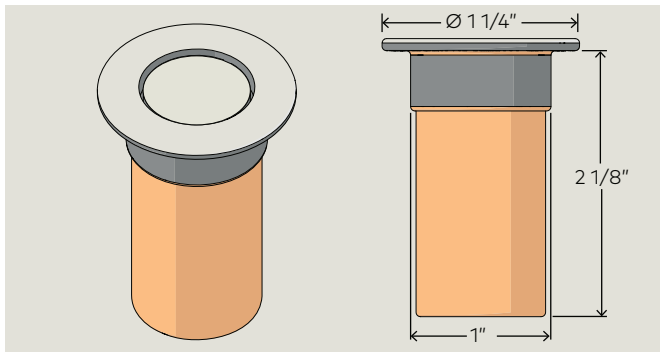


Fig. 23.1.2 3 wing door home position

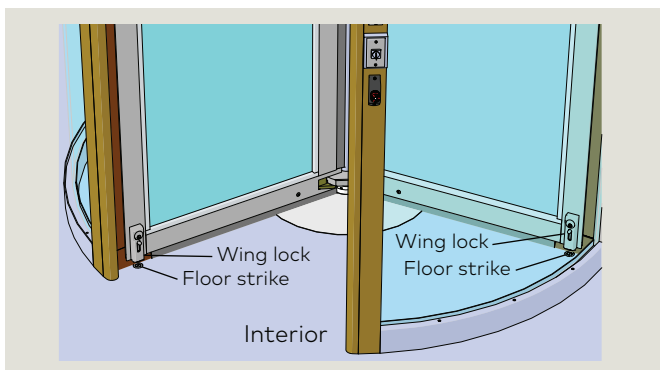


Fig. 23.1.3 Wing lock in home position

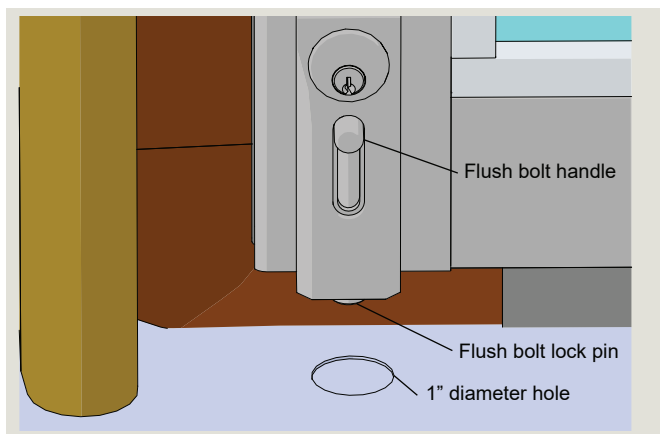


Fig. 23.1.4 Floor strike installed



23.1.1 Home position.

1. Rotate wings to home position.

23.1.2 Mark floor strike hole locations.

1. Move wing lock handle down until wing lock pin contacts floor surface.
 - Wing lock pin diameter: 5/8"
2. Mark circumference of pin on floor.
3. Raise wing lock handle.
4. Mark centerpoint of wing lock pin on floor.
5. Repeat steps 1 through 4 for second wing lock.

23.1.3 Drill floor strike holes in floor.

1. For concrete floors, drill 1" diameter hole in floor to a depth of 2".
 - Use hammer drill with masonry bit.

CAUTION

Drill must be perpendicular to floor.

2. Repeat step 1 for second floor strike.

23.1.4 Clean any dirt and debris from floor strike holes.

CAUTION

Insure floor strike holes are clear of dirt and debris.

1. Use vacuum to remove any dirt and debris.

23.1.5 Install floor strikes.

1. Fill hole with grout.
 - Use a grout such as QUIKRETE® FastSet™ non-shrink grout.
2. Place floor strike in hole.
3. Tap floor strike into place using wood block or other material to prevent surface damage to strike.
4. Clean excess grout from floor area around strike.

CAUTION

Note manufacturer's cure time for grout before walking on strikes or using wing locks.

5. Repeat steps 1 through 4 for second floor strike.

24 Install enclosure glass, enclosure base covers

24.1 Enclosure glass

NOTICE

Refer to Crane shop drawings for specific enclosure glass detail for job!

24.2 Unpack enclosure glass shipping crate

24.2.1 Unpack shipping crate.

1. Uncrate enclosure glass from shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

CAUTION

Use caution when handling glass to prevent scratching or damage to glass surfaces.

CAUTION

Handle curved glass with care. Do not exert force on the glass pieces.



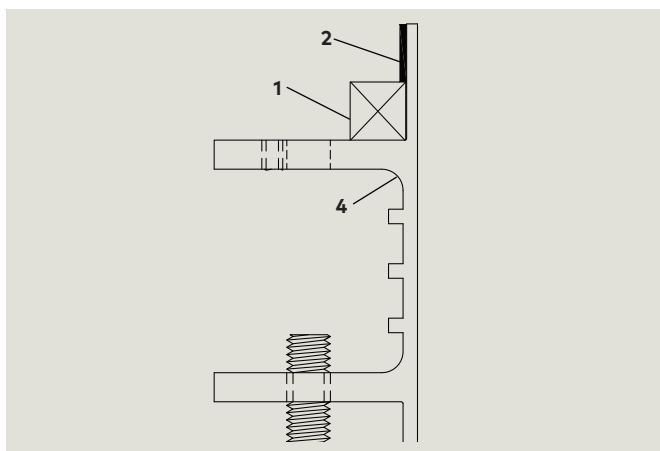
WARNING

Use caution while working with enclosure glass!

- Clean glass surfaces prior to transporting.
- Always lift and transport glass with aid of vacuum suction cup lifting tools.
- A minimum of two people are required to lift and transport glass.

24.3 Prepare enclosure posts and bases for enclosure glass

Fig. 24.3.1 Enclosure base glazing block and tape AL3000 example



- 1 Glazing block
- 2 Glazing tape
- 4 Enclosure base

24.3.1 Install glazing blocks in enclosure bases.

NOTICE

Refer to Crane shop drawings for specific enclosure glass and glass installation glazing details for job!

1. Install glazing block in each enclosure base.



TIPS AND RECOMMENDATIONS

Glazing block (glass thickness) and 1/8" thick glazing tape supplied by installer.

24.3.2 Install glazing tape in enclosure bases.

1. Install compressed 1/8" thick glazing tape on enclosure base wall above glazing block.

24.3.3 Install glazing tape in enclosure posts.

1. Install compressed 1/8" thick glazing tape in enclosure posts per Crane shop drawings. Examples shown in Fig. 24.4.3.

24.4 Install enclosure glass

Fig. 24.4.1 Glass set in base enclosure

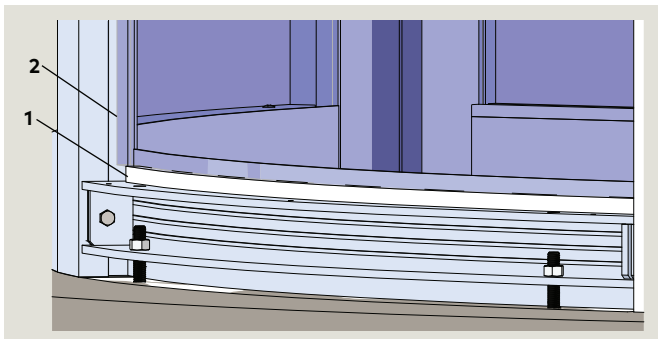


Fig. 24.4.2 Crane shop drawing, enclosure base example

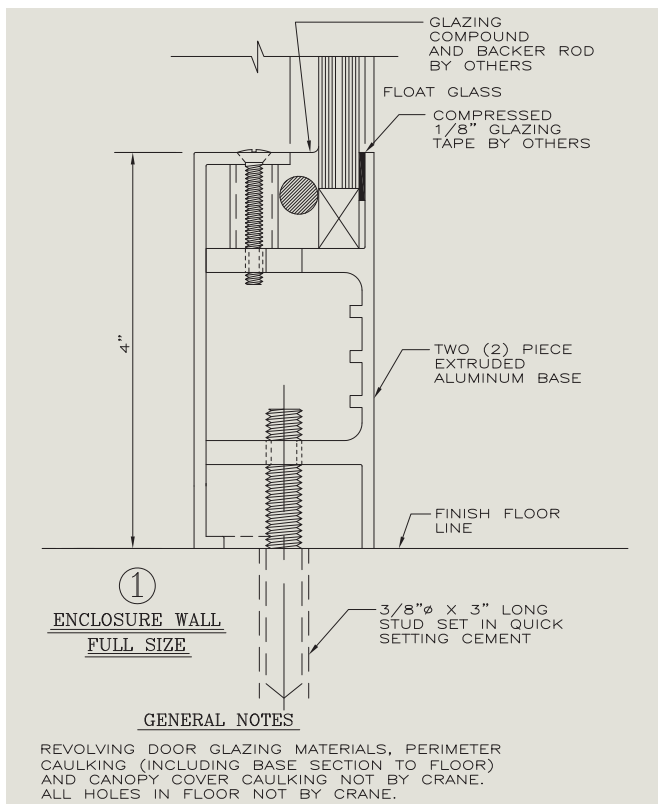


Table 24.4.1 Enclosure glass and base assembly

Part / Assembly	Description
1	Glazing block (by installer)
2	Enclosure glass, reference Crane shop drawings
3	RF6118-01G 10-24 x 1 1/4" Phillips oval head machine screw
4	RC6390 Base cover support spacer, 1/2" OD, 3/8" ID, 4 1" long
5	RE6015-0X0 Enclosure, base outer, 3" AL
6	Backer rod (by installer)

24.4.1 Set first enclosure glass into place.



WARNING

Hand pinch point and crushing hazards!

1. Set enclosure glass into place, centering the glass between the vertical posts. Ground top edge of glass next to canopy.

24.4.2 Install backer rods in enclosure bases and posts.

1. Install backer rod into approximate position shown in Fig. 20.4.2.

24.4.3 Apply glazing compound in enclosure bases and posts.

1. Apply glazing compound as shown in Crane shop drawings. Examples shown in Crane shop drawings in Figure 24.4.2 and 24.4.3.

NOTICE

Refer to Crane shop drawings for specific enclosure glass and glass installation glazing details for job!

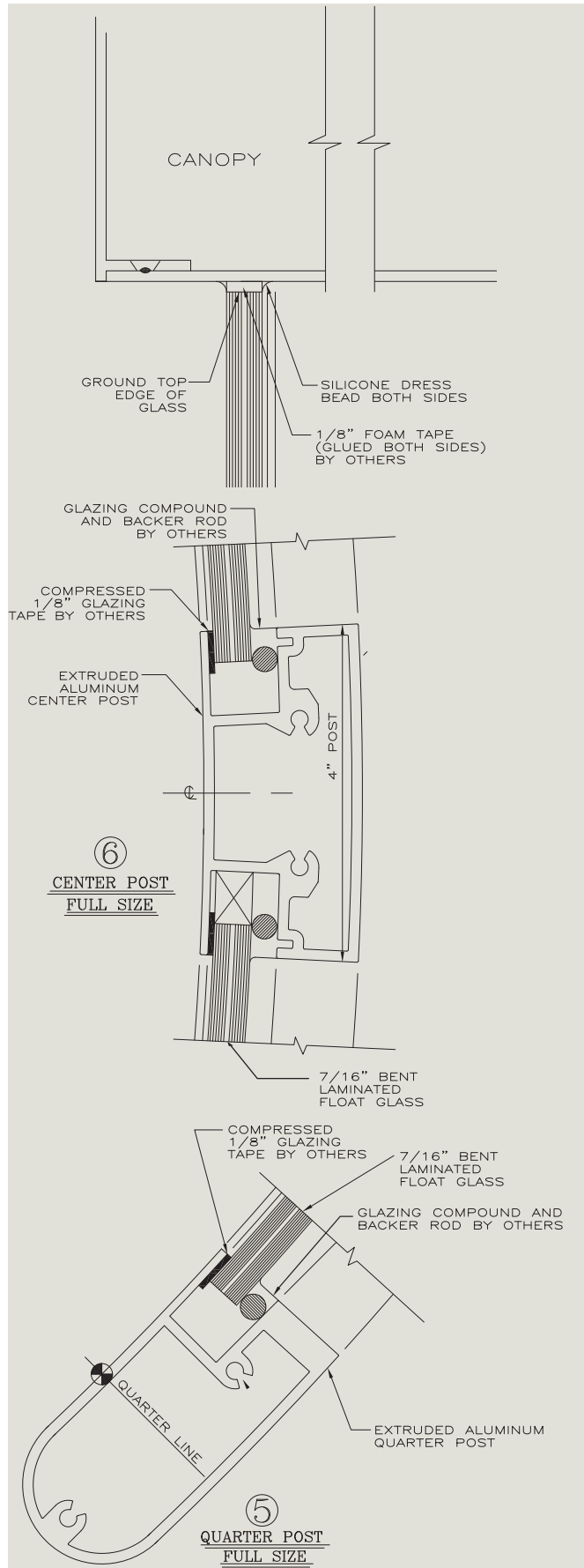
24.4.4 Install remaining enclosure glass.

1. Install remaining enclosure glass per paragraphs 24.4.1 through 24.4.2.

NOTICE

Refer to Crane shop drawings for specific enclosure glass and glass installation glazing details for job!

Fig. 24.4.3 Crane shop drawing post backer rod and glazing installation examples



NOTICE

Refer to Crane shop drawings for specific enclosure glass and glass installation glazing details for job!

24.5 Install enclosure base covers

Fig. 24.5.1 Base cover hardware

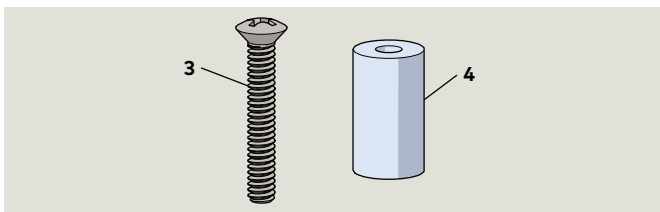


Fig. 24.5.2 Aluminum base and cover assembly

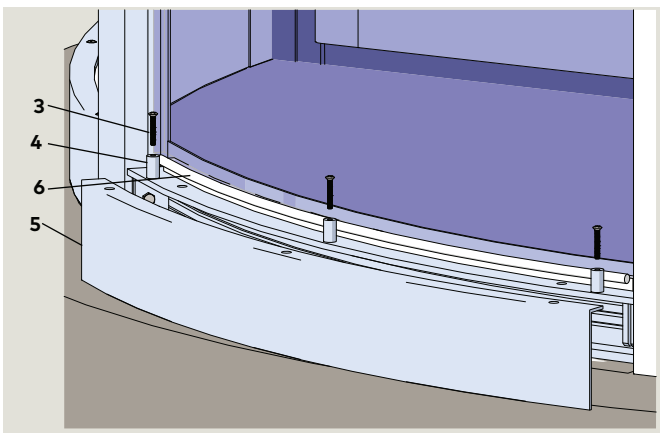


Fig. 24.5.3 Enclosure base cover installed

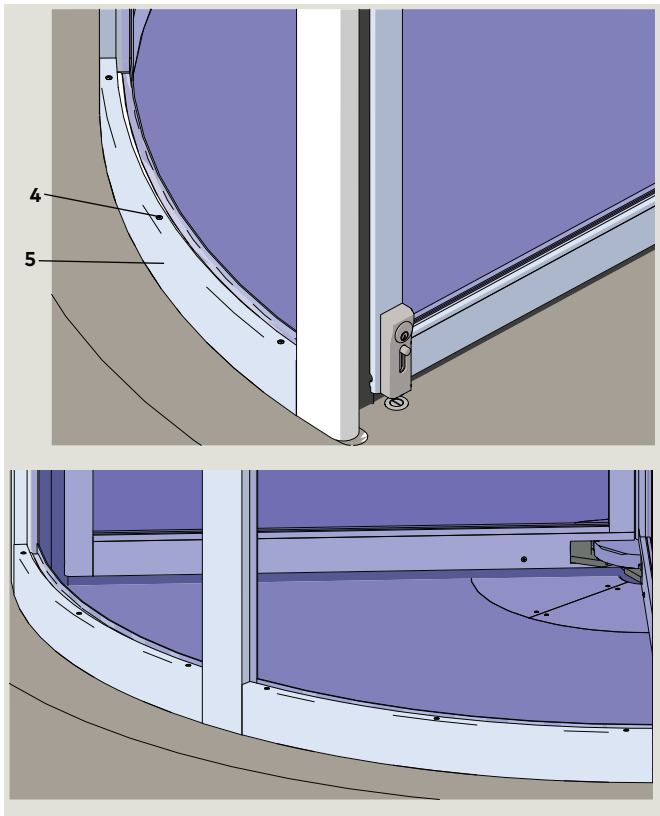


Table 24.5.1 Enclosure base assembly, AL

Part / Assembly	Description
3 RF6118-01G	10-24 x 1 1/4" Phillips oval head machine screw
4 RC6390	Base cover support spacer, 1/2" OD, 3/8" ID, 1" long
5 RE6015-0X0	Enclosure, base outer, 3", AL
6	Backer rod (by installer)

24.5.1 Install enclosure base covers.

1. Install enclosure base covers using hardware in Fig. 24.5.1

24.5.2 Complete glazing of enclosure glass at enclosure bases.

1. Finish glazing at each enclosure base.

NOTICE

Refer to Crane shop drawings for enclosure glass glazing details for job!

24.5.3 Stainless steel bases.

NOTICE

Reference Crane shop drawings for stainless steel bases.

24.6 Install canopy covers

24.6.1 Install canopy covers.

1. Install canopy covers using #8 x 1/2" Phillips pan head machine screws.

NOTICE

Refer to Crane shop drawings for canopy cover installation instructions.

- 8** #8 x 1/2" Phillips pan head sheet metal screw
RF3016-01Z

Fig. 24.6.1 #8 x 1/2" PPHMS

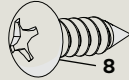
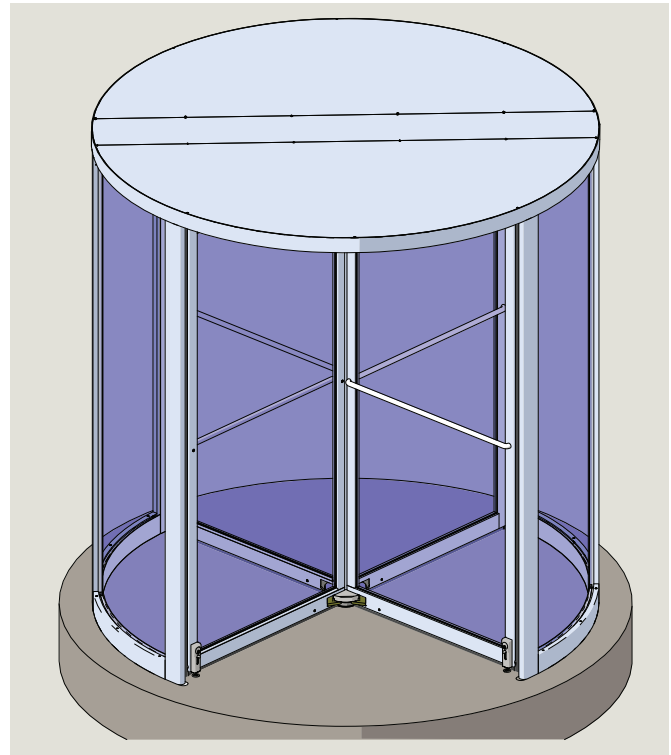


Fig. 24.6.1 Canopy covers installed



25 Check wing breakout force, bookfold operation

25.1 Check breakout force

Fig. 25.1.1 Wing in bookfold position

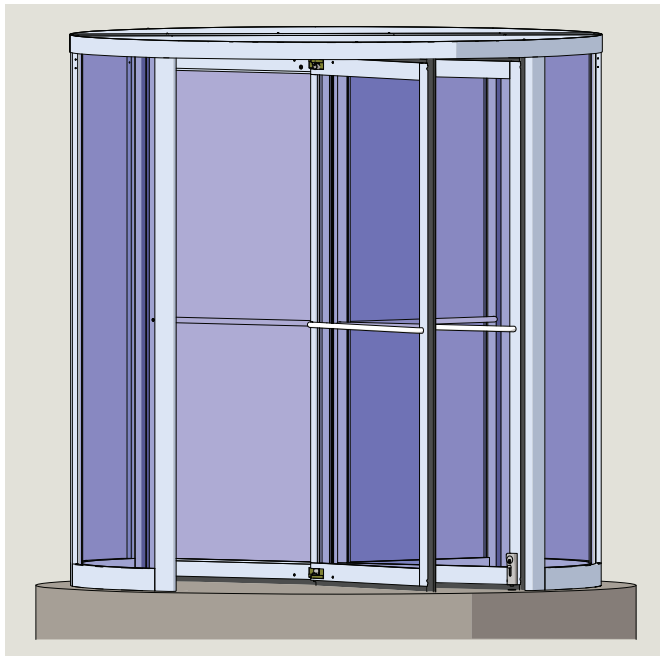


Fig. 25.1.2 Hanger tension adjustment

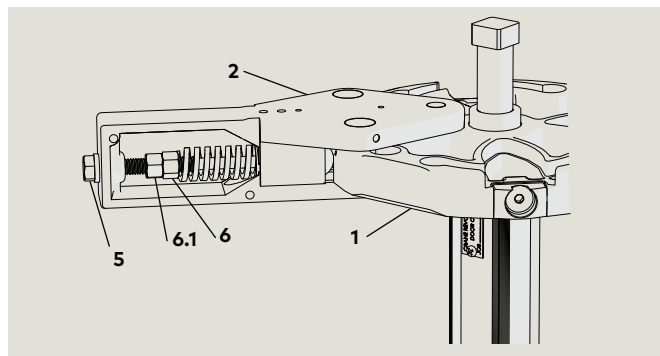


Table 25.1.1 RS6045 shaft hanger assembly and parts

Part / Assembly	Description
1	Disc assembly
2 RC6369-0X0	Hanger body
5 RC6156-01G	Hex bolt, 0/375" - 16 x 4"
6	Hex nut, 0.375"-16
6.1	Hex nut, 0.375"-16

25.1.1 Breakout force.

NOTICE

ANSI/BHMA A156.27

Para. 10 Breakout force requirements.

Each revolving door wing shall be capable of breakout when a force of 130 lb. [570 N] is applied at a point 3 inches [76 mm] from the outer edge of the outer wing stile and 40 inches above the floor.

25.1.2 Initial breakout hanger tension.

- Initial hanger bookfold tension set in Chapter 23.
- Reference Para. 8.10 for bookfold operation overview.

25.1.3 Check breakout force on first wing.

1. Block one door wing. Push an adjacent wing with a force gauge until breakout occurs. Note breakout force.
2. If hanger breakout force adjustment is required, refer to Para. 25.1.4.

25.1.4 Hanger breakout force adjustment.

1. Remove wing from hangers.

CAUTION

Make the same tension adjustment to both upper and lower hangers .

- Use open end 9/16" box wrench for tension adjustment.
- Monitor number of hex nut turn adjustments made so that the same number of adjustments can be made on the lower hanger.

• Increase hanger tension:

- Turn hex nut (6) CW to tension spring.
- Use two 9/16" wrenches to both lock hex nuts in place.
- Repeat same tension adjustment on lower hanger.

• Decrease hanger tension:

- Turn hex nut 6.1 CCW to allow reduced tension adjustment.
- Turn hex nut (6) CCW to reduce decrease tension on spring.
- Use two 9/16" wrenches to both lock hex nuts in place.
- Repeat same tension adjustment on lower hanger.

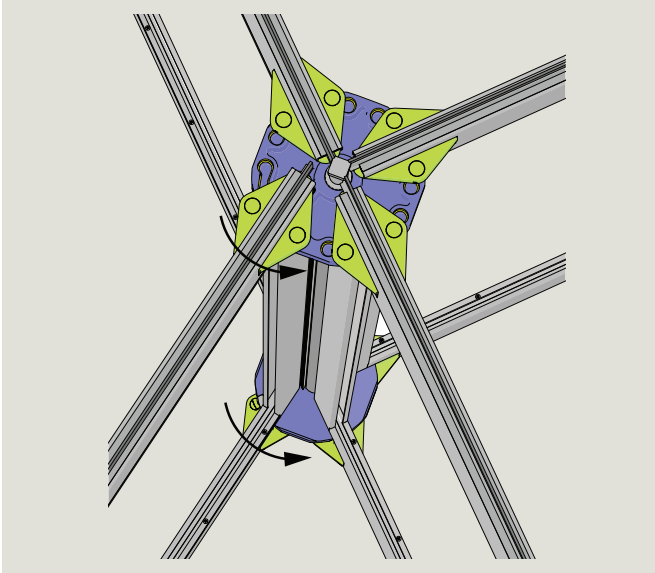
2. Reinstall wing and repeat breakout force test.

3. Repeat tension adjustment until breakout force requirements in Para. 25.1.1 are met.

25.1.5 Remaining wings, breakout force.

1. Check breakout force on each of the remaining wings.
2. Adjust breakout force as required on each wing to meet requirements in Para. 25.1.1 and local building conditions.

Fig. 25.1.3 Door wing in breakout position

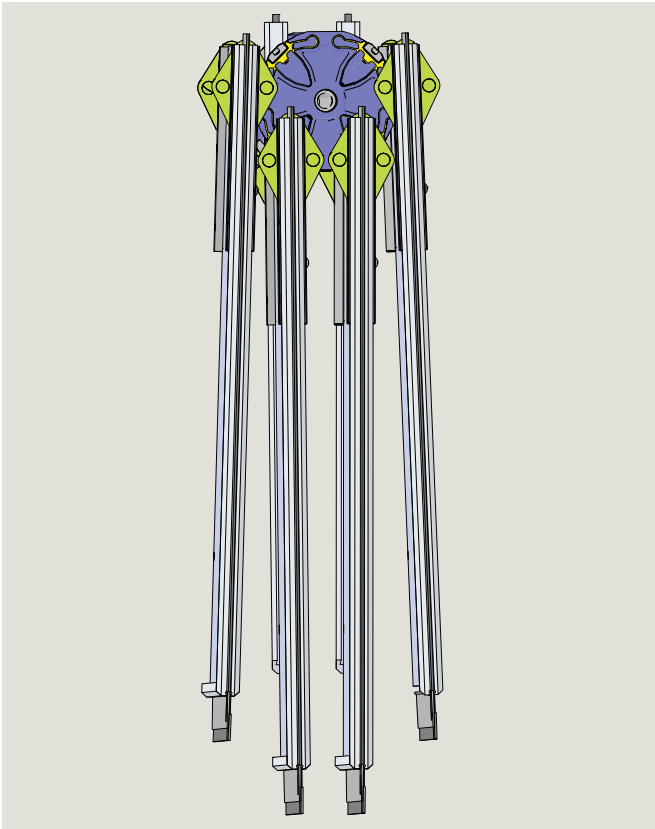


25.2 Check bookfold operation

25.2.1 Check wing bookfold operation

1. Check bookfold operation on all wings.

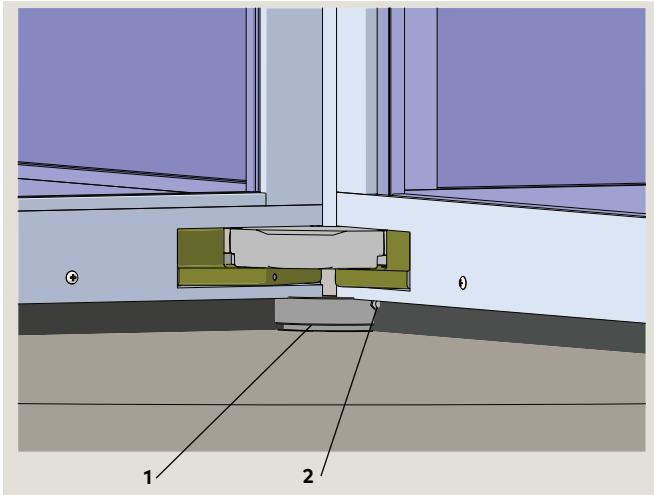
Fig. 25.2.1 Door wings in bookfold position



26 Maintenance

26.1 Center shaft assembly floor pivot bearing

Fig. 26.1.1 Floor pivot bearing maintenance



- 1 Floor or in-ground pivot
- 2 Grease fitting

26.1.1 Pivot bearing lubrication.

- 1. Grease pivot bearing semiannually.



TIPS AND RECOMMENDATIONS

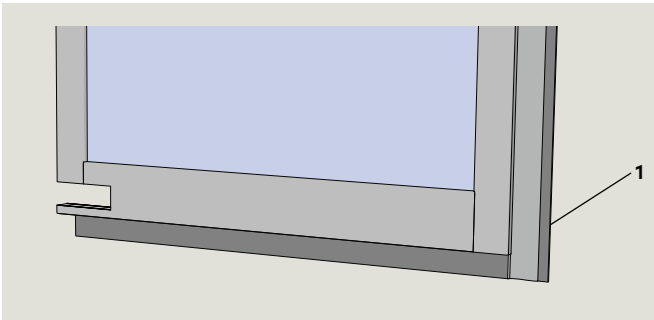
Use general multipurpose grease.

26.1.2 Cleaning pivot bearing/center shaft

- 1. Clean surface area at pivot bearing/center shaft of dirt and debris as required.

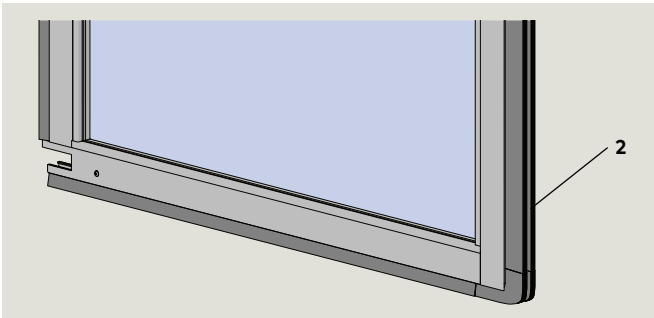
26.2 Weathersweeps

Fig. 26.2.1 T-style weathersweep



- 1 T-style weathersweep

Fig. 26.2.2 Horsehair weathersweep



- 2 Horsehair weathersweep

26.2.1 Weathersweep maintenance.

NOTICE

Reducing or trimming the size of the bottom sweep makes the sweep more rigid and voids all warranties.

- 1. Inspect condition of sweeps.
 - Recondition horsehair sweeps if possible using conditioner.
- 2. Replace weathersweeps as required.
 - Contact the Crane company for replacement weathersweeps.

26.3 Manual speed control

26.3.1 Maximum allowable door RPM

Maximum inside diameter	6 ft, 6 in. [1980 mm]	7 ft [2135 mm]	7 ft, 6 in. [2285]	8 ft [2438 mm]	8 ft, 6 in. [2590 mm]	9 ft [2745 mm]	9 ft, 6 in. [2895]	10 ft [3050 mm]
Manual speed control RPM	12	11	11	10	9	9	8	8
Time for one door revolution (s)	5	5.5	5.5	6	6.7	6.7	7.5	7.5

Fig. 26.3.1 Manual speed control, cover removed

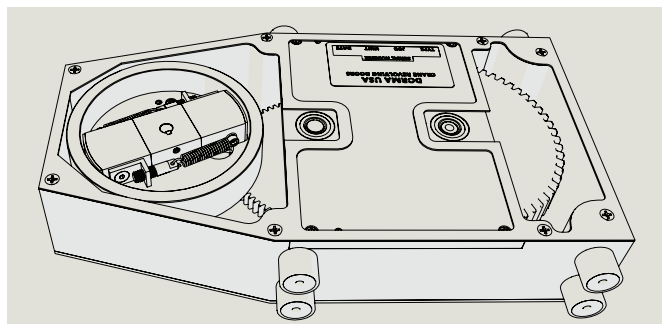
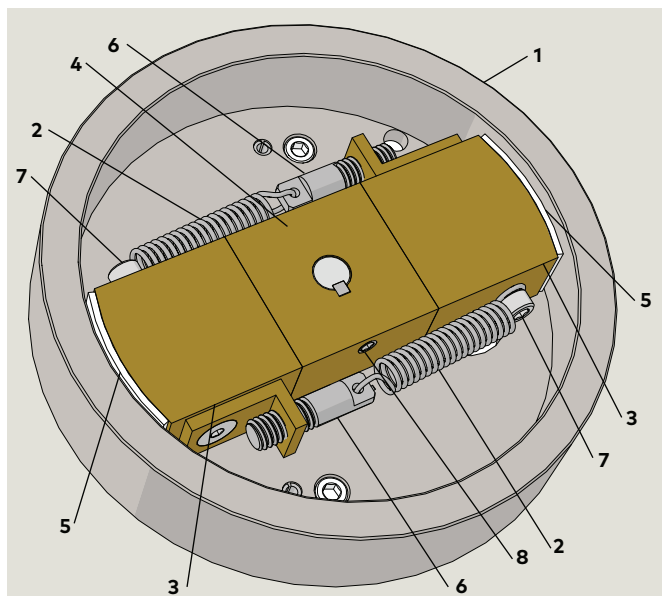


Fig. 26.3.2 Brake housing assembly



- | | |
|--------------------------------|-----------------------------------|
| 1 Brake housing assembly | 5 Brake shoe |
| 2 Brake spring | 6 Brake screw |
| 3 Left-right brake shoe holder | 7 10-25 x 1/2" SHCS |
| 4 Center brake block | 8 .25-20 .50" cup point set screw |

CAUTION

Manual speed control maintenance should only be done by trained Crane Door Company personnel.

26.3.2 Adjust brake engaging pressure.

- Increase tension on brake springs:
 - Remove SHCS (7) securing brake spring to brake shoe holder.
 - Turn brake screw (6) CW to increase spring tension.
 - Reinstall SHCS.
 - Repeat for second brake spring.

26.3.3 Replacement of brake shoes.

- Remove center brake block/left-right brake shoe holder assembly to replace brake shoes.

26.4 Cleaning surfaces

26.4.1 Aluminum

1. Dust and grime can be removed by regular cleaning.
 - Use a mild, non-abrasive soap or cleaning solution and water.
 - After cleaning, surfaces should be wiped dry with a clean absorbent material.
2. Tar and built-up dirt can be removed with solvent cleaners such as turpentine if followed by a soap and water cleaning and fresh water rinse.

NOTICE

Avoid acid or alkali cleaners; they may attack the anodized finish.

- After cleaning, surfaces should be wiped dry with a clean absorbent material.

26.4.2 #4 stainless steel

1. For routine cleaning, use soap, ammonia, or detergent and water.
 - Always working in the direction of the grain, rub with a sponge or rag.
 - Rinse with water, wipe dry.
2. Stubborn dirt or grime can be removed with a quality commercial stainless steel cleaner.

26.4.3 Mirror finish stainless steel

NOTICE

Mirror finishes require very special care. Abrasive cleaners and cloths should never be used.

1. Use only mild soap and water or glass cleaner.
 - After cleaning, surfaces should be wiped dry with a clean absorbent material.

26.4.4 Bronze

NOTICE

To insure proper maintenance, consult a professional bronze finisher and establish a regular metal cleaning program.

1. Bronze finishes are protected during shipping and installation by a shop coat of lacquer.

NOTICE

Lacquer can be damaged by ammonia in window cleaners, or by acids from masonry cleaners. Protect doors from these cleaners.

NOTICE

Doors must be inspected and worked after installation by a qualified bronze finisher.

26.4.5 Painted finishes

1. Any mild non-abrasive soap or mild solvent can be used for cleaning.

NOTICE

Strong solvents may dissolve paint. Test any solvent first.

2. Wax can be used to protect the finish.

26.5 Hanger maintenance

Fig. 26.5.1 4 wing door assembly example

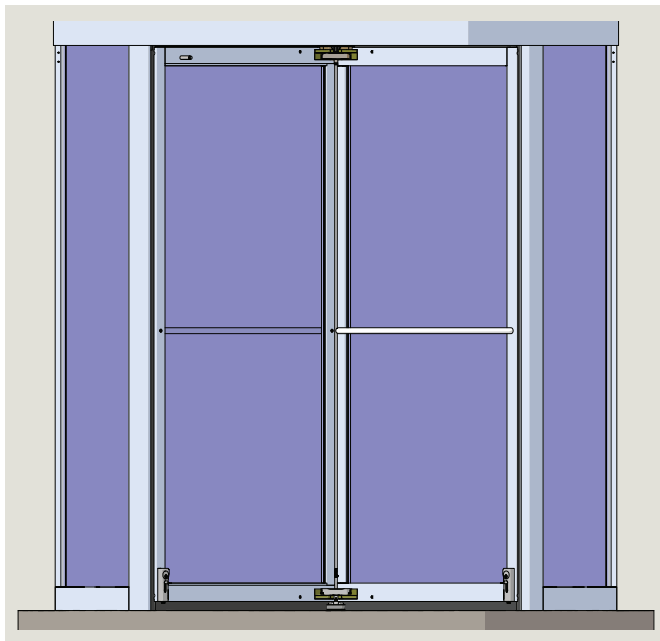
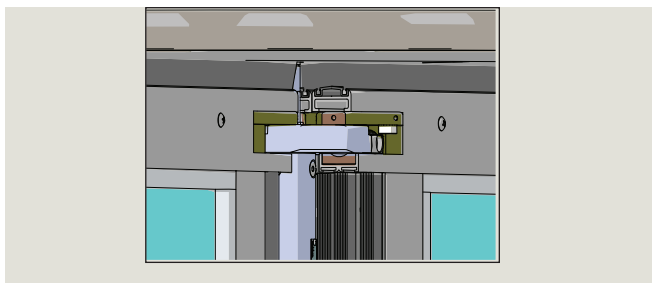


Fig. 26.5.2 4 wing door assembly wing bookfold example



26.5.1 Hanger / hanger disc maintenance.

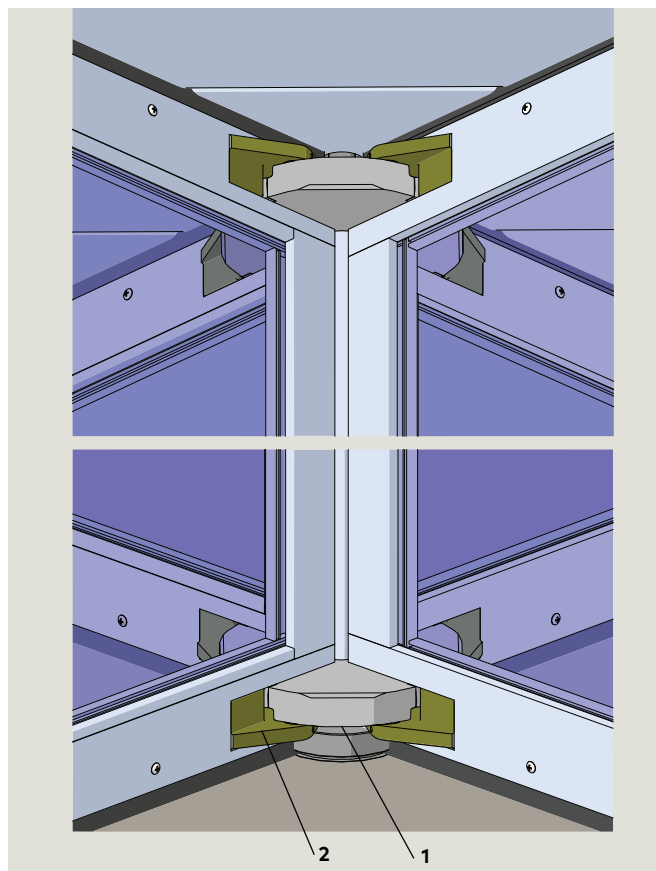


TIPS AND RECOMMENDATIONS

Bookfold wings for the following procedures.

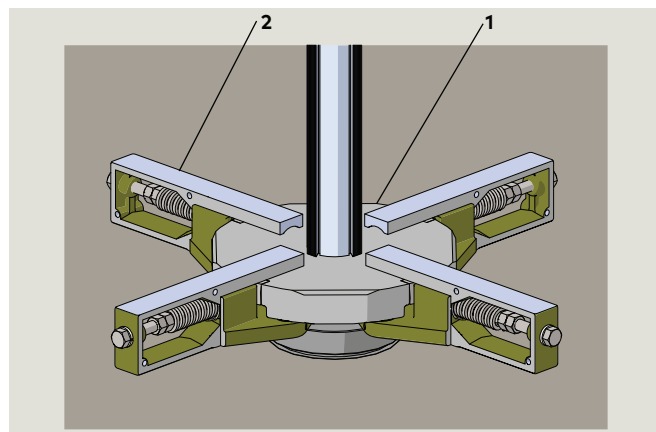
1. Check for dirt and debris and clean as required at.
 - Hanger assemblies.
 - Hanger disc assemblies.
2. Check for lubrication on hanger disc and at hangers.
 - Lubricate as necessary.

Fig. 26.5.3 Upper and lower hanger assemblies



- 1 4 wing disc assembly 2 Hanger assembly

Fig. 26.5.4 4 wing center shaft hanger assembly



Appendix A - Overhead speed control with self positioning closer (SPC)

A1.1 Overhead speed control with SPC

A.1.1.1 Self positioning closer overview.

- SPC will slowly rotate the manual door to the "x" or any other chosen Home position when door is not in use for longer than 10 seconds.
- An off/on switch is optional for the system.
- Requires a minimum of a 6 1/2" high canopy.

A.1.1.2 ANSI standard B156.27 Power and Manual operated revolving pedestrian doors, low energy speed.

Door speed resulting in a maximum of 2.5 lbf-ft (3.4 Nm) of kinetic energy.

Fig. A.1.1.1 SPC assembly components

- 1 Positioning wheel, 4 wing door
- 1.1 Collar
- 2 Overhead speed control assembly
- 3 Positioning wheel sensor
- 3.1 LED
- 4 DC motor
- 5 Obstruction sensitivity adjustment tab
- 5.1 Spring
- 6 Stall sensor
- 7 Power on light (red)
- 8 Door at home (X) position (green)
- 9 SPC printed circuit board
- 10 Optoswitch connector DX3353-010
- 11 Extension cable RX7019-001
- 12 Power cable receptacle
- 13 DC motor wiring receptacle
- 14 Positioning sensor cable receptacle
- 15 12 Vdc power supply connector
- 16 SPC cover
- 17 Positioning wheel cover

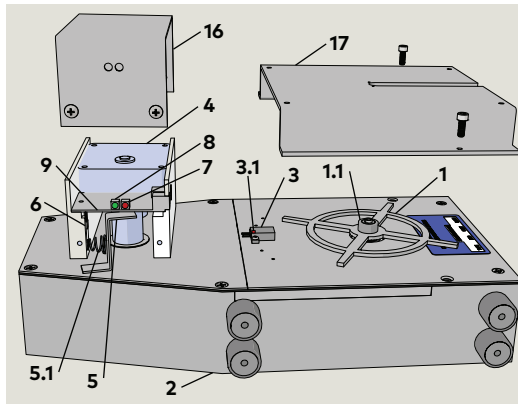
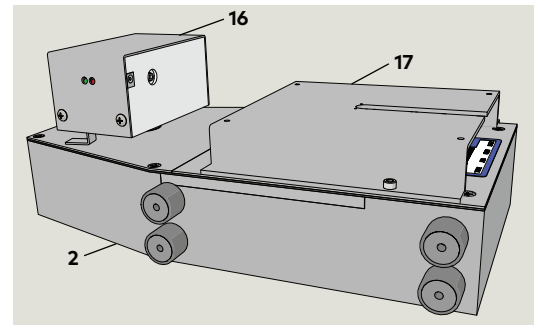


Fig. A.1.1.3 Overhead speed control with SPC assembly



TIPS AND RECOMMENDATIONS

Reference Para. 35.3 for additional SPC wiring details.

Fig. A.1.1.2 SPC components and wiring

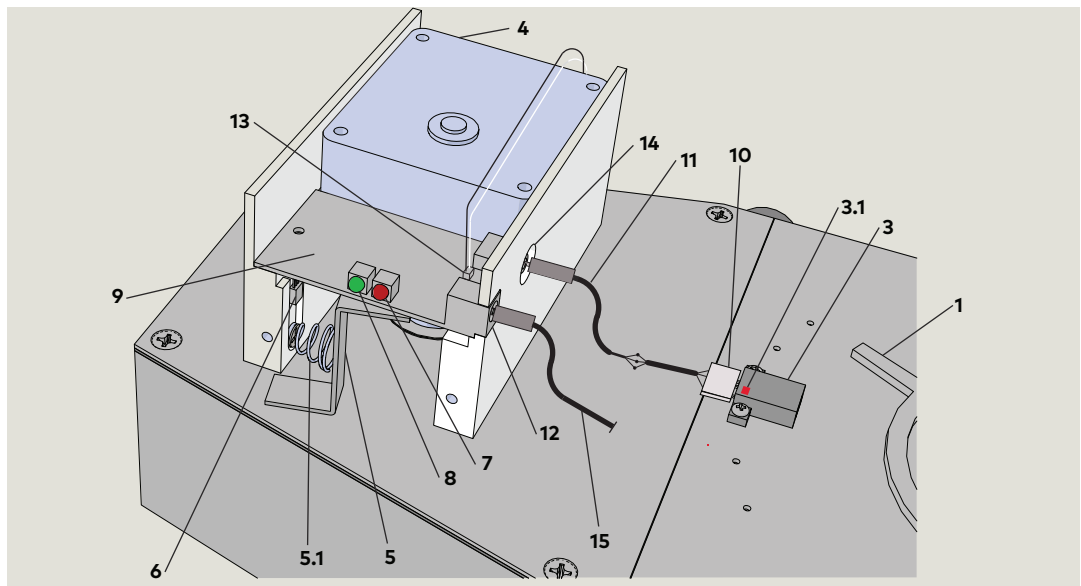
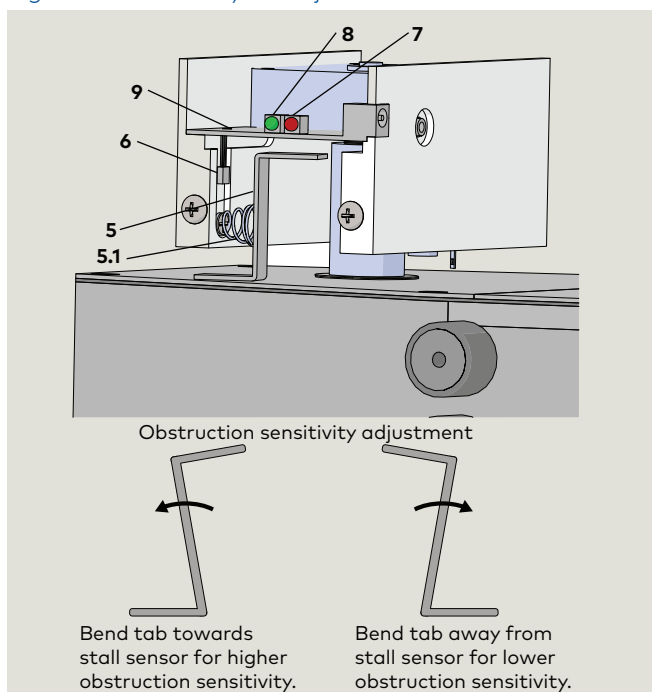


Fig. A.11.4 Sensitivity tab adjustment

- 5 Obstruction sensitivity adjustment tab
- 5.1 Spring
- 6 Stall sensor
- 7 Power on light (red)
- 8 Door at home (X) position (green)
- 9 SPC printed circuit board



A1.2 Customer 115 Vac wiring requirement

A1.2.1 Customer 115 Vac wiring installation.



WARNING

Work on 115 Vac wiring installation must be performed only by qualified personnel!

1. Customer must provide:
 - 115 Vac branch circuit from panelboard to outlet box.
 - 115 Vac outlet box and receptacle.
2. AC power cord from 12 Vdc power supply (Fig. 35.3.3) will plug into customer outlet box receptacle.

CAUTION

Coordinate 115 Vac wiring receptacle box location with customer/contractor electrician.

A1.2.2 Mount SPC 12 Vdc power supply.

1. Place SPC power supply in canopy.
 - 115 Vac power cord plug must be routed to customer receptacle location at exterior of canopy.

CAUTION

Route and secure 12 Vdc power supply cable and 115 Vac cord in canopy to canopy exit location.

Fig. A1.2.1 12 Vdc power supply

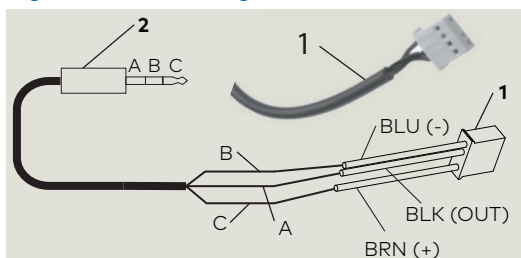


- 3 12 Vdc power supply RX7003-001
- 3.1 4 foot AC cord
- 3.2 4 foot 12 Vdc cord, and DC plug

A1.3 Startup procedure

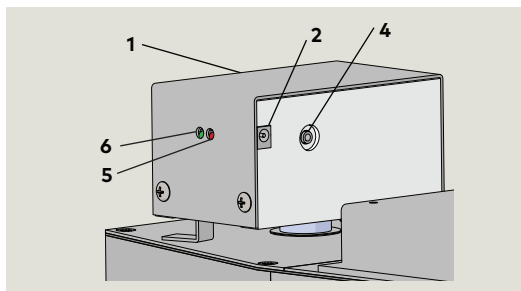
- 1 Optoswitch connector DX3353-010
- 2 Extension cable RX7019-001

Fig. A1.3.1 Positioning sensor cable



- 1 Motor box
- 2 Power cable receptacle
- 4 Positioning sensor cable receptacle
- 5 Power on light (red)
- 6 Home position light (green)

Fig. A1.3.2 SPC assembly



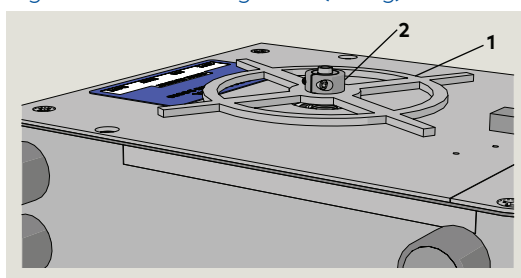
- 3 12 Vdc power supply RX7003-001
- 3.1 AC cord
- 3.2 12 Vdc connector

Fig. A1.3.3 12 Vdc power supply



- 1 Positioning wheel
- 2 Clamp-on shaft collar and set screw

Fig. A1.3.4 Positioning wheel (4 wing) and collar



A1.3.1 Connect positioning sensor cable.

1. Connect positioning sensor cable plug to receptacle (Fig. A1.3.1) on motor box assembly.
2. Secure cable to motor drive box with wire tie.

A1.3.2 Connect SPC power supply 12 Vdc cable.

1. Connect 12 Vdc cable plug (3.2) from power supply to receptacle (2) on motor box.

CAUTION

Secure 12 Vdc power supply cable to side of motor box assembly.

A1.3.3 Move the door to home (X) position.

1. Manually move door to the home (X) position.

A1.3.4 Turn on customer 115 Vac power to SPC 12 Vdc power supply.

1. Customer 115 Vac power On.
2. Red light (5) indicates power is On.

A1.3.5 Set speed control home position.

1. Loosen positioning wheel collar set screw.
2. Rotate positioning wheel until green light on motor box is ON.
3. Tighten collar set screw.

A1.4 OHSC self positioning closer operation

A1.4.1 Self positioning closer operation.

1. After manual door operation the door will remain at rest for approximately ten seconds.
2. The self positioning closer motor will slowly rotate the door at 1/2 RPM to the home (X) position and stop.

A1.4.2 Faults

- Home position reference signal not received by control: motor will stop after approximately 60 seconds.
- Stall sensor is activated if excessive torque (an obstacle) is encountered. This will lead to system shut down and motor off.

Rotating the door manually through the home (X) position will reset the control to normal operation.

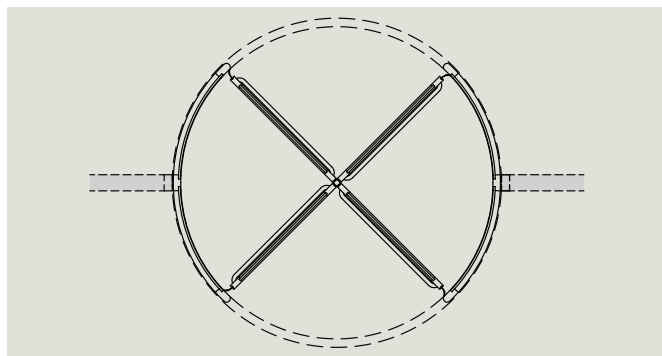
A1.5 Quarter point adjustment

A1.5.1 Quarter point adjustment procedure.

CAUTION

Ensure door area is clear before making this adjustment.

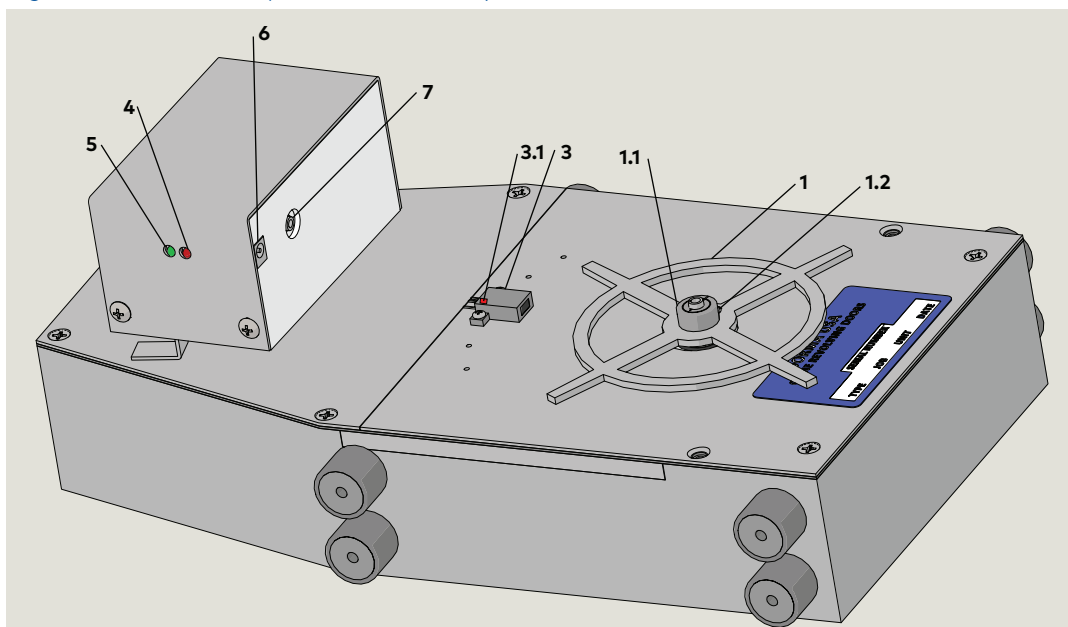
Fig. A1.5.1 4 wing door



1. Controller red light must be ON.
2. Manually rotate the door.
3. Allow wings to rotate to home (X) position and stop.
4. If door home position adjustment is required, loosen positioning wheel collar set screw.
5. Turn positioning wheel clockwise or counterclockwise:
 - Wait to allow door movement to stop after each adjustment.
 - Green light will indicate door is at set position.
6. When door wings have been positioned at desired Home position, tighten positioning wheel set screw

Fig. A1.5.2 Overhead speed control assembly

- 1 Positioning wheel, 4 wing door
- 1.1 Collar
- 1.2 Set screw
- 3 Positioning sensor
- 3.1 LED
- 4 Power on light (red)
- 5 Door at home (X) position (green)
- 6 Power cable receptacle
- 7 Positioning sensor cable receptacle



A1.6 Troubleshooting

A1.6.1 Door doesn't quarter point.

1. Check power on (red light on).
2. Check all cable plug connections.
3. Check positioning sensor mounting and function.
 - Positioning sensor red LED and green light on motor box must illuminate when activated by positioning wheel tab.

A1.6.2 Motor starts, door does not turn.

1. Stall sensor activated.
 - Check for door obstructions.
 - Check that there is no direct light in the area of the motor box.
2. Check motor box mounting and connections.

A1.6.3 Motor starts and then immediately stops.

1. Stall sensor activated.
 - Check amount of force required to start door rotation (should be less than 30 pounds).
 - Adjust distance between stall sensor and tab (5).
 - Bend tab away from sensor for lower obstruction sensitivity.

A1.6.4 Motor does not turn off when door is stalled.

- Adjust distance between stall sensor and tab (5).
- Bend tab toward sensor for higher obstruction sensitivity.

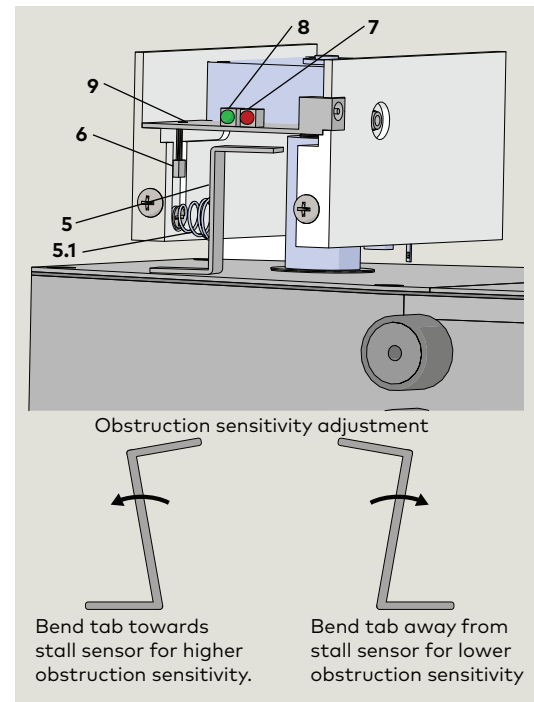
A1.6.5 Door does not keep quarter point adjustment.

1. Positioning wheel must:
 - Be mounted so that it does not contact the speed control cover.
 - Activate the positioning sensor.

A1.6.6 Door turns without being manually pushed.

1. If wind speed is strong enough to cause door movement, turn off power to self positioning closer until wind speed decreases.

Fig. A1.6.1 Sensitivity tab adjustment



- | | | | |
|-----|--|---|-----------------------------------|
| 5 | Obstruction sensitivity adjustment tab | 7 | Power on light (red) |
| 5.1 | Spring | 8 | Door at home (X) position (green) |
| 6 | Stall sensor | 9 | Printed circuit board |

Appendix B - Definitions

B.1 Revolving door definitions, from ANSI/BHMA A156.27 appendix

- B1.1 Active area** - An area where sensors detect the presence of motion
- B1.2 Automatic door operator** - A power operated door mechanism that is attached to a revolving door for the purpose of mechanically opening the door upon receipt of an activating signal (also called a power door operator).
- B1.3 Automatic home positioning** - Manual revolving doors with automatic home positioning are small 3 or 4 wing revolving doors that utilize a low energy operator or mechanism to return the doors to the home position once a person exits the door and the door stops rotating.
- B1.4 Automatic door speed** - The rate at which an automatic revolving door rotates measured in revolutions per minute (RPM). The three classifications are:
- Standard speed- the maximum allowable RPM for a revolving door.
 - Slow speed- One half of standard speed.
 - Low energy speed- Door speed resulting in maximum of 2.5 lbf-ft of kinetic energy.
- B1.5 Bookfold position** - When each wing has been released from its fixed position permitting wings to pivot in the direction of egress
- B1.6 Bottom rail** - The lower horizontal member of the door wing.
- B1.7 Breakout** - A process whereby wings and/or door panels can be pushed open manually for emergency egress.
- B1.8 Canopy** - The area above the wings and enclosure comprised of a ceiling (soffit), fascia (cladding), and roof (cover).
- B1.9 Center shaft** - The rotating center, 12 inches [305 mm] or less in diameter, of revolving doors to which the wings are attached.
- B1.10 Clearance** - The minimum gap around the wing to the ceiling, enclosure, and floor, not including the weather stripping, at any point in its rotation.
- B1.11 Control** - A unit containing electrical components for automatic control of door operation and overload protection.
- B1.12 Control mat** - A presence sensing device that detects pressure from people or objects to give an activating signal to the automatic revolving door.
- B1.13 Core** - The rotating central portion, greater than 12 inches [305 mm] in diameter of a large diameter revolving door to which the wings are attached.
- B1.14 Enclosure** - The walls in which the wings operate.
Also known as Drum.
- B1.15 Entry point sensor** - A presence sensor designed to detect a person in the area between the outer leading edge of the enclosure wall and the approaching outer leading edge of the wing
- B1.16 Fascia** - The vertical surfaces of the canopy.
- B1.17 Home position** - The desired at-rest position for a revolving door.
- Home position "X" - the (4 wing) stops in the (X) position with all four wings in contact with the entrance wall posts.
 - Home position "Y" - the (3 wing) stops in the (Y) position with two wings in contact with the entrance wall posts and one wing in contact with the wall center mullion.
- B1.18 Knowing act** - Consciously activating a switch with the knowledge of what will happen such as starting, slowing or stopping a revolving door. Switching devices may include wall or jamb-mounted contact switches such as push plates, fixed contact switches and controlled access devices such as keypads, card readers, and key switches.
- B1.19 Manual operation** - The capability of rotating the revolving door by a person applying a force to a door wing.
- B1.20 Manual speed control** - A device used to regulate manual revolving door speed by making it difficult to push the door beyond the maximum allowed RPM.
- B1.21 Motion sensor** - A sensor designed to detect the movement of a person or equivalent at the point of entry to the door that gives an activating signal to the power operated door.
- B1.22 Obstruction force** - The maximum static force the door is allowed to apply to a person or object measured at the outside edge of the rotating wing.
- B1.23 Power operated door** - A revolving door with a power operated mechanism that is attached to it for the purpose of mechanically opening the door upon receipt of an activating signal (also called Automatic Door).
- B1.24 Peripheral speed** - The rotating speed of a revolving door measured at the outer edge of the wing.
- B1.25 Presence sensor** - A sensor designed to detect the presence of a stationary person in the vicinity of the doorway and give a signal to the power operated door.
- B1.26 Push bar** - A bar attached to the wing upon which pressure is applied to set a manual revolving door in motion. A push bar is not required on automatic doors.
- B1.27 Push to slow device** - A knowing act switch used to create an activating signal to cause reduction of speed of the revolving door.
- B1.28 Safety glass** - Comprised of either fully tempered or laminated glass or other safety rated glazing to prevent injuries from breakage.
- B1.29 Sensor** - A device that detects motion or presence of a person or object.
- B1.30 Small vehicular** - Carts used to transport persons or objects.
- B1.31 Stile** - A vertical edge member of the door wing.
- B1.32 Throat opening** - The width between the enclosure side walls that creates the entry point.
- B1.33 Trained traffic** - People trained in the safe use and operation of a particular automatic door installation.
- B1.34 Weather stripping** - The material used to fill a clearance.
- B1.35 Wing** - A panel which rotates within and seals the enclosure. (Sometimes called a Leaf).

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