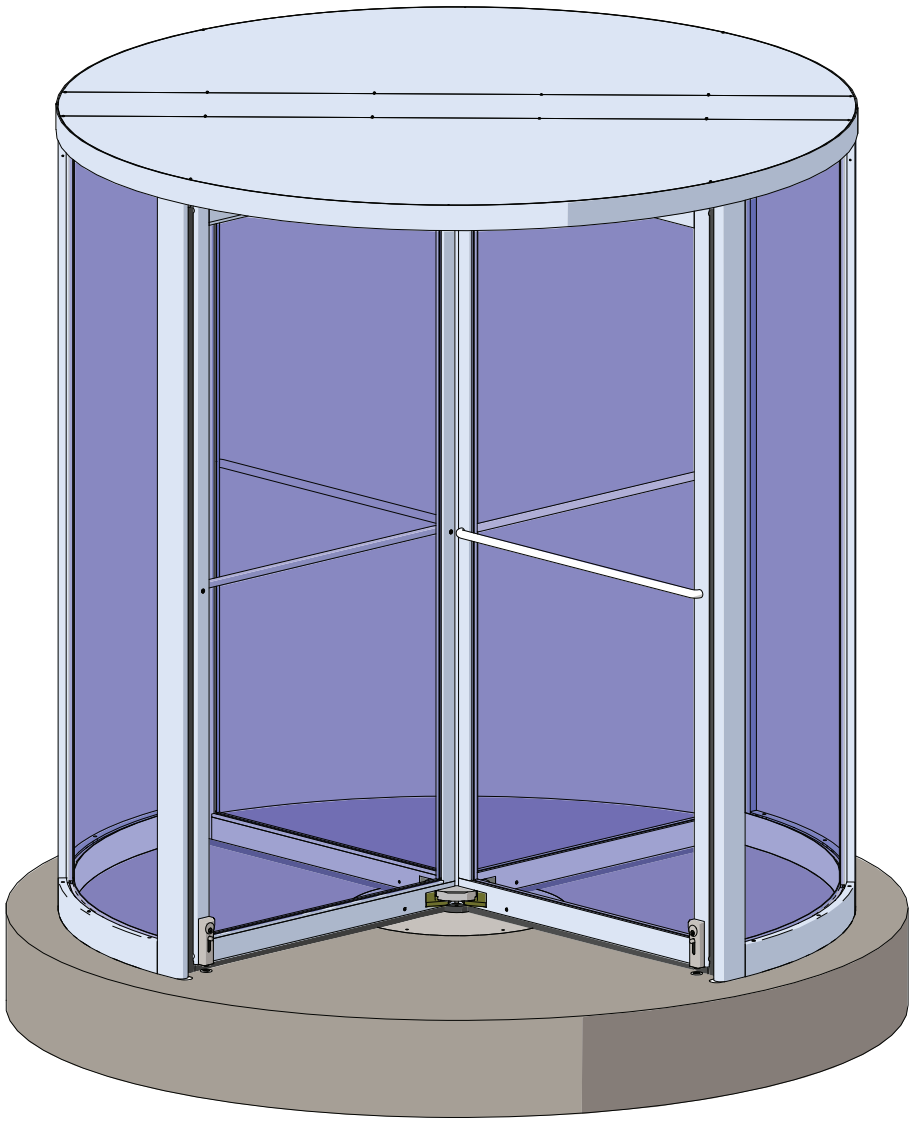


Crane 2000-M and 3000-M

Manual revolving doors
In-ground speed control

Installation Manual

RL6000-002 – 07-2022

| EN |

Crane
dormakaba Group

dormakaba

Table of contents

1 General information

1.1 Installation instructions

This document contains important instructions for installation and operation of Crane 2000-M and 3000-M series manual revolving doors with in-ground 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 Dimensions

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

1.5 Environment

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

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.

1.6 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.

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 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 door, in-ground speed control

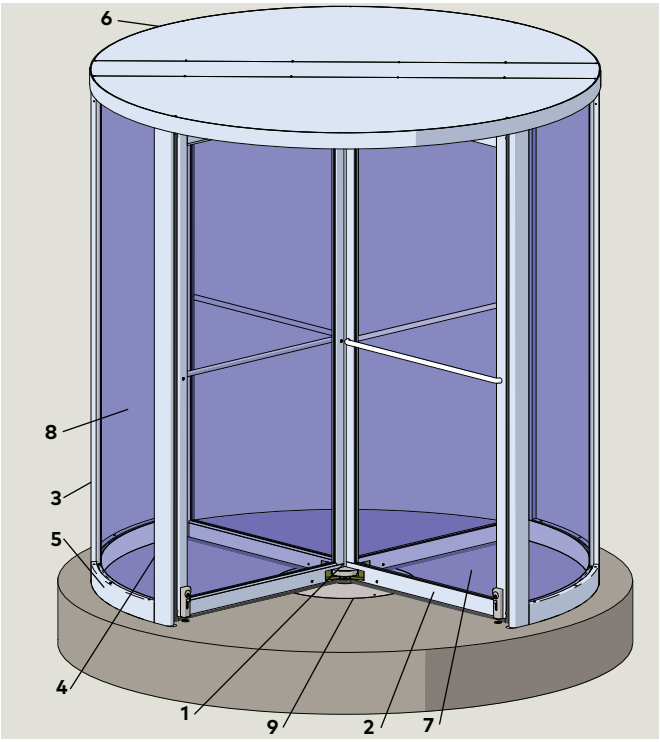
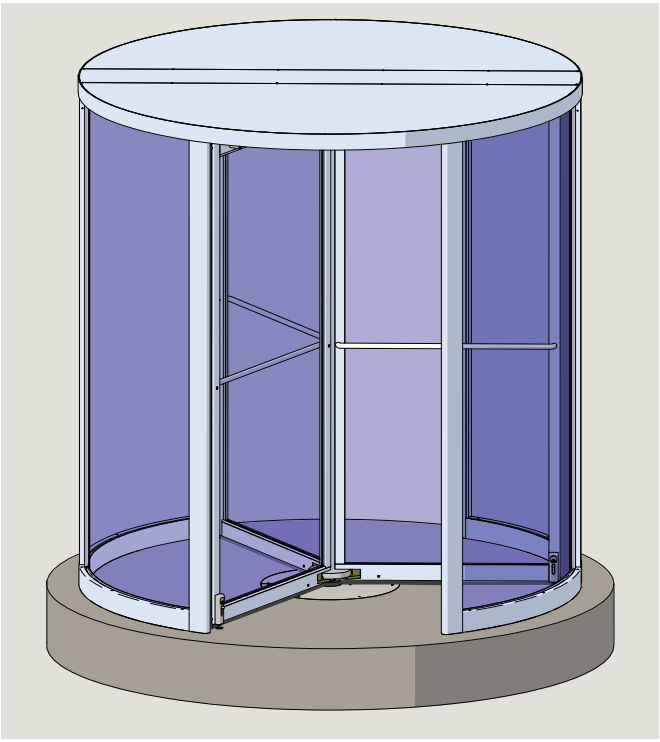


Fig. 2.2 Three wing door, in-ground speed control



1 Center shaft assembly
2 Wing assembly
3 Center post
4 Quarter post/end wall
5 Base assembly
6 Canopy assembly
7 Wing glass
8 Enclosure glass
9 In-ground speed control assembly

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 Door opening height	3 section canopy 3 wing: Minimum ID: 7' 7 3/4" / Maximum OD: 9'; Minimum 7' / Maximum: 9' 4 1/4" 4 wing: Minimum ID: 6'6" / Maximum OD: 9'; Minimum: 7' / Maximum: 10'		ANSI/BHMA A156.27-2019: To limit door mass, the inside diameter added to the height shall not exceed 17ft [5182 mm].
Enclosure diameter Door opening height	4 section canopy 3 wing: Minimum ID: 8' 7 3/4" / Maximum OD: 10' 4 1/4"; Minimum 7' / Maximum: 9' 4 1/4" 4 wing: Minimum ID: 8' 7 3/4" / Maximum OD: 10' 4 1/4'; Minimum: 7' / Maximum: 10'		ANSI/BHMA A156.27-2019: To limit door mass, the inside diameter added to the height shall not exceed 17ft [5182 mm].
Maximum total wing assembly and center shaft assembly weight	750 pounds aluminum 850 pounds SS	Total weight may vary depending on application.	
Finish	• Clear anodized • Custom anodized • Dark bronze anodized • Painted	• #4 satin • #6 fine satin • Mirror • Non-directional "Jitterbug" • Custom	• 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	• Glass • Aluminum panels	• Glass • Solid metal	• 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	• Aluminum	• Stainless steel	• 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):** • Uses 100:1 gear ratio. • Sealed unit is mounted in-ground. • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code.		

5 3000-M series

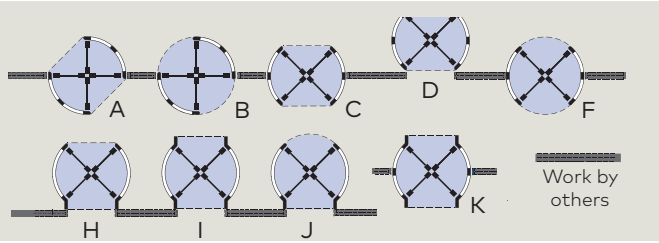
5.1 3000-M series model comparison

	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	
	Minimum ID: 7' 7 3/4" / Maximum OD: 9'	Minimum ID: 6'6" / Maximum OD: 9'	ANSI/BHMA A156.27-2019: To limit door mass, the inside diameter added to the height shall not exceed 17ft [5182 mm].
Door opening height	Minimum 7' / Maximum: 9' 4 1/4"	Minimum: 7' / Maximum: 10'	
Enclosure diameter	4 section canopy		
	3 wing	4 wing	
	Minimum ID: 8' 7 3/4" / Maximum OD: 10' 4 1/4"	Minimum ID: 8' 7 3/4" / Maximum OD: 10' 4 1/4'	ANSI/BHMA A156.27-2019: To limit door mass, the inside diameter added to the height shall not exceed 17ft [5182 mm].
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	• Clear anodized • Custom anodized • Dark bronze anodized • Painted	• #4 satin • #6 fine satin • Mirror • Non-directional "Jitterbug" • Custom	• 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	• Glass • Aluminum panels	• Glass • Solid metal	• 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	• Aluminum	• Stainless steel	• 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. 8.9): • Uses 100:1 gear ratio. • Sealed unit is mounted in-ground. • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code.		

6 Door attachment types

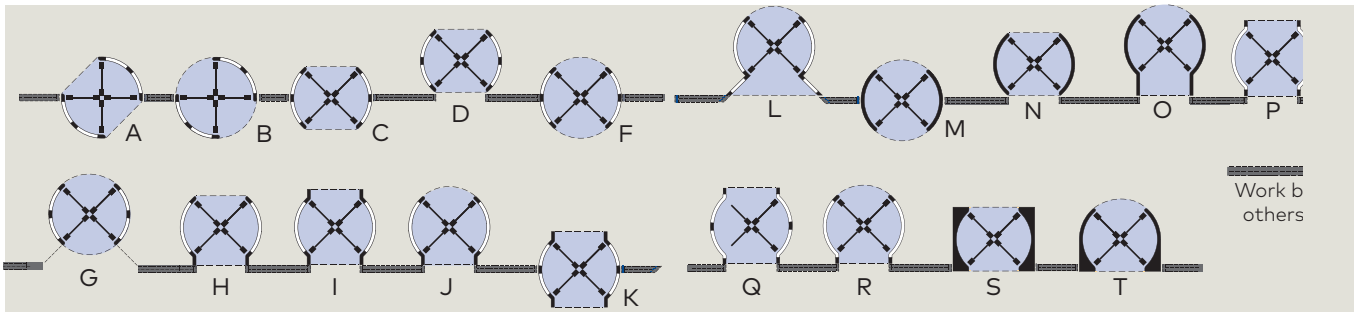
6.1 2000-M series

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 Canopy 3 piece design; door OD diameters under 8 feet, shipped as a single unit

Fig. 7.1.1 3 section canopy assembly, top view

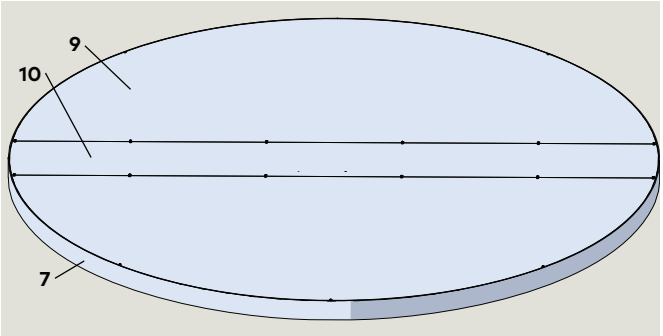
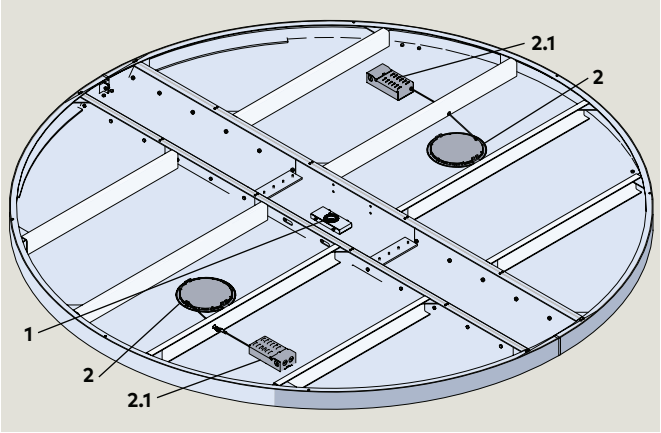


Fig. 7.1.2 3 section canopy assembly, top view, covers removed



NOTICE

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

Table 7.1.1 3 1/8" inch canopy bearing and LED lights

Part / Assembly		Description
1	RS6079-010	Canopy bearing assembly
2	RC7030-001	LED light (option)
2.1	RC7032-001	Box, junction, with LED driver (option)
3		Post mounting holes
4		Outer soffit
5		Outer center soffit
6		Inner center soffit
7		Fascia
8		Canopy bearing

Fig. 7.1.3 3 section canopy assembly, bottom view

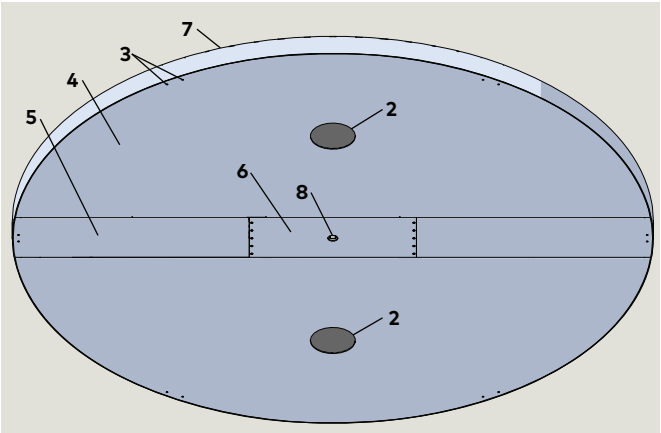
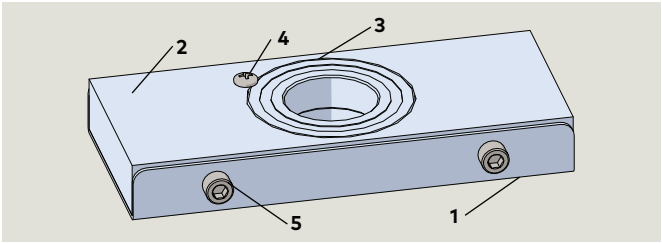


Fig. 7.1.4 Canopy bearing assembly



7.2 Door posts

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

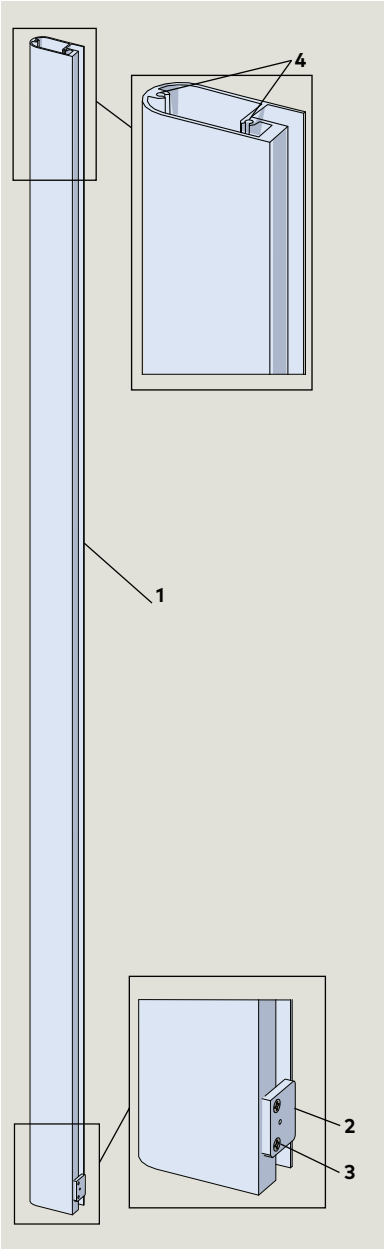


Fig. 7.2.2 Center post

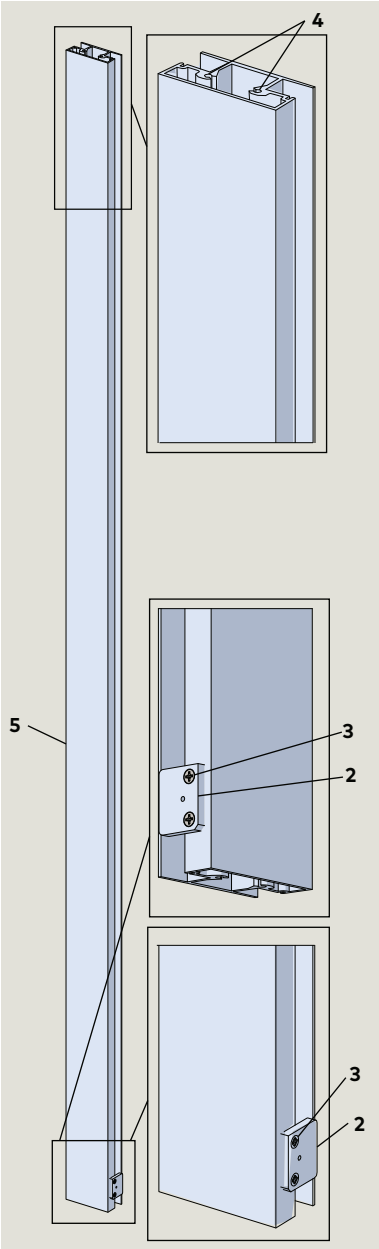
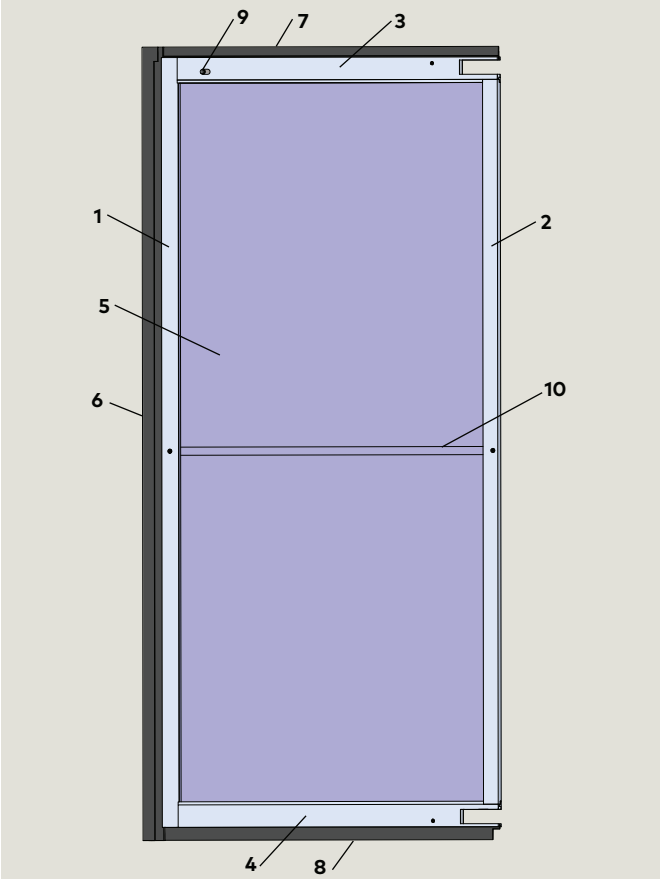


Table 7.2.1 Quarter post and center post

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

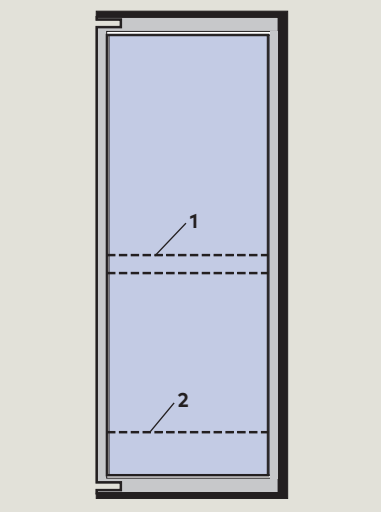
Refer to Crane Shop drawings for wing detail for specific job!

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	RC6389	Sweep felt vertical
7		Sweep felt top
8		Sweep felt bottom
9	RF2961	Wing bumper assembly
10		Wing push bar Push bars ordered job specific for each order

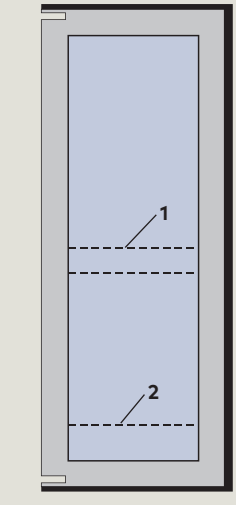
7.4 Door wing types

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

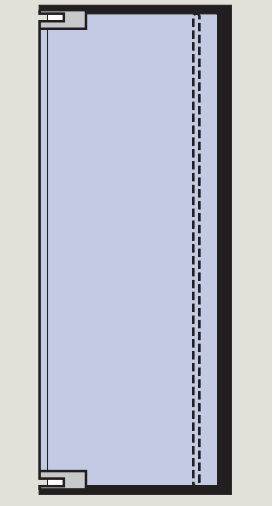
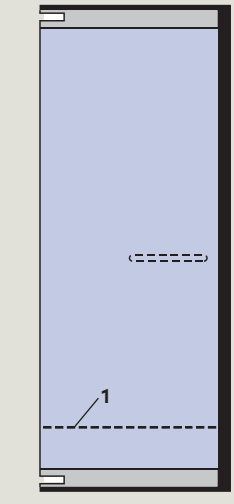


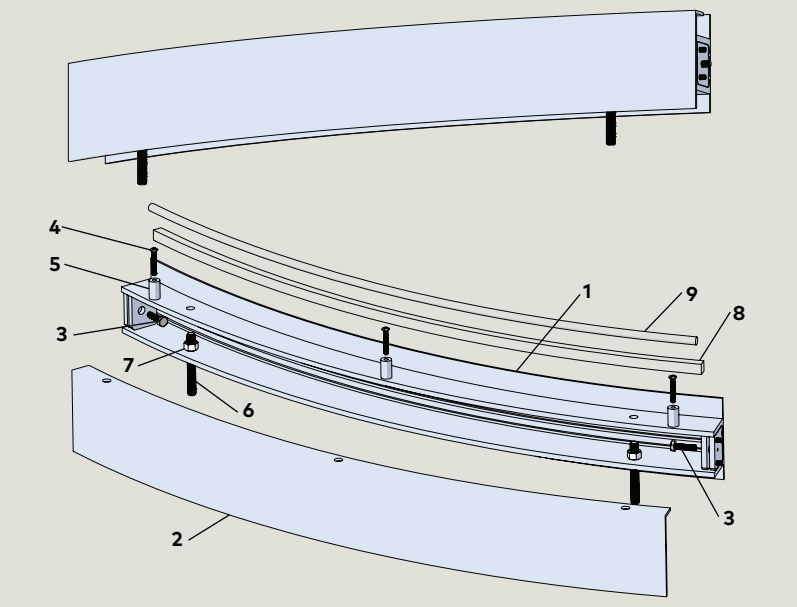
Fig. 7.4.4 Herculite type wing



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	RE6015-0XO	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)

7.7 Center shaft assemblies, in-ground speed control

NOTICE

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

Fig. 7.7.1 Four wing center shaft RS6053-001

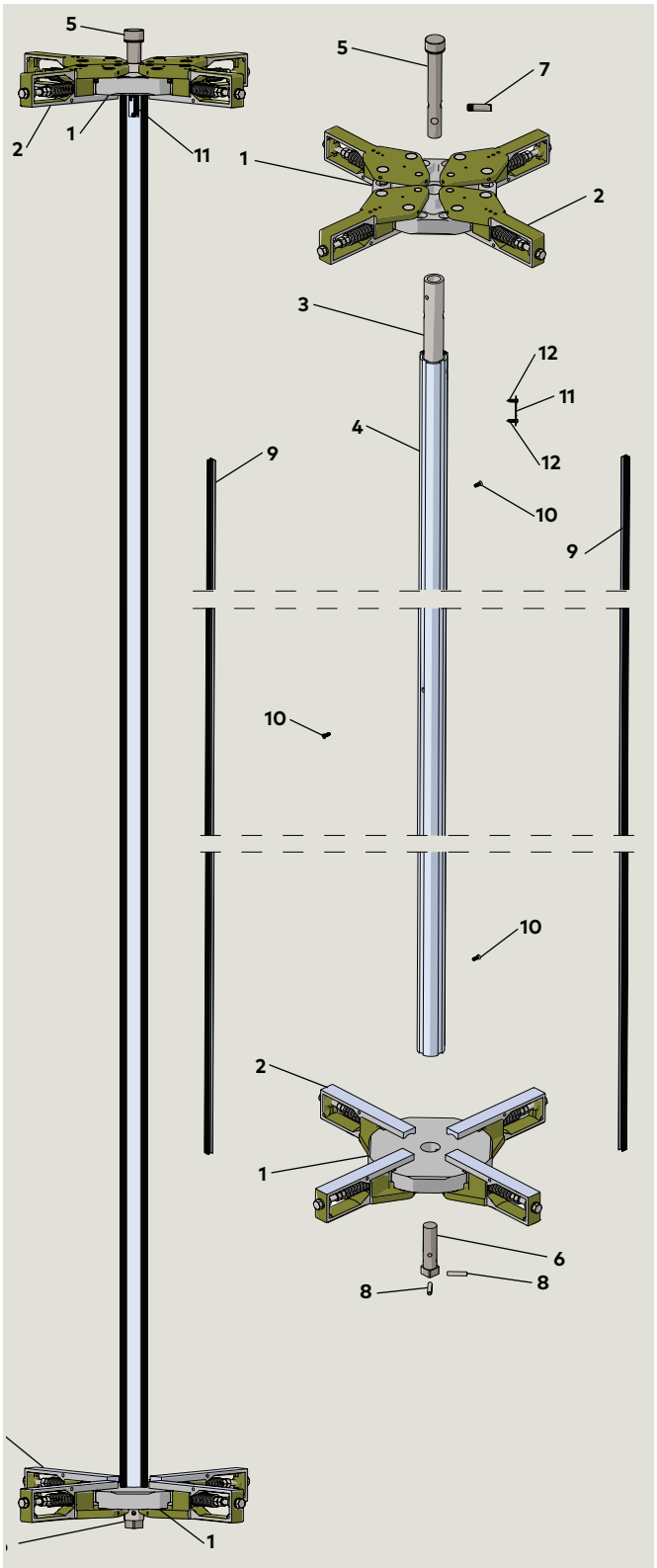


Table 7.7.1 RS6053-001 assemblies and parts

Part / Assembly		Description
1	RS6043-001	4 wing disc assembly
2	RS6045-001	Hanger assembly
3	RC6083-001	Steel center shaft, 4 wing, overhead speed control
4	RC6084-001	Steel shaft cover 4 wing
5	RC6081-001	Top plug, steel shaft, overhead bearing
6	RC6082-001	Bottom plug, steel shaft, floor in-ground speed control
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. 7.7.2 Shaft ID tag

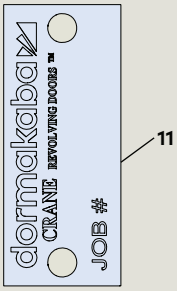


Fig. 7.7.3 Center shaft fasteners

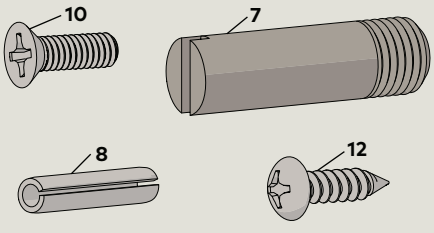


Fig. 7.7.4 Three wing center shaft RS6054-001

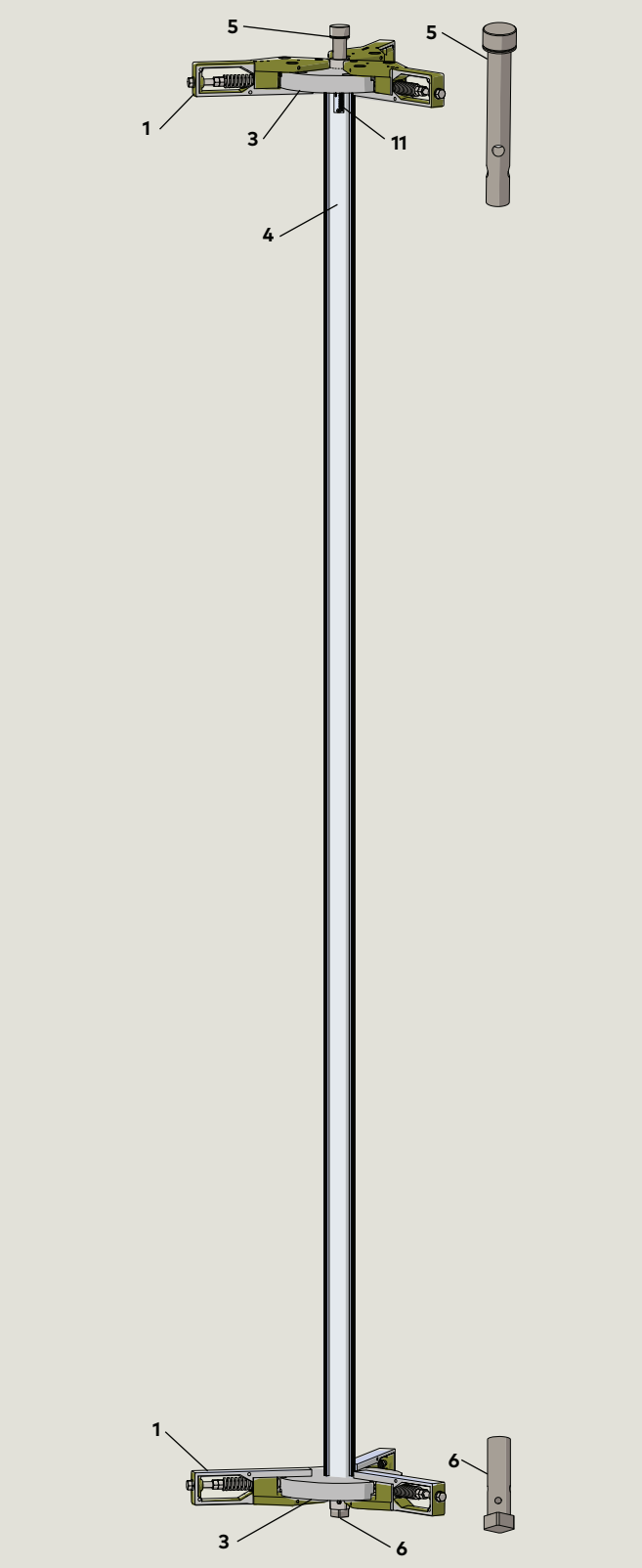
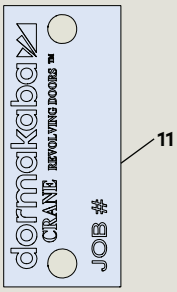


Table 7.7.2 RS6054-001 assemblies and parts

Part / Assembly		Description
1	RS6045-001	Hanger assembly
3	RS6044-001	3 wing disc assembly
4	RC6085-001	Steel shaft cover 3 wing
5	RC6081-001	Top plug, steel shaft, overhead bearing
6	RC6082-001	Bottom plug, steel shaft, floor in-ground speed control
11	RD6001-001	Shaft ID tag

Fig. 7.7.5 Shaft ID tag



7.8 Hanger assembly

Fig. 7.8.1 Centger shaft hanger assembly

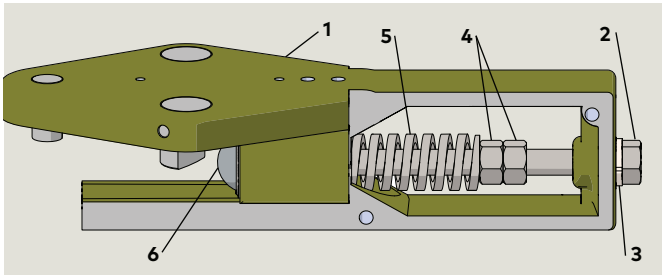


Table 7.8.1 RS6045 shaft hanger assemblies and parts

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

7.9 In-ground speed control assembly

Fig. 7.9.1 Floor speed control assembly

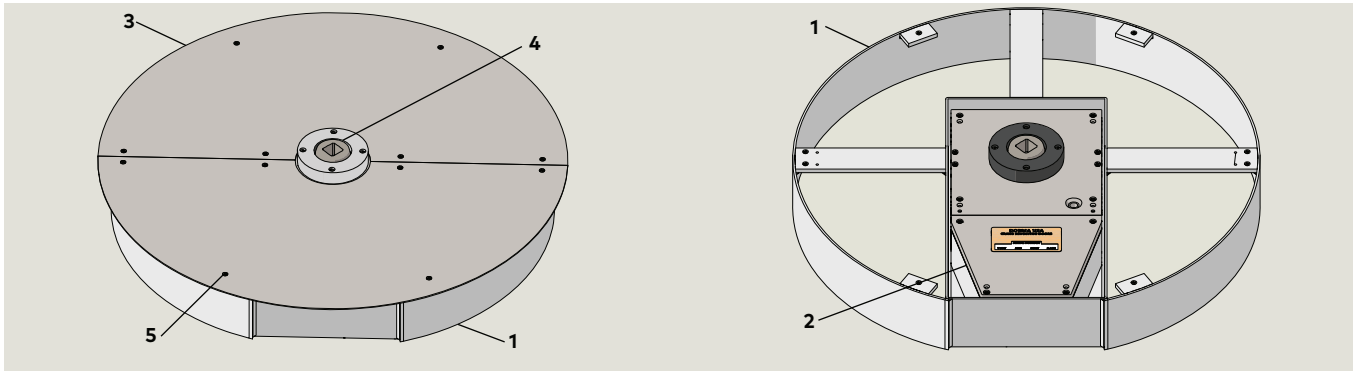


Fig. 7.9.2 Floor speed control assembly

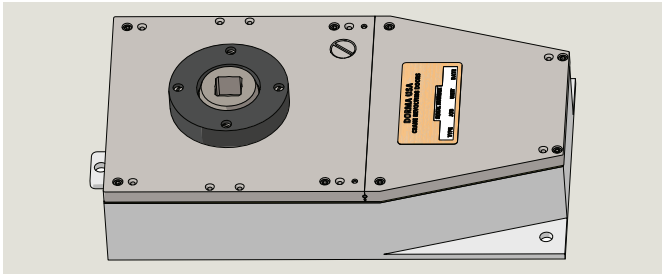


Table 7.9.1 RS6045 shaft hanger assemblies and parts

Part / Assembly		Description
1	RC6369-0X0	Round cement box
2	RS6074-010	Floor speed control assembly
3	RC6195--1X	Cover plate, floor speed control, 26 1/2"
4		Floor speed control drive shaft

7.10 Bookfold mechanism

Fig. 7.10.1 Bookfold mechanism

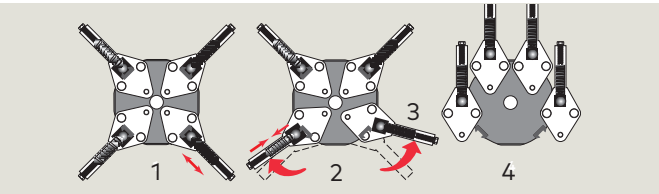
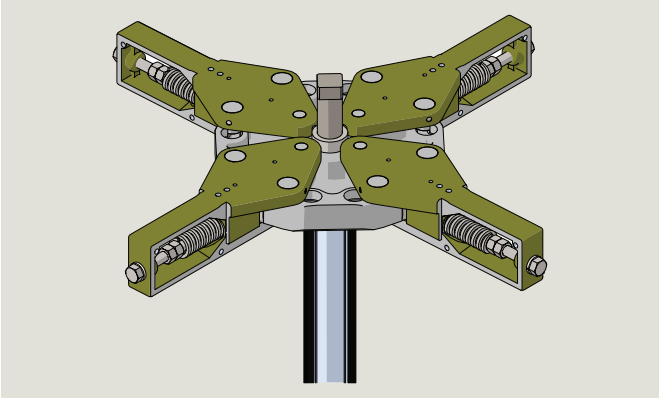


Fig. 7.10.2 4 wing hanger assembly



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 (Fig. 7.8.1).
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

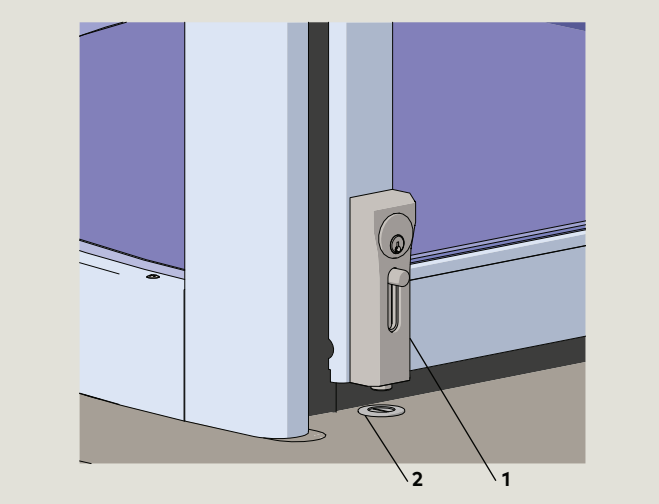


Fig. 7.11.2 Concealed lock

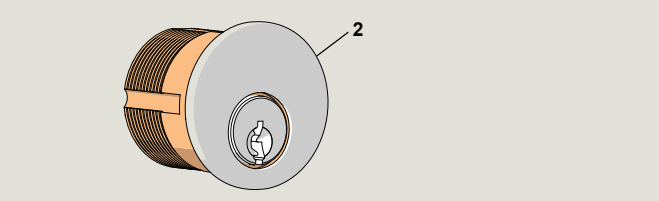


Table 7.11.1 Wing locks

Part / Assembly		Description
1	RC6259-010	Lock body assembly
2	RC625-0X0	Floor strike
3		Lock assembly 76019185

7.11.1 Type of wing locks.

1. Surface mounted (Fig. 7.11.1).
- Narrow, medium, wide and patch fit herc wings.

2. Concealed locks, mounted in rail (Fig. 7.11.2).
- Herc wings.

7.11.2 Factory installed.

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

9 Fastener hardware

9.1 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. 9.1.1 Canopy fastening hardware

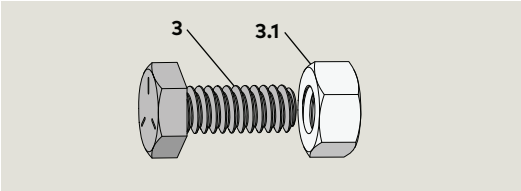


Fig. 9.1.3 Aluminum post to canopy fastening hardware

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

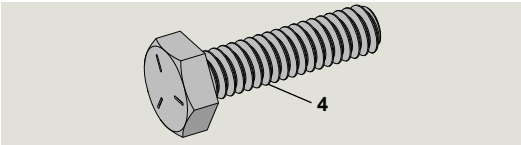


Fig. 9.1.4 Base assembly threaded rod

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

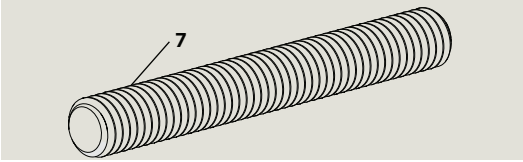


Fig. 9.1.5 Base to post fastening hardware

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

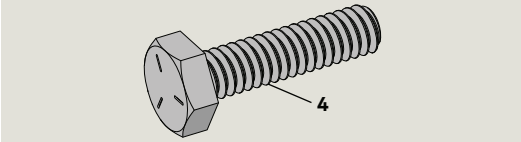


Fig. 9.1.6 Wing attachment hardware

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

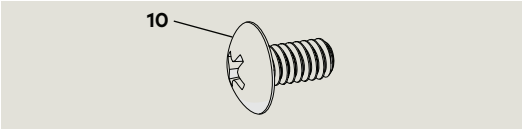
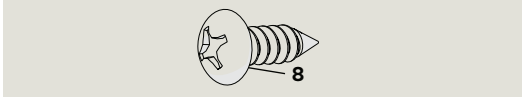


Fig. 9.1.7 Canopy cover fastener

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.

9.1.1 Canopy fastening hardware; canopy shipped in two sections.
- Fig. 9.1.1
- Reference Chapter 15.

9.1.3 Aluminum post to canopy fastening hardware.
- Fig. 9.1.3
- Reference Chapter 16.

9.1.4 Base assembly floor threaded rods.
- Fig. 9.1.4
- Reference Chapter 17.

9.1.5 Base to post fastening hardware.
- Fig. 9.1.5
- Reference Chapter 17.

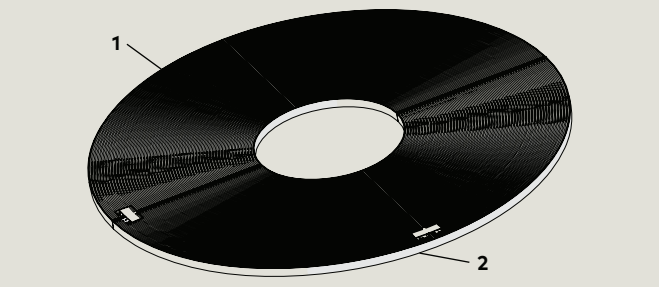
9.1.6 Wing to center shaft hanger fastening hardware.
- Fig. 9.1.6
- Reference Chapter 24 and 25.

9.1.7 Canopy cover fastening hardware.
- Fig. 9.1.7
- Reference Chapter 15.

10 Optional assemblies

10.1 Floor grill and pan assembly

Fig. 10.1.1 Floor grill and pan assembly



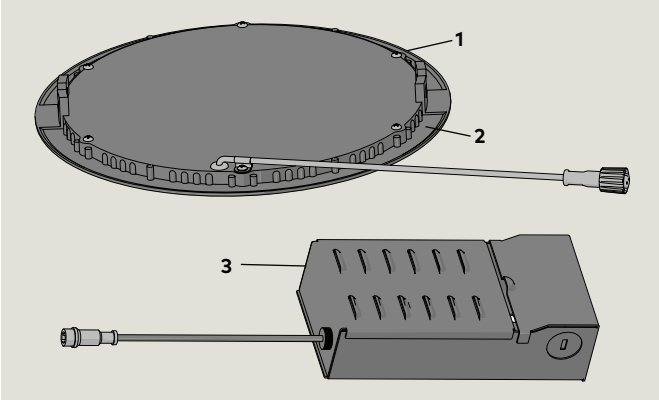
1 Floor grill
2 Pan

10.1.1 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.

10.2 Ceiling light with LED driver

Fig. 10.2.1 LED light fixture and junction box



10.2.1 Ceiling light with LED driver.

- Reference Chapter 15 for LED light installation and wiring.

Table 10.2.1 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)

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. 112.2 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).

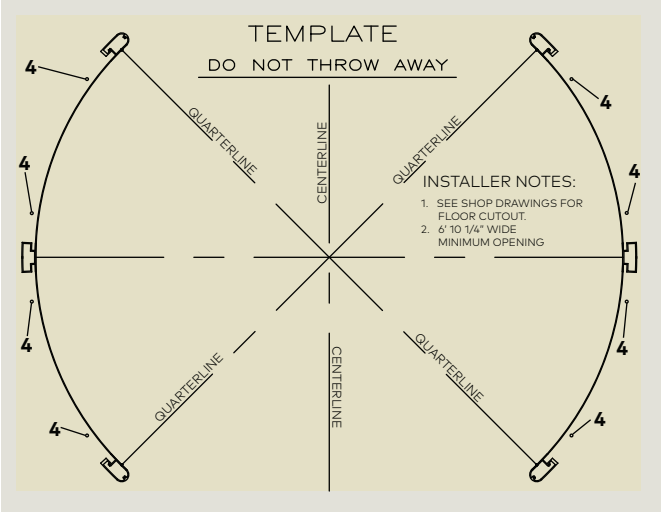
NOTICE

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

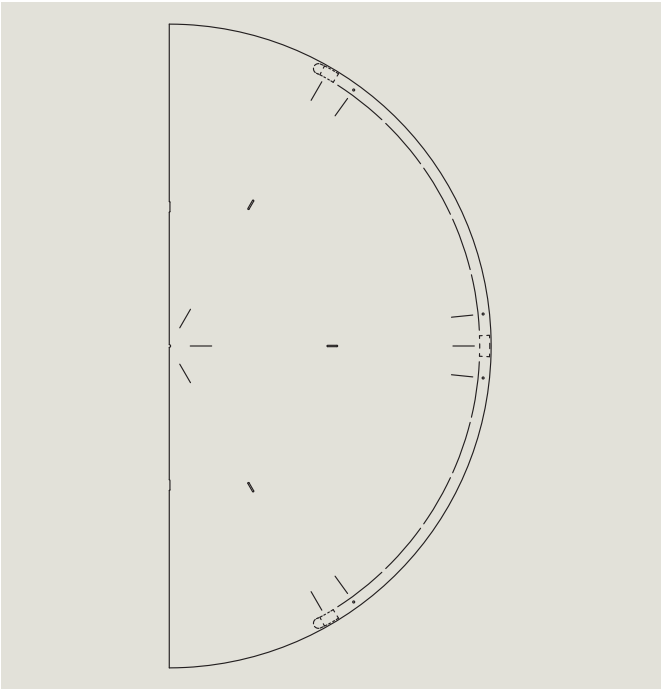
13.1 Installation template

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, install in-ground speed control

14.1 Mark door position on floor using template

14.1.1 Position floor template.

1. Position template at door centerpoint and orient template to building interface.
- Verify floor cutout diameter of 25 1/2".

CAUTION

Door centerpoint.
Use door 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!

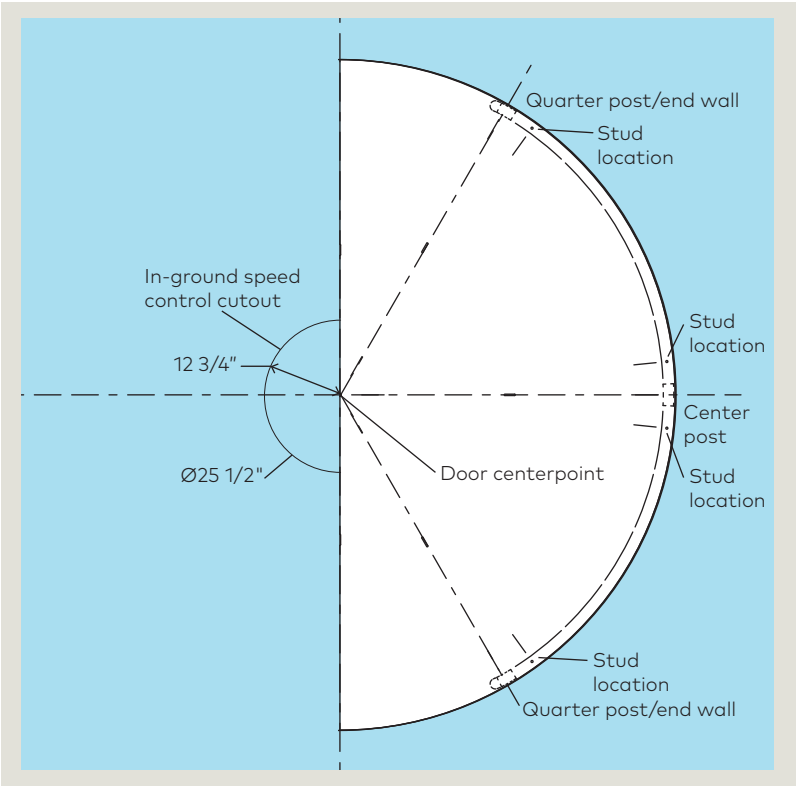
NOTICE

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.

Fig. 14.1.1 Template placed on floor



14.1.3 Mark perimeter of speed control cutout on floor.

NOTICE

Refer to Crane Shop Drawings for in-ground speed control installation.

NOTICE

- If floor cutout is not present, mark perimeter of circular cutout as shown in Fig. 15.1.2 and 15.1.3.
- Contractor note: provide Ø25 1/2"" x 3 13/16"" deep circular cutout to accept floor mounted speed control.

Fig. 14.1.2 In ground speed control floor cutout

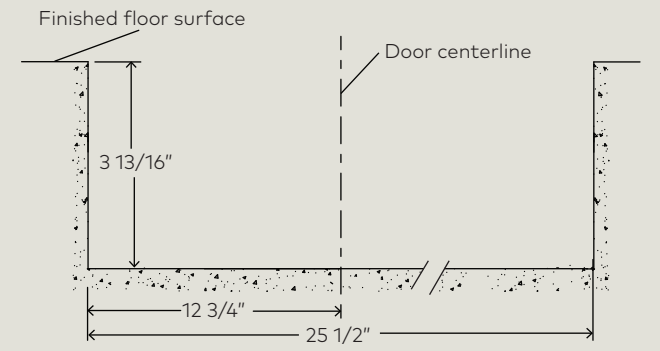
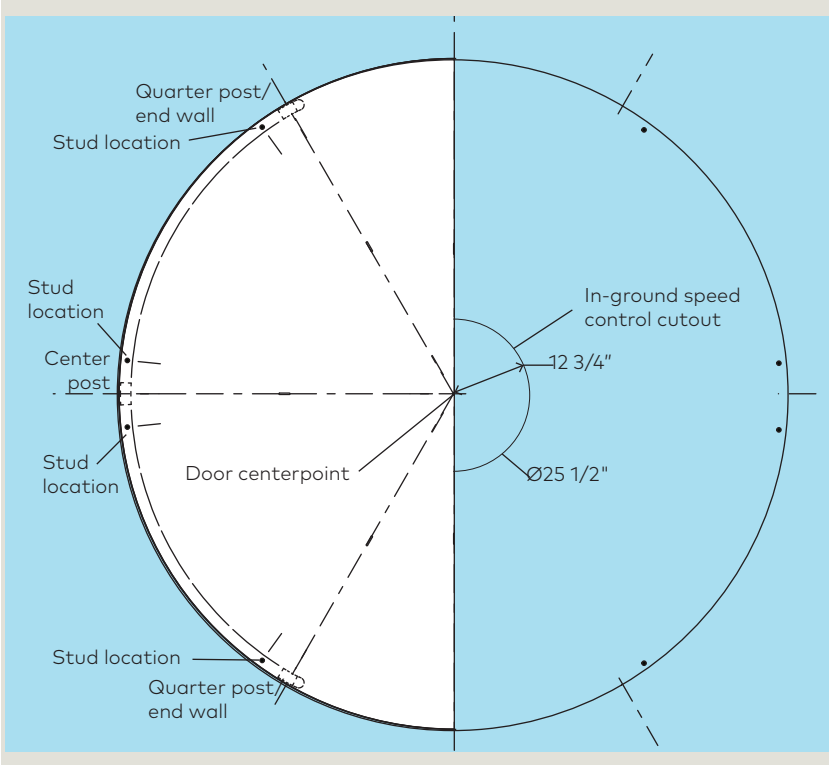


Fig. 14.1.3 Template position reversed on floor



14.1.4 Reverse template position on floor.

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

14.1.5 Mark lines on floor.

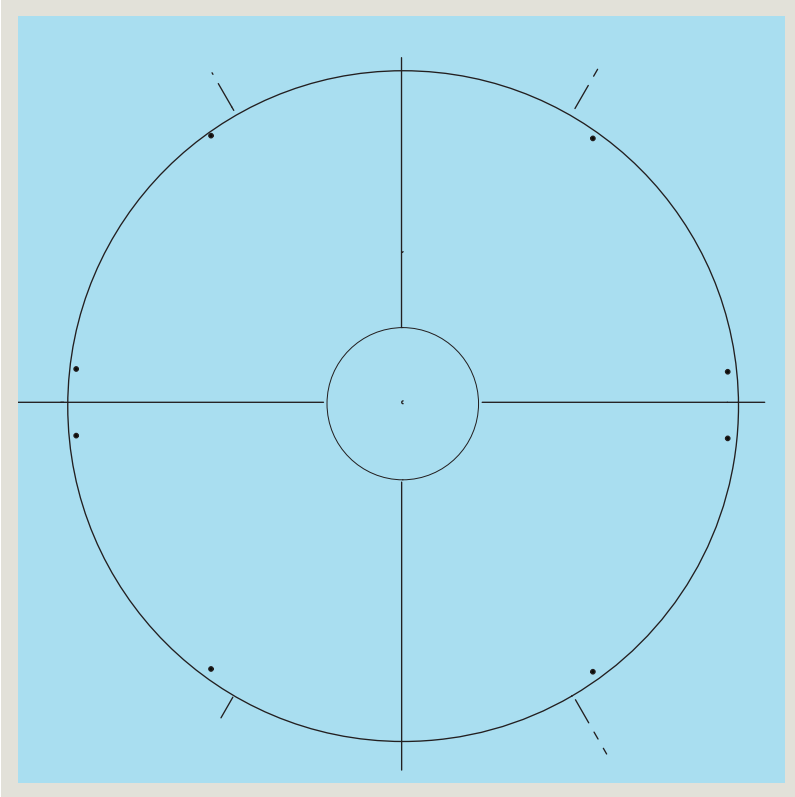
1. Draw door centerlines.
2. Mark quarter post and center post lines.
3. Mark mounting base stud locations.
4. Trace door outside radius.

14.1.6 Remove template.

1. Remove template.

14.2 Drill 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 Install in-ground speed control in floor cutout

1 Collar
2 Drive shaft

Fig. 14.3.1 In-ground speed control

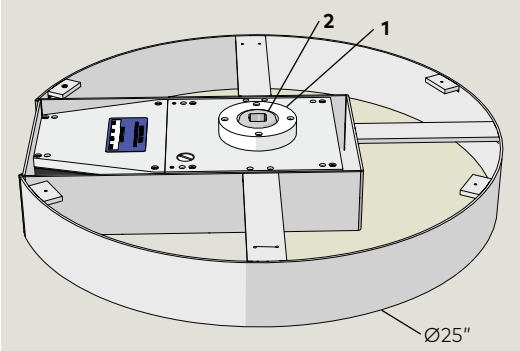
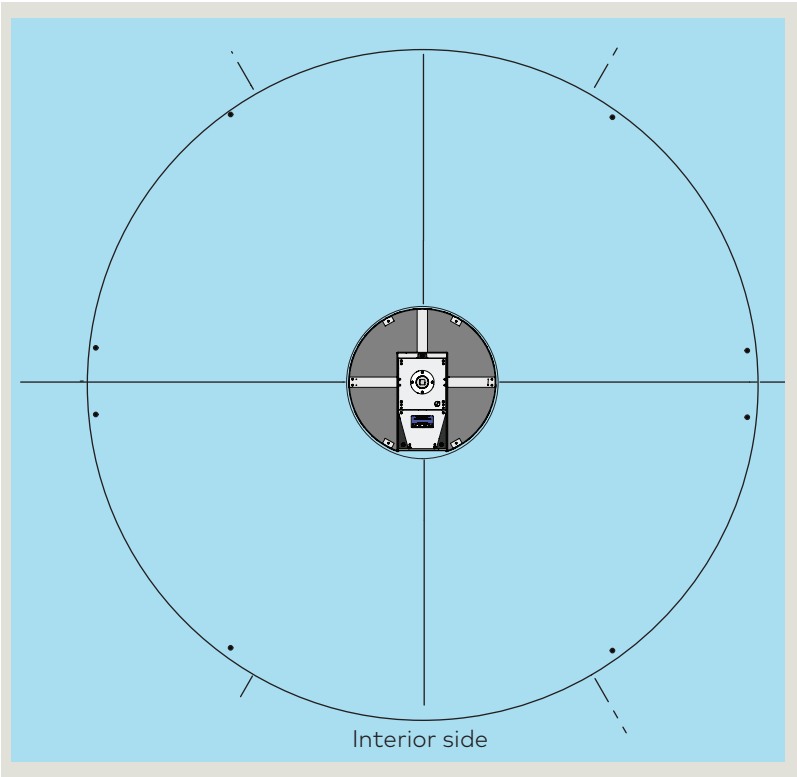


Fig. 14.3.2 In-ground speed control in floor cutout



14.3.1 Verify floor cutout location and dimensions.

1. Verify floor cutout location in floor (Para. 14.1) and dimensions (Fig. 14.1.2).

14.3.2 Set cement case height, center speed control drive shaft at door centerpoint.

1. Shim cement case in floor cutout until top of case is flush with finished floor surface. Position in-ground speed control collar at door centerpoint location (Figs. 14.3.1 and 14.3.2).

CAUTION

- **Cement case must be level, plumb and flush with finished floor surface.**
- **Speed control drive shaft must be positioned at door centerpoint.**

14.3.3 Fill floor cutout with non-shrink grout.

1. Fill floor cutout with non-shrink grout to finished floor surface.

CAUTION

Use non-shrink grout.

CAUTION

Follow grout installation instructions.

NOTICE

Recheck speed control collar is at door centerpoint.

2. Allow grout to set before proceeding.

Fig. 14.3.3 In ground speed control installed in floor cutout

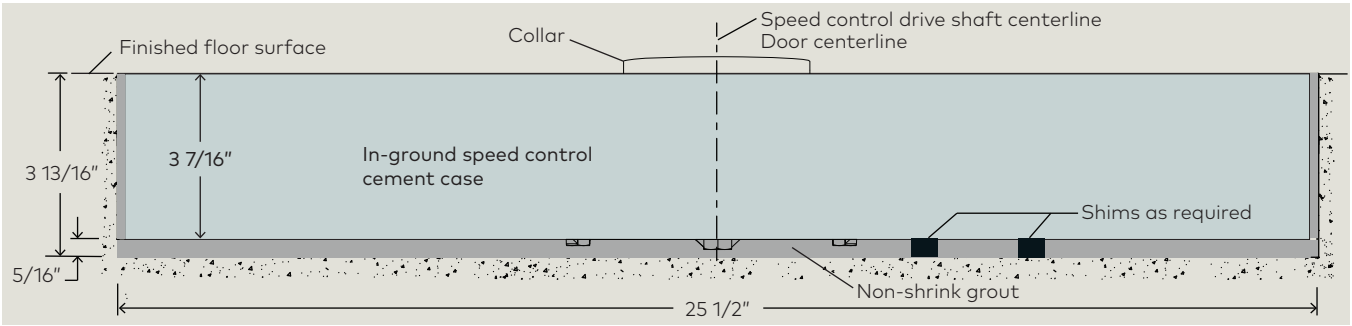
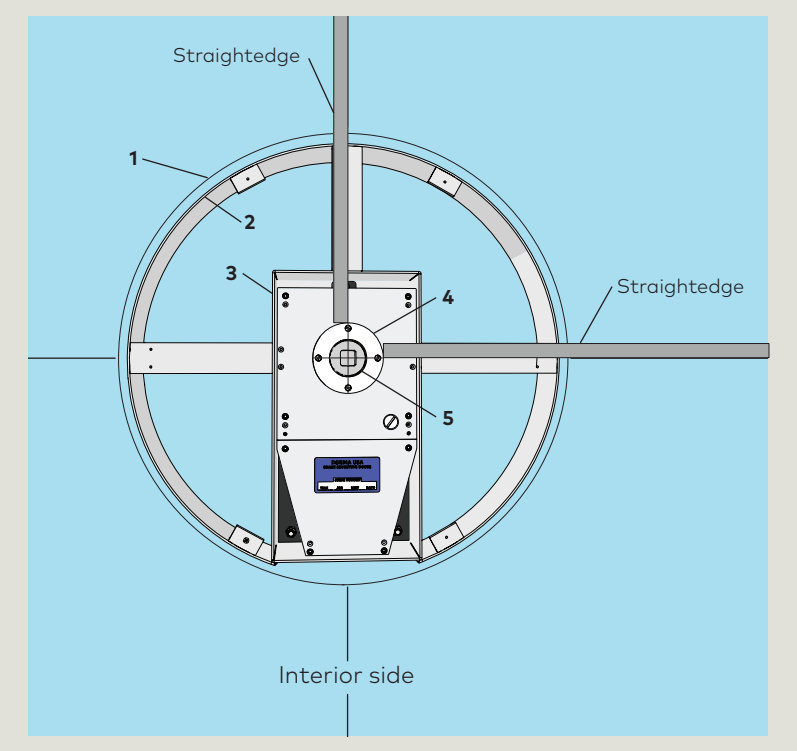
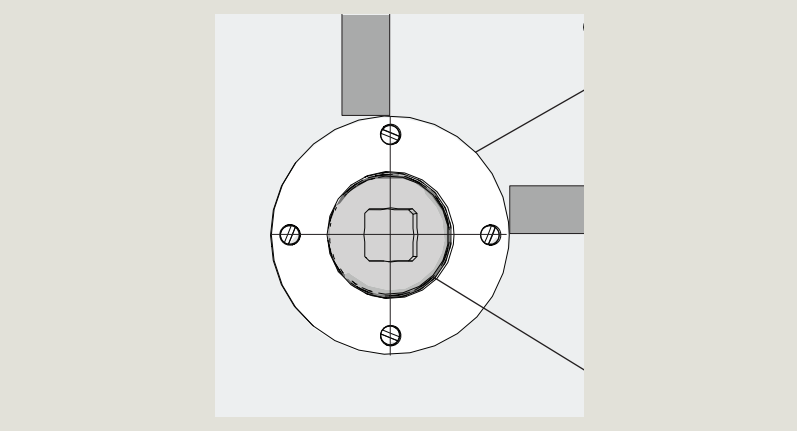


Fig. 14.3.4 In-ground speed control detail



1 Floor cutout
2 Cement case
3 Speed control
4 Drive shaft collar
5 Drive shaft

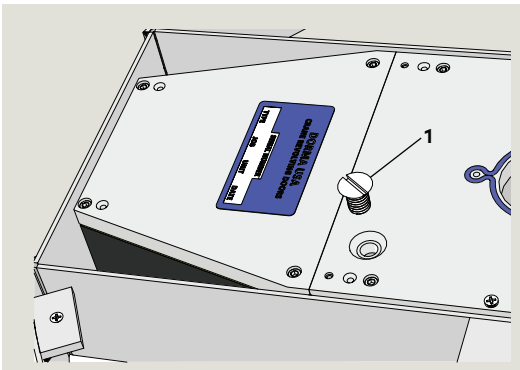
Fig. 14.3.5 Speed control collar, drive shaft



14.4 Add oil to speed control gearcase

1 1/2" slotted flat head machine screw - undercut

Fig. 14.4.1 Oil fill hole



14.4.1 Add oil to speed control gearcase.

1. Oil fill hole: remove 1/2" slotted flat head machine screw (4) from sub plate.
2. Pour entire contents of bottle into oil fill hole.
3. Replace machine screw.

CAUTION

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

15 Canopy assembly and installation

15.1 3 section canopy shipped as single assembly, under 8 feet 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' to 9' O.D. are shipped in two sections. Reference Para. 15.3.

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 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 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.

15.1.5 Canopy light wiring (optional).

1. Plan for canopy light wiring before canopy is installed. See Para. 15.4.

15.1.6 Raise canopy in place.

1. Go to Para. 15.3.

Fig. 15.1.1 RS6059 Canopy assembly, cover view

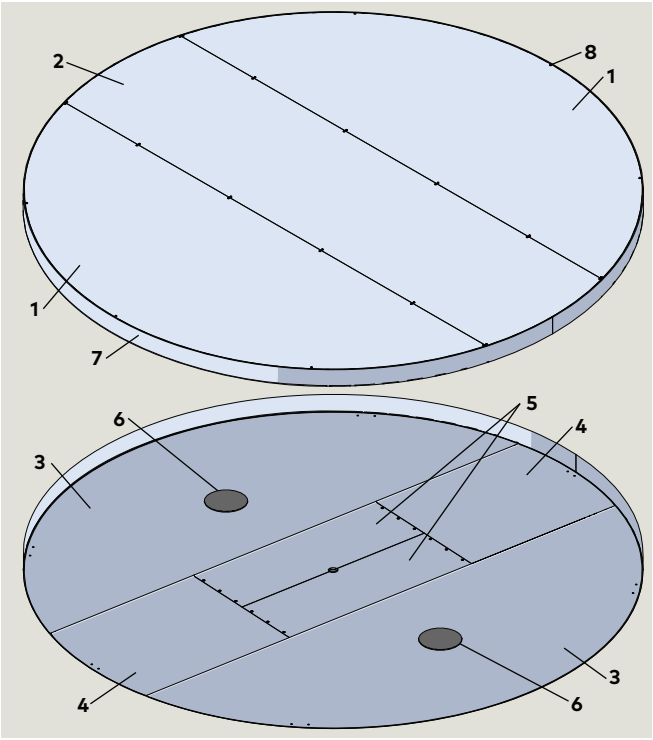


Table 15.1.1 RS6059 3" canopy assembly with bearing

Part / Assembly		Description
1		Cover, outer
2		Cover, inner
3		Soffit, outer section
4		Soffit, outer center section
5		Soffit, inner center section
6	RC7030-001	LED light fixture (option)
7		Fascia
8	RF3016-01Z	#8 x 1/2" Phillips pan head sheet metal screw

Fig. 15.1.2 #8 x 1/2" PPHMS

15.2 Canopy bearing assembly

Fig. 15.2.1 Canopy, covers removed

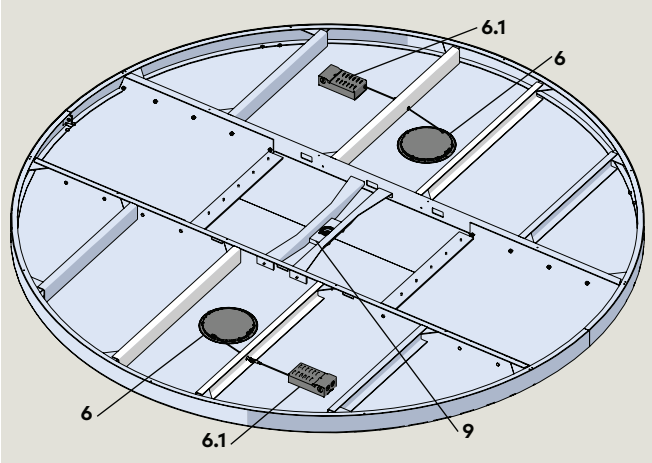


Fig. 15.2.2 Canopy bracket and bearing assembly

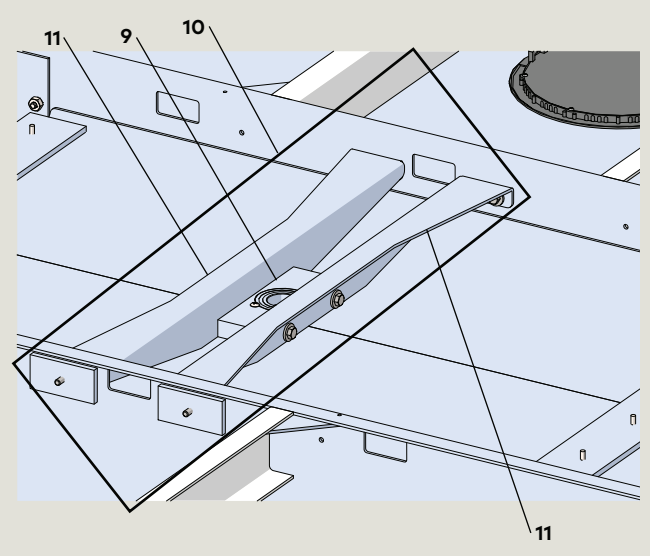
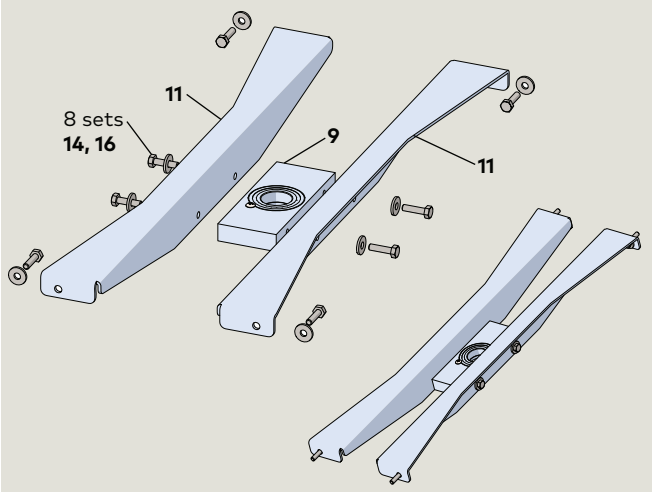


Fig. 15.2.3 Canopy bracket and bearing assembly RS6087



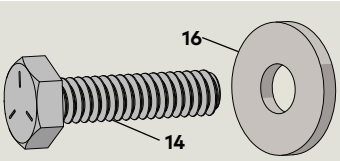
15.2.1 Canopy bearing assembly used with in-ground speed control.

1. Canopy is typically shipped with bearing and bracket assembly installed (Fig. 15.2.1).

Table 15.2.1 3" canopy assembly with bearing

Part / Assembly		Description
6	RC7030-001	LED light fixture (option)
6.1	RC7032-001	LED junction box.LED driver (option)
9	RS6064	Bearing assembly
10	RS6087	Bearing and bracket assembly
11	RC6395	Bracket, ground speed control
14	RF6055-02G	1/4-20 x 1" hex head bolt
16	RF6056-01G	1/4 x 3/4" OD flat washer

Fig. 15.2.4 Canopy bracket and bearing assembly RS6087 fasteners



15.3 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 1/2" long pan head sheet metal screws (Fig. 15.3.3) 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.

15.3.4 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.

15.3.5 Canopy light wiring.

1. Plan for canopy light wiring before canopy is installed. See Para. 15.4.

15.3.6 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. 15.3.2).

Fig. 15.3.1 RS6059 Split canopy sections

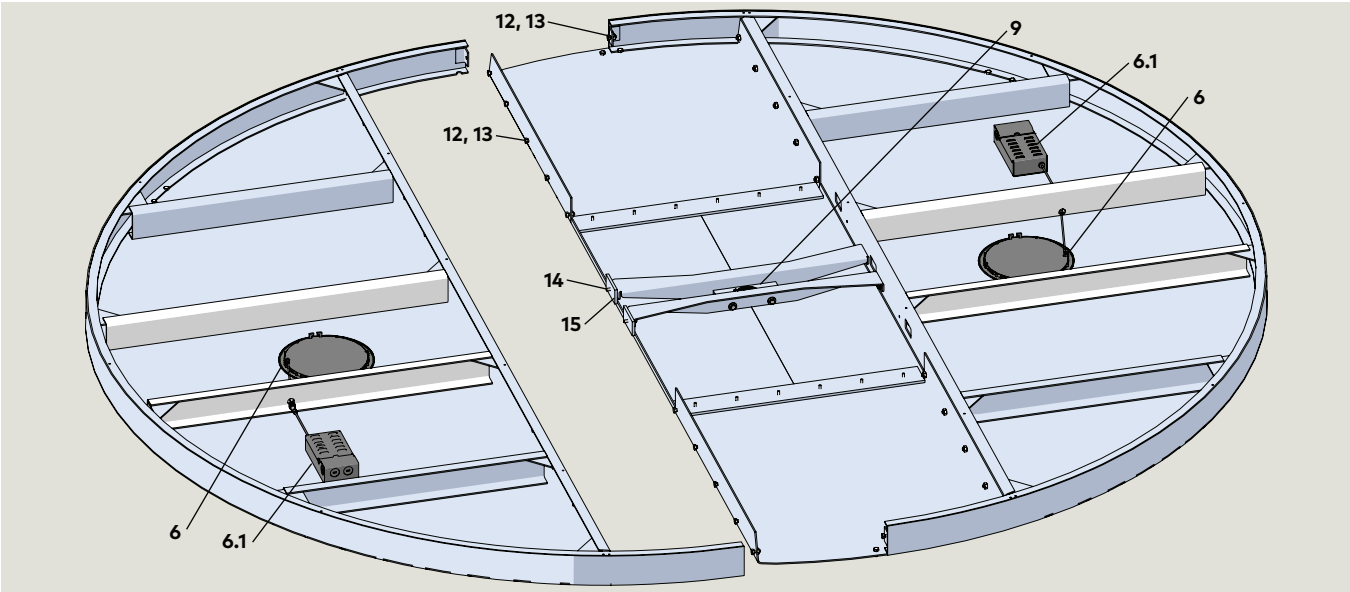


Fig. 15.3.2 Canopy fastening hardware

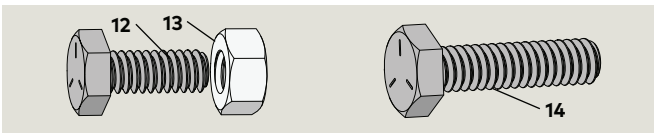


Fig. 15.3.3 #8 x 1/2" PPHMS

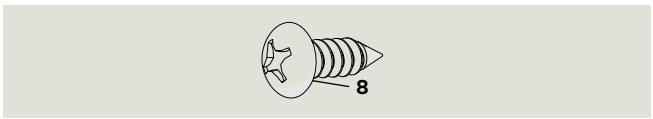


Table 15.3.1 3" canopy assembly with bearing

Part / Assembly		Description
6	RC7030-001	LED light fixture (option)
6.1	RC7032-001	LED junction box.LED driver (option)
9	RS6064	Bearing assembly
12	RF6055-01G	1/4-20 x 5/8" hex head bolt
13	RF5121-01G	1/4-20 hex nut
14	RF6055-02G	1/4-20 x 1" hex head bolt
15		Mounting support plate

Fig. 15.3.4 Assembled canopy

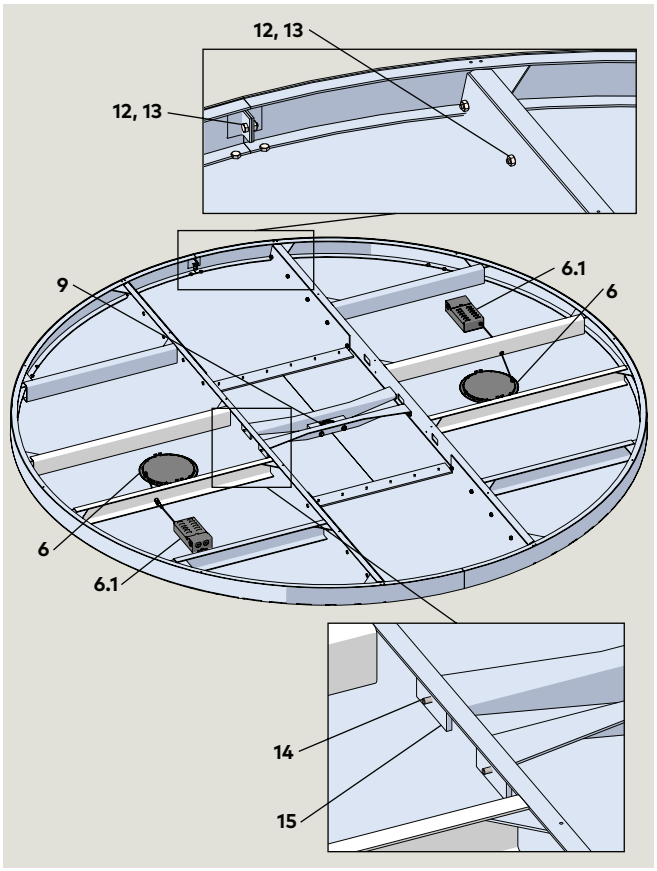


Fig. 15.3.5 Canopy fastening hardware

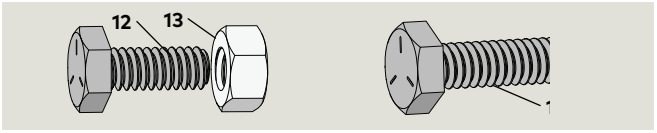


Fig. 15.3.6 Bracket fastening hardware

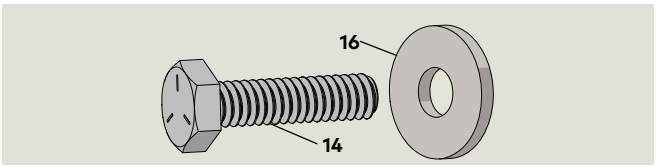


Table 15.3.2 3" canopy assembly with bearing

Part / Assembly		Description
6	RC7030-001	LED light fixture (option)
6.1	RC7032-001	LED junction box.LED driver (option)
9	RS6064	Bearing assembly
12	RF6055-01G	1/4-20 x 5/8" hex head bolt
13	RF5121-01G	1/4-20 hex nut
14	RF6055-02G	1/4-20 x 1" hex head bolt
15		Mounting support plate

15.4 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!

15.4.1 Move canopy to approximate door centerpoint.

1. Position canopy at door centerpoint, orienting canopy to building interface (Para. 14.1).

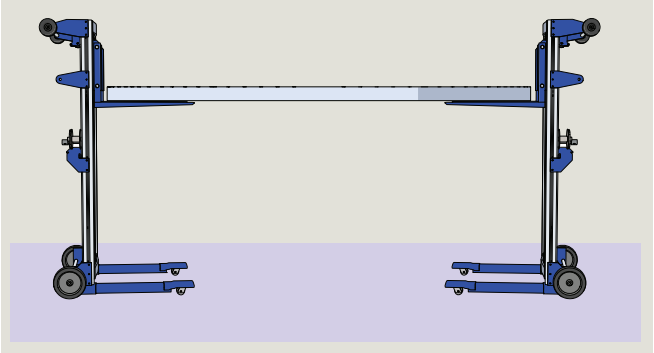
WARNING

A minimum of two persons are required when handling canopy!

WARNING

Use caution when handling canopy!

Fig. 15.4.1 Canopy on lift equipment example



15.4.2. 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!

15.4.3 Raise canopy to installation height.

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

WARNING

Use caution when raising canopy!

15.5 Canopy light wiring, LED fixtures

Table 15.5.1 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. 15.5.1 LED light fixture and junction box

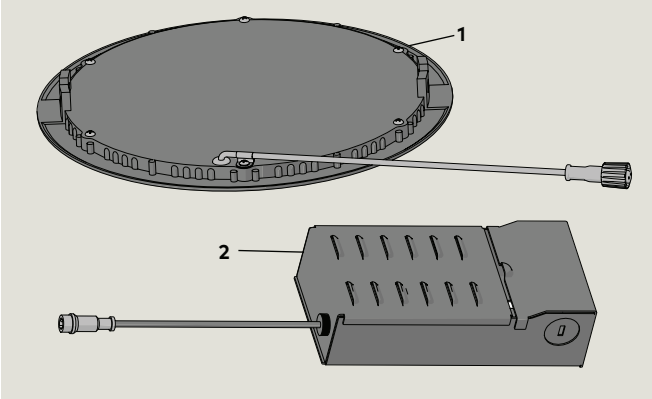
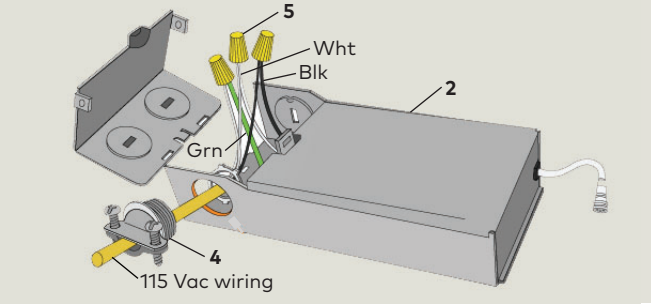


Fig. 15.5.2 115 Vac wiring to LED driver



15.5.1 LED light fixtures (option).

- Each light is supplied with an LED driver (Fig. 15.5.1).
- 3 and 4 wing canopies: two LED lights.

15.5.2 LED light installation.

- Lights are factory installed.

15.5.3 LED driver installation.

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

15.5.4 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. Spice cable wires to LED driver 115 Vac wiring inside driver junction box using 3 wire nuts supplied with driver.

15.5.5 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.

15.5.6 115 Vac wiring to customer lighting circuit.

1. Customer must supply 115 Vac lighting power to junction box (Para. 15.5.5).

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

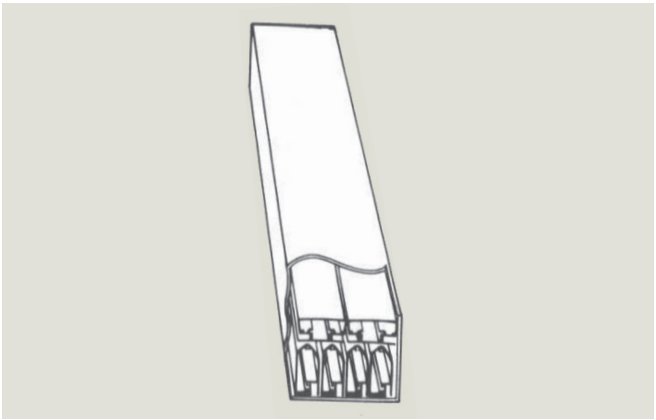
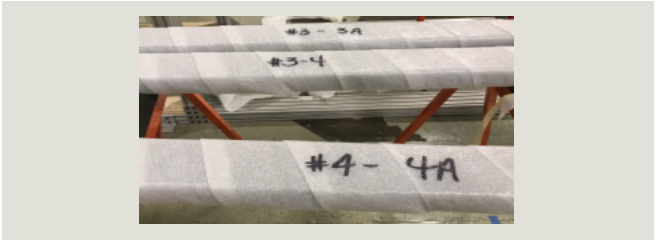


Fig. 16.2.2 Enclosure post numbering



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

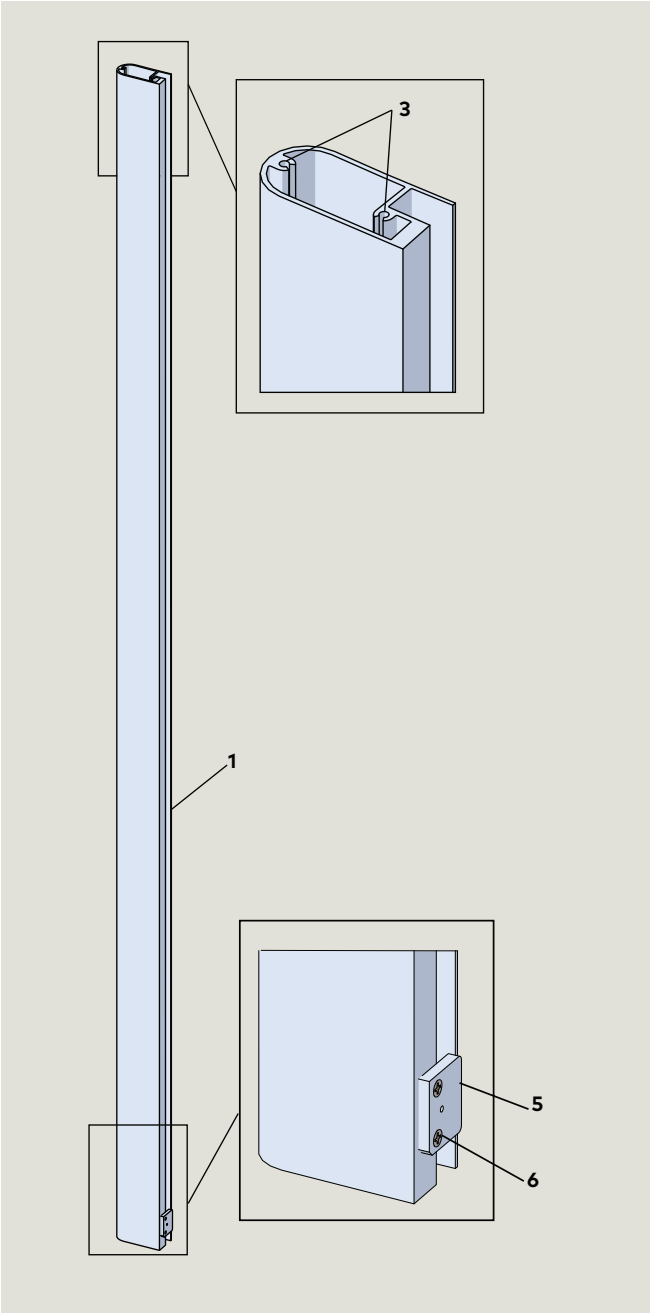
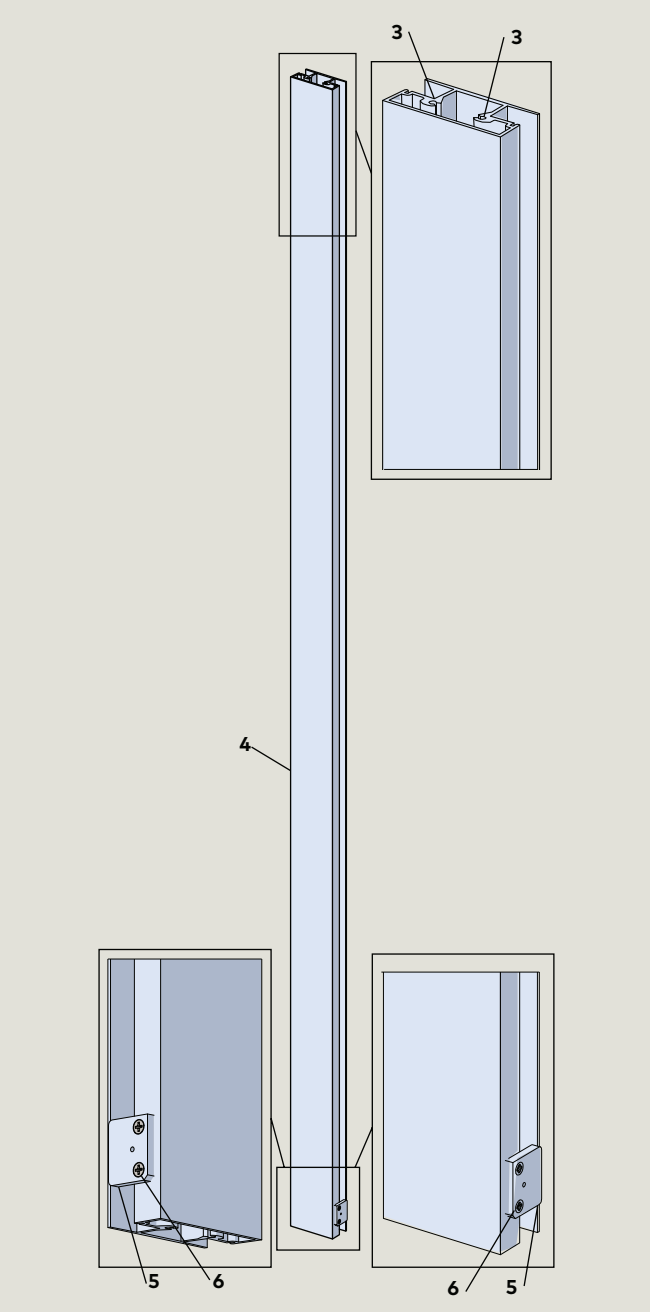


Fig. 16.3.2 Center post



16.4 Attach posts to canopy

Fig. 16.4.1 Quarter post canopy fasteners

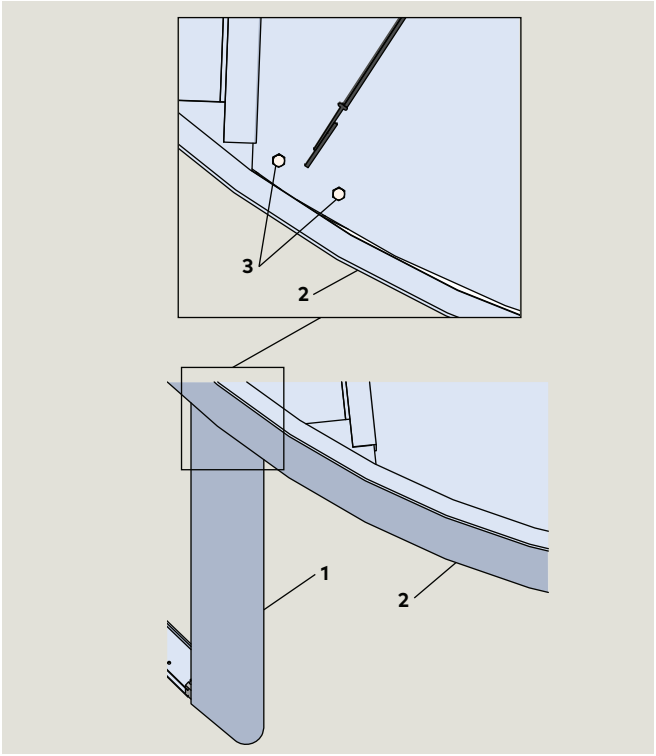


Fig. 16.4.2 Center post canopy fasteners

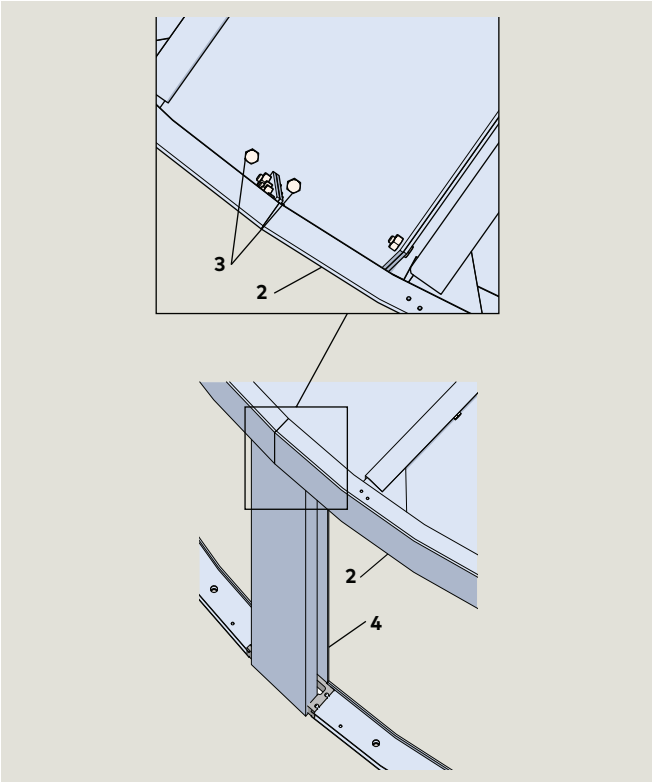


Table 16.4.1 Quarter post and center post fasteners

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.

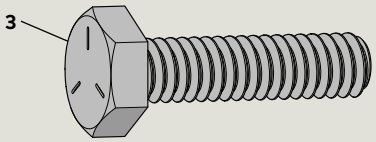
WARNING

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

TIPS AND RECOMMENDATIONS

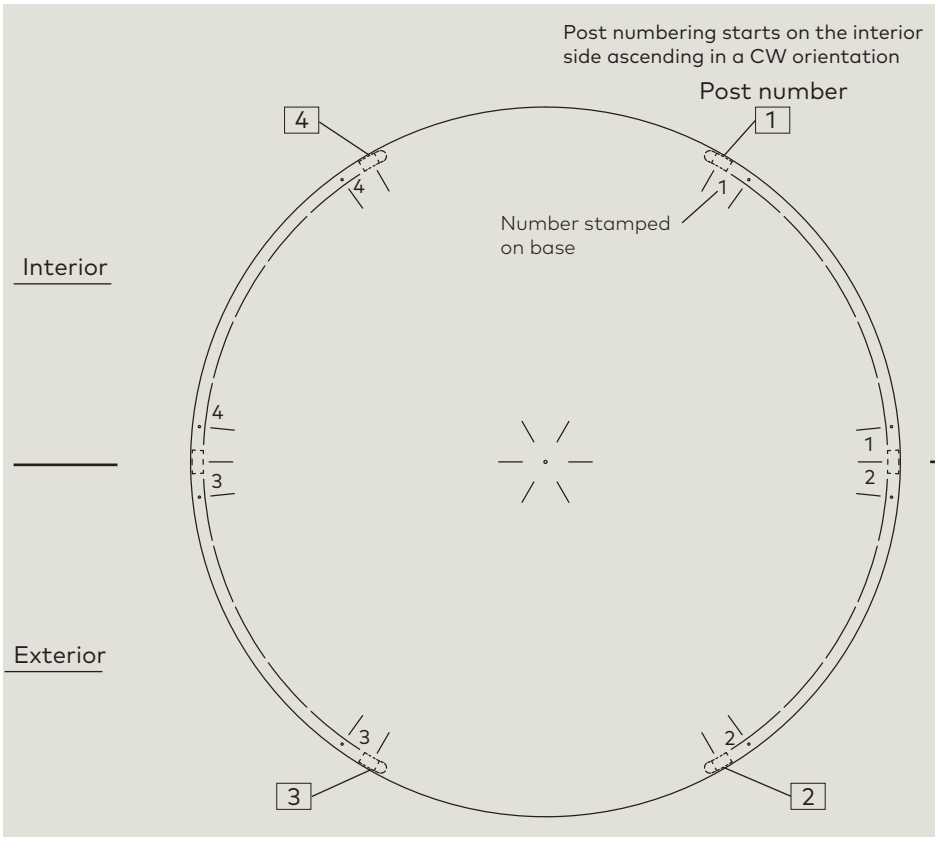
Hex head screws packaged in center shaft shipping crate
(See Chapter 11).

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 example

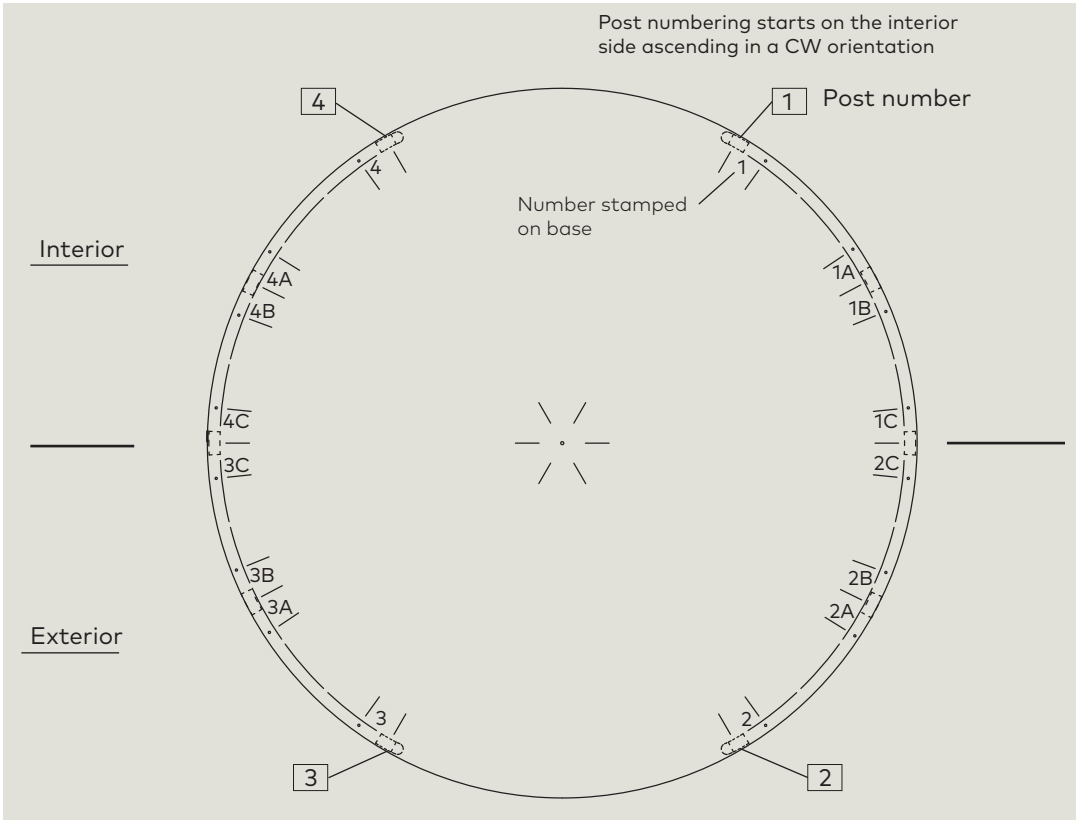


16.5.1 Post numbering, multiple revolving door installation.

Table 16.5.1 Post numbering

Door 1	Post numbers			
	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 example



17 Enclosure base installation

17.1 Enclosure base

NOTICE

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

NOTICE

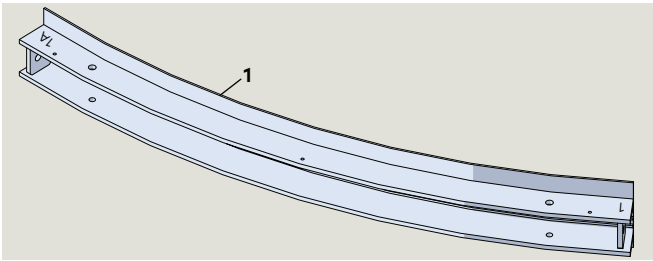
Stainless steel base installation.
Refer to Crane shop drawings for stainless steel base installation detail.

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

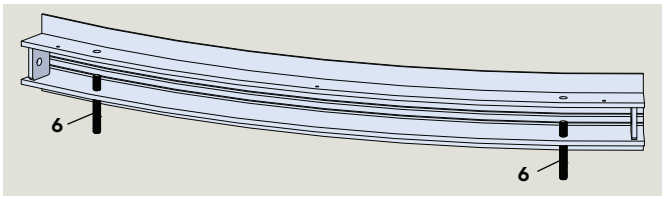


Fig. 17.3.2 S21 0334

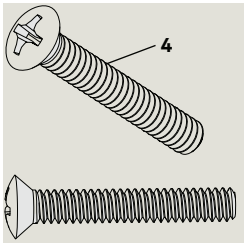


Fig. 17.3.3 Spacer

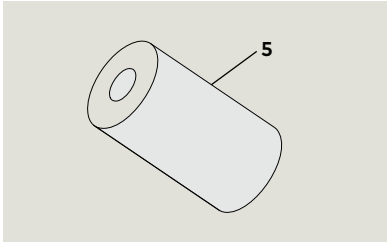


Fig. 17.3.4 HHMS

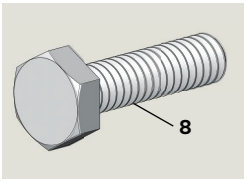
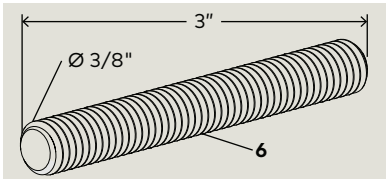


Fig. 17.3.5 3" threaded rod



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. 17.3.1), 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. 17.3.6 Aluminum enclosure base and cover assembly example

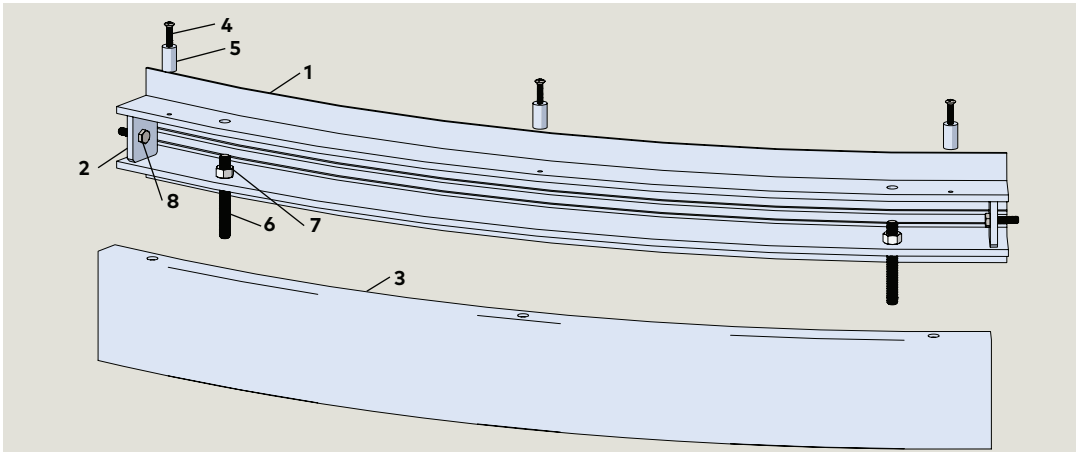
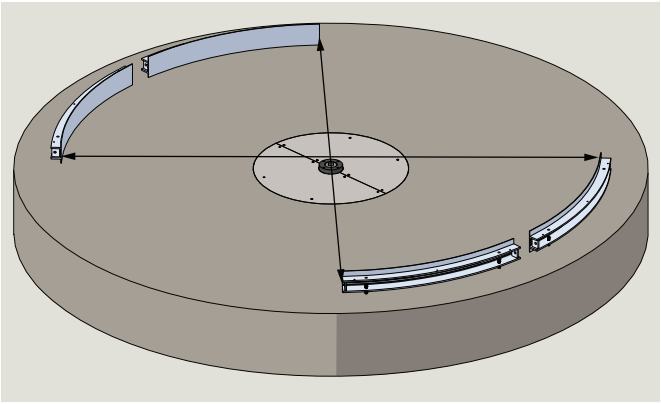


Fig. 17.3.7 Bases installed on floor



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

Fig. 17.4.1 Bases attached to center post

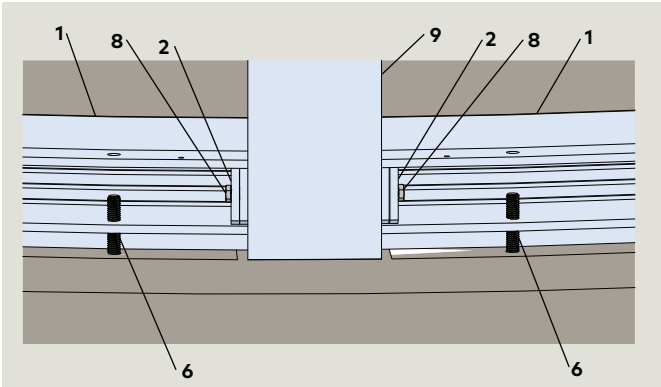
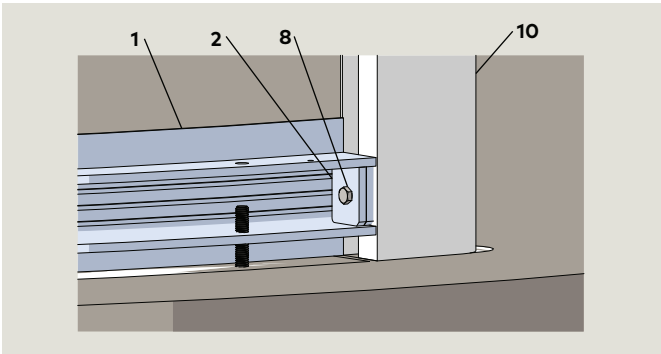


Fig. 17.4.2 Base attached to quarter post



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.

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.

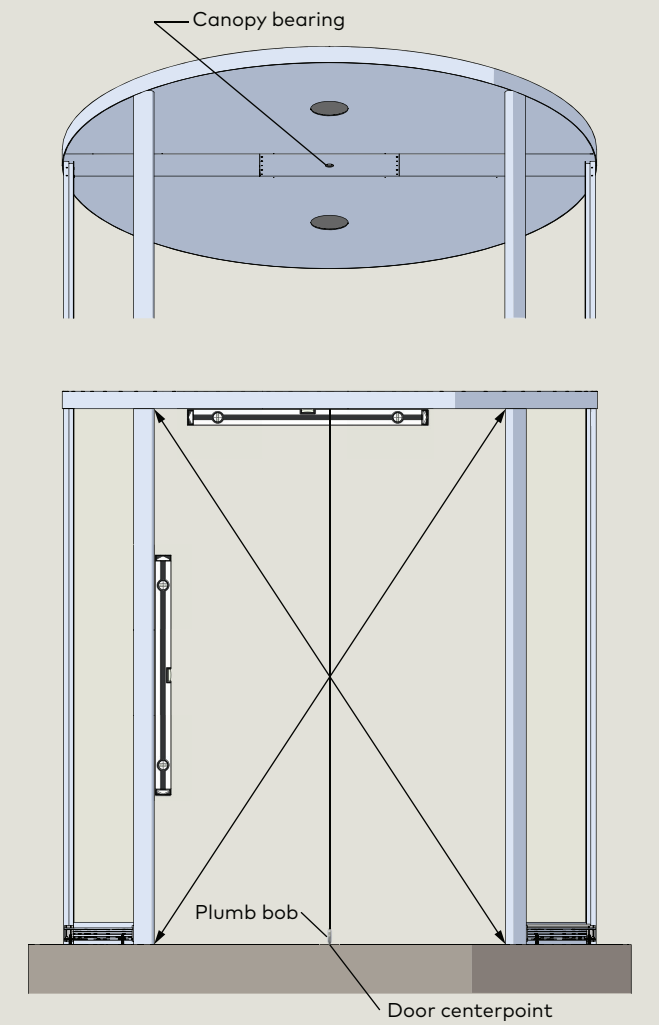
- Snug, do not tighten fasteners.

TIPS AND RECOMMENDATIONS

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

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!

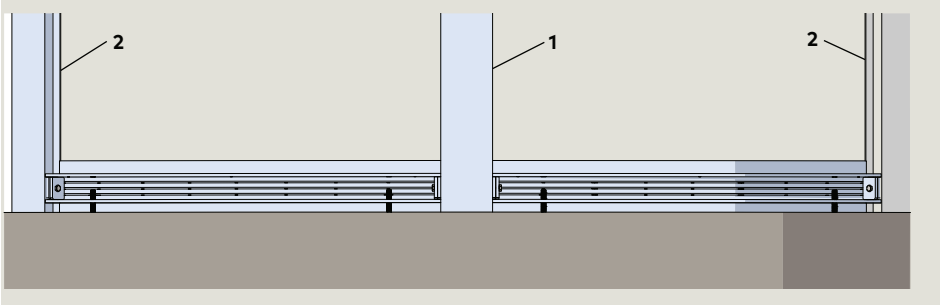
⚠ WARNING

Using plumb bob with string, verify canopy bearing 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



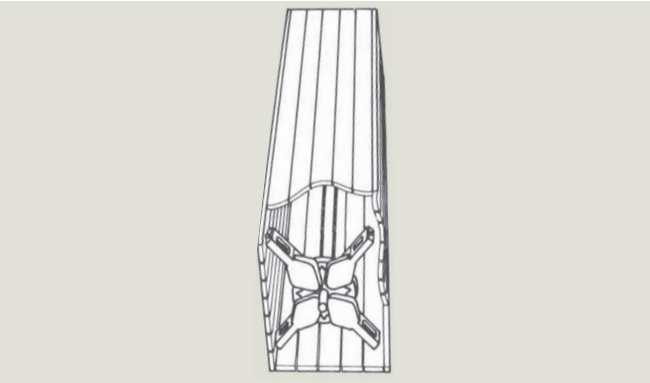
1 Center post
A32 1002

2 Quarter post
A32 1004

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

Fig. 18.1.2 3 wing center shaft assembly

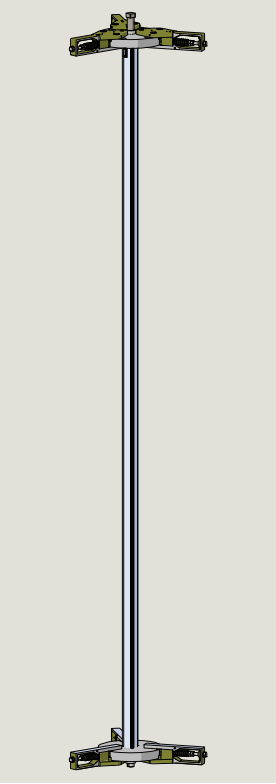
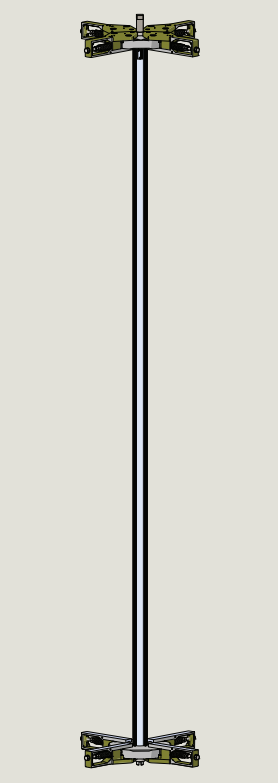


Fig. 18.1.3 4 wing center shaft assembly



19 Reserved

20 Center shaft installation

20.1 Install center shaft

Table 20.1.1 Top of center shaft parts

Part / Assembly		Description
1	RC6081-001	Top plug, floor speed control
2		Steel shaft cover
3	RD6001-001	Nameplate, job number tag
4	RF6008-01G	#6 x 1/2" Phillips pan head screw
5	RF6052-010	Steel shaft cross pin

Fig. 20.1.1 Center shaft top plug

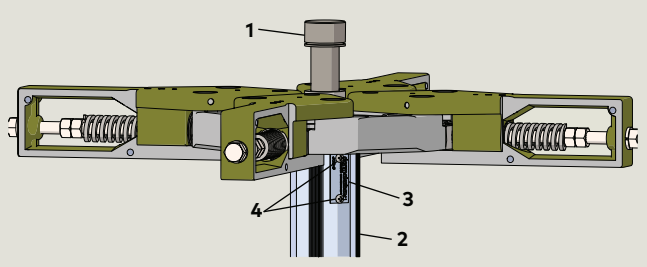


Fig. 20.1.2 Nameplate removed

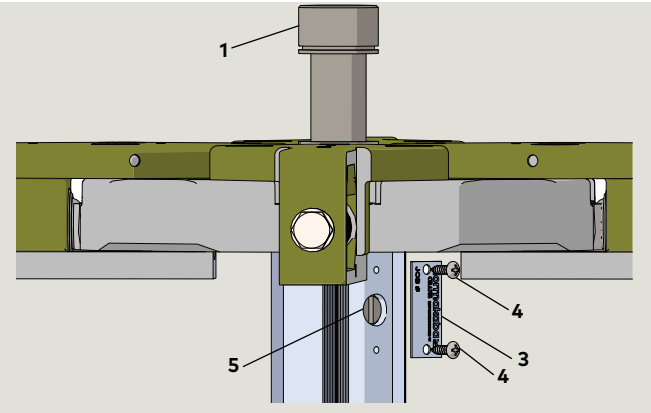
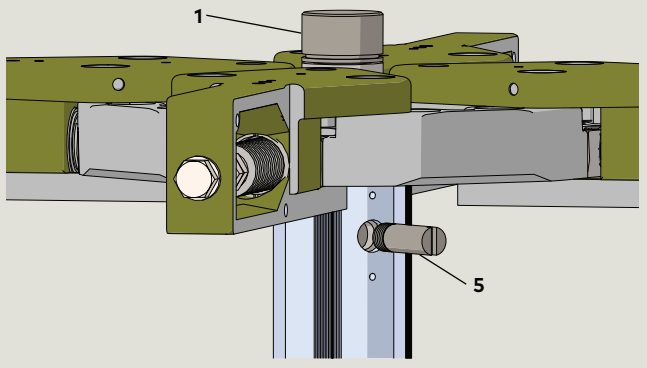


Fig. 20.1.3 Top plug lowered against steel center shaft



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

TIPS AND RECOMMENDATIONS

Apply anti-seize lubricant to top plug shaft.

3. Lower top plug until round portion of plug is against steel center shaft
(Fig. 20.1.3).
4. Snug cross pin against top plug.

20.2 Install center shaft bottom plug into speed control drive shaft

Table 20.2.1 center shaft bottom plug, in ground speed control drive shaft

Part / Assembly		Description
1		Steel shaft cover
2	RC6082-001	Bottom plug, floor speed control
3	RD6001-001	In-ground speed control drive shaft

Fig. 20.2.1 Center shaft bottom plug above speed control drive shaft

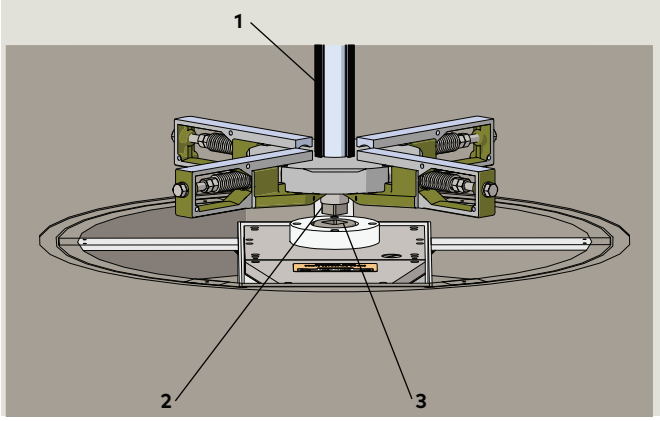
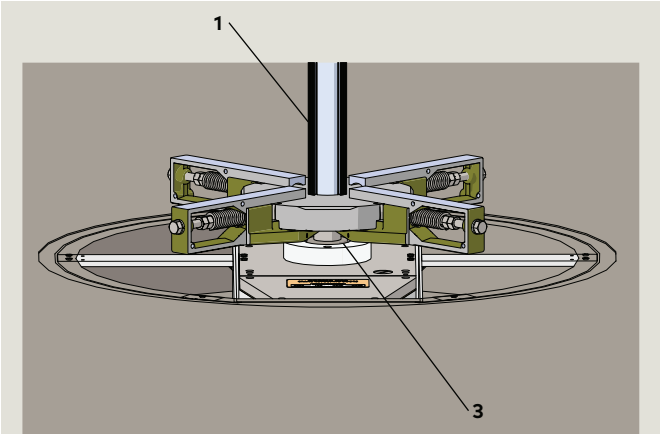


Fig. 20.2.2 Center shaft bottom plug installed in speed control drive shaft



20.2.1 Raise center shaft to vertical position.

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.

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

CAUTION

Drive shaft top plug must be retracted to install center shaft assembly in door (Para. 20.1).

TIPS AND RECOMMENDATIONS

Prior to installation, lubricate center shaft bottom plug with a multipurpose grease.

1. Raise center shaft assembly and position bottom plug over floor speed control drive shaft.

20.2.2 Lower bottom plug into speed control drive shaft.

WARNING

Damage to the floor bearing due to incorrect insertion of the center shaft bottom plug!
Incorrect insertion of center shaft bottom plug can damage speed control floor bearing.

- Always insert the floor bearing vertically.

1. Rotate center shaft assembly as required to orient bottom plug to floor speed control drive shaft.
2. Lower center shaft bottom plug into floor speed control drive shaft.

20.3 Install center shaft top plug into top bearing assembly

Fig. 20.3.1 center shaft aligned with top bearing

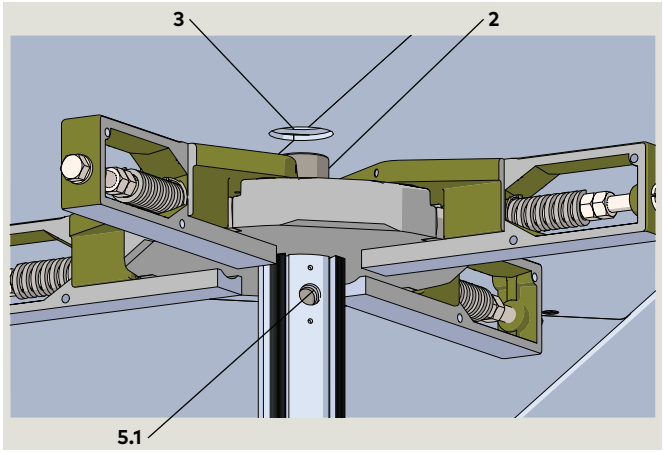


Fig. 20.3.2 Top plug inserted into top bearing

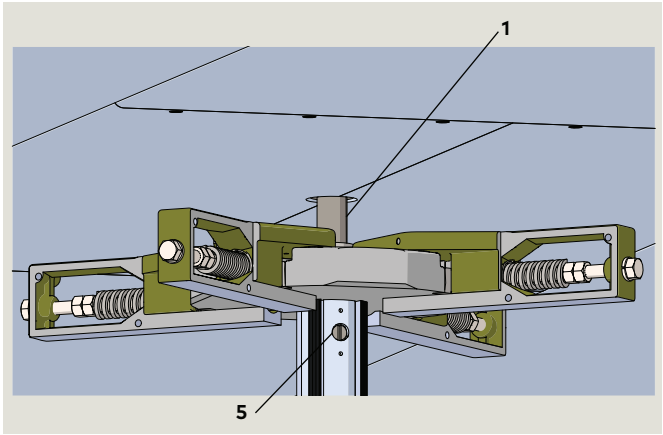


Fig. 20.3.3 Nameplate/job number installed

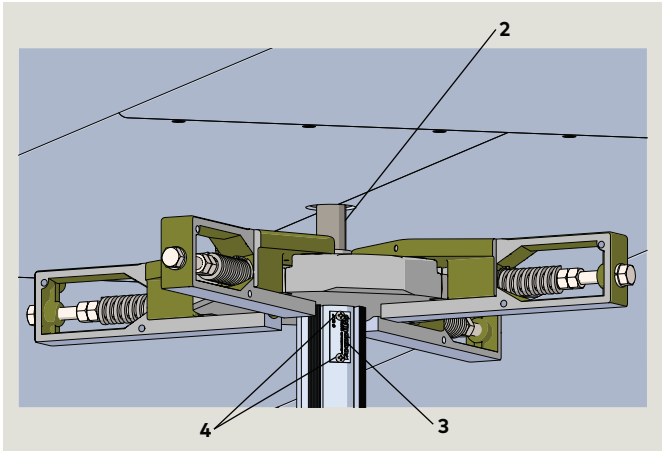


Table 20.3.1 Top of center shaft parts

Part / Assembly		Description
2	RC6081-001	Top plug, floor speed control
3	RD6001-001	Nameplate, job number tag
4	RF6008-01G	#6 x 1/2" Phillips pan head screw
5	RF6052-010	Steel shaft cross pin
5.1		Threaded Hole in steel center shaft for steel shaft cross pin

20.3.1 Install center shaft assembly top plug.

1. Align center shaft top plug with top bearing assembly ball bearing.
2. Loosen cross pin and extend top plug into top bearing.
3. Tighten cross pin.

- If set screw was removed, align set screw mounting holes to install set screw.

20.3.2 Install nameplate, job number tag.

1. Place nameplate, job number tag over set screw and secure with two #6 x 1/2" Phillips pan head screws.

CAUTION

Nameplate and job number tag must be reinstalled. Tag job number is important reference number for any future service work.

20.3.3 Set hanger initial bookfold tension.

Go to Chapter 22, Set hanger initial bookfold tension.

21 Set initial hanger breakout tension

21.1 Set hanger initial hanger breakout tension

Fig. 21.1.1 Hanger breakout tension adjustment

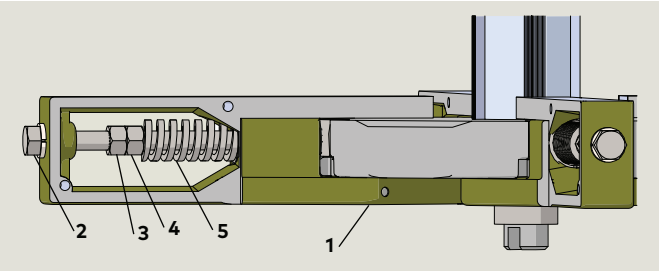


Table 21.1.1 RS6045 shaft hanger assemblies and parts

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

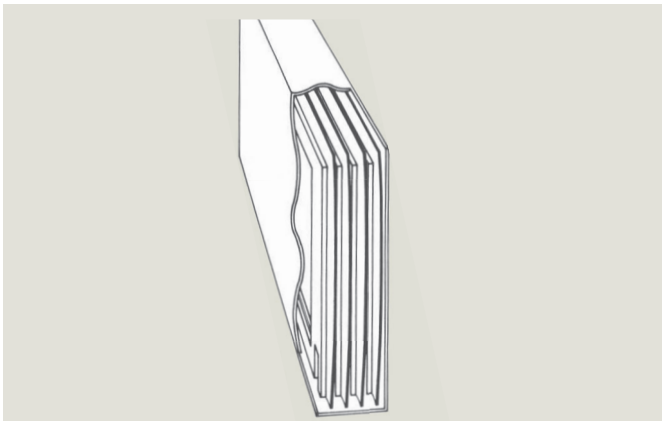
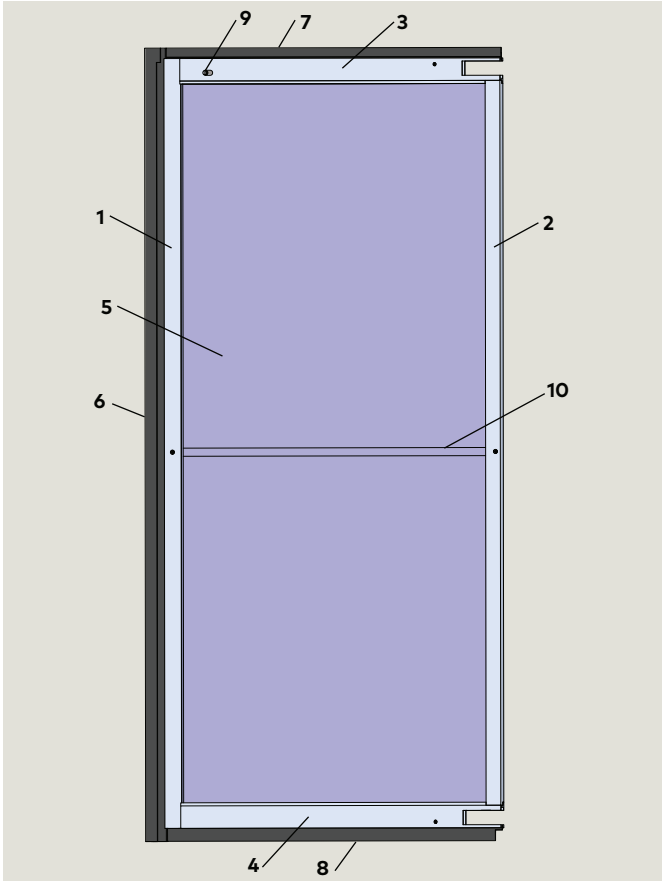


Fig. 22.1.2 Wing assembly example



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!

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	RC6389	Sweep felt vertical
7		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

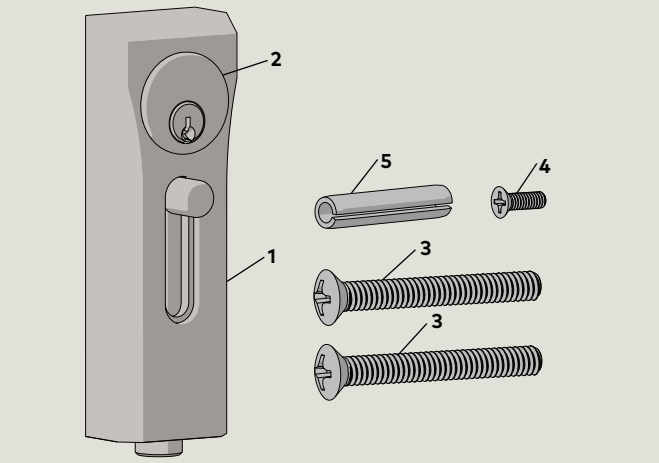


Fig. 22.2.2 Wing lock body mounting holes

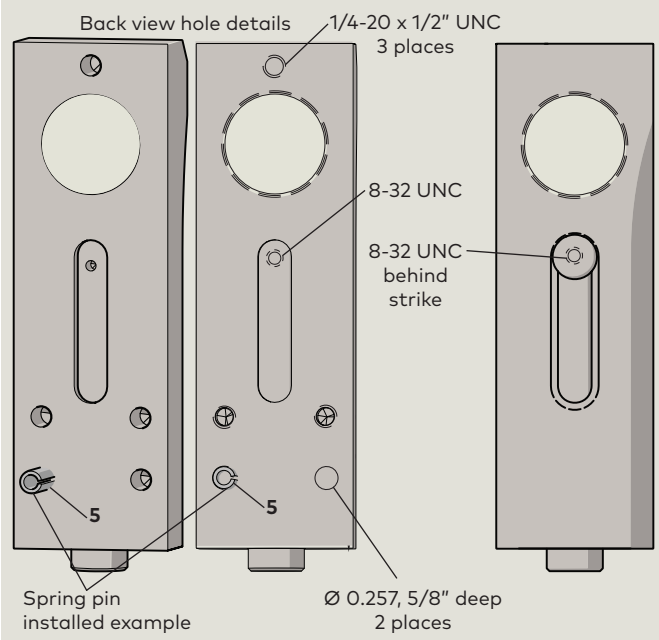


Fig. 22.2.3 Wing lock body installed

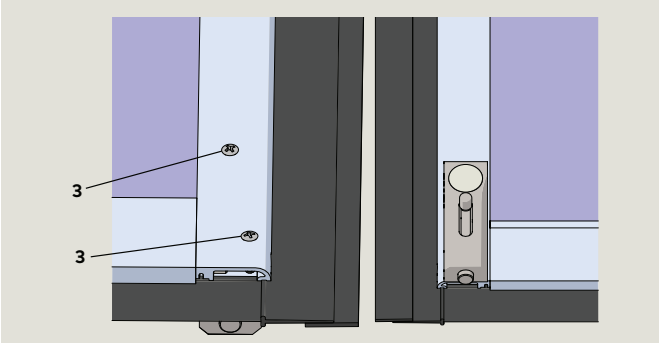


Table 22.2.1 Wing lock hardware

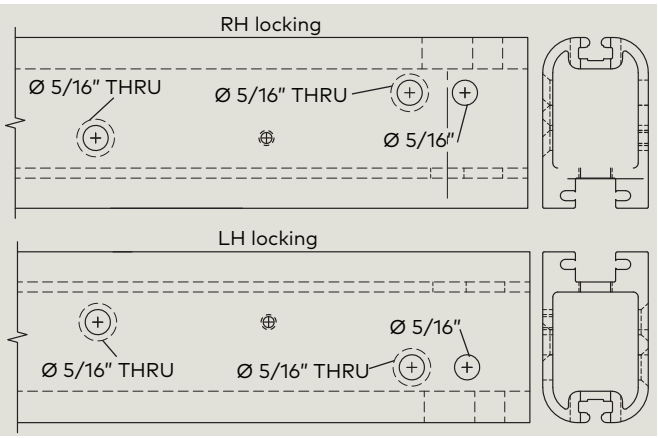
Part / Assembly		Description
1	RC6259-0X0	Lock body
2		Lock cylinder (by others)
3	RF6120-01G	1/4-20 x 2" 18-8 oval head screw
4	RF6054-01G	8-32 x 1/2" 18-8 flat head screw
5	RF6053-01G	1/4 x 1 1/4" spring pin

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



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

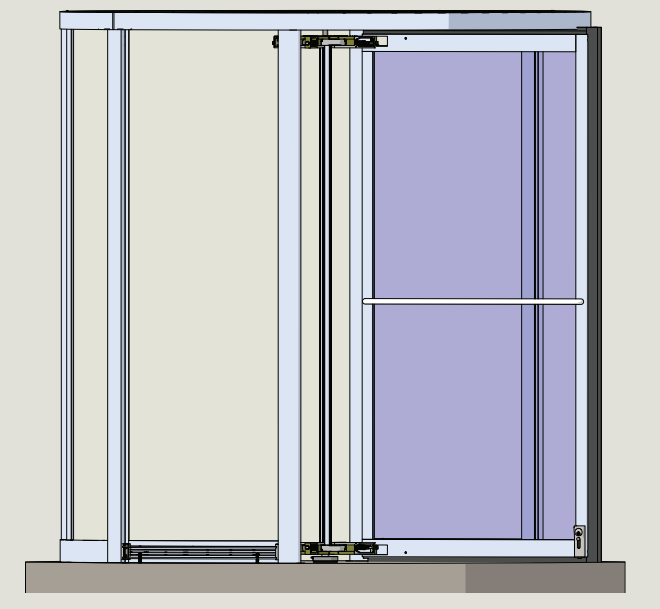


Table 22.3.1 Hanger and wing mounting hardware

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

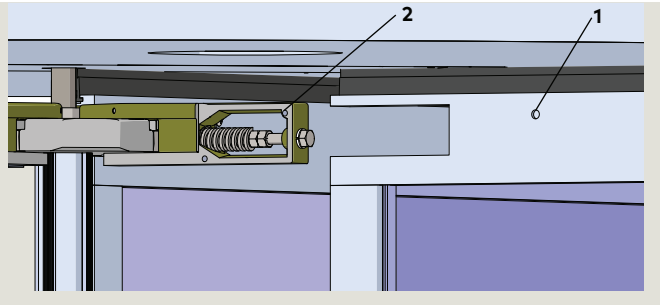


Fig. 22.3.3 Wing installation on hanger

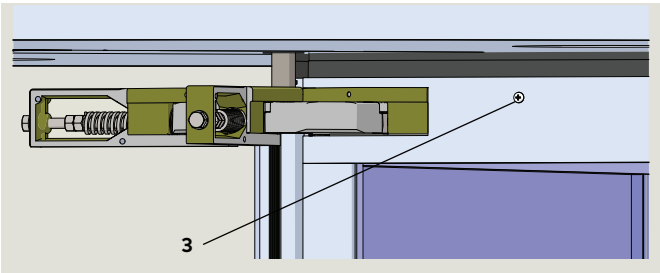
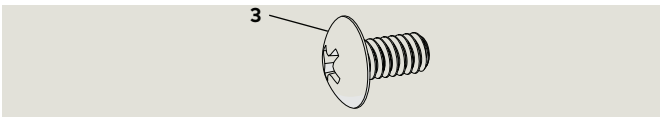


Fig. 22.3.4 Truss head machine screw



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

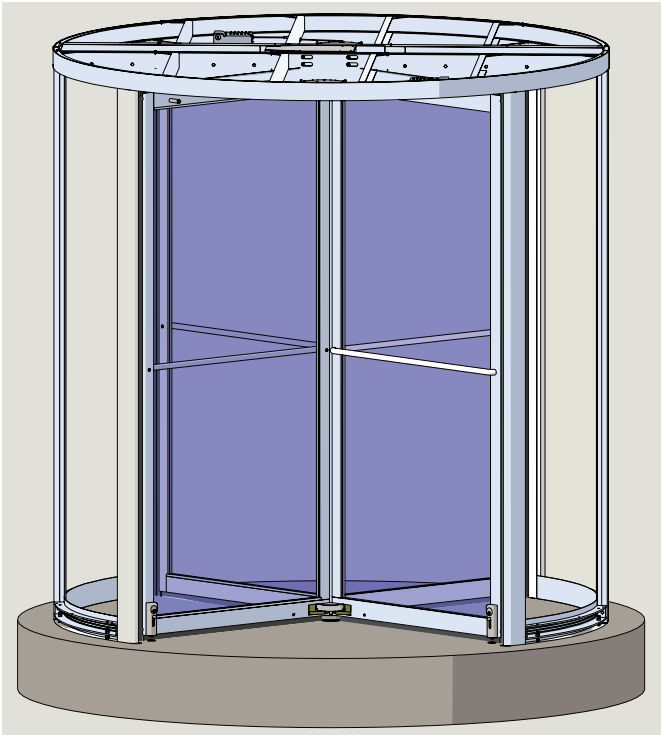
Risk of injury due to improper handling of wing assemblies!
A minimum of two people are required to lift and transport wing assemblies.

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

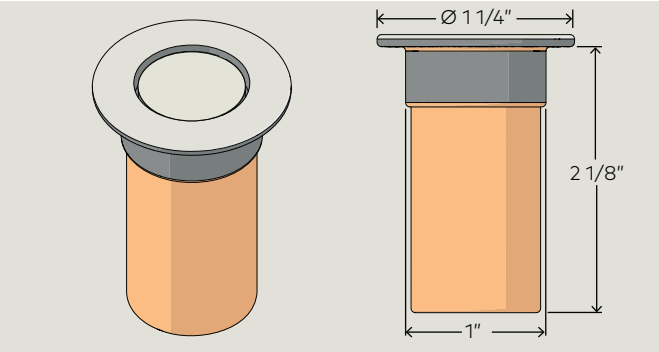


Fig. 23.1.2 3 wing door home position

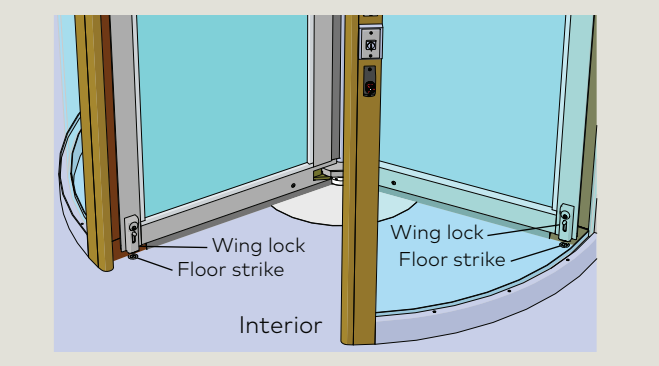


Fig. 23.1.3 Wing lock in home position

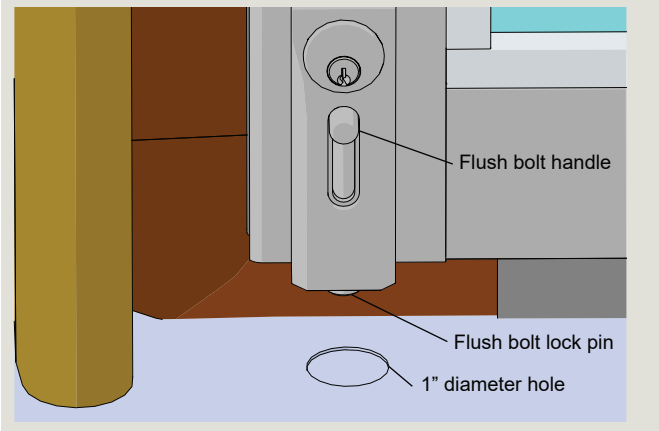
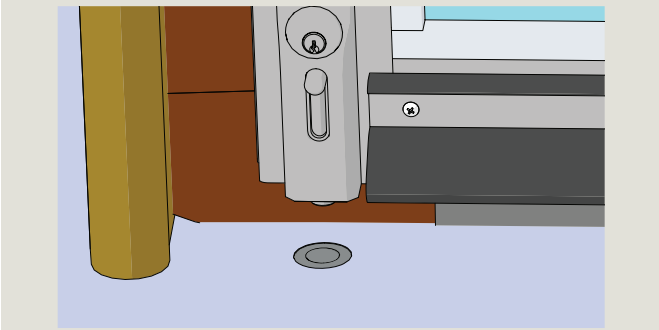


Fig. 23.1.4 Floor strike installed



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.
2. Mark circumference of pin on floor.

- Wing lock pin diameter: 5/8"

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 no exert force on the glass pieces.

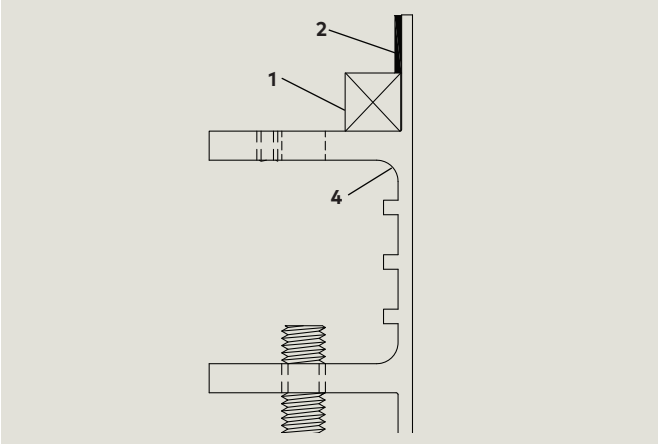
WARNING

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 Gazing 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

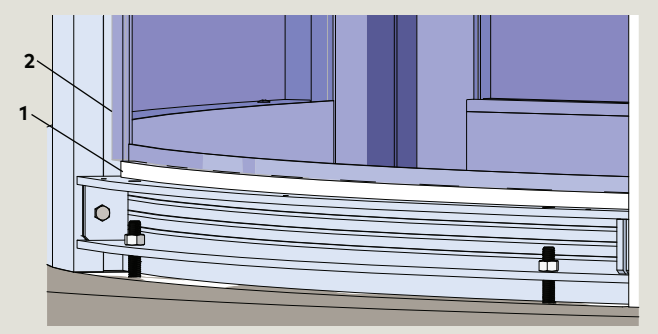


Fig. 24.4.2 Crane shop drawing, enclosure base example

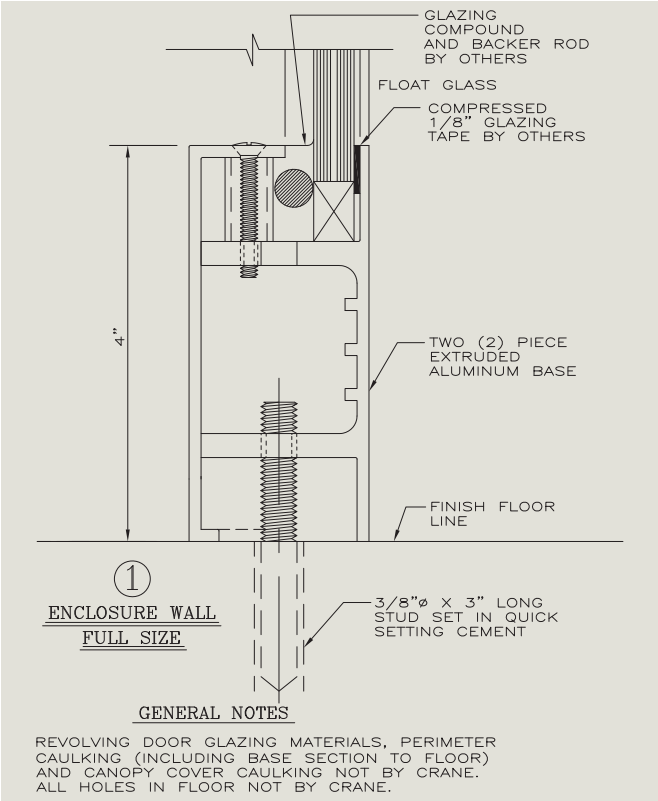


Table 24.4.1 Enclosure glass and base assembly

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!

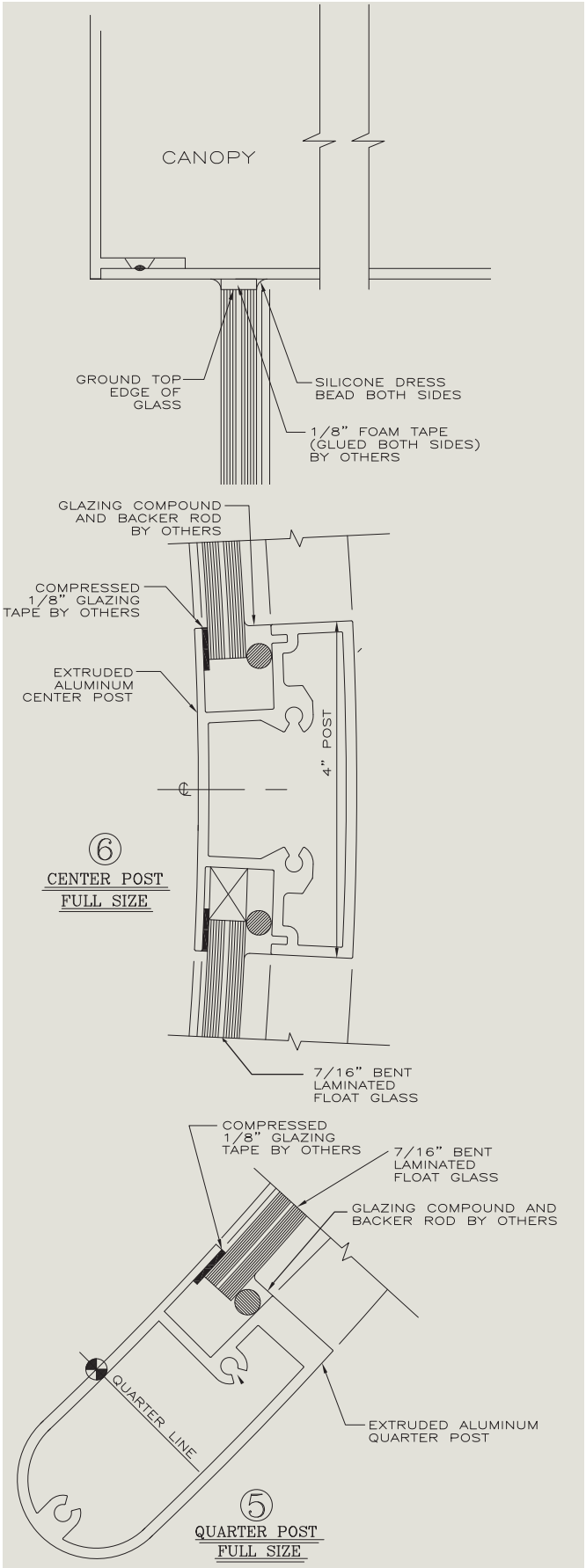
24.4.4 Install remaining enclosure glass.

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

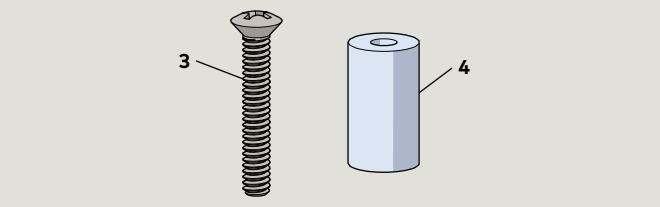


Fig. 24.5.2 Aluminum base and cover assembly

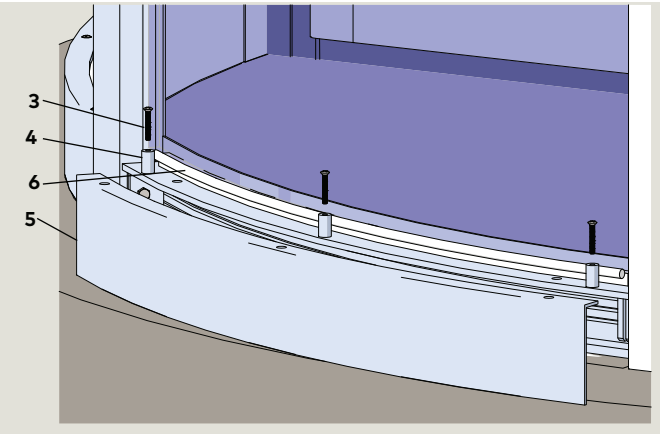


Fig. 24.5.3 Enclosure base cover installed

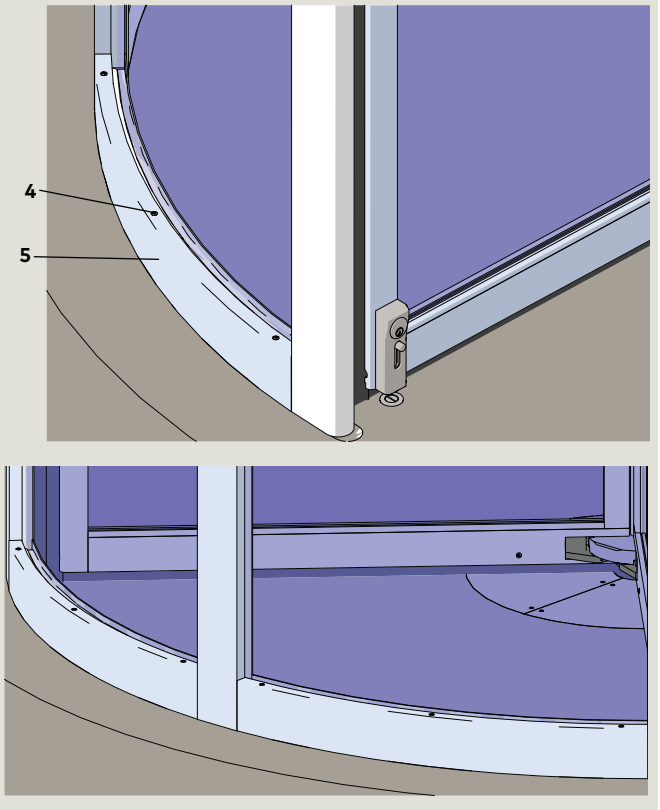


Table 24.5.1 Enclosure base assembly, AL

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

Refererence 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.

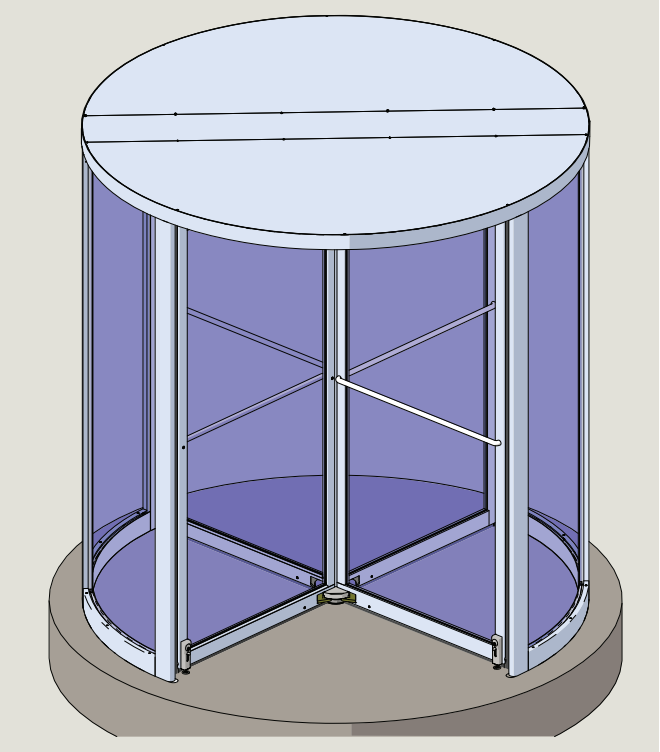
NOTICE

Refer to Crane shop drawings for canopy cover installation instructions.

Fig. 24.6.1 #8 x 1/2" PPHMS

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

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

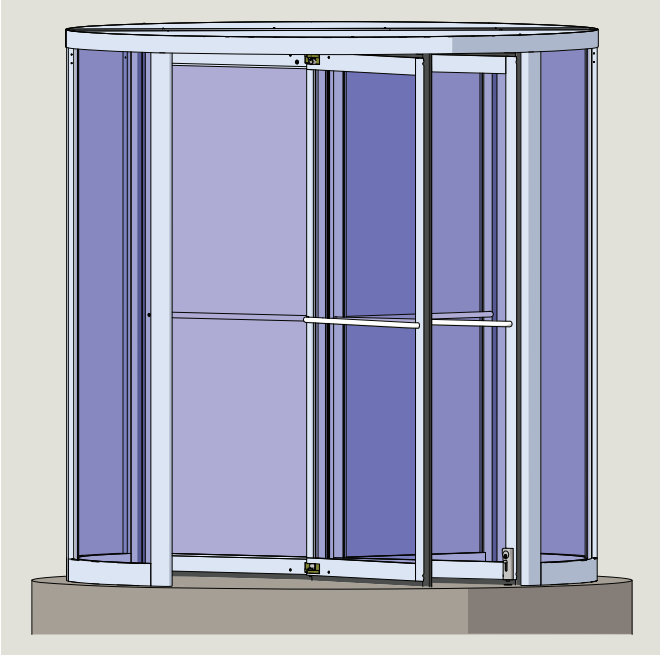


Fig. 25.1.2 Hanger tension adjustment

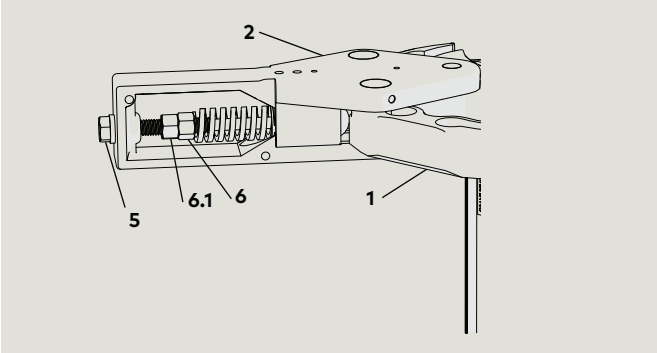


Table 25.1.1 RS6045 shaft hanger assembly and parts

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.

25.2 Check bookfold operation

Fig. 25.2.1 Door wing in breakout position

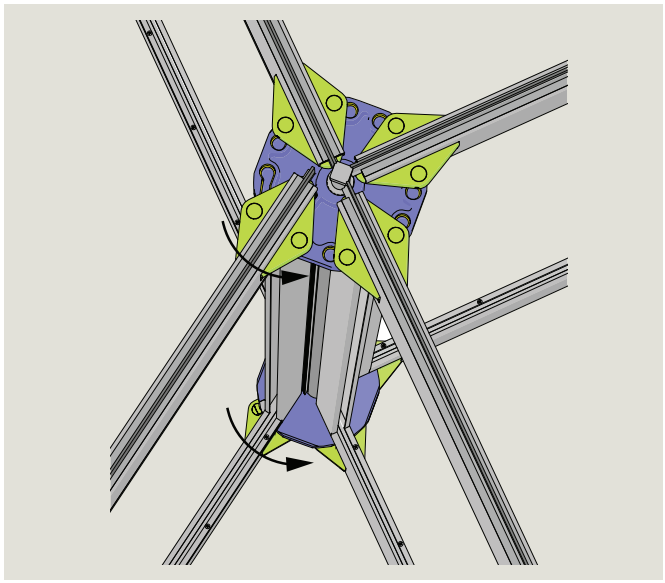
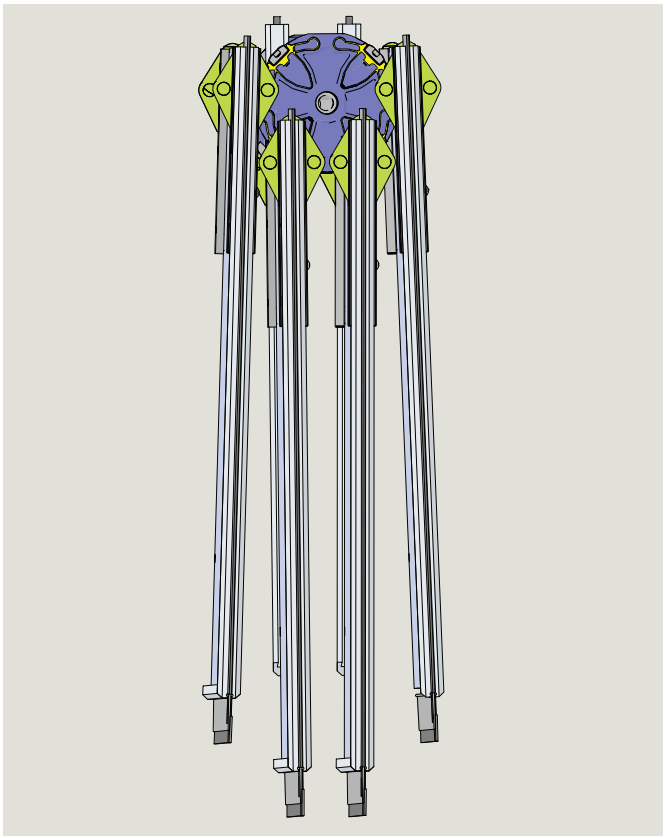


Fig. 25.2.2 Door wings in bookfold position



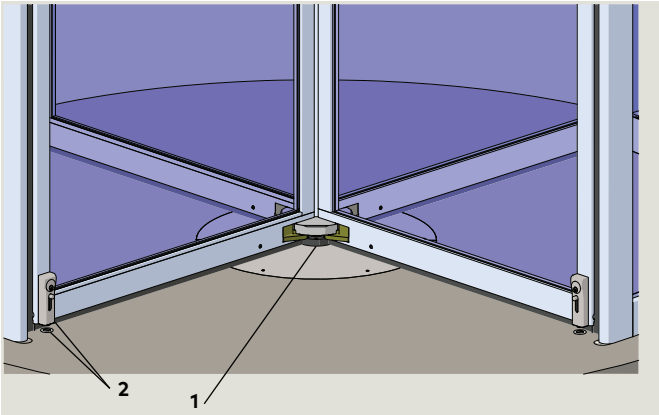
25.2.1 Check wing bookfold operation

1. Check bookfold operation on all wings.

26 Maintenance

26.1 Revolving door floor area

Fig. 26.1.1 Floor pivot bearing maintenance



1 In-ground speed control
2 Wing lock and floor strike

26.1.1 Floor speed control and center shaft.

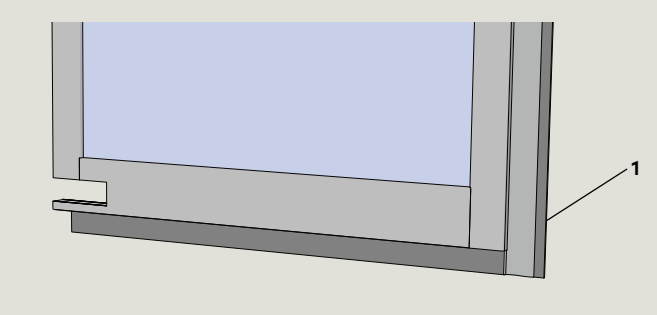
1. Clean surface area at floor speed control and center shaft.

26.1.2 Wing locks.

1. Clean wing locks.
2. Clean floor strikes of all dirt and debris.

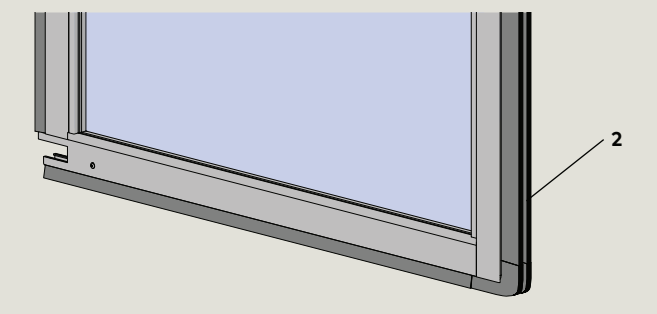
26.2 Weathersweeps

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 In-ground speed control, cover removed

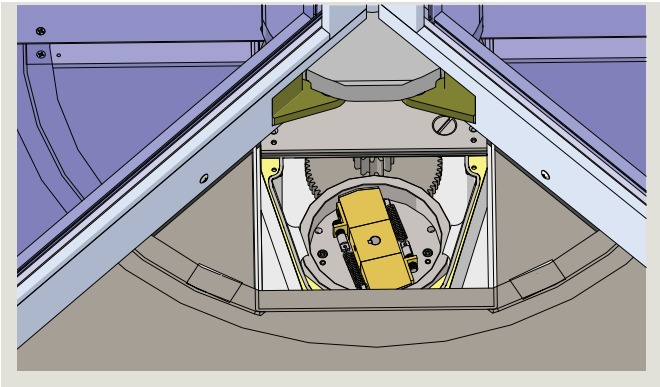
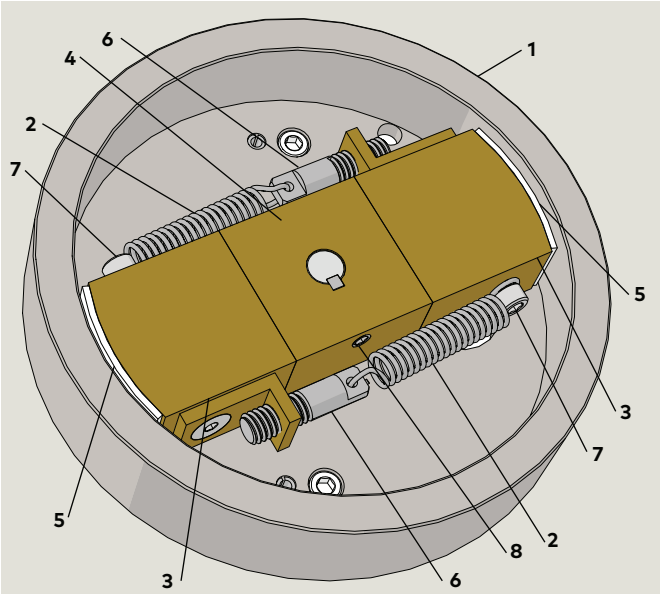


Fig. 26.3.2 Brake housing assembly



1 Brake housing assembly
2 Brake spring
3 Left-right brake shoe holder
4 Center brake block
5 Brake shoe
6 Brake screw
7 10-25 x 1/2" SHCS
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.

1. 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.

1. 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

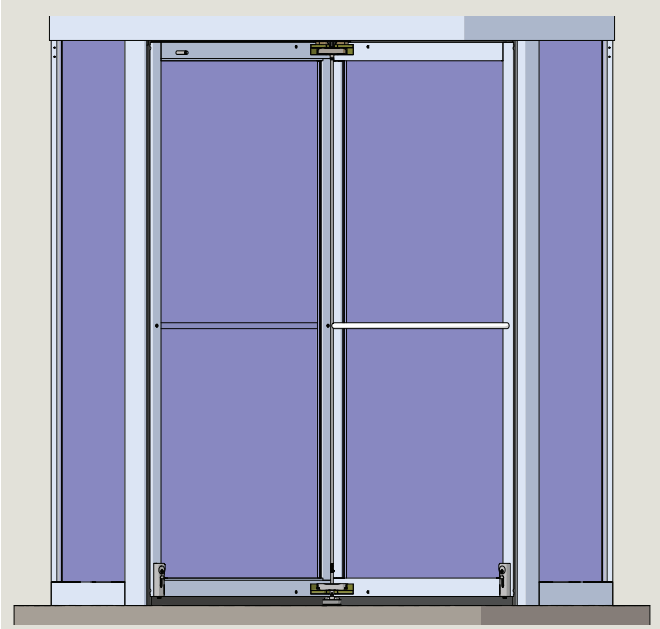
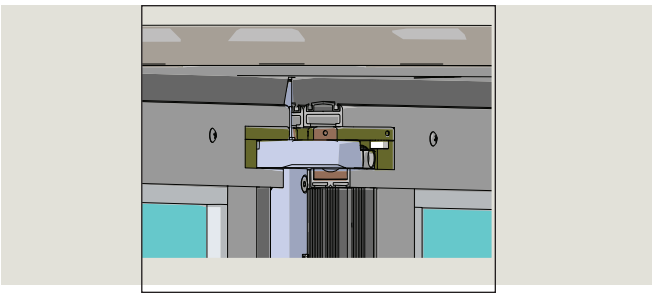


Fig. 26.5.2 4 wing door assembly wing bookfold example



26.5.1 Hanger / hanger disc maintenance.

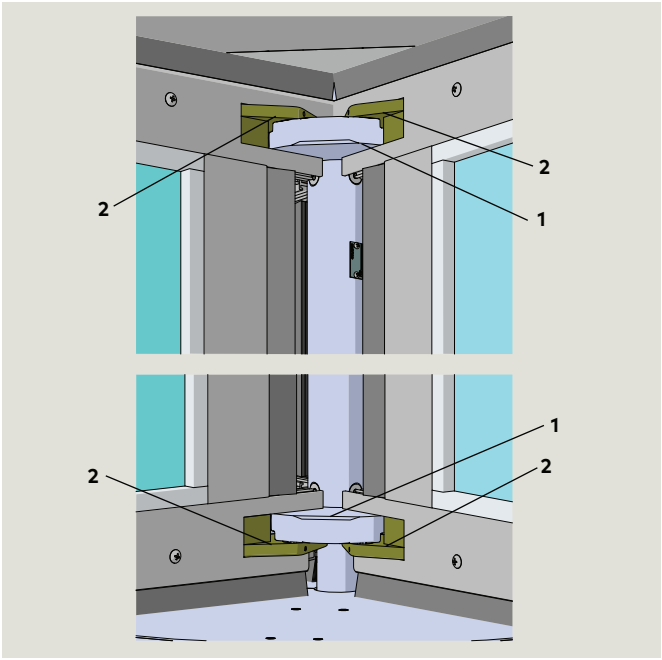
TIPS AND RECOMMENDATIONS

Bookfold wings for the following procedures.

1. Check for dirt and debris and clean as required at.
- Hanger assemblies.
- Hanger disc assemblies.

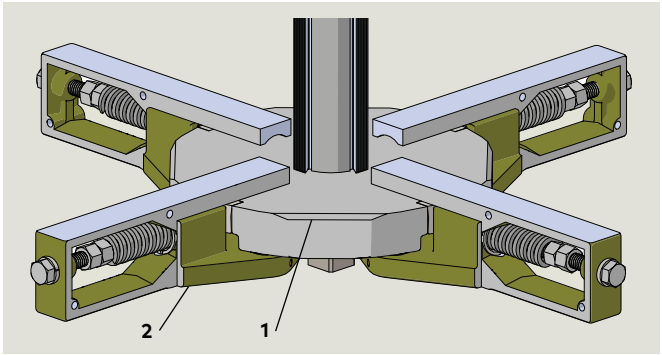
2. Check for lubrication on hanger disc and at hangers.
- Lubricate as necessary.

Fig. 26.5.3 Upper and lower hanger assemblies



1 4 wing disc assembly
2 Hangar assembly

Fig. 26.5.4 4 wing center shaft hanger assembly



1 4 wing disc assembly
2 Hangar assembly

Appendix A - Definitions

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

A1.1 **Active area** - An area where sensors detect the presence of motion

A1.2 **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).

A1.3 **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.

A1.4 **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.

A1.5 **Bookfold position** - When each wing has been released from its fixed position permitting wings to pivot in the direction of egress

A1.6 **Bottom rail** - The lower horizontal member of the door wing.

A1.7 **Breakout** - A process whereby wings and/or door panels can be pushed open manually for emergency egress.

A1.8 **Canopy**- A he area above the wings and enclosure comprised of a ceiling (soffit), fascia (cladding), and roof (cover).

A1.9 **Center shaft** - The rotating center, 12 inches [305 mm] or less in diameter, of revolving doors to which the wings are attached.

A1.10 **Clearance** - The minimum gap around the wing to the ceiling, enclosure, and floor, not including the weather stripping, at any point in its rotation.

A1.11 **Control** - A unit containing electrical components for automatic control of door operation and overload protection.

A1.12 **Control mat** - A presence sensing device that detects pressure from people or objects to give an activating signal to the automatic revolving door.

A1.13 **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.

A1.14 **Enclosure** - The walls in which the wings operate. Also known as Drum.

A1.15 **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

A1.16 **Fascia** - The vertical surfaces of the canopy.

A1.17 **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.

A1.18 **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.

A1.19 **Manual operation** - The capability of rotating the revolving door by a person applying a force to a door wing.

A1.20 **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.

A1.21 **Motion sensor** - A sensor designed to detect the movement of a person or equivalent a the point of entry to the door that gives an activating signal to the power operated door.

A1.22 **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.

A1.23 **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).

A1.24 **Peripheral speed** - The rotating speed of a revolving door measured at the outer edge of the wing.

A1.25 **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.

A1.26 **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.

A1.27 **Push to slow device** - A knowing act switch used to create an activating signal to cause reduction of speed of the revolving door.

A1.28 **Safety glass** - Comprised of either fully tempered or laminated glass or other safety rated glazing to prevent injuries from breakage.

A1.29 **Sensor** - A device that detects motion or presence of a person or object.

A1.30 **Small vehicular** - Carts used to transport persons or objects.

A1.31 **Stile** - A vertical edge member of the door wing.

A1.32 **Throat opening** - The width between the enclosure side walls that creates the entry point.

A1.33 **Trained traffic** - People trained in the safe use and operation of a particular automatic door installation.

A1.34 **Weather stripping** - The material used to fill a clearance.

A1.35 **Wing** - A panel which rotates within and seals the enclosure. (Sometimes called a Leaf).

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