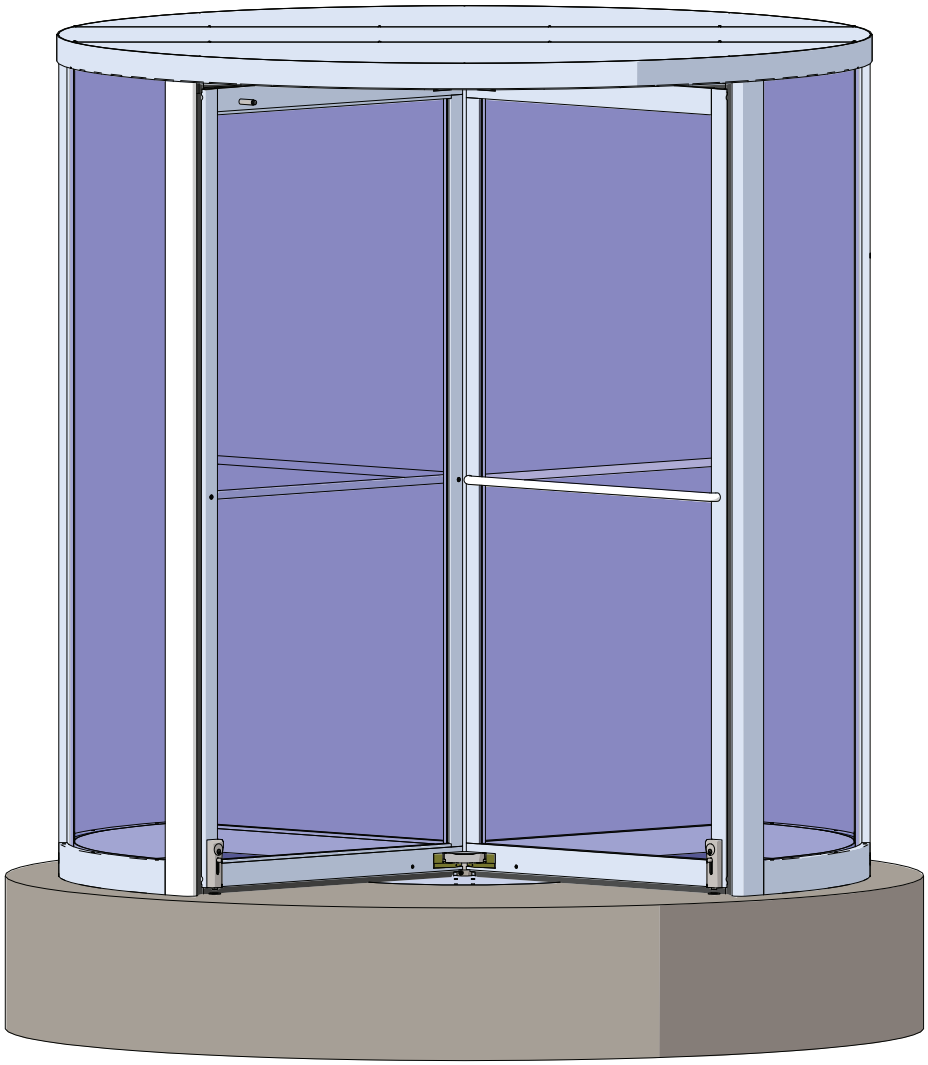


Crane 2000LE and 3000LE

In-ground (low profile) Motion Assist 360 drive with remote control enclosure
In-ground speed control

Installation Manual

RL6001-001 – 07-2022

| EN |

Crane
dormakaba Group

dormakaba

Table of contents

1 General information

1.1 Installation instructions.

This document contains important instructions for installation of Crane 2000LE and 3000LE series manual revolving doors with:

- In-ground Motion Assist 360
- Remote control enclosure.
- In-ground speed control.

Review these instructions thoroughly prior to installation, and follow them carefully during installation, commissioning, troubleshooting and maintenance.

1.2 Remote enclosure, wiring, setup, troubleshooting and maintenance instructions.

Refer to Manual RL6001-003.

1.3 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.

1.4 dormakaba.us website.

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

1.5 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

Warns of a potentially unsafe procedure or situation.

TIPS AND RECOMMENDATIONS

Clarifies instructions or other information presented in this document.

1.6 Dimensions

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

1.7 Environment

Crane revolving doors are designed to operate on an interior or exterior building surface.

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.

2 Product description and technical information

2.1 Crane 2000LE series

Table 2.1.1 2000LE series doors

Enclosure	Welded construction	
	Finish	Aluminum
		Anodized
		Cladded bronze
		Stainless steel
Wings	Bolted construction	
	Finish	Aluminum
		Anodized finish
		Cladded bronze
		Stainless steel

2.2 Crane 3000LE series

Table 2.2.1 3000LE series doors

Enclosure	Custom Fully formed and welded	
	Finish	Aluminum
		Anodized finish
		Cladded bronze
		Stainless steel
		Wood
Wings	Fully formed and welded	
	Finish	Aluminum
		Anodized
		Cladded bronze
		Stainless steel
		Wood

2.3 Motion Assist 360

2.3.1 Motion Assist 360 drive.

- Gearless electromagnetic direct drive system.

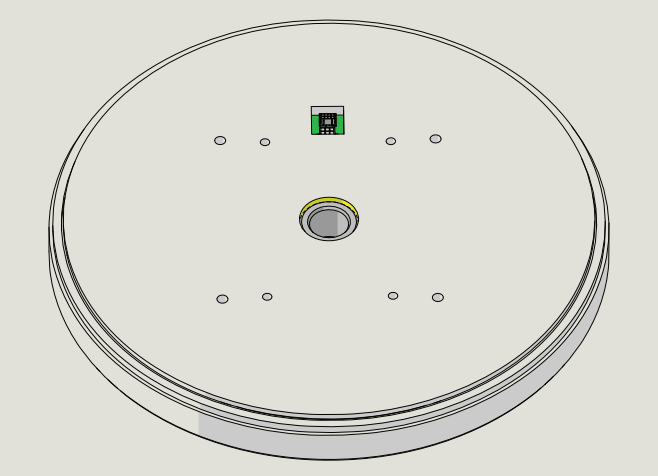
2.3.2 Low energy application.

- Uses "S" Motion Assist function module.

TIPS AND RECOMMENDATIONS

Reference Para. 2.9 for function module overview.

Fig. 2.3.1 Motion Assist 360 drive



2.4 Motion Assist 360 technical information

2.4.1 Environment

Measurement	Value	Unit
Temperature range	-40 — +60	°C
	-40 — +140	°F
Relative humidity (non-condensing)	<90	%

2.4.2 Power supply

Measurement	Value	Unit
Power supply	100 - 240 ± 10%	Vac
Power frequency	50 / 60	Hz
Customer branch circuit: **GFCI** Circuit breaker	**15**	A
Power supply control voltage	24 ± 10%	Vdc
Maximum supply current for external connections	3	Adc

2.4.3 Power consumption (without lighting)

Measurement	Value	Unit
Positioning speed	58	W
Automatic mode	102	W
Speed limiter	8	W
Servomatic	58	W

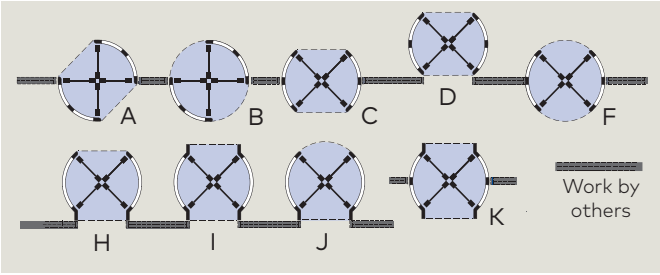
2.4.4 Drive

Measurement	Value	Unit
Type	Synchronous motor with continuous magnet rotor	
Nominal voltage	24	Vdc
Nominal output	0.58	KW
Nominal torque	40	Nm
	29.5	ft-lb
Nominal current	4	A
Starting current	Maximum 18	A
Torque	Maximum 185	Nm
	Maximum 136.5	ft-lb
Rotations per minute	Maximum 18	RPM
Protection class	IP20	
	NEMA 1	
Insulation class	B	
Gear ratio	1	
Operating noise LAeq	<50	dB(A)

2.5 2000LE series

	AL2000	SS2000	BZ2000
Material	Aluminum	Aluminum / Stainless steel	Aluminum / Bronze
Wing configuration	• 3 wings • 4 wings		
Enclosure diameter	7' to 12' OD	ANSI/BHMA A156.27-2019, Para. 4.1: To limit door mass, the inside diameter added to the height shall not exceed 17 ft [5182 mm].	
Door opening height	7' up to 9'		
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 • Non-directional • #6 fine satin • Bead blast • #7 mirror • Custom • #8 mirror	• #4 satin • #8 mirror • Bead blast • Non-directional • #7 mirror • Custom
Operation	• Manual, mechanical speed adjuster to limit speed. To be adjusted to comply with ANSI/BHMA 156.27.		
Attachment Types	A, B, C, D, F,H,I,J,K as indicated on the drawings. Reference Fig. 2.5.1.		
Enclosure material	• Glass • Aluminum panels	• Glass • Solid metal	• Glass • Solid metal
Enclosure glass	7/16" clear or tinted		
Canopy material	• Aluminum	• Stainless steel	• Bronze
In-ground Speed Control	Manual speed control: • Uses 100:1 gear ratio. • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code.		

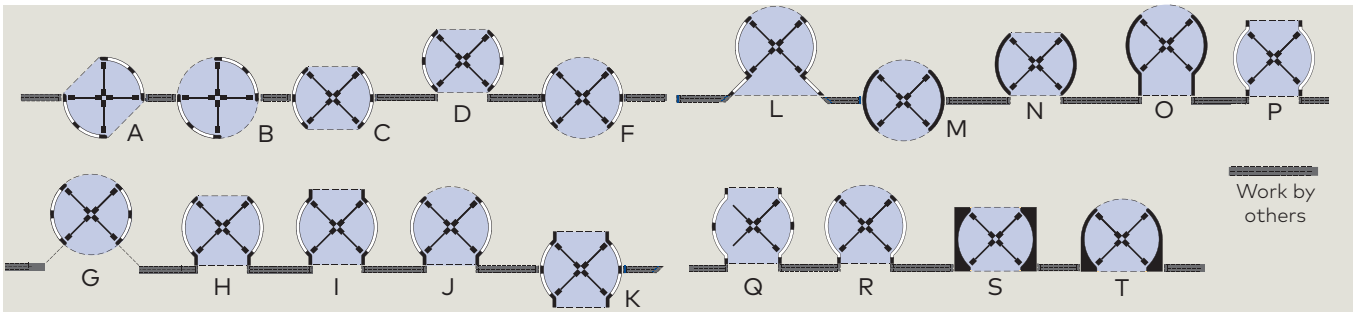
Fig. 2.5.1 Crane 2000LE attachment types



2.6 3000LE series

	AL3000	SS3000	BZ3000
Material	Aluminum	Aluminum / Stainless steel	Aluminum / Bronze
Wing configuration	• 3 wings • 4 wings		
Enclosure diameter	7'to 12' OD.	ANSI/BHMA A156.27-2019, Para. 4.1: To limit door mass, the inside diameter added to the height shall not exceed 17 ft [5182 mm].	
Door opening height	7' up to 10'; custom		
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 • Non-directional • #6 fine satin • Bead blast • #7 mirror • Custom • #8 mirror	• #4 satin • #8 mirror • Bead blast • Non-directional • #7 mirror • Custom
Operation	• Manual, mechanical speed adjuster to limit speed. To be adjusted to comply with ANSI/BHMA 156.27.		
Attachment Types	All, custom. Reference Fig. 2.6.1		
Enclosure material	• Glass • Solid metal	• Glass • Solid metal	• Glass • Solid metal
Enclosure glass	7/16" or 9/16"; clear or tinted		
Canopy material	• Aluminum	• Stainless steel	• Bronze
Speed Control	Manual speed control: • Uses 100:1 gear ratio. • Centrifugal force brake slowly engages as the door reaches the maximum allowable RPM set by code.		

Fig. 2.6.1 Crane 3000LE attachment types



2.7 Revolving door assembly components overview, 3 wing door

Table 2.7.1 3 wing door with In-ground Motion Assist 360 drive and with in-ground speed control

#	Description	Part #
1	Canopy assembly, 3 wing	RS6057-002
2	Center post, AL	RE6007-030
3	Quarter post	RE6009-010
4	Enclosure bent glass	
5	Enclosure, base outer, 3", AL	RE6015-010
	Enclosure, base inner, 3"	RE6016-010
6	Wing assembly with lock, 3 wing door	
7	Steel shaft assembly, in-ground drive, 3 wing door	RS6061-001
8	In-ground drive can assembly (LP)	RS6058-001

TIPS AND RECOMMENDATIONS

Canopy assembly.
Reference Para. 5.1.

Fig. 2.7.1 3 wing revolving door, assembly

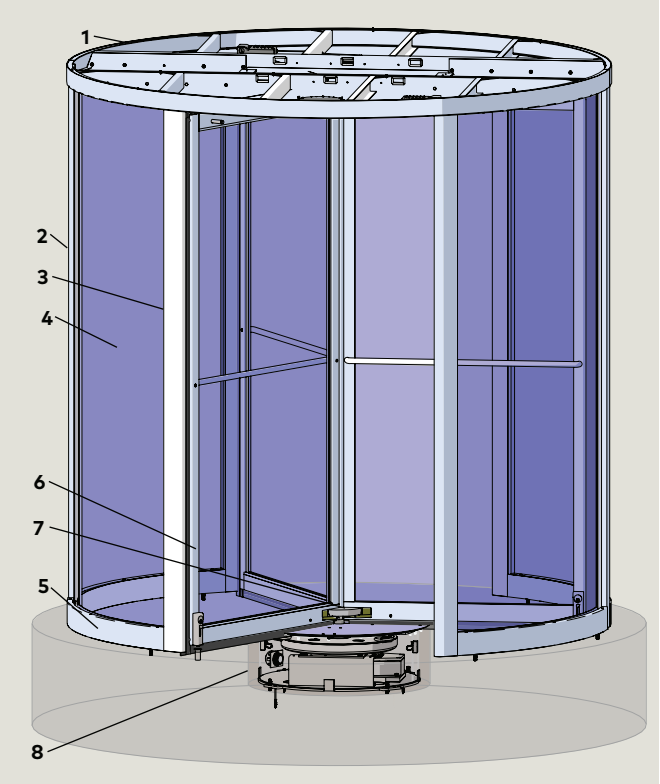


Fig. 2.7.2 Steel shaft assembly, 3 wing door

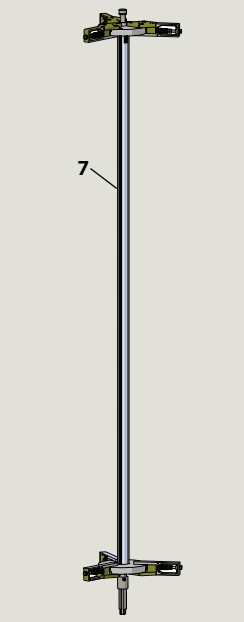


Fig. 2.7.3 Wing assembly, 3 wing door

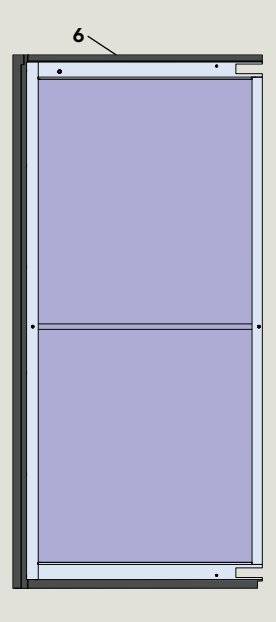


Fig. 2.7.4 Center post, quarter post

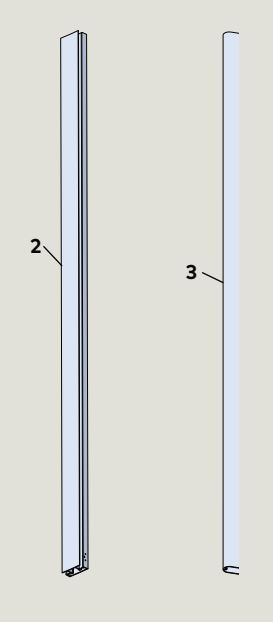


Fig. 2.7.5 In-ground can assembly with Motion Assist 360 drive and with speed control

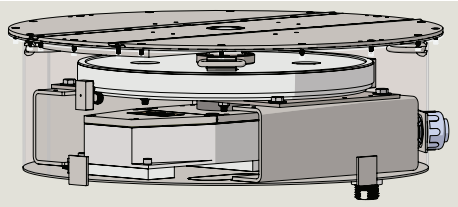
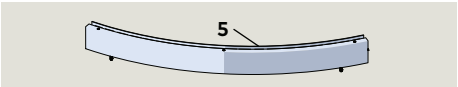


Fig. 2.7.6 Base and cover assembly



2.8 In-ground Motion Assist 360 assembly and Remote control enclosure

Fig. 2.8.1 In ground container assembly, low profile

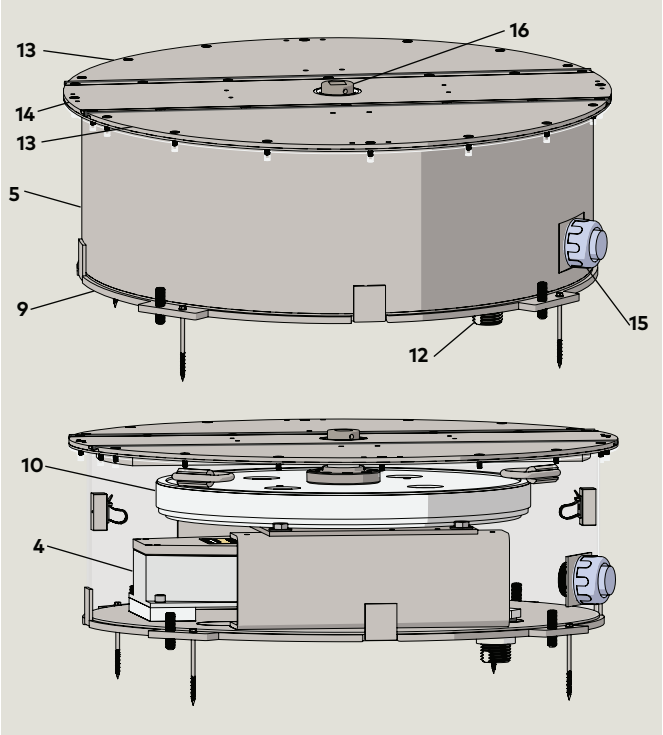


Table 2.8.1 In-ground container and Remote enclosure

#	Description	
1	Remote control enclosure	RS6032-001
2	Motion Assist 360 power supply	RX6001
3	Motion Assist 360 control unit	RX6002
4	In-ground speed control	RS6074-010
5	Container assembly weldment	RS6038
9	Leveling plate assembly	RS6014
10	Motion Assist 360 drive	RX6010
11	Identification label	
12	Drain fitting	RC6043
13	Outer cover assembly	RS6033
14	Container lid, center section	RC6049
15	Conduit adapter, DC wiring	RC6045-001
16	Bottom plug adapter, in-ground drive/ speed control LP	RC6069

Fig. 2.8.2 Remote control enclosure RK6007

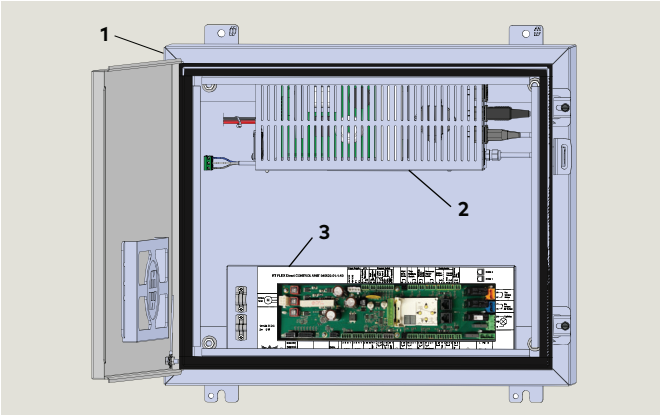


Fig. 2.8.3 Motion Assist 360 drive

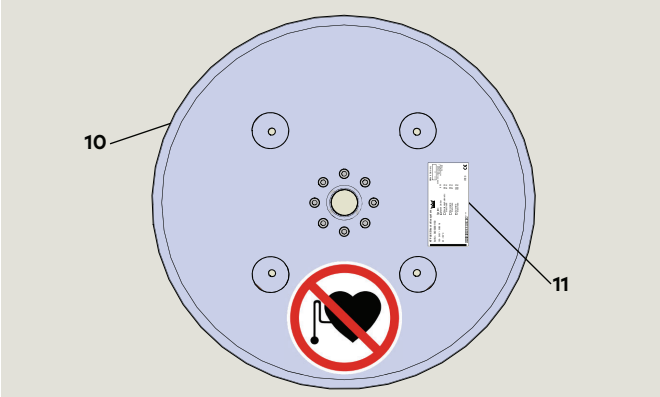
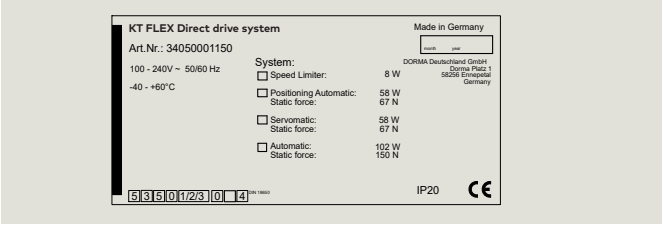


Fig. 2.8.4 Identification label Motion Assist 360 drive



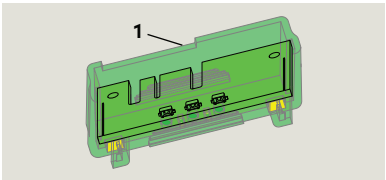
2.9 Motion Assist function module

2.9.1 Motion Assist function module used with 2000LE and 3000LE revolving doors.

The Motion Assist 360 control unit is supplied with a "S" Motion Assist function module.

- Mode switch functions for the function module are listed in Para. 4.1.
- S" function module enables specific Parameters, Special Functions and Diagnostics.

Fig. 2.9.1 "S" Motion Assist module



1 "S" module (GRN) Motion Assist RX6003-002

3 Safety information

3.1 Safety Warnings

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

Danger of death from contact with voltage or electrical short circuits!
As a result of missing or defective electrical grounding of the drive system, contact with voltages or electrical short circuits is possible.

- Never put the revolving door into operation without an earth ground connected to the drive grounding terminal.
- Prior to drive commissioning, drive components must be connected to the grounding terminal:
  - Control unit
  - Power supply unit
  - Drive unit support system

⚠ WARNING

Metallic doors must be grounded per national and local codes!

⚠ WARNING

Hand pinch point and crushing hazards!

⚠ WARNING

Crushing hazards!

3.1.3 Pacemakers and other medical implants warning.

⚠ WARNING

This sign is located on the Motion Assist 360 drive (Para. 2.9) and warns of the hazards for people with pacemakers and other active medical implants.
Strong electromagnetic or magnet fields may be present in the vicinity of this sign. These fields may disrupt pacemakers or other medical implants or cause them to malfunction.
People wearing pacemakers and other active medical implants should not approach components with this safety warning.

People with pacemakers and other active medical implants should not come within 20 inches [51 cm] of the operator!

3.1.4 Intended use and door misuse.

- The 2000LE and 3000LE revolving doors are designed as 3 or 4 wing revolving doors for use as a doorway for people to pass through at entrances and in the interior of buildings.
- Wing breakout. The revolving door wings can be pushed open manually for emergency egress.

⚠ WARNING

In case of emergency, revolving door can be used as an exit, but it is not the primary path of egress.
The side door(s) should be used!

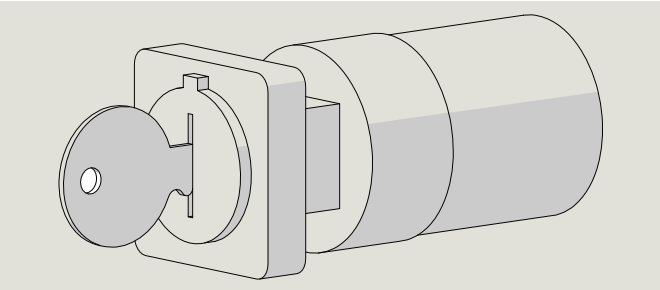
- The customer can only operate the revolving door after door commissioning by dormakaba service technicians.

Intended use encompasses adherence to the information in this document as well as all additional applicable documentation.

4 Operator components

4.1 Mode switch

Fig. 4.1.1 Mode switch with key lock RX6008-001



4.1.1 Mode switch

- The Mode switch is located inside the building on the leading quarter post or attached separately within sight of the revolving door.
- A key or code secures the program switch against unauthorized access.

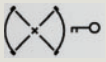
4.1.2 Low energy speed definition - ANSI/BHMA A156.27.

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

4.1.3 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.

4.1.4 Mode switch (low-energy) functions.

Mode switch position		Function	**S** - (Green module) - Motion Assist
	**0**	Off	• Revolving door will stay in the home position. • After a set period of time, any internal lighting is switched off.
	**1**	AUTOMATIC 1	• A knowing act (Para. 4.1.3) switch starts rotary movement of the door wings at low energy speed (Para. 4.1.2). Acceleration to walking speed is done manually. • Manually pushing the door starts rotary movement of the door wings at low energy speed. Acceleration to walking speed is done manually. • Revolving door automatically stops in the next starting position as soon as it is no longer manually operated.
	**2**	AUTOMATIC 2	• Door rotates continuously at a low energy speed. Acceleration to walking speed is done manually. • After door passage, the door slows down to low energy speed and continues to rotate at low energy speed.
	**3**	Summer	• Revolving door stops at its starting position and the drive is unlocked. • Door wings can be rotated manually. • Bookfold: wings can be folded to the side.

4.2 Emergency Stop pushbutton

4.2.1 Emergency Stop pushbutton locations.

- Building interior on the leading door quarter post.
- Second Emergency stop pushbutton may be located on the building exterior.

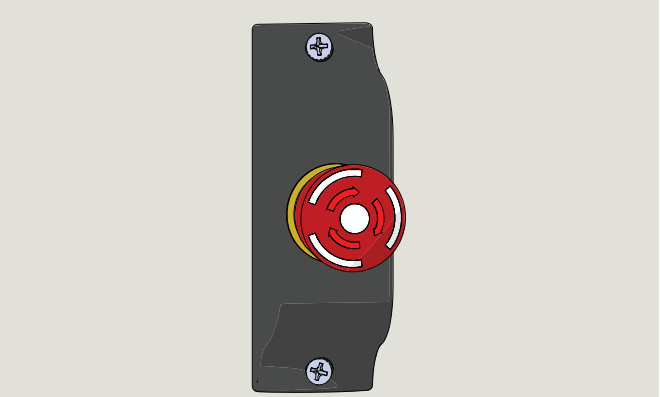
4.2.2 Actuation of Emergency Stop pushbutton.

1. A time delay disconnection of the Motion Assist 360 drive output stage is performed (approximately two seconds).
2. During this time delay the drive performs a fast braking of the door to a standstill.
3. After the time delay the drive output stage is switched off and door can then be turned manually.

4.2.3 Emergency Stop pushbutton reset.

- Emergency Stop pushbutton is reset by pulling or turning the button.

Fig. 4.2.1 Emergency Stop housing RX3413-020 and pushbutton RX3413--010



4.2.1 Triggering an Emergency Stop

⚠ WARNING

Risk of injury due to deactivated safety equipment!
After the emergency stop is activated, the drive is unlocked. Safety devices are no longer in operation. This can cause serious injuries if attempts are made to turn the door manually.

- Before turning door manually, check to make sure no one could be injured.
- If people have been locked into the revolving door, carefully turn the door until the people are able to exit the door.
- When turning the door manually, make sure there are no limbs between the closing edges.

4.2.2 Start up after an Emergency Stop

⚠ WARNING

Risk of injury due to automatic startup of revolving door!
The revolving door can set itself in motion automatically. If there are people in the door, they may be at risk of injury.

- Release the Emergency Stop button only when there are no longer any people in the revolving door.

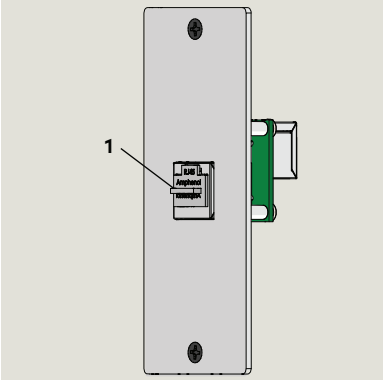
4.2.2.1 Procedure after an Emergency stop.

1. Cause for the emergency stop has been removed.
2. Reset the Emergency stop pushbutton by turning or pulling the pushbutton.
3. Door will move to the home position.
4. The revolving door will continue with the current program settings.

4.3 Service panel (option)

Fig. 4.3.1 Service panel DX4604-08C

1 RJ45 cover



4.3.1 Service panel for handheld.

- Typically located on side of leading quarter post.
- For use by dormakaba service personnel.

4.4 Wave to Open, Push to Start plates (option)

Fig. 4.4.1 Wave to Open plate DX3331-001

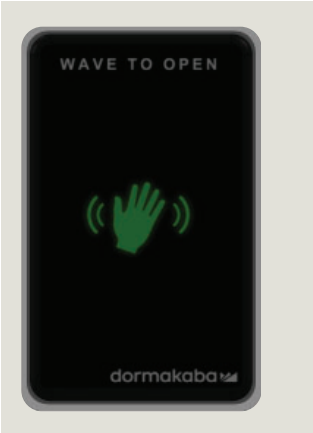
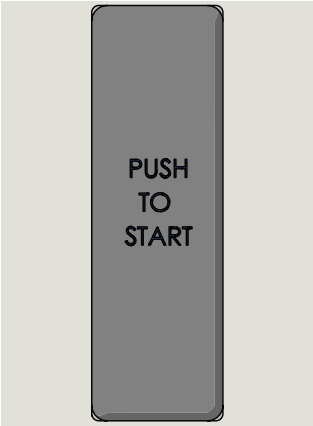


Fig. 4.4.2 Push to Start plate, 1.5 x 4.75", DX3339-040



4.4.1 Wave to Open or Push to Start plates.

Locations:

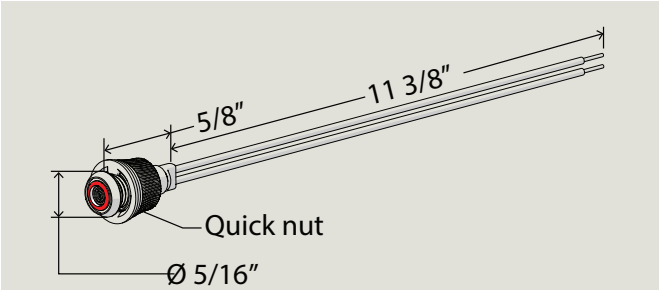
- Inside the building on the leading quarter post/end wall or attached separately within sight of the revolving door.
- Building exterior.

Plates must be located per ANSI BHMA A156.27, Power and Manually Operated Revolving Pedestrian Doors.

Plate starts rotary movement of the door wings at low energy speed (Para. 4.1.2).

4.5 Fault LED

Fig. 4.5.1 Indicator, LED, RX6013-001



4.5.1 Fault LED.

- Fault LED provides Error number indication.
- Frequency and rate of LED flashes indicates Error number.

4.5.2 Fault LED location

- Field installed above or below Mode switch.

4.5.3 Error number and LED blinking codes.

- First digit of Error number: slowly flashing LED (approximately 1 Hz).
- Second digit of Error number: rapidly flashing LED (approximately 2 Hz).
- Error LED fault code example:
  1 x slow and 4 x fast = Error no. 14
  (braking distance at safety stop too long).

TIPS AND RECOMMENDATIONS

Reference Wiring, Setup and Troubleshooting manual RL6001-003 for fault codes.

5 Revolving door assemblies

5.1 Door and canopy configurations with 3 1/8" high canopy In-ground Motion Assist 360 drive and speed control

5.1.1 3 1/8" canopy door configurations.

Fig. 5.1.1 4 wing door

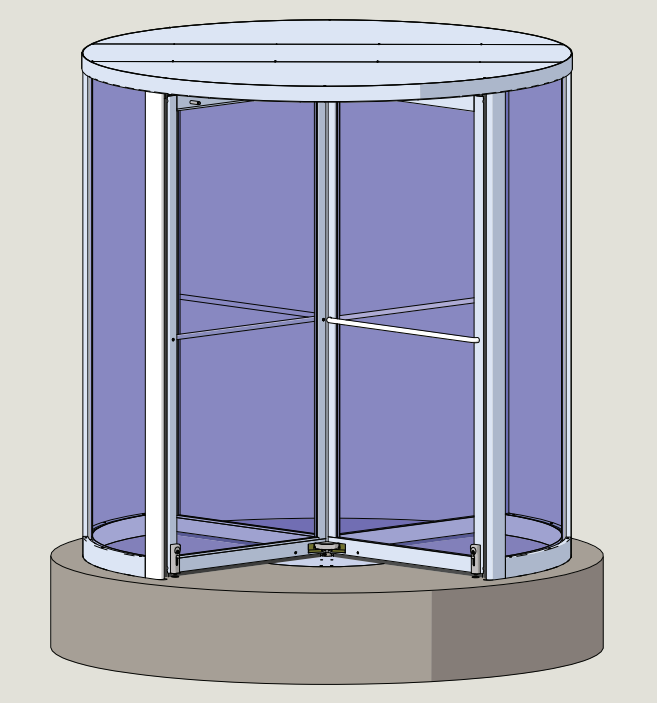
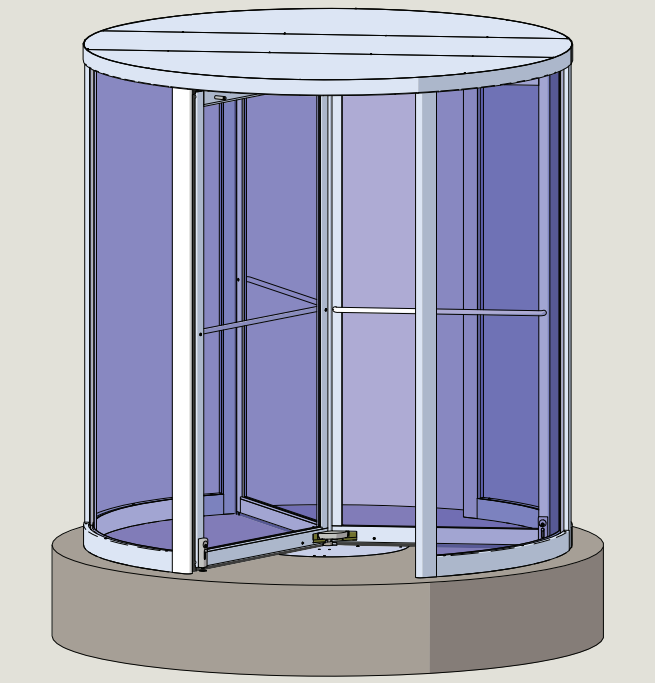


Fig. 5.1.2 3 wing door



NOTICE

Refer to Crane Shop drawings for door and canopy assembly detail for specific job!

5.1.2 3 1/8" canopy configurations.

Table 5.1.1 3 1/8" inch canopy configurations

Canopy assembly	# wings	Figure
RS6057-001	4	5.1.3
RS6057-002	3	

Fig. 5.1.3 3 1/8" canopy with bearing assembly

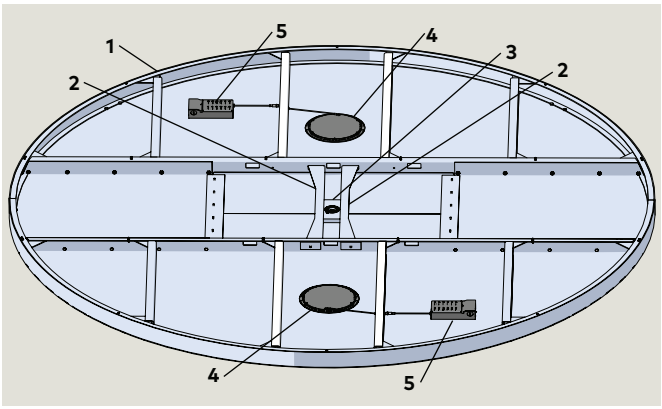


Table 5.1.1 3 1/8" inch canopy bearing and LED lights

Part / Assembly		Description
1	RS6057	Canopy assembly
2	RC6395	Bracket, ground speed control
3	RS6064	Bearing assembly
4	RC7030-001	LED light (option)
5	RC7032-001	Box, junction, with LED driver (option)

5.2 In-ground drive assembly (LP) RS6058

Fig. 5.2.1 In-ground drive assembly exploded view

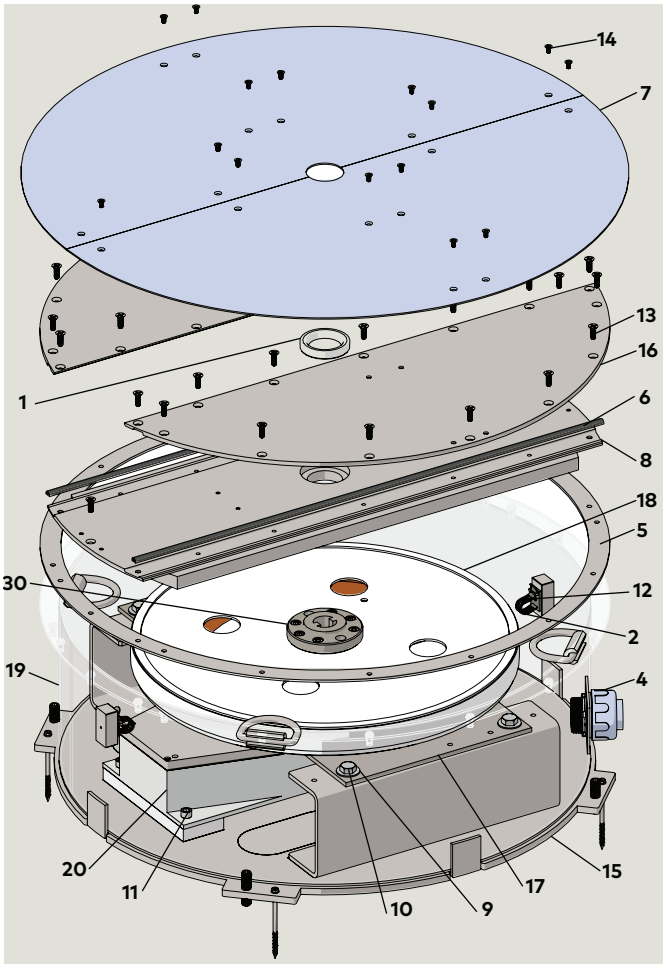


Fig. 5.2.2 In-ground speed control and drive assembly RS6058

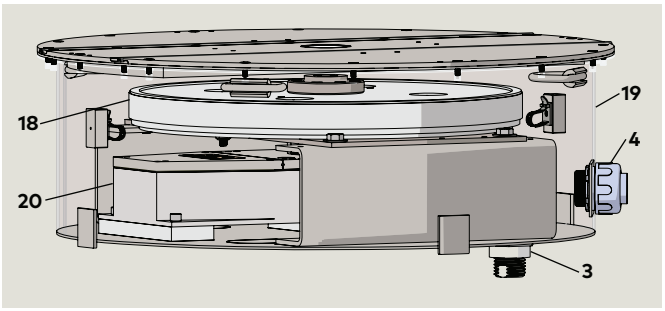


Table 5.2.1 In-ground drive assembly RS6058

Part / Assembly		Description
1	RC6041	Spring-loaded rotary shaft seal
2	RC6042	Cable tie
3	RC6043	Drain fitting
4	RC6045-001	Conduit adapter, 1 1/2", low voltage wiring
5	RC6046	Flange gasket
6	RC6047	Foam rubber seal
7	RC6048	Floor cover plate
8	RC6049	Container lid, center section
9	RF6010-01G	1/2" flat washer, 0.531 ID, 1.25" OD
10	RF6021-01G	1/2-13 x 3/4" Hex head bolt, SS
11	RF6022	3/8-16 x 7/8" locking socket head cap screw
12	RF6024	3/8-16 x 1/2" Phillips flat head screw
13	RF6025-01G	1/4-20 x 3/4" sealing FH countersunk screw
14	RF6026-01G	10-32 x 3/8" sealing FH countersunk screw
15	RS6014	Leveling plate assembly
16	RS6033	Outer cover assembly
17	RC6060	Motion Assist 360 drive mounting bracket
18	RX6010	Motion Assist 360 drive
19	RS6024	Container assembly weldment
20	RS6074-010	In ground speed control assembly
30	RC6025	Drive flange

5.3 3 wing steel shaft assembly, floor drive/speed control RS6061-001

Fig. 5.3.1 Exploded view

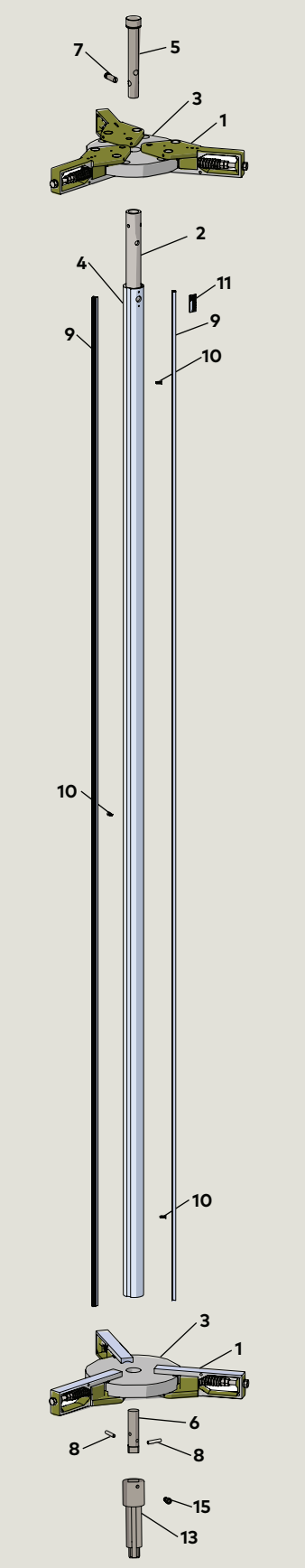


Fig. 5.3.2 3 wing steel shaft assembly

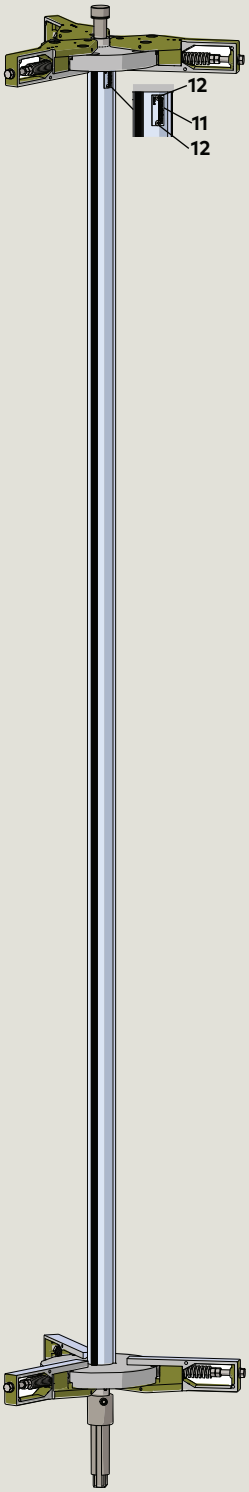
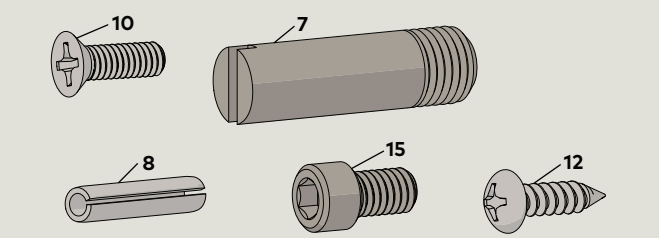


Table 5.3.1 RS6061-001 assemblies and parts

Part / Assembly		Description
1	RS6045-001	Hanger assembly
2	RC6083-002	Steel center shaft, 3 wing, floor speed control
3	RS6044-001	3 wing disc assembly
4	RC6085-001	Steel shaft cover 3 wing, floor speed control
5	RC6081-001	Top plug, steel shaft, ground speed control, 7" length
6	RC6082-001	Bottom plug, steel shaft, floor speed control,
7	RF6052-010	Steel shaft cross pin, 7/16 dia.
8	RF6053-01G	.25 OD x1/2" 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
13	RC6069	Bottom plug adapter, ground drive/speed control LP
15	RF6059-01C	5/16-18 x 1/2" SHCS, black oxide

Fig. 5.3.3 Center shaft fasteners



5.4 4 wing steel shaft assembly, floor drive/speed control RS6060-001

Fig. 5.4.1 Exploded view

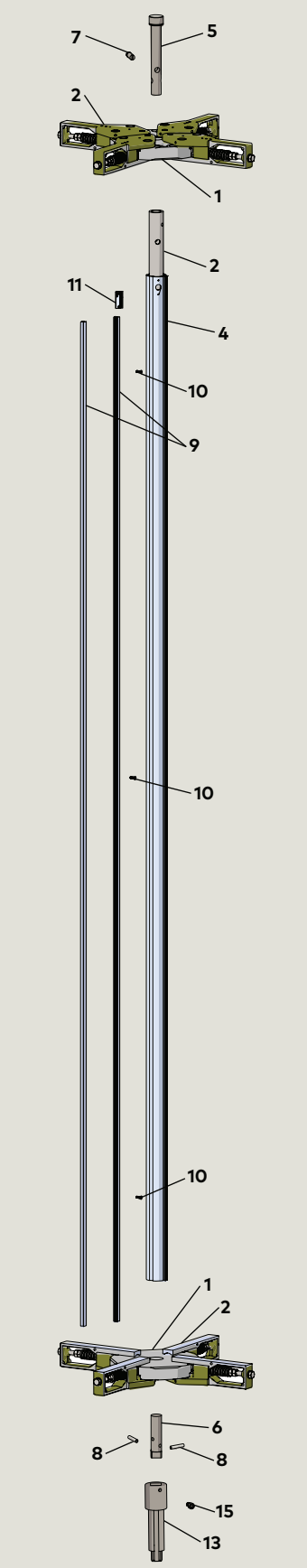


Fig. 5.4.2 4 wing steel shaft assembly

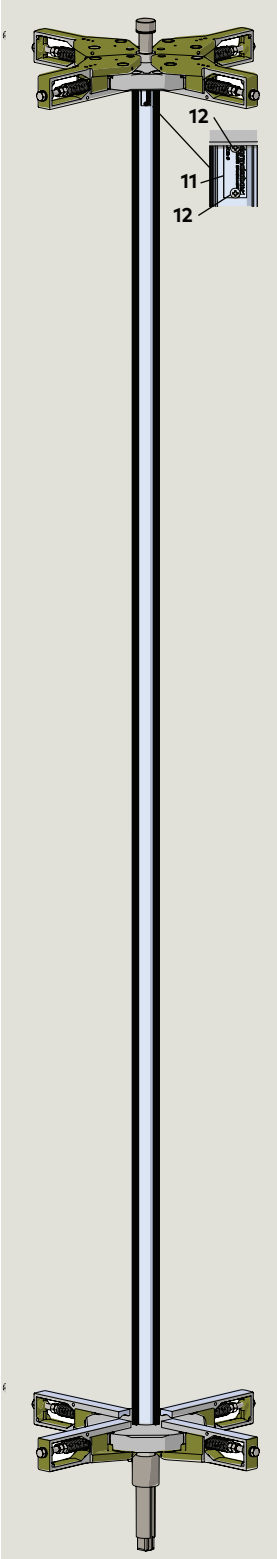
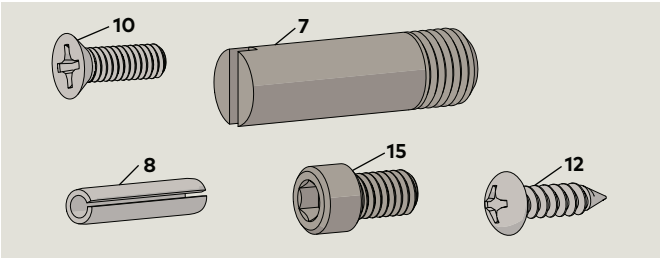


Table 5.4.1 RS6060-001 assemblies and parts

Part / Assembly		Description
1	RS6043-001	4 wing disc assembly
2	RS6045-001	Hanger assembly
3	RC6083-001	Steel center shaft, 4 wing, floor speed control
4	RC6084-001	Steel shaft cover 4 wing, floor speed control
5	RC6081-001	Top plug, steel shaft, ground speed control, 7" length
6	RC6082-001	Bottom plug, steel shaft, floor speed control,
7	RF6052-010	Steel shaft cross pin, 1 1/2" long
8	RF6053-01G	.25 OD x1/2" 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
13	RC6069	Bottom plug adapter, ground drive/speed control LP
15	RF6059-01C	5/16-18 x 1/2" SHCS, black oxide

Fig. 5.4.3 Center shaft fasteners



5.5 In-ground speed control assembly

Fig. 5.5.1 In-ground speed control assembly H63-4001

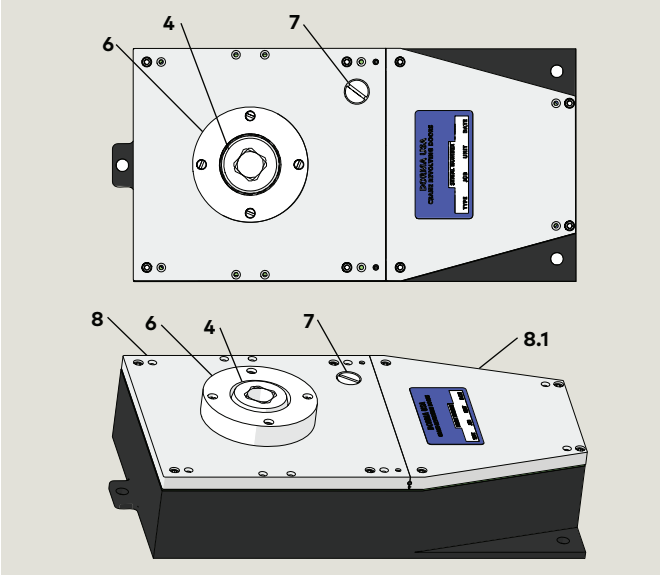


Table 5.5.1 In-ground speed control assembly RS6074-010

Part / Assembly	Description
4	Drive shaft
6	Collar
7	1/2 x 3/4" long SFHMS
8	1/2" Thick subplate
8.1	1/2" thick subplate

5.6 Motion Assist 360 drive bracket assembly

5.6.1 Drive bracket assembly RS6037.

Fig. 5.6.1 Drive bracket assembly exploded view

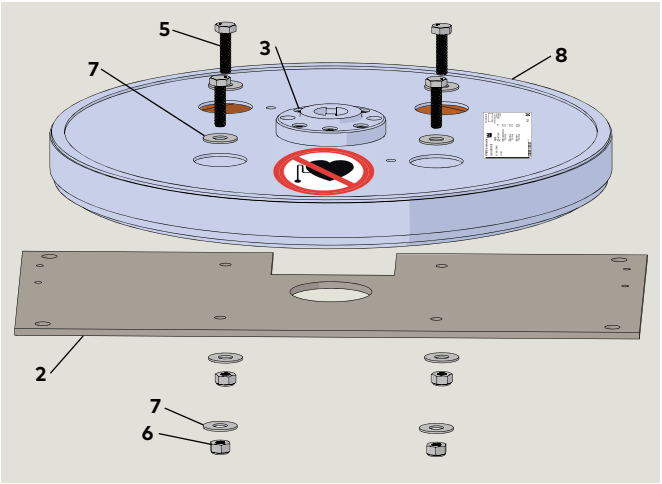
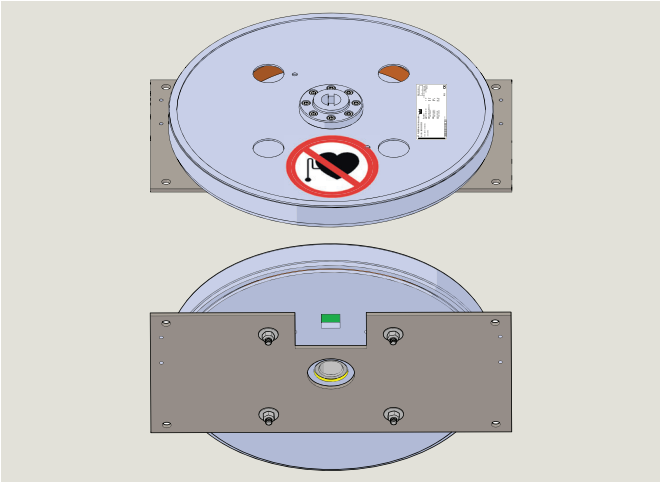


Table 5.6.1 Motion Assist 360 drive bracket assembly

Part / Assembly		Description
2	RC6060	Motion Assist 360 drive mounting bracket
3	RC6025	Drive flange
5	RF6004-01Z	M10 x 40 mm SHCS, class 12.9
6	RF6005-01G	M10-1.5 18-8 SS nylon locknut
7	RF6010-01G	1/2" flat washer
8	RX6010	Motion Assist 360 drive

Fig. 5.6.2 Drive bracket assembly



5.7 Remote enclosure – Motion Assist 360 power supply and control unit

5.7.1 Motion Assist 360 Remote enclosure.

Fig. 5.7.1 Motion Assist 360 remote enclosure

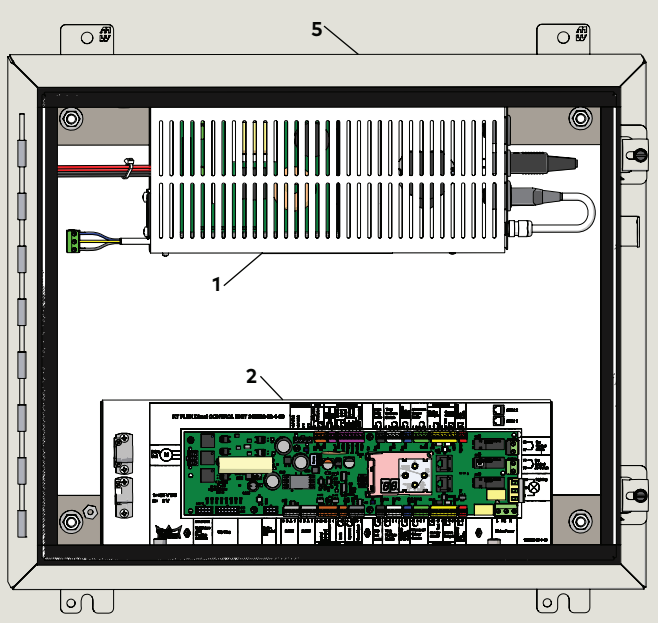


Table 5.7.1 Remote enclosure hardware

Part / Assembly		Description
1	RX6001-001	Motion Assist 360 power supply
1.1		115 Vac cable to control unit (2)
1.2		DC cable to control unit (2)
1.3		Plug for customer 115Vac power cord
2	RX6002-001	Motion Assist 360 control unit
3	RX6003-002	Motion Assist 360 "S" module (Grn)
5	RK6007	Remote enclosure assembly, 24 x 20 x 7 3/16"

5.7.2 Motion Assist 360 power supply and control unit.

Fig. 5.7.2 Motion Assist 360 control unit

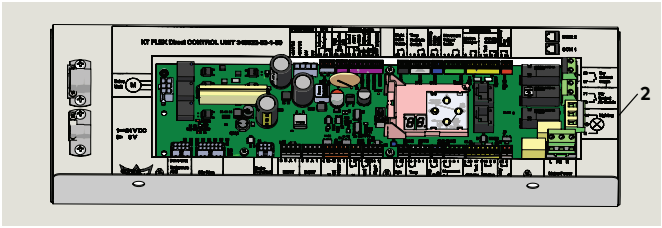


Fig. 5.7.3 "S" function module (Grn) Motion Assist

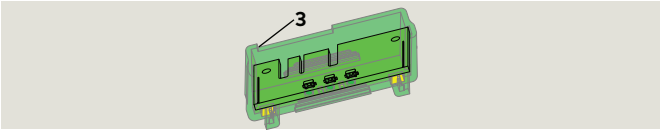
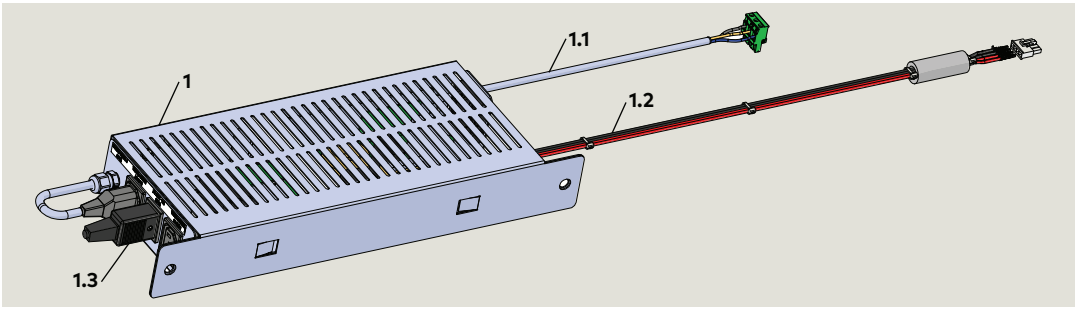


Fig. 5.7.4 Motion Assist 360 power supply and cables



5.8 Hanger assembly, steel shaft RS6045-0X0

Fig. 5.8.1 Shaft hanger assembly

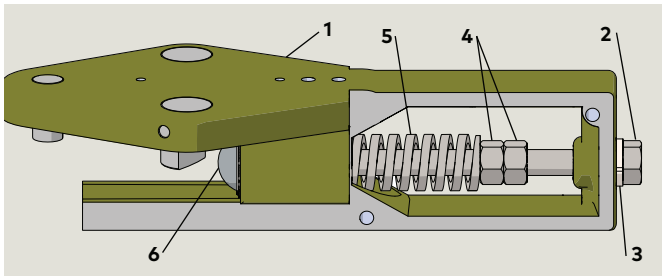
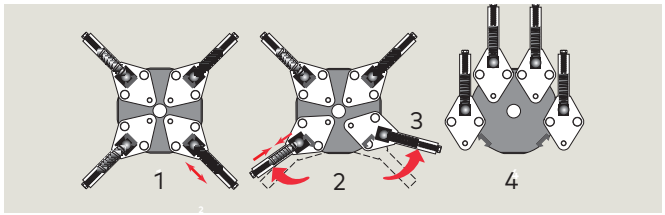


Table 5.8.1 RS6045 shaft hanger assemblies and parts

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

5.9 Bookfold mechanism

Fig. 5.9.1 Bookfold mechanism



5.9.1 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. Excess pressure on wing compresses spring (to breakout force), ball is rotated from detent block in disc.
4. Minimal pressure is then required to continue bookfolding. Wings bookfold either way, providing a clear passage on both sides.

5.10 Door wing assembly example

Fig. 5.10.1 Wing assembly, 4 wing door

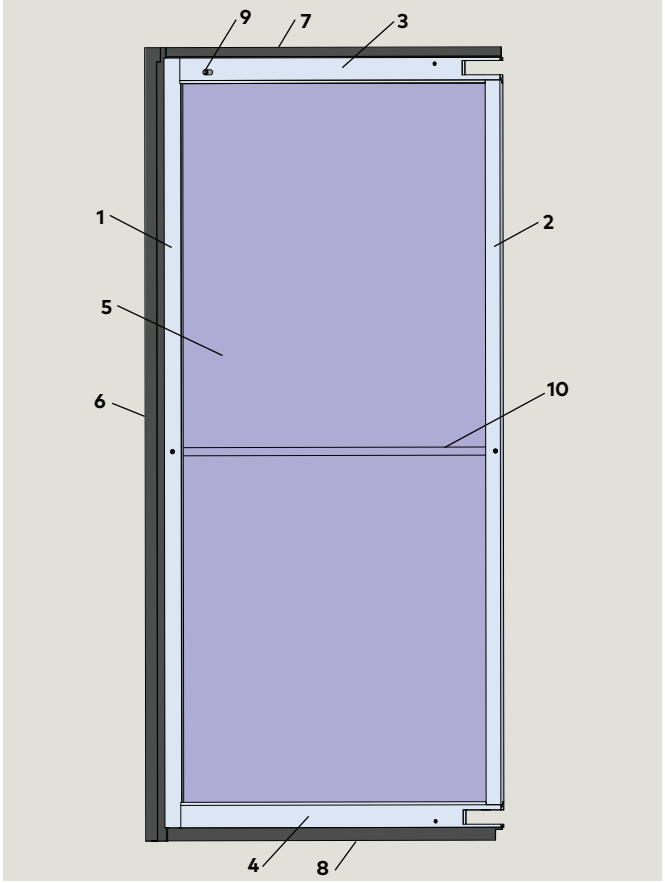


Table 5.10.1 Door wing assemblies and part examples

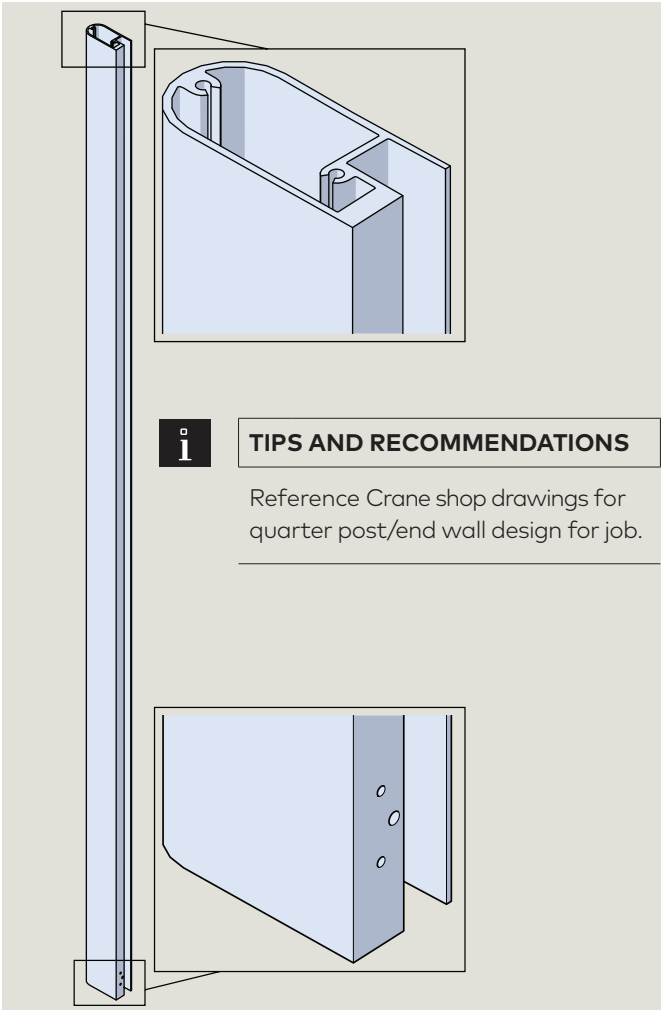
Part / Assembly		Description
1	RE6022-0X0	Front stile, AL
2	RE6031-0X0	Center stile, AL
3	RE6024-0X0	Rail end, Herc
4	RE6024-0X0	Rail end, Herc
5		Wing glass
6	RC6389	Sweep felt vertical
7		Sweep felt top
8		Sweep felt bottom
9	RF2961	Wing bumper assembly
10		Wing push bar Push bars ordered job specific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

NOTICE

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

5.11 Posts and enclosure base

Fig. 5.11.1 Quarter post/end wall RE60XX-0X0



TIPS AND RECOMMENDATIONS

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

Fig. 5.11.2 Center post RE6007-0X0

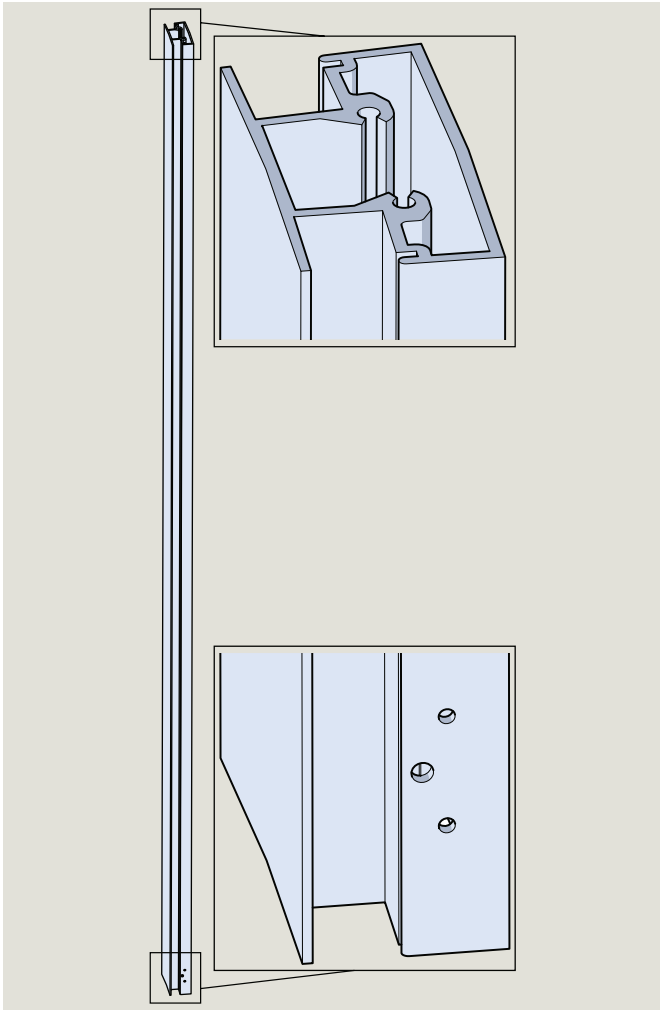


Fig. 5.11.3 Enclosure base assembly, AL

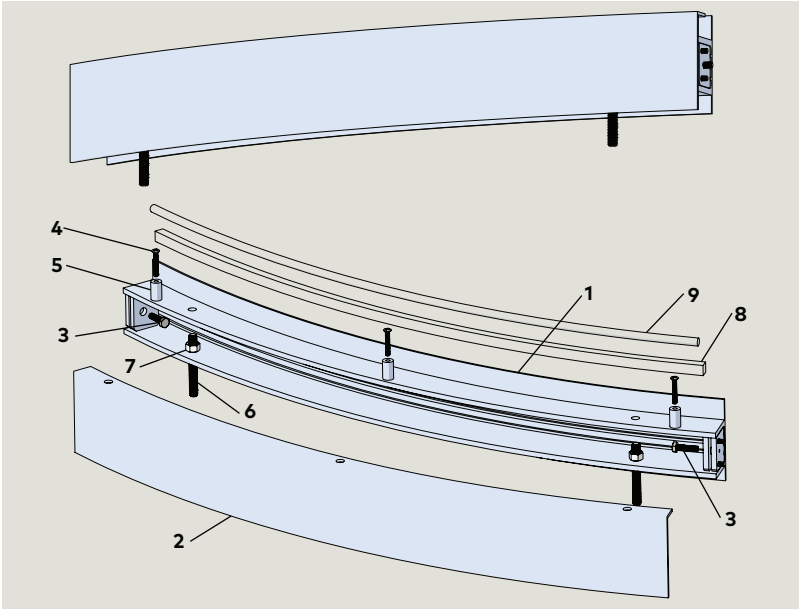


Table 5.11.1 Enclosure base parts

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	S21 0334	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	Z27 0703	3/8 x 3" stud
7	DF0857-00G	3/8-16" hex nut
8		Glazing block (by others)
9		Backing rod (by others)

NOTICE

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

5.12 Floor grill and pan assembly (option)

Fig. 5.12.1 Floor grill and pan assembly

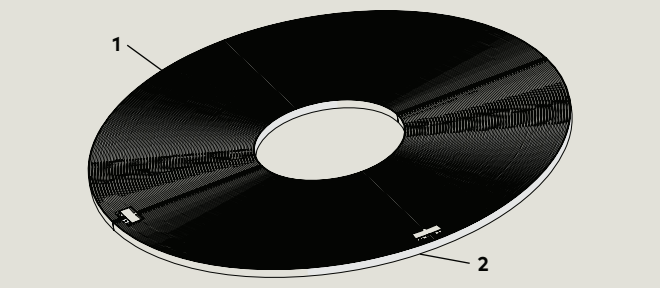


Table 5.12.1 Floor grill and pan

1		Floor grill
2		Floor pan

5.13 Ceiling lights (option)

Fig. 5.13.1 LED light fixture and junction box

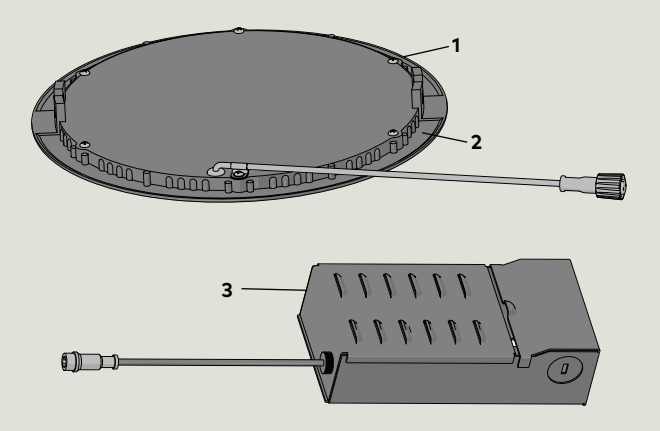


Table 5.13.1 Ceiling light and junction box

1	RC7030-001	Light, LED
2	RC7031-001	2-sided tape for securing light to canopy
3	RC7032-001	Box, Junction with LED driver

5.14 Uninterruptible Power Supply (UPS) (option)

Fig. 5.14.1 UPS 115 Vac to Motion Assist 360 power supply

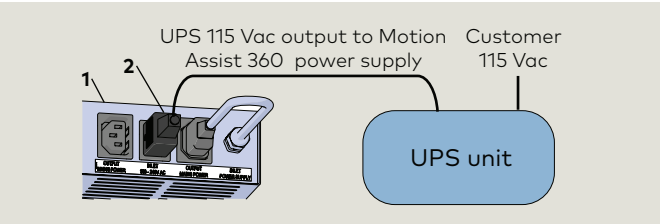


Fig. 5.14.2 Motion Assist 360 power supply

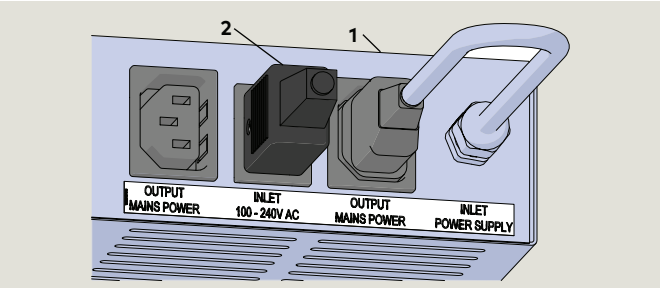


Table 5.14.1 Motion Assist 360 power supply

1	RX6001-001	Motion Assist 360 power supply
2	RF6003-01C	AC ionlet plug customer connection

5.14.1 UPS AC output connection to Motion Assist 360 power supply.

UPS 115 Vac output is wired to 100 - 240 Vac inlet plug on Motion Assist 360 power supply.

5.14.2 UPS power supply units (option).

Table 5.14.2 UPS power supply units

UPS Part #	Rating		Maximum time
	VA	Watts	
	12 foot diameter door		
RX6011-001	1500	900	3 hours
RX6012-001	500	300	1 hour
	7 foot diameter door		
RX6011-001	1500	900	4 hours
RX6012-001	500	300	1.5 hours

6 In-ground container hardware

6.1 In-ground container assembly

Fig. 6.1.1 In-ground drive assembly with speed control and bottom plug installed

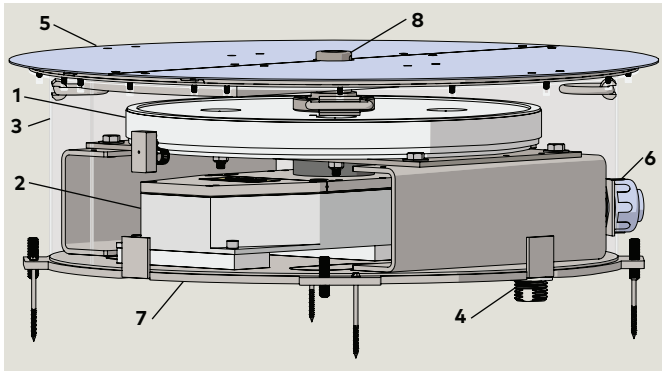


Fig. 6.1.2 Motion Assist 360 drive

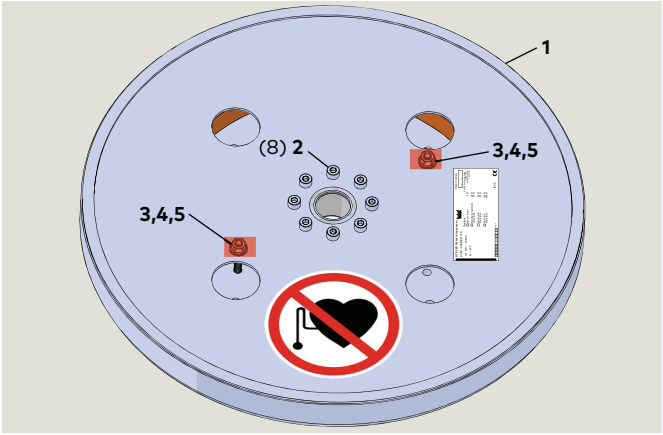


Fig. 6.1.3 In-ground speed control

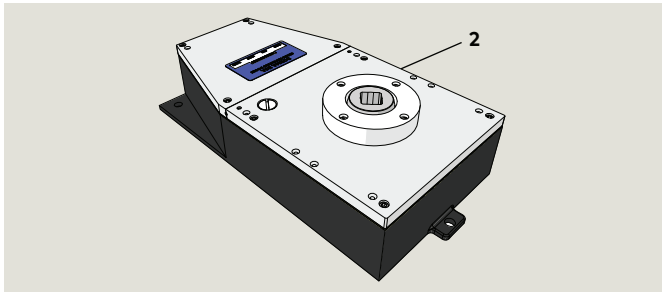


Fig. 6.1.4 Drive motor cable

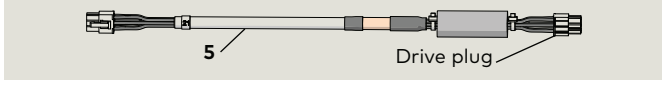


Fig. 6.1.5 Drive Hall sensor cable

Table 6.1.1 Motion Assist 360 drive hardware

Part / Assembly		Description
1	RX6010	Motion Assist 360 drive
2	RS6074-010	In-ground speed control
3	RS6038	Container assembly weldment
4	RC6043	Drain plug
5	RC6048	Floor cover plate
6	RC6005-001	DC conduit adapter, 1 1/2"
7	RS6014	Leveling plate assembly
8	RC6069	Bottom plug adapter
5	RX6005-001	Motor cable (21), 14 1/16"
7	RX6006-001	Motion Assist 360 Hall sensor cable (22), 13 3/4"

Table 6.1.2 Motion Assist 360 drive

1	RX6010	Motion Assist 360 drive
2	RF6003-01C	M8 x 20 mm hex bolt
		Transport bolts
3		5/16 x 2 1/4" hex bolt
4		5/16" hex nut
5		5/16" steel flat washer

Table 6.1.3 Motion Assist 360 drive cables

5	RX6005-001	Motor cable (21), 14 1/16"
7	RX6006-001	Motion Assist 360 Hall sensor cable (22), 13 3/4"

6.2 Motion Assist 360 extension cables to remote enclosure

6.2.1 Motion Assist 360 extension cables.

Extension cables connect Motion Assist 360 drive cables (Para. 6.1) to Motion Assist 360 control unit in Remote enclosure (Para. 5.7).

6.2.2 Remote enclosure.

NOTICE

Reference RL6001-003 Wiring and Setup Manual for Remote enclosure and extension cable detail.

Table 6.2.1 Motion Assist 360 drive extension cables

1	RX6016-001	Motor extension cable, 25' (standard)
		Optional motor extension cables
	RX6016-002	Motor extension cable, 50'
	RX6016-003	Motor extension cable, 100'
2	RX6015-001	Hall sensor extension cable, 25' (standard)
		Optional Hall sensor extension cables
	RX6015-002	Hall sensor extension cable, 50'
	RX6015-003	Hall sensor extension cable, 100'

Fig. 6.2.1 Motor extension cable

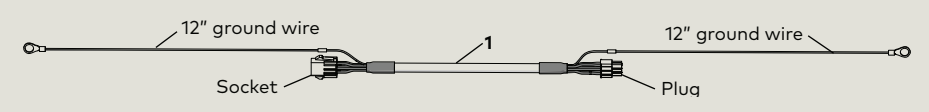
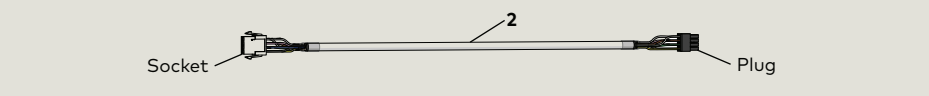
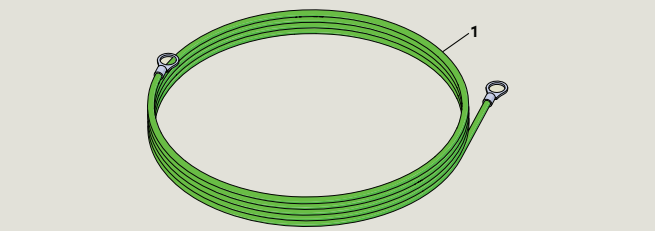


Fig. 6.2.2 Hall sensor extension cable



6.3 Motion Assist 360 earth grounding cable

Fig. 6.3.1 Earth grounding cable



6.3.1 Earth grounding cable.

NOTICE

Reference RL6001-003 Wiring and Setup Manual for connection of earth grounding cable from Remote enclosure to In-ground container.

Table 6.3.1 Earth ground cable

ID	Part #	Description
1	RX6009	Earth ground cable

6.4 Service panel communication cable

6.4.1 RJ45 communication cable for service panel.

- Reference Para. 4.3; Service panel (option).

Fig. 6.4.1 RJ45 Service panel communication cable

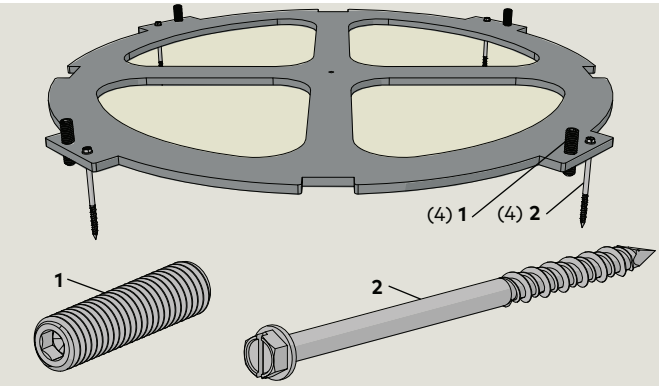
1 Communication cable RX4662

Table 6.4.1 Service panel communication cables

ID	Part #	Description
1	DX4462-001	Communication cable, 90 deg., 3' (standard)
		Optional communication cables
1	DX4662-002	Communication cable, 90 deg., 10'
1	DX4662-003	Communication cable, 90 deg., 20'

6.3 In-ground container assemblies with fastener hardware

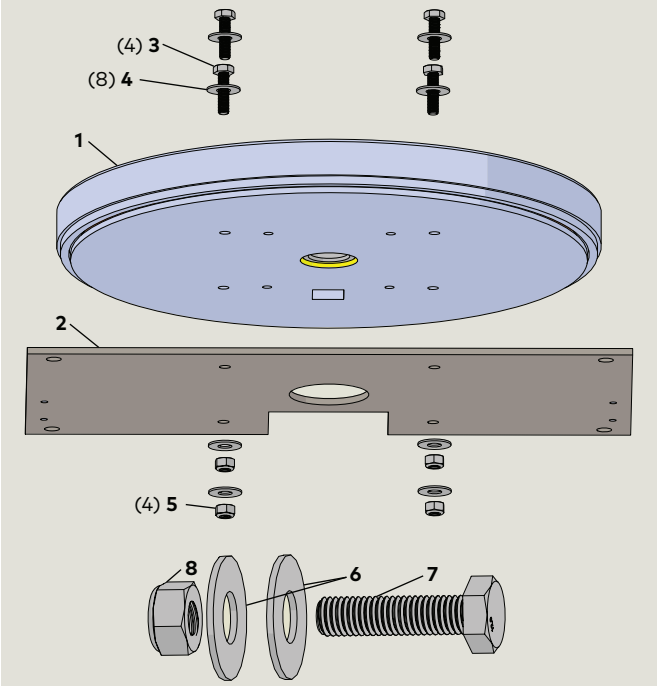
Fig. 6.3.1 Container leveling plate assembly hardware



6.3.1 Container leveling plate hardware.

ID	Part #	Description	Qty
	Container leveling plate assembly RS6014 hardware		
1	RF6028-01G	1/2-13 x 2" Cup-point set screw, SS	4
2	RF6017-01Z	1/4 x 4" Hex-washer head screw for concrete, blue-coated steel	4

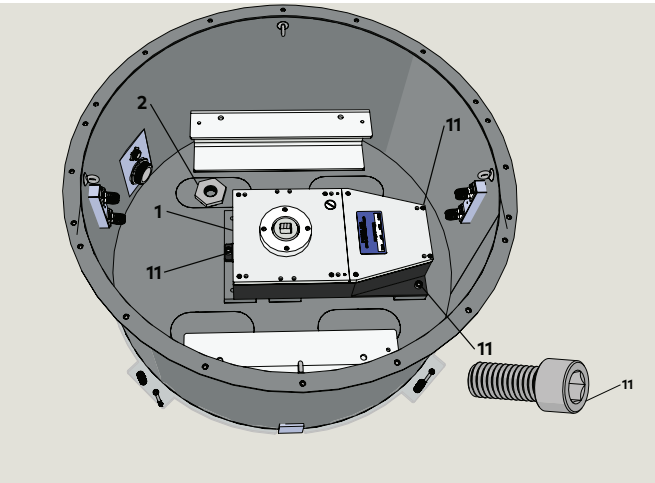
Fig. 6.3.2 Drive bracket assembly RS6037



6.3.2 Motion Assist 360 drive to mounting plate with fasteners.

ID	Part #	Description	Qty
1	RX6010	Motion Assist 360 drive	1
2	RC6060	Motion Assist 360 drive mounting plate	1
6	RF6010-01G	Washer, flat, 1 1/4" OD, 0.531" ID, for 1/2" screw, SS	4
7	RF6004-01Z	Hex head cap screw, M10 x 40 mm, class 12.9 zinc, extreme strength	4
8	RF6005-01G	Nylon insert locknut, M10, SS	4

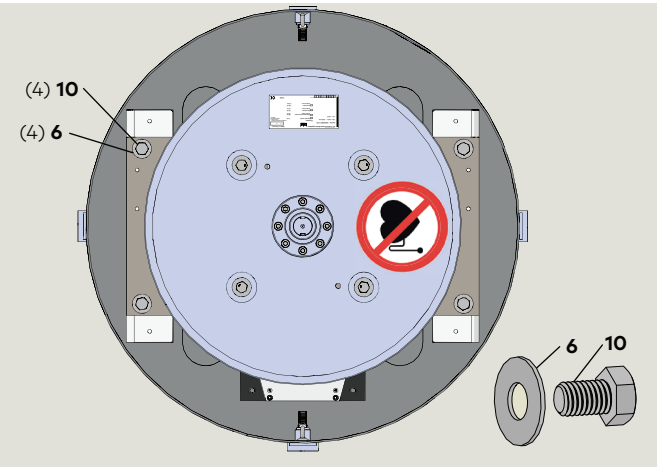
Fig. 6.3.4 Fasteners; In-ground speed control to container assembly



6.3.4 In-ground speed control to container assembly fasteners.

ID	Part #	Description	Qty
1	RS6074-010	In-ground speed control	1
2	RC6043	Container drain May be in a different location	1
11	RF6022-01C	3/8 x 7/8" SHCS, black oxide	3

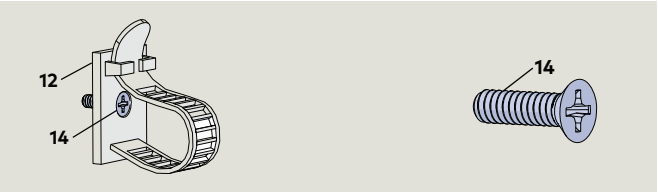
Fig. 6.3.5 Fasteners; Motion Assist 360 drive mounting plate to U-channels



6.3.5 Fasteners for Motion Assist 360 drive mounting plate to U-channels.

ID	Part #	Description	Qty
10	RF6021-01G	Hex head bolt, 1/2 x 3/4", SS, fully threaded	4
6	RF6010-01G	Washer, flat, 1 1/4" OD, 0.531" ID, for 1/2" screw, SS	4

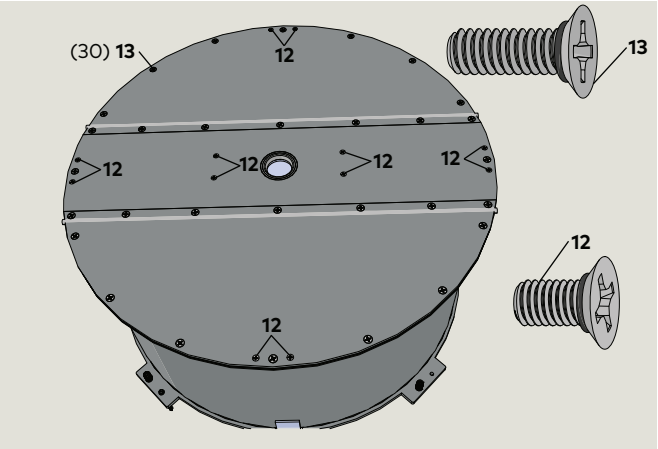
Fig. 6.3.6 Cable tie fastener



6.3.6 Cable tie fastener.

ID	Part #	Description	Qty
12	RC6042	Wire tie fastener	
14	RF6024-01G	#6 x 1/2" Phillips FHS, SS	8

Fig. 6.3.7 Fasteners; container lids

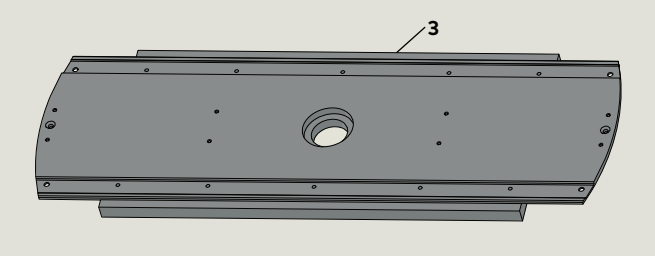


6.3.7 Fasteners for container lids and floor cover plates.

ID	Part #	Description	Qty
	Floor cover plate fasteners		
12	RF6026-01G	10-32 x 3/8" sealing flat head screw, SS	16
	Container lid fasteners		
13	RF6025-01G	1/4-20 x 3/4" sealing flat head screw	30

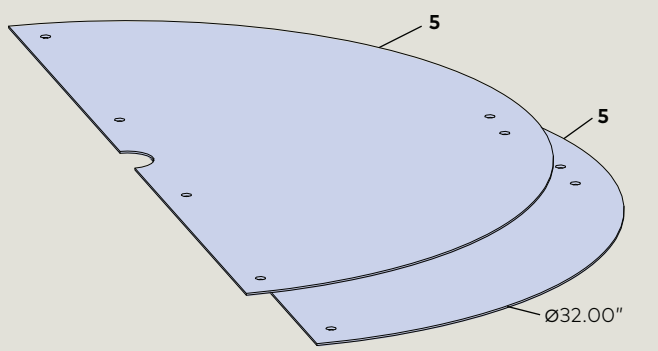
6.4 Cover assemblies

Fig. 6.4.1 Container lid, center section



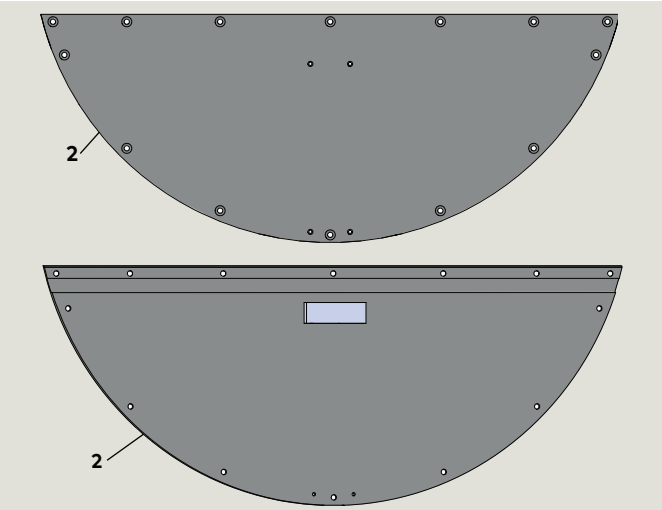
3 Container lid, center section RC6049

Fig. 6.42 Floor cover plates



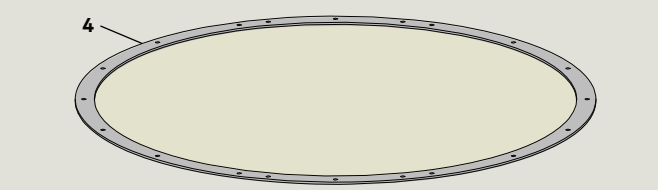
5 Floor cover plate RC6048

Fig. 6.4.3 Outer cover assembly, top and bottom views



2 Outer cover assembly RS6033

Fig. 6.4.4 Flange gasket



4 Flange gasket RC6046

7 Recommended Tools And Materials

7.1 Recommended tools

Fig. 7.1.1 Recommended tools

Table 7.1.1 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"

7.2 Recommended installation materials and installation hardware

Fig. 7.2.1 Recommended installation materials

Fig. 7.2.2 Recommended installation hardware

Table 7.2.1 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 7.2.2 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

8 Assembly safety

8.1 Assembly safety

8.1.1 Incorrect assembly.

⚠ WARNING

Incorrect assembly can put lives at risk!
If assembly does not take place in an approved area or if supplied materials and components are used for purposes other than to assemble the revolving door, this can lead to serious injury and significant material damage.

- Assemble revolving door in approved area only.
- Use only materials and components supplied for assembly of the revolving door.
- Never construct or configure the revolving door other than as described in this document.
- Never use equipment for assembly other than that described in this document.
- Do not install the revolving door over soft flooring (e.g. carpeting).
- Never affix additional objects to the revolving door or suspend objects from it.
- Never use replacement parts not approved by the manufacturer.

8.1.2 Electrical cables.

⚠ WARNING

Life-threatening danger due to electricity!
Operator, controller and power supply are energized. Touching the components poses an immediate risk of death from electric shock.

- When laying cables, ensure that the insulation is not damaged.
- Immediately Replace components or cables with damaged insulation.
- Do not place or set down loads on cables.

8.1.3 Heavy loads.

⚠ WARNING

Risk of injury from heavy loads!
Manual lifting of heavy components can lead to injury.

- Use appropriate equipment such as lift trucks and other lifting devices.
- Never lift alone.

8.1.4 Adequate lighting.

⚠ WARNING

Risk of injury due to inadequate lighting during assembly!
Inadequate or nonexistent lighting at the assembly location can lead to personal injury.

- Always insure there is adequate lighting at the assembly location.
- Never carry out assembly with defective or missing lighting at the installation location.

8.1.5 Sharp edges and pointed corners.

⚠ WARNING

Risk of injury on sharp edges and pointed corners!
Sharp edges and pointed corners on components can cause abrasions and cuts.

- When handling sharp or pointed components, wear protective gloves and safety shoes.
- Handle components carefully and properly.
- When transporting components, take into account the component weight.

8.2 Cordon off work area

⚠ WARNING

Cordon off revolving door assembly location for the complete revolving door installation process.

9 Prepare finished floor

9.1 Assembly location

9.1.1 Assembly location documentation.

1. Documentation:
- Crane shop drawing detailing revolving door attachment plan to building and required dimensions (elevation and plan views).

CAUTION

Refer to specific Crane Shop Drawing for job!

- Contractor or architect drawings detailing revolving door assembly location.

2. Crane Installation template (Ref. Chapter 10).
3. Verify assembly location and associated framing with Crane Shop documentation.

9.2 Preparing finished floor for revolving door assembly

9.2.1 Preparing finished floor.

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.
- Floor surface should be smooth without cracks or crevasses.

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.

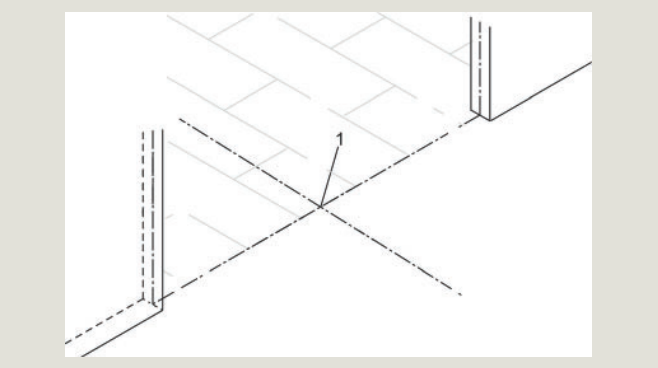
⚠ WARNING

Risk of injury due to improper leveling!
If finished floor is not leveled before assembly, faults can occur during subsequent operation of the revolving door. This can lead to dangers that can cause serious injury and significant material damage.

CAUTION

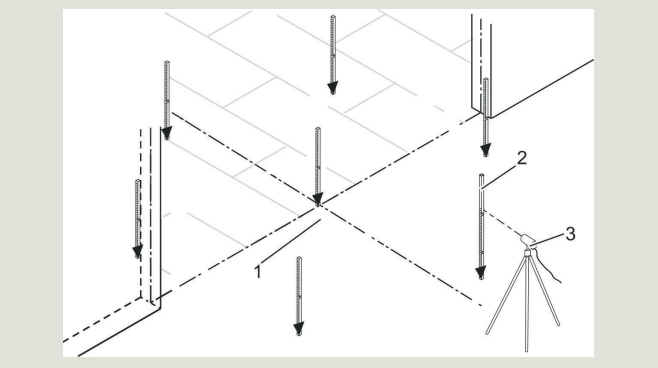
Material damage due to improper leveling!
Laser leveling device with stand:
Improper positioning of the stand or leveling staff may lead to measurement errors when leveling. Measurement errors can lead to incorrect assembly of the revolving door. This will result in material damage.
- Before leveling, ensure that the stand is securely positioned on the floor and cannot wobble or tilt.
- Before leveling, ensure that the laser leveling device is aligned horizontally on its stand.
- Always position the leveling staff vertically during leveling.
- After leveling, note the tolerance of ± 2 mm (1/16") for the individual measured value to the reference value.

Fig. 9.2.1 Center of revolving door axis



1 Axis center

Fig. 9.2.2 Laser level measuring points



1 Axis center
2 Leveling staff
3 Laser leveling device

9.2.2 Check level of finished floor.

TIPS AND RECOMMENDATIONS

Check floor level procedure in Para. 9.2.2 is a recommendation.

1. Position leveling device horizontally in front of assembly surface (Fig. 9.2.2).
2. Position leveling staff vertically at any point on assembly floor surface to select a reference point.

TIPS AND RECOMMENDATIONS

The reference point (step 2) is used for the following measurements.

3. Measure reference point and note reading.
4. Take measurements at a minimum of 6 different points, as shown in Fig. 10.4.2 and note readings.
5. Compare measurement points with reference value. The deviation tolerance is 1/16" [2 mm].

CAUTION

If measurements are outside of the deviation tolerance, the finished floor must be reworked or re-prepared by the building contractor.

9.2.3 Mark center of revolving door axis.

CAUTION

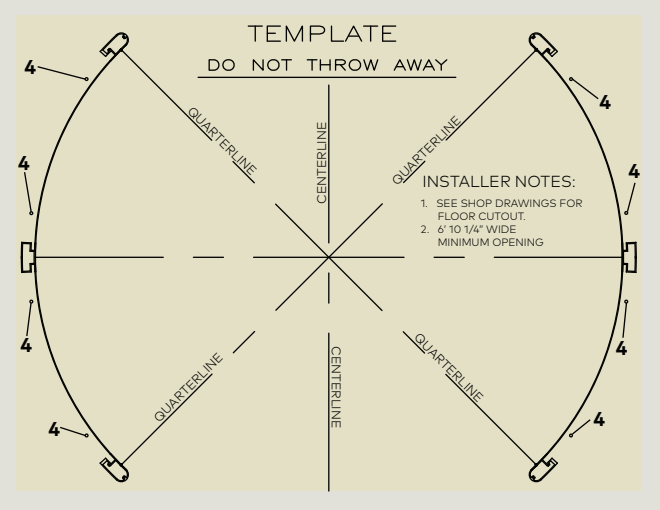
Material damage due to incorrect marking of revolving door axis center!
Inaccurate marking of the center of the axis of the revolving door on the assembly surface can lead to subsequent discrepancies during assembly. This can result in faults and material damage.

- Always accurately mark the axis center.
- Always use the supplied drilling template to mark hole locations.

1. Go to Chapter 10, Installation Template.

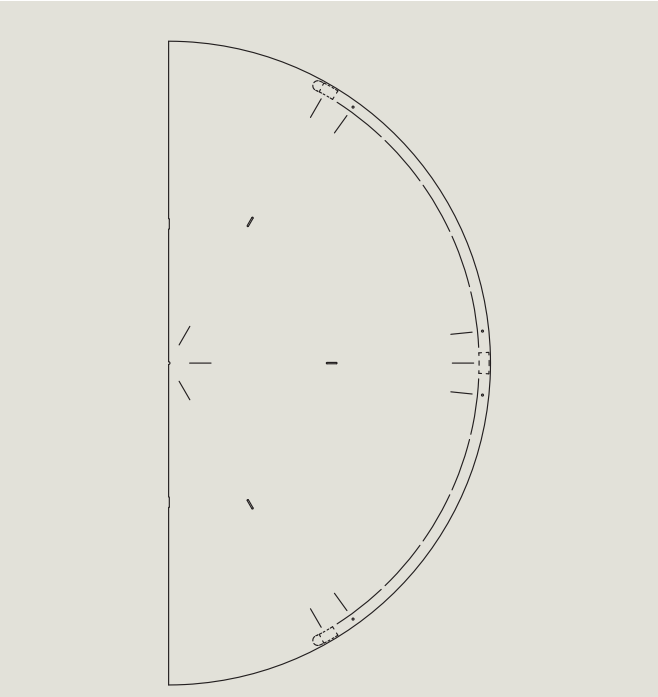
10 Installation template

Fig. 10.1 Full size cardboard installation template



4 Stud hole locations in enclosure base

Fig. 10.2 Full size installation template; 10' OD, 3 wing door example



10.1 Locate full size installation template.

TIPS AND RECOMMENDATIONS

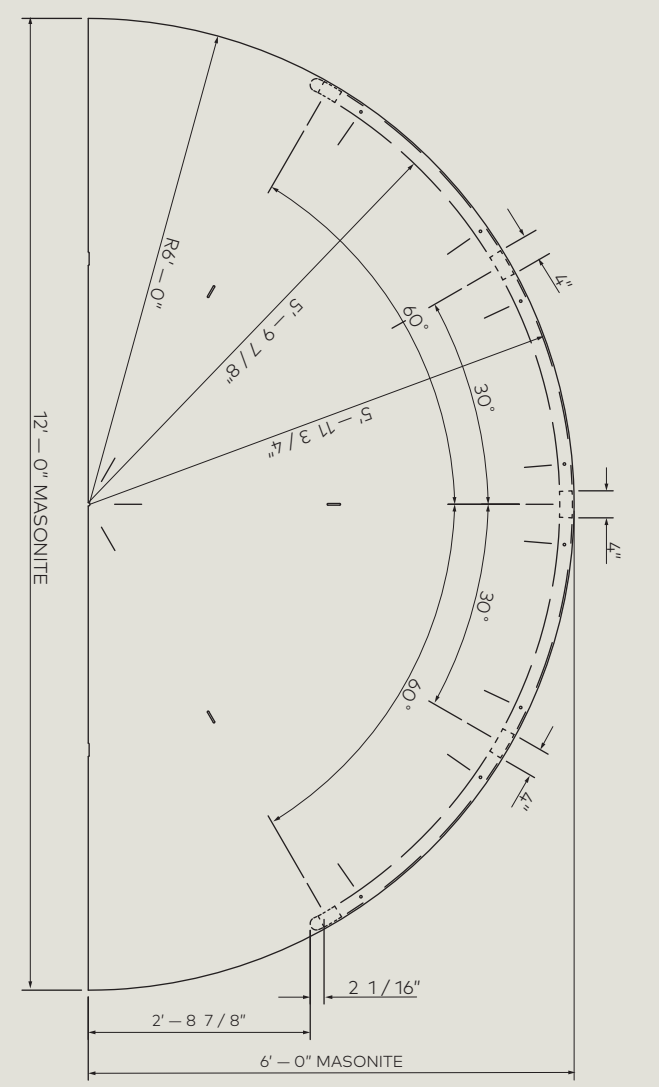
Templates for canopy diameters greater than 6'6" I.D. are custom made and cut out of a Masonite type material to match door conditions.

1. Locate full size template.

- Template shipped in canopy shipping crate.

2. Reference Crane shop drawing for template orientation at building attachment.

Fig. 10.3 Full size installation template; 12' OD, 3 wing door example



11 Install leveling plate in pit, install container in pit

11.1 Pit location and dimensions

TIPS AND RECOMMENDATIONS

Refer to Crane shop drawings for in-ground drive assembly floor installation detail.

11.1.1 Verify door centerpoint in pit.

1. Using shop drawings, verify pit is centered at door centerpoint.

11.1.2 Verify pit dimensions for in-ground drive assembly.

1. Verify minimum pit dimensions.

NOTICE

Pit centerpoint and/or pit dimension issues.
Resolve any pit door centerpoint location or pit dimension issues with building contractor before proceeding.

Fig. 11.1.1 Minimum pit dimensions

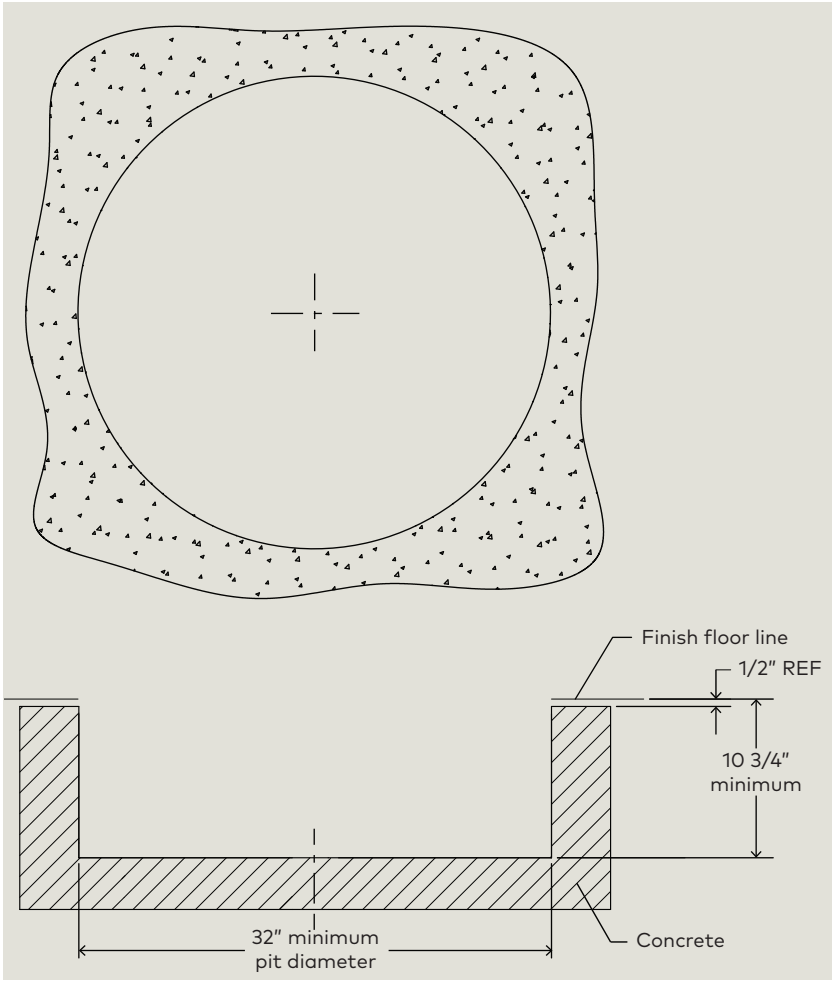
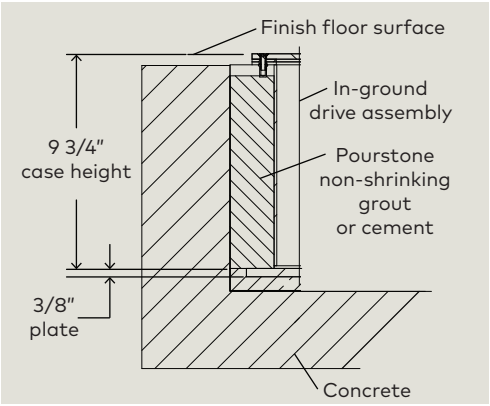
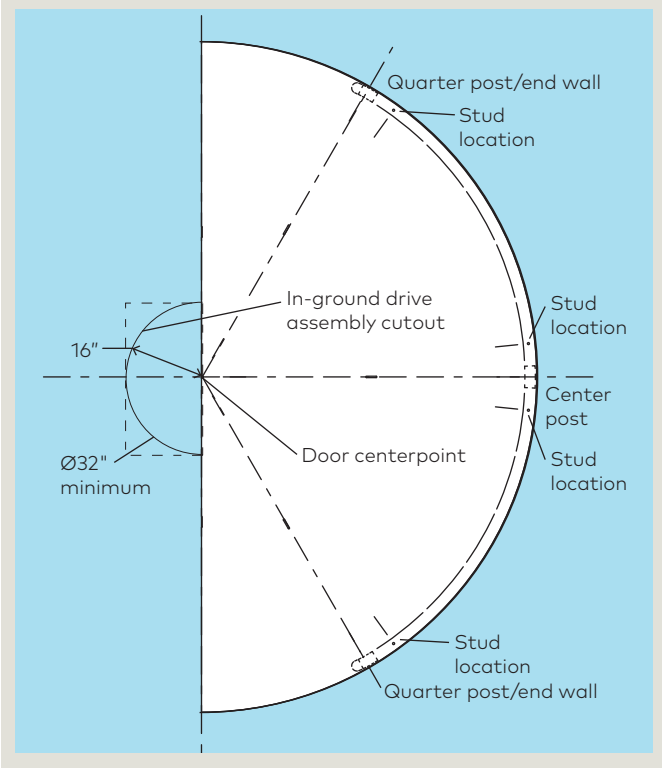


Fig. 11.1.2 Reference: In-ground drive assembly in pit



11.2 Position template at door centerpoint and orient to building interface

Fig. 11.2.1 Template placed on floor



11.2.1 Position floor template.

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

NOTICE

Door centerpoint dimensions.
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.

NOTICE

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

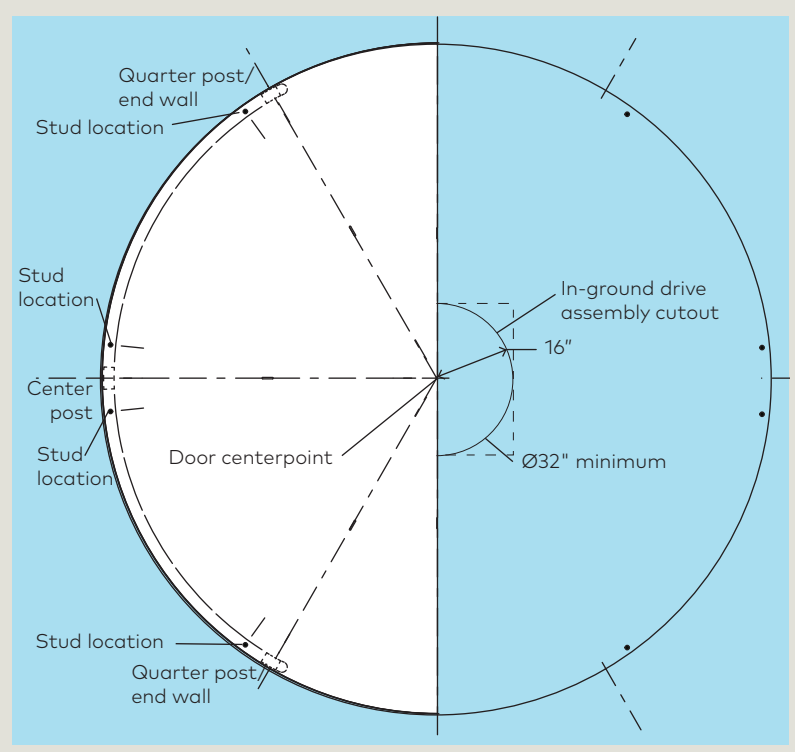
NOTICE

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

11.2.2 Mark lines on floor.

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

Fig. 11.2.2 Template position reversed on floor



11.2.3 Reverse template position on floor.

1. Recheck that template is at door centerpoint and is aligned with building interface.
2. Secure template to floor.

11.2.4 Mark lines on floor.

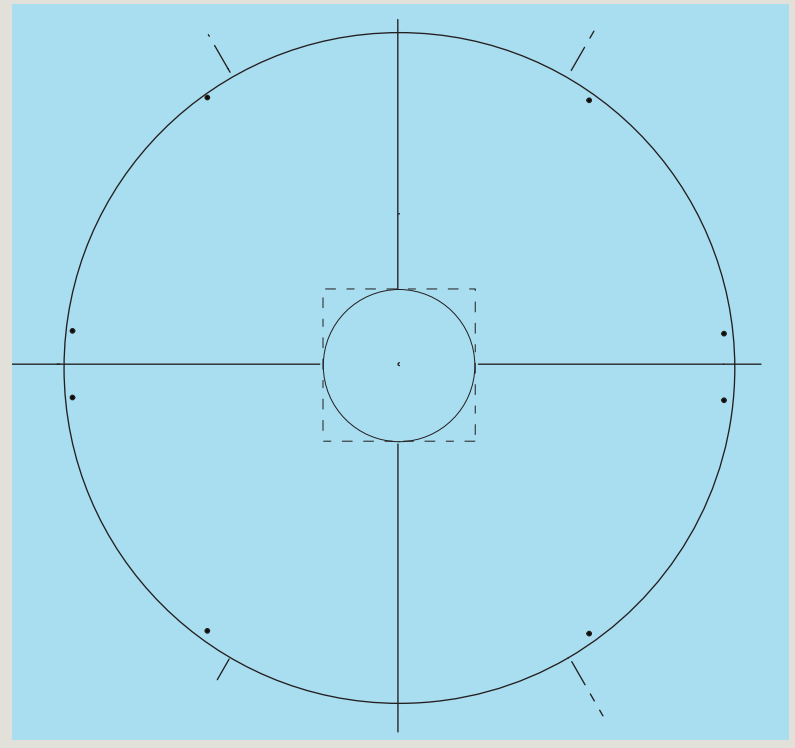
1. Draw door centerlines.
2. Mark quarter post and center post lines.
3. Mark mounting base stud locations.
4. Trace door outside radius.

11.2.5 Remove template.

1. Remove template.

11.3 Drill holes for mounting base studs

Fig. 11.3.1 Floor marked with door location and mounting base holes



11.3.1 Drill pilot holes in floor.

⚠ WARNING

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

11.3.2 Drill mounting base pilot holes.

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

11.3.3 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".

11.4 Install leveling plate in pit

Fig. 11.4.1 Leveling plate RC6022

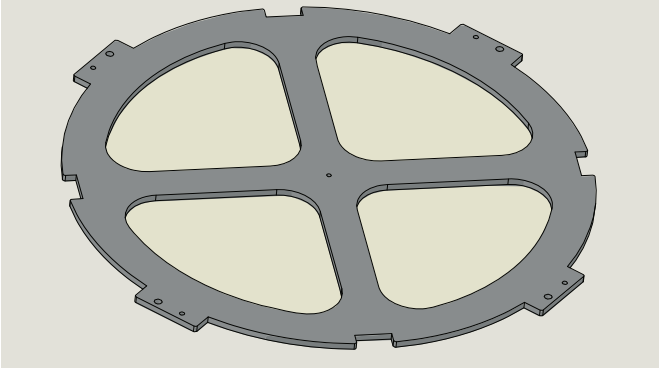


Fig. 11.4.2 Leveling plate with set screws installed

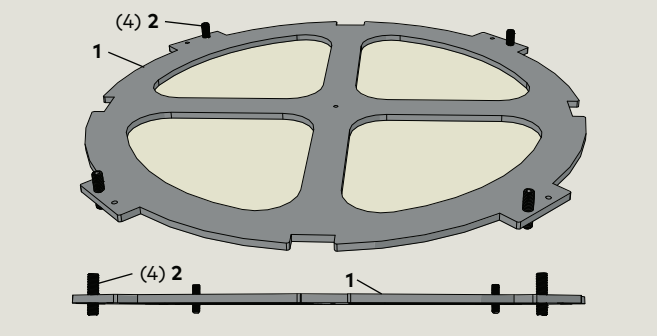


Fig. 11.4.3 Set screw RF6028-01G

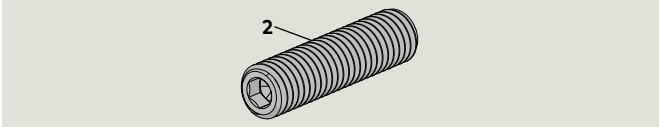


Fig. 11.4.4 Set screw depth

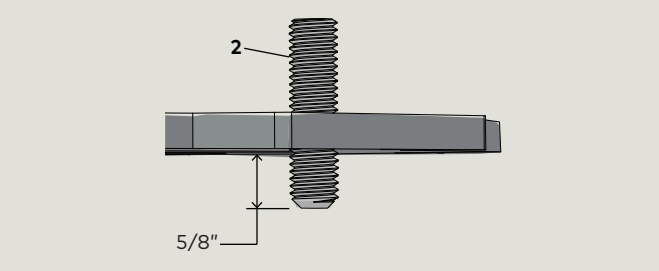


Table 11.4.1 Leveling plate and hardware

1	RC6022	Leveling plate
2	RF6028-01G	1/2-13 x 2" cup point set screw

11.4.1 Install set screws in leveling plate.

1. Install four set screws RF6028 in leveling plate.

- Install set screws to an equal depth of 5/8" below leveling plate (Fig. 11.4.4).

Fig. 11.4.5 Leveling plate installation

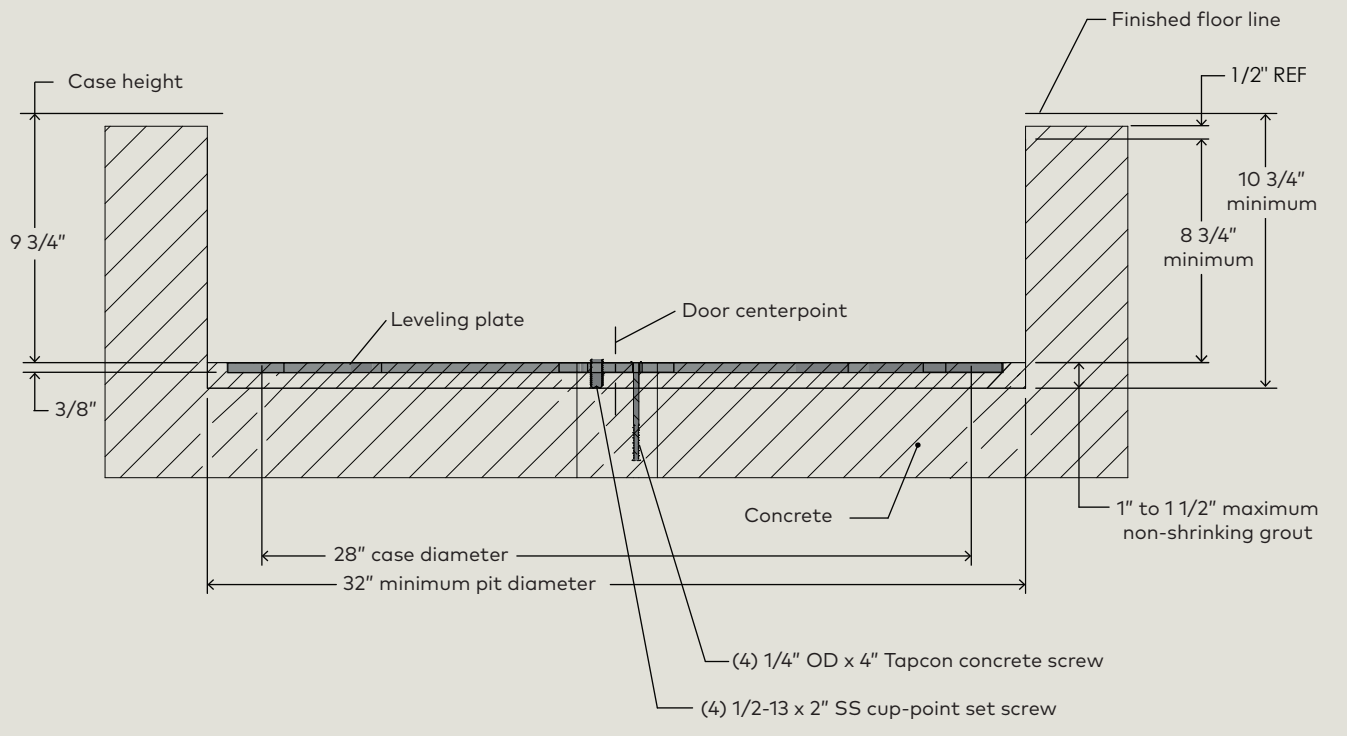
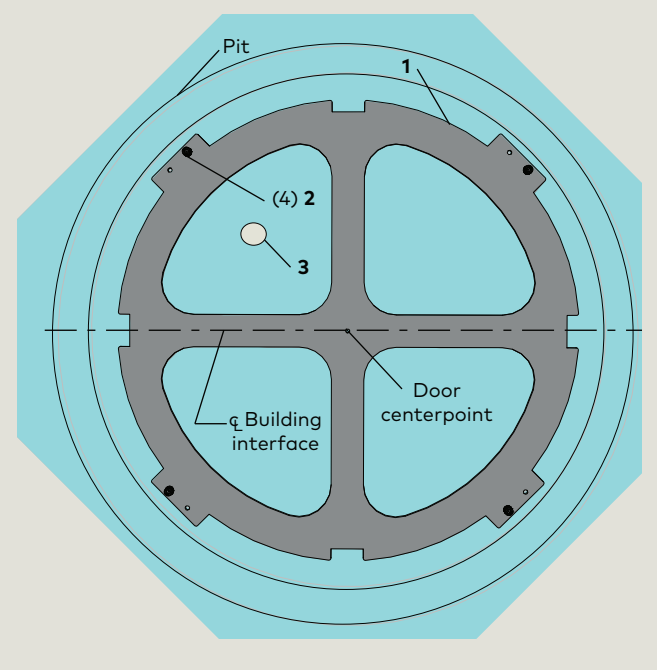


Fig. 11.4.6 Leveling plate in pit example



1 Leveling plate RC6022

2 1/2-13 x 2" Cup-point set screw, SS RF6028-01G

3 Pit drain pipe or tube location example

11.4.2 Check pit dimensions, clean dirt and debris from pit.

NOTICE

- Pit must be free of all dirt and debris.
- Minimum pit dimensions are shown in Fig. 11.4.5.

11.4.3 Place leveling plate in pit, locate at door centerpoint.

NOTICE

- Orient leveling plate parallel to building interface as shown in Fig. 11.4.6.
- Orientation in pit may be different than that shown in Fig. 11.4.6.

Leveling plate centerpoint must be positioned at door centerpoint.

11.4.4 Level and adjust height of leveling plate.

NOTICE

- Adjust four set screws (**2**) to obtain a leveling plate height (top surface) of 13 3/4" to finish floor line (Fig. 11.4.5).
- Check leveling plate for level.

Recheck that leveling plate is at door centerpoint and is parallel to building interface (Fig. 11.4.6).

Table 11.4.2 Leveling plate and hardware

1	RC6022	Leveling plate
2	RF6028-01G	1/2-13 x 2" cup point set screw
3		Spacer block (By installer)
4		Pit drain pipe or tube location example

Fig. 11.4.7 Spacer block installed on leveling plate

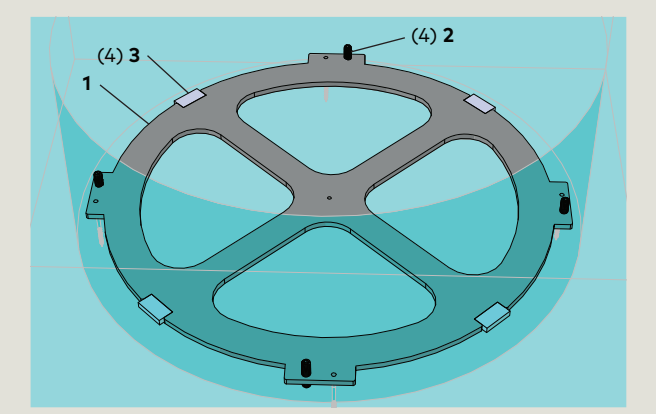


Fig. 11.4.8 Spacer block reference dimensions

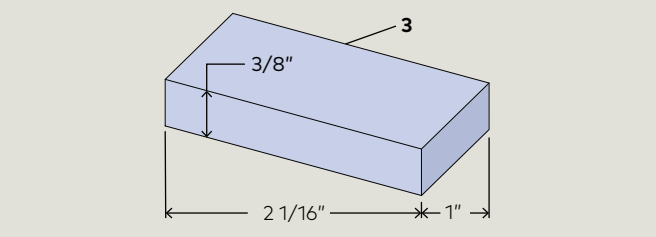
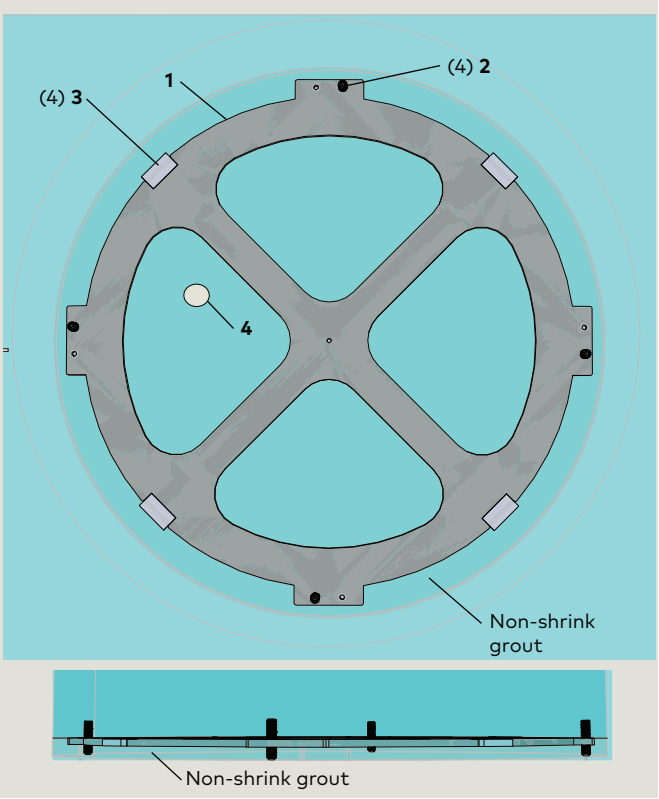


Fig. 11.4.9 3/8" thick spacer blocks installed



11.4.5 Install spacer blocks in leveling plate.

1. Install four spacer blocks (Fig. 11.4.8) in leveling plate cutouts (Fig. 11.4.9).
- It is recommended to use foam backing strips.
- Leveling plate cutout width: 2".

Leveling plate cutouts are for container anti-rotate tabs.

14.4.6 Pour non-shrink grout around leveling plate.

1. Pour non-shrink grout until grout is flush or slightly below top surface of leveling plate.

NOTICE

Pit drain.
- If pit drain tube or pipe is present, block off pit drain area from grout.

NOTICE

Non-shrink grout installation.
- Use non-shrink grout.
- Insure leveling plate is not moved during the grout pouring process.
- Top surface of leveling plate must be free of grout.
- **Recheck plate level during and after grout pouring process.**

2. Let grout cure per manufacturer's instructions.

11.4.7 Remove spacer blocks from leveling plate.

1. Once grout has cured, remove spacer blocks from leveling plate cutouts.

NOTICE

Leveling plate cutouts.
- Insure cutouts are completely free of grout.

Fig. 11.4.10 3/8" spacer blocks removed from leveling plate

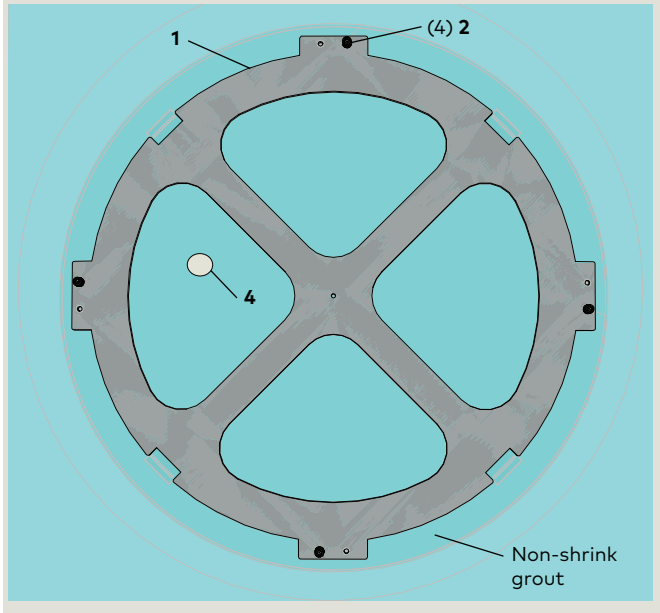


Fig. 11.4.11 Holes for mounting plate anchor screws

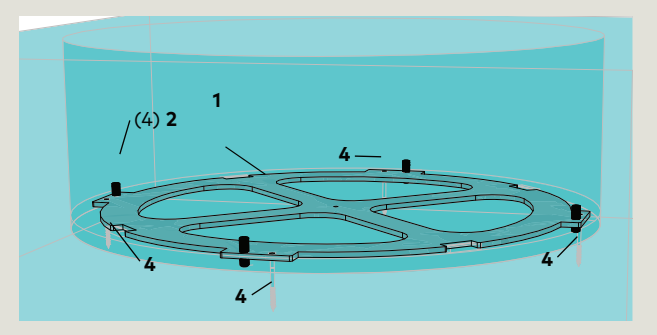


Fig. 11.4.12 Mounting plate anchor screws installed

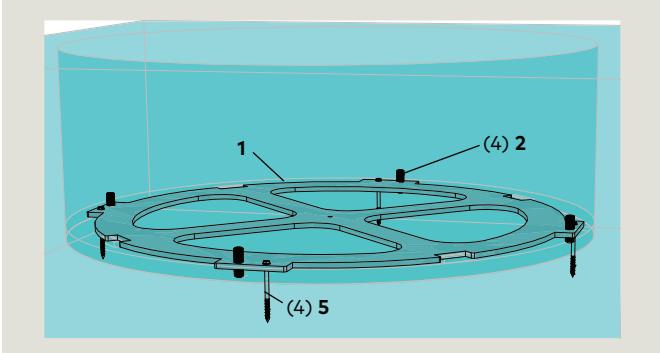


Fig. 11.4.13 Anchor screw

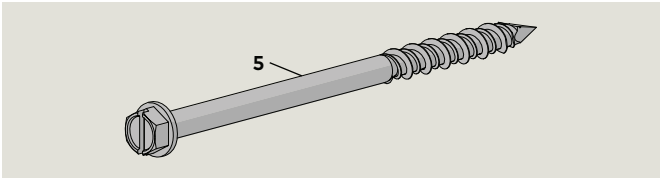


Table 11.4.3 Leveling plate and hardware

1	RC6022	Leveling plate
2	RF6028-01G	1/2-13 x 2" cup point set screw
5	RF6017	1/4 x 4" Tapcon anchor screw

11.4.8 Drill holes in pit for Tapcon anchor screws.

1. Drill hole in pit at each of the four leveling plate anchor screw locations.

- Use drill bit 3/16" x 5 1/2" long.

11.4.9 Install Tapcon anchor screws.

1. Install Tapcon anchor screws through mounting plate holes into anchor screw holes.

NOTICE

Recheck level and door centerpoint.
Recheck leveling plate level and door centerpoint during and after anchor screw installation.

11.5 Orientation of in-ground container in pit – overview

Fig. 11.5.1 Container lids parallel to building interface

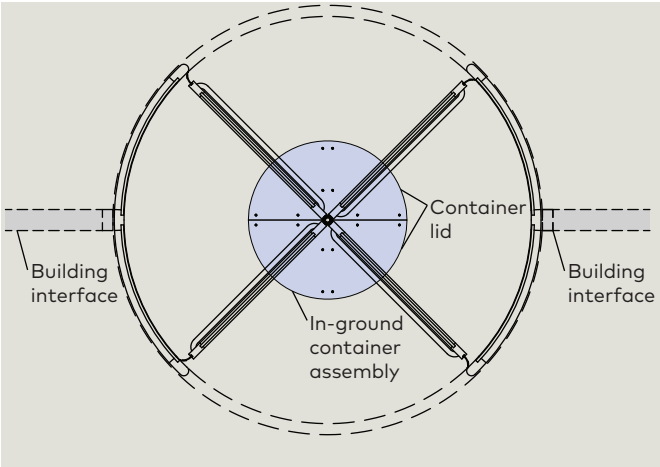
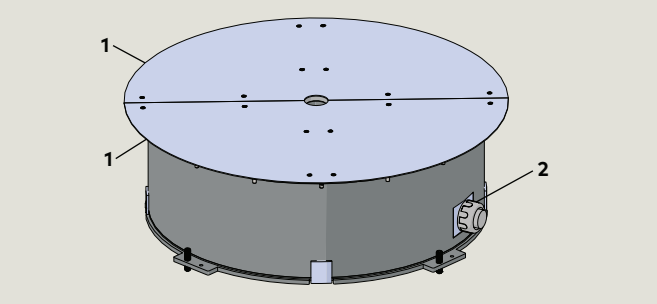


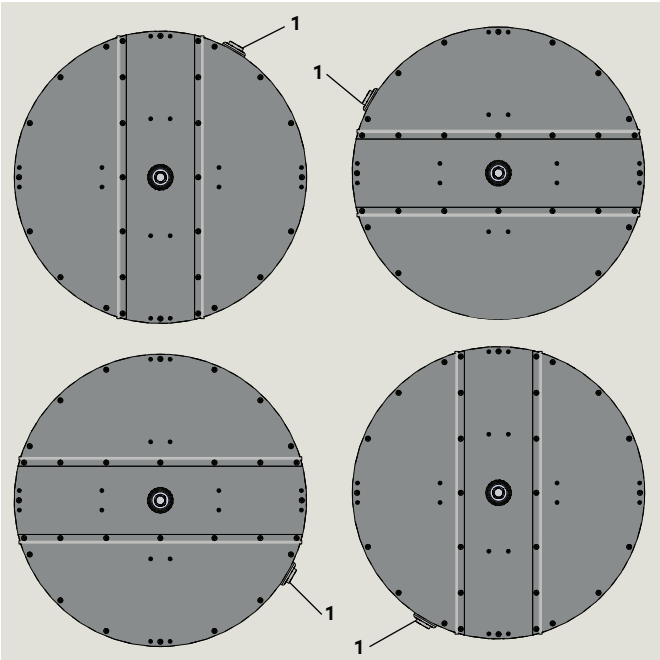
Fig. 11.5.2 In-ground container orientation example



1 Container lid

2 1 1/2" conduit adapter, DC wiring

Fig. 11.5.3 Container conduit adapter orientations in pit



1 DC conduit adapter

11.5.1 In-ground container orientation in pit.

NOTICE

Joint between container lids must be parallel with building interface.

11.5.2 Building conduit to container conduit adapter positioning.

To meet Para. 11.5.1 requirement, container can be placed in one of four positions in pit for interfacing container conduit adapter to building conduit. (Fig. 11.5.3).

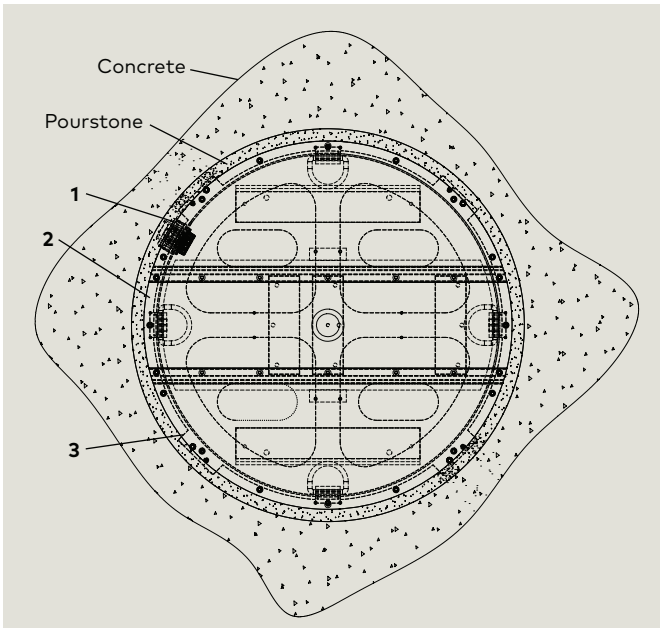
11.5.3 Determining container orientation - container conduit adapter entrance location.

- Reference Para. 11.7 to determine container orientation for building conduit interface to 1 1/2" DC conduit adapter.

TIPS AND RECOMMENDATIONS

Orientation of container DC conduit adapter in pit must be determined before locating position of through-wall pipe fitting for container drain (Reference Para. 11.8).

Fig. 11.5.4 Container conduit adapter - orientation in pit example



1 DC conduit adapter

2 Container lid

3 Leveling plate

11.6 Conduit in pit for building wiring – overview

Fig. 11.6.1 Conduit adapter location on in ground drive assembly

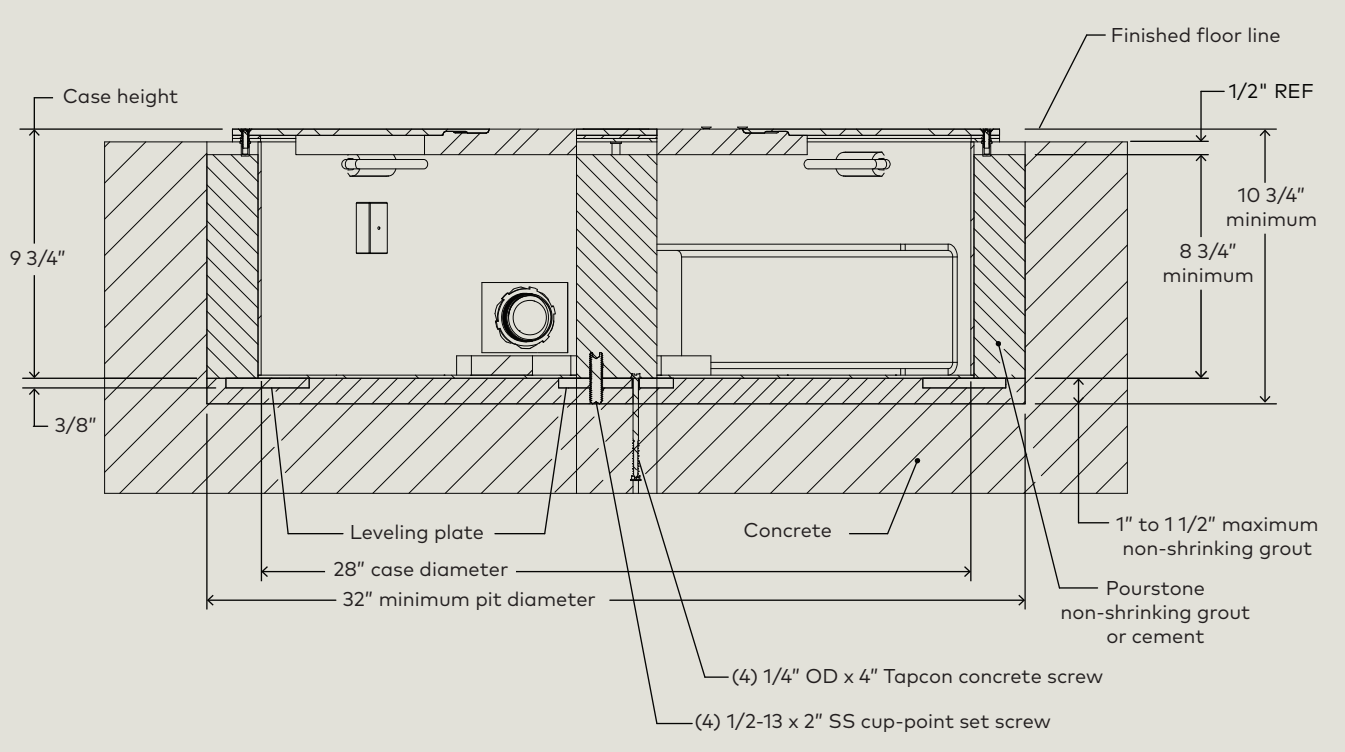


Fig. 11.6.2 In-ground drive assembly flexible conduit adapter

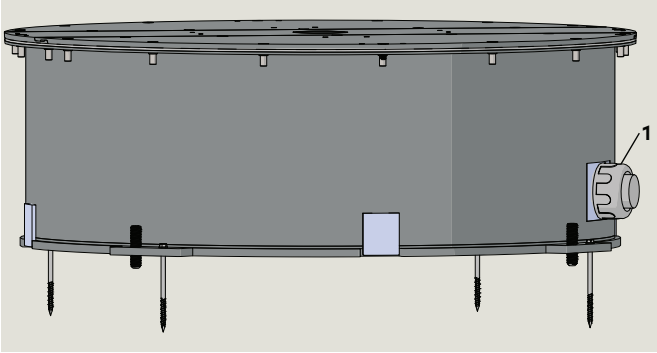
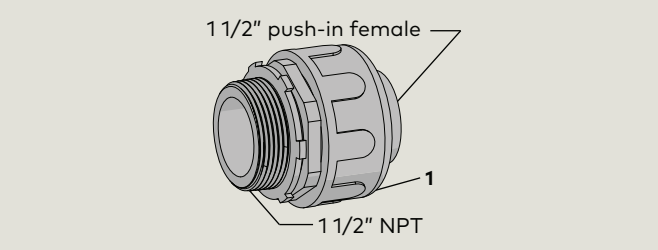


Fig. 11.6.3 Liquid-tight DC conduit adapter



1 1 1/2" liquidtight conduit adapter RC6045-001

11.6.1 Building conduit for wiring into in-ground container.

NOTICE

Orientation of in-ground container for building conduits determined in Para. 11.5.

NOTICE

Building conduit for DC wiring to container must be installed in floor to the pit prior installation of in-ground drive assembly into pit.

11.6.2 Container provisions for building conduit.

1. DC wiring: 1 1/2" liquid-tight conduit adapter is supplied for interfacing to building liquid-tight flexible conduit.

NOTICE

Building contractor responsibilities:

- Plan routing of building liquid tight flexible conduit in pit to container conduit adapter locations.
- Terminate conduit into liquid-tight conduit adapter. Reference Para. 11.12.

11.7 Determine in-ground container conduit adapter position in pit

Table 11.7.1 Container lid center section

1	RC6045-001	1 1/2" conduit adapter, DC wiring
2	RC6049	Container lid, center section

Fig. 11.7.1 Container orientation example 1

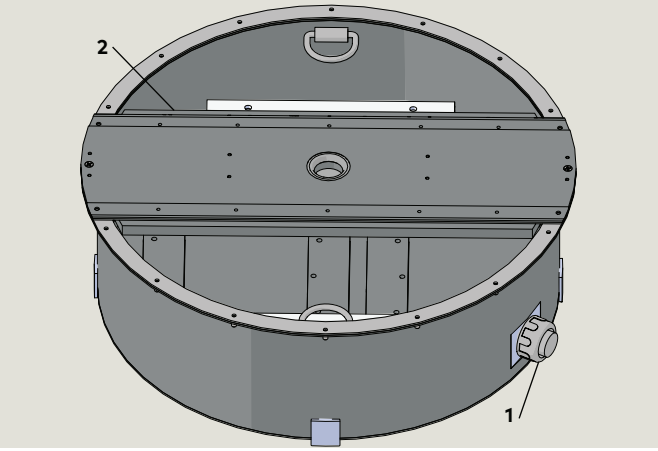
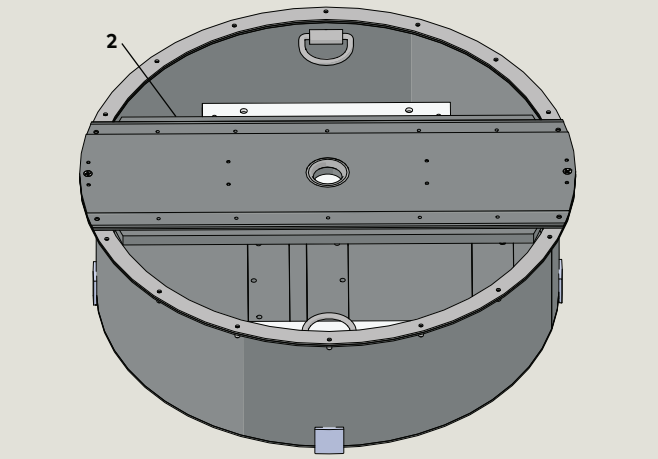


Fig. 11.7.2 Container orientation example 2



11.7.1 In-ground container conduit adapter orientation for building conduit.

NOTICE

Joint between container lids must be parallel with building interface.
Reference Para. 11.5.

11.7.2 Building contractor responsibilities.

TIPS AND RECOMMENDATIONS

Wiring interfaces to in-ground container. Reference Wiring, Setup and Troubleshooting Manual RL6001-003

NOTICE

Building conduit.

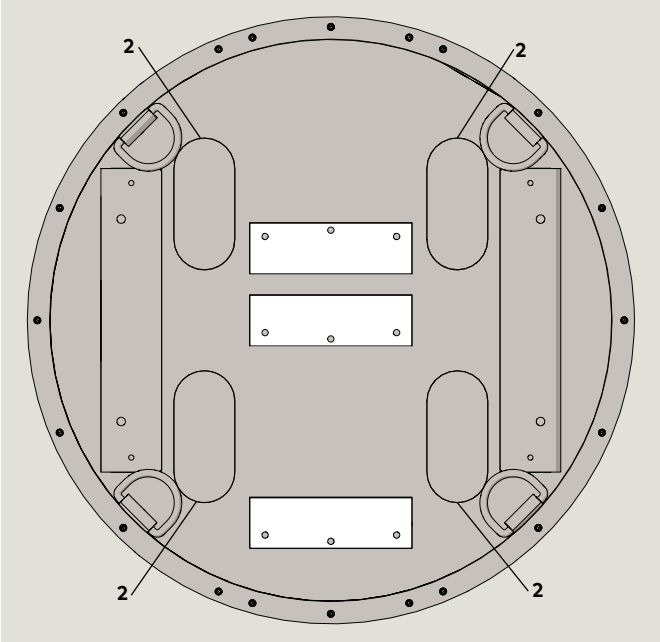
- Review orientation of container in pit with dormakaba technician (Para. 11.5).
- Plan routing of building liquid tight flexible conduit to container conduit adapter entrance location.
- Building conduit for container 1 1/2" conduit adapter must be installed into pit prior to installation of container assembly.
- Terminate conduit into liquid-tight conduit adapter (Para. 11.12).

11.7.3 Container provision for building conduit.

- DC wiring (Para. 11.6): 1 1/2" liquid-tight conduit adapter is supplied for interface to building liquid-tight flexible conduit.

11.8 Container drain: locate and drill hole for through-wall pipe fitting

Fig. 11.8.1 Container drain pipe fitting locations



2 Locations for drain piping

Fig. 11.8.2 Through-wall pipe fitting

1 Through-wall pipe fitting RC6043

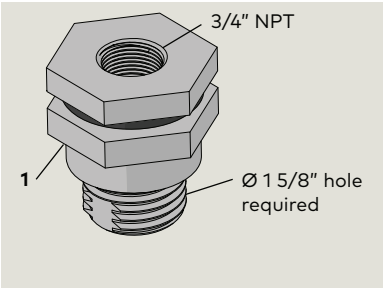
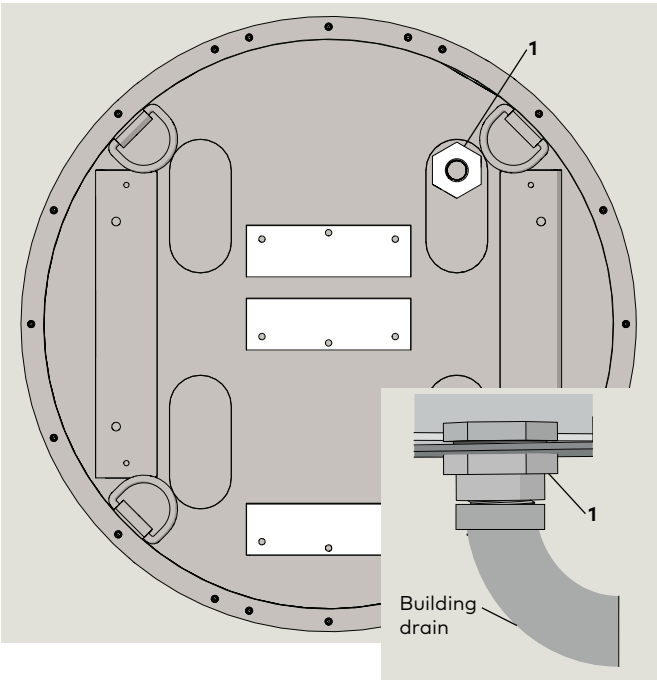


Fig. 11.8.3 Container pipe fitting location example



NOTICE

Container drain hole location.
Reference Para. 11.9 for drain hole location dimensions from in-ground container / leveling plate centerpoint.

NOTICE

Container position for conduit adapter entrance in pit must be determined prior to locating through-wall pipe fitting for container drain.
Reference: Para. 11.7.

NOTICE

Customer drain pipe or hose.
Customer must provide a drain pipe or hose for connection to the supplied container through-wall pipe fitting (Fig. 11.8.2).

CAUTION

Building drain piping to container must be installed in pit prior to installation of in-ground container into pit.

11.8.1 Container provisions for drain.

1. Four areas are provided in container for through-wall pipe fitting (Fig. 11.8.1).

NOTICE

Review with building contractor:
1) Container orientation in pit (Para. 11.5).
2) Drain area locations in container.
3) Required container orientation for conduit entry (Para. 11.7).
3) Through-wall pipe fitting.

11.8.2 Determine location of pipe fitting.

1. Determine location of through-wall pipe fitting in bottom of container.

NOTICE

Drain piping connection to container through-wall pipe fitting.
Building contractor must route building drain piping to the selected container drain area and provide interface to the through-wall pipe fitting.

11.8.3 Drill hole for through-wall pipe fitting.

1. Drill 1 5/8" diameter hole at container floor location selected for in-ground through-wall pipe fitting.

11.9 Container drain hole location dimensions using leveling plate

Fig. 11.9.1 In-ground container drain hole locations template

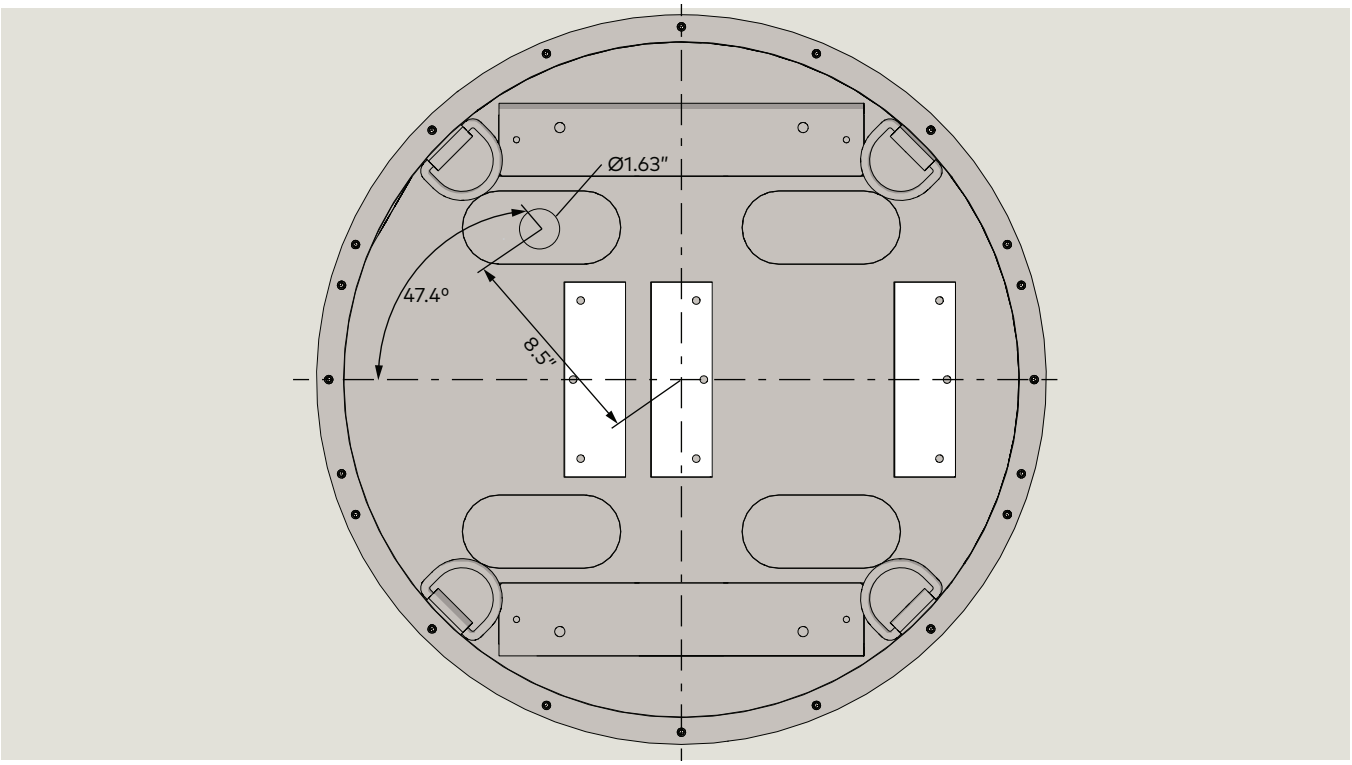
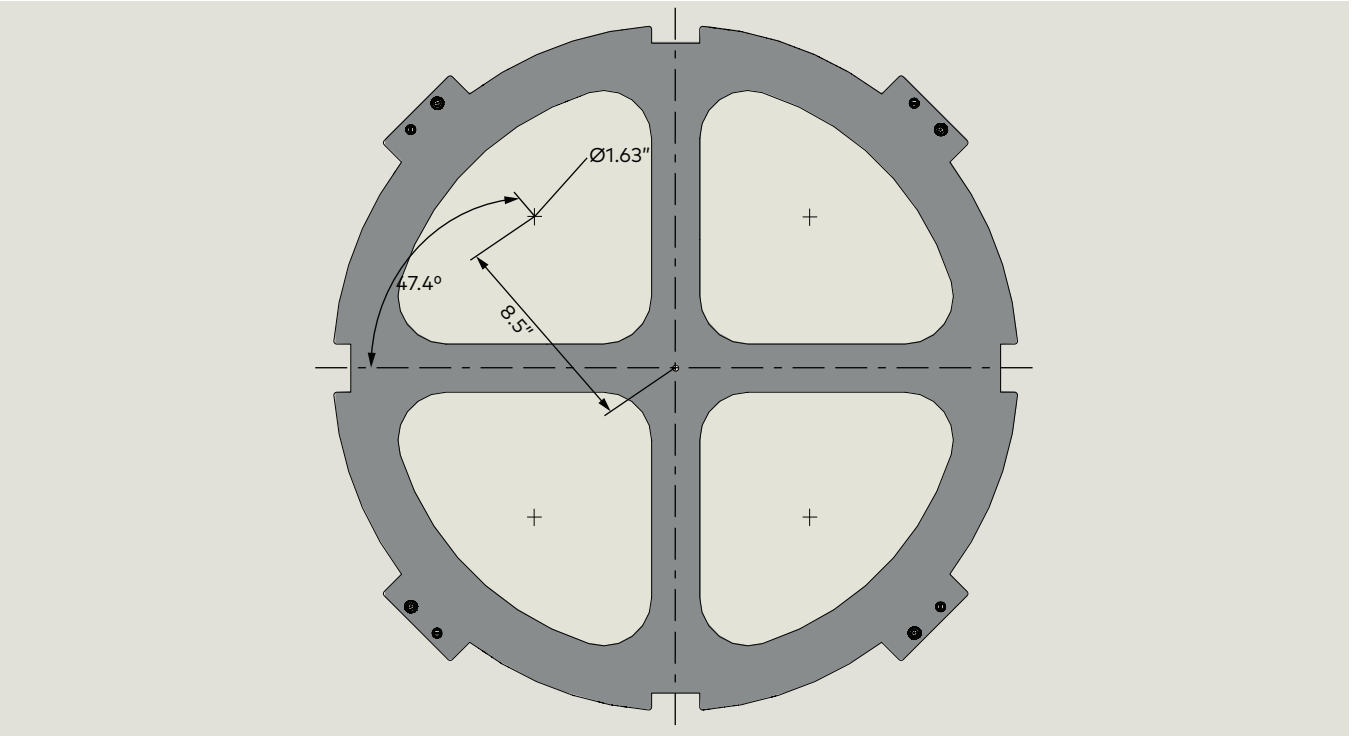


Fig. 11.9.2 Leveling plate drain hole locations template



11.10 Check hole alignment of container covers on container flange

Fig. 11.10.1 RF6025-01G

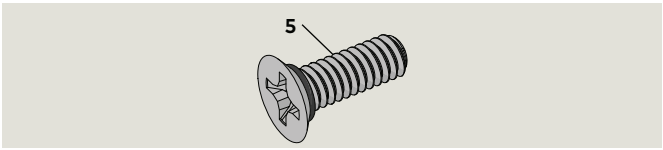


Fig. 11.10.2 In ground container

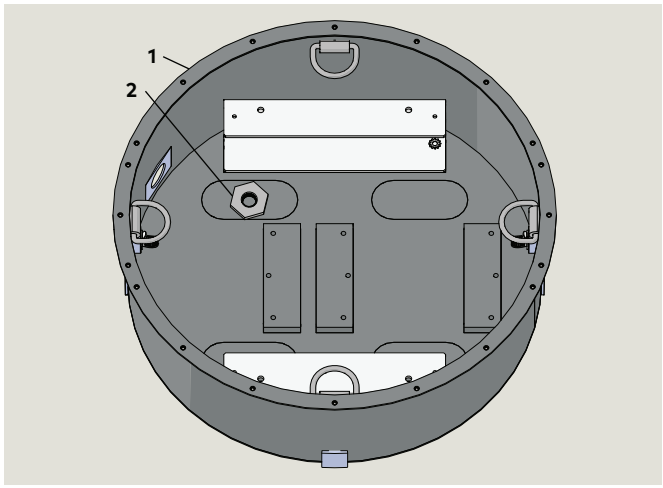


Fig. 11.10.3 Center section container lid

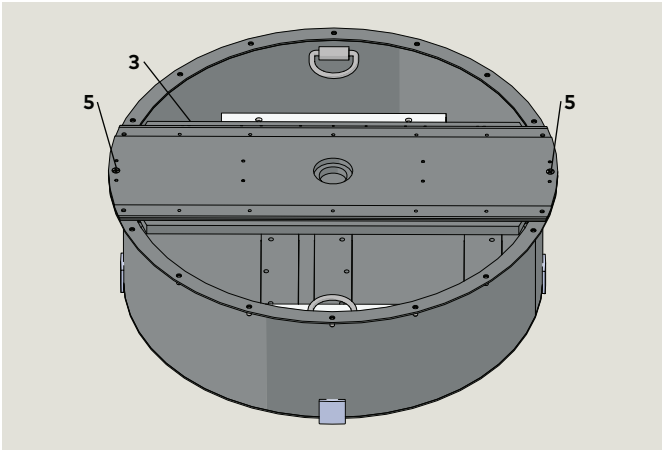


Fig. 11.10.4 Outer cover assemblies

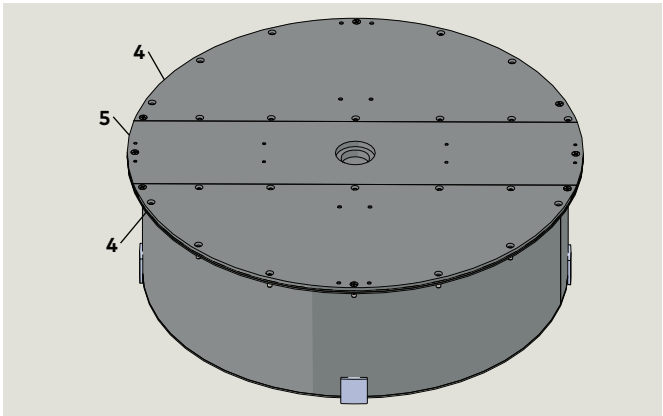


Table 11.10.1 Container covers and fasteners

1	RS6038	In-ground container (LP)
2	RC6043	Through-wall pipe fitting. Fitting may be in a different location
3	RC6049	Center section container lid
4	RX6033	Outer cover assembly
5	RF6025-01G	1/4-20 x 3/4" sealing FHMS

TIPS AND RECOMMENDATIONS

It is recommended that steps outlined in Para. 11.10 be done prior to proceeding with container installation and assembly.

11.10.1 Check fit of center section container lid.

1. Place center section container lid on container flange.
2. Check center section container lid hole alignment with container flange holes.
3. Install two flat head screws (Fig. 11.10.3)to validate alignment of all center section container lid holes.

11.10.2 Check fit of outer cover assemblies.

1. Place first outer cover assembly on container flange.
2. Check outer cover assembly hole alignment with center section container flange holes.
3. Install three flat head screws (Fig. 11.10.4) to validate alignment of all outer cover assembly holes.
4. Repeat steps 1 through 3 for second outer cover assembly.

11.10.3 Remove all flat head screws and covers.

1. Remove all flat head screws from the two outer covers and the center section container lid.
2. Remove covers and center section container lid.

NOTICE

If there are any cover hole alignment issues with the container flange, contact the Crane company to resolve these issues before proceeding with container assembly.

11.11 Install cable ties

Fig. 11.11.1 (4) cable ties

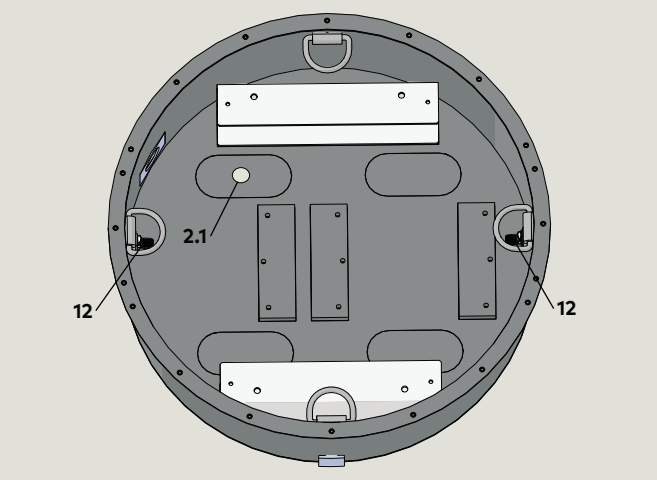


Fig. 11.11.2 Cable tie and fastener

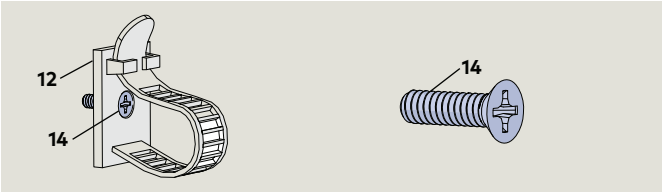


Table 11.10.1 Cable ties and fastener

2.1		Hole for through-wall pipe fitting **May be in a different location**
12	RC6042	Cable tie
14	RF6024-01G	#6 x 1/2" Phillips FHS

11.11.1 Install two cable ties in container.

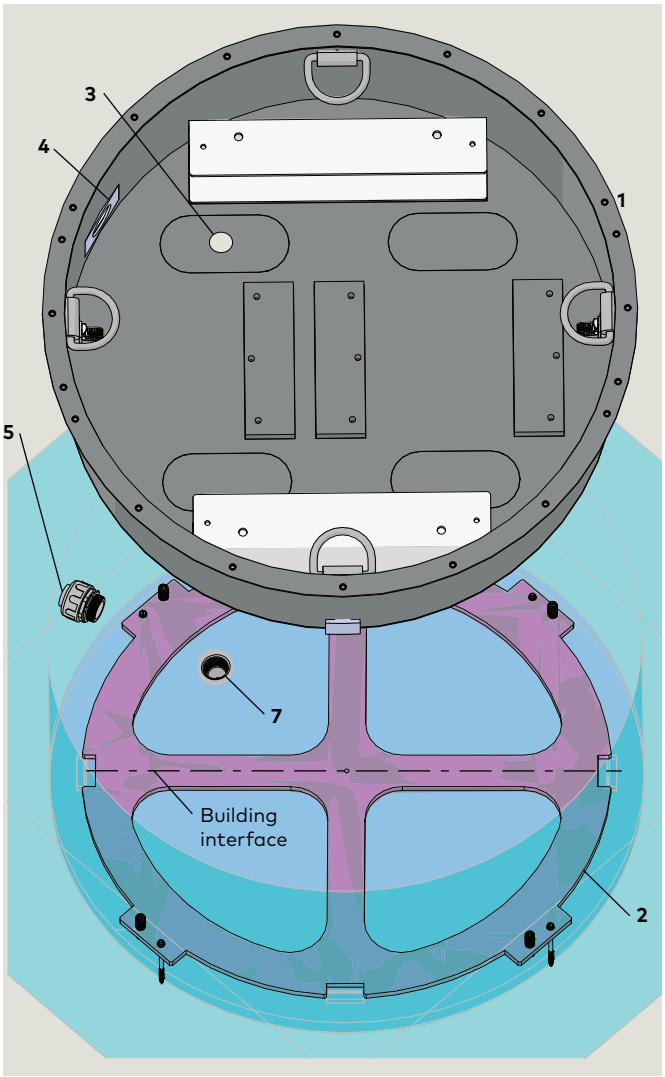
1. Install two cable ties in container using #6 x 1/2" Phillips FHS.

11.12 Install in-ground container in pit

Table 11.12.1 Container and leveling plate

2	RC6012	Leveling plate
3		Hole for through-wall pip fitting
4		Conduit adapter mounting plate
5	RC6045-001	1 1/2" conduit adapter, DC wiring
7		Customer drain tube or pipe

Fig. 11.12.1 In-ground container above pit example



11.12.1 Pit preparation.

1. Pit must be prepared for in-ground container installation as outlined in Chapter 11; Install leveling plate in pit.

11.12.2 Leveling plate.

CAUTION

- Leveling plate must be installed as outlined in Para. 11.4; Install leveling plate in pit.

1) Verify leveling plate is level.
2) Verify leveling plate is at door centerpoint.
3) Verify leveling plate is parallel to building interface (Fig. 11.4.6).

- Insure leveling plate top surface is clean.
- Insure the four leveling plate slots are free of grout.

11.12.3 In-ground container orientation in pit.

NOTICE

Container orientation requirements in pit:

- Building conduit interface (Para. 11.7).
- Pit drain interface(Para. 11.8).
- Container lids parallel with building interface (Para. 11.5).

11.12.4 Install container assembly in pit.

WARNING

Use caution when working with container assembly.

- Container has four eyebolts that can be used with lifting equipment.

1. Align container with pit interfaces.
2. Insert DC conduit adapter (flexible conduit installed in adapter by customer) into container adapter plate. Tighten conduit adapter locknut.
3. Insert through-wall pipe fitting through hole in bottom of container and thread into customer drain fitting and tighten.
4. Align anti-rotate tabs with slots in leveling plate (Fig. 11.12.1) and lower container into pit.
5. Finish lowering container into pit.

NOTICE

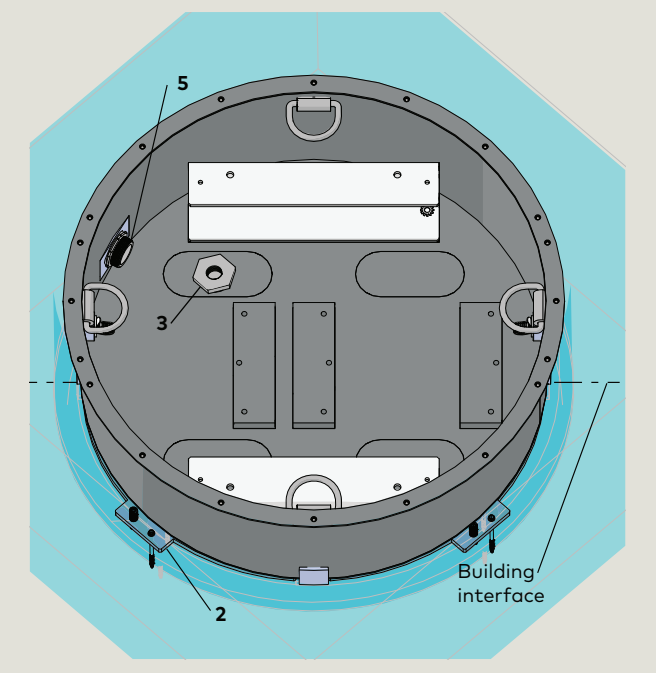
Anti-rotate tabs.

- Container anti-rotate tabs must be completely lowered into leveling plate slots (Fig. 11.12.2).

Table 11.12.2 Container and leveling plate

2	RC6012	Leveling plate
3	RC6043	Through-wall pip fitting
5	RC6045-001	1 1/2" conduit adapter, DC wiring

Fig. 11.12.2 Container in pit orientation example



11.12.5 Verify container is level.

NOTICE

Once container lowered onto leveling plate, verify container is level.

12 Assemble in ground container in pit

12.1 Install speed control in in-ground container

Fig. 12.1.1 Speed control oil fill hole

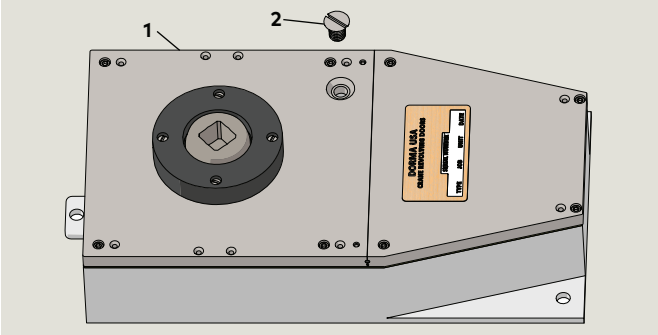


Fig. 12.1.2 Speed control mounting holes

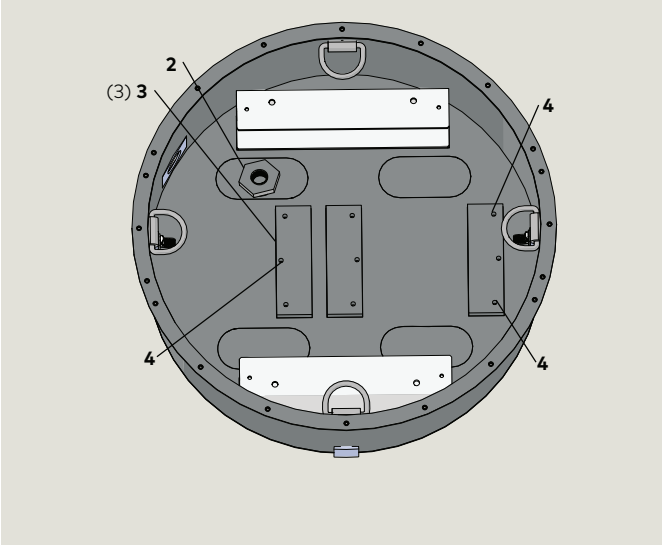


Fig. 12.1.3 In-ground speed control

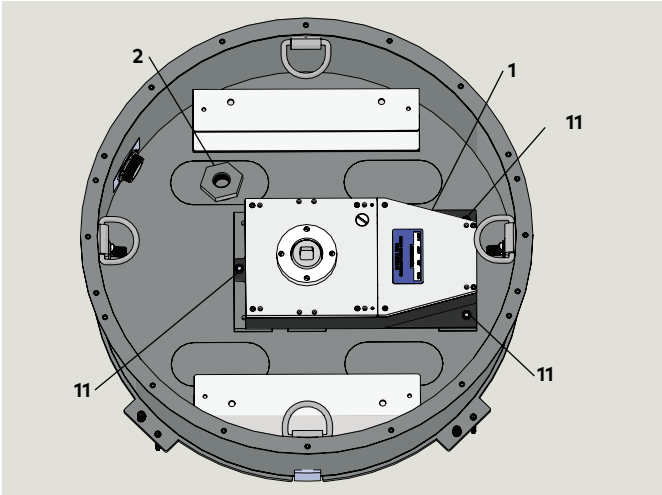


Table 12.1.1 Floor speed control and hardware

1	RS6074-010	Floor speed control assembly
2		.500-13 x .750" undercut SFHMS
2	RC6043	Through-wall pipe fitting. **May be in a different location.**
3	RC6033	Speed control shim
4		3/8-16 UNC Thru
5	RF6022-01C	3/8 x 7/8" SHCS, black oxide
6		Speed control drive shaft

12.1.1 Add oil to speed control gearcase.

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

CAUTION

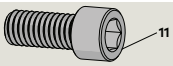
Oil must be added to floor speed control. 22 oz. bottle of multigrade synthetic oil is supplied. Part number RC6175-010.

12.1.2 Install speed control in container.

1. Fasten in-ground speed control to container speed control shims using three 3/8 x 7/8" SHCS.

- **Snug but do not tighten the socket head cap screws.**

Fig. 12.1.4 3/8 x 7/8" SHCS



12.2 Check bottom plug adapter and container lid alignment

Fig. 12.2.1 Bottom plug adapter

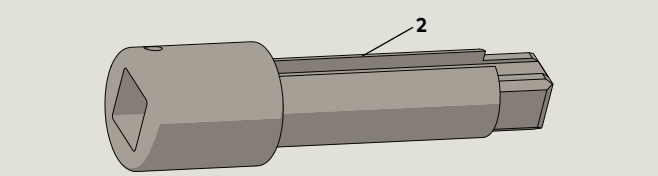


Fig. 12.2.2 Bottom plug adapter installed in speed control drive shaft

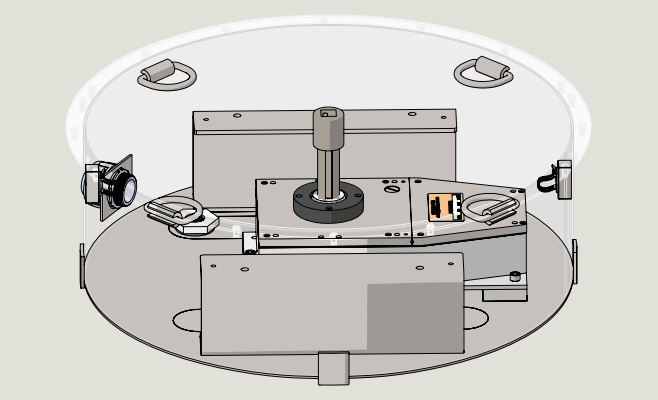


Fig. 12.2.3 Center section container lid installed on container

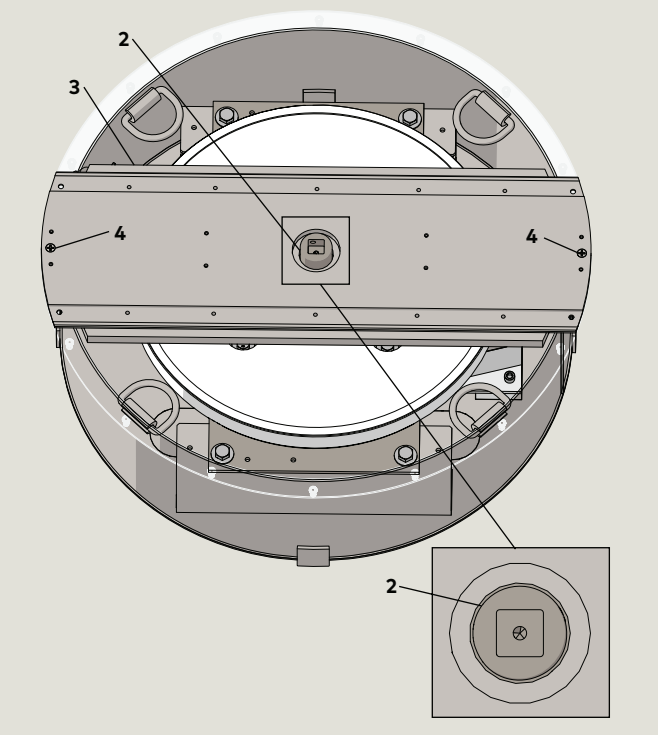


Fig. 12.2.4 RF6025-01G

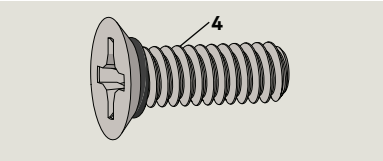


Table 12.121 In-ground container with bottom plug adapter and container lid

1	RS6074-010	Floor speed control assembly
2	RC6069	Center shaft bottom plug adapter
3	RC6049	Center section container lid
4	RF6025-01G	1/4-20 x 3/4" flat head countersunk seal screw

12.2.1 Check bottom plug adapter alignment.

NOTICE

If bottom plug adapter cannot be centered in the center section container lid hole, contact Crane to resolve this issue before proceeding with further container assembly.

1. Insert bottom plug adapter into speed control drive shaft.
2. Install center section container lid and fasten with two flat head screws RF6025-01G.
3. Check bottom plug adapter alignment in center section container lid hole.

NOTICE

Bottom plug adapter checks.

- Bottom plug adapter must be centered in center section container lid hole (Fig. 12.2.3).
- Bottom plug adapter must be plumb.

- Speed control mounting hole diameter is 7/16" so slight adjustment is possible.

4. Once bottom plug adapter centered in hole, tighten the speed control 3/8 x 7/8" SHCS (Fig. 12.1.3).

NOTICE

Insure that the three 3/8 x 7/8" SHCS are securely tightened.

12.3 Verify floor cover plates are flush with finished floor

Fig. 12.3.1 Flange gasket

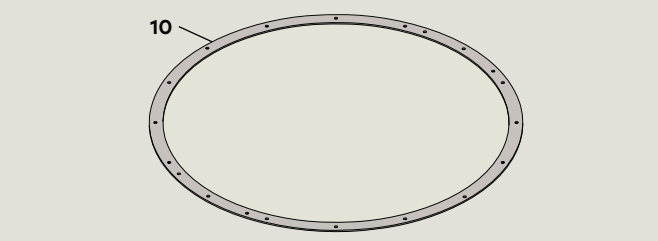


Fig. 12.3.2 Container lids placed on container

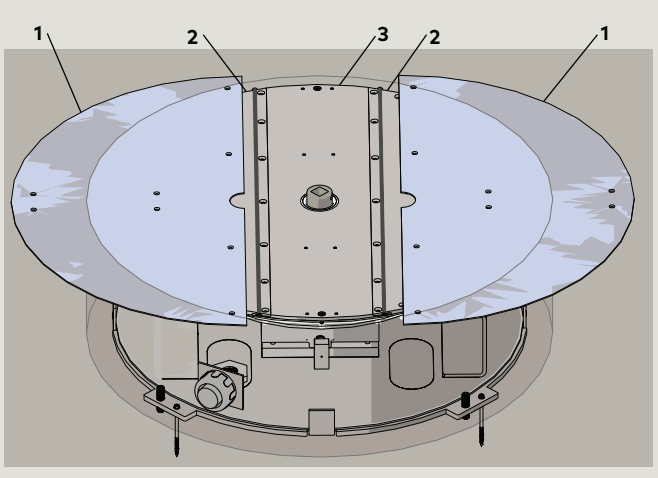


Fig. 12.3.3 Floor cover plates placed on container

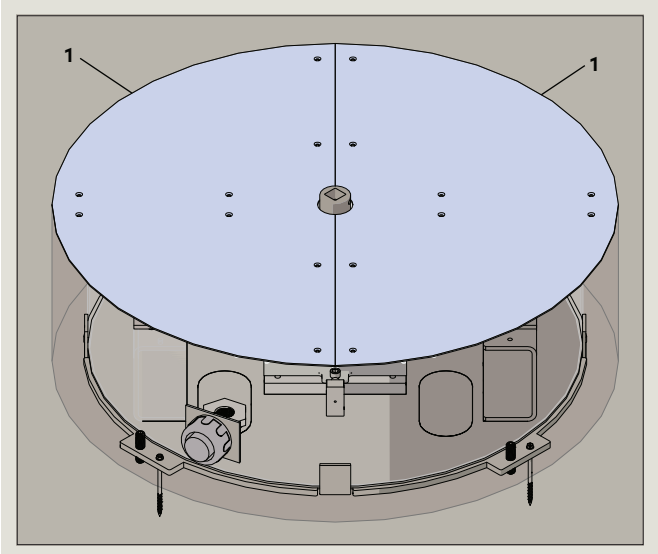


Table 12.3.1 Container lids and floor cover plates hardware

1	RC6048	Floor cover plate, Ø32", .075" REF thick
2	RS6033	Container lid, outer section
3	RC6049	Container lid, center section
	RF6025	1/4-20 x 3/4" flat head countersunk seal screw
10	RC6046	Flange gasket, Ø30", 1/8" thick

12.3.1 Verify floor cover plates are flush with finished floor.

1. Place flange gasket on container lid.
1. Place center section container lid on container and secure with two 1/4-20 x 3/4" sealing FHS.
2. Place two outer cover assemblies on container.
3. Place two floor cover plates over container lids.

TIPS AND RECOMMENDATIONS

Do not fasten outer cover assemblies or floor cover plates to container flange.

4. Verify floor cover plates are flush with finished floor.

NOTICE

Do not pour pour-stone around case until any issues with floor cover plates and finished floor flush are resolved.

12.3.2 Remove the two floor cover plates.

12.4 Pour Pour-stone around container in pit

12.4.1 Pour pour-stone in pit around container case.

NOTICE

Reference Crane shop drawings for job!

1. Fill pour-stone around container to 1/2" below container flange (Fig. 12.4.1).

TIPS AND RECOMMENDATIONS

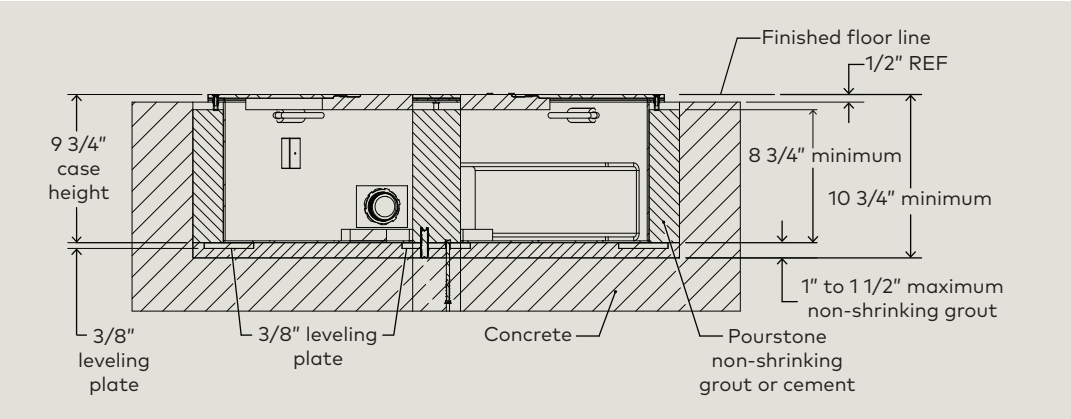
Cover container lids with cardboard during pour-stone fill process.

NOTICE

- Follow manufacturer's directions for mixing, application and curing.
- Follow directions regarding eliminating air pockets.

12.4.2 Remove the three container lids.

Fig. 12.4.1 Pour-stone around container



12.5 Remove transport bolts from Motion Assist 360 drive

Fig. 12.5.1 Drive transport bolts, nuts and washers, top view

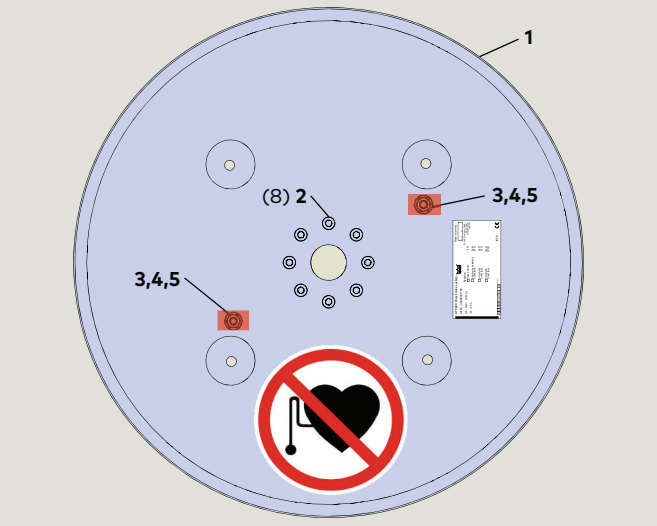


Fig. 12.5.2 Drive bottom view, transport bolts

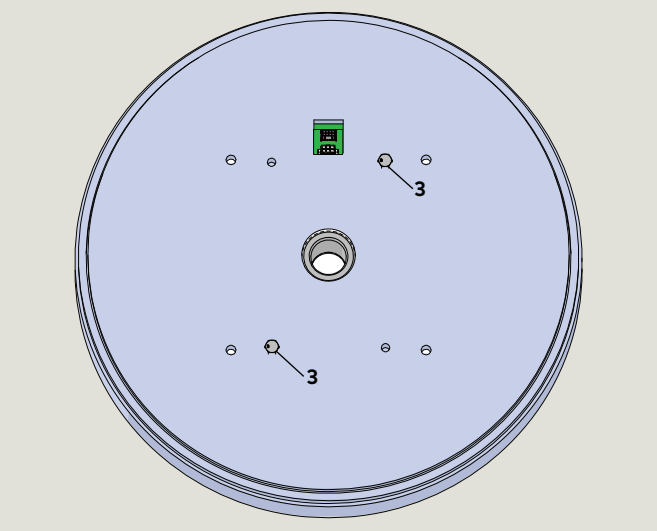


Table 12.5.1 Motion Assist 360 drive transport bolt hardware

1	RX6010-001	Motion Assist 360 drive
2	RF6003-01C	M8 x 20 mm hex bolt
		Transport bolt hardware
3		5/16 x 2 1/4" hex bolt
4		5/16" hex nut
5		5/16" steel flat washer

12.5.1 Remove transport bolts.

1. Remove two transport bolts from Motion Assist 360 drive..

- Transport bolts are secured on operator drive side with (2) hex nuts.

WARNING

Use caution when lifting and positioning Motion Assist 360 drive!

WARNING

Transport bolts must be removed from operator prior to installation!

- Transport bolts are used to prevent drive rotation during shipment.
- Use caution when handling drive once bolts have been removed! Drive is free to turn!

12.6 Assemble Motion Assist 360 drive to mounting plate

Fig. 12.6.1 Drive with (8) M8 x 20 mm SHCS

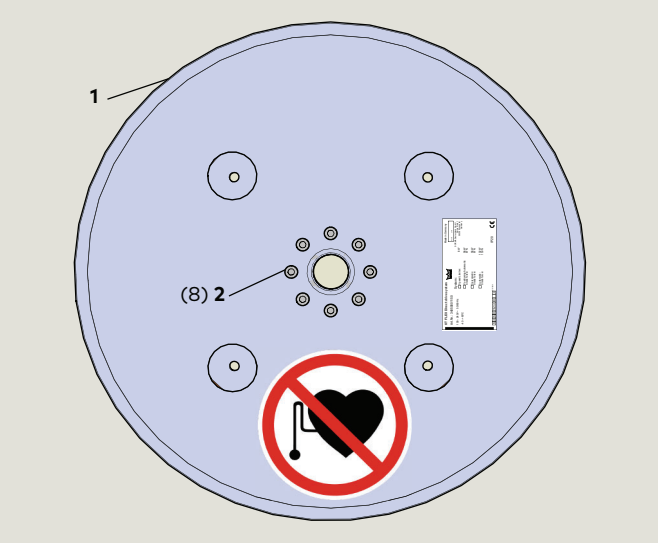


Fig. 12.6.3 Drive with (2) M8 x 20 mm SHCS

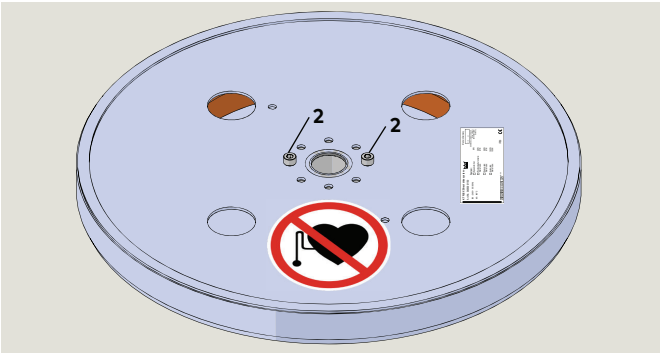


Fig. 12.6.4 Drive flange

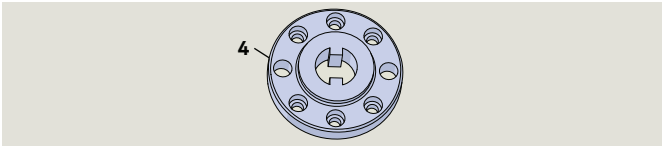


Fig. 12.6.5 Drive flange installed

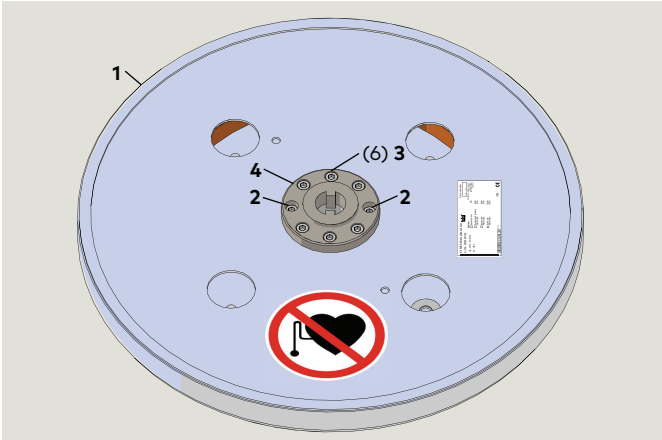


Table 12.6.1 Motion Assist 360 drive and drive flange hardware

1	RX6010-001	Motion Assist 360 drive
2	RF6003-01C	M8 x 20 mm hex bolt
3	RF6003-02C	M8 x 30 mm SHCS black oxide
4	RC6025	Drive flange, 4" OD

Fig. 12.6.2 M8 x 20 mm and M8 x 30 mm SHCS

WARNING

Use caution when lifting and positioning Motion Assist 360 drive!

12.6.1 Remove six M8 SHCS.

Drive is shipped from factory with eight M8 x 20 mm SHCS installed.

1. Remove six of the eight M8 x 20 SHCS leaving two M8 x 20 SHCS at 180 degrees to each other (Fig. 12.6.3).

TIPS AND RECOMMENDATIONS

Use socket wrench with 6 mm hex key socket.

12.6.2 Install drive flange.

1. Install drive flange on drive using six M8 x 30 mm SHCS.

12.6.3 Check tightening torque on M8 SHCS.

1. Use torque wrench to check tightening torque on the eight M8 SHCS.

WARNING

Danger from incorrect screw tightening torque!
If drive flange mounting screws are tightened with an incorrect tightening torque, components may detach causing injuries and material damage.

- Never exceed the maximum specified screw tightening torque.
- Contact dormakaba for further information.

12.6.4 Maximum screw tightening torque.

Screw diameter	Maximum permissible screw tightening torque
M8	15.5 Nm
	10 ft-lb

Fig. 12.6.6 Motion Assist 360 drive mounting plate

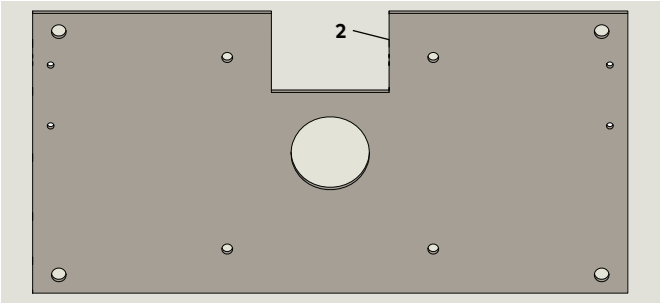


Fig. 12.6.7 Drive to drive mounting plate hardware

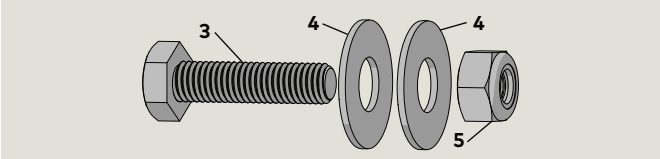


Fig. 12.6.8 Drive secured to drive mounting plate

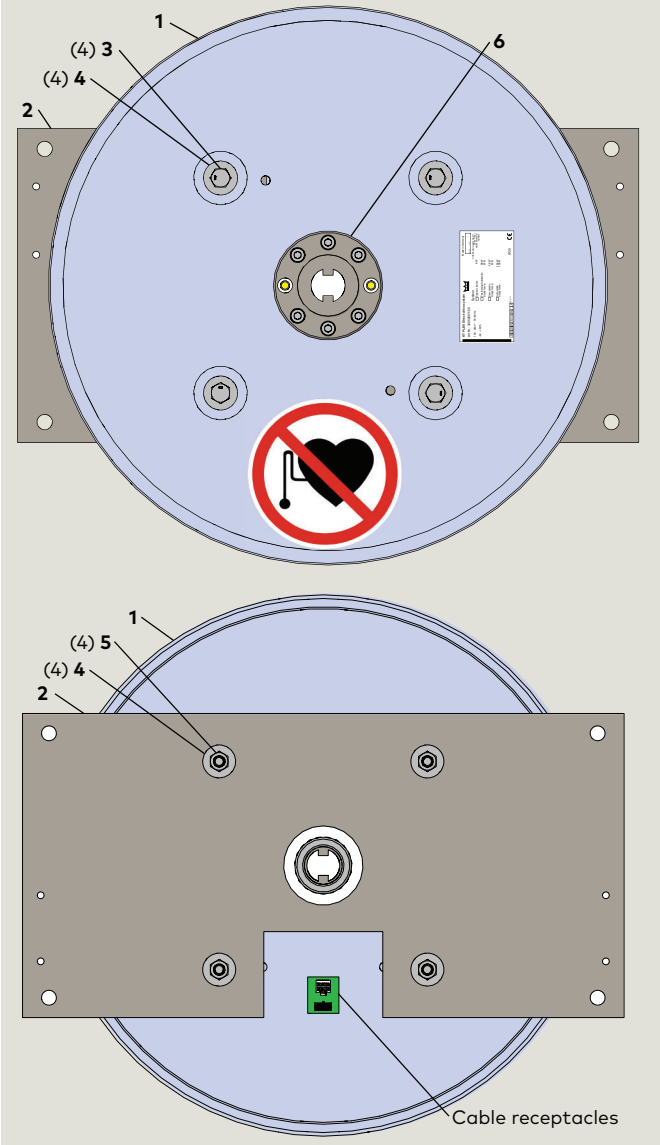


Table 12.6.2 Motion Assist 360 drive and drive flange hardware

1	RX6010-001	Motion Assist 360 drive
2	RC6060	Motion Assist 360 drive mounting plate
3	RF6004	M10-1.5 x 30 mm hex head bolt
4	RF6010-01G	Flat washer, 0.531 ID x 1.25" OD
5	RF6005-01G	M10-1.5 Nylon lock nut
6	RC6025	Drive flange, 4" OD

WARNING

Use caution when lifting and positioning Motion Assist 360 drive!

WARNING

Use caution when handling drive!
Drive is free to turn!

12.6.5 Attach Motion Assist 360 drive to mounting plate.

NOTICE

Drive must be positioned on mounting plate with cable receptacles located as shown in Fig. 13.6.8.

1. Attach drive to mounting plate using hardware in Table Fig. 12.6.7.
2. Insert bolts from drive flange side of drive.

TIPS AND RECOMMENDATIONS

Use socket wrench with 16 mm socket.

12.6.7 Torque requirements for M10 hex head bolt.

Screw diameter	Maximum permissible screw tightening torque
M10	25 Nm
	18.5 ft-lb

12.7 Install Motion Assist drive cables

Fig. 12.7.1 Motion Assist 360 drive cables

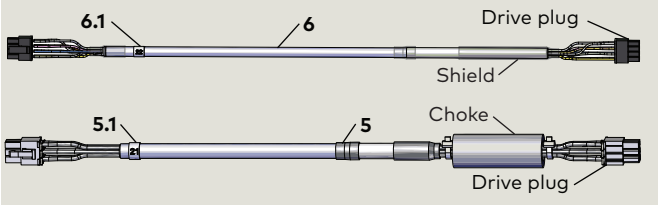


Fig. 12.7.2 Motion Assist 360 drive cables installed

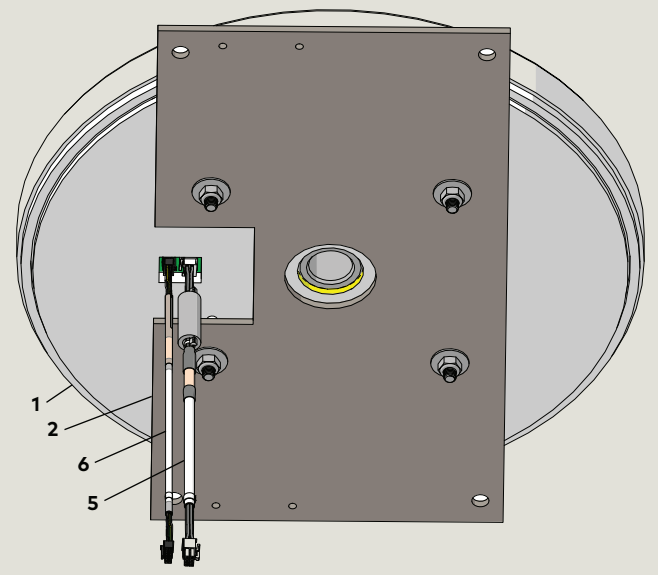


Table 12.7.1 Motion Assist 360 drive and cables

1	RX6010-001	Motion Assist 360 drive
2	RC6060	Motion Assist 360 drive mounting plate
5	RX6005-001	Motion Assist 360 motor cable, 14" long
5.1		Motor cable number tag (21)
6	RX6006-001	Motion Assist 360 drive Hall sensor cable, 13 3/4" long
6.1		Hall sensor cable number tag (22)

12.7.1 Install Motion Assist 360 drive cables.

TIPS AND RECOMMENDATIONS

Connect cables (Fig. 12.7.1) to their Motion Assist 360 drive sockets prior to installation of drive into in-ground container assembly.

- Restricted access to operator sockets once operator assembly is installed in container.

1. Install power cable plug into Motion Assist 360 drive power cable socket.

NOTICE

- Install plug at choke end of cable into operator socket (Fig. 12.7.2).
- Insure cable plug is fully inserted in operator socket and locked in place.

2. Install Hall sensor cable plug at shield end of cable (Fig. 12.7.2) into Motion Assist 360 drive Hall sensor socket.

NOTICE

- Insure cable plug is fully inserted in operator socket and locked in place.

TIPS AND RECOMMENDATIONS

Install sensor cable orientated as shown in Fig. 12.7.2.

- Install plug at cable end with number tag (22) (Fig. 12.7.1) at Motion Assist 360 control unit.

12.8 Install Motion Assist 360 drive mounting bracket assembly

Table 12.8.1 Motion Assist 360 drive mounting bracket

1	RX6010	Motion Assist 360 drive
2	RC6060	Motion Assist 360 drive mounting plate
4		U-channel
5	RS6074-010	In-ground speed control
6	RC6043	Drain pipe fitting
9	RC6042	Cable tie
10	RX6005	Power cable (21)
11	RX6006	Hall sensor cable
12		Conduit adapter mounting plate
13	RF6010	Washer, flat, 1 1/4" OD, 0.531" ID
14	RF6021	1/2 x 3/4" hex head bolt

Fig. 12.8.1 Mounting bracket assembly orientation

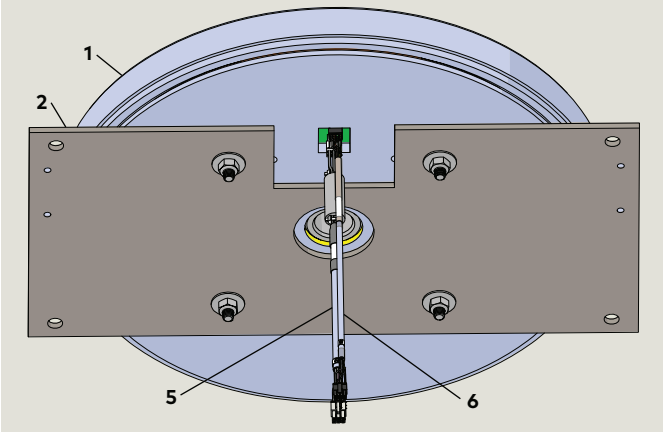


Fig. 12.8.2 Mounting plate fasteners

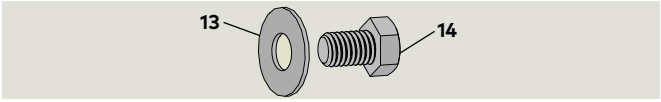
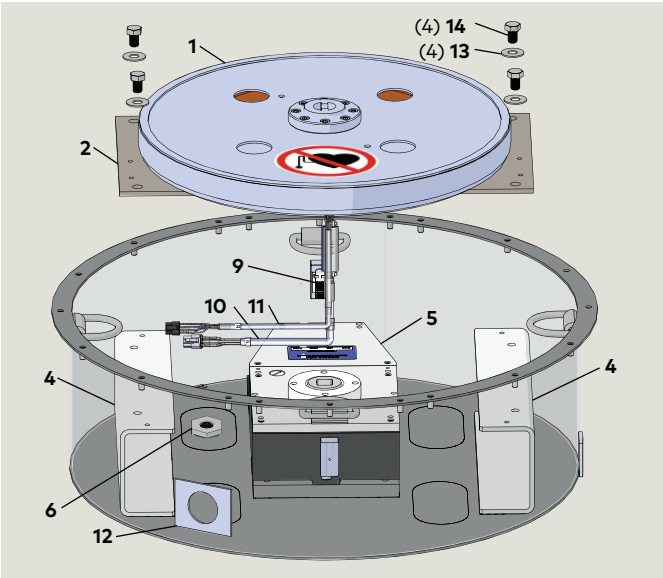


Fig. 12.8.3 Container and mounting bracket assembly



12.8.1 Remove bottom plug from speed control.

1. Remove bottom plug from speed control, (Ref. Para. 12.2) to facilitate installation of Motion Assist 360 mounting bracket assembly.

12.8.2 Install Motion Assist 360 mounting bracket assembly onto container U-channels.

WARNING

- Use caution when lifting and positioning Motion Assist drive assembly!
- Use caution when handling drive! Drive is free to turn!

1. Lower operator mounting bracket assembly onto container U-channels.

TIPS AND RECOMMENDATIONS

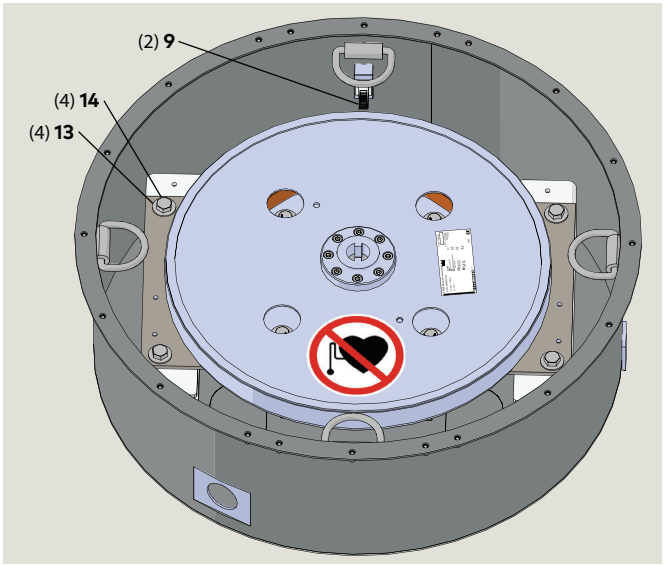
Position mounting bracket assembly for installation into container with mounting bracket orientated as in Fig. 12.8.1 and speed control orientated as shown in Fig. 12.8.3.

CAUTION

Prevent damage to cables; keep cables at side of container as assembly is lowered.

2. With 1 1/4" OD flat washer on each hex head bolt, thread four 1/2" x 3/4" hex head bolts through mounting plate slots into U-channel mounting holes
3. Snug bolts, do not tighten.
4. Secure cables to cable ties (**9**).

Fig. 12.8.4 Container and mounting bracket assembly



12.9 Install bottom plug adapter, install tape on Motion Assist 360 drive

Fig. 12.9.1 Drive flange and in-ground speed control drive shaft

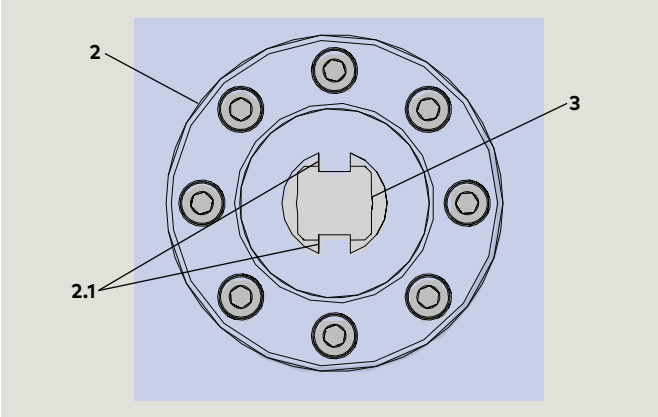


Fig. 12.9.2 Bottom plug adapter installation

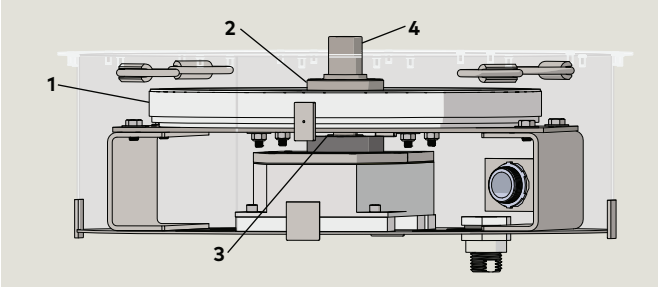


Fig. 12.9.3 Bottom plug adapter

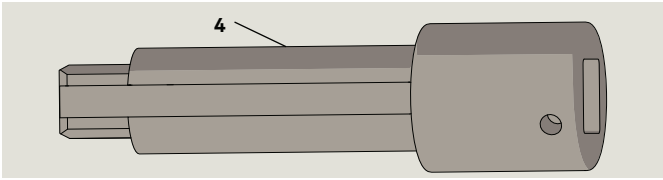


Fig. 12.9.4 Tape installation

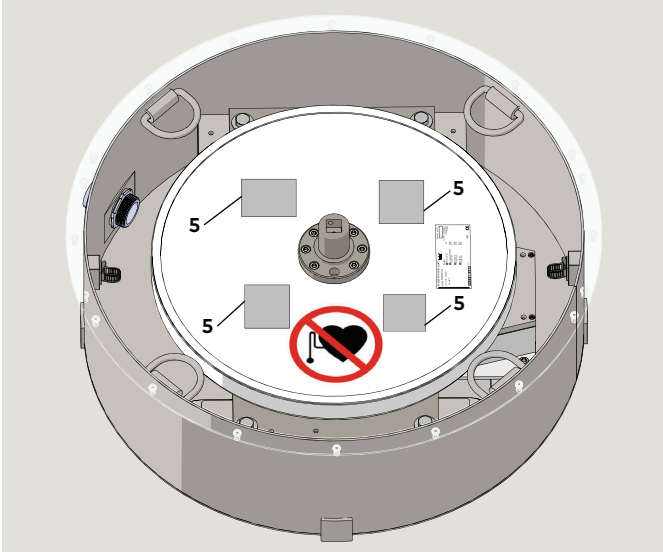


Table 12.9.1 Motion Assist 360 drive bottom plug adapter

1	RX6010-001	Motion Assist 360 drive
2	RC6025	Drive flange, 4" OD
2.1		Drive flange keys
3		Floor speed control drive shaft
4	RC6059	Center shaft bottom plug adapter
5		Foil tape

12.9.1 Align drive flange and speed control drive shafts.

1. Rotate drive to so that drive flange keys are aligned with in-ground speed control drive shaft (Fig. 12.9.1).

12.9.2 Install bottom plug adapter.

1. Adjust speed control mounting plate position and drive rotary position as required to install bottom plug adapter (Fig. 12.9.2).
2. Install bottom plug adapter through drive shaft hole and into in-ground speed control drive shaft.

TIPS AND RECOMMENDATIONS

Bottom plug lubrication.
Lubricate bottom plug with grease to facilitate plug installation through Motion Assist 360 drive and into in-ground speed control drive shaft.

NOTICE

Once installed, check bottom plug for plumb.

12.9.3 Tighten hex bolts

1. Tighten the four 1/2" x 3/4" hex bolts.

12.9.4 Install foil tape over drive mounting holes.

1. Install tape over Motion Assist 360 drive mounting holes (Fig. 12.9.4).

- Use foil tape; must have minimum temperature range of -35 to +175º F.

TIPS AND RECOMMENDATIONS

Tape installation to prevent moisture from entering Motion Assist 360 drive.

13 3 1/8" Canopy installation

13.1 Canopy shipped as single assembly – less than 8 feet outside diameter

Fig. 13.1.1 3 1/8" canopy assembly, cover view

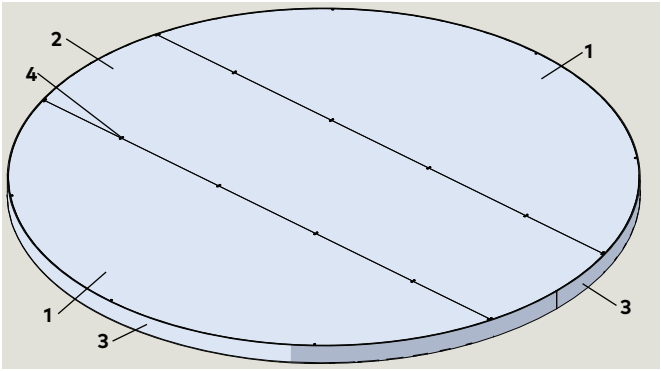


Fig. 13.1.2 3 1/8" canopy assembly, soffit view

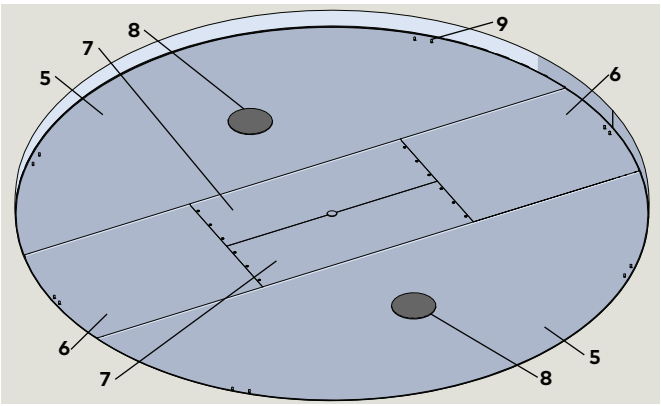


Fig. 13.1.3 Canopy with covers removed

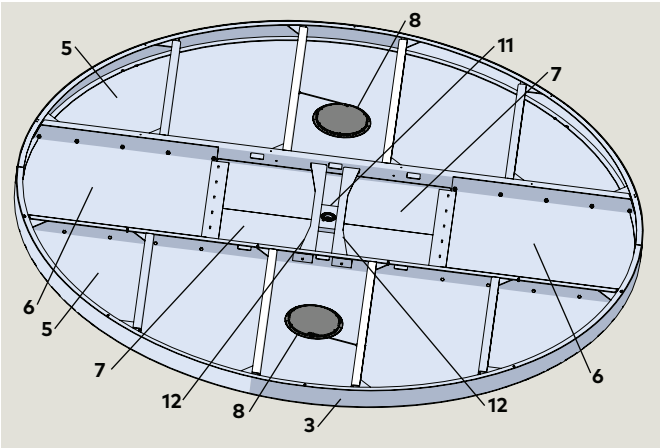


Fig. 13.1.4 Cover screw

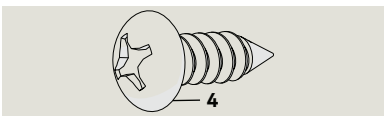


Table 13.1.1 3 1/8" 4 wing canopy parts RS6057

Part / Assembly		Description
1		Outer canopy cover
2		Inner canopy cover
3		Canopy fascia
4	RF3016-01Z	#8 x 1/2" Phillips round head sheet metal screw, canopy covers
5		Outer soffit
6		Outer center soffit
7		Inner center soffit
8	RC6320-010	LED light, 9" (option)
11	RS6064	Bearing assembly

13.1.1 Uncrate canopy shipping crate.

1. Uncrate canopy shipping crate.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

WARNING

Use caution when lifting and positioning canopy assembly!

CAUTION

Place canopy assembly on elevated smooth surface.

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

13.1.2 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 the inner section covers and set aside.

TIPS AND RECOMMENDATIONS

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

13.2 Canopy shipped in two sections – 8 feet and over outside diameters

13.2.1 Uncrate canopy shipping crates.

1. Uncrate canopy shipping crates.

CAUTION

Refer to warning tag on shipping crates regarding unpacking procedure.

WARNING

Use caution when lifting and positioning canopy assemblies!

CAUTION

Place canopy assemblies on elevated smooth surface.

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

13.2.2 Remove outer and center top covers.

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

Table 13.2.1 3 1/8" 4 wing canopy parts DS6051-001

Part / Assembly		Description
1		Outer canopy cover
2		Inner canopy cover
3		Canopy fascia
4	S21 0210	8-15 x 1/2" Phillips round head sheet metal screw, canopy covers (Fig. 15.1.3)
5		Outer soffit
6		Outer center soffit
7		Inner center soffit
8	RC6320-010	LED light (option)
9	RF6055-01G	1/4-20 x 5/8" Hex head screw
10	RF6121-01G	1/4-20 hex nut, SS
11	RS6064	Bearing assembly

TIPS AND RECOMMENDATIONS

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

Fig. 13.2.1 3 1/8" canopy assembly, split for shipment, cover view

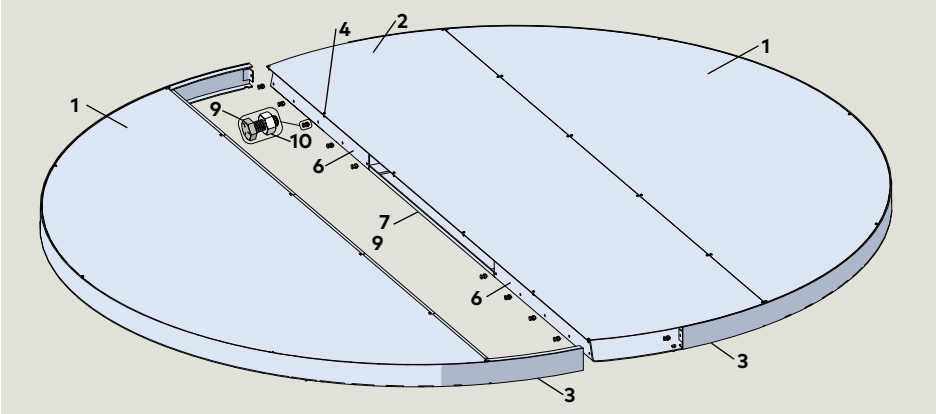


Fig. 13.2.2 3 1/8" canopy assembly, split for shipment, covers removed

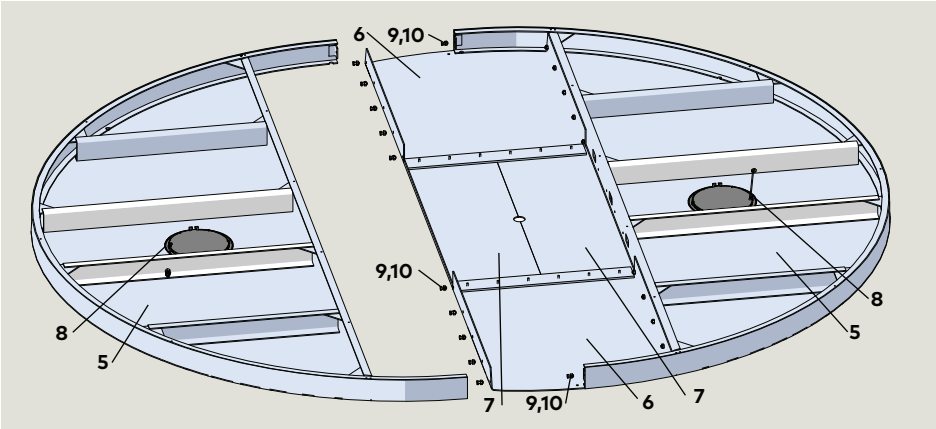


Fig. 13.2.3 Hex head screw

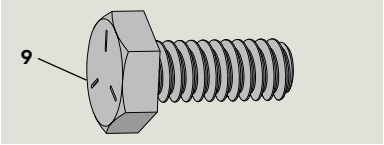


Fig. 13.2.4 Hex nut

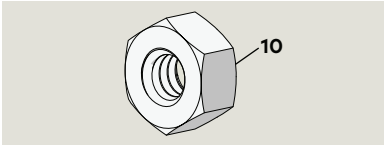
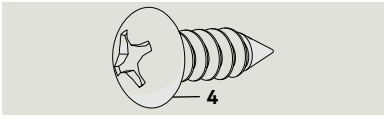


Fig. 13.2.5 Cover screw



13.2.3 Fasten canopy sections together.

1. Place canopy soffit sections together.
2. Fasten inner center soffit and outer soffit sections together using 1/4-20 x 5/8" hex screws and 1/4-20 hex nuts (Fig. 13.2.7 and 13.2.8).
3. Fasten canopy fascia section brackets together using one 1/4-20 x 5/8" hex screw and 1/4-20 hex nut at each bracket.

Fig. 13.2.6 3 1/8" canopy sections fastened together

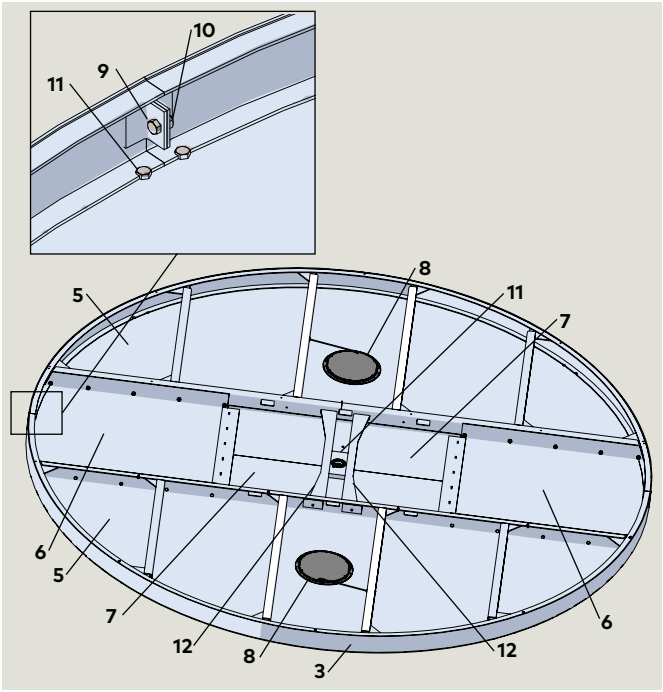


Fig. 13.2.7 Hex head screw

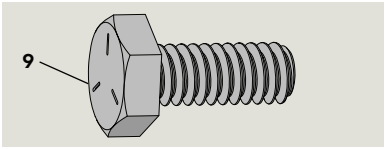


Fig. 13.2.8 Hex nut

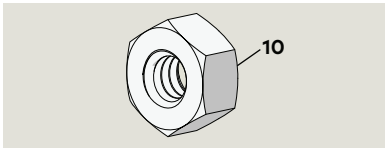


Table 13.2.2 3 1/8" 4 wing canopy parts RS6051-001

Part / Assembly		Description
1		Outer canopy cover
2		Inner canopy cover
3		Canopy fascia
4	RF3016-01Z	#8 x 1/2" Phillips round head sheet metal screw, canopy covers
5		Outer soffit
6		Outer center soffit
7		Inner center soffit
8	RC6320-010	LED light (option)
9	RF6055-01G	1/4-20 x 5/8" Hex head screw
10		1/4-20 hex nut
11	RF6055-01G	1/4-20 x 5/8" Hex head screw for post fastening

13.3 Install overhead bearing and bracket assembly RS6087

Fig. 13.3.1 Bracket and bearing assembly RS6087

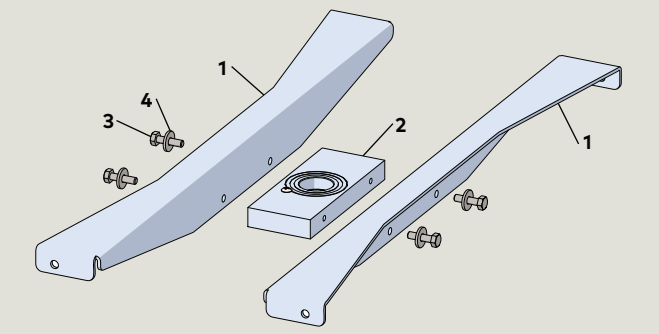


Fig. 13.3.2 Assembled bracket and bearing assembly

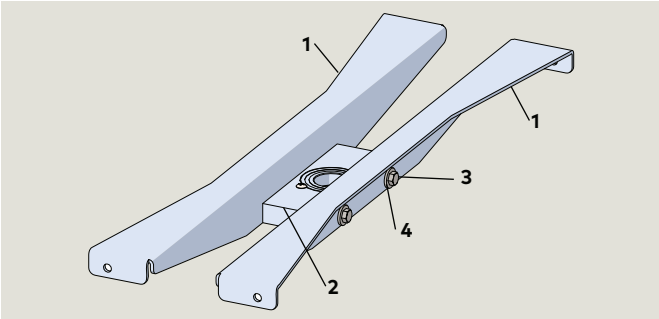


Fig. 13.3.3 Support plate

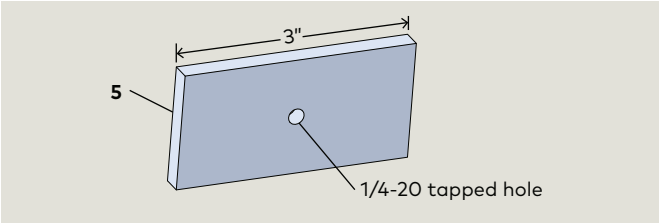


Fig. 13.3.4 Bracket and bearing assembly attached to soffits

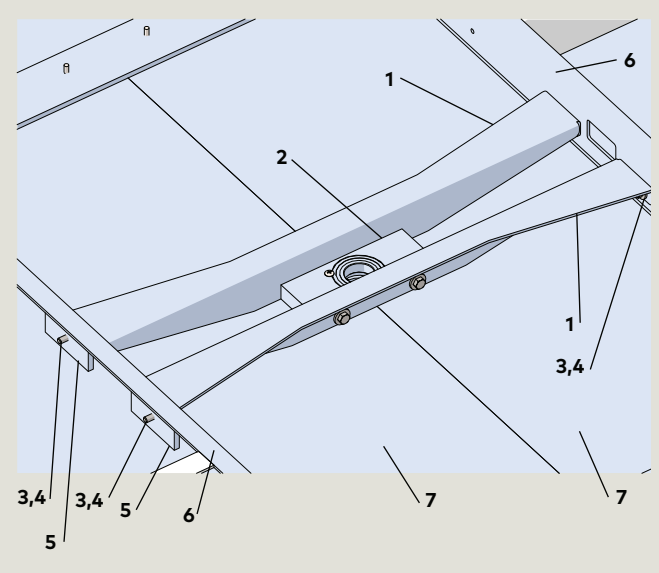


Table 13.3.1 Bracket and beaing assembly RS6087

Part / Assembly		Description
1	RC6395-010	Bracket, ground speed control
2	RS6064-001	Bearing assembly, low profile canopy
3	RS6055-02G	1/4-20 x 1" hex head bolt
4	RF6056-01G	Washer, 1/4" flat, 3/4" OD
5		Mounting support plate
6		Outer soffit
7		Inner center soffit

13.3.1 Assemble brackets to bearing assembly.

1. Assemble two brackets to bearing assembly using 1/4-20 x 1" flat head screws with 1/4" flat washers.

13.3.2 Install bracket and bearing assembly into canopy.

1. Install bracket and bearing assembly onto canopy outer soffits using:

- (4) mounting support plates (Fig. 13.3.3).
- (4) Washers, 1/4" flat, 3/4" OD
- (4) 1/4-20 x 1" hex head bolts

13.4 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!

13.4.1 Move canopy to approximate door centerpoint.

1. Position canopy at door centerpoint (Reference Para. 13.4.4) , orienting canopy to building interface (Para. 11.5).

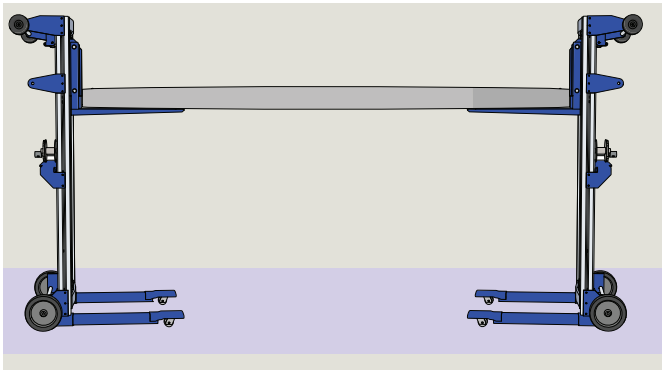
WARNING

A minimum of two persons are required when handling canopy!

WARNING

Use caution when handling canopy!

Fig. 13.4.1 Canopy on lift equipment example



13.4.2 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 14.

WARNING

Lock lift wheels once lifts are in place!

13.4.3 Raise canopy to installation height.

1. Raise canopy to height for post installation (Chapter 14).

WARNING

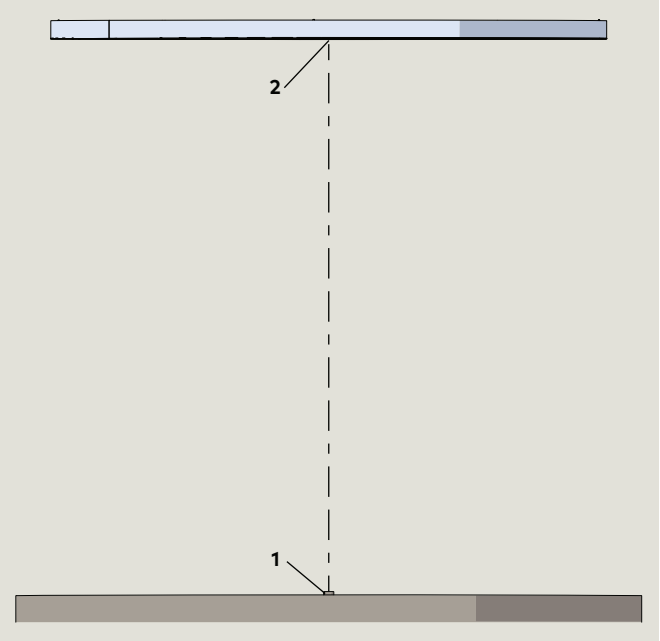
Use caution when raising canopy!

13.4.4 Plumb centerline of canopy top bearing with in-ground container bottom plug.

NOTICE

Plumb canopy bearing.
Using plumb bob line, position canopy so top bearing centerline is plumb with in-ground container bottom plug adapter centerline (Fig. 13.4.6).
Top bearing centerline must be plumb with bottom plug centerline.

Fig. 13.4.6 Plumb canopy to in-ground container bottom plug adapter



1 Bottom plug adapter
2 Canopy bearing

13.5 Canopy LED fixture installation

Fig. 13.5.1 LED light fixture

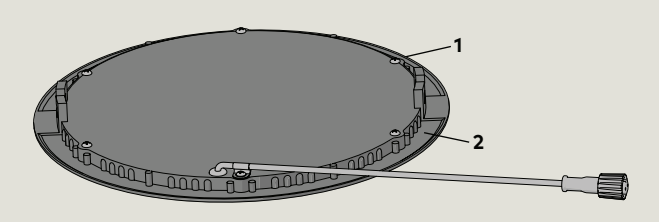


Fig. 13.5.2 Canopy with two LED lights

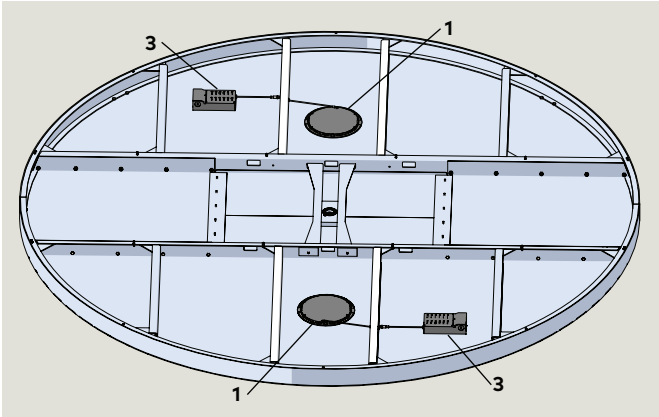


Fig. 13.5.3 LED driver

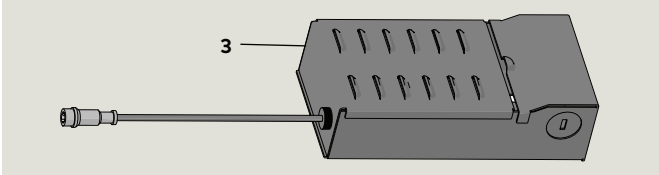


Fig. 13.5.4 115 Vac wiring to LED driver

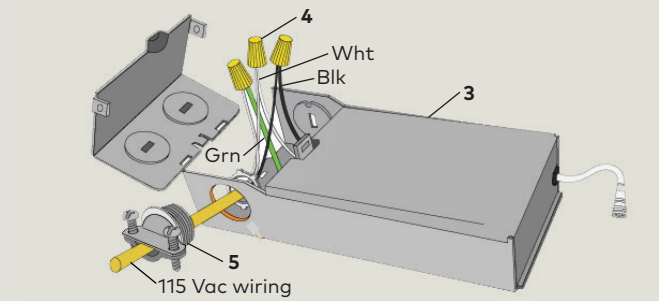


Table 5.13.1 Ceiling LED and junction box

1	RC7030-001	Light, LED
2	RC7031-001	2-sided tape for securing light to canopy
3	RC7032-001	Box, Junction with LED driver
4		Wire nut
5		NM cable connector or equivalent

13.5.1 LED light fixtures (option).

- Each light is supplied with an LED driver (Fig. 13.5.3).

13.5.2 LED light installation.

TIPS AND RECOMMENDATIONS

LED lights are factory installed.

13.5.3 LED driver installation.

NOTICE

LED driver and 115 Vac wiring installation.
It is recommeded to install drivers and connect 115 Vac wiring once revolving door enclosure is fully asssembled.

Connect each LED driver extension cable, if required, to its LED light.

13.5.4 115 Vac wiring to each LED driver.

WARNING

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

1. Use 4 conductor 18 AWG cable (Blk, Red, Grn, Wht).

- Cable must be routed from Remote control enclosure (Para. 2.6) to location of LED drivers.

2. For each LED driver, spice cable wires to LED driver 115 Vac wiring inside driver junction box using three wire nuts supplied with driver.

13.5.5 115 Vac connection at Motion Assist 360 control unit in remote enclosure.

1. Route 115 Vac cable to Motion Assist 360 control unit in remote enclosure.
2. Secure cable to canopy.
3. Connect cable wires to Motion Assist 360 control unit lighting connector.

14 Enclosure post installation

14.1 Enclosure posts

14.1.1 Crane shop drawings.

NOTICE

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

14.2 Open post shipping crate

Fig. 14.2.1 Post shipping crate

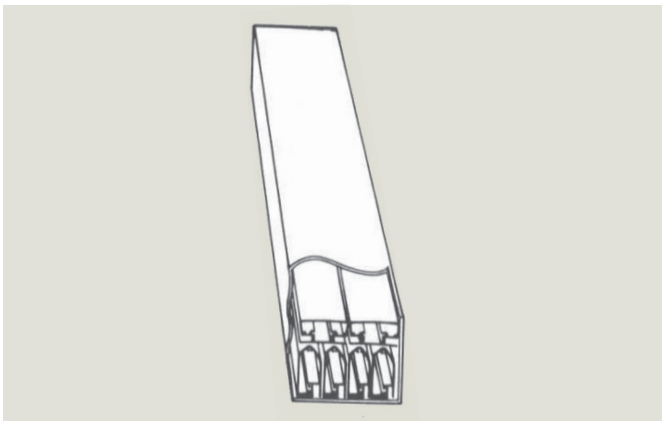


Fig. 14.2.2 Enclosure post numbering

14.2.1 Center posts and quarter posts/end walls.

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. 14.2.2) 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.

TIPS AND RECOMMENDATIONS

Refer to Para. 14.5 for enclosure post and base numbering examples.

14.3 Quarter post/end wall and center post assemblies

14.3.1 Quarter post/end wall and center post aluminum extrusions.

Table 14.3.1 Quarter post/end wall and center post

Part / Assembly		Description
1	RE60XX-0X0	Quarter post/end wall
3		1/4-20 tapped holes for hex screws
4	RE6006-0X0	Center post
5	RE6021-010	Attachment block, base/post
6	RF6116-01G	1/4-20 x 3/8" Phillips FHMS

Fig. 14.3.2 1/4-20 x 3/8" PFHMS

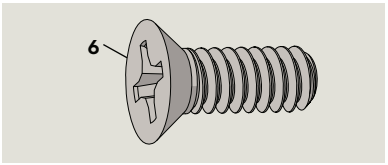


Fig. 14.3.1 Quarter post/end wall

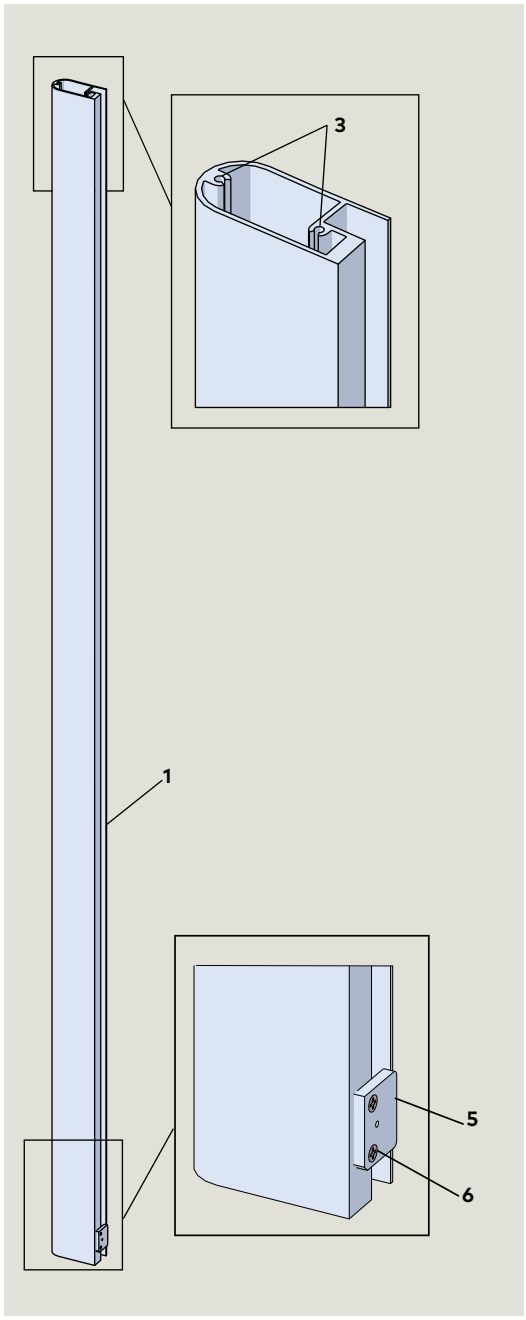
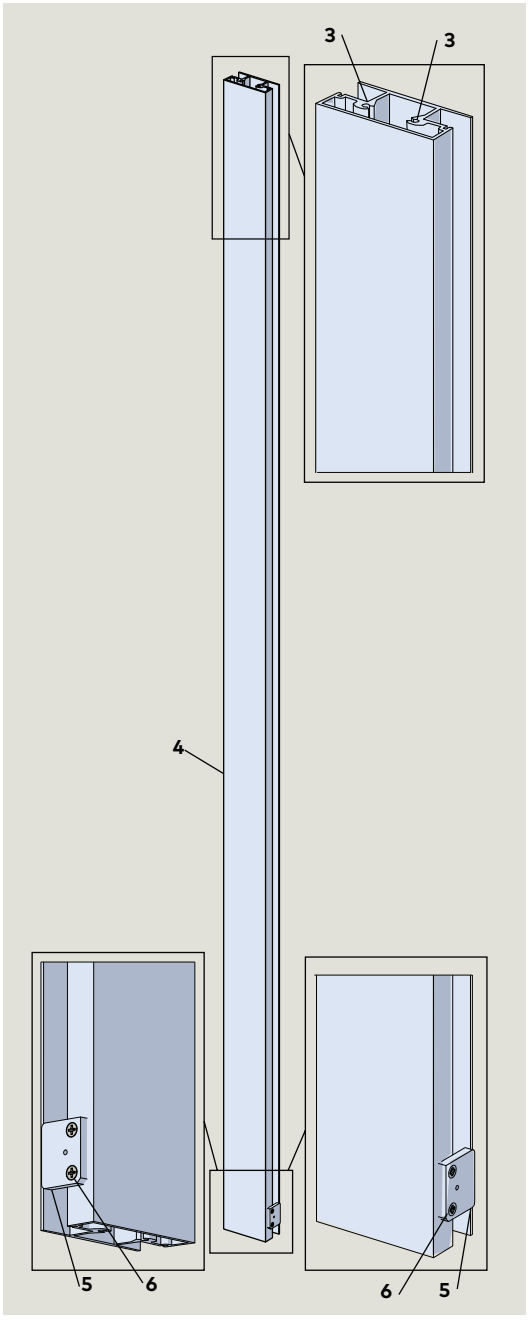


Fig. 14.3.3 Center post



14.4 Attach center posts and quarter posts/end walls to canopy

Fig. 14.4.1 Quarter post/end wall canopy fasteners

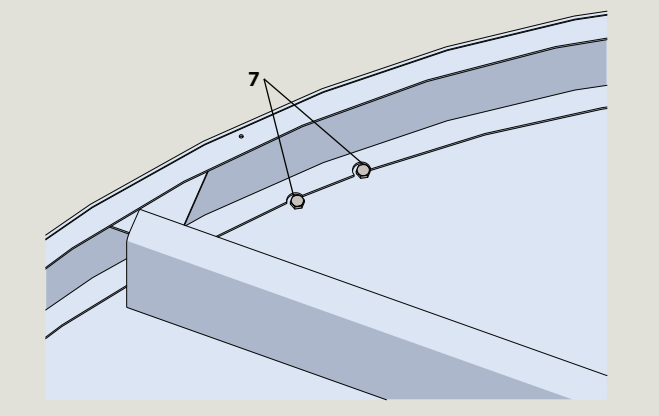


Fig. 14.4.2 Center post canopy fasteners

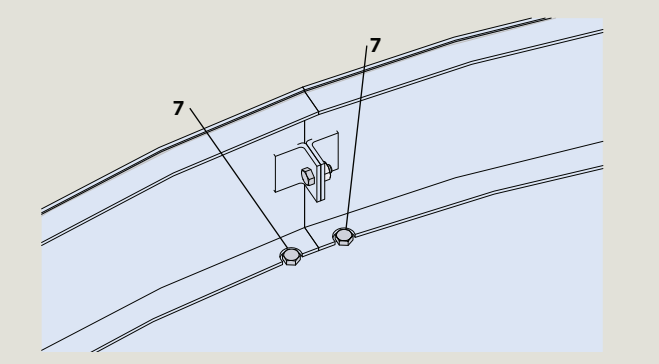


Fig. 14.4.3 Posts fastened to canopy example

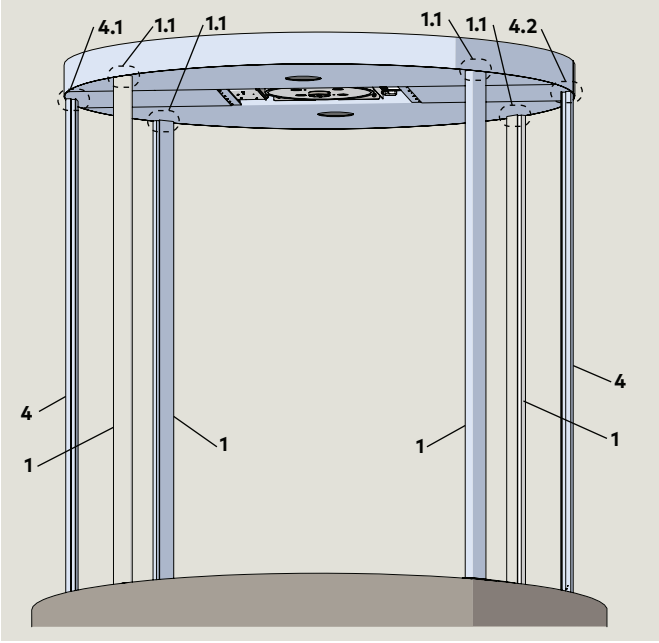


Fig. 14.4.4 RF6055-01G

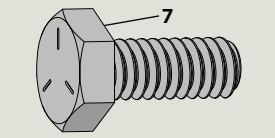


Table 14.4.1 Quarter post/end wall and center post

Part / Assembly		Description
1	RE60XX-0X0	Quarter post/end wall
1.1	RF6055-01G	Fig. 16.4.1 – Quarter post fasteners
4	RE6006-0X0	Center post
4.1	RF6055-01G	Fig. 16.4.2 –Center post fasteners
5	RE6021-010	Rail to post attachment block
7	RF6055-01G	1/4-20 x 5/8" FHMS

14.4.1 Fasten quarter post/end walls and center posts to canopy.

WARNING

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

1. Fasten posts to canopy using 1/4-20 x 5/8" hex screws (Fig. 14.4.2) through soffit holes into posts.
2. Reference Para. 14.5 for installation of operator control hardware on quarter posts.

CAUTION

Match post numbers to numbers in canopy. Refer to Para. 14.5 for post numbering locations.

TIPS AND RECOMMENDATIONS

Use 7/16" socket or box end wrench for tightening of 1/4-20 x 5/8" hex head screws.

14.5 Operator control hardware installation on quarter posts

Fig. 14.5.1 Operator control hardware, interior

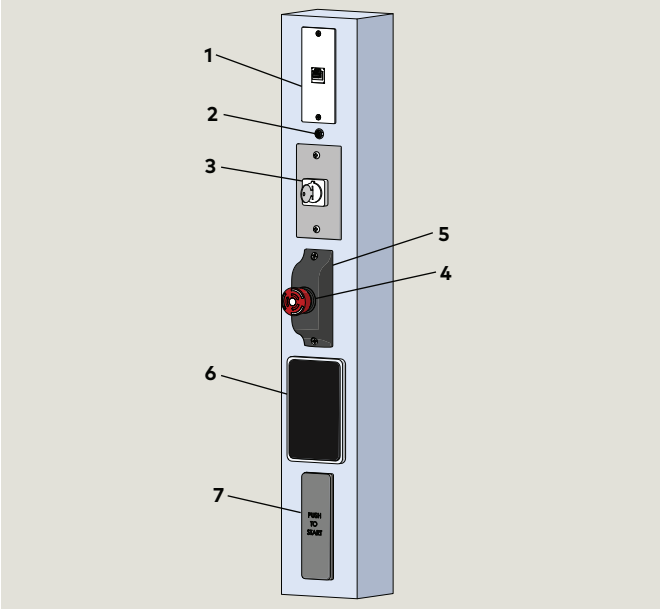


Table 14.5.1 Operator control hardware

Part / Assembly		Description
1	DX4604-08C	RH45 service panel (option)
2	RX6013	Fault LED
3	RX6008	Mode switch
4	RX3413-010	Emergency stop switch
5	RX3413-020	Emergency stop switch housing
6	DX3331-001	Wave to Open plate (option)
7	DX3339-040	Push to Start plate (option)

14.5.1 Operator control hardware.

1. Figures 14.5.1 details operator control hardware that may be installed on the quarter posts.

NOTICE

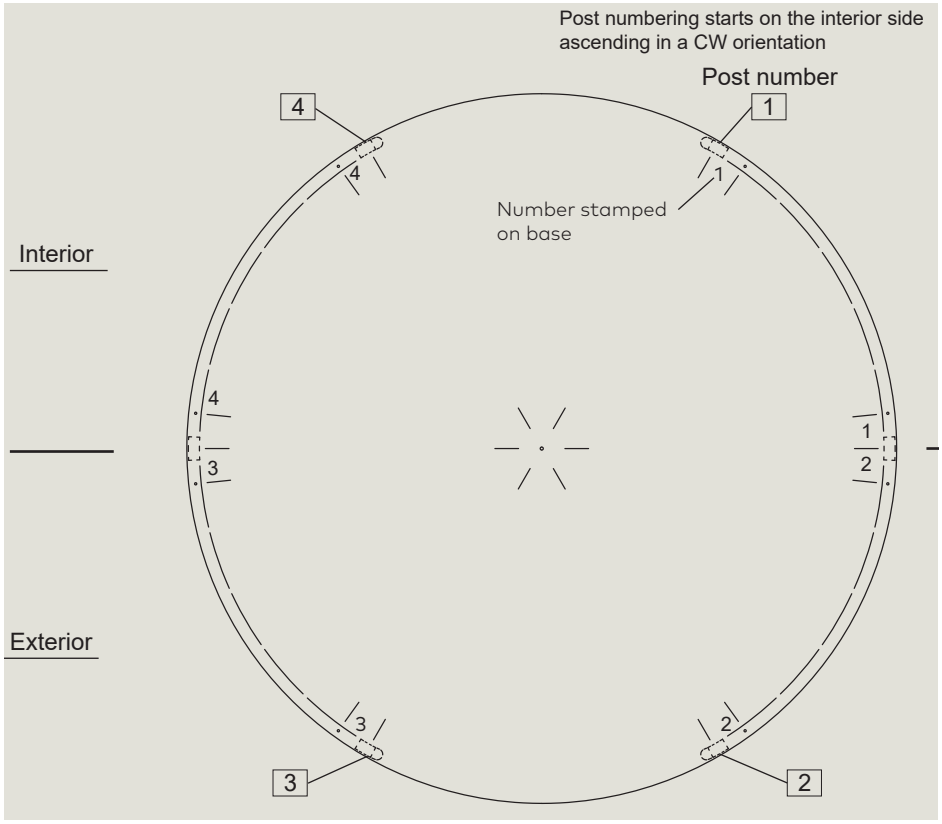
Locations of operator control hardware must be reviewed with site contractor or owner.

14.5.2 Remote control enclosure, wiring, setup, troubleshooting and maintenance instructions.

Refer to Manual RL6001-003 for wiring interfaces to Remote control enclosure.

14.6 Enclosure base and post numbering

Fig. 14.6.1 Standard post installation numbering

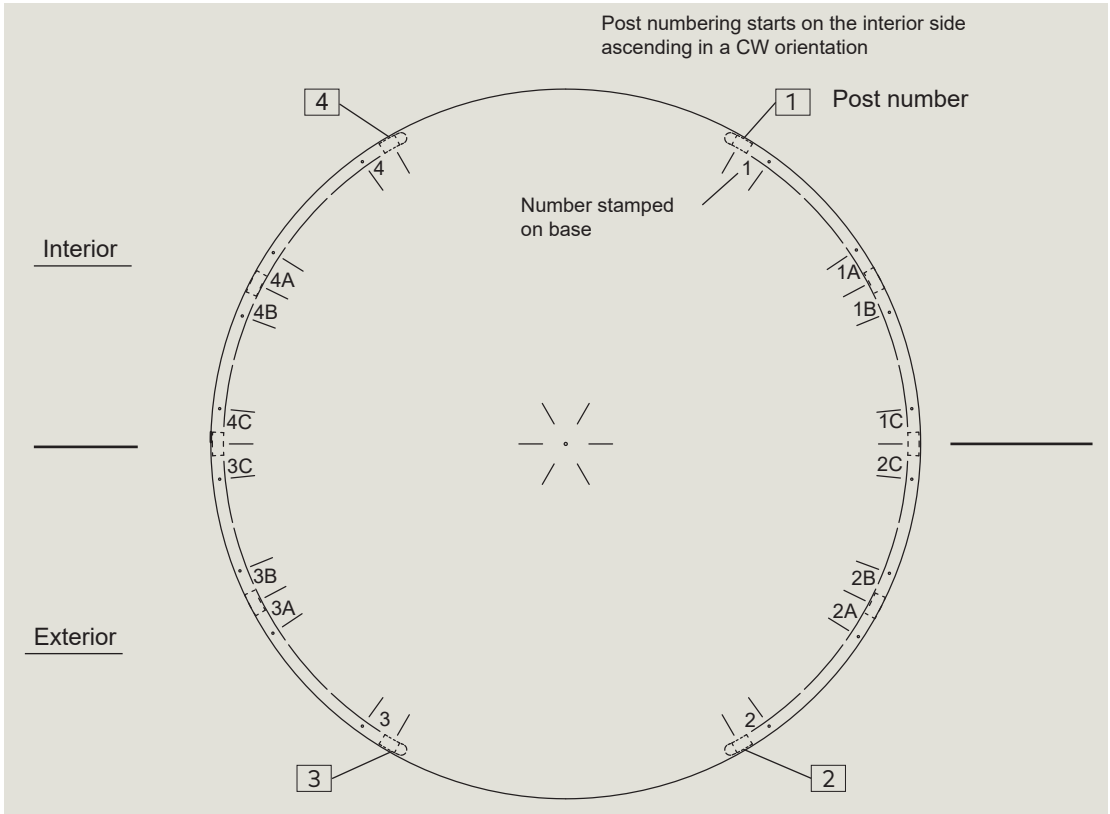


14.6.1 Post numbering, multiple revolving door installation.

Table 14.6.1 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. 14.6.2 Additional center post installation numbering



15 Enclosure base installation

15.1 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.

15.2 Open base enclosure shipping crate

Fig. 15.2.1 Base crate

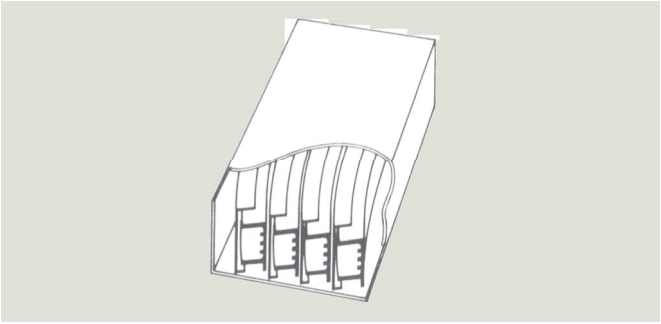
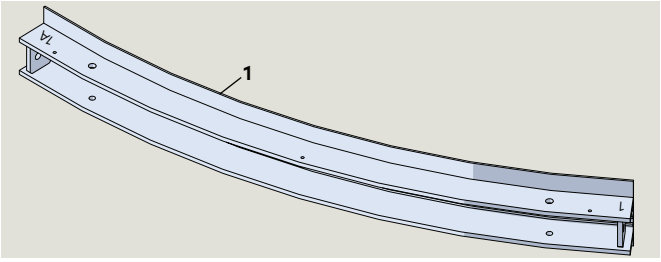


Fig. 15.2.2 Base shipping crate

Fig. 15.2.3 Enclosure base numbering



1 Enclosure base assembly with location numbers

15.2.1 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. 15.2.2).
- The numbers are stamped on the base (Fig. 15.2.3).
- Insure base numbers match those on wrapping material.

15.3 Base assembly installation

Table 15.3.1 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. 15.3.1 Aluminum mounting base with 3" studs installed

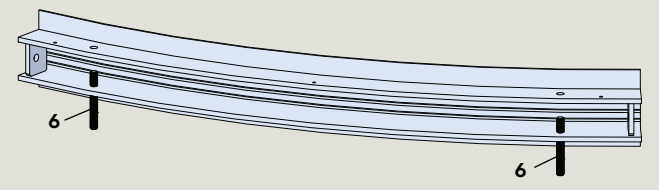


Fig. 15.3.2 S21 0334

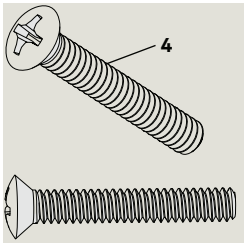


Fig. 15.3.3 Spacer

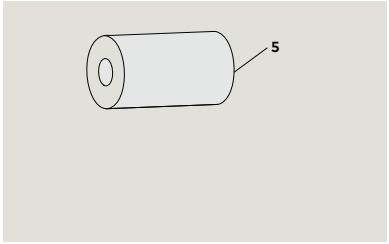


Fig. 15.3.4 HHMS

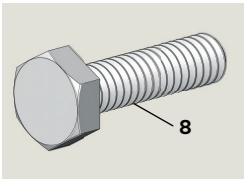


Fig. 15.3.5 3" threaded rod

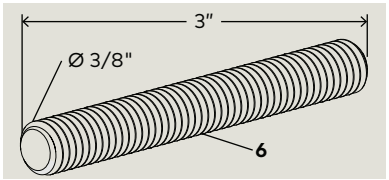
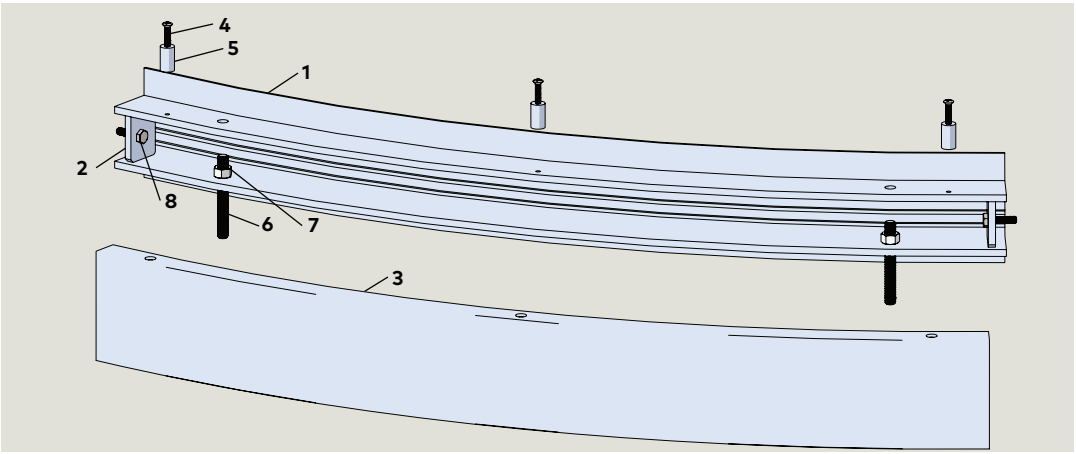


Fig. 15.3.6 Aluminum enclosure base and cover assembly example



15.3.1 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.

15.3.2 Prepare stud anchor holes.

- Stud anchor holes drilled in Para. 11.3.

1. Use vacuum or blower to remove any dust or debris.

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

1. Thread two 3" threaded rods into the mounting holes of each base (Fig. 15.3.6), leaving 3/4" above bottom base rail.

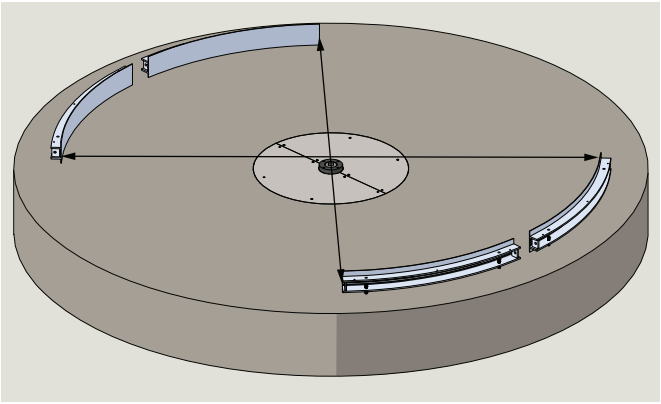
15.3.4 Dry fit each base assembly to the floor.

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. 15.3.7 Bases installed on floor



15.3.5 Verify door inside diameter.

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

15.3.6 Remove bases.

1. Remove bases from floor.

15.3.7 Partially fill anchor holes with anchoring epoxy.

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

15.3.8 Reinstall base assemblies

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

15.4 Lower canopy and post assembly; fasten posts to bases

Table 15.4.1 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. 15.4.1 Bases attached to center post

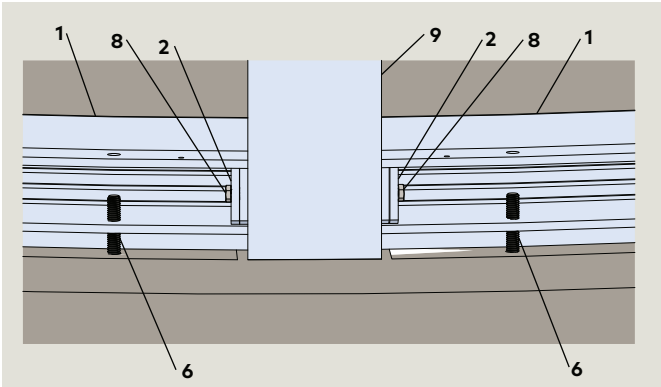
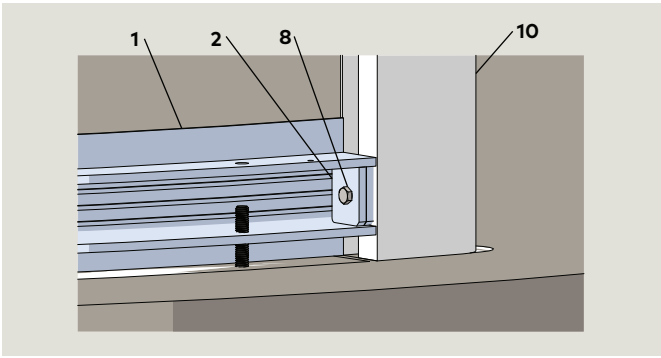


Fig. 15.4.2 Base attached to quarter post



15.4.1 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.

15.4.2 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.

15.4.3 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.

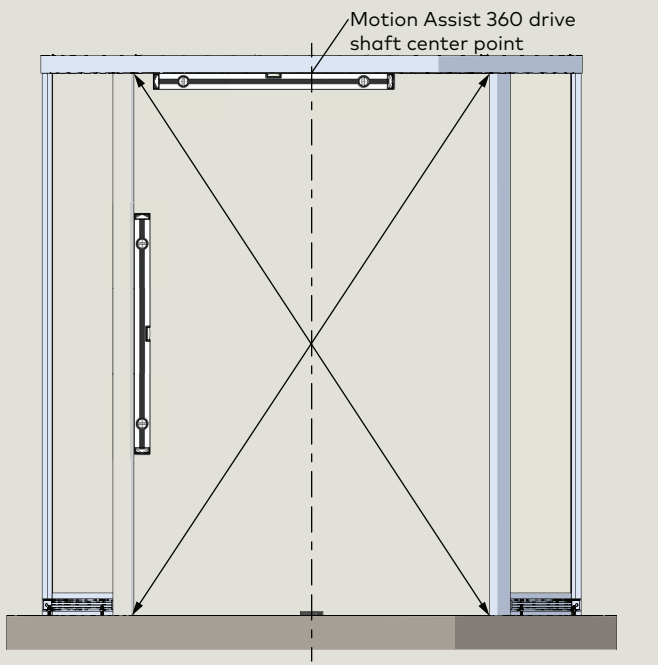
- Snug, do not tighten fasteners.

TIPS AND RECOMMENDATIONS

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

15.5 Set enclosure level, square and plumb

Fig. 15.5.1 Enclosure, check for level, square and plumb



15.5.1 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!

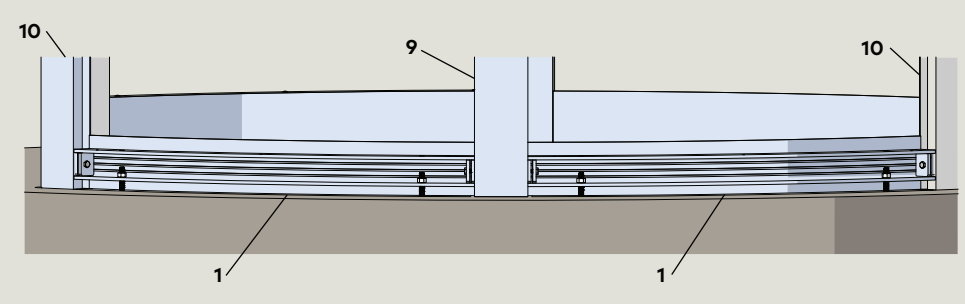
⚠ WARNING

Using plumb bob with string, verify canopy bearing centerpoint is plumb with in-ground adapter shaft center point.

15.5.2 Tighten posts to base assemblies.

1. Tighten all fasteners installed in Para. 15.4.2 and 15.4.3.

Fig. 15.5.2 Bases fastened to center post and quarter post/end walls



1 Enclosure base
9 Center post
RE6055-0X0
10 Quarter post
RE60XX-0X0

16 Center shaft installation – in-ground drive and speed control

16.1 Center shaft assembly

NOTICE

Refer to Crane shop drawings for specific center shaft detail for job!

16.2 Remove center shaft assembly from shipping crate

16.2.1 Unpack center shaft assembly from shipping crate.

- RS6060-001, 4 wing steel shaft assembly.
- RS6061-001, 3 wing steel shaft assembly.

CAUTION

Refer to warning tag on shipping crate regarding unpacking procedure.

WARNING

Use caution when lifting and positioning center shaft assembly!

TIPS AND RECOMMENDATIONS

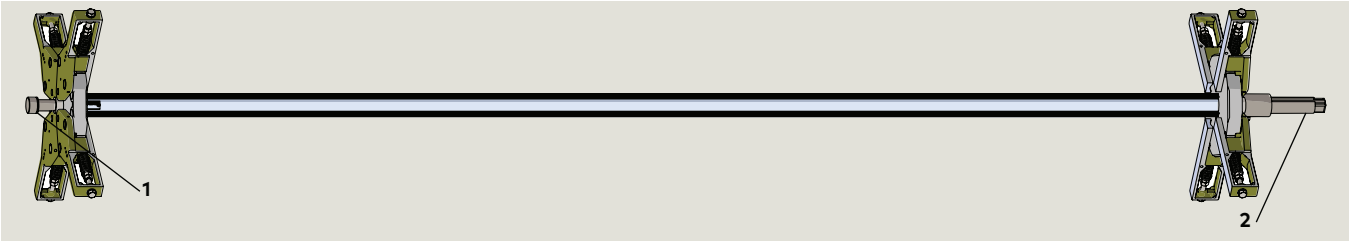
For center shaft assembly and parts detail, reference Para. 5.4 and Para. 5.5.

WARNING

Risk of injury from heavy loads!

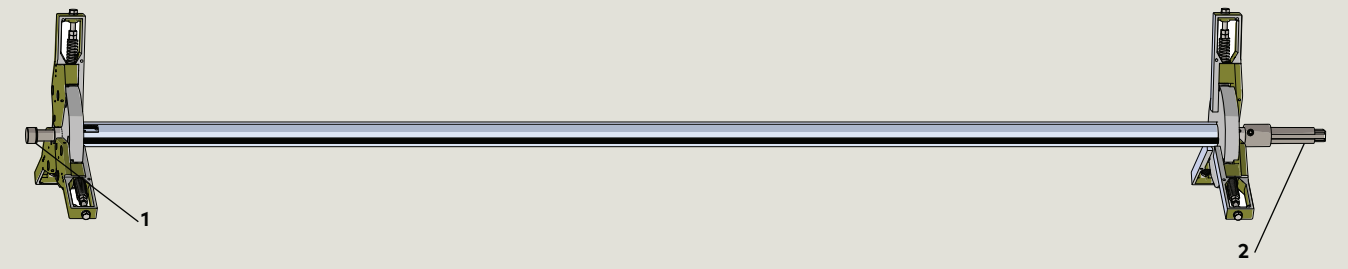
- Two persons are always required to lift or move the center shaft assembly.

Fig. 16.2.1 RS6060-001, 4 wing steel shaft assembly



1 Plug for overhead bearing **2** Bottom plug adapter

Fig. 16.2.2 RS6061-001, 3 wing steel shaft assembly



1 Plug for overhead bearing **2** Bottom plug adapter

16.3 Lower center shaft top plug

Table 16.3.1 Center shaft top plug and job tag hardware

Part / Assembly		Description
1	RC6076-001	Top plug, steel shaft
2	RD6001-001	Job tag
3	RF6008-01G	#6 x1/2" SS Phillips pan head screw
4	RF6052-010	Steel shaft cross pin

Fig. 16.3.1 Center shaft top plug and job tag

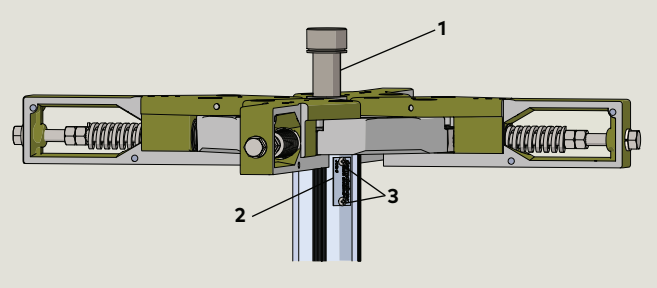


Fig. 16.3.2 Nameplate / job number tag removed

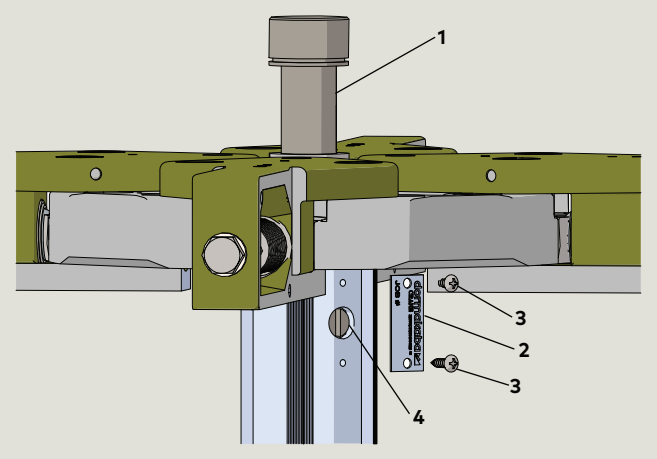
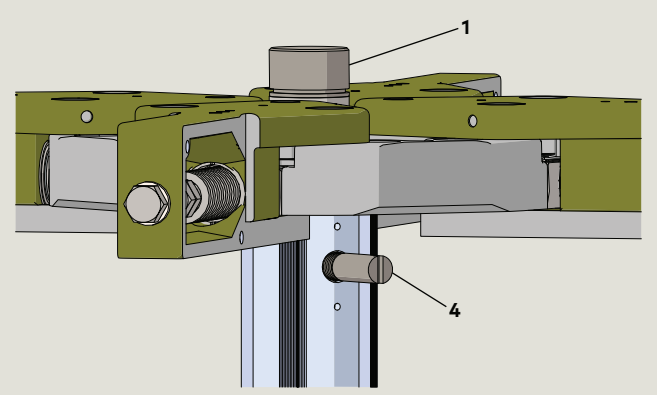


Fig. 16.3.3 Top plug lowered against steel center shaft



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.

16.3.1 Remove nameplate/job number tag.

1. Remove two Phillips pan head screws securing nameplate to center shaft and set aside.
2. Remove nameplate/job tag and set aside.

TIPS AND RECOMMENDATIONS

Nameplate tag must be retained and reinstalled after installation of center shaft. Refer to Para. 16.5.

16.3.2 Lower top plug.

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

TIPS AND RECOMMENDATIONS

Apply anti-seize lubricant to top plug shaft.

3. Insert top plug in shaft and lower until square portion of plug is against steel center shaft (Fig. 16.3.3).
4. Snug cross pin against top plug.

16.4 Install center shaft bottom plug into bottom plug adapter

Table 16.4.1 Bottom plug and speed control

Part / Assembly		Description
1	RS6060-001	Steel center shaft, 4 wing, floor speed control
2	RC6069	Bottom plug adapter, in-ground Motion Assist 360 drive and speed control
3	RC6082-001	Center shaft bottom plug
4	RS6074-010	Floor speed control assembly
5	RX6010	Motion Assist 360 drive
6	RF6059-01C	5/16-18 x 1/2" SHCS, black oxide

Fig. 16.4.1 Bottom plug above bottom plug adapter

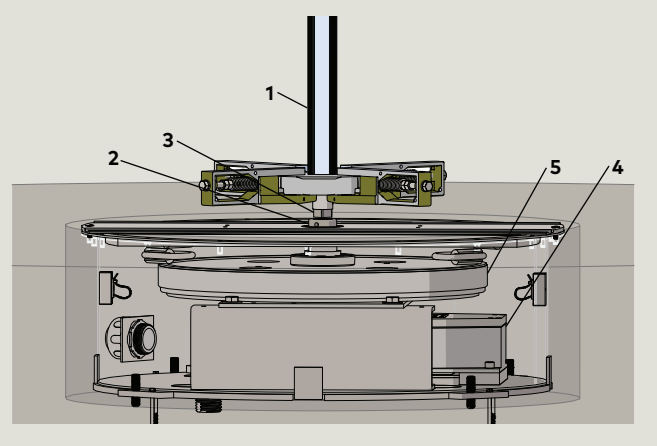


Fig. 16.4.2 Bottom plug inserted in bottom plug adapter

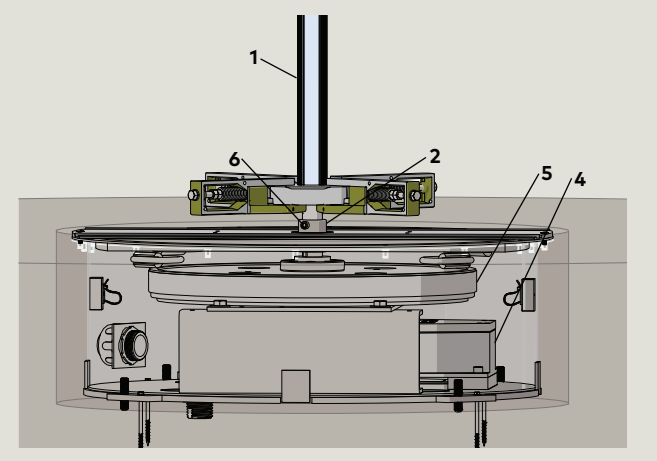
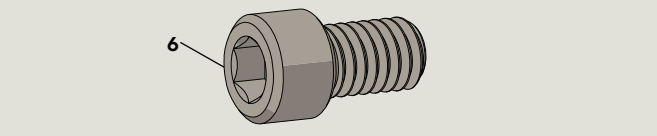


Fig. 16.4.3 5/16 x 1/2" socket head cap screw



16.4.1 Raise center shaft to vertical position.

1. Raise center shaft assembly and position bottom plug over bottom plug adapter.

WARNING

Use caution when lifting and positioning center shaft assembly!

WARNING

Risk of injury from heavy loads!

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

CAUTION

Top plug must be retracted (Para 16.3) to install center shaft assembly.

TIPS AND RECOMMENDATIONS

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

TIPS AND RECOMMENDATIONS

Grout not shown in cement box.

16.4.2 Lower center shaft bottom plug into bottom plug adapter.

1. Rotate center shaft assembly as required to orient bottom plug to bottom plug adapter.
2. Lower center shaft bottom plug into bottom plug adapter.
3. Thread 5/16 x 1/2" SHCS into bottom plug adapter and tighten.

16.5 Raise top plug into canopy bearing

Fig. 16.5.1 Top plug retracted, under canopy bearing

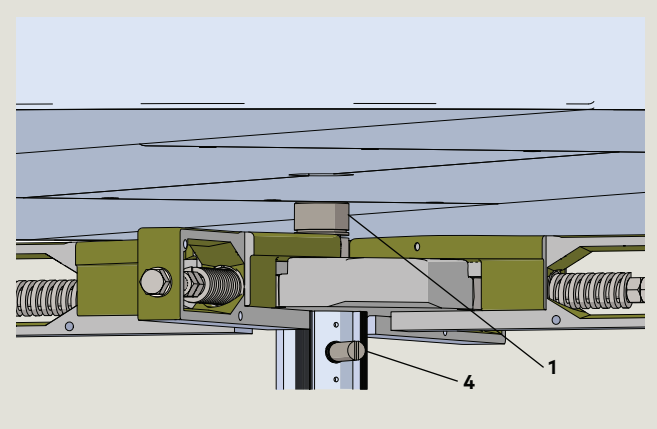


Fig. 16.5.2 Top plug extended into canopy bearing, cross pin holes aligned

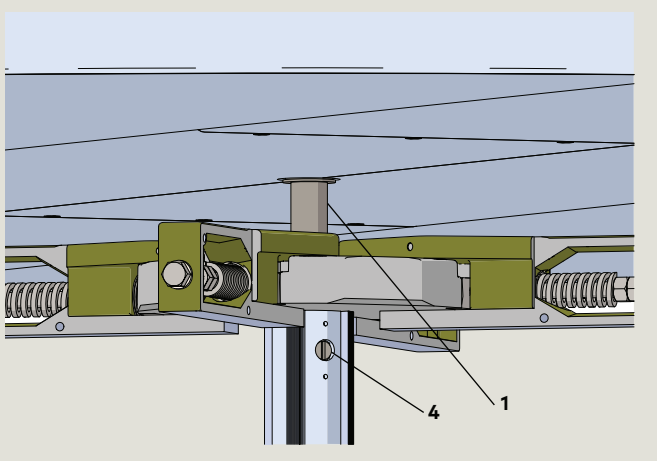


Fig. 16.5.3 Job tag/nameplate installed

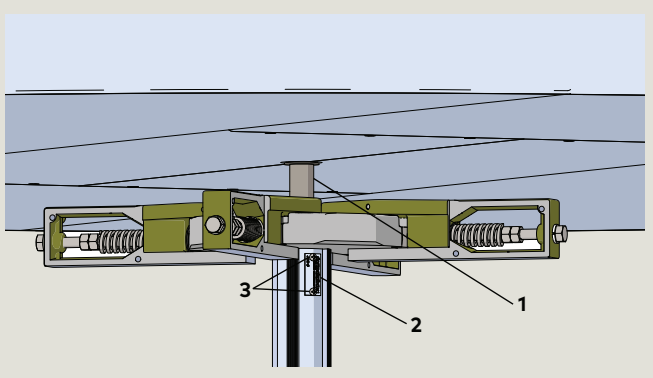


Table 16.5.1 Center shaft top plug and job tag hardware

Part / Assembly		Description
1	RC6076-001	Top plug, steel shaft
2	RD6001-001	Job tag
3	RF6008-01G	#6 x1/2" SS Phillips pan head screw
4	RF6052-010	Steel shaft cross pin

16.5.1 Raise top plug into canopy bearing.

1. Loosen steel shaft cross pin.
2. Raise top plug into canopy bearing until cross pin hole in top plug is aligned with holes in steel shaft and steel shaft cover.
3. Thread steel shaft cross pin (8) into top plug and tighten.

16.5.2 Install nameplate/job number tag.

1. Attach nameplate to steel shaft cover using two Phillips pan head screws (3).

16.5.3 Rotate center shaft assembly.

CAUTION

Rotate center shaft assembly.

- Shaft should rotate freely.

17 Set initial hanger breakout tension

17.1 Set hanger initial hanger breakout tension

Fig. 17.1.1 3 inch canopy with floor speed control and center shaft installed

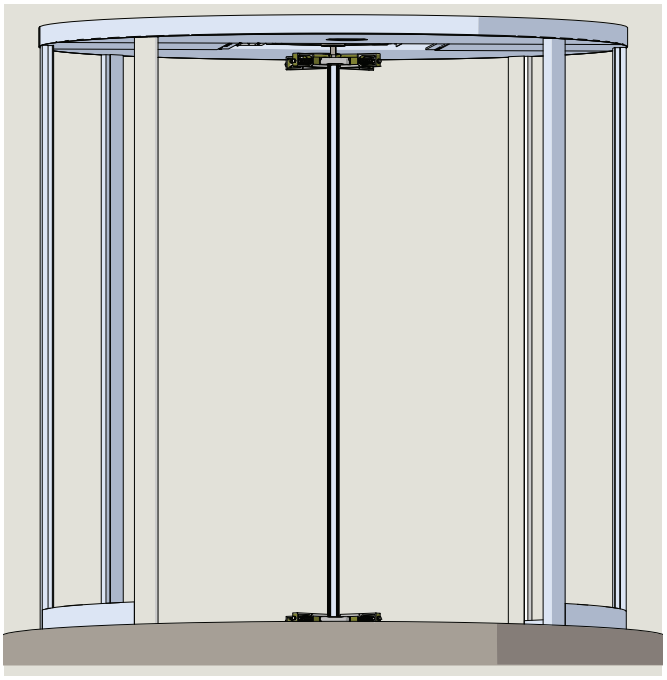
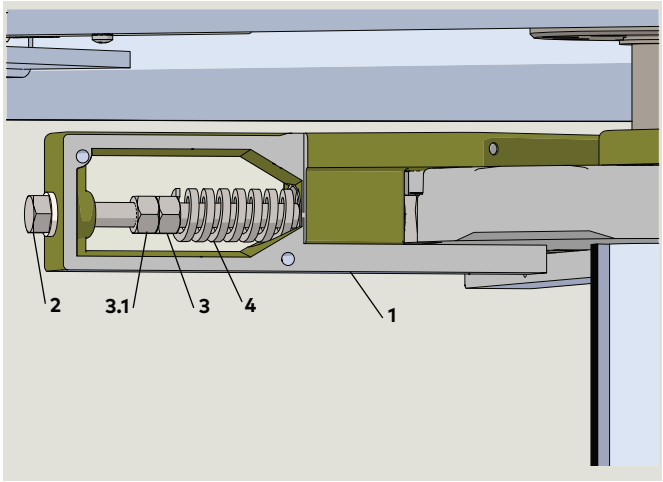


Fig. 17.1.2 Hanger breakout tension adjustment



1 Hangar assembly RS6045-020
2 Hex bolt, .375x 4" RC6156-01G
3 .375-16 hex nut
3.1 375-16 hex nut
4 .Spring

17.1.1 Breakout tension.

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 21.

17.1.2 Initial breakout hanger tension.

1. Loosen hex nuts (3, 3.1) away from spring.
2. Turn hex nut (3) so that it is finger tight against spring.
3. Using open end 9/16" box wrench, turn hex nut (3) four turns CW to tension spring.
4. Turn hex nut (3.1) until it is against hex nut (3).
5. Use 9/16" wrenches to lock hex nuts in place.

NOTICE

Reference Chapter 21 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.

17.1.3 Remaining hangers.

1. Repeat hanger tension adjustment for remaining hangers.

18 Wing installation

18.1 Wing assemblies

NOTICE

Refer to Crane shop drawings for specific wing assembly detail for job!

18.2 Unpack wing shipping crate

Fig. 18.2.1 Wing shipping crate

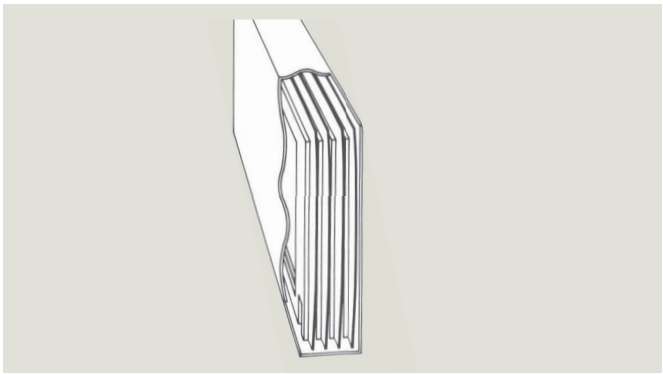
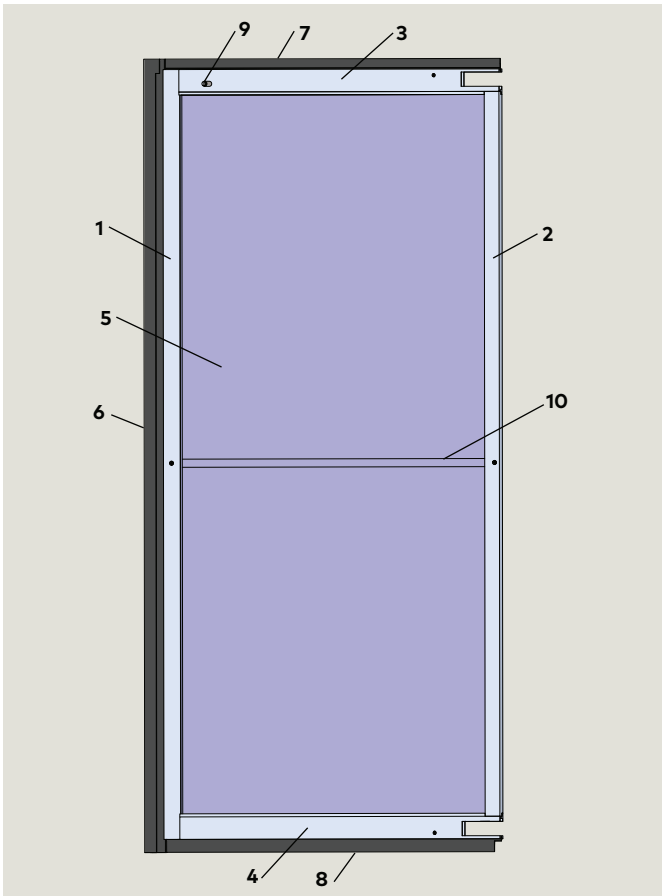


Fig. 18.2.2 Wing assembly example



18.2.2 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 5.10.1 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 bars ordered job specific for each order

18.3 Install wing locks on two interior door wings

Fig. 18.3.1 Wing lock and mounting hardware

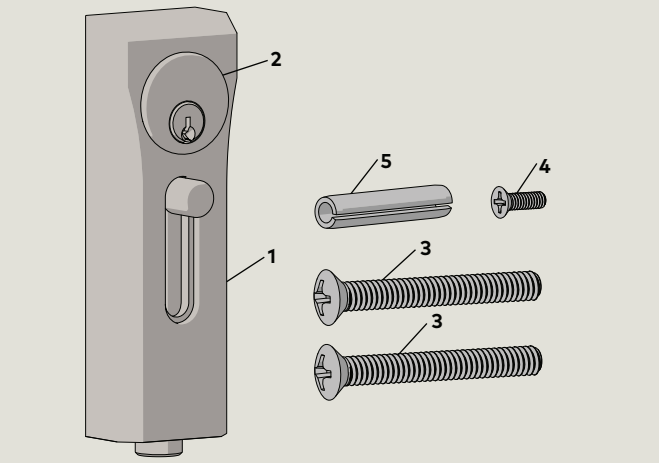


Fig. 18.3.2 Wing lock mounting holes

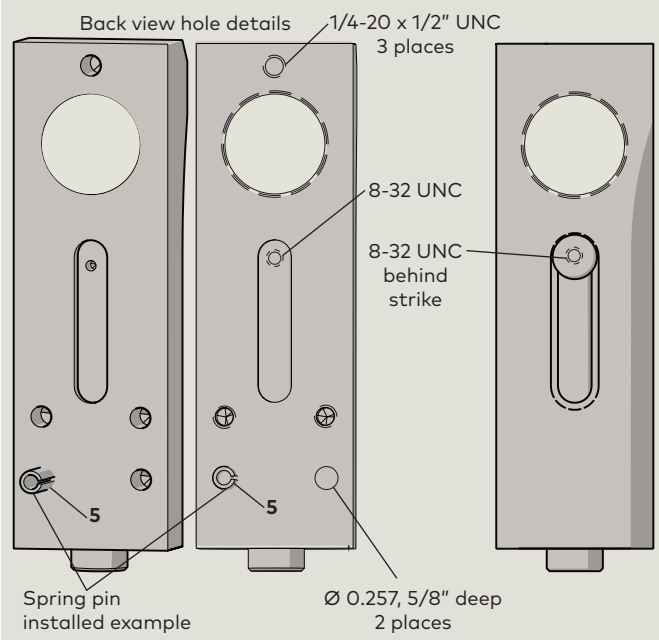


Fig. 18.3.3 Wing lock installed

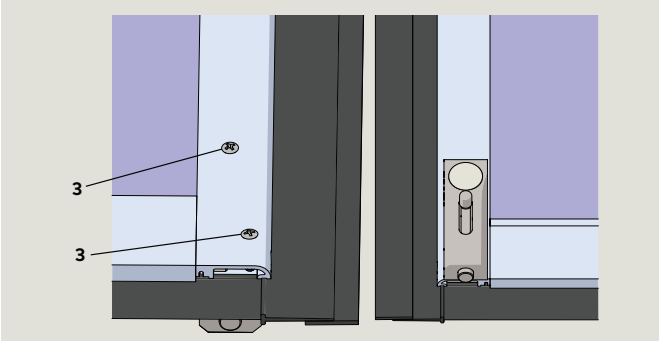


Table 18.3.1 Wing lock hardware

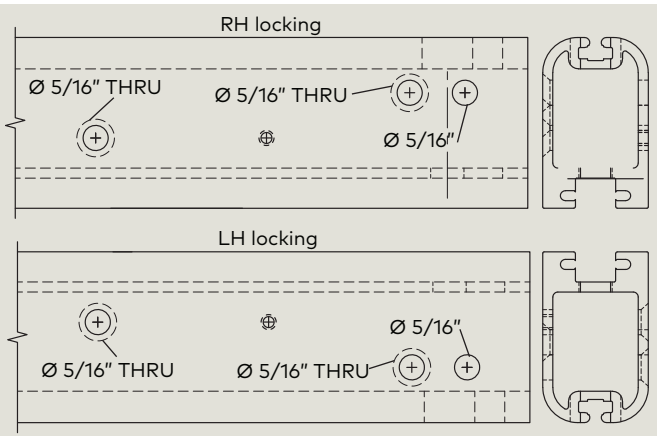
Part / Assembly		Description
1	RC6259-0X0	Lock body
2		Lock cylinder (by others)
3	RF6120-01G	1/4-20 x 2" 18-8 oval head screw
4	RF6054-01G	8-32 x 1/2" 18-8 flat head screw
5	RF6053-01G	1/4 x 1 1/4" spring pin

18.3.1 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. 18.3.4 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.

18.3.2 Lock cylinder (by others).

NOTICE

Crane shop drawings.
Reference Crane shop drawings for lock cylinder requirements for job!

18.4 Install wings onto center shaft hangers

Table 18.4.1 Wing mounting hardware

Part / Assembly		Description
1		Wing hanger mounting hole, both sides
2		Hanger mounting hole, both sides
3	RF6119-01G	1/4-20 x 1/2" truss head machine screw
4	RC6259-0XX	Body, wing lock

Fig. 18.4.1 First wing installation

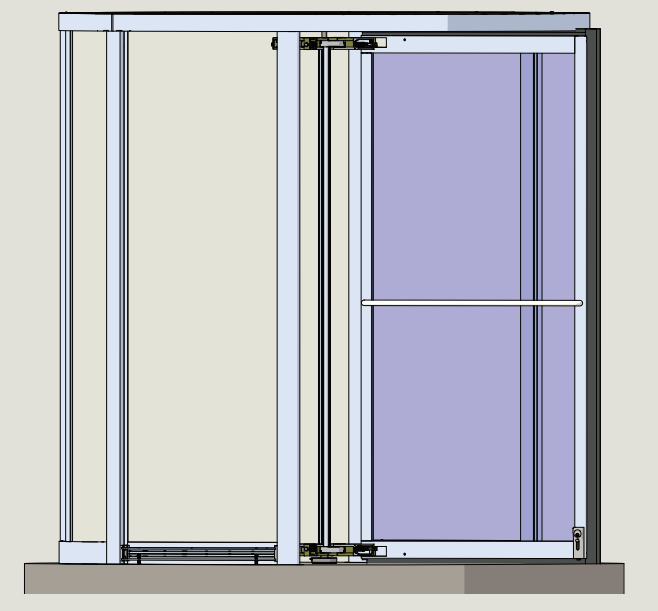


Fig. 18.4.2 Wing and hanger mounting holes

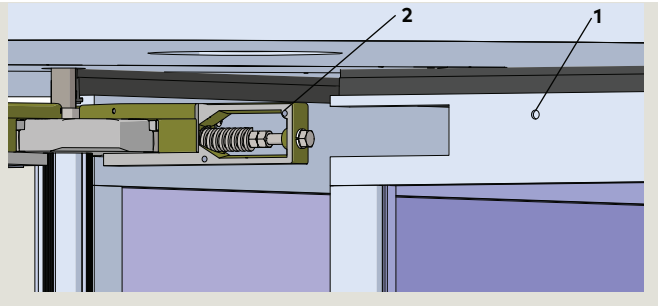


Fig. 18.4.3 Wing installation on hanger

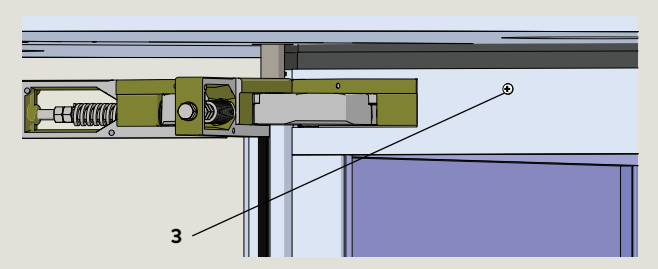
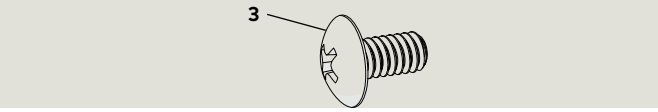


Fig. 18.4.4 Truss head machine screw



18.4.1 Install first wing on center shaft hangers.

- Wings with locks installed on interior side of door.

CAUTION

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

WARNING

Use caution installing wing assemblies!

WARNING

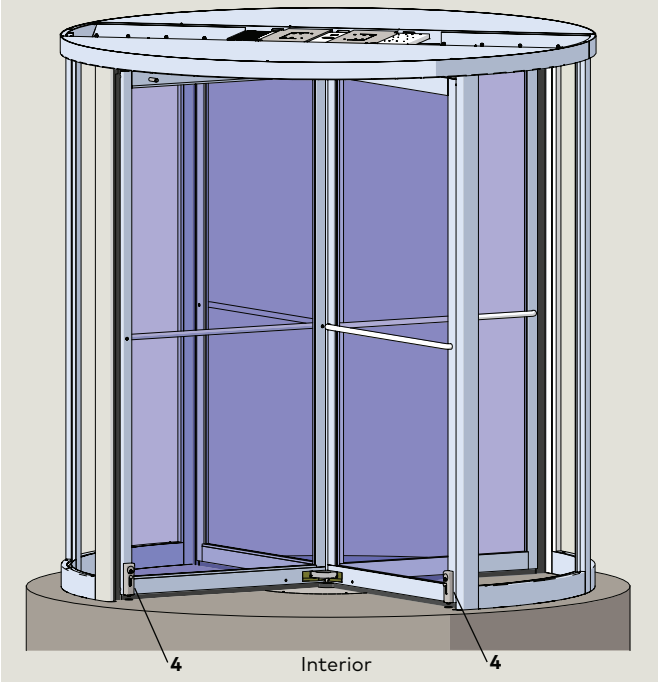
Risk of injury due to improper handling of wing assemblies!
A minimum of two people are required to lift and transport wing assemblies.

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.

18.4.2 Install remaining wings on center shaft hangers.

1. Install remaining wings.

Fig. 18.4.5 4 wing door – wings installed on hangers



19 Install floor strikes

19.1 Install floor strikes

Fig. 19.1.1 Floor strike RC6265-0X0

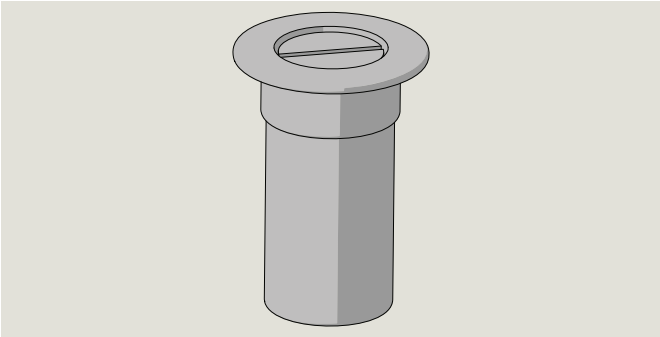


Fig. 19.1.3 Hole for floor strike

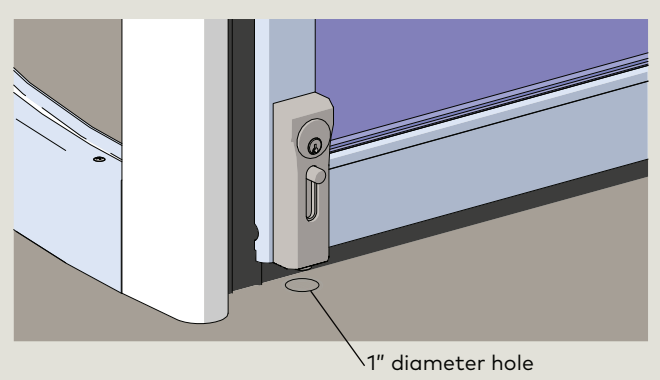
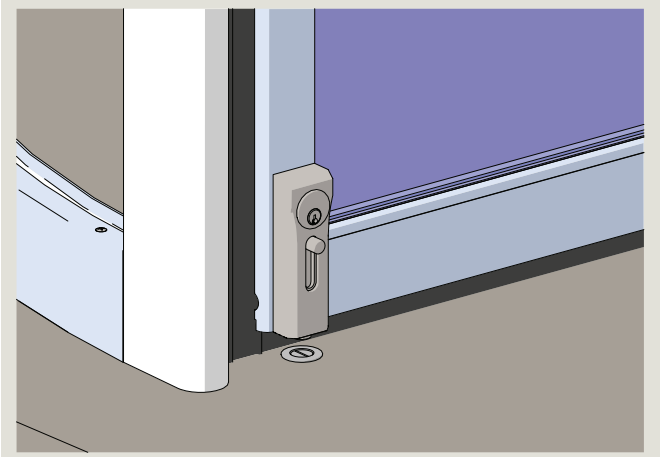


Fig. 19.1.4 Floor strike installed



19.1.1 Home position.

1. Rotate wings to home position.

19.1.2 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.

19.1.3 Drill floor strike holes in floor.

1. For concrete floors, drill 1 inch 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.

19.1.4 Clean any dirt and debris from floor strike holes.

CAUTION

Insure floor strike holes are clear of dirt and debris.

1. Use a vacuum or blower to remove any debris inside each hole.

19.1.5 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.

20 Install enclosure glass, enclosure base covers

20.1 Enclosure glass

NOTICE

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

20.2 Unpack enclosure glass shipping crate

20.2.1 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.

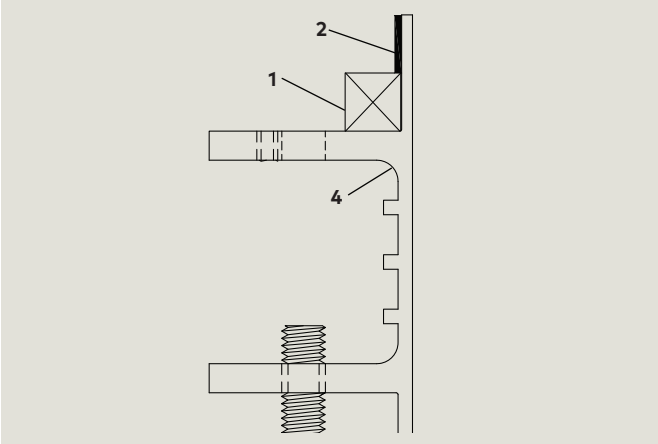
WARNING

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.

20.3 Prepare enclosure posts and bases for enclosure glass

Fig. 20.3.1 Enclosure base glazing block and tape AL3000 example



1 Gazing block
2 Glazing tape
4 Enclosure base

20.3.1 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.

20.3.2 Install glazing tape in enclosure bases.

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

20.3.3 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. 20.4.3.

20.4 Install enclosure glass

Fig. 20.4.1 Glass set in base enclosure

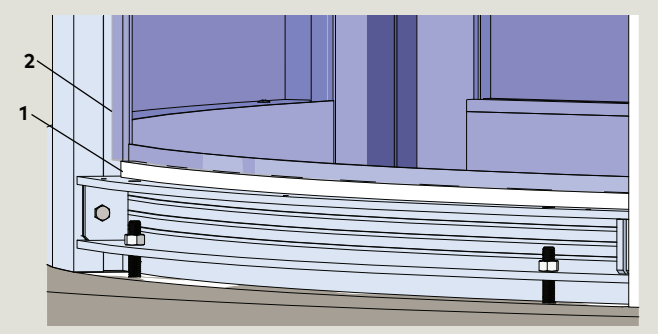


Fig. 20.4.2 Crane shop drawing, enclosure base example

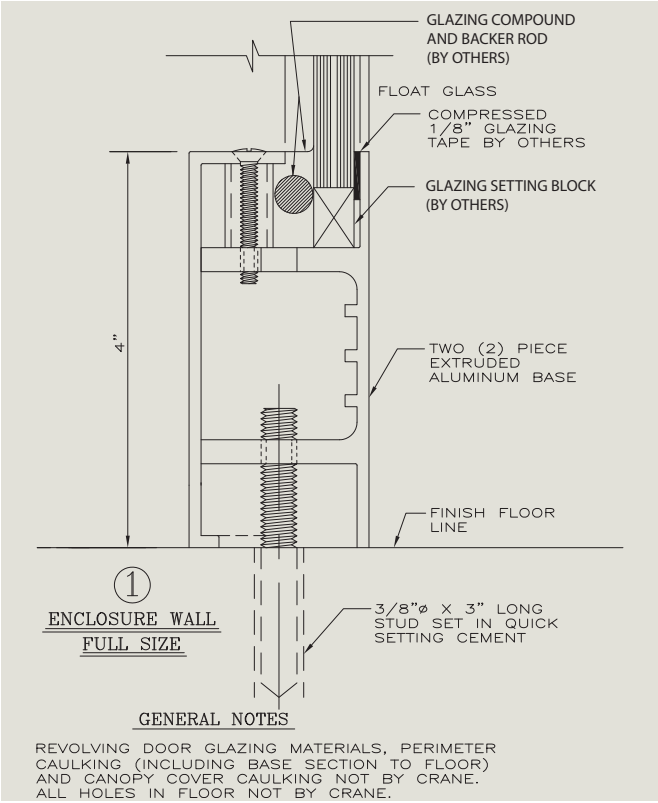


Table 20.4.1 Enclosure glass and base assembly

Part / Assembly		Description
1		Glazing block (by installer)
2		Enclosure glass, reference Crane shop drawings
3	S21 0334	10-24 x 1 1/4" Phillips oval head machine screw
4		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)

20.4.1 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.

20.4.2 Install backer rods in enclosure bases and posts.

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

20.4.3 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 20.4.2 and 20.4.3.

NOTICE

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

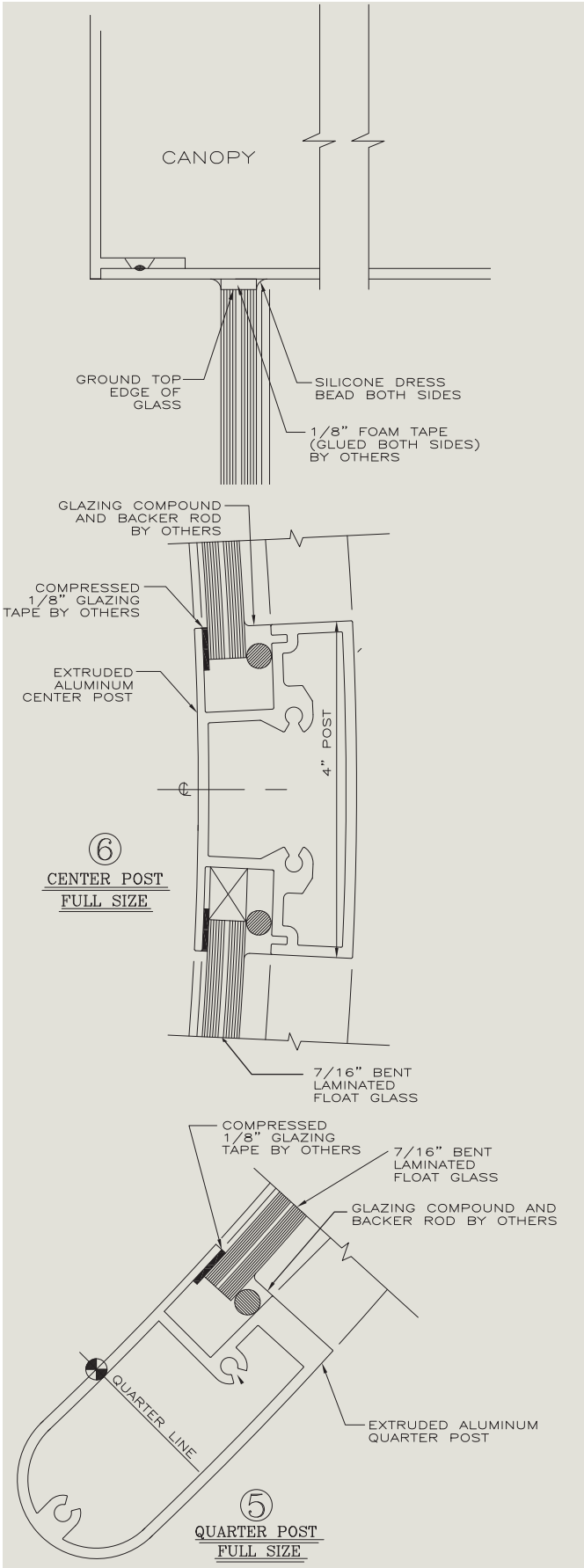
20.4.4 Install remaining enclosure glass.

1. Install remaining enclosure glass per paragraphs 20.4.1 through 20.4.2.

NOTICE

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

Fig. 20.4.3 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!

20.5 Install enclosure base covers

Fig. 20.5.1 Base cover hardware

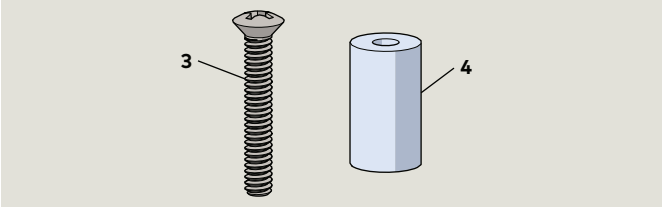


Fig. 20.5.2 Aluminum base and cover assembly

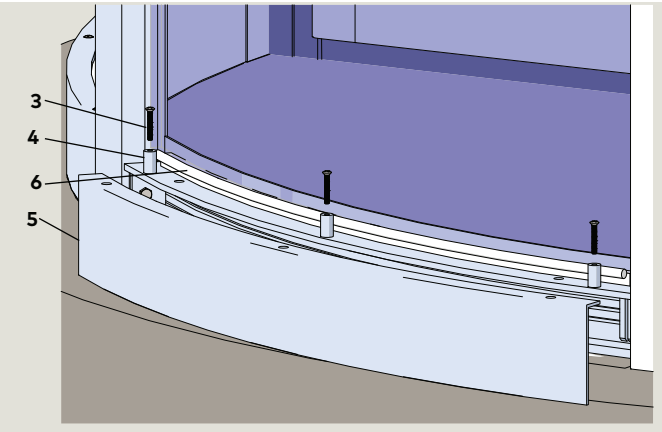


Fig. 20.5.3 Enclosure base cover installed

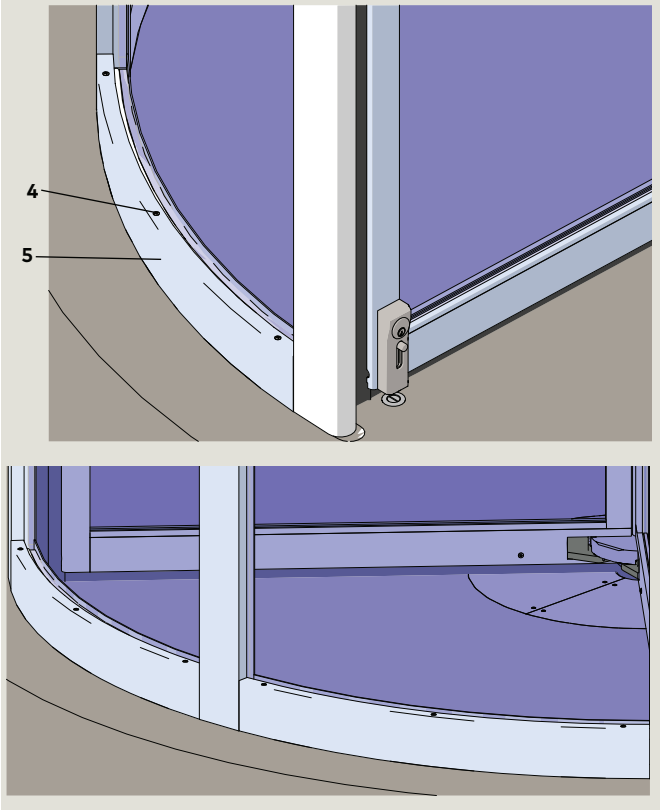


Table 20.5.1 Enclosure base assembly, AL

Part / Assembly		Description
3	S21 0334	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)

20.5.1 Install enclosure base covers.

1. Install enclosure base covers using hardware in Fig. 20.5.1

20.5.2 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!

20.5.3 Stainless steel bases.

NOTICE

Refererence Crane shop drawings for stainless steel bases.

21 Check wing breakout force, bookfold operation

21.1 Check breakout force

Fig. 21.1.1 Wing in bookfold position

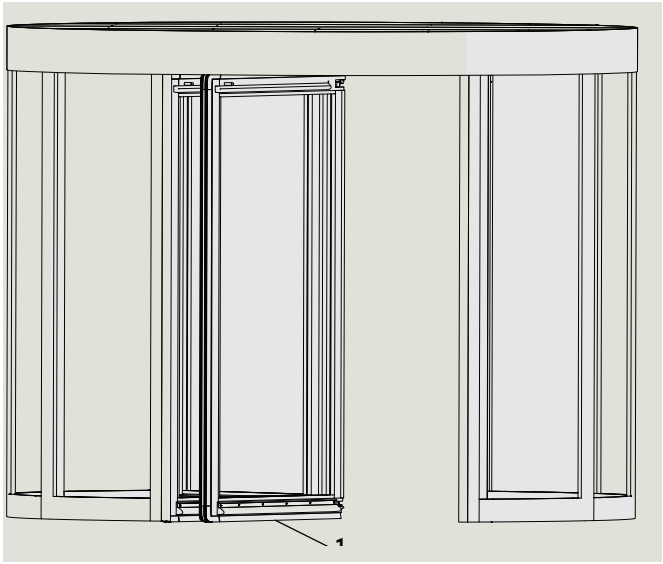
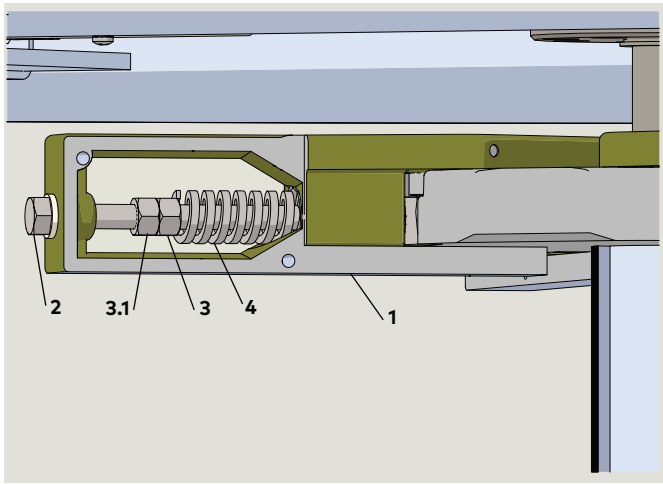


Fig. 21.1.2 Hanger breakout tension adjustment, wing removed



1 Hangar assembly RS6045
2 H bolt, .375x 4" RC6156-01G
3 .375-16 hex nut
3.1 375-16 hex nut
4 .Spring

21.1.1 Breakout force.

NOTICE

ANSI/BHMA A15.27 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.

21.1.2 Initial breakout hanger tension.

- Initial hanger bookfold tension set in Chapter 21.
- Reference Para. 22.2 for bookfold operation overview.

21.1.3 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. 21.1.4.

21.1.4 Hanger breakout force adjustment.

1. Remove wing from hangers.

CAUTION

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

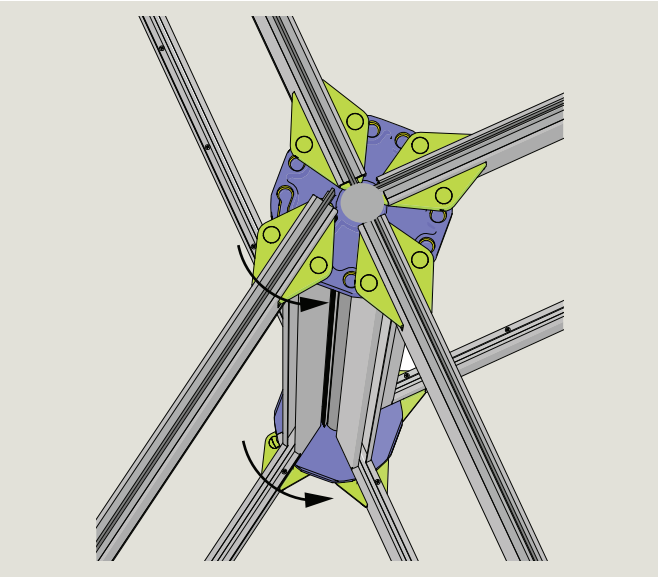
- Use open end 9/16" box wrench for tension adjustment.
- Monitor number of hex nut turn adjustments made so that the same number of adjustments can be made on the lower hanger.

- **Increase hanger tension:**
- Turn hex nut (3) 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 3.1 CCW to allow reduced tension adjustment.
- Turn hex nut (3) 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. 21.1.1 are met.

Fig. 21.1.3 Door wing in breakout position

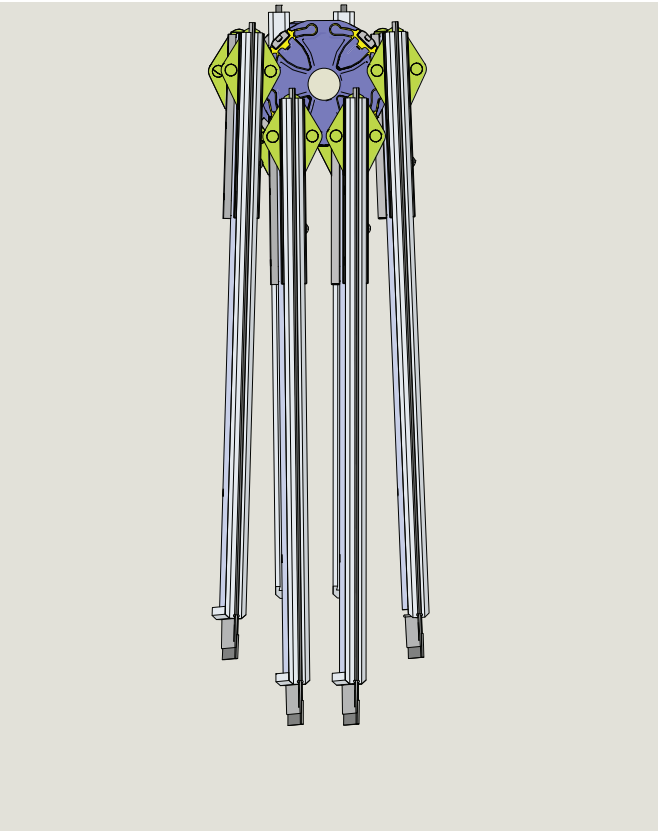


21.1.5 Breakout force, remaining wings.

1. Check breakout force on each of the remaining wings.
2. Adjust breakout force as required on hangers for each wing to meet requirements in Para. 21.1.1.

21.2 Check bookfold operation

Fig. 21.1.4 Door wings in bookfold position



21.2.1 Check wing bookfold operation

1. Check bookfold operation on all wings.

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