

# 1500A Series Automatic Revolving Door



## Installation & Maintenance Manual

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# PREPARATION

## General Contractor Notes

Requirements for installation of revolving door general contractor provides:

- 1) All electrical wiring and connections to the control panel and to the ceiling light transformer, if lights are required. (Roughing-in wiring must be in prior to the time of installing).
- 2) Location for revolving door anchorage must be free from electrical conduits and wiring to a depth of 2".
- 3) Floor must be true and level at the interior screen of the revolving door
- 4) Finished floor must be completed before installation of revolving door.
- 5) 120V/20A feed to junction box located in canopy (subject to approval by local electrical code).

## General Notes

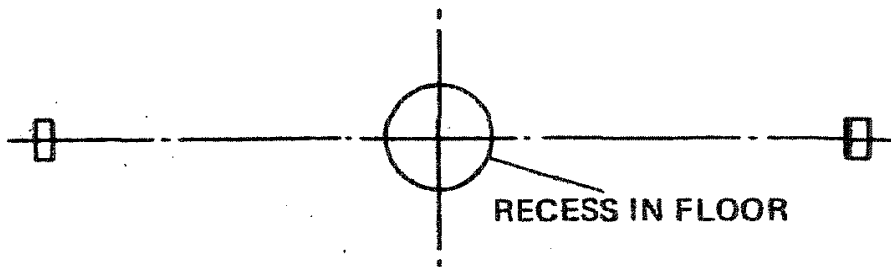
- 1) Before beginning layout - ensure finished floor is level & flat. See your installation drawing for confirmation of all dimensions.
- 2) Lay out the centre line of the revolver in accordance with the location specified on the installation drawing supplied (see Step Nos. 1 and 2).
- 3) After determining the centre point of the revolver, scribe a circle to mark the **INSIDE RADIUS**. Refer to installation drawings for dimensions.

**Mark the location of the corner posts in accordance with the installation drawings.**

# INSTALLATION

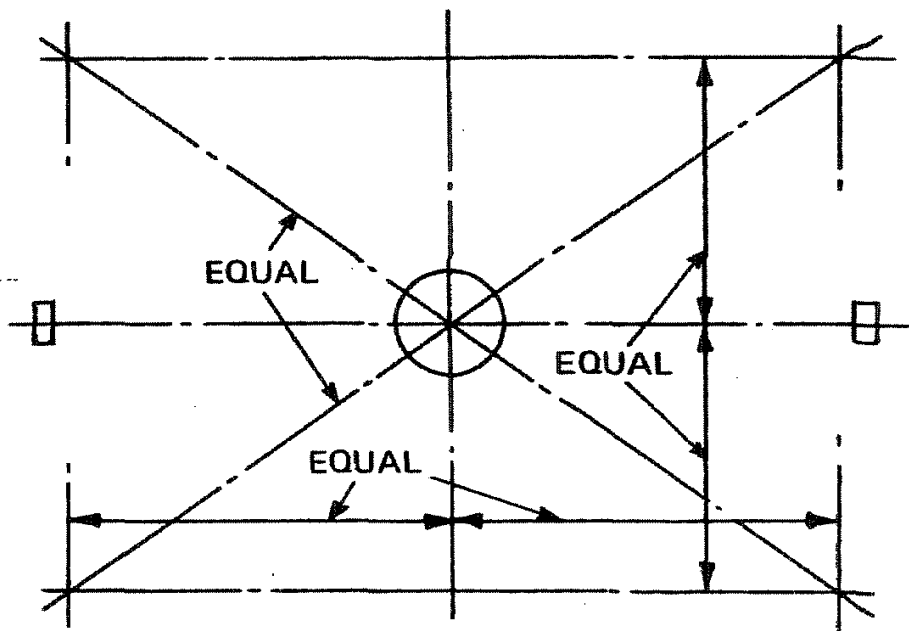
## Step No. 1: Layout Centre Line

Lay out centre line in proper location as shown on shop drawings.



## Step No. 2: Layout Corner Posts

Mark revolving door opening and face of door as shown on shop drawings. Note: Check diagonals to insure square accuracy.



### Step No. 3: Screen Installation

- 1) Double check lay out against shop/installation drawings supplied, paying particular attention to the dimensions marked (=) on Figure 1.1.

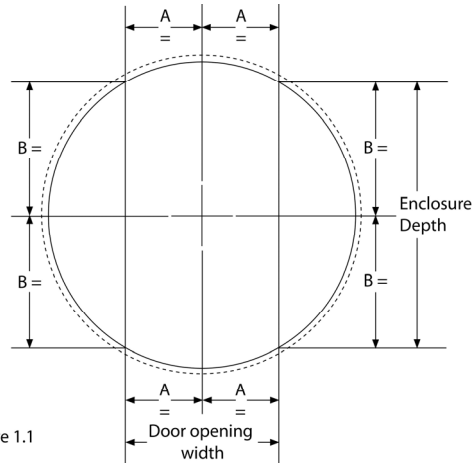
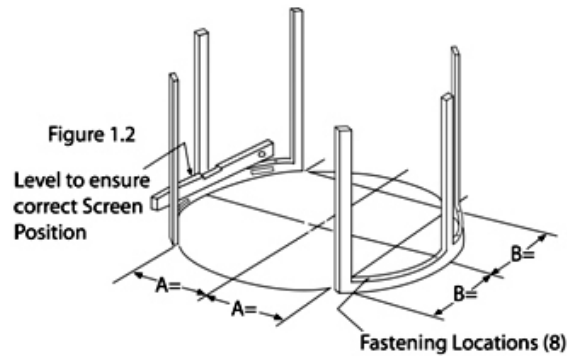


Figure 1.1

- 2) Position the screens with the inside face of the base resting on the scribed circle and the corner posts positioned in accordance with the lay out (Figure 1.2).



Note: Check corner post orientation so that they are oriented correctly. If locks are included, ensure orientation of slots (located at the bottom curve rail) matches shop drawings.

- 3) While ensuring the screens remain in their correct positions, mark the fastening points on the finished floor. (Figure 1.2)
- 4) Move the screens aside, drill floor to accept shields provided and insert shields (x8) in finished floor. Reposition screens and fasten in place.
- 5) Check that bases have remained level with finished floor. Shim under bases if required and recheck for level (Figure 1.2).

## Step No. 4: Ceiling Installation

**Note:** Ensure screens are positioned correctly and fastened securely to the floor before carrying out the ceiling installation.

Given the weight of the assembled ceiling, it is suggested a genie lift or other suitable lifting device is used to support the ceiling during assembly.

On larger diameter doors the ceiling may be in two or three pieces.

- 1) Remove roof sheets and set fasteners and sheets aside.
- 2) On ceilings in multiple pieces -remove the wood blocking and orient the pieces in the correct position and bolt them together.
- 3) On some doors there may be fascia sheets shipped separately. These can now be applied and fastened with nuts on the preinstalled studs. Do not overtighten nuts as studs may break off.
- 4) Position the ceiling horizontally on a suitable lifting device taking care not to damage the ceiling soffit in the process.
- 5) Ensure that the fascia marked INT is facing the interior. (If the fascia markings have been removed, it will be necessary to ensure the HMI access port is oriented to the interior side).



- 6) Raise the ceiling into position over revolver screens and carefully lower the ceiling towards the screen.
- 7) Fish wires from the screens through pre-drilled ceiling holes in the ceiling and carefully lower the ceiling onto the screen.

**NOTE:** No load to be applied to the ceiling soffit panels.

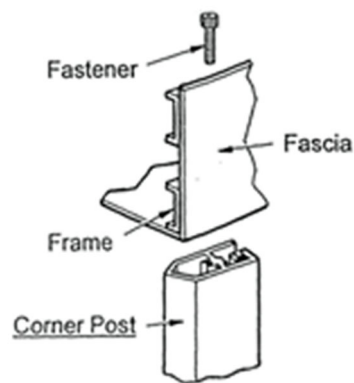


Figure 3.2

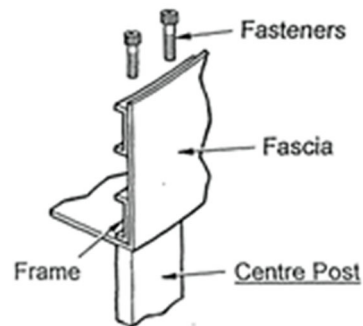


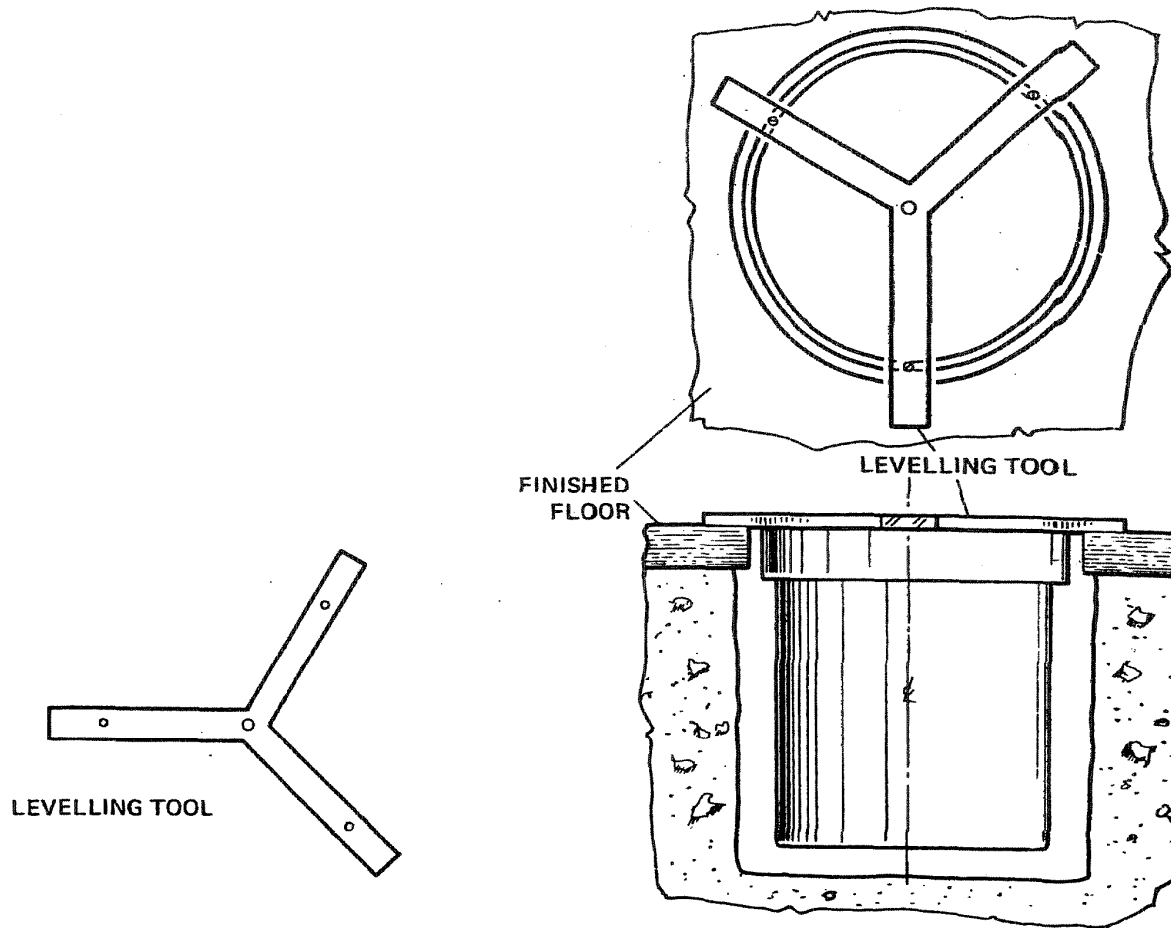
Figure 3.3

- 8) Securely fasten with 5/16" socket cap screws provided as shown in Figures 3.2 and 3.3 (If centre post is provided).

### Step No. 5: Set Lower Collapsing Unit

- a) Remove floor ring from floor casing. Install a leveling tool on floor casing. Lower floor casing into the rough opening in floor and shim level to finish floor level. Measure from underside of leveling tool to underside of ceiling (7'-0-1/8" on a 7'-0" high door) or dimensions as shown on the shop drawings as shown on shop drawings.
- b) On an already finished floor, like marble, etc., the hole in the floor has to be small enough so that the floor ring will cover the cemented area.

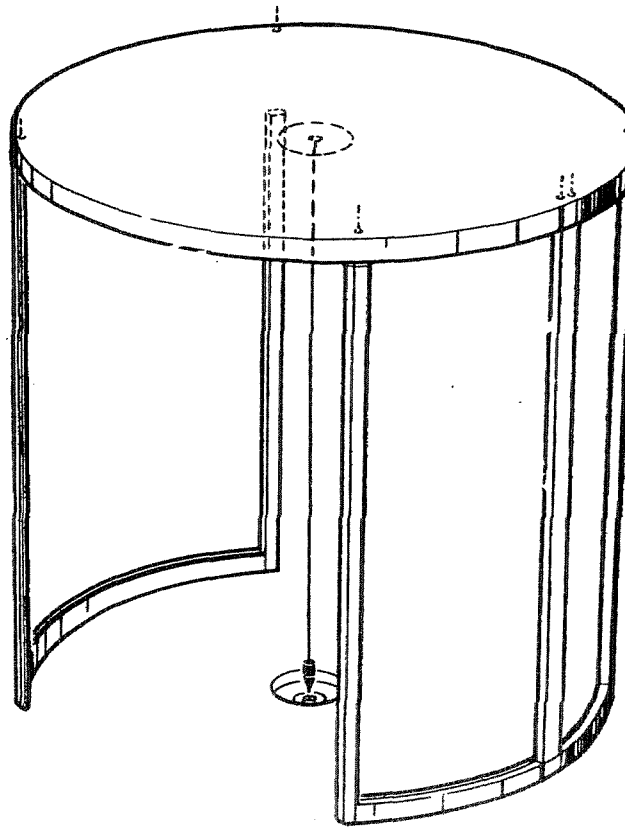
Note: Underside of floor ring must be on the same elevation as the bottom of the curved cage. This means that the finished floor must be level.



## Step No. 6: Aligning upper and lower Collapsing Units

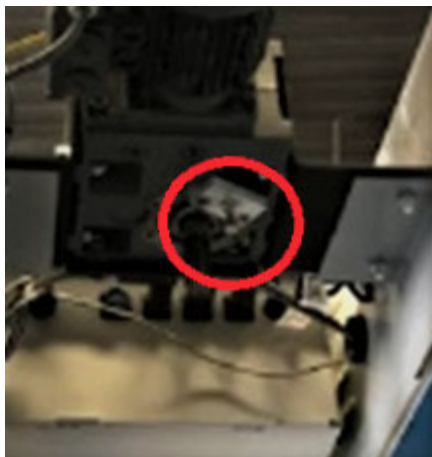
- a) From the centre of the top motor shaft, plumb down to the centre of the bottom collapsing mechanism using a plumb bob or laser plumb tool.
- b) Line up the plumb bob with the centering mark on the shaft of the motor shaft. if using a plumb bob watch for any draft, it may be necessary to erect a piece of plywood or any kind of a screen to let the plumb hang straight.
- c) After the floor casing is level and at the right location, mix enough quick setting cement to encase approximately  $\frac{1}{3}^{\text{rd}}$  of the floor casing. Pour into floor opening and let it set. Sometimes it may be necessary to use a piece of bent cardboard or metal as a chute. It may also be necessary to chip out a small area to get to the opening, this all depends on how large the opening was made by the contractor.
- d) After the cement has hardened, the floor casing should be checked again as before. If everything checks out, remove the leveling tool and fill up the rest of the opening with cement.



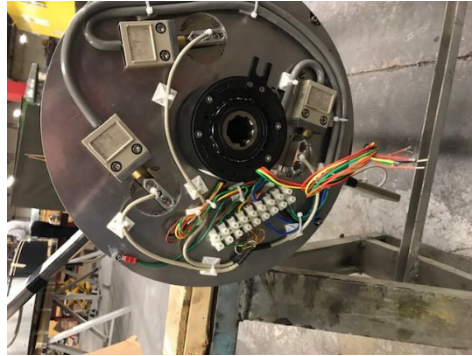


### Step No. 7: Installing Centre Shaft

- a) Remove cover plates from centre shaft assembly, remove bolt and separate upper and lower shaft assembly.
- b) Install lower shaft and keyway into lower collapsing unit.
- c) Remove bolt from spacer block on the bottom of the motor.



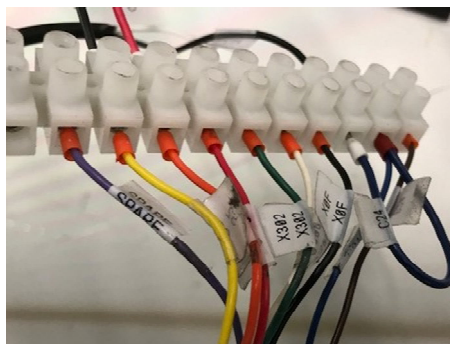
- d) Install upper collapsing mechanism, and collector ring assembly onto motor shaft. Ensure the keyway slot on the motor shaft and on the collapsing unit align.



- e) Insert bottom tenon on shaft into the slot on the lower shaft in the collapsing mechanism. Ensure it is in the correct orientation prior to inserting the upper shaft. Fasten with supplied socket head cap screw.
- f) Align plastic “horseshoe” shaped arm on the collector ring with the bolt hole in the spacer block on the bottom of the motor and insert the previously removed bolt. This is to prevent the rotation of the collector ring during operation.
- g) Reinstall the aluminum covers on the shaft. Ensure they are in the correct orientation.

## Step No. 8: Connect Wires

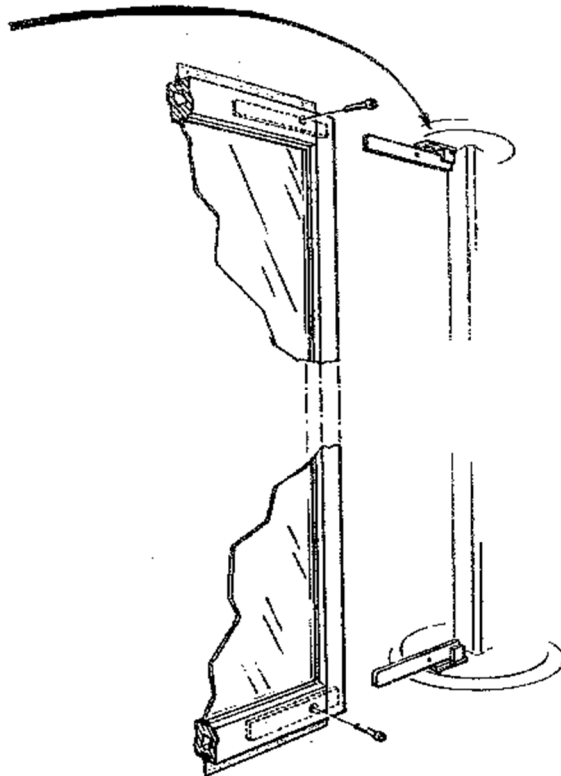
- a) Remove Roof Sheets
- b) Working from above locate the prewired terminal block at each of the entry point corner posts.
- c) Attach the wires that were fished through holes in the canopy. These wires are all labeled, and the loose wire needs to be attached to the corresponding labelled wire attached to the terminal block.
- d) Install permanent power to the door through the preinstalled Junction box.
- e) Ideally there would be two circuits, one for the lighting system and another for the motor and controllers. These need to be at a minimum 15 Amp, 60 Hz Circuits.



## Step No. 9: Install Door Wings

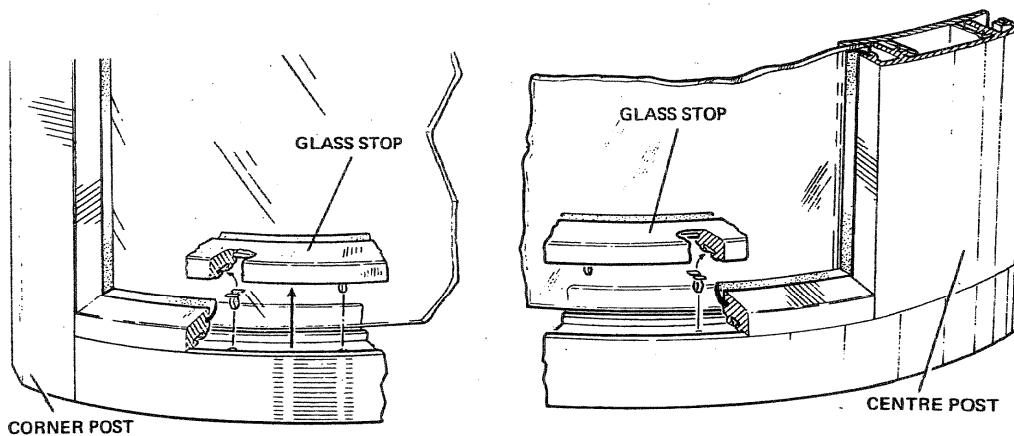
- a) Set the key switch located on the interior entry corner post to maintenance. This allows the unit to be rotated manually.
- b) Turn on power. The motor has a fail secure brake system that engages if there is a power failure.
- c) Rotate the arms until one is centered on the opening.
- d) Ensure that the door wing you are installing corresponds to the correct orientation for the locks.
- e) Align door panel with the arm of the upper collapsing. Fish the wire from the collapsing arm through the channel in the door wing panel.
- f) Fish the wire out the slot cut into the upper door rail and attach the plug in connectors together.
- g) Slide door wings onto the upper and lower arms. Ensure that the wires are not cut or crimped.
- h) Install screws as shown.

Note: If floor pot is not at same level point as curved screen, clearance at top of door wings may be reduced, making it difficult to install door wings on the arms. See note in Step No. 7.



## Step No. 10: Install curved glass.

- a) Remove glass stops on curved base. They may be either screw applied or held in by concealed clips that lock into predrilled holes in the base. The clips will pop out when the glass stop is pried upward.
- b) Install the supplied foam glazing tape on all fixed surfaces that the glass will contact
- c) Place supplied rubber setting blocks at the quarter point of the opening.
- d) Using curved glass suction cups lift glass into the prepared opening. Slide the glass into the extended deep pocket on the corner post move glass in and slide back towards center mullion to center the glass in the opening.
- e) Reinstall the removed glass stops.
- f) Install the supplied glazing spline or in the case of thicker glass the glass will have to be wet glazed with the supplied silicone sealant.



## Step No. 11: Startup and Commissioning

- a) Unlock the two bottom rail slide bolt locks on the secure side of the door.
- b) Ensure the key on the right-hand corner post on the interior side is set to Auto.
- c) Ensure Emergency Stops are not engaged.
- d) Turn on power to the door.
- e) Activate external motion sensors, door should begin to rotate.
- f) After 3 revolutions the door should stop in the "Home" position
- g) Door can now be used in normal function.
- h) Adjust all sensors, the Optex Edge sensors on the door wings, the BEA Smart Focus entry point corner post sensors, external mounted activation sensors and all the

bumpers are adjusted and functioning to the current ANSI Standards as applicable to the door.

- i) The Cmt Viewer Troubleshooting app can be used to see and test the functions of the various sensors. See the 1500 Troubleshooting App manual for further details.

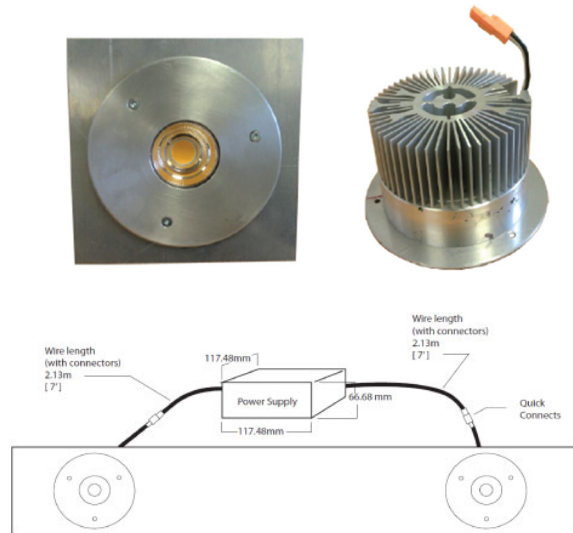
## **Step No. 12: Shutdown**

1. Rotate wings so that two mechanical slide bolt locks align with the lock positions on the secure side. To manually rotate the doors turn the key on the corner post located at your right hand on the secure side to Maintenance Mode . This releases the brake and allows freewheeling of the door. This is useful in the event of door maintenance or if someone becomes trapped in the door. When the wings are in the desired position and the mechanical locks engaged return the key switch position to the horizontal to engage the motor brake.
2. Disconnect main power.

## SERVICE

### Replacement of LED Ceiling Lights

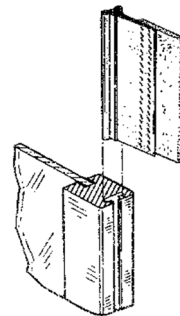
Assembly as shown below.



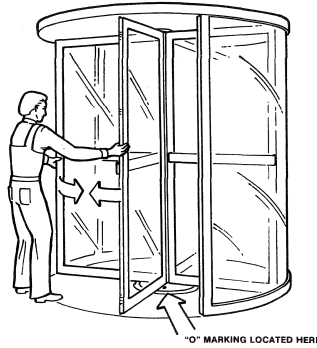
- 1) Turn off lock out main power supply
- 2) Remove three screws from lens cover and remove lens and lens holder.
- 3) Remove screws holding LED lamp
- 4) Unclip from power feed lines.
- 5) Clip new LED lamp onto power feed.
- 6) Screw new lamp into position.
- 7) Replace lens, cover and screws.
- 8) Restore main power back to the unit and test that lamp is operational.

### Replacement of Weather Sweeps

- 1) Remove door wings.
- 2) Remove old sweeps (slide out).
- 3) Install new sweeps and join corners.
- 4) Re-install door wing.



## Collapsing of Door Wing to Gain Access to Grease Fitting



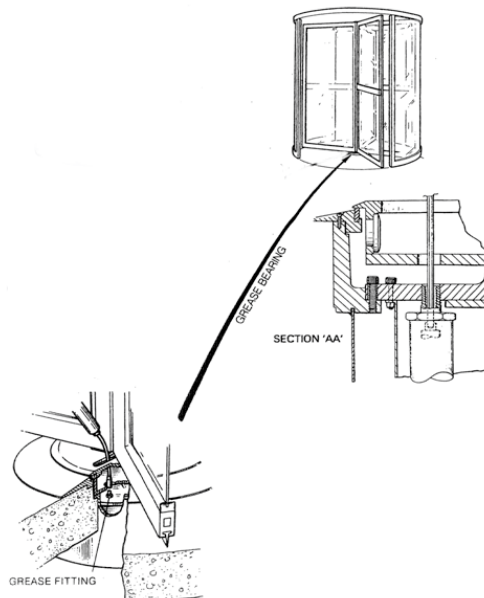
Locate 'O'

Hold the door wings as shown - pull the side marked 'O' with a sharp quick motion to disengage snap-in type mechanism located in the upper and lower hardware. To reset push doors sharply in opposite direction.

## To Service Bearing

- 1) Collapse door wing to expose access hole and slowly rotate door wings to locate grease fitting.
- 2) Apply good quality waterproof wheel bearing grease.

**Note: This maintenance operation should be performed a minimum of once a year.**



## Adjustment of PLC and VFD

Units are factory set to ANSI standards. There is no site adjustment required. However, if control needs adjusting due to job conditions contact the factory at 905 944 8005 for instructions on how to proceed.

- 1) The PLC (Programmable Logic Controller) is factory programmed and there is no field setting or adjustment for this unit. If a new program is required contact the factory and a remote connection for reprogramming will be arranged.
- 2) The VFD (Variable Frequency Drive) (SMV Vector) has been set to ANSI standards and there is no field setting or adjustment for this unit. If a new program is required contact the factory and a new program chip will be sent for replacement to the desired parameters.





# MAINTENANCE

## Cleaning Instructions

- 1) Clean glass with water or regular glass cleaner. Avoid having cleaner come in contact with cement on all glass door wings as this will cause cement to deteriorate.
- 2) Clean aluminum or stainless steel with mild detergent and rinse well with clean water. Dry with soft cloth. Do not use abrasive cleaners.
- 3) During winter months, avoid using excessive ice-melting chemicals; also wash frequently to remove accumulated salt and slush.
- 4) Cleaning painted and stainless steel finishes

**THE CARE AND CLEANING OF PAINTED MATERIAL:** Today's factory applied heat cured painted finishes are durable and very colorfast. The Kynar® and Hylar® PVDF resin-based products that meet the AAMA 2605 specification with trade names such as Duranar® by PPG, Fluropon® by Valspar, Shernar® by Sherwin Williams or Trinar® by Akzo-Nobel are warranted to retain their color and gloss level for many years. However, to assure that they retain their original beauty, even these highly durable finishes should be cleaned occasionally. When selecting a cleaning solution use mild soap solutions that are safe for use with your bare hands such as those products that one would use to wash a car. Avoid the use of strong acid or alkali cleaners as they may damage the finish.

Solvents no stronger than mineral spirits or denatured alcohol may be used to remove grease, sealants or other materials. Never mix cleaners or cleaners and solvents as the resultant mixture can cause harmful or even dangerous results. Do not use abrasive cleaners or materials such as steel wool or abrasive brushes, which can also harm the surface.

Once heavy soil, grease or sealant is removed the mild soap solution should be applied with a soft cloth, sponge or soft brush. Rinse the surface thoroughly with clean water and dry with a soft cloth.

In coastal areas where the finish is exposed to salt spray or in areas containing heavy industrial pollutants the cleaning should take place on a regular basis. For example cleaning the painted finish can be scheduled as a part of the regular maintenance program for glass cleaning.

## Care and Maintenance of Stainless Steel in Architectural Applications

Architectural applications for stainless generally specify the use of T304 stainless steels. This grade is an austenitic stainless steel.

It is specified in the following common architectural finishes:

- Imperial Finish** - a matte gray textured finish similar to a shot blasted pattern
- Ezeform Finish** - a rolled pattern finish available in both a bright and dull lustre
- #8 Mirror** - a highly polished reflective finish (mirror type finish)
- #4 Satin** - a general purpose finish produced by abrasive belt polishing of cold rolled sheet
- XL Blend S** - a finish similar to #4 but finer in texture, handling marks, scratches, and minor surface damage are readily masked by localized re-grinding on this finish

All stainless architectural materials are supplied in the passivated or corrosion resistant condition. They do require periodic cleaning just as other materials do when in service. Exterior components for example are subjected to road salt spray at ground level and deposits from polluted urban air at higher levels, Finger marks, deposits from tobacco smoke, and other stains can detract from the original, attractive appearance of interior stainless applications.

One of the outstanding features of stainless steels is the ease with which its fine appearance can be maintained. There are some important considerations that should be understood by those charged with the responsibility to care and maintain these architectural products.

### **General Precautions:**

- 1) Wash all stainless areas regularly with warm water and mild soap or detergent using a clean cloth or soft brushes.
- 2) The frequency of regular maintenance cleaning will depend on the degree of contamination and the aesthetic needs of the individual user, in the case of exterior panels, once a year is the minimum recommended practice. Interior areas may need frequent attention at ground level due to finger marks etc. with higher levels receiving yearly or twice yearly attention.
- 3) Do not allow dirt to accumulate. Remove any stubborn grime using recommended cleansers and methods, do not use ordinary steel wool or other metal scrapers to remove stubborn dirt as

these will contaminate the stainless and mar the architectural finishes. Do not use harsh, abrasive untested cleaners in stubborn areas.

- 4) Do not allow the cleaning agent come in contact with cement on all glass door wings as this will cause cement to deteriorate
- 5) As tapes, resins and finishes react differently to certain cleaning agents, it is recommended to test the cleaning agent on a low visibility area to check for surface discoloration before proceeding. It is advisable to work on reasonably small sections at a time, e.g. 4' x 4'.
- 6) Always clean in the direction of original polish or grit lines.
- 7) Always rinse after cleaning and blow dry or wipe dry.

### **Routine Cleaning:**

- 1) Rinse with water to remove as much soil as possible.
- 2) For normal stains, air born dirt, etc., apply a soap or liquid detergent product or 5% ammonia solution in water (preferably warm) to the panels.
- 3) Rinse well with water.
- 4) Remove excess water ensuring that all strokes are in the same direction (following the polish lines) preferably top to bottom and overlapping and let dry. The use of a "squeegee" is helpful in facilitating this drying process.

### **SPV Adhesive Tape Residue:**

Surface protective materials when peeled off the stainless can leave minor amounts of tape residue on the surface which can facilitate the adherence of airborne dirt particles. Proper removal is desirable to maintain good overall appearance.

- 1) Rinse with water to remove superficial dirt.
- 2) Apply a stainless cleaner and polisher or organic solvents (e.g. methyl hydrate or rubbing alcohol) or paint or lacquer thinners with a rag, sponge or fiber brush with a soft nylon or natural bristle using long, light strokes.
- 3) Rinse well with water.
- 4) If necessary, repeat the above steps until all tape residue is removed.
- 5) Remove excess water ensuring that all strokes are in the same direction (following the polish lines) preferably top to bottom and overlapping and let dry. The use of a "squeegee" is helpful

in facilitating this drying process.

**Oil or Grease Marks:**

- 1) Rinse with water to remove as much deposits as possible.
- 2) Where grime contains significant amounts of oil or grease, apply an organic solvent such as acetone, ether, alcohol, toluol, xylol, benzol, benzine, naptha or a 5 to 15% caustic soda solution (hot or cold) with a sponge or rag.
- 3) Rinse well with water.
- 4) Remove excess water ensuring that all strokes are in the same direction (following the polish lines) preferably top to bottom and overlapping and let dry. The use of a “squeegee” is helpful in facilitating this drying process.

**Rust Discoloration:**

- 1) Rinse with water to remove superficial dirt.
- 2) To remove rust spots from carbon steel contamination or high temperature discoloration marks, apply a nitric acid solution (one part of nitric acid to nine parts of warm water) and let it stand for 30 to 60 minutes before rinsing. Wear rubber gloves and always follow manufacturer’s dilution instructions. It is recommended that the minimum concentration and resident time to accomplish the job be employed.
- 3) Rinse well with water.
- 4) Remove excess water ensuring that all strokes are in the same direction (following the polish lines) preferably top to bottom and overlapping and let dry. The use of a “squeegee” is helpful in facilitating this drying process.

**Finger Marks:**

- 1) Rinse with water to remove superficial dirt.
- 2) To remove finger marks and smears, and suppress their appearance in heavy traffic areas, apply a soap or liquid detergent product or organic solvent (e.g. acetone, alcohol, methylated spirits) to the panels.
- 3) Rinse well with water. Remove excess water ensuring that all strokes are in the same direction (following the polish lines) preferably top to bottom and overlapping and let dry. The use of a “squeegee” is helpful in facilitating this drying process.

### **Special Precautions on Polished Finishes:**

- 1) **#8 Mirror** - because of the highly reflective nature of this finish, it is necessary to take extra precautions to minimize scratching and marring of this finish. In some cases it may be necessary to remove the contaminant and re-buff the surface to restore to the original lustre.
- 2) **#4 Satin and XL Blend S** - because these finishes have a grit line pattern always rub following the polish lines using sufficient pressure to remove adherent dirt particles and stains. For stubborn cases, abrasive cleaners may be used. Household cleaning powders such as Ajax, Comet, Dutch Cleanser\*\*\* may be applied using a damp cloth following the polishing lines.

Note: Experimentation in a low visibility area to check for surface discoloration is advised, in some cases, it may be necessary to remove the contaminant and re-polish the surface to restore to the original appearance. This re-polishing is easily done with Scotchbrite\*\*\* pads or grinders in the case of XL Blend S.

\*\*\* Proprietary cleansers listed are not an endorsement of a specific product and is only intended to serve as examples of the type of cleaning agents that are commercially available. All products should be tested prior to usage and always follow the manufacturer's instructions and directions of use.

## **Care and Cleaning of Anodized Aluminum**

### **Cleaning Procedures**

Cleaning procedures for aluminum should be initiated as soon as practical after completion of installation to remove construction soils and accumulated environmental soils and discolorations.

Cleaning work should start at the top of the building and proceed to the ground level in a continuous drop. Using a forceful water spray, an area the width of the stage or scaffolding should be rinsed as cleaning proceeds from the top down.

Because surface soils may be light or heavy, several progressively stronger cleaning procedures may be employed depending of the severity and tenacity of the soil. Only trial and simplest procedure to remove the soil is the one that should be used.

For light soils, the simplest procedure is to flush the surface with water using moderate pressure. If soil is still present after air-drying the surface, scrubbing with a brush or sponge and concurrent spraying with water should be tried. If soils still adhere, than a mild detergent cleaner should be used with brushing or sponging. Washing should be done with uniform pressure, first horizontally then vertically. Following the washing the surfaces must be thoroughly rinsed by spraying with clean water.

If it is necessary to remove oil, wax, polish, or other similar materials, MEK or an equivalent solvent is recommended for clean up. Extreme care must be exercised when solvents of this type are used since they may damage organic sealants, gaskets and finishes. These solvents should never be used on anodic

finishes protected by clear organic coatings unless the organic coating has deteriorated and should be removed.

Removing heavy surface soils may require the use of an abrasive cleaning pad. In this procedure the pad is thoroughly soaked with clean water or a mild detergent cleaner and the metal surface is hand scrubbed with uniform pressure. Scrubbing action should be in the direction of the metal grain. Scrubbing with a nylon-cleaning pad impregnated with a surface protectant material is also recommended for removing stubborn soils and stains. After scrubbing, the surface should be rinsed thoroughly with clean water to remove all residue.

In some circumstances it may be desirable to wipe the surface with a solvent. The surface is then permitted to air dry or is wiped dry with a chamois, squeegee or lint-free cloth.

Using power-cleaning tools may be necessary to remove unusually heavy soils from large areas including panels and column covers. When using such tools, the surface must be continually flushed with clean water or a mild detergent cleaning solution to provide lubrication and a medium for carrying away the dirt. After an area has been machine scrubbed, it must be rinsed with clean water and thoroughly scrubbed with a fairly stiff bristle brush. The surface may then be air dried or wiped dry.

### **Inspection & Cleaning Precautions**

Care must be taken to see that metal seams, crevices, sills and other areas that can trap water, cleaner or dirt are carefully cleaned and dried. A final inspection, by a qualified representative is recommended, to ensure that no discoloration or stains remain on the surface.

Certain precautions must be taken when cleaning anodized aluminum surfaces. Aluminum finishes must first be identified to select the appropriate cleaning method.

- Aggressive alkaline or acid cleaners must never be used.
- Cleaning hot, sun-heated surfaces should be avoided since possible chemical reactions will be highly accelerated and cleaning non-uniformity could occur.
- Strong organic solvents, while not affecting anodized aluminum, may extract stain-producing chemicals from sealants and may affect the function of the sealants.
- Strong cleaners should not be used on window glass and other components where it is possible for the cleaner to come in contact with the aluminum.

Excessive abrasive rubbing should not be used since it could damage the finish.

## PRODUCT DEVELOPMENT

A continuing research and development program ensures a high standard of quality in design, workmanship and service performance. This Installation and Maintenance Manual may differ slightly from current production models as a result of this continuing R&D program.



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