

1500, 2500 & 3500 Series Revolving Doors



Installation & Maintenance Manual

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Installation

General Contractor Notes

Requirements for installation of revolving door, the general contractor provides:

- 1) All electrical wiring and connections to the ceiling light junction box if ceiling 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.

RUSHMATIC MODEL — additional requirements:

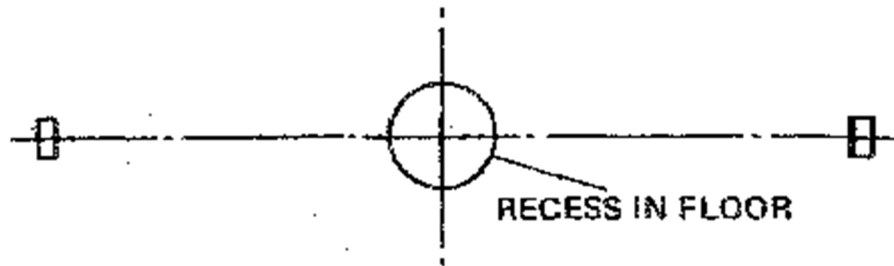
- 1) A 2" dia. hole through concrete slab beneath the speed control housing for hydraulic lines (4" off centre).
- 2) A 3/4" dia. conduit from hydraulic power unit to control panel.
- 3) 120V/20A feed to junction box located at hydraulic power unit (subject to approval by local electrical code).

Layout

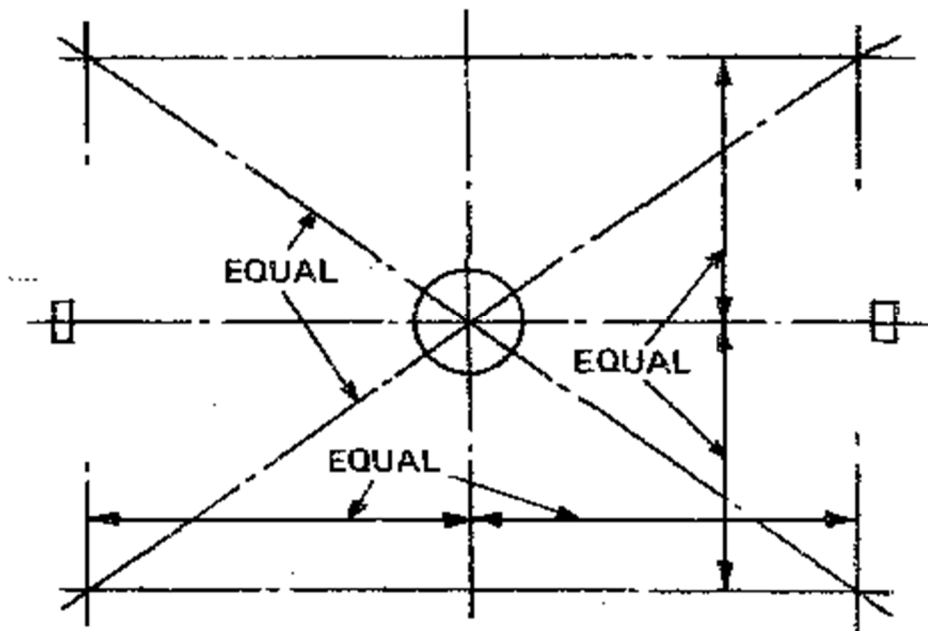
- 1) Before beginning layout - ensure finished floor is level & flat. See your installation drawing for confirmation of all dimensions.
- 2) Lay out the centre line of the revolver in accordance with the location specified on the installation drawing supplied (see Step Nos. 1 and 2).
- 3) After determining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

Step No. 1

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

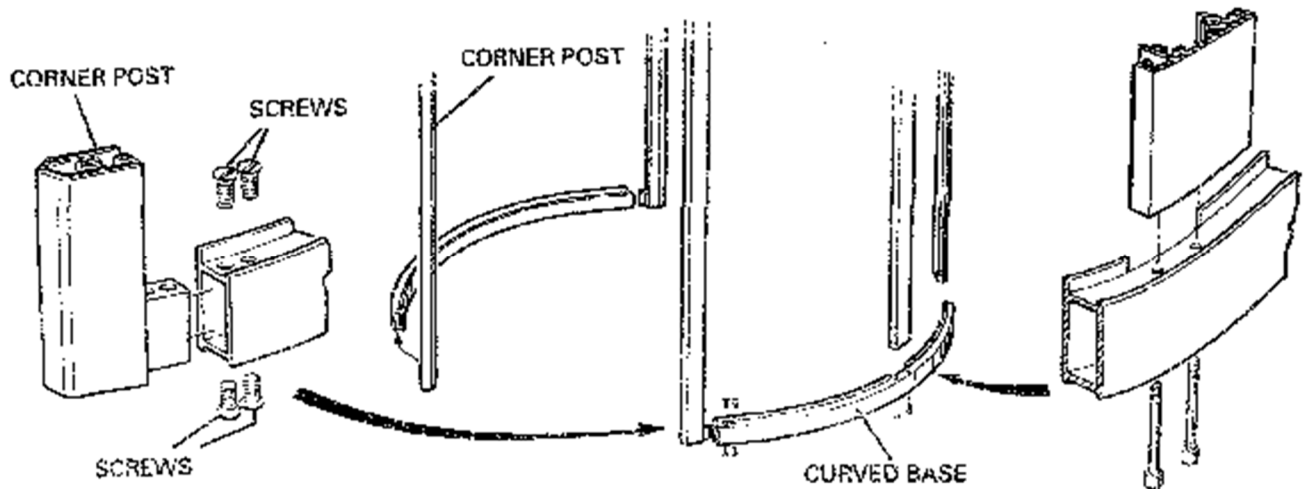
**Step No. 2**

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

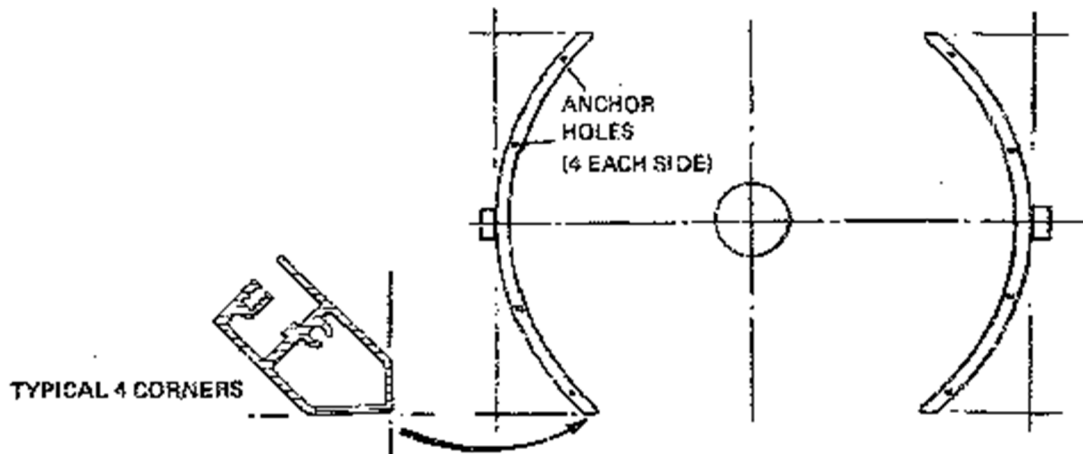


Step No. 3

Assemble vertical corner posts to curved base. Note: If centre side mullions required, assemble at this time.

**Step No. 4**

- Move side screens in exact position and mark anchor holes.
- Remove screens, drill holes, insert shields and expand shields. Note: Use a flat bar with a hole and a

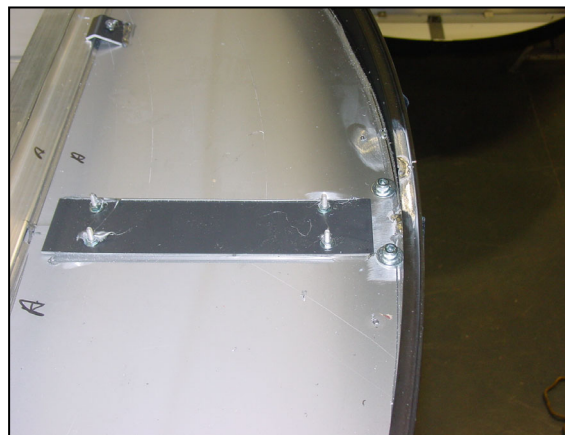


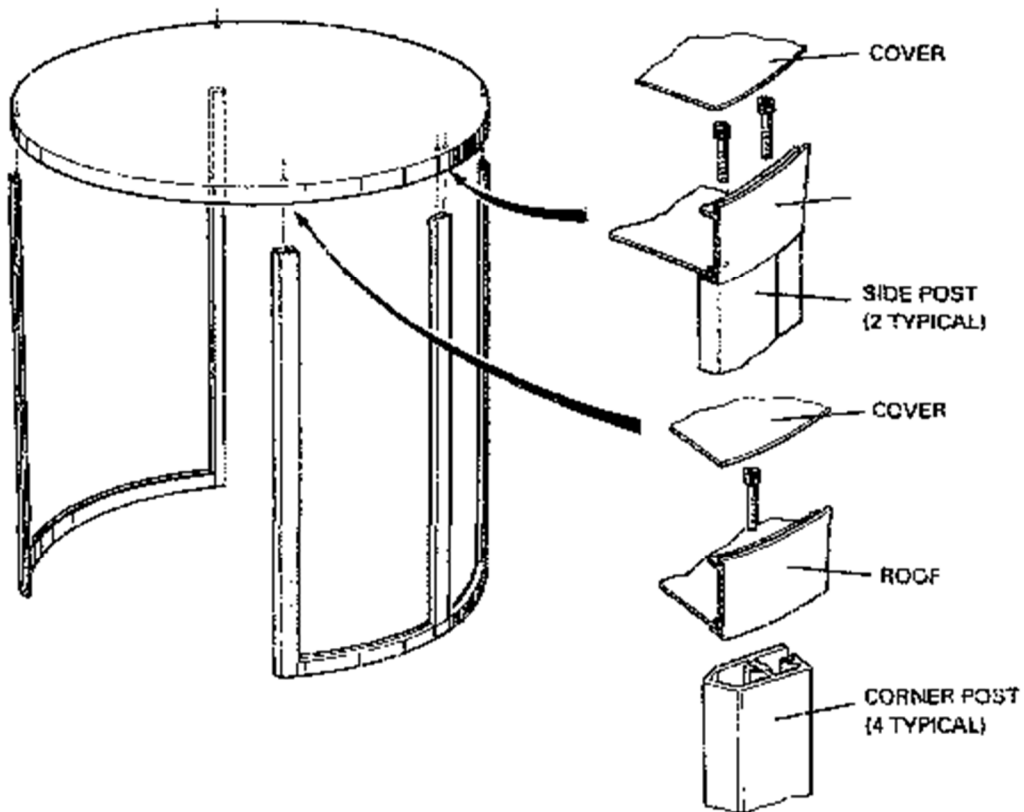
shorter bolt. This will keep the shield from turning when anchoring the screen.



Step No. 5

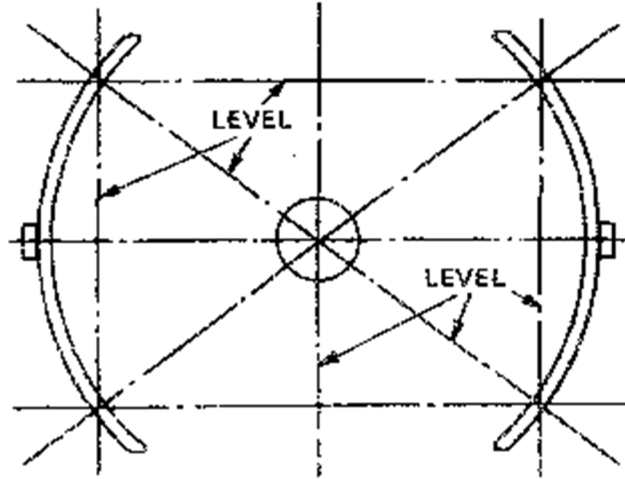
Assemble roof to side screens with one socket head cap screw on each corner post and two on each centre post. Use some caulking on the end of the Allen Key to hold bolt. Seal holes with rubber plugs supplied.





Step No. 6

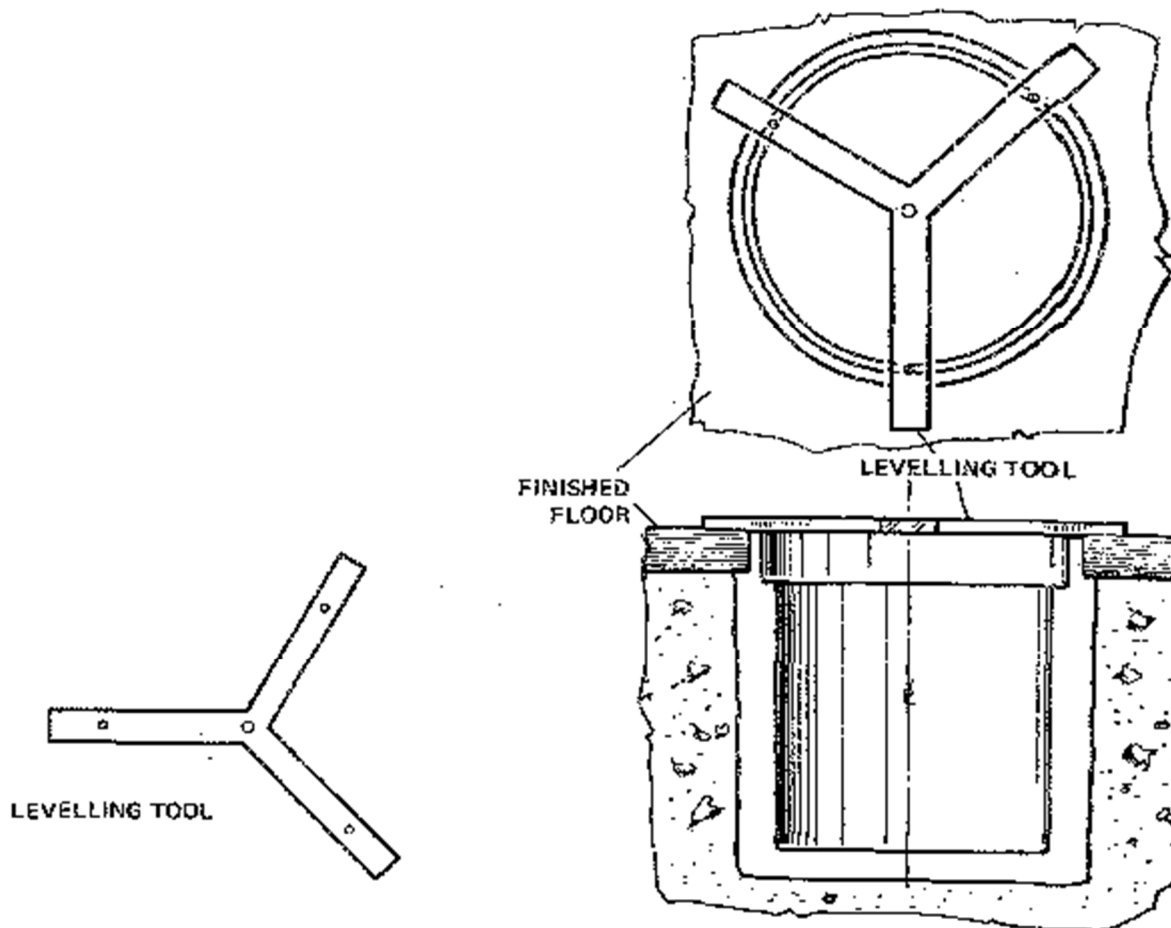
- a) Move assembly into correct position and anchor to floor, seal holes in roof after installation.
- b) Level base as shown on drawing. To double check level diagonal, shim as necessary and tighten anchoring bolt. Plum door vertical and fasten when possible.



Step No. 7

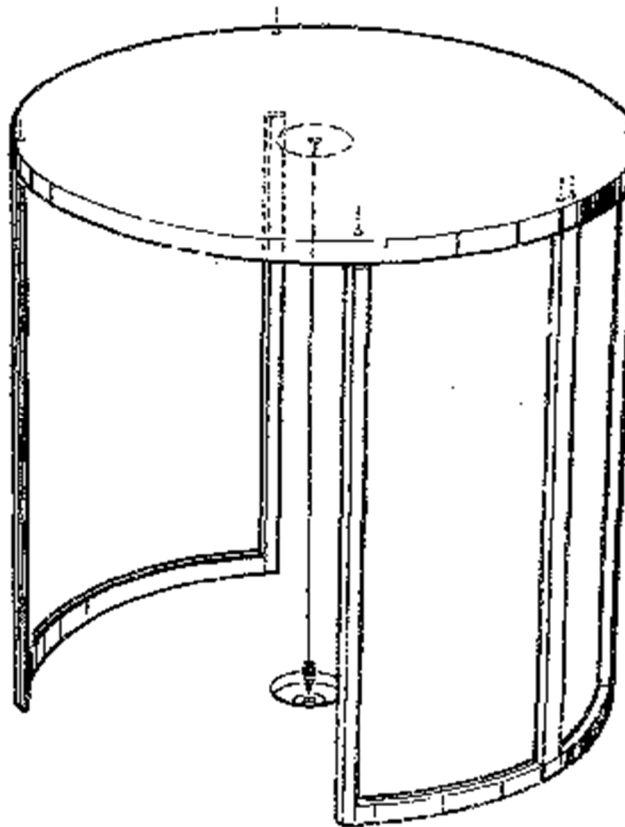
- a) Remove floor ring from floor casing. Install leveling tool on floor casing. Lower floor casing into the rough opening in floor and shim level to finish floor level. Measure from underside of leveling tool to underside of ceiling (7'-0-1/8" on a 7'-0" high door) or special high door as shown on shop 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. 8

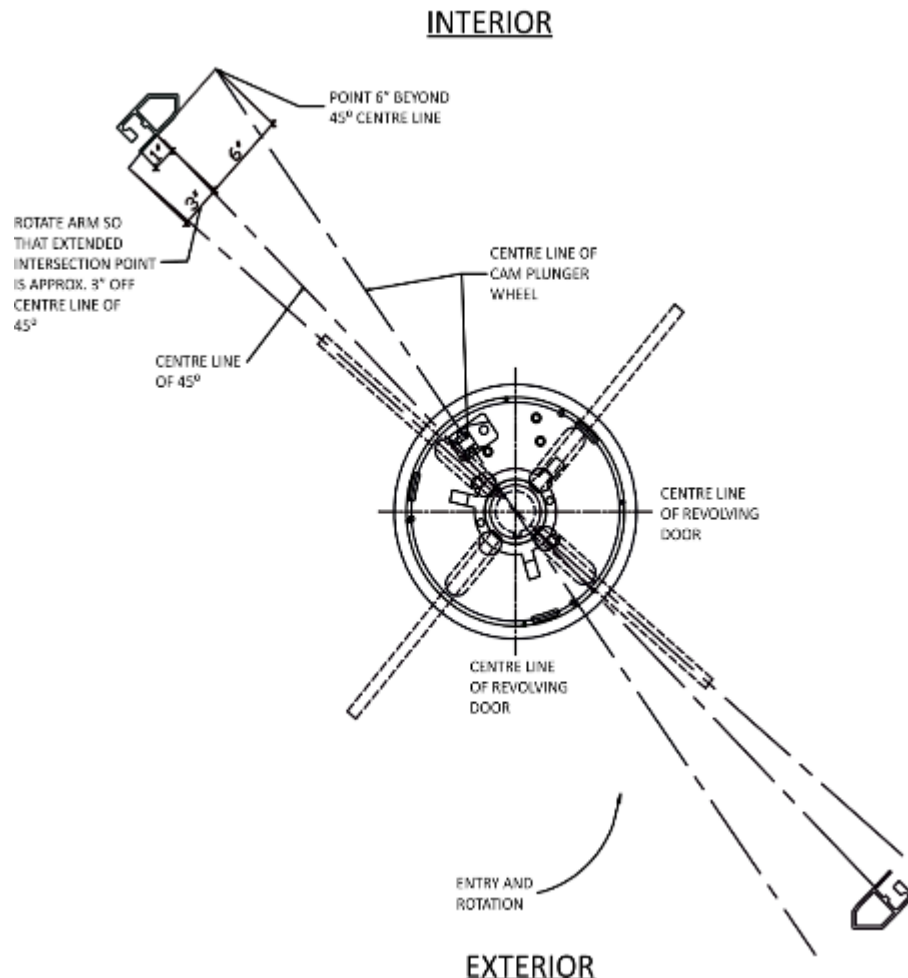
- a) From the centre of the top bearing, plum down to the centre of the speed control or motor. For the top bearing use a small piece of shaft with a hole through the middle, just big enough to let the plumb line through.
- b) Line up the plumb bob with the centering mark on the shaft of the motor in the floor casing. 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 4" 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. 8A**Rushmatic Motor Floor Plate - Special installation instructions**

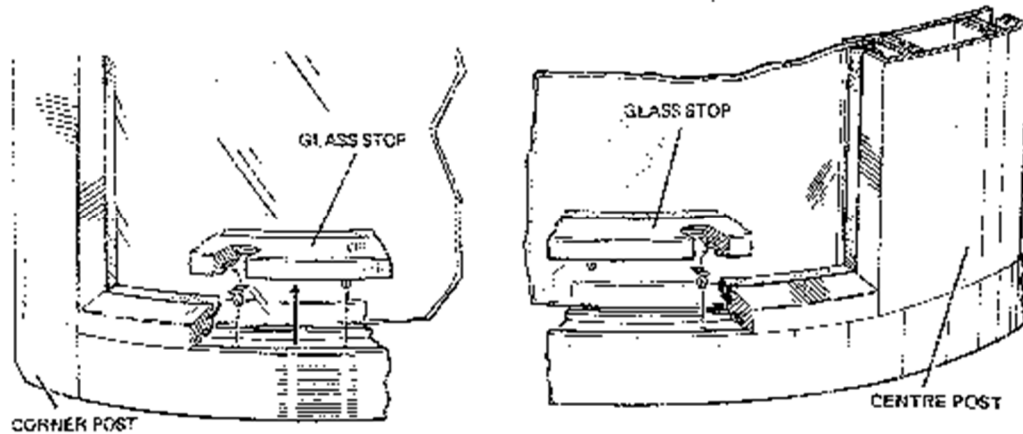
- a) Set motor and plate in floor casing.
- b) Line the centre of the cam plunger on a line measured 6" from 45° at inside of screen (opposite to direction of rotation) at the corner post and fasten into position.
- c) Set lower collapsing mechanism in place with the arms in place.
- d) Align arm to a position on a line drawn approx. 3" from the centre 45° line at the corner post (in direction of rotation). This is the position that the door should begin rotation under its own power when the door is pushed manually beyond this point.

Note: If adjustment is required rotate the floor plate (with the cam plunger unit attached) around slotted holes in plate to suit site conditions.

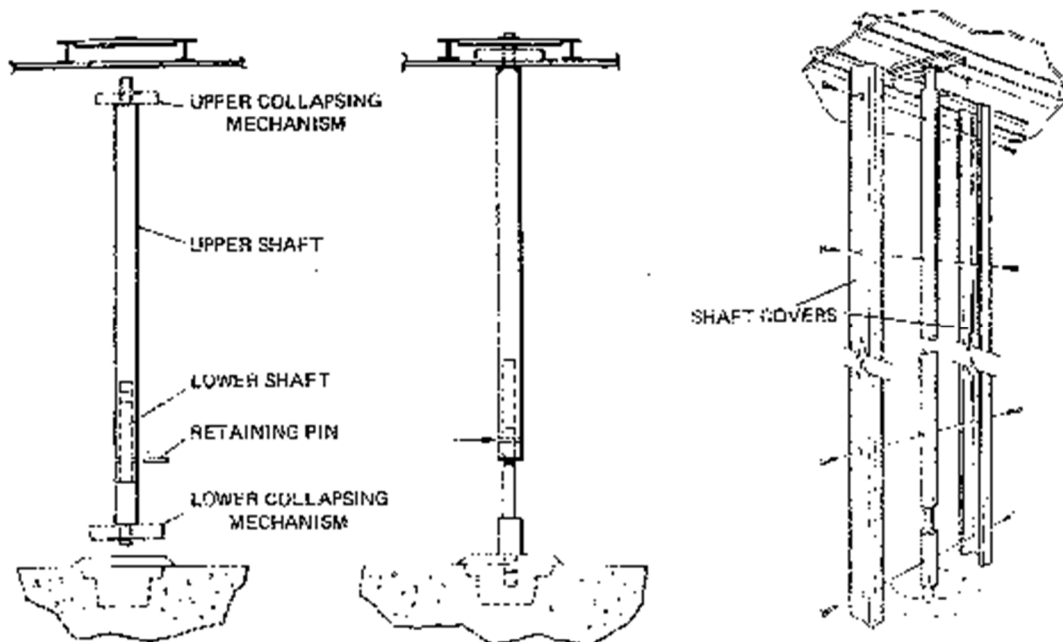


Step No. 9

Install curved glass.

**Step No. 10**

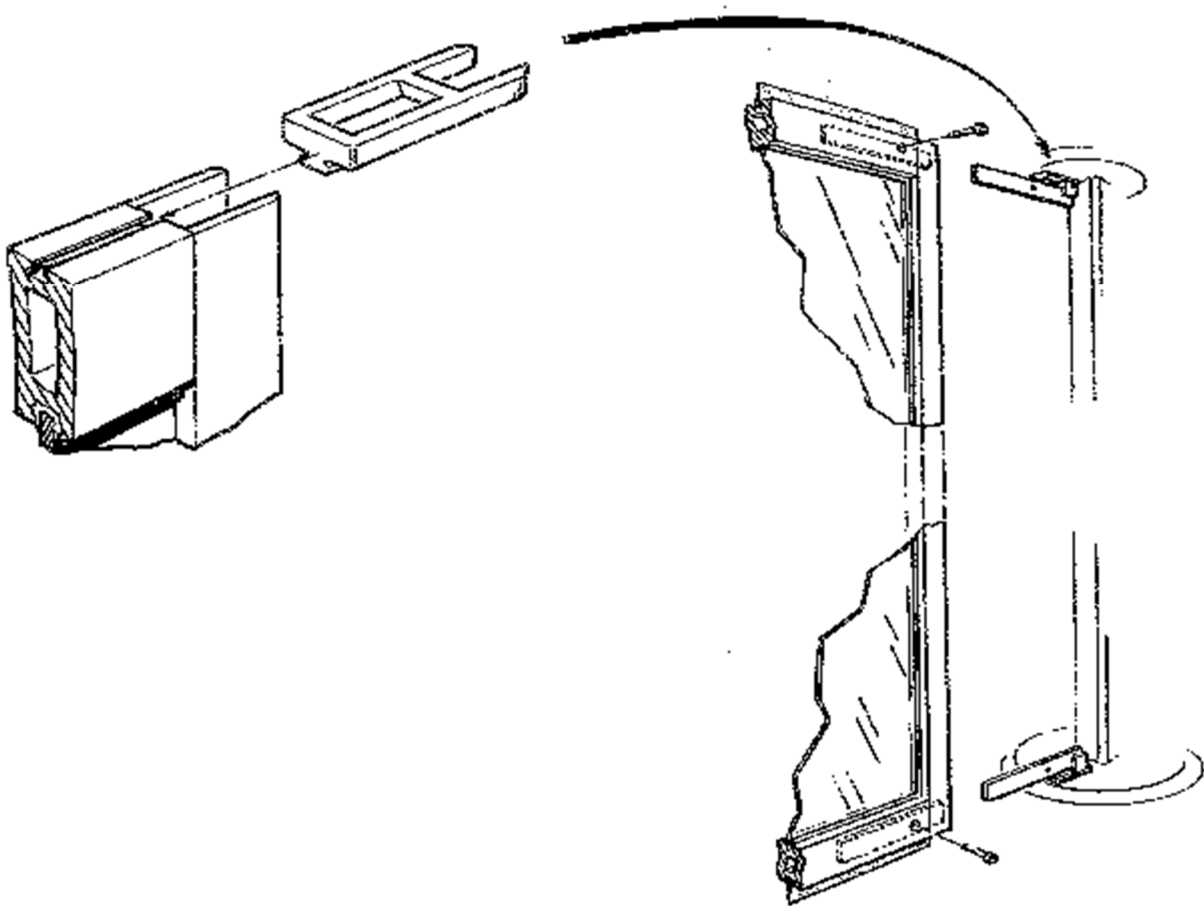
- Remove cover plates from centre shaft assembly, remove pin and collapse upper and lower shaft assembly.
- Install upper collapsing mechanism on top of upper shaft, then insert into ceiling bearing.
- Extend lower shaft into lower collapsing mechanism, then insert pin.



Step No. 11

- a) Install rubber boots on top and bottom of door wings, as shown below.
- b) Install door wings with screws as shown.
- c) Collapse door wings and replace shaft cover plates.

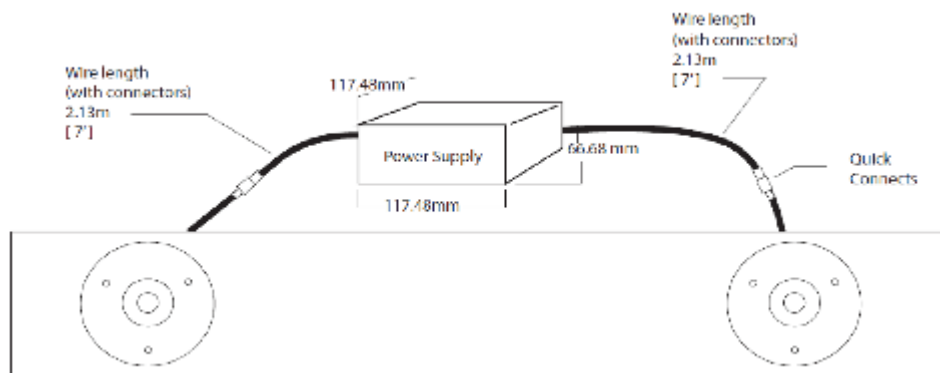
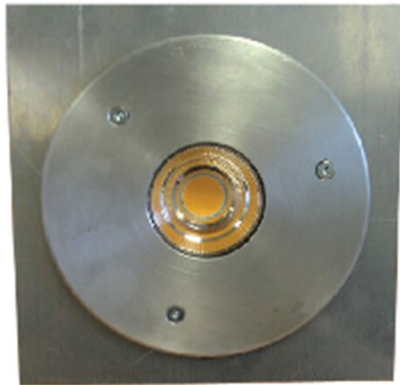
Note: If floor pot is not at same level point as curved screen, clearance at top of door wings may be reduced, making it difficult to install door wings on the arms. See note in Step No. 7.



SERVICE

Replacement of Ceiling Lights

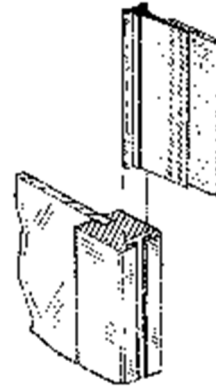
Assembly as shown below



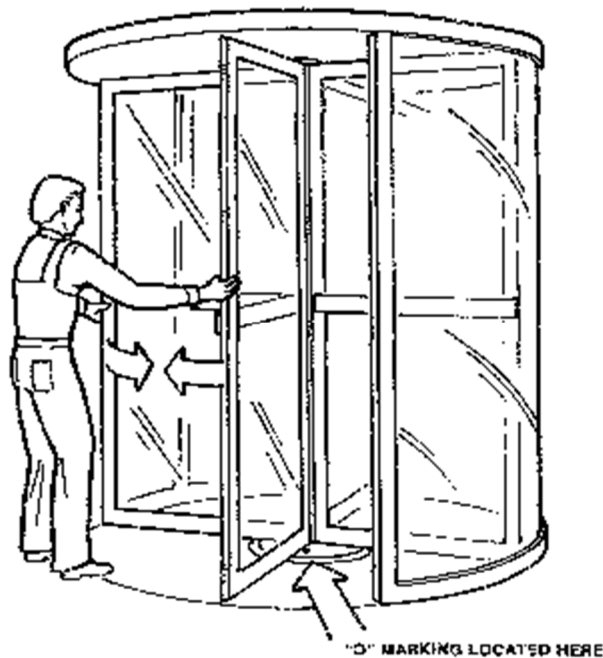
- 1) Turn off lock out main power supply
- 2) Remove three screws from lens cover and remove lens and lens holder.
- 3) Remove screws holding LED lamp
- 4) Unclip from power feed lines.
- 5) Clip new LED lamp onto power feed.
- 6) Screw new lamp into position.
- 7) Replace lens, cover and screws.
- 8) 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 Control and Grease Fitting

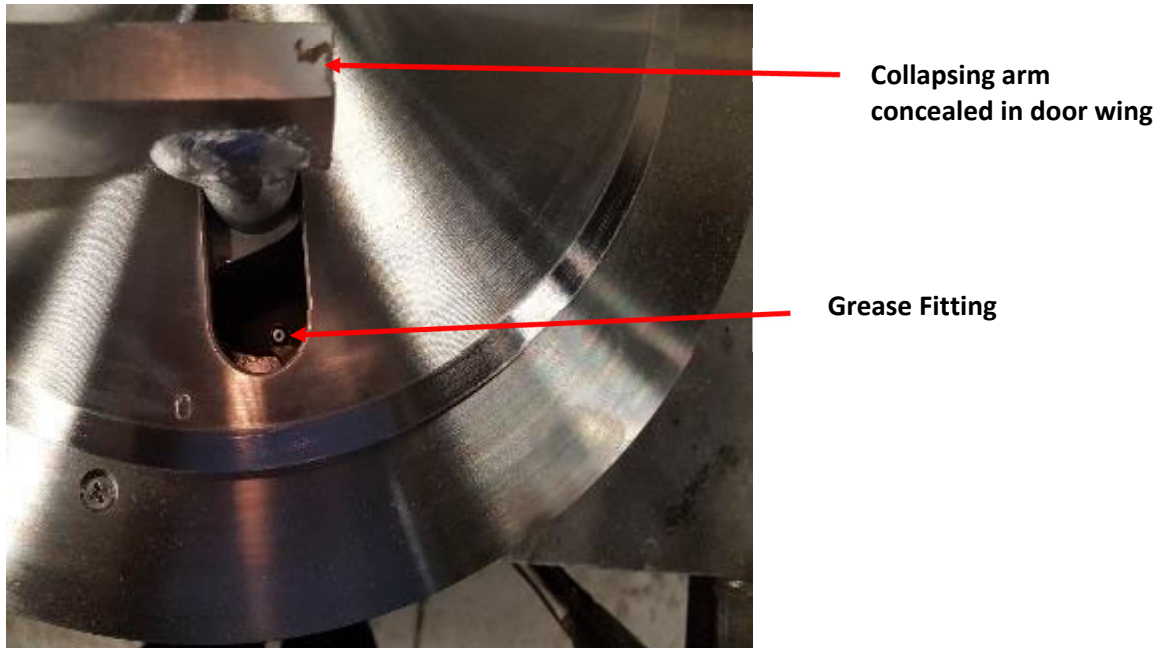


Locate 'O' (note this may be slightly covered by door wing)

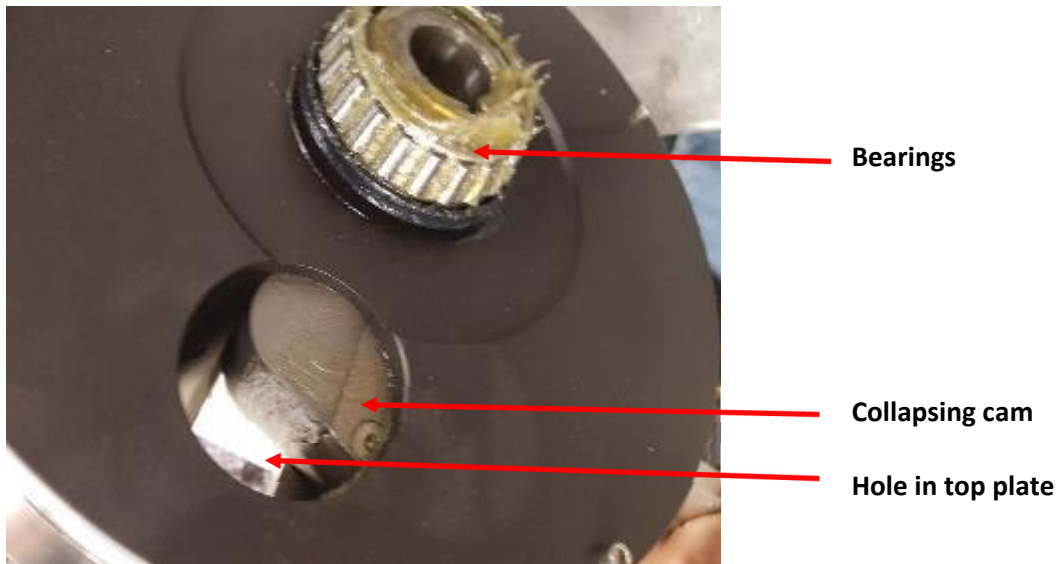
Hold the door wings as shown - pull the side marked 'O' with a sharp quick motion to disengage snap-in type mechanism located in the upper and lower hardware. This requires a strong force due to the collapsing mechanism strength – typically 130 lbs. breakout force as required by code. Over time with dirt, dust, salt, etc., buildup from use, this collapsing may require more force. Cleaning is necessary to remove dirt, etc., to ease door wing collapsing.

To Service Bearing

- 1) Collapse door wing to expose access hole and slowly rotate door wings to locate grease fitting.



Below is a picture of the hole on the top plate. You can see the collapsing cam on the other side of the hole as well as the greased roller bearings.



Below is the grease fitting on the bottom plate



- 2) Apply good quality waterproof wheel bearing grease.

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

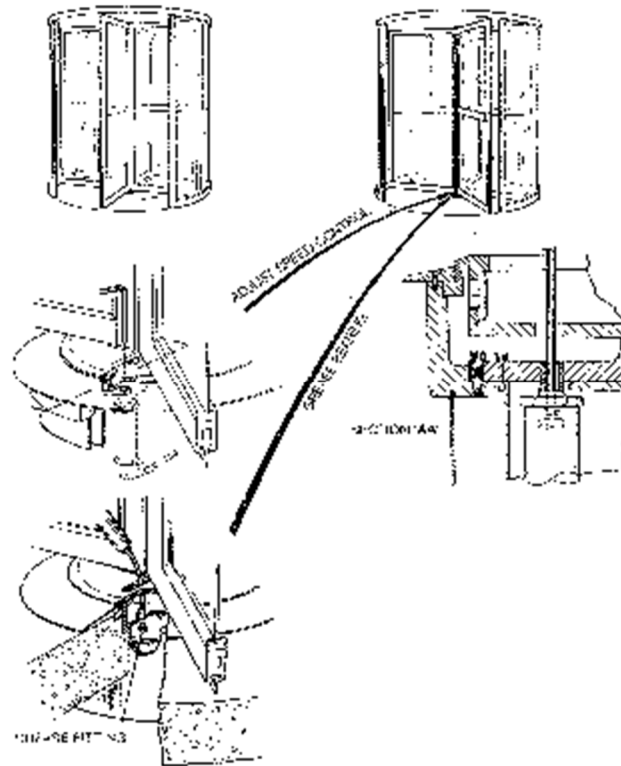
To reset push doors sharply in opposite direction.

Adjustment of Floor Mounted Manual Speed Control

Units are factory set. However, if control needs adjusting due to job conditions, proceed as follows:

- 1) Collapse door wing as shown on drawing (see previous page).
- 2) Insert 1/4" Allen key through opening and remove set screw apply small dab of caulking to end of Allen key to prevent losing screw into collapsing mechanism.
- 3) Insert 3/16" Allen key into control valve.
 - a) Turn clockwise to decrease resistance.
 - b) Turn counterclockwise to increase
- 4) Replace brass set screw before attempting to operate door.

- 5) Reposition door wing into locked position.



Adjustment of Overhead Mounted Manual Speed Control

Units are factory set. However, if control needs adjusting due to job conditions, proceed as follows:

- 1) Remove access panel in ceiling
- 2) Locate control box as shown in Photo #1
- 3) Remove cover as shown in Photo #2
- 4) Locate blue adjustment block and turn screw to adjust speed as shown in Photos #3 & #4.
 - a) Turn clockwise to increase speed
 - b) Turn counterclockwise to decrease speed
- 5) Replace cover and access panel.

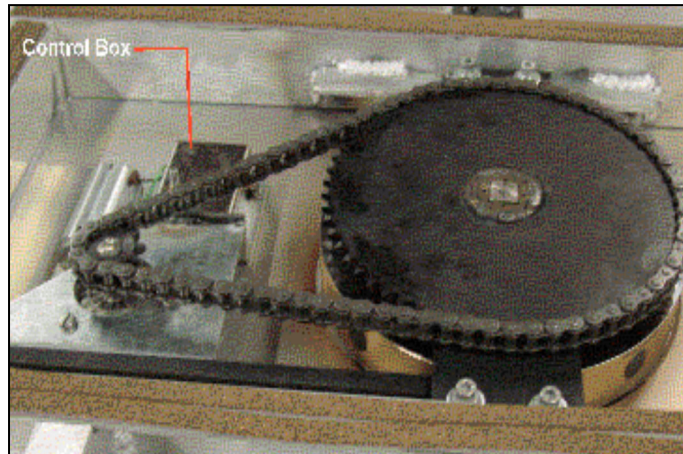


Photo #1

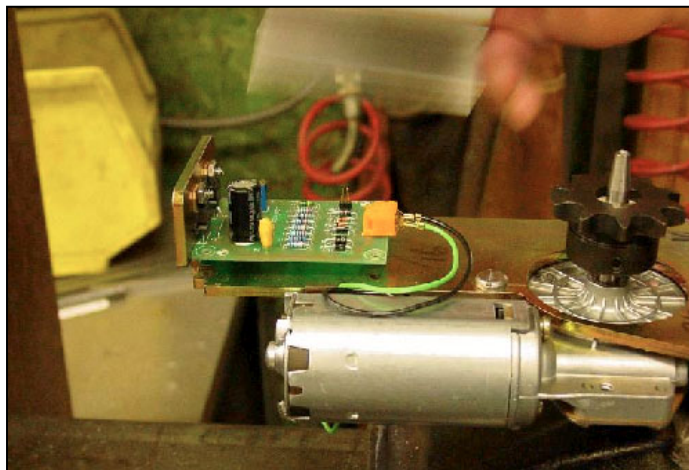


Photo #2

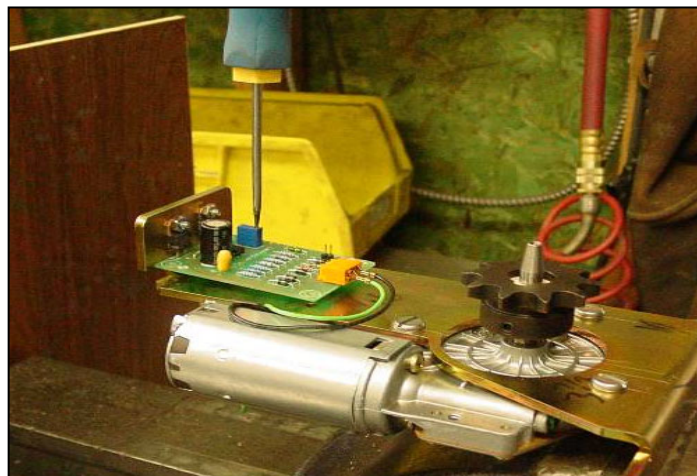


Photo #3

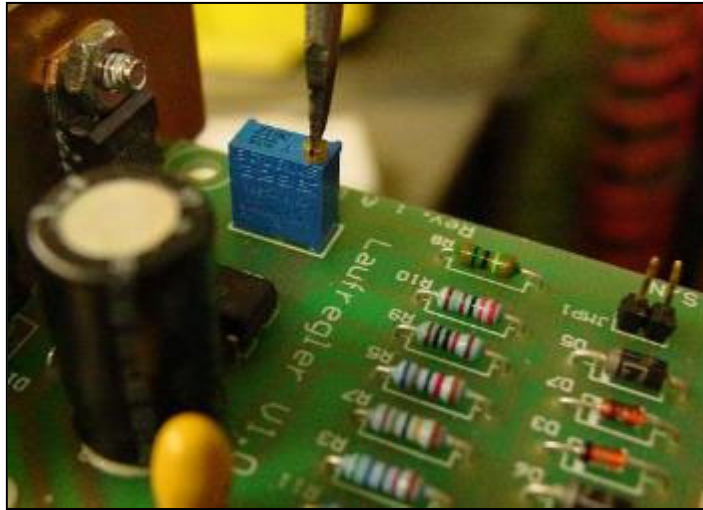
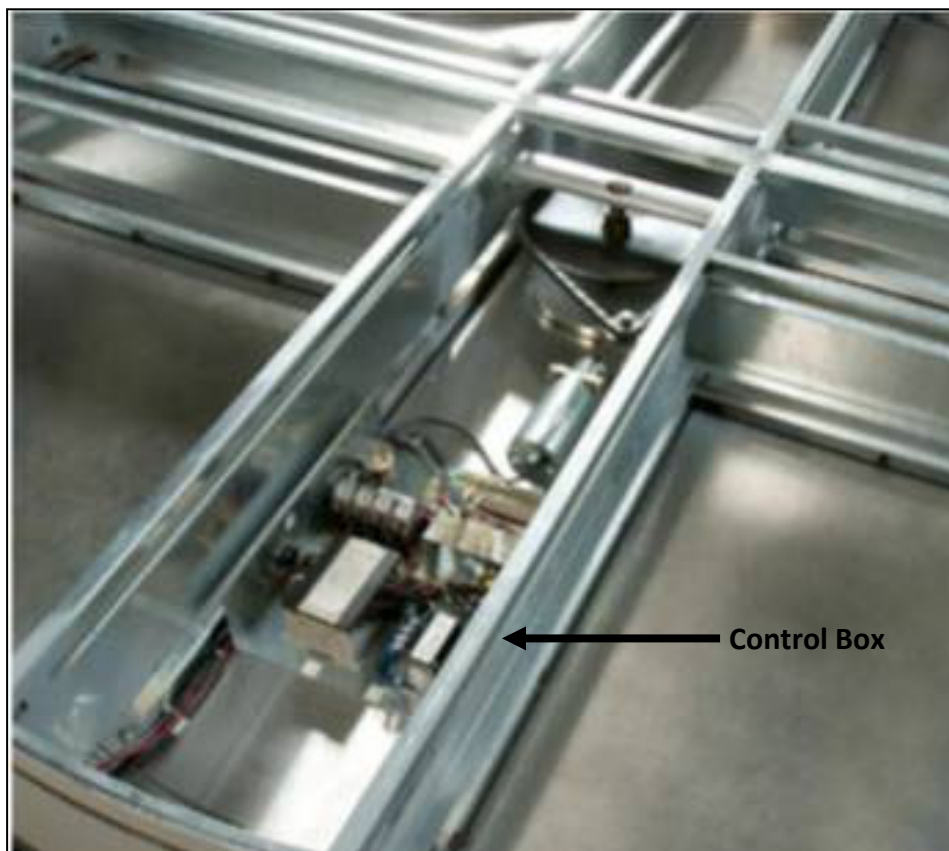


Photo #4

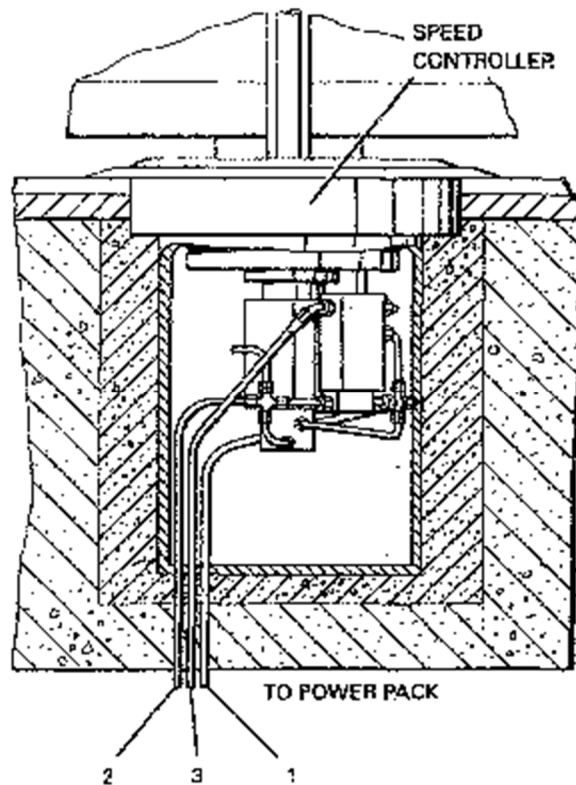
Adjustment of Overhead Mounted Manual Speed Control for Quarter Point Stopping:

Units are factory set. However, if control needs adjusting due to job conditions, proceed as follows:

- 1) Remove access panel in ceiling
- 2) Locate control box as shown in Photo #1
- 3) Remove control cover
- 4) Locate appropriate rheostat for speed desired and turn screw to adjust speed as shown in drawing #1
 - a) Turn clockwise to increase speed
 - b) Turn counterclockwise to decrease speed
- 5) Replace cover and access panel.



Rushmatic Controls for Power Assisted Revolving Door



Routine Maintenance

Monthly:

- 1) Check oil level - top up if necessary, using proper oil (see specifications on next page).
- 2) Check fittings for leaks.

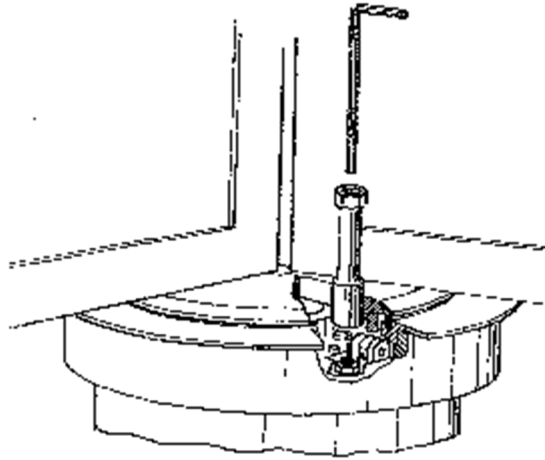
Semi-Annually:

- 1) Clean outside surface of units.

Annually:

- 1) Drain oil and replace- using proper oil (see specifications below)
- 2) Remove door wings, shaft, etc. and lubricate bearing.

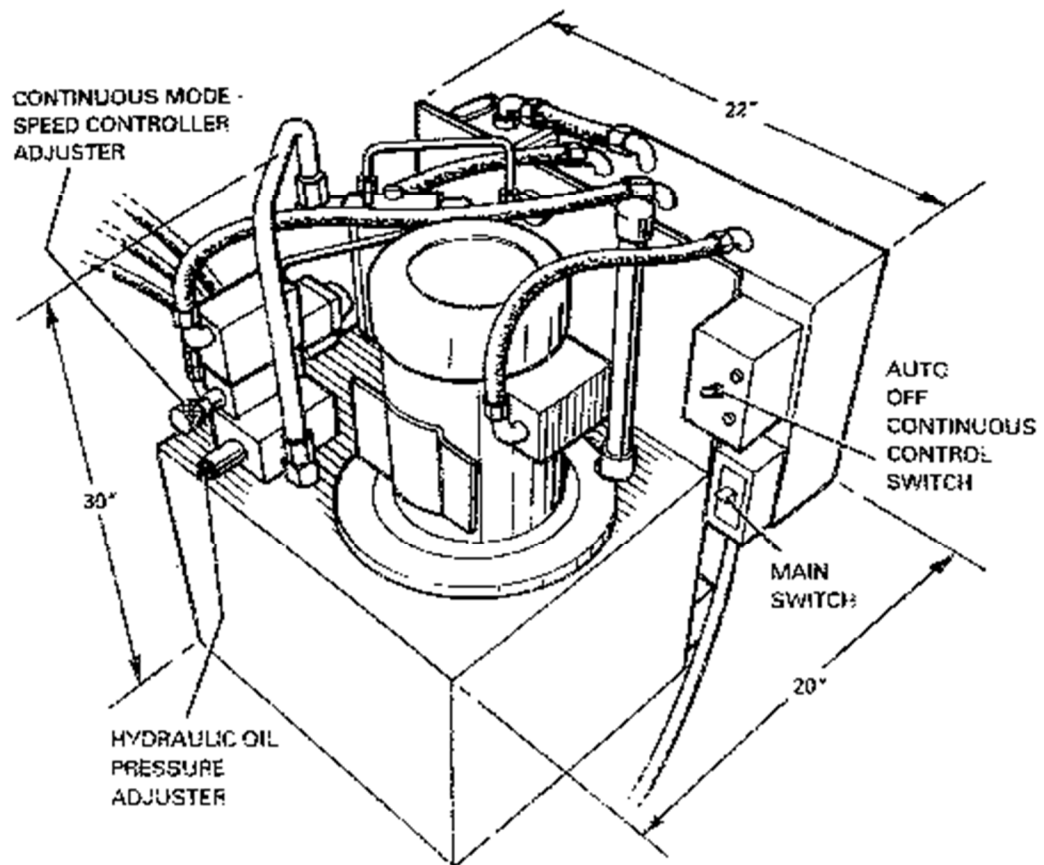
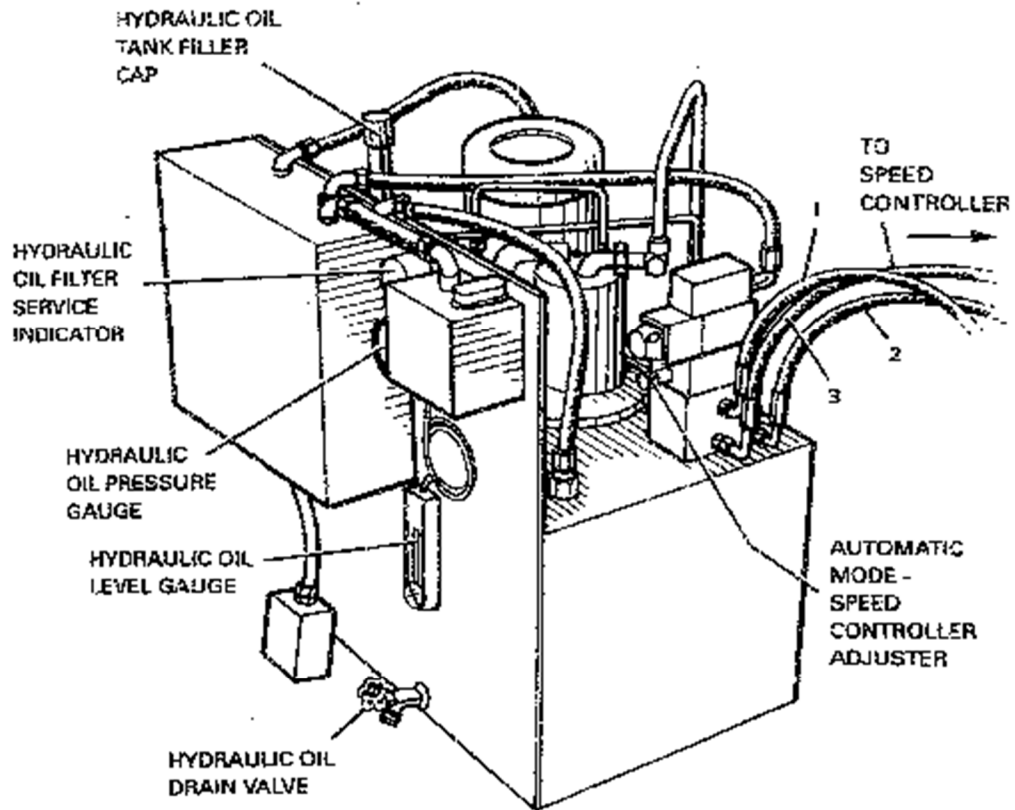
Oil Specifications: - Good quality petroleum-based hydraulic oil, having a viscosity of 150.200 S.S.U. at 100°F with anti-wear additives.



Adjustment Of Rushmatic Revolving Door For Quarter Point Stopping

- 1) Adjust door only when door has been running for two hours or more to ensure oil is hot.
- 2) Collapse door wing as shown on manual adjustment page 7 and turn door wings until you see adjustment screw below.
- 3) Insert socket supplied and using a wrench loose locking nut.
- 4) Insert Allen key through socket and turn Allen screw clockwise to stop door sooner or counterclockwise to stop door later.

Note: Always retighten lock nut when adjustments are completed. Adjustments should not exceed a half turn at a time.



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 to 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 discolouration 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:

- 6) Rinse with water to remove superficial dirt.
- 7) 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.
- 8) Rinse well with water.
- 9) 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 the 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.
- 1) Rinse well with water.
- 2) 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 is 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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