

AutoSec2
Operation and Maintenance Manual



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Section 1

INTRODUCTION

General

Please read this manual carefully, it contains information that will assist you with all aspects of installation and maintenance, including unpacking, so that a long and useful machine life can be achieved.

Gunnebo Entrance Control makes every effort to ensure that this manual is reviewed whenever significant changes are made to the design. However, our policy of continuous improvement may result in some small differences between the unit supplied and the description in this document.

Enquiries in this respect should, in the first instance, be directed to our Technical department.
Telephone +44 (0)1825 746162, Fax +44 (0)1825 763835, E-mail technical@gunneboentrance.co.uk

Electrical Warnings

The electrical power used in this equipment is at a voltage high enough to endanger life. Before carrying out maintenance or repair, you must ensure that the equipment is isolated from the electrical supply and tests made to verify that the isolation is complete.

When the supply cannot be disconnected, functional testing, maintenance and repair of the electrical units is to be undertaken only by persons fully aware of the danger involved and who have taken adequate precautions and training.

Errors

Reports on errors, comments and suggestions concerning this manual are requested and encouraged. They should be submitted to:

Technical Department, Gunnebo Entrance Control Ltd, Bellbrook Business Park, Uckfield, East Sussex, TN22 1QQ, UK.
Telephone +44 (0)1825 746162, Fax +44 (0)1825 763835, E-mail technical@gunneboentrance.co.uk

Proprietary Notices

All data appearing herein is of a proprietary nature, with exclusive title to it held by Gunnebo Entrance Control Ltd. The possession of this Manual and the use of the information is therefore restricted only to those persons duly authorised by Gunnebo Entrance Control Ltd.

Do not reproduce, transcribe, store in a retrieval system or translate into any human or computer language, any part of this Manual without prior permission of Gunnebo Entrance Control Ltd.

Hardware Changes

No hardware changes may be made without authority from Gunnebo Entrance Control Ltd who will be responsible for ensuring that the proposed change is acceptable in all safety aspects. Personnel authorised by Gunnebo Entrance Control Ltd may only make hardware changes.

Any maintenance or modification of Emergency Stop and Guarding Circuitry must be followed by safety checks on the whole hardwired Emergency Stop and Guarding Circuitry.

Prior to a hardware change, records must be made of the change, one of which MUST be sent to the Technical Department at Gunnebo Entrance Control Ltd.

Rotating Machinery

Rotating industrial machinery may possess huge amounts of stored energy. On no account must you commence maintenance if you do not fully understand what you are doing and/or have not taken all the safety precautions normally associated with industrial electronic control systems and machines.



Risk Assessment

Risk assessment is graded into categories of safety, rated 1 to 8 (where 8 is the highest risk level). The following activities are covered.

Rating	Activity
1	Cleaning
2	General Installation
3	Panel Positioning Roof Installation Servicing
4	Servicing General Maintenance Using Chemical Fixers
5	Commissioning
8	Floor Drilling Glass Panel Installation

Rating 1: Cleaning.

Who is at Risk	Engineers or Site Personnel
Hazard	Mis-use of Cleaning Fluids
Current Controls	Compliance with COSSH regulations

Rating 2: General Installation

Who is at Risk	Site Personnel
Hazard	Objects/Tools in Installation area
Current Controls	Trained Installation Engineers

Rating 3: Panel Positioning

Who is at Risk	Site Personnel.
Hazard	Handling glass.
Current Controls	Trained Installation Engineers using correct safety precautions.

Rating 4: General Maintenance

Who is at Risk	Site Personnel
Hazard	Electric Shock
Current Controls	Isolation of Power/Trained Service Personnel

Using Chemical Fixer

Who is at Risk	Site Personnel within the Vicinity of the Work Area
Hazard	Fume Inhalation
Current Controls	Compliance with COSSH regulations

Rating 5: Commissioning

Who is at Risk	Site Engineer
Hazard	Power Supply/Moving Parts
Current Controls	Isolate Power

Rating 8: Floor Drilling



Who is at Risk	Installation Engineer
Hazard	Flying Debris and Noise
Current Controls	Protective Equipment <u>must</u> be worn

Section 2

PRODUCT DESCRIPTION

The Gunnebo Entrance Control AutoSec is a high security motorised revolving door. It has been designed for administrative buildings, offices, banks and courts of justice where high standards of security and aesthetics are required.

Technical Specification

Unit Dimensions	Outside Diameters:	2000 or 1850 or 1700mm
	Ceiling Height:	2100mm
	Cornice Height:	300mm
	Overall Unit Height:	2400mm
Drive:	Motorised	
Orientation:	Bi directional passage from both directions simultaneously.	
Materials:	Frame and Cornice:	Aluminium section powder coated finished Silver RAL 9006
	Frame Glazing:	8.2mm 3 ply laminated safety glass
	Rotor Wings:	Aluminium frame, finished Silver RAL 9006, with 11.4mm 3 ply structural toughened and laminated safety glass c/w synthetic brush draft excluder.
	Ceiling:	Painted MDF finished Silver RAL 9006

Other finishes are available upon request.

Function:	Passage in both directions, electronically controllable.
Method of Operation:	On receiving a signal from the access control system or push button, the door wings will rotate through 180°. Receipt of further authorised signals will continue uninterrupted rotation.
2nd Quadrant Entry:	Should the authorised user not use the first available quadrant the AutoSec will allow valid entry through the next quadrant.
Automatic Reversing:	To enforce both security and safety by rejecting potential unauthorised users and avoid entrapment. In this scenario the occupant will be required to re-badge to obtain authorisation to proceed back through the AutoSec.
Anti Tailgating:	Prevents unauthorised passage from the opposite direction whilst a valid passage is being made in the other direction. This is achieved via 10N° overhead sensors mounted in the ceiling (5N° per walkway)
Tamper:	An alarm output is generated should any attempt be made to interfere physically with the operation of the door.
Safety:	The door is fitted with torque sensing relative to the revolving speed of the wings in both forward and reverse directions. In normal condition the door will back up to allow obstructions to be removed and then continue the passage cycle.
	Should the obstruction remain the door, after two further attempts to continue the passage cycle, will fully reverse at half speed back to the home position and activate an alarm output.
Power Failure :	The wings will rotate through 45° only to the crucifix position via an inbuilt battery back up (BBU), stop and become inactive. The door will remain in this position until

power is restored. Should this be greater than 15 minutes the door will require a manual reset via the cornice mounted keyswitch.

Fire Alarm: The wings will rotate through 45° only to the crucifix position, stop and become inactive. The door will require a manual reset from the cornice mounted keyswitch.

A normally closed (NC) signal is required from others to effect this state.

Interface: A momentary Zero Volt (0V) normally open (NO) signal provided by either card reader or push button input of duration between 0.5 and 1.0 second.

The AutoSec is controlled via a microprocessor that also offers passage confirmation and passage cancellation as standard.

In any rejection scenario the controller will cancel all authorised passages and the user will be required to re badge for authorisation.

Walkway Downlights: 4N° recessed low voltage halogen down lights are positioned within the ceiling over each quadrant.

Servicing: Via removable ceiling panels in the walkway ceiling or from overhead. The controller should always be positioned on the secure side of the installation.

Power Supply Voltage: 115/230 VAC 50/60Hz

Power Rating: 750 VA

Logic Voltage: 24vDC

Installation Details: The AutoSec is delivered in kit form, which may require lifting equipment to off load.

Approximate Weight: 600Kg

Section 3

INSTRUCTIONS FOR USE

The information contained in this section should be used as a basis for the instruction of personnel in the correct use of the doors.

Normal Operation

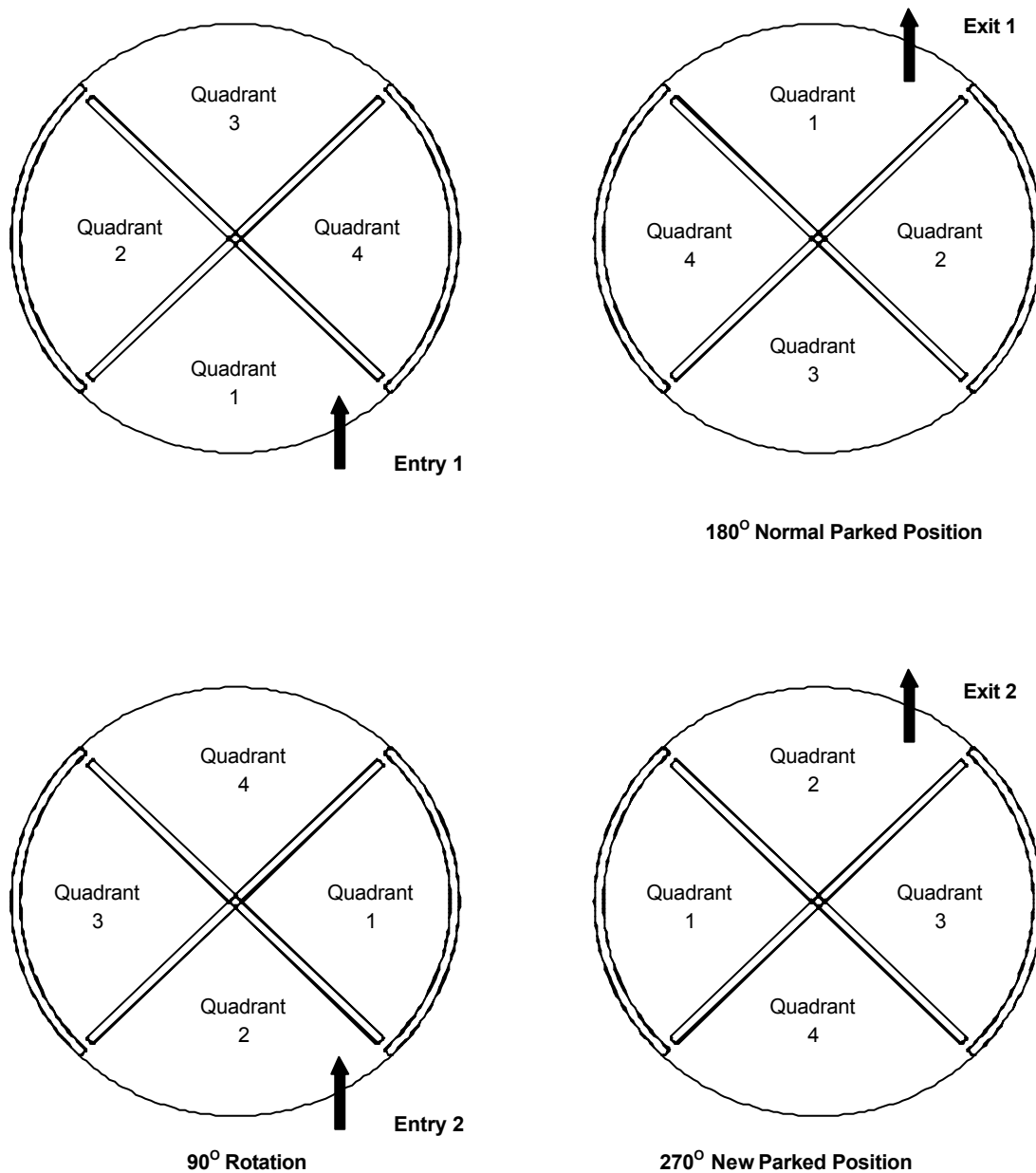
Door rotation is started on receipt of an input from the connected access control device (card reader etc) or push button. Once started the door will rotate 180°. If another signal is received prior to completion of the first rotation, a further 180° rotation is authorised from the position at which the second input is received. This allows continuous use of the door, quadrant by quadrant, without any intermediate stops.

When no further inputs are received from the access control device(s) the door decelerates and then stops.

To ensure satisfactory use of the AutoSec doors the following precautions and instructions should be noted:

- Although it is preferred to enter the door at the first quadrant, it is also permissible to use the second quadrant. In this case the sensor system will detect this action and rotate the door a further 90° to allow exit.
- Whilst using the door, walk close to the drum (carry bags on your left). The sensor system will verify passage.
- Present security badge to reader whilst standing outside of the door and not inside.
- Do not use the door whilst holding hot drinks, the door may need to reverse under a security condition causing the drink to be spilt.
- The revolving door can be used simultaneously for both authorised Entry and Exit passages as long as both occupants have authorisation.
- You may follow an authorised person using the door in the following quadrant as long as your passage is authorised.
- Should an object become trapped the door will back up to allow removal of the obstruction and then proceed with its rotation.
- Should the obstruction continue the door will back up a total of three times and then reverse 90° after which you must re-badge to continue.
- Do not carry large items above waist height.
- Do not wear very large hats.
- Do not wave your hands above shoulder height as this may result in rejection.
- Always point umbrellas down wards towards the floor.
- Do not push the Wings this may confuse the controller and initiate the door into a safety obstruction mode causing the door to stop.

Fig 3.1 Normal Operation Sequence



Anti Tailgating

Tailgating is the attempted entry of an unauthorised person in the second quadrant following an authorised person. In the first quadrant the tailgate sensing system detects the unauthorised entrant and commands the door controller to stop and reverse direction at half speed in order to expel the unauthorised person. The Anti-Tailgating facility operates as follows.

- **Two Persons from One Direction**

- On a valid signal, a user enters the door. If, as the door starts to rotate, a second user enters the following quadrant without giving a valid signal (either card or pushbutton), the door rotates to allow the first (authorised) user to make an exit. The door then reverses to eject the second (unauthorised) user.

• **One Person from Each Direction**

- On a valid signal, a user enters the door. As the door starts to rotate, a second user enters from the opposite direction without giving a valid signal (either card or pushbutton), the door will rotate 90°, slow down, stop and reverse the occupants out of the door at half speed.
- The controller will give the access control system a passage cancellation output and the user will be required to re-badge for passage authorisation.

Simultaneous Use

For simultaneous EXIT and ENTRY of the door, the following should be observed:

- If the door has travelled less than 45° from the valid signal, another users valid signal will be accepted.
- If the door has travelled between 45° and 90° from the first valid signal and another valid user tries to enter the door, both users will be ejected.
- If the door has travelled over 90° from a valid signal, other user signals will be accepted.

Status Light Pictograms (Option)

These are a simple visual aid to advise the user they have authorisation to use the door. They work in conjunction with the access control system and monitor the state of the door when it is given a command to activate from the security system.

Normal Use



Green Card (Rest mode)

- Stand outside the door and present personal security card to the reader.
- Wait for authorisation and the Green Arrow to illuminate.



Green Arrow (Authorised use)

- Proceed through the unit.



Red Cross (No passage)

- Wait until the passageway has been vacated and the Green Card to illuminate. (See above)

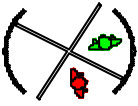
Alarm Conditions



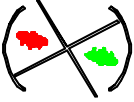
Flashing Red Cross (Fraudulent or incorrect use condition)

- This mode will be activated via the following scenarios;
 - 1 - The passageway is already in use and a second person has attempted to follow without authorisation in the same direction of travel. (Tailgating)





- **Do not panic.**
 - The door will allow the authorized person to enter, stop and reverse the unauthorized person back to the direction they came from.
 - No further access will be authorised until the door is vacant
 - Wait for the flashing Red Cross to stop flashing.
 - Present security badge when the Green Card illuminates to obtain passage authorisation.
- 2 - The passageway is already in use and a second person has attempted to follow in without authorisation in the opposite direction of travel. (Tailgating)



- **Do not panic.**
- The door will stop and reverse, ejecting both authorised and non authorised occupants out of the door.
- No further access will be authorised until the door is vacant
- Wait for the flashing Red Cross to stop flashing.
- Present security badge when the Green Card illuminates to obtain passage authorisation.

Non Use Scenarios



Red Cross (Emergency Mode)

- In an Emergency the door will rotate from the cross 'X' position to the crucifix position to release any persons using the door.

Red Cross (Cleaning Mode)

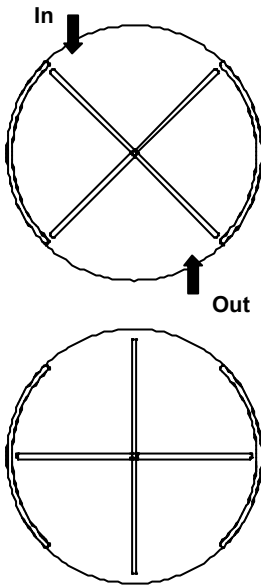
- In cleaning mode the door will rotate from the cross 'X' position to the crucifix position.
- The revolving door is not available for use

Emergency Procedure

During a Power Down or Emergency Procedure, triggered by a Fire Alarm or other external emergency signals, a safety sequence is activated that will condition the door Wings to rotate to the crucifix position enabling the occupants to vacate the door.

The Fixed Wings AutoSec can not be used as a dedicated escape route as the worm gearbox can not be back driven to allow free rotation in either a controlled or power fail scenario. An adjacent escape door must be provided for this function.

Fixed Wing



Normal Home Position Scenario

a) Normal Operation with doors shown at 'home' position.

Power Down / Emergency Scenario

b) Upon detection of an emergency Signal or Power Down the door will automatically revolve to the crucifix position via mains power or BBU in case of a Power Fail situation.

Anti Pass Back

Anti-Pass Back has been available in access control systems for many years without any effective enforcement method. The system works by not allowing passage twice in the same direction using the same access validation. The access control host computer tracks usage of the validation, but must have extra conformation that a person actually has passed through the door.

Using the presence detection sensor system, the door controller provides the required confirmation of actual passage through the door. This is achieved by sending an immediate signal to the access control system once the occupant has passed a point of non return during the operational cycle.

Note - Not all systems are capable of accepting this output.

Night Shutters (Optional)

Night security external shutters can be supplied which totally enclose the external (non-secure) side of the AutoSec when it is not in use. The shutters comprise two full-length curved panels, which run in a concealed overhead track enclosed within the main casework. The shutters are operated manually.

Day Mode Operation (Optional)

Day Mode allows free access through the door on an input from a motion sensor which might be microwave, ultrasonic or other means. The door rotation starts on input from the motion sensor and continues for as long as the door scanners detect personnel. This mode is useful in locations where Reception Personnel will be present at the entrance at all times during the normal working hours. Day Mode is activated by a latching external contact closure.

Blocker Mode (Optional)

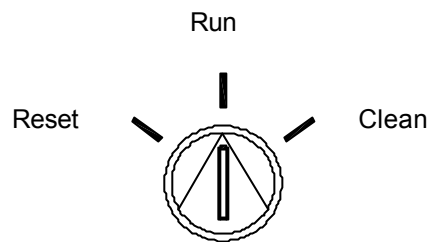
This allows a rejection of an unauthorised occupant via a remote push button from reception and or security.

In conjunction with the Day Mode option an additional Blocker command can be given to the door via a remote latching push button. This will stop the door and hold the wings in the position it reached when the



Keyswitch

The AutoSec is fitted as standard with a latching Keyswitch fitted to the Cornice. This is usually positioned on site during installation.



The keyswitch has three positions:

Run - The key should be in this position for normal operation.

Reset - The key in this position is used to reset the door during nominated scenarios. On initial start up of the unit the system is reset by turning the key from Run to Reset and back to Run once. At other times this procedure should be repeated twice.

Should a breakout rotor be specified the first Reset will energise the locks and the second will return the wings to the HOME position.

Clean - To facilitate cleaning of the inside of the door the key should be turned to this position. To return the door to normal operation the door will require a reset.

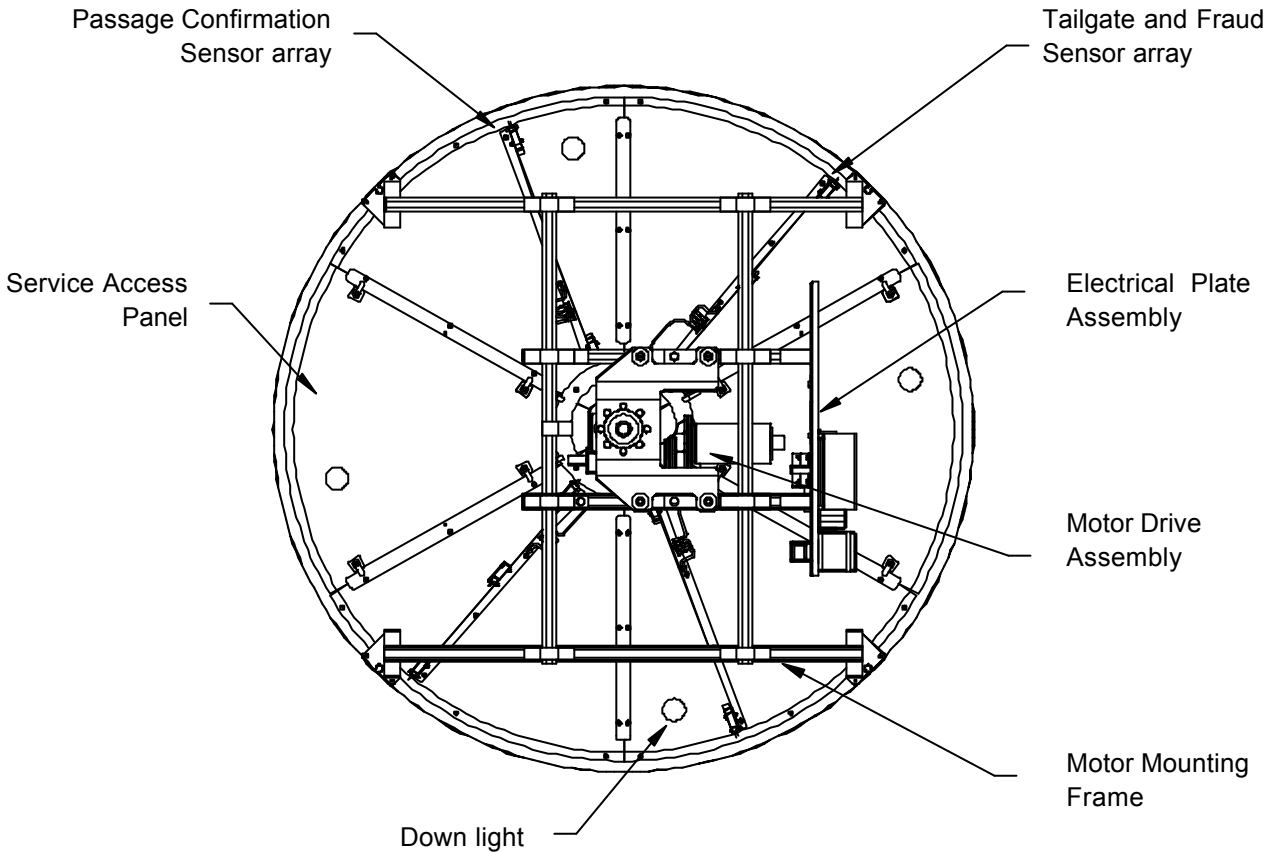
Section 4

TECHNICAL INFORMATION

Layout Details

Figure 4.1 shows the general location of the main units that comprise the AutoSec Drive and Control systems.

Fig 4.1 Top Drum Layout Details



Drive System

The Drive System is located in the canopy directly above the rotor. It comprises the motor, the primary and secondary reduction units and the collector ring, which powers the electromagnetic shear locks used in the break out wing variant. The Drive System additionally includes a motor encoder and secondary positioning sensor which provide information on the position to the Controller.

The complete Drive System is shock-mounted onto the motor mounting frame, which span the drum ceiling for strength and rigidity. The mounting provides protection from damage due to sudden shock to the wing assembly and extends the life of the gear-reduction unit by cushioning the shock generated when the motor is started.

Electrical Plate

Fig 4.2 – Electrical Plate Layout (Front)

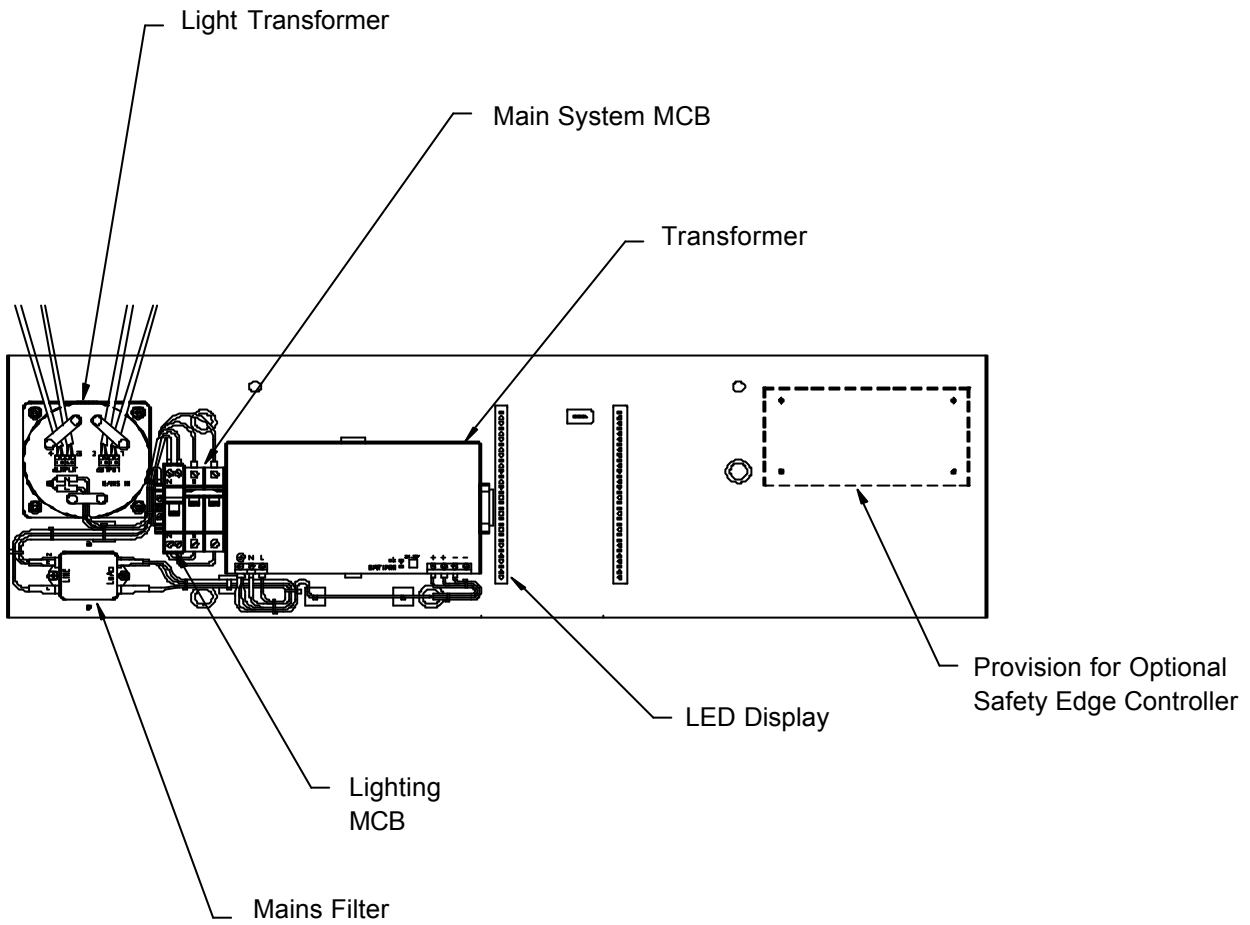
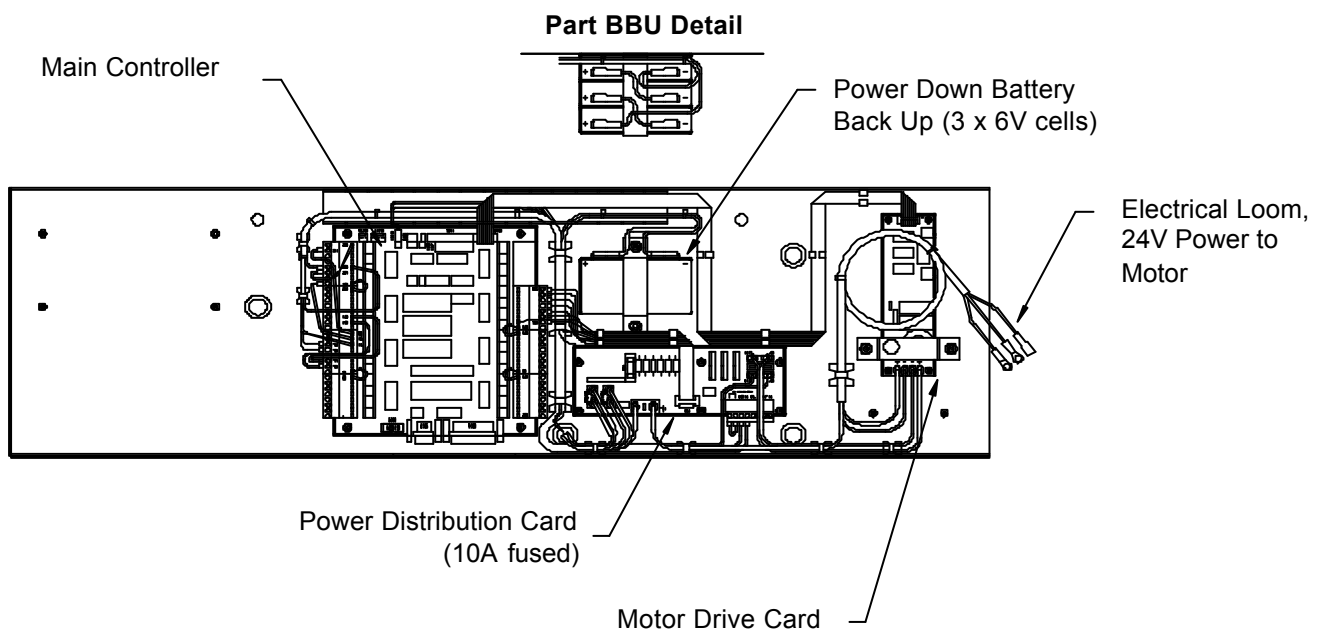


Fig 4.3 – Electrical Plate Layout (Rear)



Position Sensor

The Motor position is monitored from the in-line shaft mounted encoder that can accurately position the Motor and Wings by counting the encoder graduations.

A Timing Disc and Position Sensor is also mounted to the underside of the Gearbox to determine the HOME and Emergency positions. The Sensor is static mounted to the Gearbox housing whereas the Timing Disc is clamped to the Rotor Spindle thus allowing site adjustments to be made to the Wing orientation.

Fig 4.4 - Position Sensor and Timing Disc

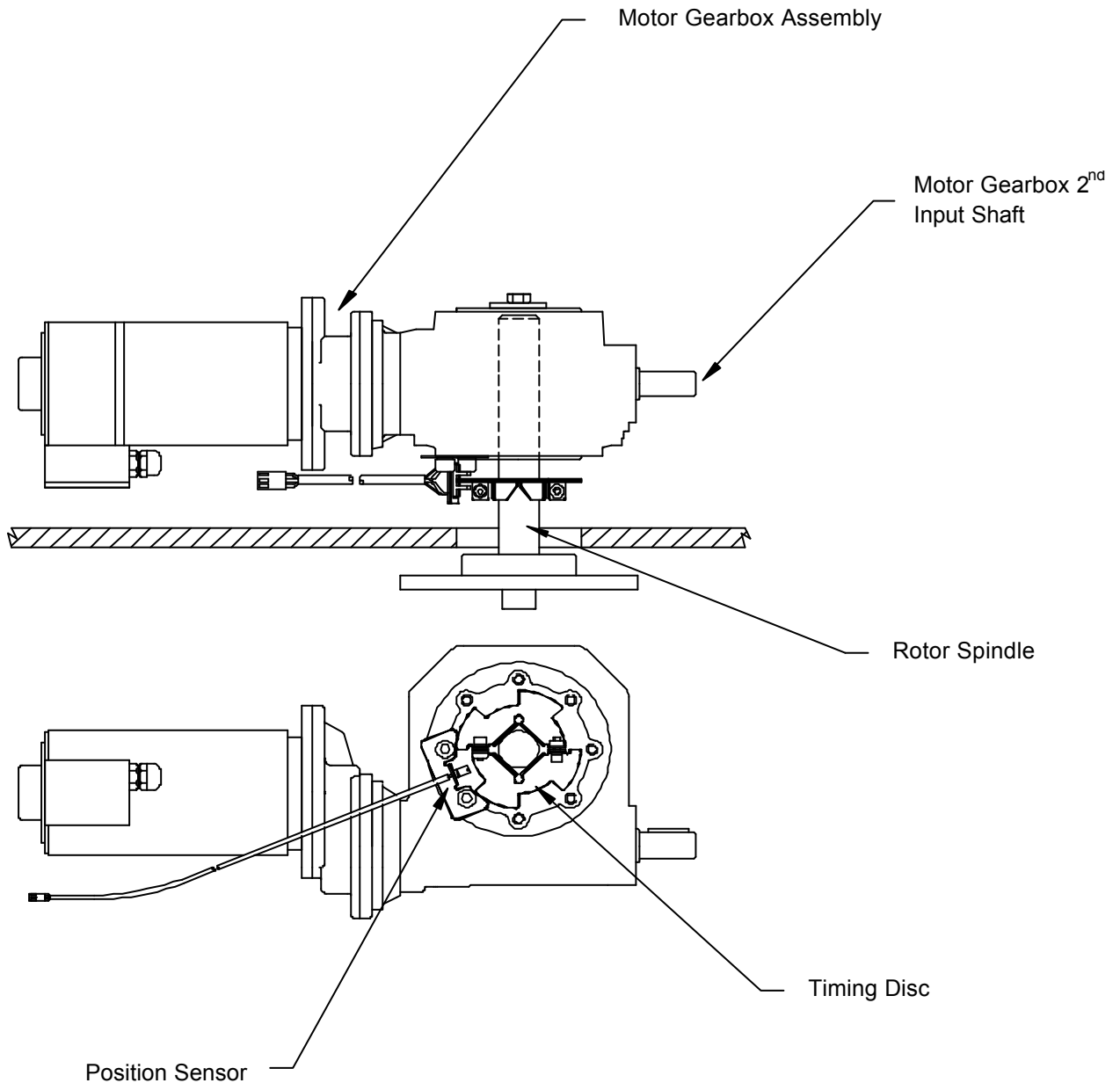
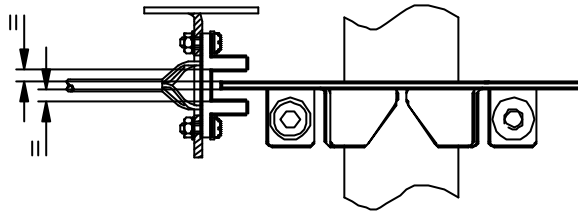


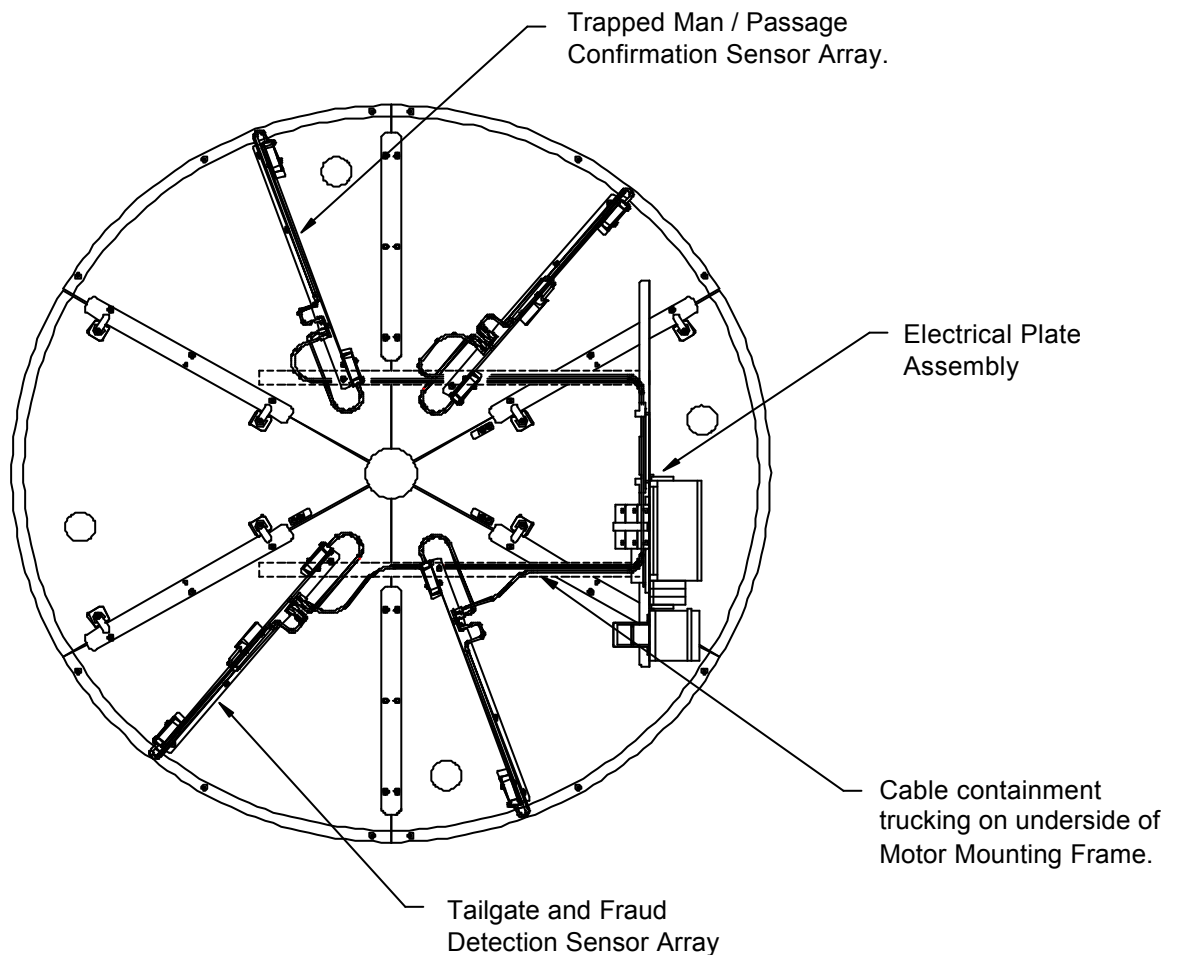
Fig 4.4 – Timing Disc and Position Sensor



The Sensor position is set with the bolting of the bracket to the underside of the Gearbox. The Timing Disc is clamped to the Rotor Spindle and can be adjusted to orientate the correct HOME position of the Wings.

Note - Ensure the Timing Disc sits equally between the Sensor reading heads.

Detection Sensors

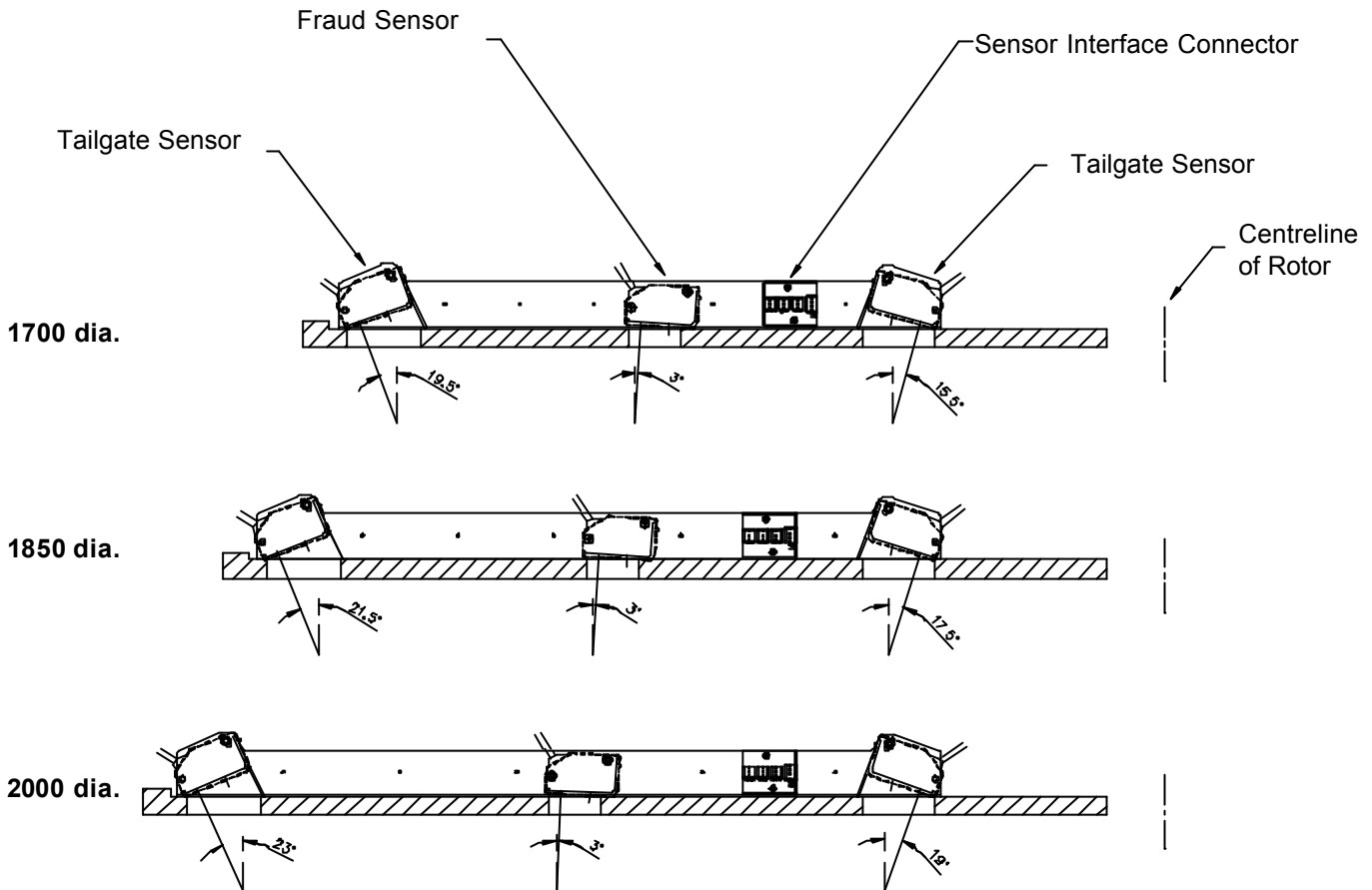


The sensing of occupants using the AutoSec is carried out within the confines of the walkway using active infrared sensor arrays. Entry and exit walkways are monitored independently to allow single or simultaneous passage.

The front sensor array consists of three sensors, the outer two to detect tailgating and the central sensor for fraud detection of any person trying to gain passage by avoiding the tailgate sensors.

The rear sensor array consists of two sensors used for passage confirmation and trapped man functions.

Fig 4.6 – Sensor Array and Setup

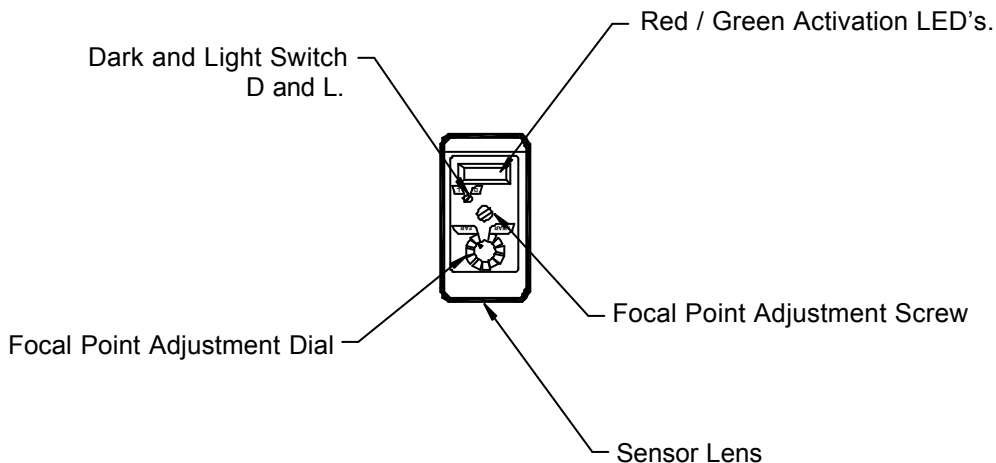


The sensor arrays are factory wired and only require site adjustment as necessary to the mounting angle and focal length of the beam. The sensor mounting plates offer a minimal amount of adjustment but the beams must be set so that they do not reflect off the bottom Rotor Hub Cover, Casework, Wings and Floor.

During the cycle rotation the sensors readings are gated out within the software routine so not to identify the door wings as an object.

Note - For the second row Sensor Array the middle fraud sensor will not be fitted.

Fig 4.7 – Sensor Adjustment Details.



The Sensor itself has an inbuilt adjustment screw to alter the focal length. This should be adjusted for the far position and turned to reduce the Beam Length to above the level of the floor, i.e. 100mm. To aid in this a Red and Green LED are fitted to the Sensor to indicate stability of the beam and focal point.

The Green LED should illuminate constantly and the Red LED will illuminate when the beam is broken. This is used as a visual indicator when adjusting the Focal Point.

The Sensor also has a Light and Dark setting, D and L which needs to be set in the Light, L position.

All settings are pre-factory set and only require focal points adjustment on site.

Down Lights

Fig 4.8 – Down Light Installation

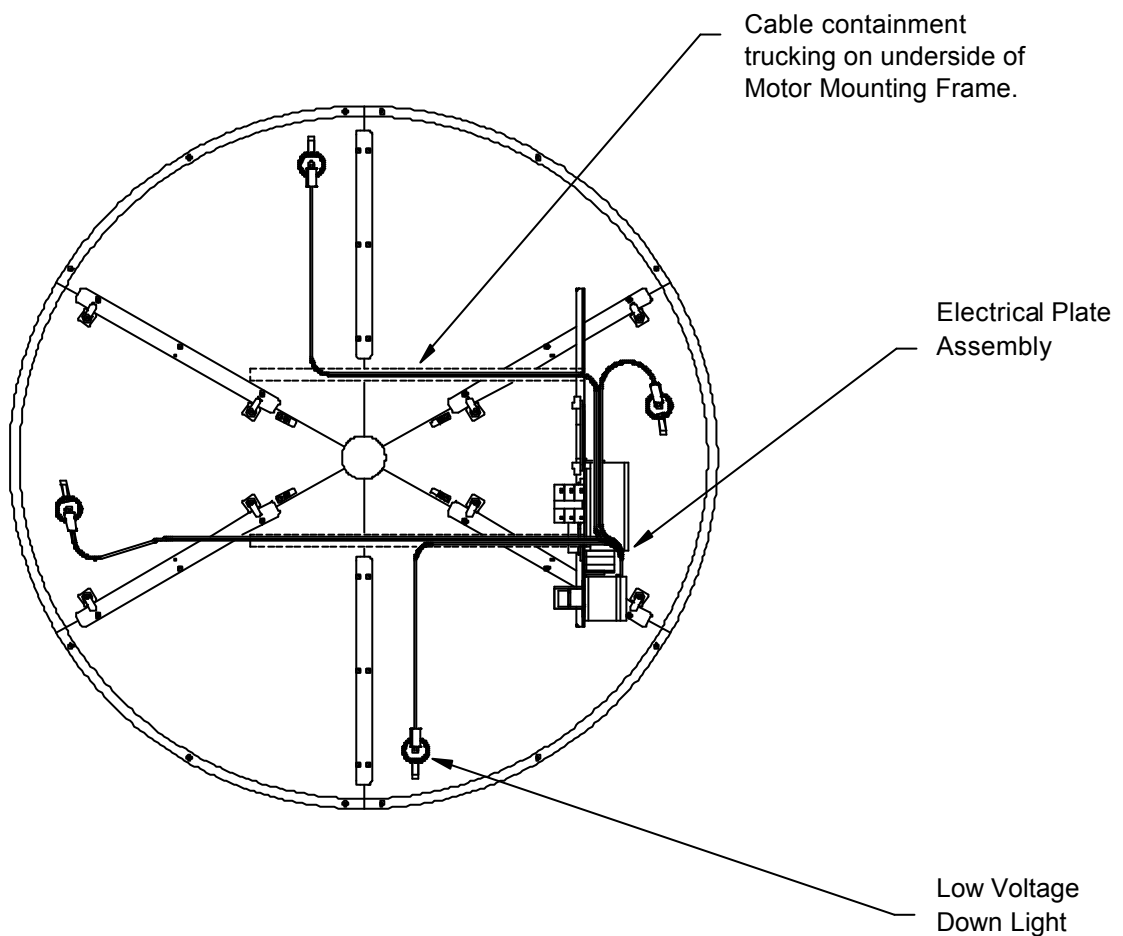


Fig 4.9 – Down Light Connection Detail

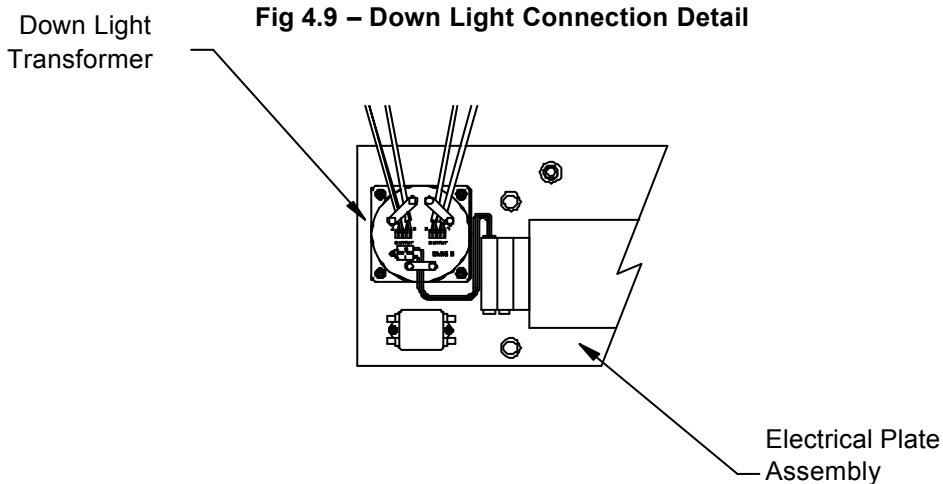
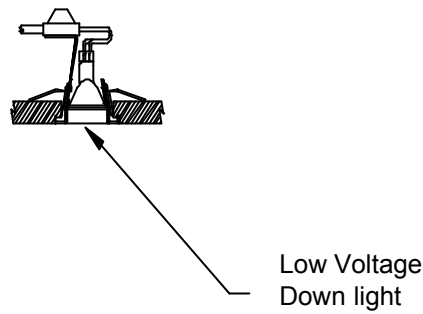


Fig 4.10 – Down Light Fitting Detail



Keyswitch

The keyswitch is supplied as standard and is used in one of the following three positions.

- Position 1 Run
- Position 2 Reset
- Position 3 Clean

Before turning the door on for the first time the keyswitch should be placed in position 1 and then turned to Reset and back to 1. This will activate the initial setup of the AutoSec and the keyswitch should be left in this position in normal conditions.

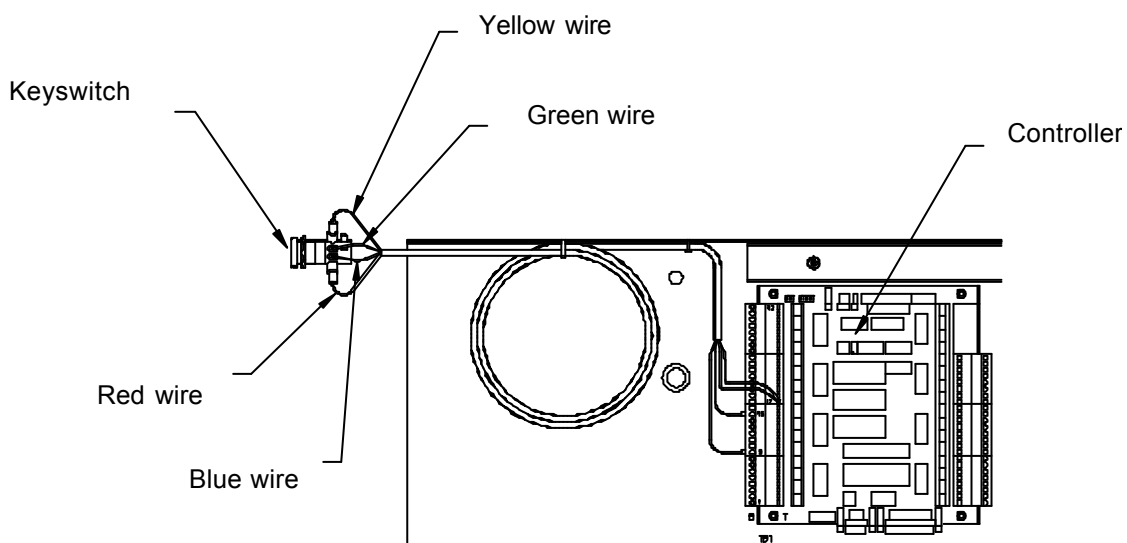
Should the door require a reset signal turn the key to reset and run, twice. If a breakout wing has been specified the first reset will reset the shear locks and the second will make the Wings rotate back to the HOME position. The reset will only be used after a Fire/Emergency scenario or after 15 minutes from the initiation of a power down situation.

A manual reset is necessary to ensure the door is vacant during reset.

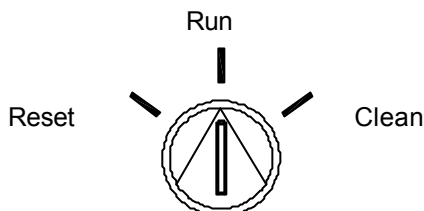
With the keyswitch in position 3 the door will rotate to the crucifix to allow cleaning of the door. When completed reset twice and return the door to position 1.

The keyswitch is normally fitted to the Cornice on site during the installation process.

Fig 4.5 – Keyswitch Details



Wire Colour	Controller PCB Terminal N ^o
Red	TB1-9-B
Yellow	TB1-15-B
Blue/Green	TB1-17-T



Battery Back Up

The auxiliary Battery provides back up power for the AutoSec in the event of a mains power failure. It provides 24VDC to the Controller via 3N^o 6VDC cells connected in series.

The batteries are mounted on the Electrical Plate Assembly and are connected via wires to the Controller.

In a power down scenario the batteries have sufficient power to rotate the door to the crucifix position so as not to entrap any persons using the AutoSec. When the door has reached the crucifix position the batteries will automatically switch off.

Should mains power be restored before fifteen minutes of the initial failure the door will, when power is restored, automatically reset and reverse back to the HOME position. If restoration of power is after a fifteen minute period the door will require a double reset from the keyswitch.

The battery is on charge during normal operating conditions.

Standard Operation Function

The AutoSec is designed to give simultaneous Entry and Exit via independent authorisation access control signal, one for each direction of travel. This can be in the form of either a customer supplied card reader system, casework mounted push button, reception push button or overhead PIR (option).

The requirements of the signal are:

- 0V N.O. with a signal duration of >0.5 but <1.0 second.

Note – Should signals not comply it will have an effect on the overall functionality of the AutoSec and slow down the throughput through the door and in some cases cause rejection. Should there be any doubt please contact Gunnebo Entrance Control.

The door has been designed to operate to give the following security functions;

GO SINGLE PASSAGE -

- Allows the door to revolve 2N^o quadrants and stop at the HOME position.
- The user may either enter in the first or second quadrant of the door.
- When the user has passed through the door a passage confirmation output will be given from the Controller for use, if required, by the customer's access control system.
- Should the user not pass through the door no passage confirmation signal output will be given.

GO MULTIPLE PASSAGE -

- The door will function as described above.
- This allows simultaneous passages in either direction so long as each user has authorisation.
- It allows greater throughput of users through the door.
- Users do not have to wait for the door to stop to obtain authorisation.

Note - This function can sometimes be limited due to the operation of the customers access control system.

TAILGATE -

Tailgate is the term used when a person follows an authorised person, without authorisation in either the following quadrant or from the opposite direction.

There are many combinations when this scenario may occur but the two most common are described below;

1 – With unauthorised person entering in following quadrant.

- The door will allow the first (authorised) person to enter.
- Continue to revolve a further 90°, during which time it will slow down and stop.
- Reverse at half speed to reject the second (unauthorised) person.
- When this has happened all access control signals will be cancelled and new users will be required to re badge for authorisation.
- Passage confirmation output will be given from the Controller for the authorised person only.

2 – With unauthorised person exiting and authorised user entering.

- The door will rotate approximately 90° during which time it slows down and stops.
- Reverse at half speed to reject the second (unauthorised) person.
- When this has happened all access control signals will be cancelled and new users will be required to re badge for authorisation.
- No passage confirmation output will be given from the Controller.

FRAUDULENT PASSAGE -

A central sensor has been fitted to the first row of the overhead sensor array to monitor the central passage of the AutoSec. Should this be activated without any other sensor picking up a presence the door will activate a security protocol.

- The door will rotate approximately 90° during which time it slows down and stops.
- Reverse at half speed to reject the occupant.
- When this has happened all access control signals will be cancelled and new users will be required to re badge for authorisation.
- No passage confirmation output will be given from the Controller.

PASSAGE CONFIRMATION -

This is an output given by the in built system Controller to confirm an authorised user has passed through the door. It is used when anti-pass back measures are required.

The user is monitored via the first row of overhead sensor arrays that firstly confirm no Tailgating has taken place.

The second row of overhead sensor arrays will monitor the user has continued their passage through the door and has passed successfully into or out of the facility.

Note - The output signal is 24VDC N.O. with signal duration of 1 second.
Not all access control systems are able to handle this function

SAFETY EDGES

These replace the normal rubber buffers fitted to the leading edges of the casework. They are pressure sensitive and when they sense an obstruction send a signal to the Controller to stop the door instantly.

The edges are non operational until the door is within 5⁰ of closing to the HOME position, this avoids accidental triggering of the device.

The wings will back off and await for the safety edges to detect the obstruction has been removed.

Note - It is recommended that if Day / Night Mode is specified then the Safety Edge option is also specified.

PICTOGRAMS

These are casework mounted LED display to indicate to the user the status of the door.

- Green Badge - Door is ready for used, present security badge for authorisation.
- Green Arrow - Authorisation Granted, proceed with the passage.
- Red Cross - No passage allowed.
- Red Flashing Cross - Warning the door is reversing under a security protocol.

Section 5

INSTALLATION

Unpacking

On receipt of equipment on site, check all items are completely undamaged. If for any reason transit damage has occurred, ensure the extent of any damage is recorded and if considered necessary report the incident to Gunnebo Entrance Control Ltd.

Retain all major component packaging for re-use in the event that items may need to be returned for servicing during their life.

Personnel

Due to the weight and physical dimensions of some of the components the installation must not be carried out with less than two trained engineers.

Tools Required

- Step Ladder
- One Metre Long (minimum) Spirit Level
- Tape Measure
- Industrial hammer drill
- Concrete drill bit 12mm
- Socket 17mm AF
- Torque wrench
- Spirit level
- Metric Hexagonal Allen keys – 2.5, 3, 4, 5 ,6 and 8mm
- Set of Metric Spanners
- Crowbar
- Extension Lead
- Generator (if power is not available)
- Chalk Plumb Line
- Shims
- Mastic
- Nylon Mallet
- Tool Kit - General
- Safety Gloves and Glasses
- Security fixing bit (supplied)

Please read all sections carefully before commencing the installation

Site Preparation (Figs 5.1 to 5.3)

The following illustrations show the site preparation details that are required for the various units.

Ensure that the site base area has been completed in accordance with the approved site installation drawing.

Cornice heights may vary depending upon order requirements.

Note - It is the Customers responsibility to ensure that the structural integrity of the floor will not be impaired in any way due to the installation of the AutoSec.

Casework

The Casework is secured either on the centre line of the cornice or to a structural slab above.



Floor Fixings

Fixing is achieved by means of expansion bolts set into concrete. Alternative fixings can be utilised upon consultation with Gunnebo Entrance Control Ltd Technical engineers.

Electrical Connections

All electrical connections to the door are made at the Electrical Plate mounted within the top section of the door. Before making any connections to the unit, isolate the Mains Power and disconnect the Auxiliary Battery.

Connections MUST only be carried out by qualified personnel who are familiar with the hazards involved when working on electrical equipment.

- **Power Connections**

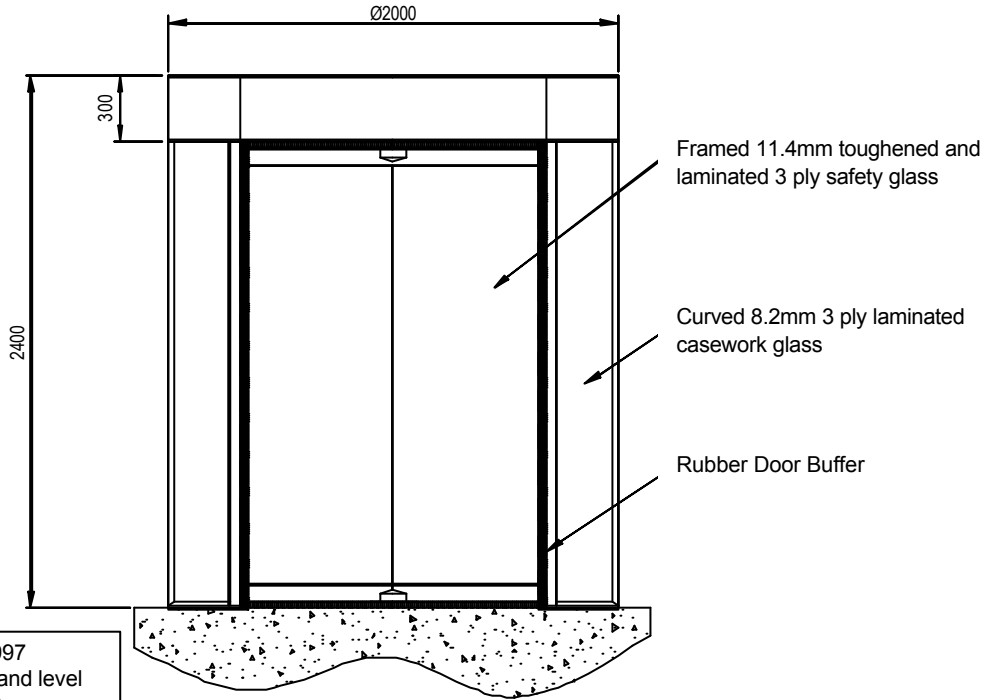
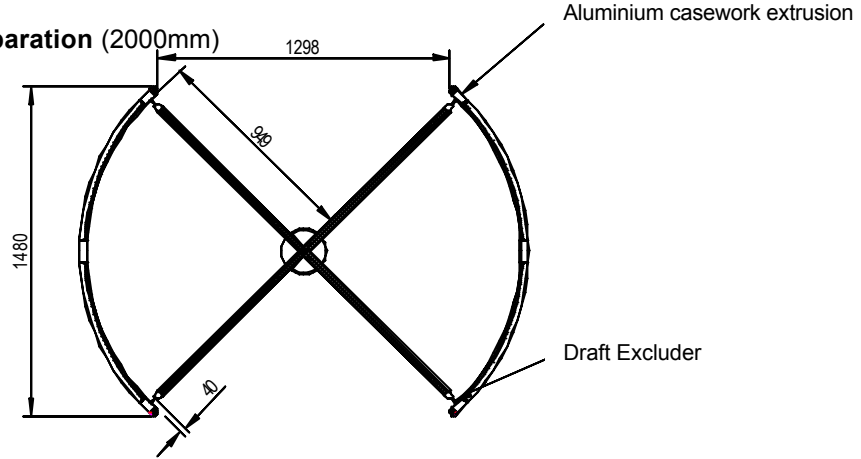
The Power and High Voltage connections are made on site to the mains power spur box by the clients nominated and qualified electrical engineer.

- **Wiring Guidelines**

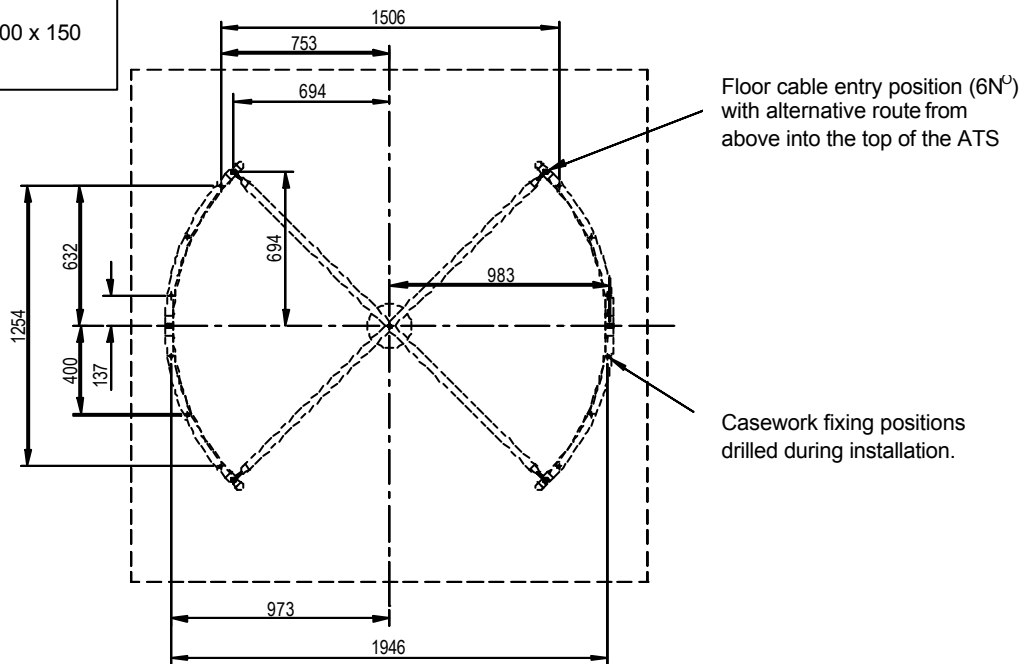
It is important that the Data Input and Output wiring is not strapped to the Power and High Voltage lines since this will cause electrical noise to be induced on the low level circuits, resulting in erratic operation of the door.



Fig 5.1 - Standard Site Preparation (2000mm)



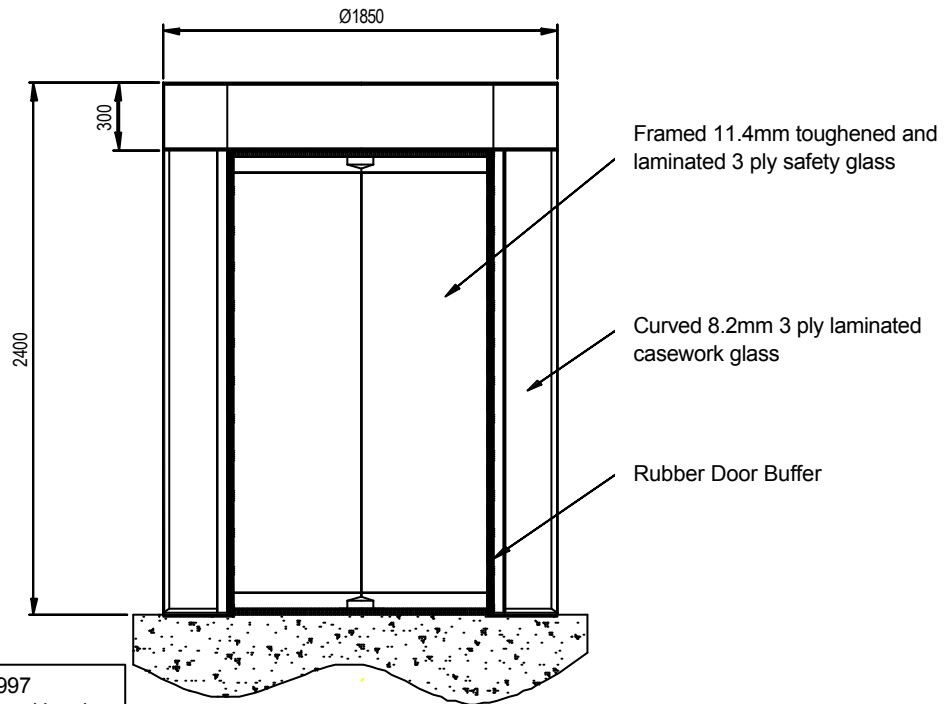
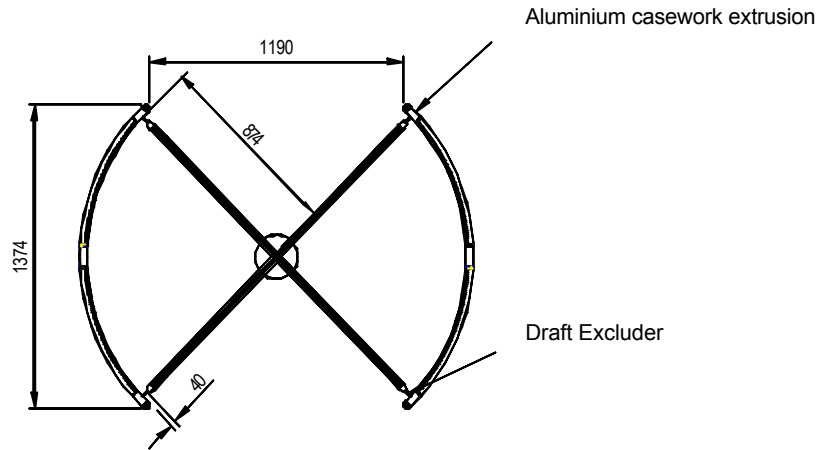
Concrete Base to BS 5328:1997 specification. Base to be flat and level to +/- 5mm over footprint area.
 Dimensions to be > 2300 x 2300 x 150 deep min.



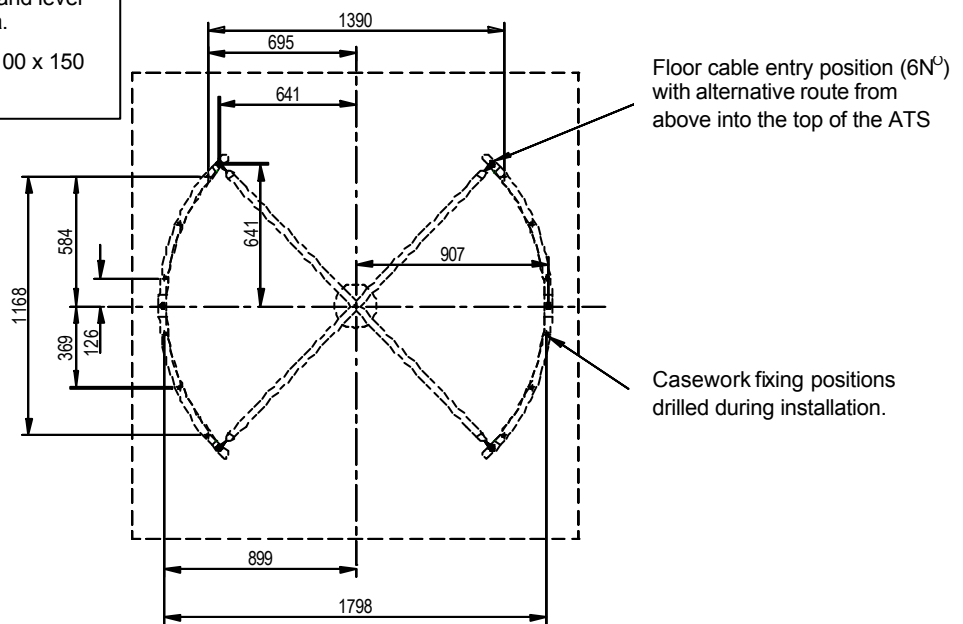
IMPORTANT

- Any horizontal pipe or conduit runs below the AutoSec must be at least 140mm below FFL.
- It is the customer's responsibility to ensure the structural integrity and strength of the installation

Fig 5.2 - Standard Site Preparation (1850mm)



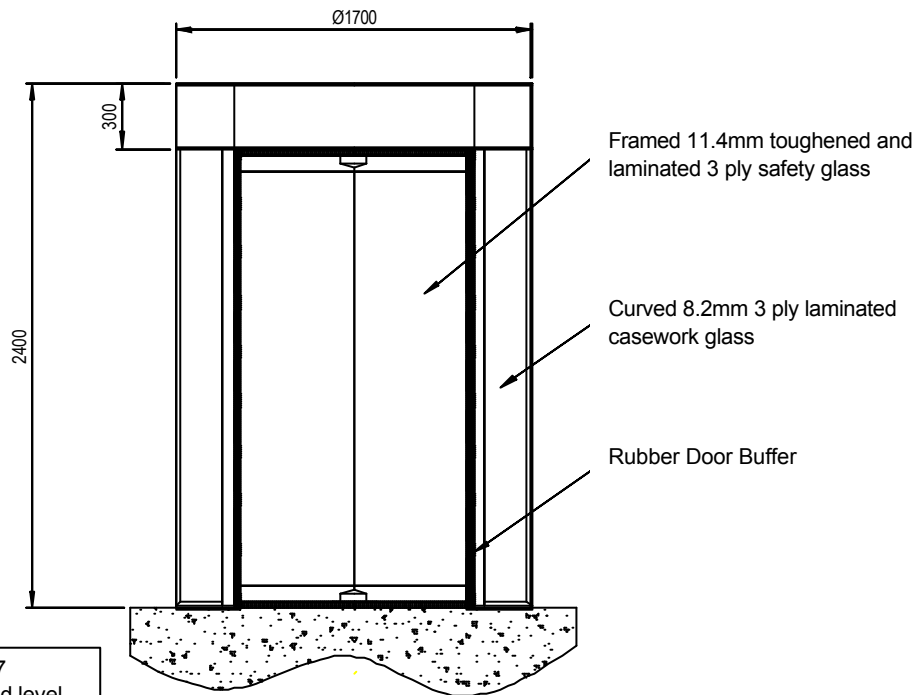
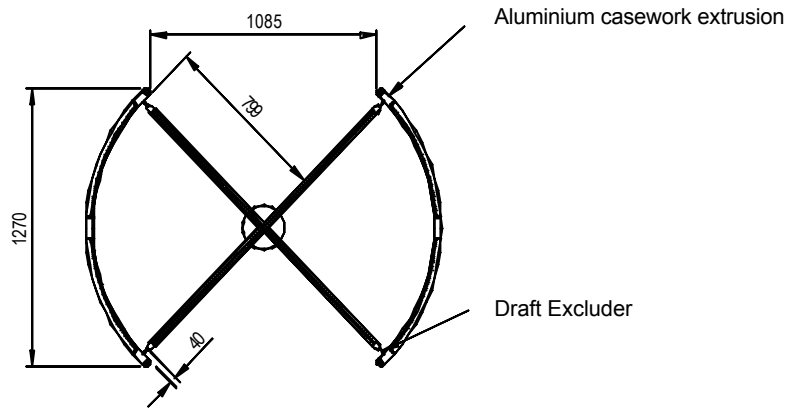
Concrete Base to BS 5328:1997 specification. Base to be flat and level to +/- 5mm over footprint area.
Dimensions to be > 2100 x 2100 x 150 deep min.



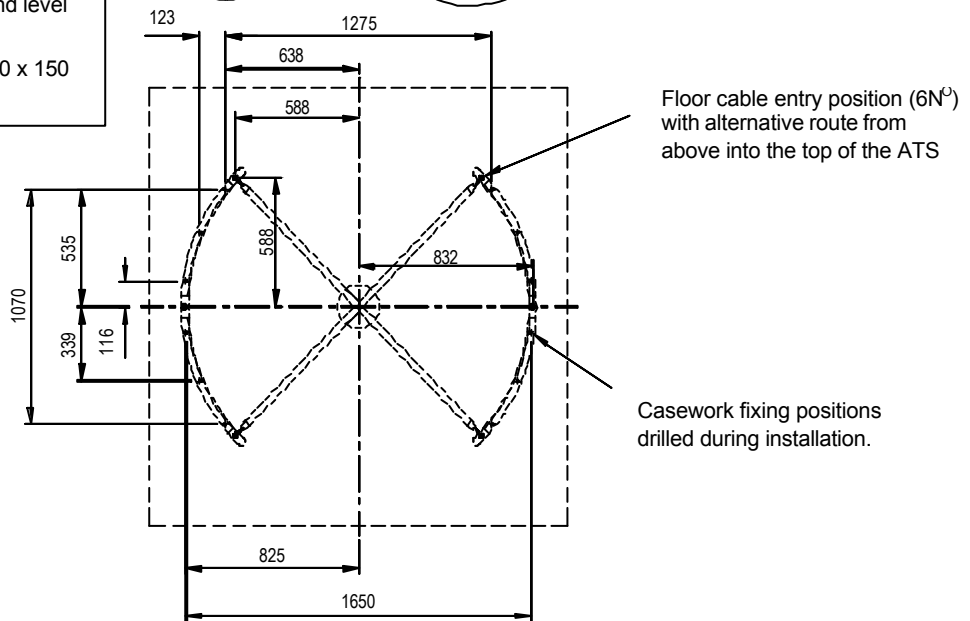
IMPORTANT

- Any horizontal pipe or conduit runs below the AutoSec must be at least 140mm below FFL.
- It is the customer's responsibility to ensure the structural integrity and strength of the installation

Fig 5.3 - Standard Site Preparation (1700mm)



Concrete Base to BS 5328:1997 specification. Base to be flat and level to +/- 5mm over footprint area.
Dimensions to be > 2000 x 2000 x 150 deep min.



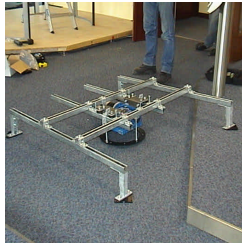
IMPORTANT

- Any horizontal pipe or conduit runs below the AutoSec must be at least 140mm below FFL.
- It is the customer's responsibility to ensure the structural integrity and strength of the installation

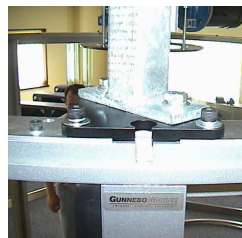
Fitting the Motor Frame

Note - For ease of assembly the motor frame may be fitted to the casework with the motor removed.

1. If necessary, remove the motor from the motor frame as follows;
 - a. Remove the inner ceiling ring from the motor frame assembly.
 - b. Remove the nuts (4 N^o) securing the motor bracket to the frame assembly and remove the motor and bracket from the frame assembly.



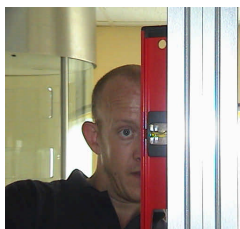
2. Install the motor frame on top of the lower cornice ring ensuring that each frame foot locates at the top of a case work post and secure with M8 socket hex head bolts, washers and spring washers (8N^o).



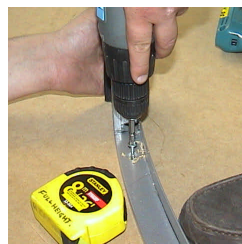
3. If necessary, refit the motor, bracket and inner ceiling ring removed at step 1.

Final Location Fixing

1. Carefully locate the Casework into the fixing aperture.
2. Check for level and squareness of the walkway openings.

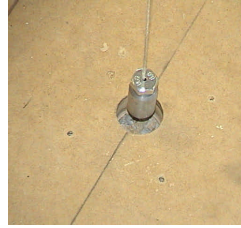
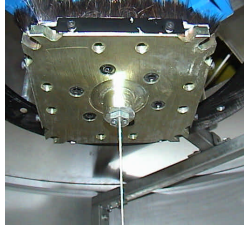


3. Mark and drill 12N^o 10mm dia x 80mm depth holes through the casework floor fixing positions.
4. Drill and fit the floor fixings through the bottom of the Casework frame.



Fitting the Bottom Rotor Bearing

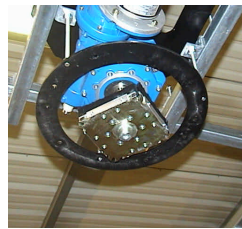
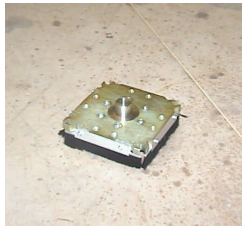
1. With the Casework securely fixed, position the Bottom Rotor Bearing on the floor centrally below the Rotor Spindle using a plumb as shown.



2. Using the Bearing Fixing Plate as a guide mark the position of the three fixing holes on the floor.
3. Drill three 10mm dia x 80mm depth holes into the floor at the positions marked.
4. Secure the Bottom Rotor Bearing to the floor using floor fixing bolts.

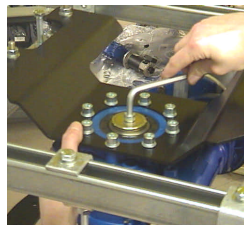
Fitting the Wings

1. Install a Vertical Brush Strip onto the outer vertical edge of each of the wings (4 N^o).
2. Use the gearbox second input shaft to rotate the Rotor Spindle to the crucifix position.
3. Place the Bottom Bearing Rotor plate onto the bearing and align it to match the top Rotor Spindle.



Note - Grease the Bearing and Rotor Bearing Plate before they are married together.

4. Check the bearing 'O' seal is seated correctly.
5. Adjust the M10 bolt securing the Rotor Spindle so that the distance between the square faces of the Bottom Bearing Plate and Rotor Spindle Plate is approximately 2035mm.



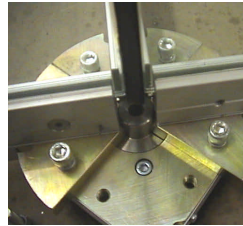
6. Select the first Door Wing to be installed, angle slightly and lift into position, taking care to locate the location dowels on the bottom of the Wing Fan Plate and bottom Bearing Plate.

Warning - When handling glass at anytime suitable gloves and protective eyewear should be worn.

Caution – When fitting the Wings ensure the etched kite mark is located at the bottom nearest the Bearing.

12. Before the final Wing is installed place the round foam rubber seal in the slot formed by the fitting of the first three wings. This is used as a draft excluder and a preventative measure to stop cards being pushed through.

Note - It will be necessary to run a bead of mastic or adhesive along the interlayer of the glass in this pocket made by the fitting of the three Wings, this gives an ultimate seal and pass through deterrent.



13. Now fit the fourth Wing as previous but remember to apply the mastic or adhesive to the interlayer or foam rubber to complete the seal.
14. Adjust the M10 bolt securing the Rotor Spindle (step 5) until the Rotor Spindle flange is in contact with the top of the Door Wings.
15. Fully tighten all 16N⁰ M10 socket hex head bolts securing the Door Wings to the Rotor Spindle and Lower Rotor Plate.

Note – Before fitting the Wings slide on covers retighten all counter sunk fixings joining the two halves together. Repeat this for both top and bottom extrusions.

Fitting the Lid Covers

1. Position the aluminium Lid Covers on top of the upper cornice ring.
2. Spot drill through the holes provided in the Lid and secure with self tapping screws.
3. Adjust the 4N⁰ M10 bolts on the top of the Motor Mounting Fame so they take the weight of the Lid and prevent any sagging.
4. Lock the support bolts into position.

Installation Tip – Should the Wing Covers be loose fit a strip of electrical insulation tape to the edge of the wing extrusion nearest the ceiling and/or floor. This will take up and manufacturing tolerances and hold the covers firm.

Fitting the Wing Brush Strips.

1. First slide the bottom Brush Strip into the extrusion on the bottom rail. A cut out has been provided in the leading vertical extrusion for this purpose.
2. Next slide the top Brush Strip into the extrusion on the bottom rail. A cut out has been provided in the leading vertical extrusion for this purpose.
3. Repeat for all 4N⁰ wings.

Installation Tip - Should the brush strips appear loose remove and place a slight bend in the metal section holding the brushes. This will help to keep it in place.

- 7. At the centre extrusion fit the Glazing Bead Extrusion at a slight angle into the Casework vertical groove. Ensure it is fully engaged and rotate towards you.



Caution - This operation can be difficult due to the physical constraints of the installation. Take your time.

- 8. Cut the Vertical Glazing Bead to length and trim the ends to fit the Wedge Rubber profiles at each end.

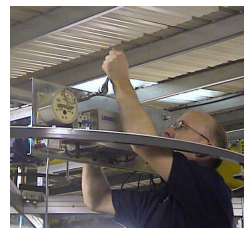


Note - It is recommended that the Vertical Glazing Bead is cut 100mm over the required length as the rubber will expand and contract over a period of time.

- 9. Apply a glass cleaning solution to the glass panel to assist the installation of the Glazing Bead.
- 10. Fit the Vertical Glazing Bead by starting at each end and pushing the excess in at the centre.
- 11. Repeat for the remaining Curved Glass Panels.

Fitting the Electrical Plate Assembly

- 1. Bolt the Electrical Plate Assembly to the brackets on the Motor Frame, using the M10 bolts, washers and nuts (2N⁰) ensuring that no cables are snagged.



Caution - Ensure that no cables are trapped behind any brackets and fixings.

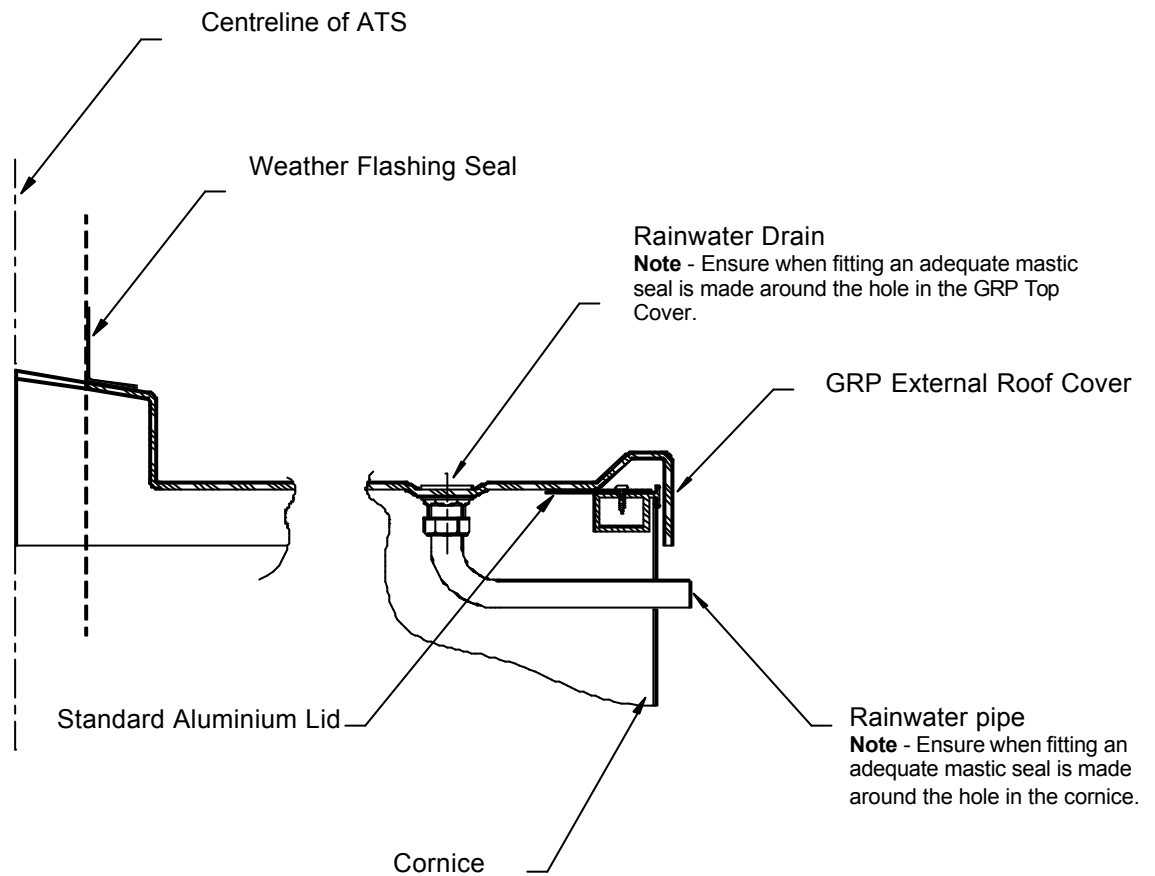
Fitting the Ceiling Panels and Sensor Assemblies.

- 1. Rotate the Wings to the crucifix location.
- 2. Lift the first Ceiling Panel into position from the walkway and secure from via the aluminium outer rings and central ring using M6 socket cap screws, washers and spring washers. (5N⁰ per panel)

Note - Refer to Section 4, Technical Information for Ceiling Panel and Sensor Assembly fixing location and Setting instructions. Fit the Trapped Man / Passage Confirmation ceiling segment first, followed by the Tailgate / Fraud segment.

- 3. Fit the Sensor Assemblies to the top side of the Ceiling Panel.

Fig 5.4 – External GRP Roof Cover



Floor Mat Fitting (Option)

This should be carried out before the Rotor has been installed.

1. Loose fit the Mats inside the Drum area.
2. Offer the Trim Strips to the inside of the Drum, butting the mitred edges against the inside of the Uprights.
3. Glue the Mat to the floor and screw or nail the Trim Strip to the flooring.

Card Reader Mounting

Refer to Gunnebo Entrance Control Ltd Technical department for information and recommendations.

Customer Connections

On completion of the installation routines the AutoSec System must be connected to the Customer's services.

Please refer to Section 6, Wiring Schematics, of this manual for connection details.

System Checks

- **On Power Up**

Obstructions –

Before connecting the mains power ensure the door footprint is clear from any obstructions.

Keyswitch -

If not already fitted install the Keyswitch and it is required to reset the unit after power up.

Power connection –

Ensure the mains power is connected correctly with the power turned off. When satisfied turn on mains power with the MCB in the off position. Switch on the MCB to energise the unit.

Note - A step ladder may be necessary for the connection activities, make sure they are removed before power up.

BBU -

Check all connections are made and the batteries fully charged. Charge and/or replace as necessary.

Motor drive -

With the power on, turn the keyswitch to the reset position and then return to the run position to commence the initial system reset. The wings will rotate 22.5° backwards and or forwards to search for the crucifix position. If when the wings stop revolving and they are not at the crucifix position rotate the timing disc according, and reset the door via the keyswitch this time resetting the keyswitch twice.

Presence sensors –

Ensure the sensors are angled and beam lengths adjusted correctly for presence detection and passage confirmation.

Status Light Pictograms (if fitted) –

Ensure the pictograms illuminate correctly, i.e. Green Badge in dormant mode, Green Arrow for passage authorisation, Red Cross for non authorisation and Red Flashing Cross for fraud and reversing.

Entry GO single pass –

Depress entry push button to allow door to revolve 2N⁰ quadrants and stop at the HOME position.

Exit GO single pass –

Depress exit push button to allow door to revolve 2N⁰ quadrants and stop at the HOME position.

- **System Test**

The following is a repeat of the factory testing schedule, it may be necessary to fit temporary push buttons to mimic the access control signals and commence rotation.

Attempt entry without signal –

Unit will not revolve.



Attempt exit without signal –

Unit will not revolve

5N⁰ entries with signal 1st Quadrant –

Unit will allow single passage in entry direction and stop in HOME position.

5N⁰ entries with signal 2nd Quadrant –

Unit will allow single passage in entry direction and stop in HOME position.

5N⁰ entries with signal 1st Quadrant and 2nd Quadrant tailgate –

Unit will rotate allowing first person access then stop and reverse second person out of the door.

5N⁰ entries with signal 2nd Quadrant and 3rd Quadrant tailgate –

Unit will rotate allowing first person access then stop and reverse the second person out of the door.

5N⁰ exits with signal 1st Quadrant –

Unit will allow single passage in exit direction and stop in HOME position.

5N⁰ exits with signal 2nd Quadrant –

Unit will allow single passage in entry direction and stop in HOME position.

5N⁰ exits with signal 1st Quadrant and 2nd Quadrant tailgate –

Unit will rotate allowing first person access then stop and reverse second person out of the door.

5N⁰ exits with signal 2nd Quadrant and 3rd Quadrant tailgate –

Unit will rotate allowing first person access then stop and reverse second person out of the door.

5N⁰ entries with signal 1st Quadrant and exit 1st Quadrant tailgate –

Unit will revolve 90⁰, stop and reverse occupants out of the door.

5N⁰ entries with signal 2nd Quadrant and exit 1st Quadrant tailgate –

Unit will revolve 90⁰, stop and reverse occupants out of the door.

5N⁰ exits with signal 1st Quadrant and entry 1st Quadrant tailgate –

Unit will revolve 90⁰, stop and reverse occupants out of the door.

5N⁰ exits with signal 2nd Quadrant and exit 1st Quadrant tailgate –

Unit will revolve 90⁰, stop and reverse occupants out of the door.

Fire alarm –

Mimic Fire/Emergency scenario, the unit will revolve to the crucifix position and stop for the duration of the signal. To return the door to HOME after test use the keyswitch and turn to reset and run twice, to unit will reverse to HOME and be ready for use.



Incidental obstacle detection –

During rotation manually prevent the door from revolving, the door will stop, reverse 5° and recommence rotation.

Continual obstacle detection –

During rotation manually prevent the door from revolving, the door will stop, reverse 5° and recommence rotation. With the wings continually obstructed the unit will repeat the back off function a total of three times at which point it will reverse to the HOME position.

Safety edges (if fitted) –

Obstruct the rotation of the door within 5° of the closing HOME position the will stop instantaneously. When the safety edge retains its unobstructed shape, i.e. obstruction removed, the unit will complete rotation to the HOME position.

BBU –

Isolate the mains power and the door will rotate to the crucifix position. Reintroduce mains power before 15 minutes the door will rotate back to the HOME position. After 15 minutes the door will require a double reset via the keyswitch.

Keyswitch functions –

Turn the keyswitch to each of the three positions to check the functions Central position - RUN, counter clockwise - Reset and clockwise - Cleaning mode

Finishing

When all testing has been completed lift the access panels into position, connect the Down Light fly lead and lock down using the security key provided.

When fitted the AutoSec should be set in the cleaning mode and the door fully cleaned prior to hand over.

Warning - Only use non abrasive cleaning fluid and clothes and take care also to remove all protective films etc prior to hand over.



Section 6

WIRING SCHEMATIC

The following wiring schematics should be followed during the initial installation and set up of the AutoSec.

The Electrical Plate Assembly will be fully wire in the factory and will only require interconnecting to the various peripheral items, i.e. photocell assemblies, motor encoder etc.

Should there be any doubt please refer to Gunnebo Entrance Control Technical department.



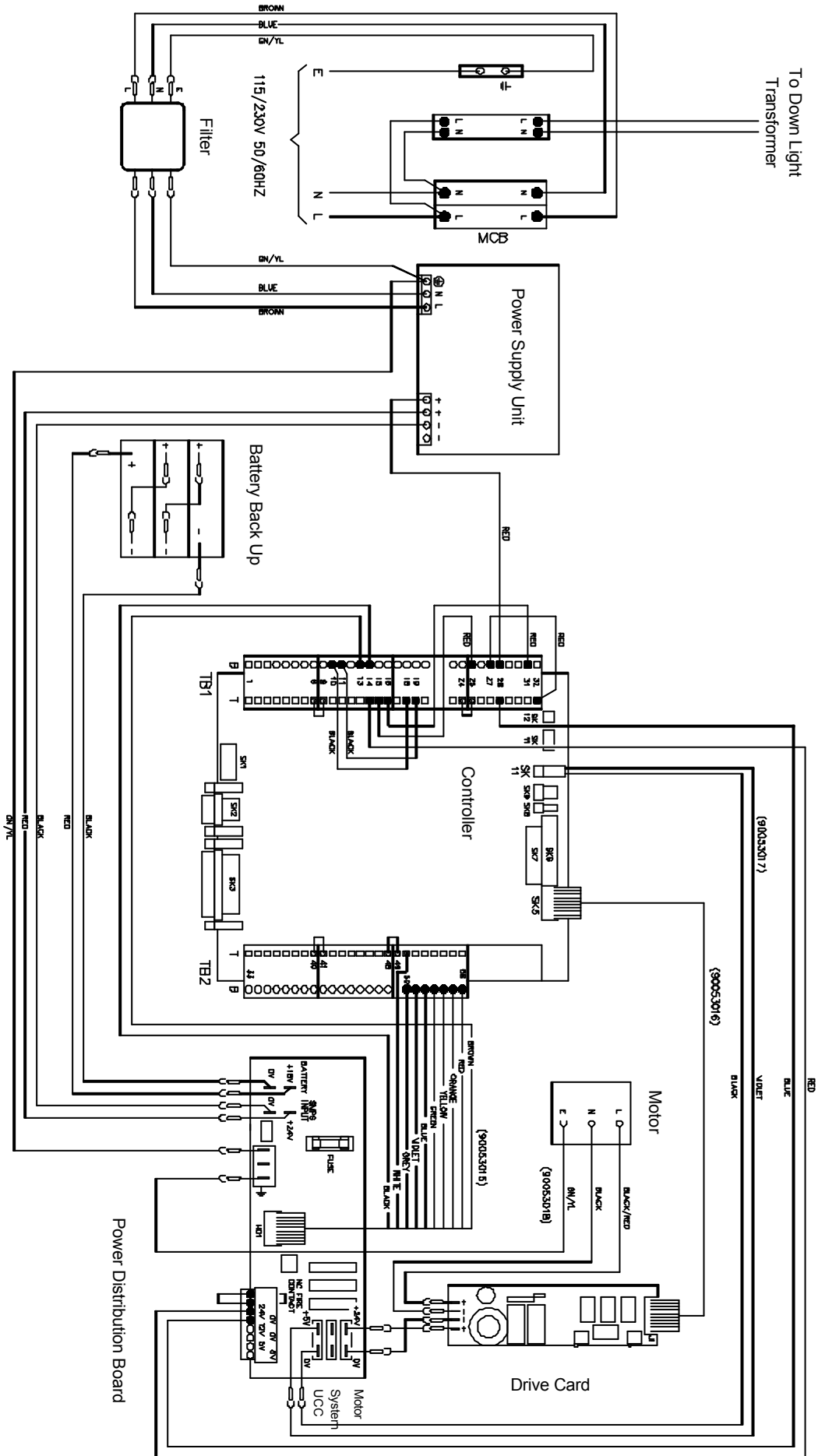


Fig 6.1 – Control System Schematic

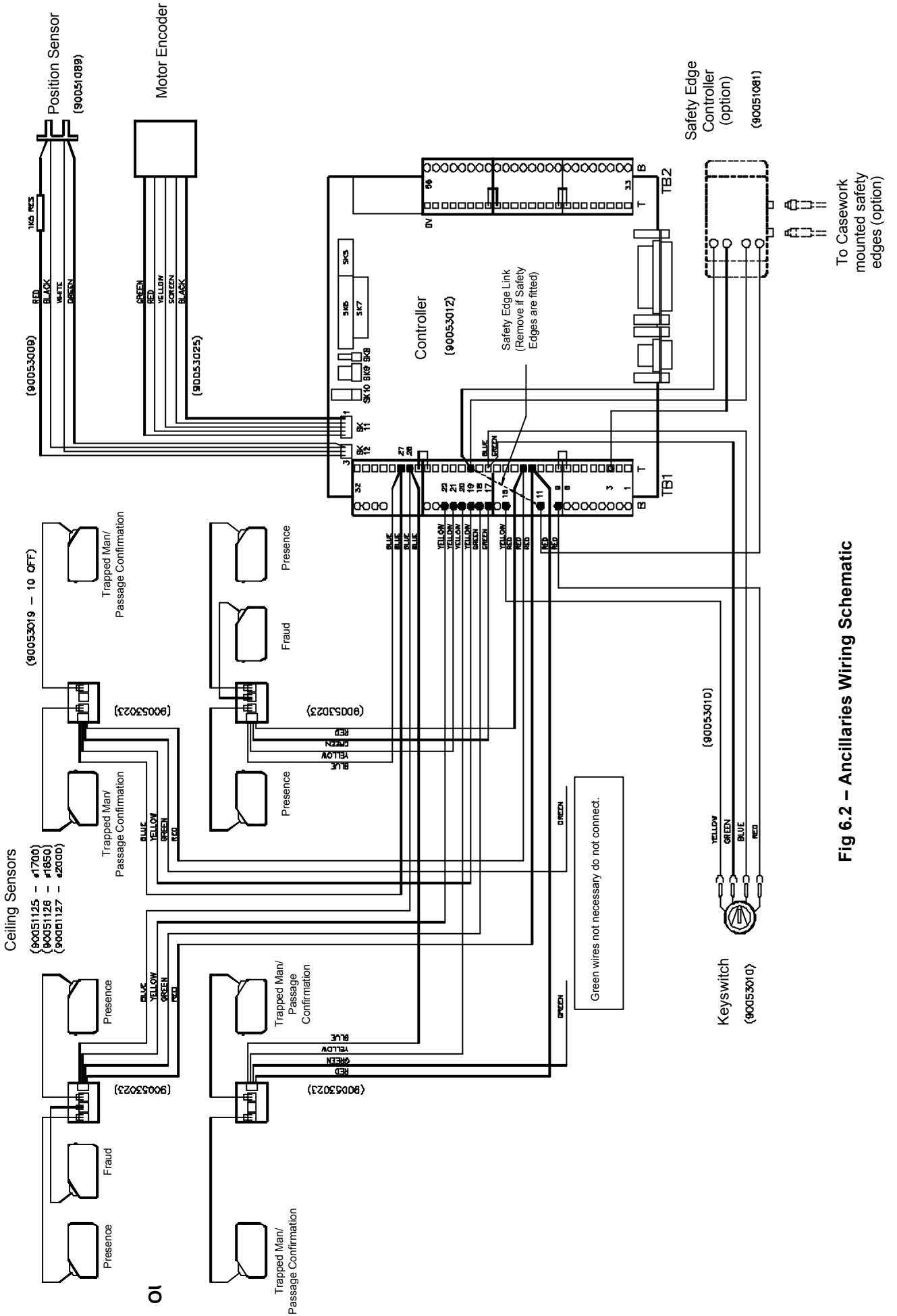
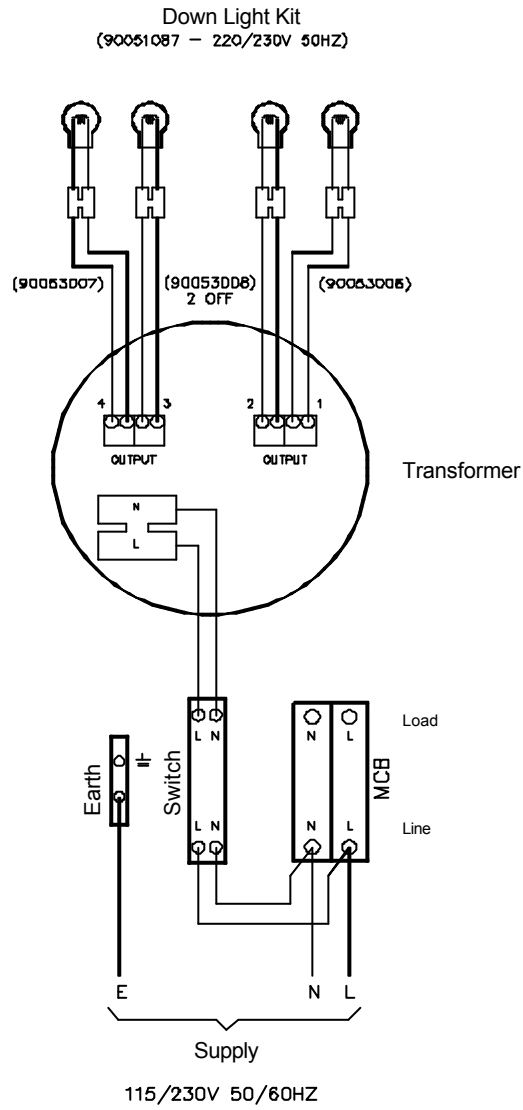


Fig 6.2 – Ancillaries Wiring Schematic

Fig 6.3 – Down Light Schematic



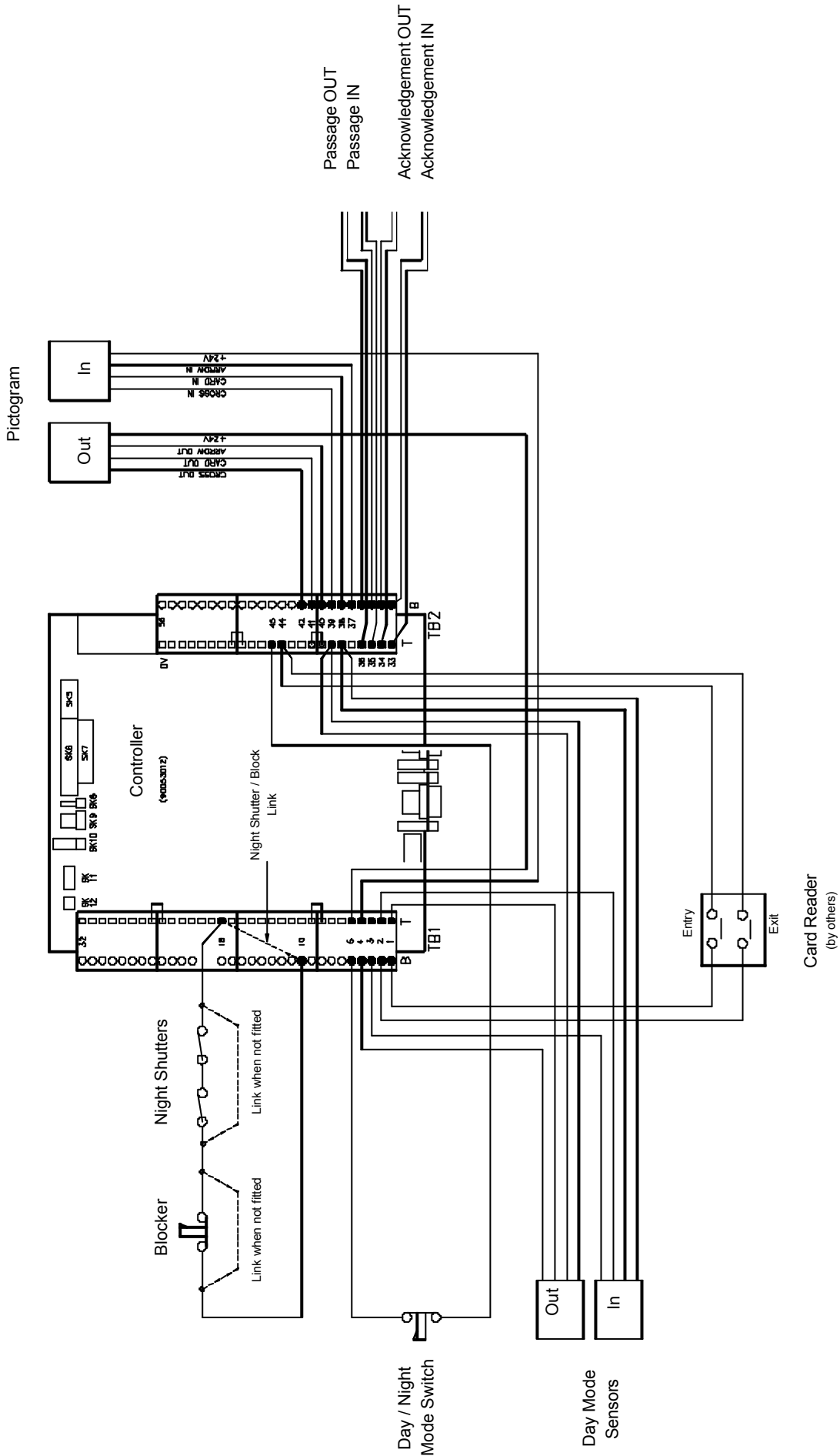


Fig 6.4 – Ancillaries Wiring and Option Schematic



Fault Finding

Table 7.1 – Fault Finding

Symptom	Check	Action
Door will not operate	Check mains power is present	Check MCB is turn on and has not tripped.
		Check mains distribution board in turned on.
		Check transformer and 24V is present on the controller
	Check fuse on motor card	Check fuse and replace if blown.
Door continually revolves slowly	Check bottom bearing was greased during installation.	Remove wings and bottom bearing plate, grease as necessary and refit.
Rotor is noisy	Check bottom bearing was greased during installation.	Remove wings and bottom bearing plate, grease as necessary and refit.
Door will not reset upon initial start up	Check keyswitch installation.	Trace wiring from keyswitch back to the controller using schematics.
	Check Fire/Emergency contacts.	If not connected to Fire Alarm system check wire link is fitted.
		If connected to Fire Alarm system check alarm is not active.
		Note - contact to be 0V NC
	Check BBU	BBU may need charging, leave unit on until charged.
Check position sensor diode	Slide back sheathing and check diode connection to loom. Check sensor is not damaged	
Door revolves in wrong direction	Check authorisation device	Check the access control reader and or push buttons are connected to the controller in the correct terminals.
Door gives double rotation	Check passage confirmation sensor	Inspect the controller LED's to ensure they illuminate as a person passes under them. (schematic for LED identification.) Adjust angle and beam length until confirmation signal is obtained.
Door wings do not park in correct position	Check timing disc orientation	Rotate timing disc either cw or ccw and reset the door via the keyswitch. Repeat until correct parking location is achieved.
Door rejects first authorised occupant	Check presence detection sensors	Adjust angle and beam.
Door rejects authorised tailgating person	Check authorisation device	Check a second signal is received from the access control device.
		Consult with access control specialist to confirm signal duration.
		Note - signal to be 0V NO with duration of >0.5 and <1 second
Door will not reset after Fire Alarm	Check keyswitch installation.	Give unit a double reset by turning the keyswitch from run to reset to run, twice.
Door with safety edges (if fitted) will not revolve after obstruction is removed.	Check safety edges	Inspect safety edges are not deformed and damaged. Replace if damaged.
	Check safety edge controller	Check it is operational.
Status Pictograms incorrectly illuminated (if fitted)	Check installation.	Trace wiring from Pictogram back to the controller using schematics.

- **Wing Assembly Breakout Wing Option**

- Check the Wing Pivot Bearing for signs of corrosion - clean or replace as necessary.
- Switch OFF the Auxiliary Battery and Isolate the mains power.
- Swing the door wing to check freedom of operation.
- Check the Ball Detent Latches at the TOP of each door wing are operational
- Check shear locks in wing carrier visually.
- Switch on the Auxiliary Battery and mains power.

- **Presence and Trapped Man Detection Sensors**

- Check and wipe clean all sensor lenses visible from below the ceiling.
- Sensor Units are accessed through the canopy.
- The cables connecting the Sensor to the sensor multi plug and Controller Module can be disconnected at the Sensor Unit and the unit replaced.
- If the unit is disconnected at the Module end, ensure that during replacement that the correct sensor is connected to the correct input.

- **Floor Bearing**

- The bearing is a non maintenance bearing and should have been greased during the initial installation to aid bedding in.
- Should the bearing create noise or run slowly physically inspect the bearing.
- Grease and or replace as necessary.
- If replacing remove bearing assembly by un-bolting the bearing plate floor fixings.
- Unscrew the fixings connecting the Bearing to the Bearing Plate and replace Bearing.
- To refit, reverse the above procedure.

Note - The wings will need to be removed to replace and or greased the bottom bearing.

- **Position Sensor**

- Check security of the Timing Disc and Position Sensor - adjust as necessary.
- Check Timing Disc sits centrally between the Sensor.
- If damaged unscrew the sensor head from the mounting plate and disconnect the sensor loom from the Controller.
- Replace with new Sensor assembly.
- To refit, reverse the above procedure.

Note - Take care when servicing and or replacing the diode soldered to the loom is not damaged.

- **Alarms**

- These units should not require general maintenance.

Safety edges

Check the Safety Edges visually for damage, if they do not function and are damaged replace.

- Disconnect the sensor loom from the Safety Edge Controller.
- With a pair of pliers pinch the rubber extrusion at floor level and pull the rubber away from the casework extrusion.
- When free pull the loom through the hole in the casework.
- To replace feed the loom of the new safety edge back through the hole provided and into the top of the door drum.
- Push on complete edge of the rubber retaining profile into the casework extrusion until engaged.
- Repeat for the opposite side, starting at the bottom carefully used a flat and blunt tool to prise the rubber fully into the extrusion.
- Use a lubricant to aid this task if necessary.
- Connect the safety loom to the safety edge controller.

Status Light Pictograms

These are non serviceable and if not illuminating correctly replace complete unit.



Section 8

SPARE HOLDINGS

Recommended Spare Parts

Quantities listed are per AutoSec over a 24month period.

Table 8.1 – Recommended Spare Holdings

Code	Description	Qty
90053012	Controller (excluding firmware)	1
90053014	Motor Drive Card	1
90053013	Power Distribution Card	1
90053019	Presence Photoelectric Sensor	2
90053009	Position Sensor	1
90054036	Floor Bearing	1
71032012	Bulb 35W Clear	2
72301015	Motor Drive key	2



www.gunneboentrance.com

Note: In pursuit of its policy of continuous refinement and improvement, Gunnebo Entrance Control Ltd reserves the right to modify design and details.

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