

GlasStile GSR

Installation 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 Ltd 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 746022, Fax +44 (0) 1825 763835,
E-mail Turnsupport.entrancecontrol@gunnebo.com

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.

Mechanical Warnings

Safety systems and controls, such as interlocks, covers and guards, must not be overridden or by passed by personnel other than authorised staff who are qualified to carry out prescribed actions within specified Warnings.

Only trained individuals should work on the unit as it has many moving parts and there is a possibility of serious injury.

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 761022, Fax +44 (0) 1825 763835,
E-mail Turnsupport.entrancecontrol@gunnebo.com

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 are 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.

Changes

No hardware or software 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. Only personnel authorised by Gunnebo Entrance Control Ltd may make 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.

Before starting work on the equipment, please make yourself familiar with all the system sub-assemblies, including control loops, mechanics, drives, transducers and electric circuits. Please read this Manual if you are unfamiliar with the equipment before you commence work.

Warnings, Cautions and Notes

Where necessary within this technical manual, Warnings, Cautions and Notes may be given.

Warnings

Are for conditions that might endanger people. The instructions given in Warnings must be followed precisely. They are given to avoid injury or death.

Cautions

Are for conditions that may cause damage to equipment, or may spoil work. The instructions given in Cautions must be followed to avoid spoilt work or damage to equipment.

Notes

Alert the user to pertinent facts and conditions.

Static Sensitive Devices

The PCB in the equipment covered by this Technical Manual contains Static Sensitive Devices. It is recommended that maintenance and service engineers are fully aware of the Local Industry Regulations and procedures when handling such devices.

Good Practices

Equipment being installed must not be left unattended unless all potential mechanical and electrical hazards have been made safe. A competent person must be left in charge when the equipment is to be left while potentially unsafe.

The following points indicate good practice that will contribute to safety and avoid equipment damage.

- I. Ensure that all electrical power supplies are turned OFF and disconnected before working on any of the equipment.
- II. Never leave the equipment in a potentially dangerous state.
- III. Use only the correct tools for the task in hand.

- IV. When working on the equipment, remove any personal jewellery that may be conductive, or clothing that may become entangled with mechanical parts.

Equipment Safety Systems

Safety systems and controls, such as interlocks, covers and guards, must not be overridden or bypassed by personnel other than authorised staff who are qualified to carry out prescribed actions within specified Warnings.

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	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	Misuse 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 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

Glass Panel Installation

Who is at Risk	Installation Engineer
Hazard	Glass Breaking
	Incorrect handling techniques
Current Controls	Protective Equipment must be worn.

CE - Marking

The Gunnebo Entrance Control Ltd GlasStile GSR is CE marked, developed and manufactured and tested according to the EU's Machinery, Low-Voltage and EMC-Directives.

A Declaration of Conformity can be supplied if requested.

Section 2

Product Description

The Gunnebo Entrance Control Ltd GlasStile GSR is a revolving entrance gate with glazed panels. The GlasStile GSR rotates clockwise or counter-clockwise 120° before being locked by an electro-magnetic brake. The GlasStile GSR is activated in each direction by impulses to the driving electronics unit from the reception or impulse unit (e.g. card reader or pushbutton).

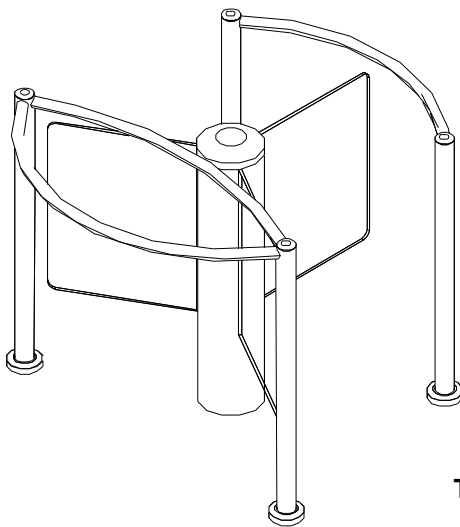
Any impulse unit with a dry contact closing for between 0.5 - 1.0 seconds can be connected to GlasStile GSR. Acknowledgement output pulse of completed rotations is given before and after each rotation is completed. Optional status lights can show the status of the gate.

The speed, time delay, drive mode and individual setting of the panel's home positions can be altered using an optional Hand Programming Unit. In the event of a power failure the programmable functions are stored in a non-volatile memory.

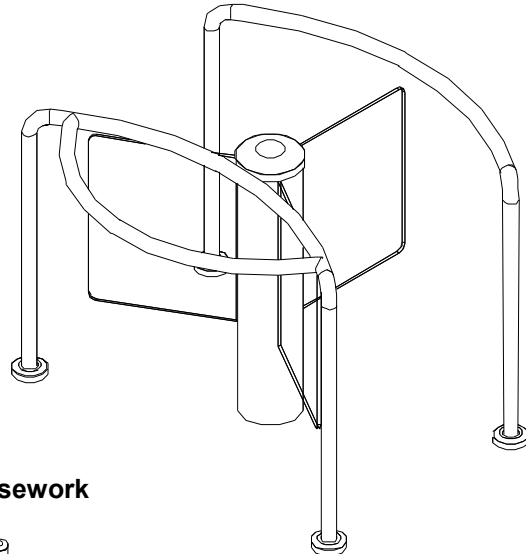
The drive electronics are mounted on a printed circuit board that has connection points for power, motor, brake, sensors, impulse units and status lights.

A 24V DC motor with gearbox drives the gate. An encoder is connected to the outgoing shaft by a gear belt. The encoder's function is to monitor the position of the gate.

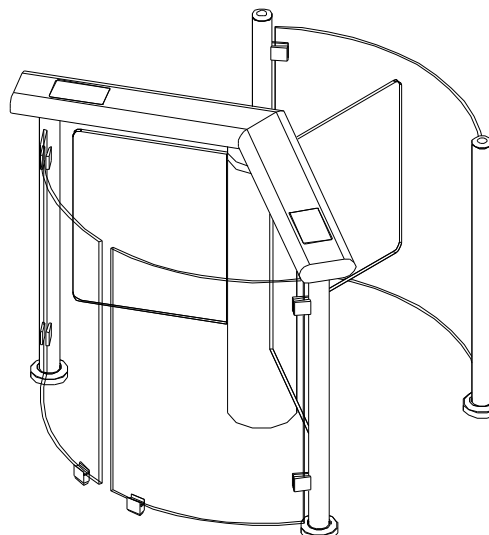
Type "A" Casework



Type "B" Casework



Type "C" Casework



Technical Specification

Unit Dimensions

Column Height: 1000mm
Column Diameter: 220mm

Casework Size	Casework Type	Height mm	Depth mm	Width mm
1350	A	1050	1189	1387
1350	B	1050	1350	1350
1350	C	1076	1350	1350

Note: Casework is also available to special order in size 1500.

Drive

24V DC Motor and gearing

Orientation

Vertical

Materials

Cladding - Stainless Steel Grade 304
Panels - Toughened Glass

Power Failure

Gate Rotate freely with any power loss or emergency signal

Power Supply Voltage:

110/230 VAC 50/60Hz

Power rating:

250 W, fuse 1.0 A

Note

- Class C mains circuit breaker is required.
Other dimensions and materials are available upon request to Gunnebo Entrance Control Ltd.

Section 3

Instructions for Use

Starting the GlasStile

When power is switched on, the unit automatically searches for its internal zero position, moving at a lower speed than normal. Once reached the blocking panel then automatically moves to its programmed home position. The first time the gate is powered up it will move to its default home position.

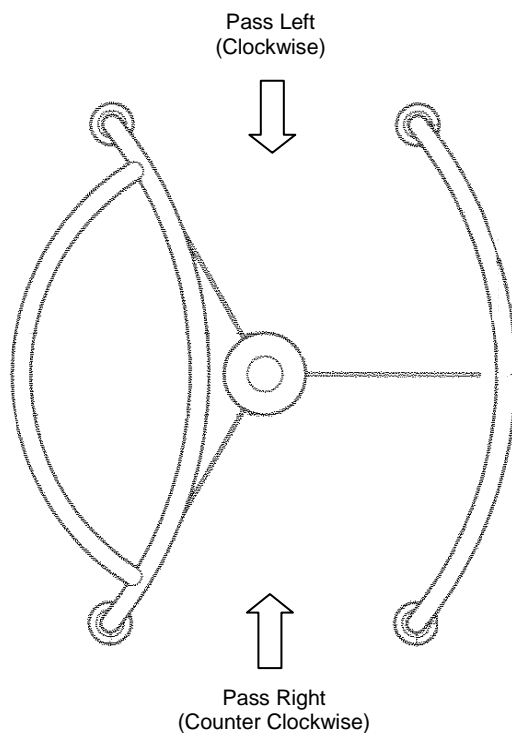
When the internal zero and home positions are being sought the alarm output flashes slowly, when searching has been completed the brake engages and the gate closed output switches.

Reception Control Pass Left / Pass Right

There are two reception inputs, one each for **PASS LEFT** and **PASS RIGHT** directions.

The GlasStile GSR is passable for as long as the contact remains closed. On contact opening the gate returns to its home position, where the electro-mechanical ke locks it.

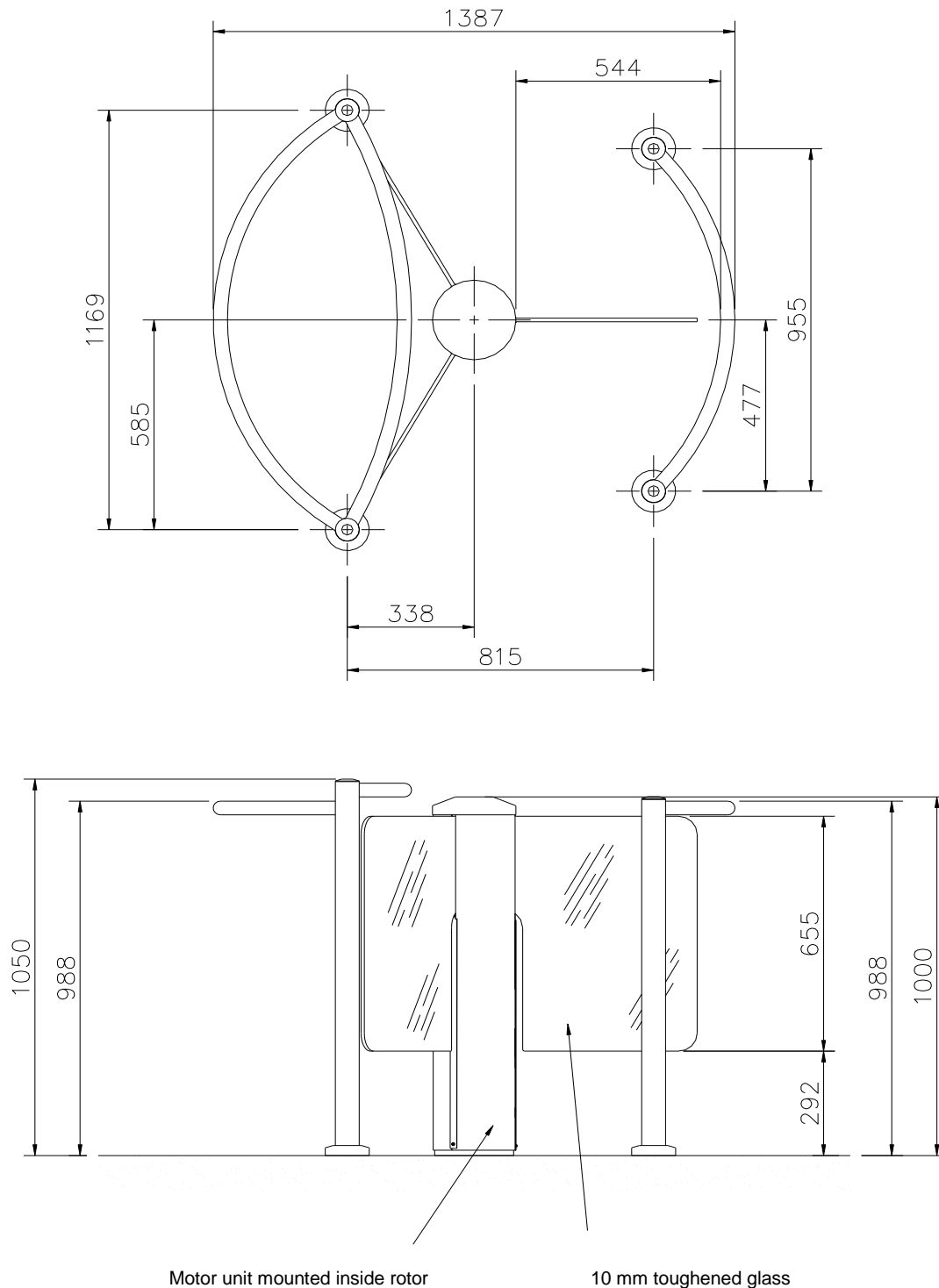
No intrinsic acknowledgement of the rotation is given. The closed gate lamp illuminates and the Status lights change from green to red.



Technical Information

Standard Dimensions

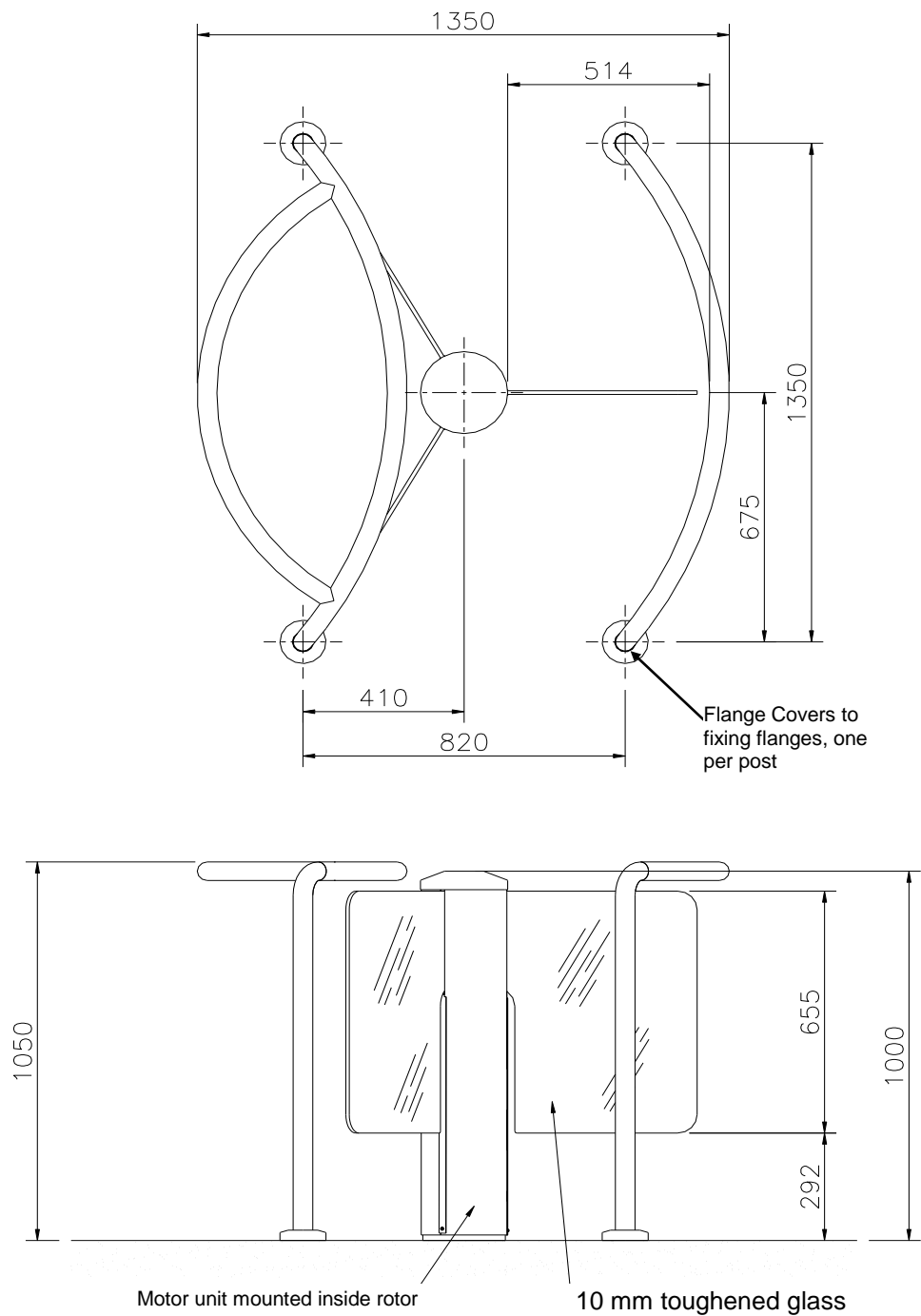
Fig 4.1 – GLSR 1350 with Type A Casework



IMPORTANT
FOR ALL CASEWORK, DO NOT DRILL FIXING HOLES PRIOR TO GLSR DELIVERY TO SITE AND LOCATION CONFIRMATION AS BELOW

Standard Dimensions

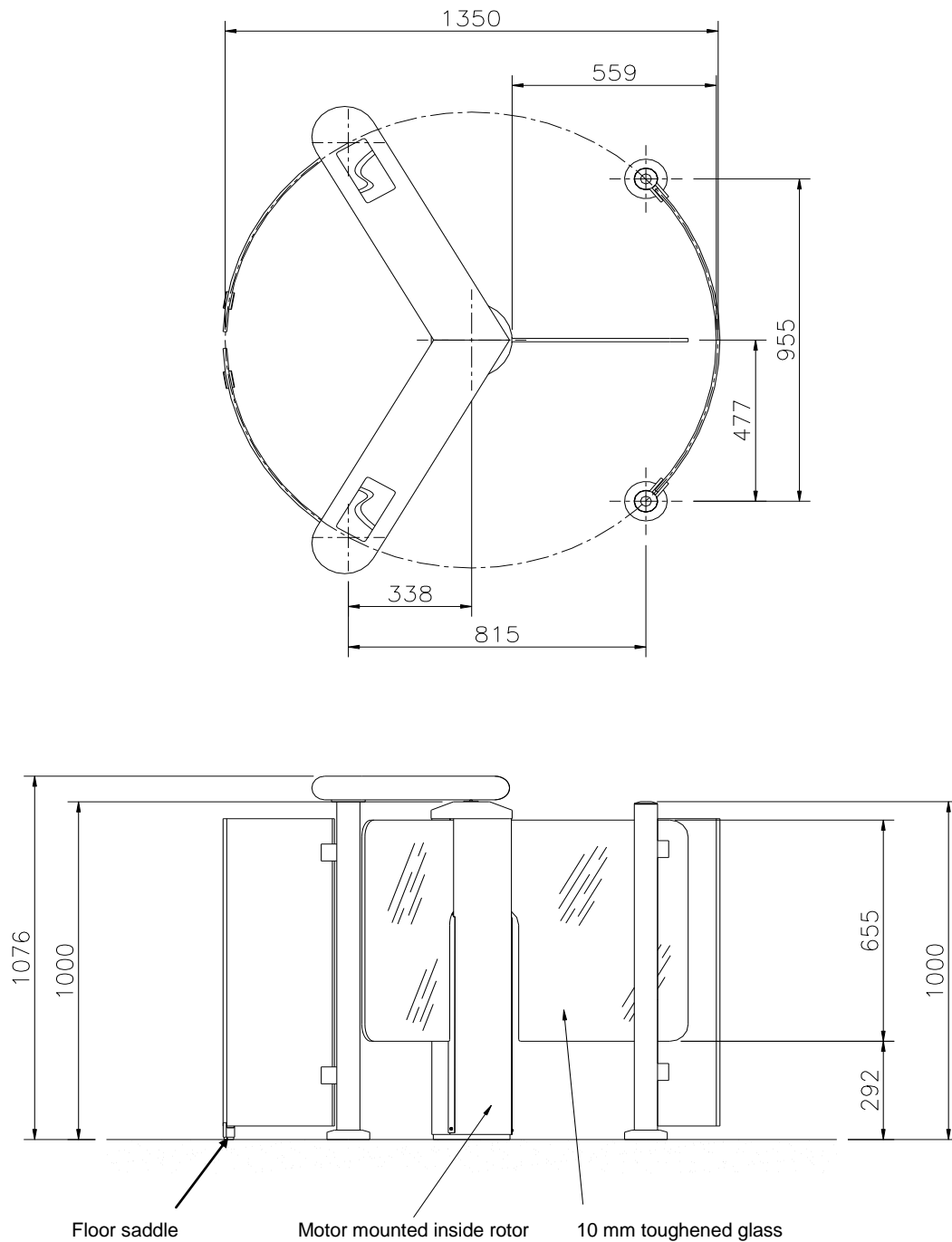
Fig 4.2 – GLSR 1350 with Type B Casework



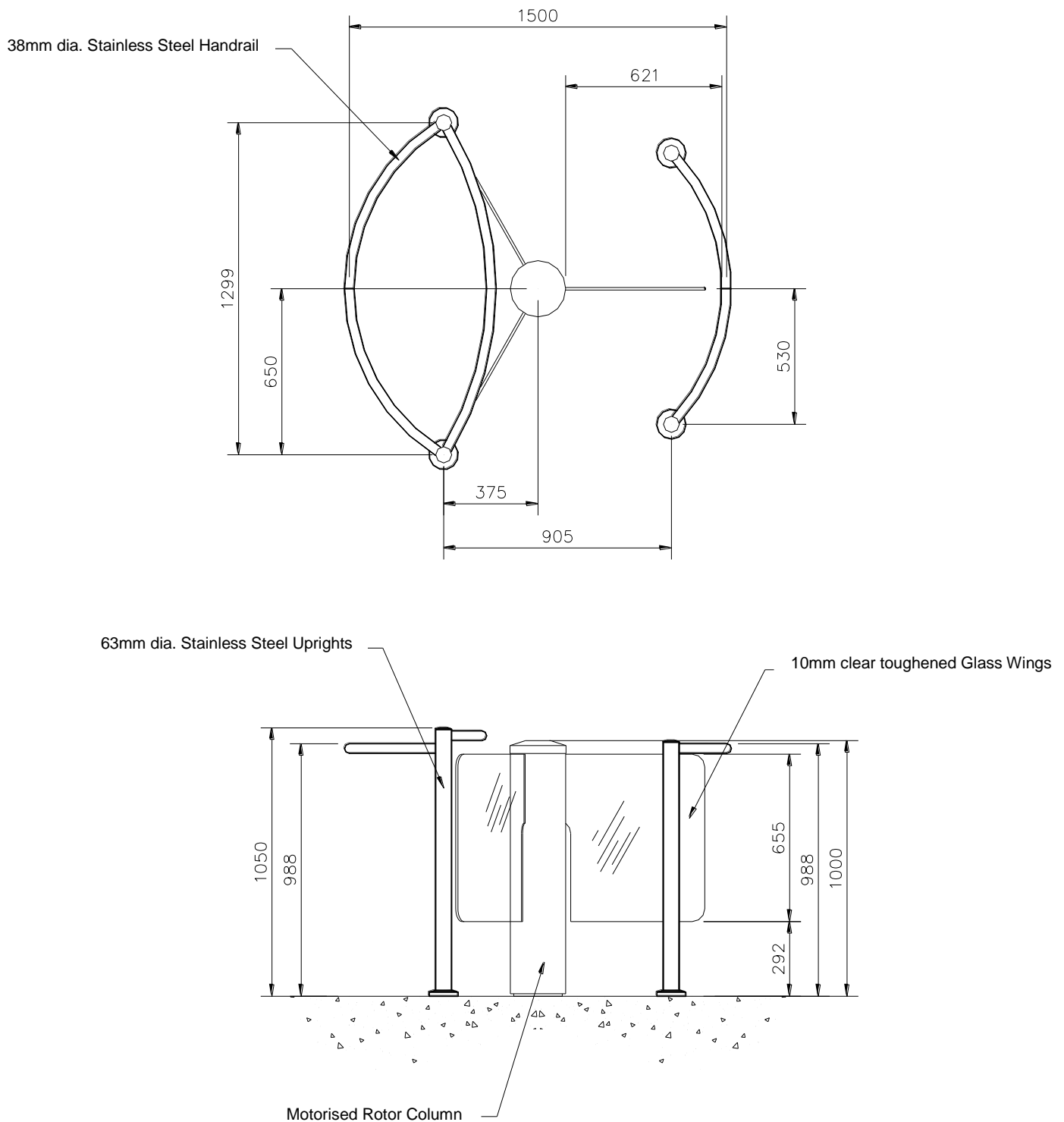
IMPORTANT
FOR ALL CASEWORK, DO NOT DRILL FIXING HOLES PRIOR TO GLSR DELIVERY TO SITE AND LOCATION CONFIRMATION AS BELOW

Standard Dimensions

Fig 4.3 – GLSR 1350 with Type C Casework

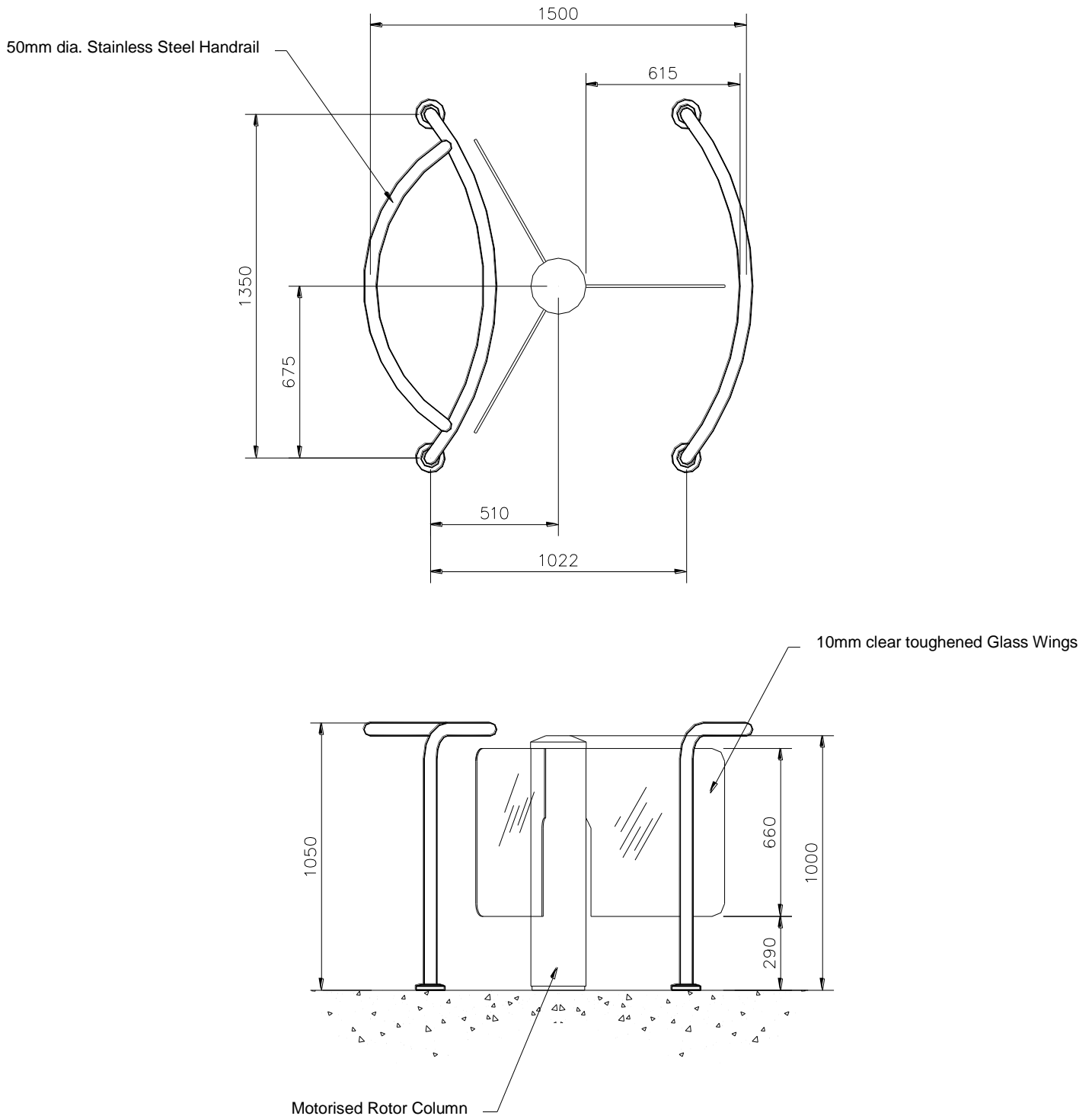


IMPORTANT
FOR ALL CASEWORK, DO NOT DRILL FIXING HOLES PRIOR TO GLSR DELIVERY TO SITE AND LOCATION CONFIRMATION AS BELOW

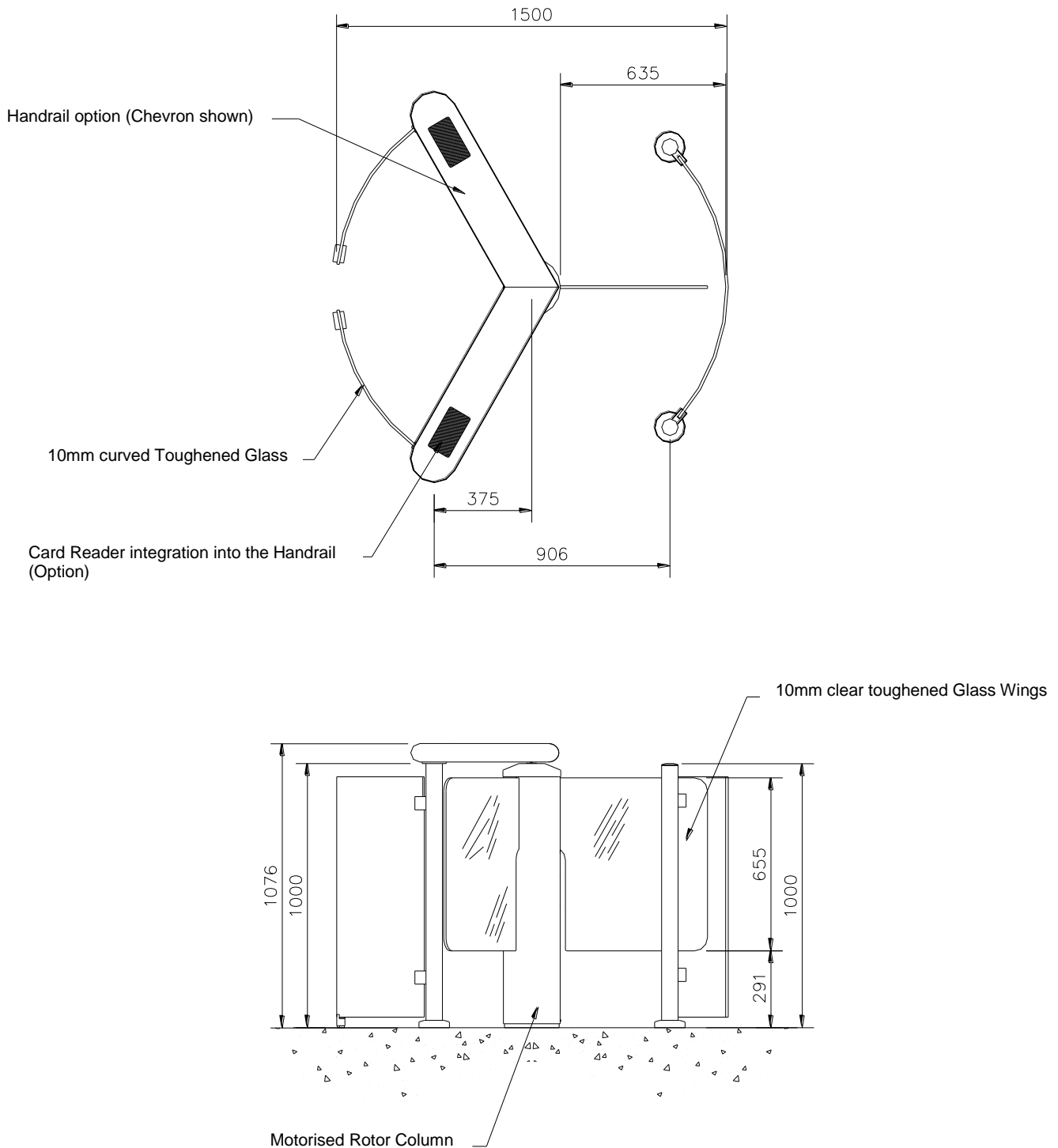
Figure 4.4 - GLSR 1500 with Type A Casework


IMPORTANT
FOR ALL CASEWORK, DO NOT DRILL FIXING HOLES PRIOR TO GLSR DELIVERY TO SITE AND LOCATION CONFIRMATION AS BELOW

Figure 4.5 - GLSR 1500 with Type B Casework



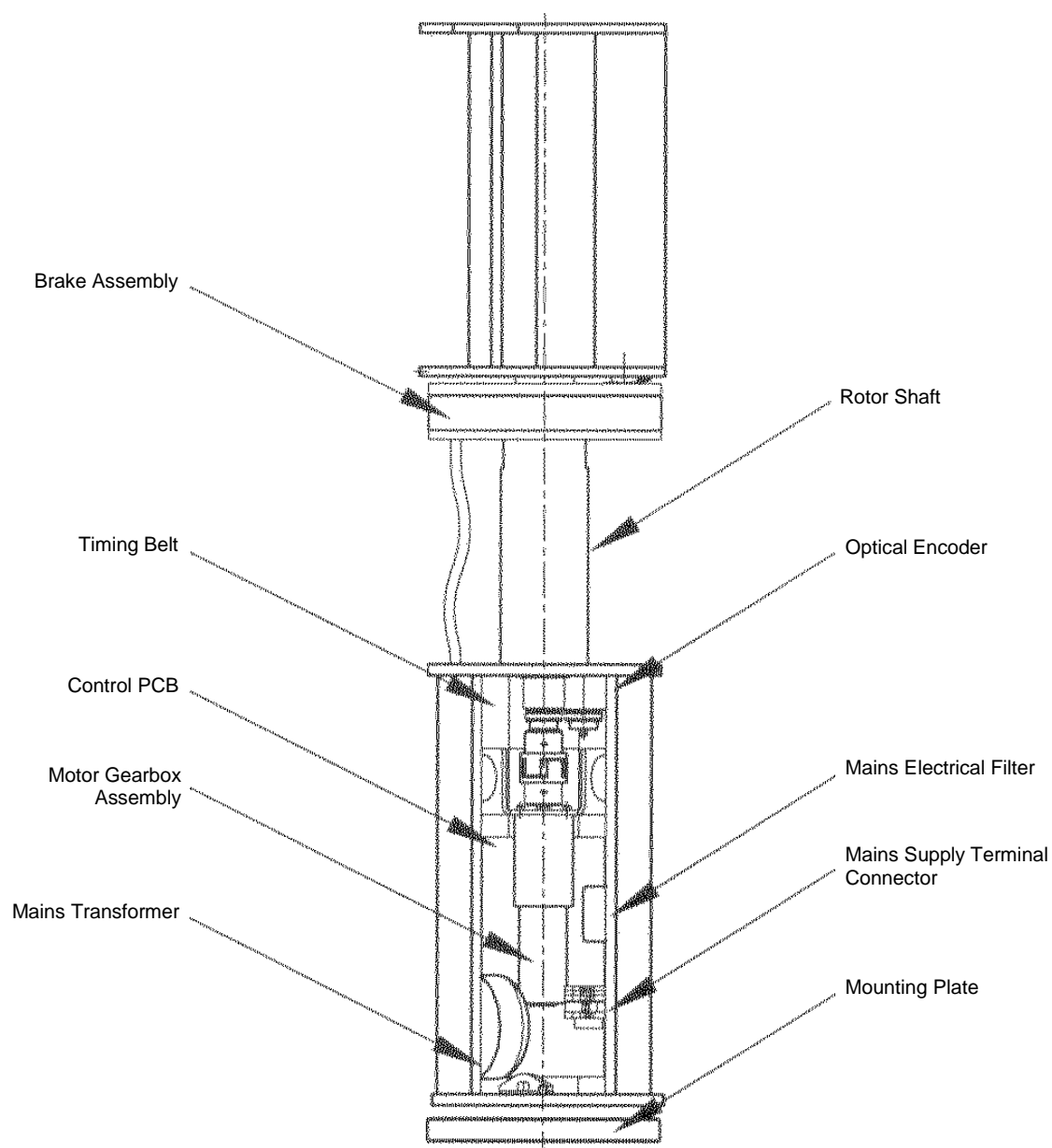
IMPORTANT
FOR ALL CASEWORK, DO NOT DRILL FIXING HOLES PRIOR TO GLSR DELIVERY TO SITE AND LOCATION CONFIRMATION AS BELOW

Figure 4.6 - GLSR 1500 with Type C Casework


IMPORTANT
FOR ALL CASEWORK, DO NOT DRILL FIXING HOLES PRIOR TO GLSR DELIVERY TO SITE AND LOCATION CONFIRMATION AS BELOW

Component Location

Fig 4.7 – Main Component Identification



Section 5

Installation

Unpacking

Check that all the material has been delivered intact. Gunnebo Entrance Control Ltd does not accept responsibility for any damage that occurs by transportation or installation.

Electrical installation must be carried out by authorised staff. The placing, installation and specifications of all cables must comply with the instructions given in this document.

Gunnebo Entrance Control Ltd does not accept responsibility for any injury or damage incurred due to departure from the instructions in this Technical Manual.

Tools Required

- Industrial hammer drill
- Concrete drill bit 12mm
- Socket 17mm AF (x2)
- Torque wrench
- 8mm Spanner
- Metric Allen Keys (1 x set)

Please read carefully before commencing the installation

Site Preparation

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

Concrete to BS 5328:1997 specifications - Type ST5

The base must be flat and level to +/-5mm over the GlasStile GSR area.

The base must be laid with under floor conduits with a minimum diameter of 20mm rising in the positions indicated on the particular illustration, to accommodate the cables for power supplies and any remote control devices.

It is recommended that the mains power to the unit passes through a Residual Current Circuit Device for maximum safety.

A second conduit should be provided for any remote control cables that may be required. On units controlled by pushbuttons or footswitches a four-core cable having a minimum conductor size of 0.5mm sq. should be laid and a 1.5m tail left. (Screened cables are NOT normally required)

For units that are to be controlled by Card Access or similar it is recommended that Gunnebo Entrance Control Ltd Technical Personnel be advised prior to starting the installation routines.

Installation Kit

Item	Quantity
Rotor Assembly	1
Cladding Kit inc. covers	1
Top Cap	1
Glass Panel	3
Framework	1
Anchor Bolts (72544001)	15

Installation Routines

When planning the installation, it is important that everything is measured accurately and that the cableways are marked out. All cables must be laid according to the specification before installation begins.

All Electrical work MUST be carried out by a qualified engineer

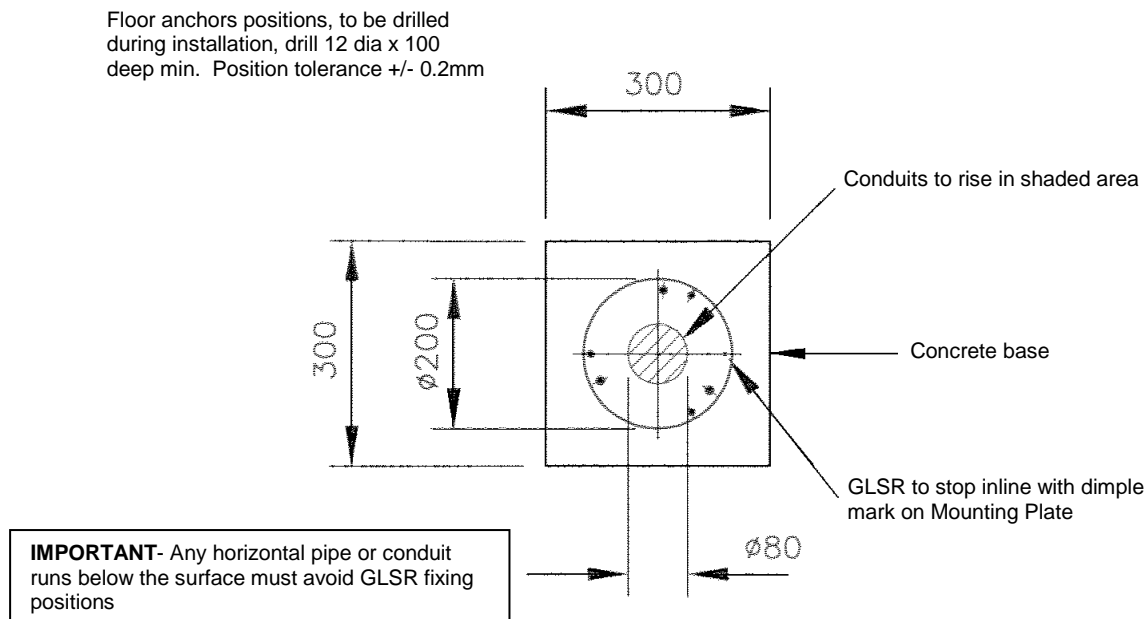
Marking out

- 1 Determine the rotor centre location on the floor. Lightly mark out the fixing positions appropriate to the rotor and casework. **Do not drill fixing holes as yet.**
- 2 Ensure the floor area conforms to the Site Preparation requirements, especially for levelness and under floor conduit positions , see Fig 5.1 below.

Centre Column

- 3 Place the foundation plate and the centre column in the intended position. Turn the centre column so that the marking 'Default home position' on the centre column's non-rotating part ends up in the middle of the passage way to ensure the correct home positions as set in the factory are achieved.
- 4 Mark out and drill the M12 holes, using the appropriate "M10" fixing items.

Fig 5.1 - Column Mounting Plate



5. Place the centre column on the foundation plate and adjust vertically, using the adjusting screws on the centre column's base plate. Lock in position using the fixing screws.
6. Fit the M4 x 8 Top Cladding Retaining screw into the chassis leaving approximately 2mm clearance between the head and surface, see Fig. 5.3, repeating for each wing.
7. Insert the glazed panel making sure that the plastic insulator, packing strip and the plastic spacer sit between the glass and the metal surrounds to avoid the risk of the glass cracking, see Fig.5.2, repeating for each wing.

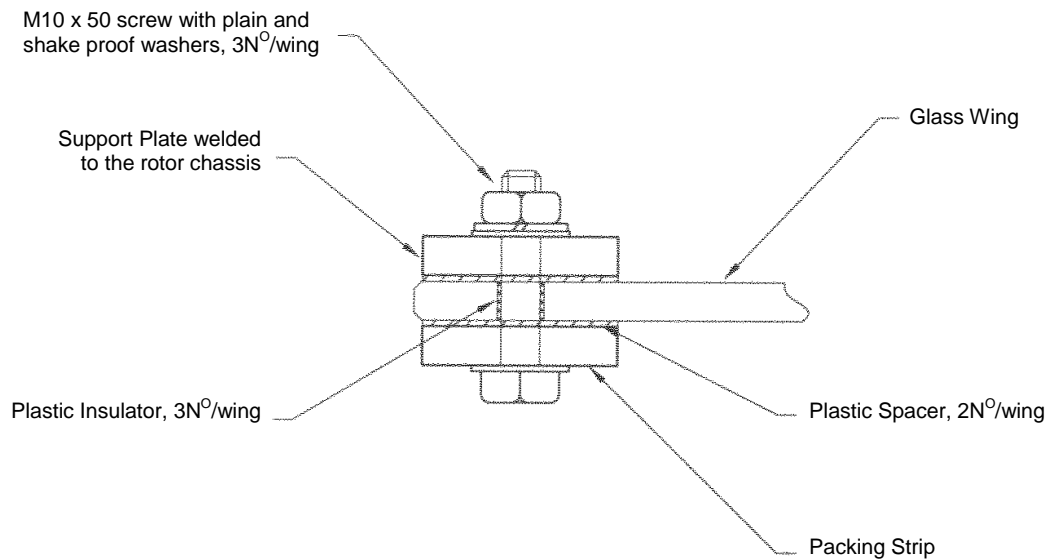
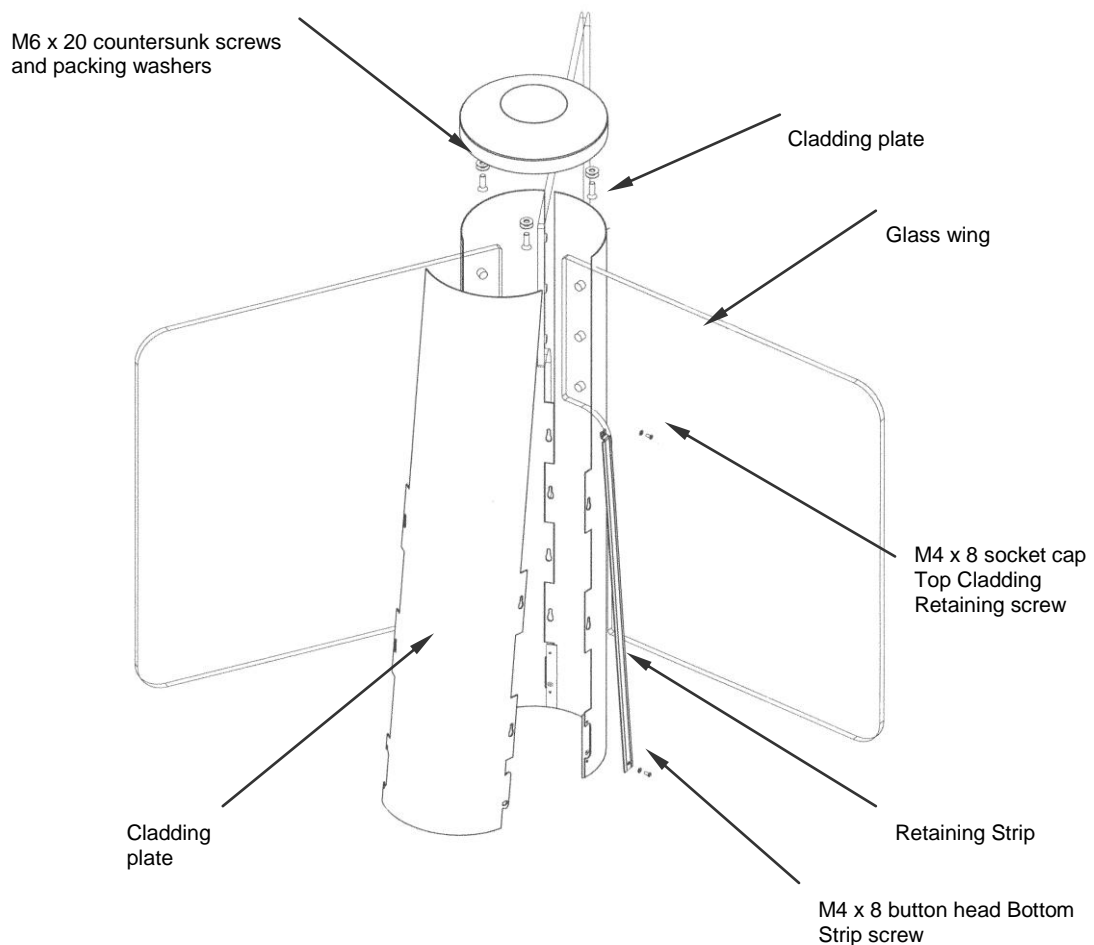


Fig 5.2 – Glazed Panel Fitting Detail

8. Using a spirit level adjust the glass so that the top is horizontal.
9. Rotate the gate manually to check that it rotates freely.

Fig 5.3 Cladding Detail



IMPORTANT
FOR ALL CASEWORK, DO NOT DRILL FIXING HOLES PRIOR TO GLSR
DELIVERY TO SITE AND LOCATION CONFIRMATION AS BELOW

**For rails, which do not conform to the standard specifications, refer to
 Gunnebo Entrance Control Ltd Technical Department.**

Casework Type A

Type A Casework does not have glass panels. The column rotates symmetrically within the perimeter formed by tubular steelwork. The steelwork is delivered disassembled, i.e. the posts are not connected to the horizontal rails.

- A1. Assemble the posts to the curved horizontal rails using the M8 fixings supplied (bolt, washer, shake-proof washer), 1 N°/rail, hand tight only. Check rail is at a right angle to post.
- A2. Tape the flange covers near the tops of the posts. Take care to protect decorative finishes.
- A3. Position the posts at the previously marked positions (see Fig 4.1) and assess correctness of location relative to the Rotor, checking and adjusting if necessary for correct vertical and horizontal alignment. Make any necessary small adjustments for manufacturing tolerances, and mark the fixing holes.
- A4. Remove the casework, drill the M10 fixing holes for the M8 fixings and fit. If using chemically fixed studding, ensure that the studding is cut 15mm above floor level.
- A5. Replace casework and fix in place, checking, and adjusting if necessary, vertical and horizontal alignment.
- A6. Remove tape from flange covers. Position the fixing flange cover rings, securing with silicone adhesive to the fixing flange to prevent rattle.
- A7. Glue Top Cap to each post using Loctite 663, or as supplied.

Casework Type B

Type B Casework does not have glass panels. The column rotates asymmetrically within the perimeter formed by tubular steelwork.

- B1. Tape the flange covers near what would be the tops of the posts. Take care to protect decorative finishes.
- B2. Position the posts at the previously marked positions (see Fig. 4.2) and assess correctness of location relative to the Rotor, checking and adjusting if necessary for correct vertical and horizontal alignment. Make any necessary small adjustments for manufacturing tolerances, and mark the fixing holes.
- B3. Remove the casework, drill the M10 fixing holes for the M8 fixings and fit. If using chemically fixed studding, ensure that the studding is cut 15mm above floor level.
- B4. Replace casework and fix in place, checking, and adjusting if necessary, vertical and horizontal alignment.
- B5. Remove tape from flange covers. Position the fixing flange cover rings, securing with silicone adhesive to the fixing flange to prevent rattle and then lift in to position and secure the curved guide rail.

Casework Type C glass panels

Type C casework includes side panels below the handrails. The glass panels are located using U-brackets fitted to the vertical columns and the floor; see Fig 5.4 and Fig 5.5

- D1. Remove patch fittings if already fitted to posts.
- D2. Turn Hand Rail upside down taking care to protect decorative finishes. Fit Hand Rail to posts loosely, only hand tighten screws to allow movement.
- D3. Tape Flange Cover to underside of Hand Rail. Turn Hand Rail assembly right way up.
- D4. Refit Patch Fittings.
- D5. Position Hand Rail/Post assembly over fixing location.
- D6. Fit glass to Patch Fittings, supporting glass underneath in absence of saddle/stool.
- D7. Rotate posts to accurately align glass panel ends and to achieve a uniform spacing from the Rotor Glass Panels.
- D8. Check the Posts for level and adjust if necessary.
- D9. Mark Post and Saddle/Stool fixing holes.
- D10. Remove the loosely assembled glass and posts and drill all fixing holes.
- D11. Disassemble all including removing the tape from the Flange Cover. Fix the posts in position and fit the Hand Rail to the posts. Check alignment and level, adjust using shims if necessary.
- D12. Fit the Patch Fittings, stool/saddle assembly and then the glass panels. Ensure that the shims in the stool/saddle assembly are correctly fitted to support the Glass Panels.

Fig 5.4 Type C Hand Rail Fixing (shown upside down)

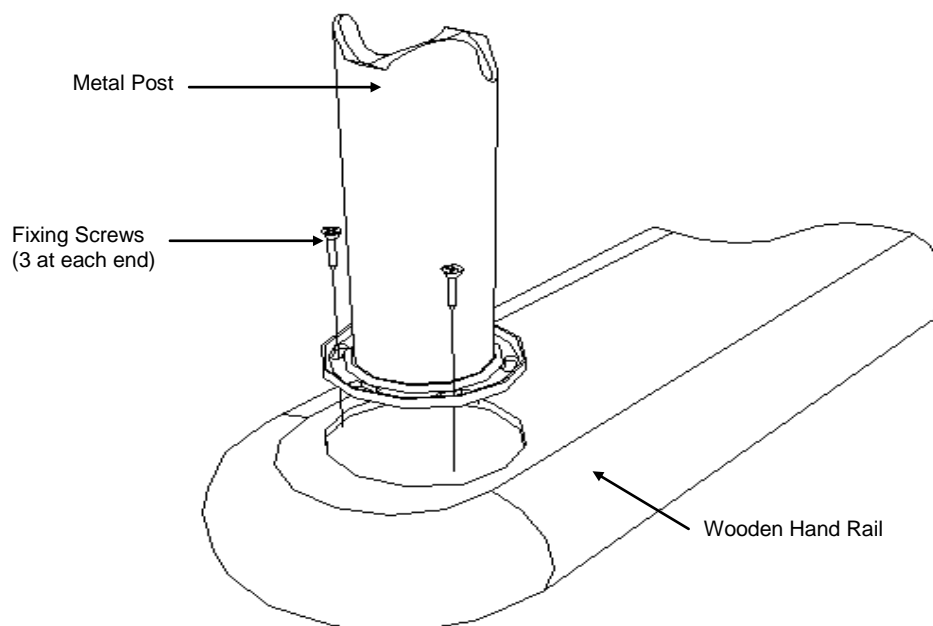
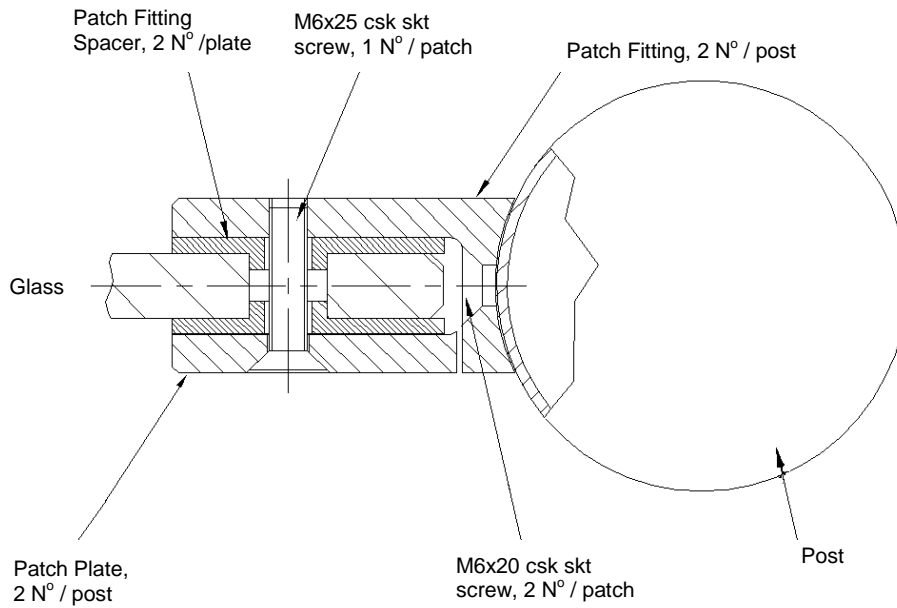
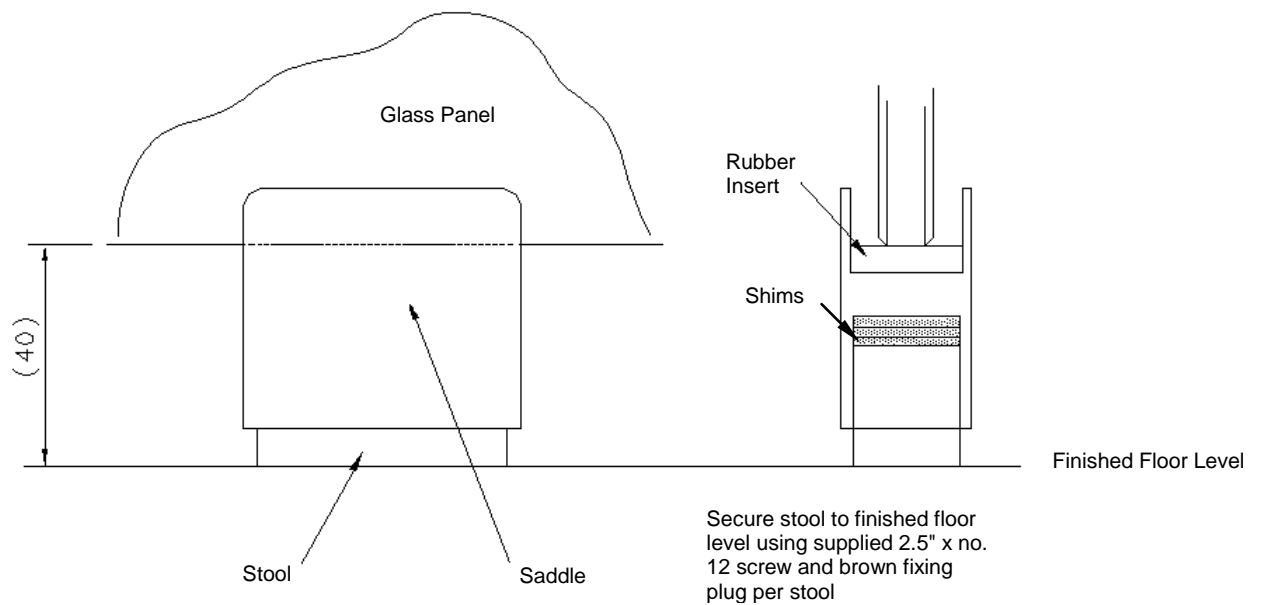
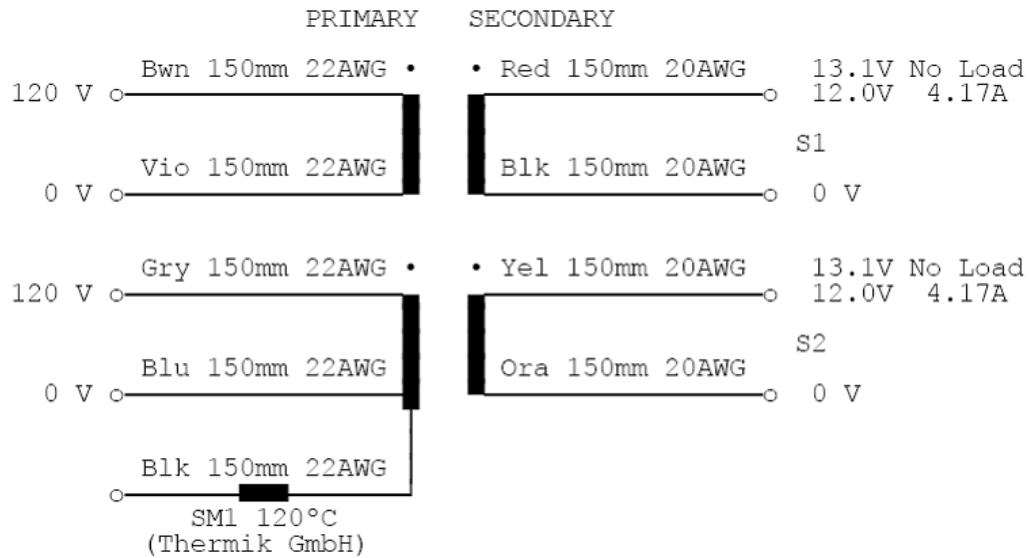


Fig 5.5 Glass Side Support

Fig 5.6 Glass Floor Support


Power Supply and Cables

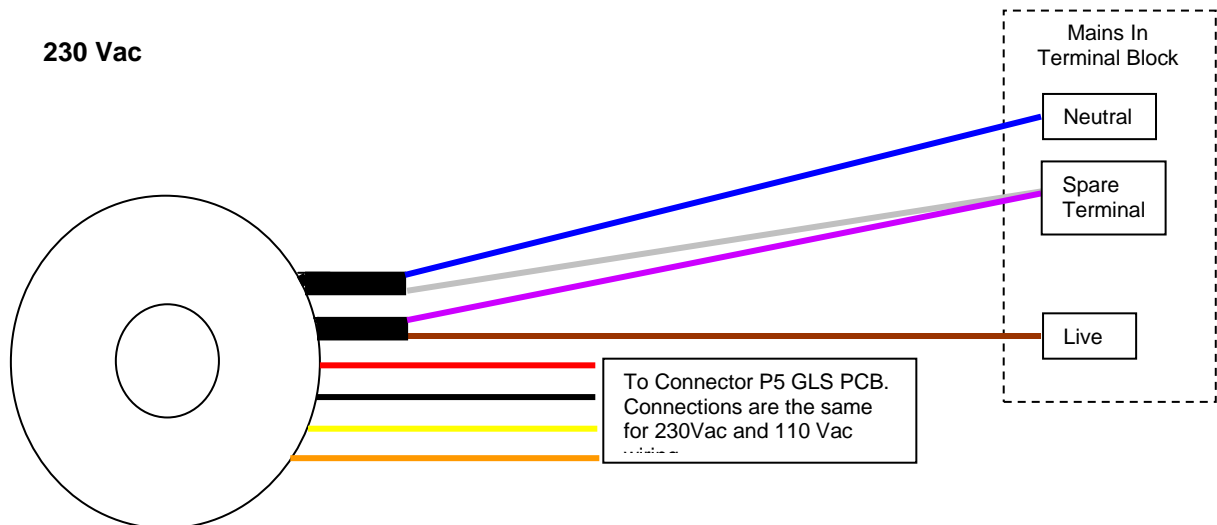
Power supply

The power to the logic board, motor and brake is supplied through a Toroidal transformer specification below.

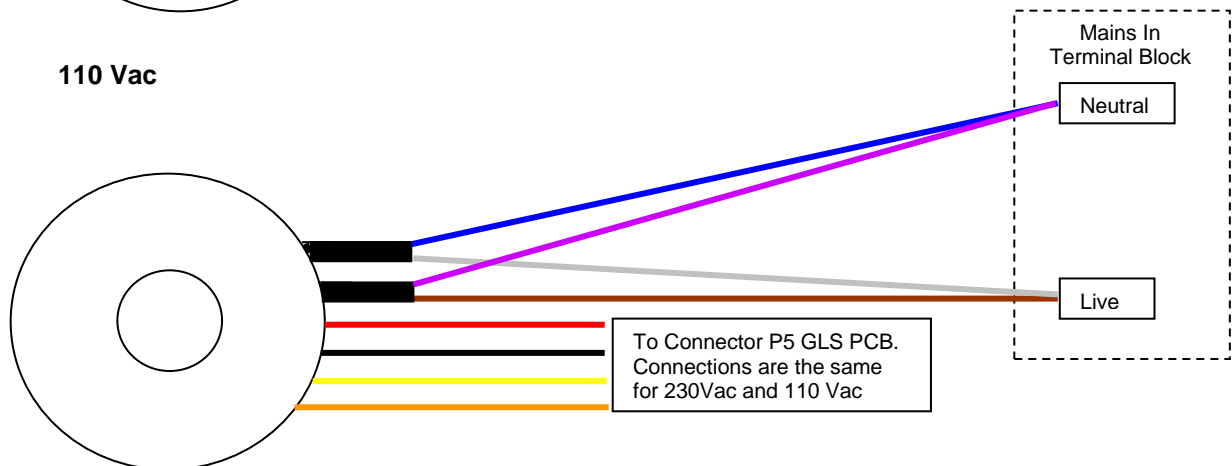


Transformer wiring differences between 230Vac and 110Vac

230 Vac



110 Vac



Suitable cables for connecting to the main power supply and external signals such as impulse units are:

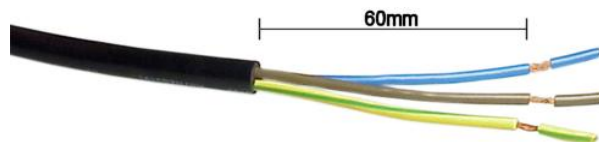
Main power supply

110 to 230 VAC single phase 1.0 A, 250W.

Connection

Check that mains power is off with a certificated and calibrated voltage meter – If safe to do so, connect the Earth first, and then the Neutral and then the Live connection last.

Three-core cable with a conductor area of 1.5mm (min), approved for the specific installation.

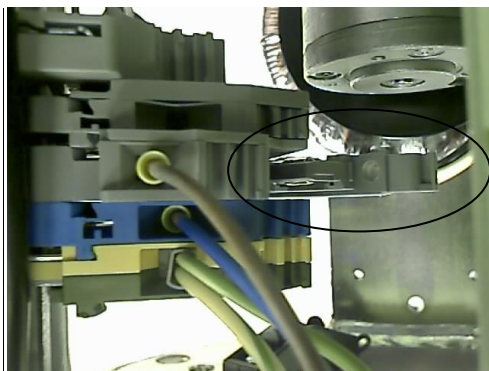


1. Strip the sheath to expose 60mm
2. The power cable must be laid so that its sheath is secured in the clamp. See Fig 5.7a.
3. Connect the cores to the terminal block placed on one of the vertical bars, see Fig 5.7.
4. Ensure all connections are secure.
5. Ensure all the cables are contained within the centre column.

Disconnection

Check that mains power is off with a certificated and calibrated voltage meter – If safe to do so, remove the live connection first, then the Neutral and then the Earth.

To switch off the power locally in the unit you can simply unclip the glass fuse breaker as shown in the image below



Glass Fuse Holder
5 x 20 LBC 2A

Input/output signals

Shielded multi-core cable with conductor area of 0.22mm² (min).

1. Strip the sheath to the require length ensuring enough length for the shielding to be fixed to the terminal.
2. Secure the cable by its sheath in the clamp provided.
3. Connect the shield to the terminal provided.
4. Make all required connections ensure all cable contained within the centre column.

Load-relieving clamps on the adjustment plate shall secure the cables as follows:

Fig 5.7 - Electrical Connections

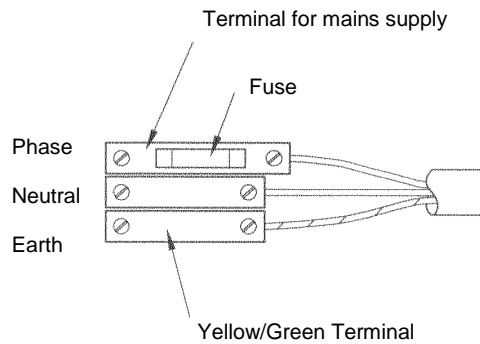
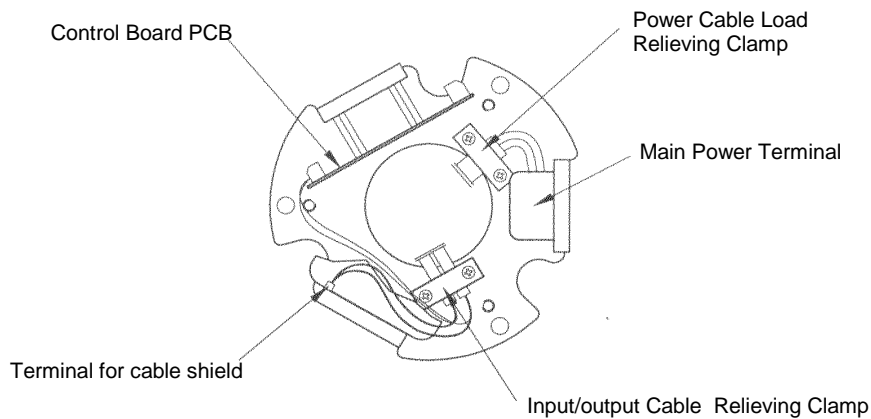
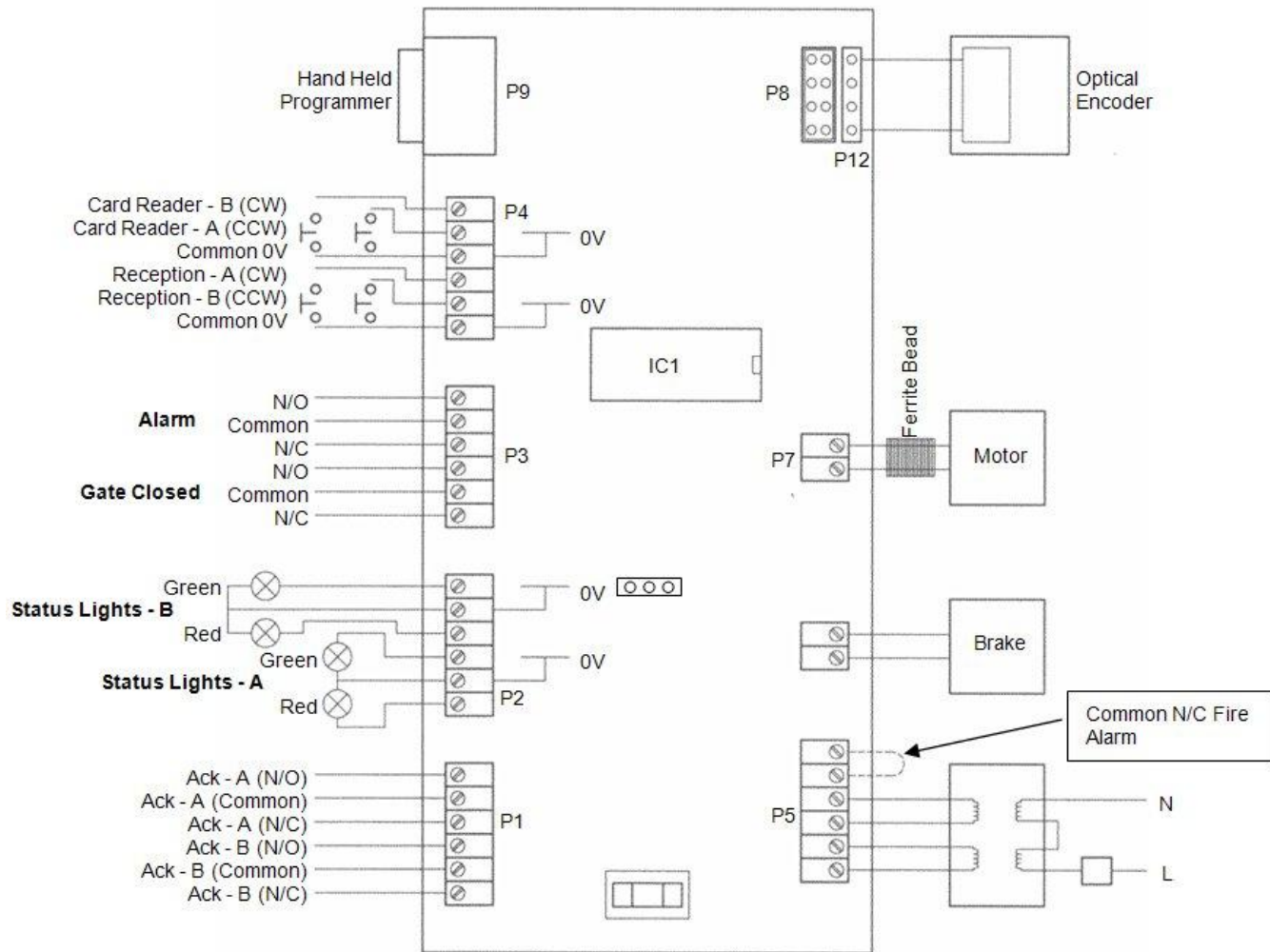


Fig 5.7a – Cable fixing locations



Customer Connections

Fig 5.8 – Customer Connections



Note: - The GlasStile should always have an independent fire signal. If an echo signal is used the unit will not function correctly.

Programming

Note – Programming must be undertaken with the mains power switched on.

Settings

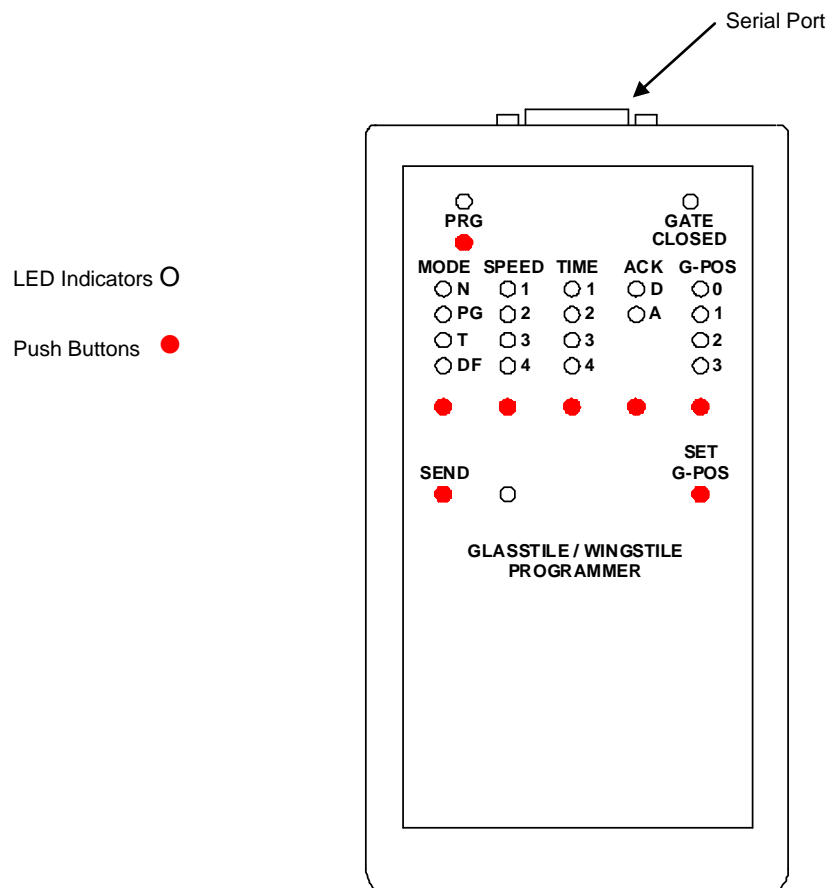
The mode of operation can be selected via the Hand Held Programmer, see Fig 5.9 below. This device should be ordered with the main equipment purchase, it is not supplied as part of the standard installation kit.

To program the GlasStile GSR the cladding must be removed. The Hand Held Programmer is then connected to the serial port on the Control PCB. The programmer allows five variables to be Set to a range of different values.

The variables are: MODE, SPEED, TIME, ACK (Acknowledgement) and G-POS (Gate Position). The selected value for each variable is shown by an LED indicator below the variable name. To choose a different value, push and release the appropriate Push Button at the base of the LED string until the LED for the required setting illuminates.

How the gate operates depends on the values of the selected variables.

Fig 5.9 - Hand Held Programmer



MODE - OPERATIONAL MODE

- | | |
|----|--|
| N | Not used on the GlasStile GSR. |
| P | Push to Go, if stacking of card signals is required select D from acknowledgement. (Default) |
| T | Not used on the GlasStile GSR. |
| DF | Reset all settings to those set during factory testing. |

Nominal rpm

- | | |
|---|--------------|
| 1 | 8 |
| 2 | 10 (Default) |
| 3 | 13 |
| 4 | 16 |

- 1 15 seconds
- 2 30 seconds (Default)
- 3 45 seconds
- 4 60 seconds

D	During rotation – If this is selected then stacking of up to five signals is allowed
A	After rotation (Default)

0 No panel selection, this is the normal position when no panel is to be programmed.
1 Panel 1 (Default)
2 Panel 2 (Default)
3 Panel 3 (Default)

To enter programming mode the GlasStile GSR must be switched on and in a locked position. The Hand Held Programmer must be connected to P9 on the PCB. Before any new settings are made it is important that the present settings are defaulted.

- Press **PRG**. The red programme diode lamp will come on.

When the brake has been released the yellow lamp (GATE CLOSED) extinguishes. The gate now transmits its set parameters to the programming unit.

- Press the MODE push button until DF LED is lit then press send.
- You can now adjust speed, time, and acknowledgement settings.

If installed correctly there is normally no need to adjust the stopping positions, however should you need to please follow the steps below

- Select a position using the **G-POS** push button on the programming unit.
- Place the panel in the desired position, manually.
- Press the **SET G-POS** button. The green lamp will flash in acknowledgement.
- Select the new position on the Hand Held Programmer by pressing **G-POS**.
- Rotate the column so that the second panel is the same position as the first **SET G-POS**.

Maintenance

The GlasStile GSR Entrance Gate should be cleaned and greased at regular intervals, using the following approved materials.

Cleaning agent.	Soap or mild detergent water.
Action:	Sponge rinse with clean water, wipe dry as necessary

Cleaning agent:	Soap or warm water or organic solvent (acetone, alcohol, genclene)
Action:	Rinse with clean water and wipe if necessary

Cleaning agent:	Mild cleaning solutions or domestic service cleaners.
Action:	Rinse well with clean water and wipe dry.

Cleaning agent:	Organic solvents (acetone, alcohol, perchlorethene, trichlorethane).
Action:	Clean after with soap and water, rinse well with clean water and wipe dry.

Cleaning agent:	Oxalic acid. The cleaning solution should be applied with a swab and allowed to stand for 15 to 20 minutes before being washed away with water. May continue using a domestic surface cleaner to give final clean.
Action:	Rinse well with clean water (precautions for acid cleaners should be observed).

Cleaning agent:	Lightly rub with cutting paste. Rinse area with water and dry. Apply touch-up paint in fine layers.
Action:	Allow 2 weeks to harden. Blend into surrounding paintwork, using a fine cutting paste.

Cleaning agent: Remove rust with a small sharp knife. Apply rust inhibiting paint (red oxide). Fill scratch with fine body filler to just under finished surface. Follow procedure for minor scratches.

Scratches on Brushed (Satin) Finish.

- Cleaning agent: For slight scratches, use impregnated nylon pads then polish with scruffs dressed with iron free abrasives. For deeper scratches, apply in direction of polishing. Then clean with soap or detergent as per routine cleaning.
- Action: Do not use ordinary steel wool, iron particles can become embedded in stainless steel and cause further surface problems.

Greasing.

Service Engineer carries out this action during service visits.

General Indications

The mechanism should be inspected and cleaned at regular intervals in order to maintain the components in good working order and to check for signs of wear.

Note: The following indications refer to an installation where the average number of transits per year is equal to one million.

When used in dusty conditions, increase the inspection intervals.

Warning - To avoid the risk of electric shock, always ensure that the electrical power is disconnected before inspecting the mechanism.

Lubricants

For the lubrication of parts subject to wear, use Molycote BR2 Plus grease or an equivalent grease containing graphite or molybdenum sulphide (MoS)

Do not grease moving parts unless specifically indicated in this manual. The use of grease can lead to a build up of dust that can impair operation of the mechanism.

Components

Annual Checks (Operations to be carried out with the power supply disconnected)

Cables and Connectors (Operations to be carried out with the power supply disconnected)

- Check that the wire connectors are firmly attached.
- Check that the terminals are fully tightened.
- Check that the insulation of the wires is in good condition and that no conductors are exposed.

Electrical Circuits

No general maintenance is required apart from replacement fuses in the event of a failure.

General Component Maintenance

Ensure the assembly is kept clean.

Brake Adjustment

Should it become necessary to adjust the Brake during set up, or routine servicing the following procedure should be followed. **Extra care should be taken as these adjustments require POWER to be ON.**

- Loosen the three adjustment screw locking nuts.

- Adjust the screws Clockwise to their lowest position and then back off a quarter to half a turn.
- Operate the Program button to release the brake.
- Manually move the unit through 360°- checking for freedom of rotation without the brake noise.
- If noise is heard during the above operation - adjust the screws upwards slightly.
- Engage the brake - if a harsh metallic noise is heard - adjust the screws downwards.
- Repeat these actions until the unit functions correctly - lock the nuts.

Encoder Replacement

If an encoder must be replaced, do the following:

- Disconnect the power supply
- Replace the device
- Check all relevant connections
- Ensure that grub screws and timing belt are all tightened.
- Reconnect the power supply
- Re-program home positions
- Re-set to normal functioning

Replacing the Control Card

- Disconnect the power supplies.
- Remove all connectors from the PCB.
- If necessary remove the PCB supports.
- Reconnect the cables and connectors.
- Replace the PCB.
- Reconnect the power supplies.
- Switch ON the Unit and return it to normal operation.

Trouble Shooting

Table 6.1 – Fault Finding

Symptom	Check	Action
Unit Free Wheels	Mains Supply is correct and present. Fuse on mains terminal Fuse on Control Board	<ul style="list-style-type: none"> • Switch on • Replace blown fuse • Replace blown fuse
Unit will not stop and lock	Encoder is fitted correctly Desired position may not be obtainable.	<ul style="list-style-type: none"> • Adjust and/or replace timing belt or encoder • Reprogram new positions
At power up the unit moves at great speed	Encoder is fitted correctly	<ul style="list-style-type: none"> • Check encoder loom for correct orientation • Adjust and/or replace timing belt or encoder
Unit Fails to reach the target position	Brake setting Bearing for correct alignment. Transmission to the Optical Unit Pulley Belt for tension	<ul style="list-style-type: none"> • Adjust brake • Loosen and re-tighten bearing • Check connections and replace if unserviceable • Adjust & replace if unserviceable

Section 7

Spare Parts

Recommended Spare Parts

Quantities listed are per GlasStile GSR over a 24-month period.

Table 7.1 – Recommended Spare Parts

Code	Description	Qty
SM-BO-GS-0001	Motor/Gearbox G42x40 40VDC	1
SE-FU-GS-0001	Fuse Q/B 20mm 2.A	1
SM-TR-GS-0001	Transformer Toroidal	1
SM-CB-GS-0001	Timing Belt (2.5 x 80T)	1
SE-EL-GS-0007	Electromagnetic Brake	1
SA-MC-MU-0008	Optical Sensor Assembly (Encoder)	1
SE-LB-GS-0004	GSR Firmware	1
SA-FM-GS-0002	PCB excluding Chip	1
SM-DA-GS-0001	Damper Magnetic Brake	3
SK-LK-GS-0002	Shaft Key	1
SK-LK-GS-0003	Shaft Key	1
SM-LK-MU-0047	Shaft Key	1

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