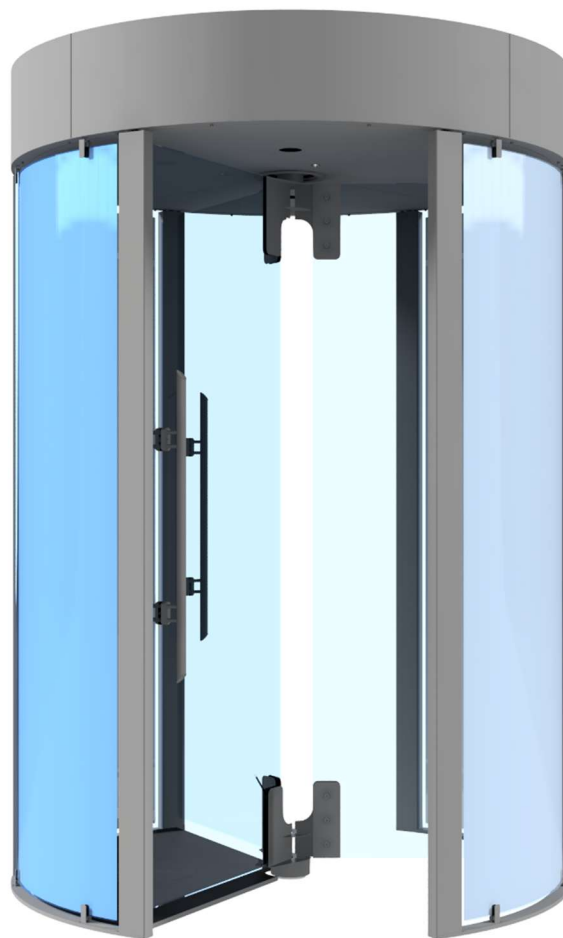




CGT-PM – PRODUCT MANUAL



TRITON FULL HEIGHT CURVED GLASS TURNSTILE

CONTENTS

1. FOREWORD	6
2. GENERAL DRAWINGS.....	7
Figure 1: General Layout	7
Figure 2: Installation Requirements.....	8
3. GENERAL ASSEMBLY NOTES	9
4. PLINTH PREPERATION.....	10
Figure 3: Isometric view of plinth.....	10
Figure 4: Marking the floor: Step 1.....	11
Figure 5: Marking the floor: Step 2.....	12
Figure 6: Marking the floor: Step 3.....	12
5. OUTER ASSEMBLY	13
Table 1: STEP 1 - Side halve assembly parts.....	13
Figure 7: STEP 1 - Side halve assembly	14
Figure 8: Frame placement.....	15
Table 2: STEP 2 – Frame assembly	16
Figure 9: STEP 2 - Frame assembly.....	17
Figure 10: Frame assembly on plinth.....	18
Table 3: STEP 3 – Crown & Drive channel assembly.....	19
Figure 11: STEP 3 - Crown & Drive channel assembly	20
Figure 12: Marking for bearing plate	21
Table 4: Bottom Spider Assembly.....	21
Figure 13: STEP 4 – Base spider assembly.....	22
Table 5: Glass Spider Clamps Assembly.....	23
Figure 14: STEP 5 – Glass spider clamps assembly.....	23

Figure 15: Top spider assembly to mechanism shaft	24
Table 6: Glass Assembly	24
Figure 16: STEP 6 – Glass assembly	25
Table 7: Glass Handle Assembly.....	26
Figure 17: STEP 7 – Glass handle assembly	26
Table 8: Full Rotor Assembly	26
Figure 18: Full rotor assembly.....	28
Table 9: STEP 8 - Ceiling and Roof Assembly	29
Figure 19: STEP 8 - Ceiling and roof assembly	30
Figure 20: Ceiling placement.....	31
Table 10: STEP 9 - Side Glass Assembly	32
Figure 21: STEP 9 – Side Glass Assembly	33
Table 11: STEP 10A – Pressure Mat Assembly.....	34
Figure 22: STEP 10A – Pressure Mat Assembly	34
Table 11: STEP 10B – Ceiling Sensor Assembly (CGT-SA-35)	35
Figure 23: STEP 10B – Ceiling Plate with Sensor Assembly	35
6. CHANNEL ASSEMBLY	36
Table 13: Channel Assembly	36
Figure 24: Channel Assembly	37
7. DIAGRAMS	38
Figure 23: CGT Wiring Diagram	38
8. TESTING	39
9. CLEANING	40
Table 12: Recommended Cleaning Frequency.....	40
10. SPARE PARTS	41
Table 13: Spare Parts List.....	41

11. FAULT FINDING	42
12. REVISION HISTORY	43

1. FOREWORD

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2. GENERAL DRAWINGS

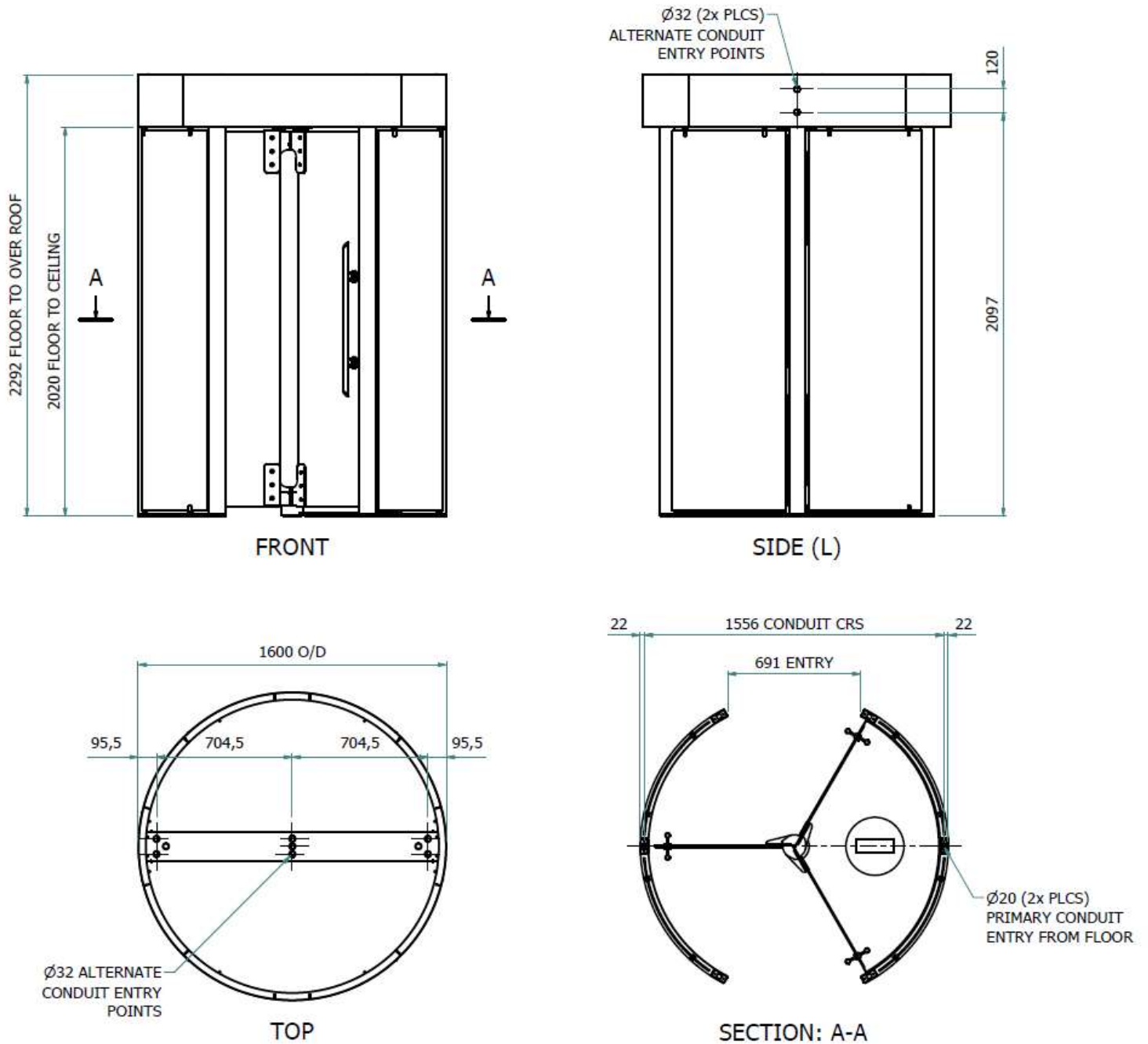


Figure 1: General Layout

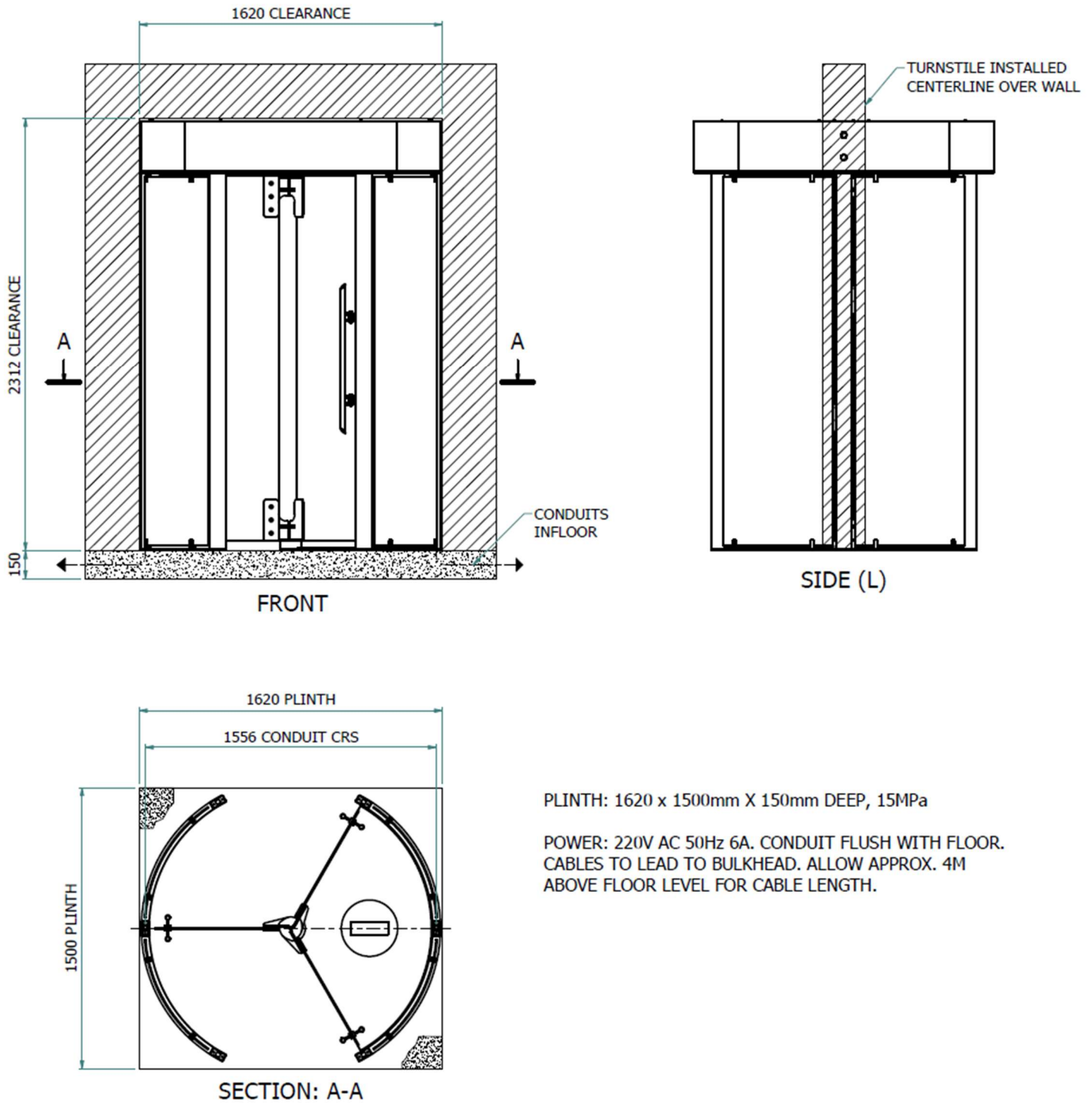


Figure 2: Installation Requirements

3. GENERAL ASSEMBLY NOTES

- 3.1. Two to three people are required for assembling the product.
- 3.2. To assemble the product, the following tools & consumables are required for assembly.
 - 3.2.1. 1,8m step ladder (2 off)
 - 3.2.2. 5 Meter measuring tape
 - 3.2.3. Marker pen/ chalk
 - 3.2.4. Chalk line
 - 3.2.5. Hammer drill
 - 3.2.6. 10 x 100 masonry drill bit
 - 3.2.7. 10 x 80mm countersunk screws with nylon plug (11 off)
 - 3.2.8. Mallet
 - 3.2.9. Spirit level
 - 3.2.10. Contact Adhesive Glue (Rubber – Steel) – Small tube
 - 3.2.11. Size 5 allen head key, long extension
 - 3.2.12. 10mm flat spanner
 - 3.2.13. 13mm flat spanner
 - 3.2.14. 17mm flat spanner
 - 3.2.15. 19mm flat spanner
 - 3.2.16. 24mm flat spanner
 - 3.2.17. Socket Drive
 - 3.2.18. Size 13 hex socket bit for drive
 - 3.2.19. Size 19 hex socket bit for drive
 - 3.2.20. Size 5 allen head bit for socket drive
 - 3.2.21. Size 6 allen head bit for socket drive
 - 3.2.22. Internal Circlip Pliers
- 3.3. The turnstile uses either a pressure mat or an infra-red sensor inside the ceiling, to detect illegal entry into the 'No-Go' zone. If a sensor is installed at ceiling level, no pressure mat is required and vice-versa.

4. **PLINTH PREPERATION**

- 4.1. A concrete plinth of 1620 x 1500mm is required. This should be at least 150mm thick and min. 15MPa strength.
- 4.2. The turnstile must be installed on top of finished floor level.

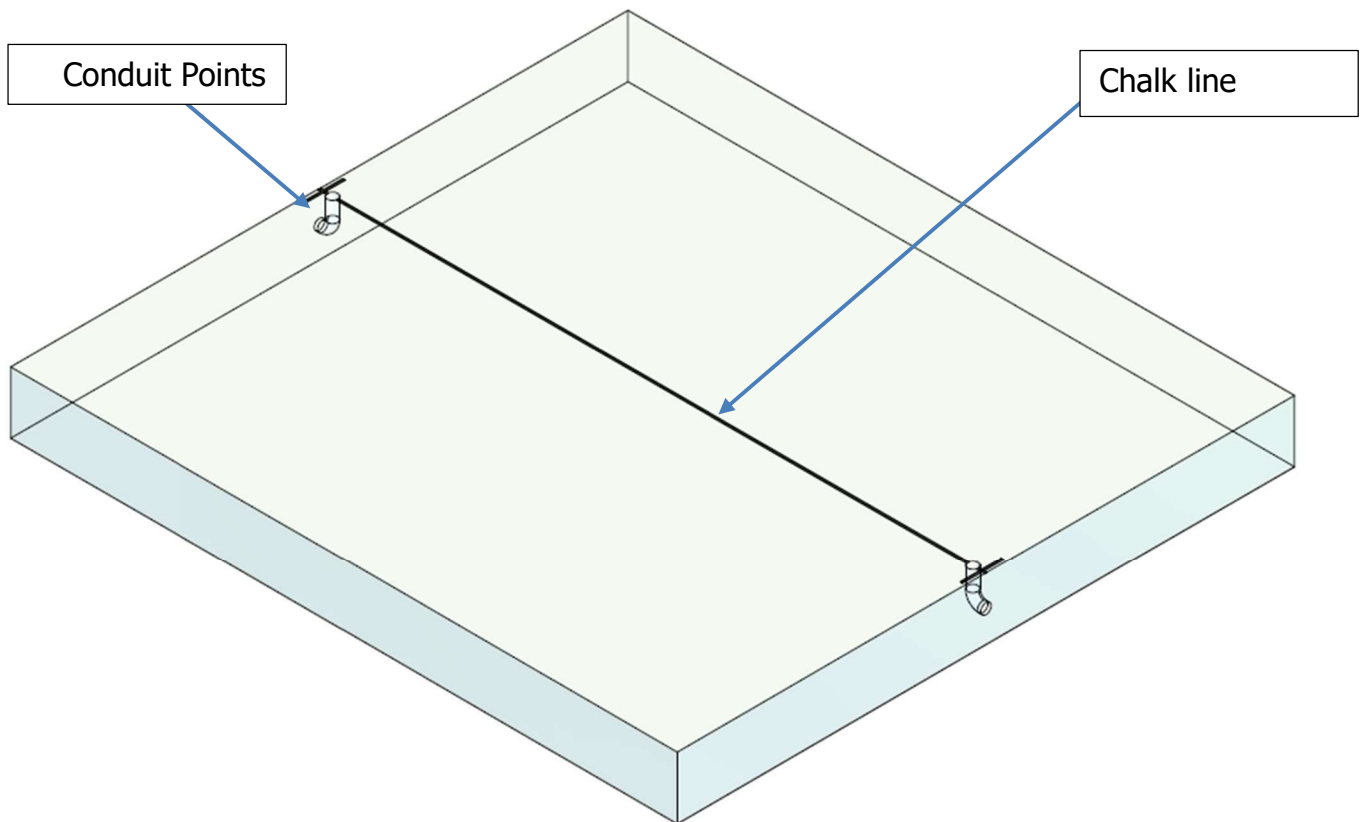


Figure 3: Isometric view of plinth

- 4.3. The turnstile can be installed on top of tiles.

- 4.4. Before marking the position of the turnstile, ensure the level across the planned area does not deviate by more than 3mm in height.
- 4.5. With a chalk line, measure the position as shown in *Figure 4*. The centre of the 1600mm length will be the centre of the turnstile. The edges of the 1600mm length will be the outer edges of the turnstile. The dashed line shows the chalk outlines required.
- 4.6. Mark two edge marks, 800mm from the centre mark.
- 4.7. These edges are the boundaries of where the frame will be placed.

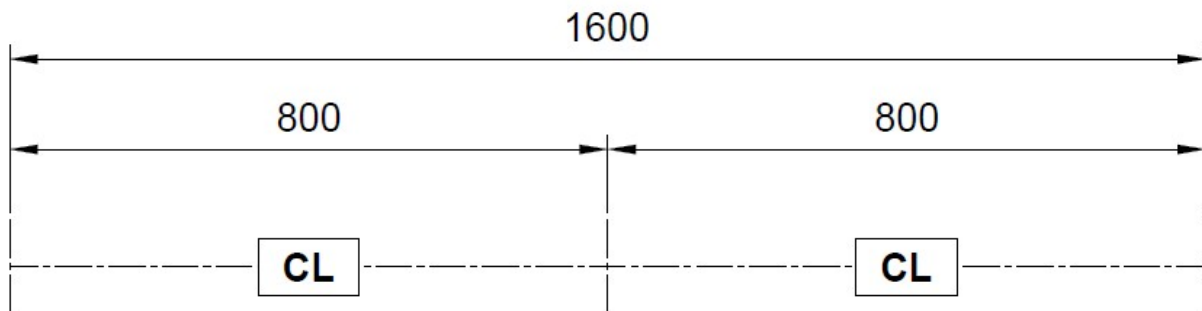


Figure 4: Marking the floor: Step 1

- 4.8. In *Figure 5*, the radial extent of the turnstile is shown as reference.
- 4.9. If power and control cables are routed from floor level, either through conduits chased into the floor or core drilled, see *Figure 6* for conduit positions and marking of chalk outline.

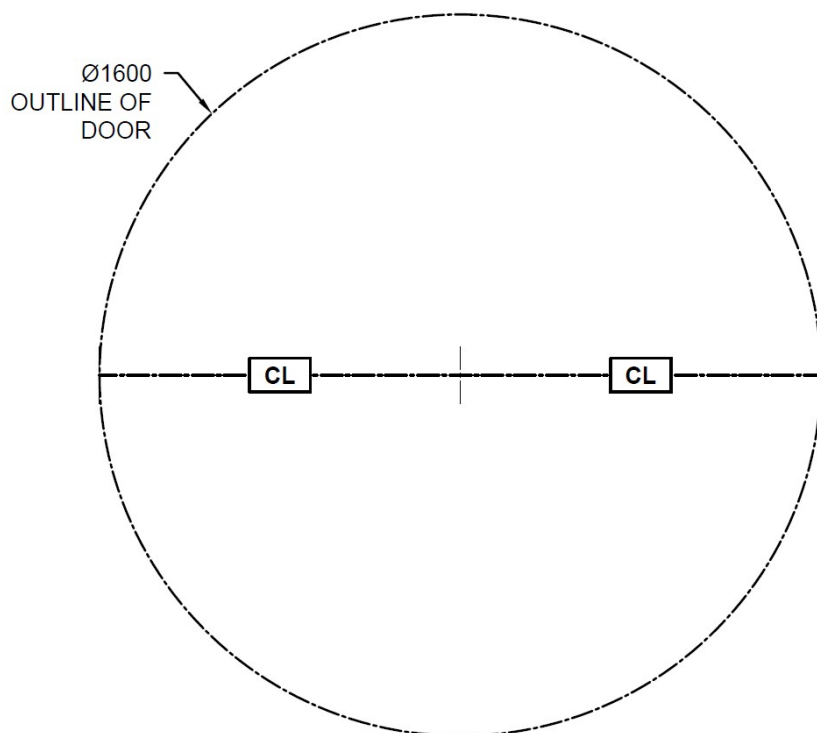


Figure 5: Marking the floor: Step 2

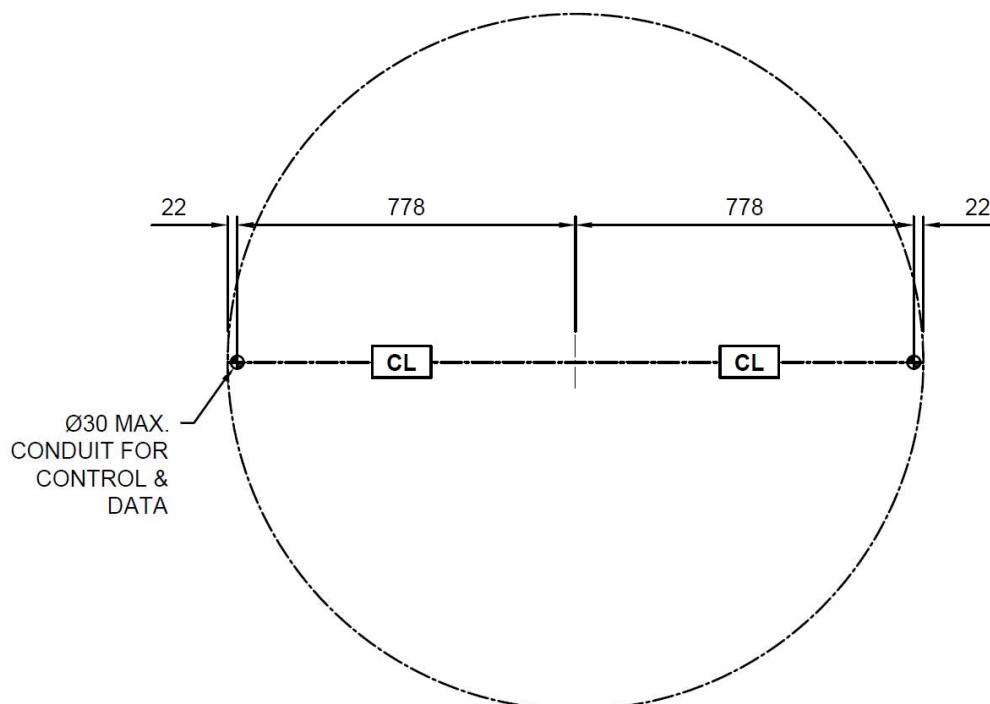


Figure 6: Marking the floor: Step 3

5. OUTER ASSEMBLY

- 5.1. The outer frame consists of 2 side halves that in turn consists of 3 uprights, a right and a left side top ring, a right and a left side bottom ring and screws supplied that connects these together.
- 5.2. *Figure 7* shows the assembly of the frame parts and the screws.
- 5.3. On the top and bottom rings, the rubber glass grips are glued to the lugs.

Table 1: STEP 1 - Side halve assembly parts

No	Description	Part No	Quantity
1	BOTTOM RING 2	CGT-WM-48	1
2	BOTTOM RING 1	CGT-WM-47	1
3	PILLAR	CGT-WM-52	3
4	M10X25 SOCKETHEAD CAPSCREW, ZINC PLATED	M10x25-CSK-ZP	10
5	TOP RING 1	CGT-WM-50	1
6	TOP RING 2	CGT-WM-51	1
7	GLASS GRIP RUBBER A	CGT-PT-30	8
8	GLASS GRIP RUBBER B	CGT-PT-31	8

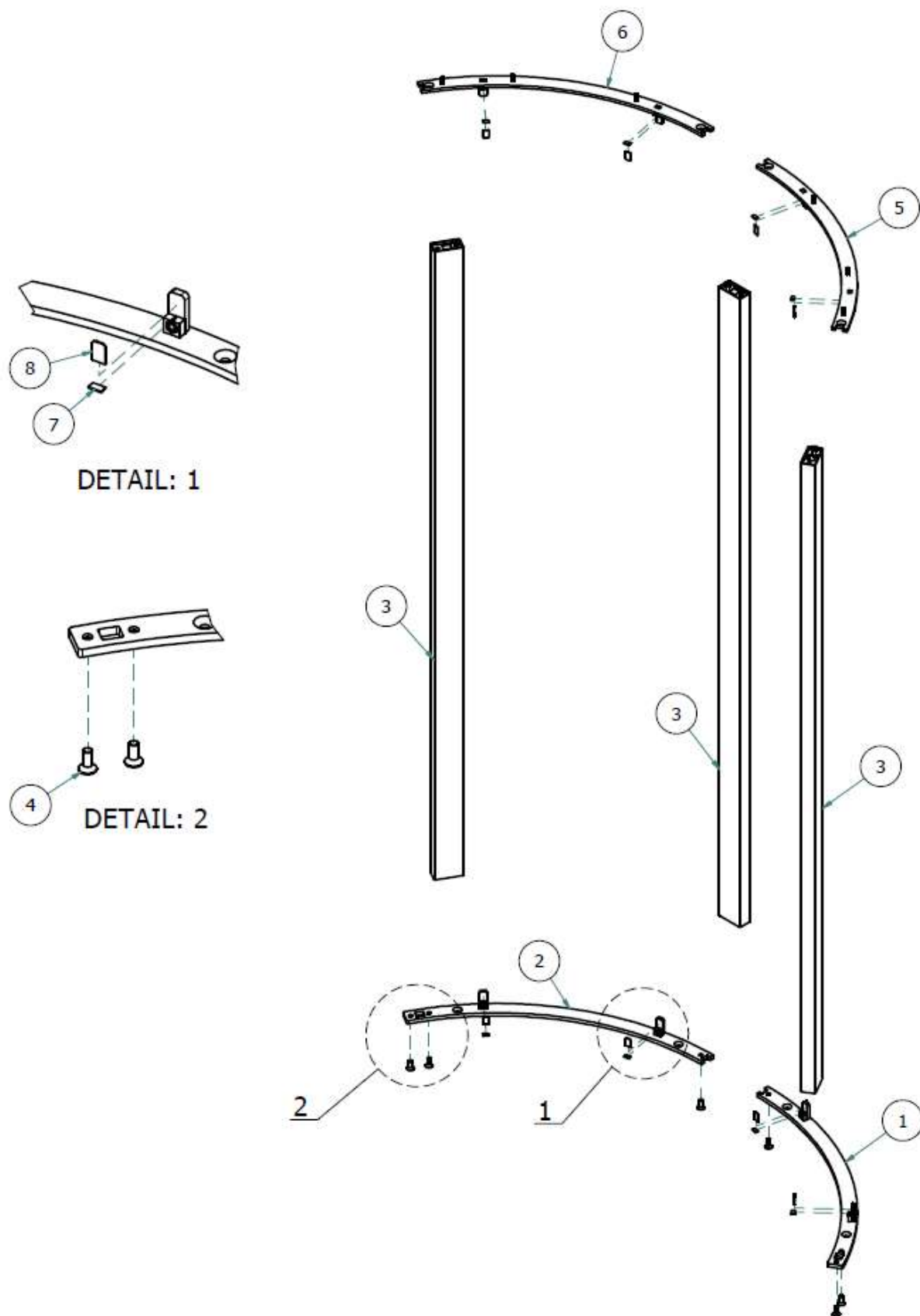


Figure 7: STEP 1 - Side half assembly

- 5.4. Place the two side halves over the marked area as shown in Figure 8. Ensure to pull the power & control cables from the conduit through the uprights to lead into the top channel. Also place the bearing assembly.
- 5.5. Pull draw wire for the pressure mat through the upright as shown in *Figure 8*.
- 5.6. Connect the two side halves with the top ring 3 and the countersunk screws as shown in *Figure 9*.
- 5.7. Check the turnstile over all the uprights are 1600mm.

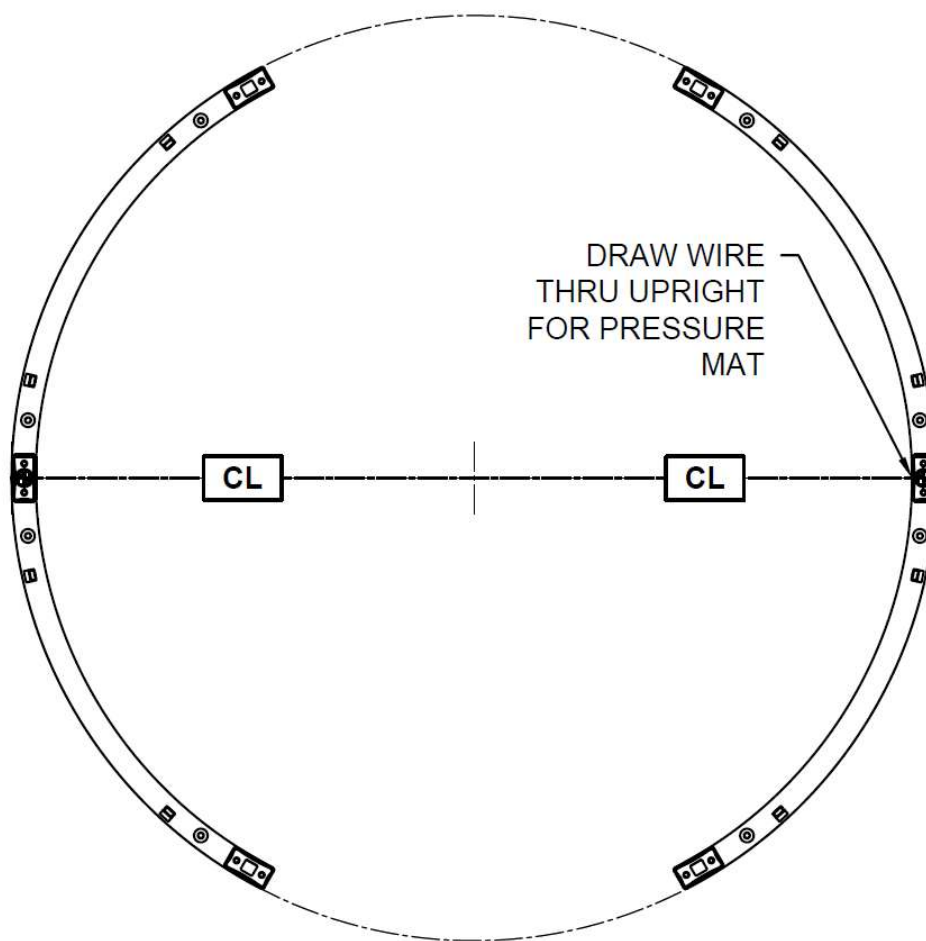


Figure 8: Frame placement

Table 2: STEP 2 – Frame assembly

No	Description	Part No	Quantity
1	M10 x 25 SOCKETHEAD COUNTERSUNK CAPSCREW, ZINC PLATED	M10x25-CSK-ZP	4
2	TOP RING 3	CGT-WM-49	2
3	ROTOR BEARING SUB ASSEMBLY	CGT-SA-26	1
4	SIDE HALVE ASSEMBLY	CGT-SA-01	2

- 5.8. The turnstile outside halves frames, bulkheads and the top channel needs to be placed, bolted, and checked before bolting down the turnstile to the floor.

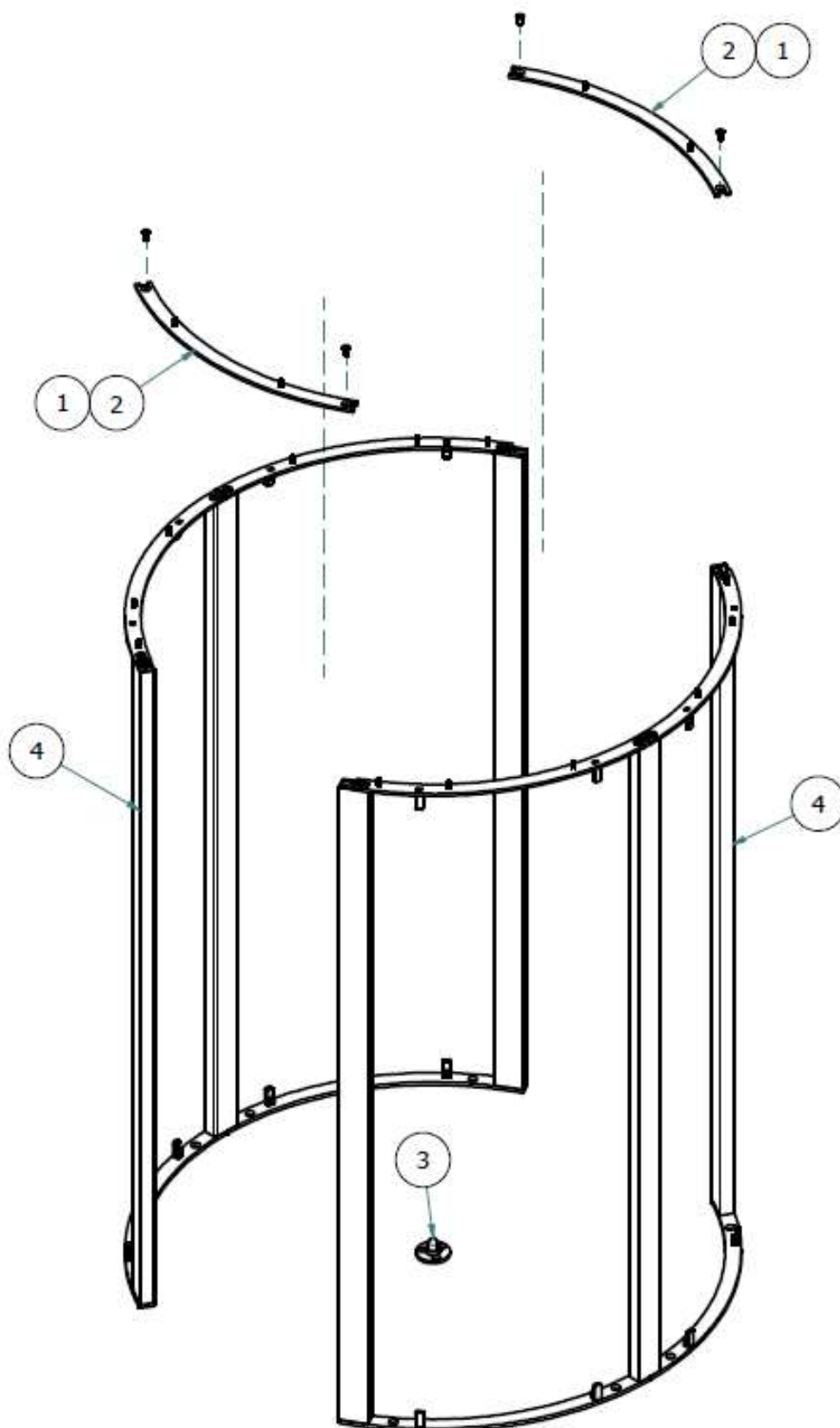


Figure 9: STEP 2 - Frame assembly

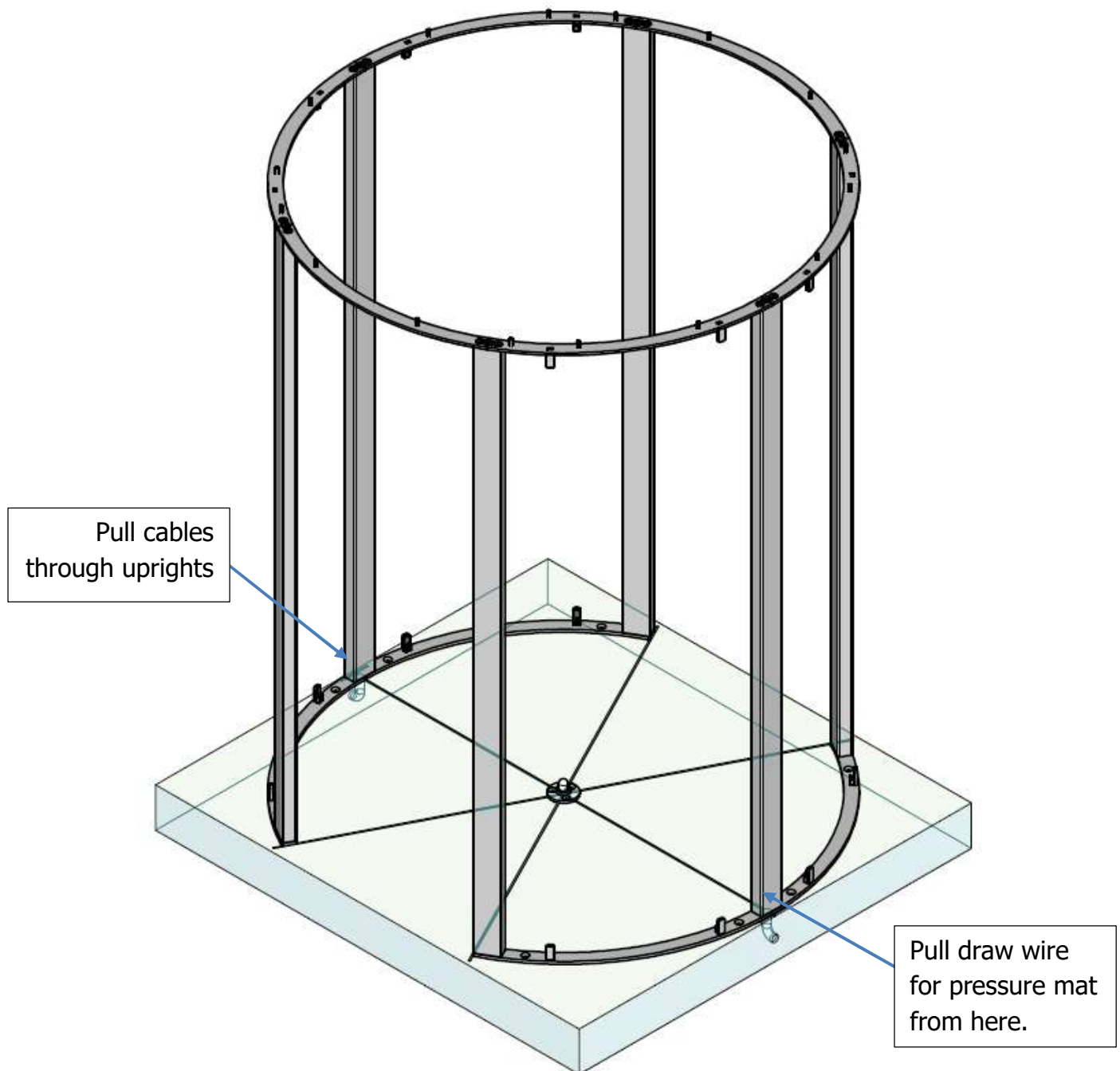


Figure 10: Frame assembly on plinth

Table 3: STEP 3 – Crown & Drive channel assembly

No	Description	Part No	Quantity
1	CROWN 1	CGT-WM-53	2
2	CROWN 2	CGT-WM-54	2
3	M8 HEXNUT, ZINC PLATED	M8-HN-ZP	16
4	M10 HEXNUT, ZINC PLATED	M10-HN-ZP	20
5	M10x25 HEX SET SCREW, ZINC PLATED	M10-HSS-ZP	20
6	DRIVE CHANNEL ASSEMBLY	CGT-SA-28	1
7	M12x35 HEX SET SCREW, ZINC PLATED	M12-HSS-ZP	4
8	M12 HEXNUT, ZINC PLATED	M12-HN-ZP	4

- 5.9. Place the Crowns on the studs as shown in *Figure 11* and, using a pair of M10 hex set screw and Hexnut, tighten on the sides. Ensure that the joints between the crowns are flush on the circle.
- 5.10. Place the M8 hexnuts on the studs that the crowns are collated on and tighten.
- 5.11. Place the drive channel assembly on the plates located on the crown 1 sections. Ensure that the override keys at the bottom of the drive channel are facing the correct way, along the intended passage.
- 5.12. Bolt down the drive channel using the M12 bolts and hexnuts.
- 5.13. Check the overall dimensions of the turnstile before bolting down.
- 5.14. Bolt down the turnstile side halves using the 10 x 80mm countersunk screws with nylon plug. There are 4x holes per side half.
- 5.15. With the frame in place, check that the centre uprights are 1600mm over each other. Mark two chalk lines from the entry and exit uprights as shown in *Figure 12*.
- 5.16. Place the bearing ring on the centre lines and bolt down using the 10 x 80mm countersunk screws with nylon plug. There are 3x holes on the bearing ring.

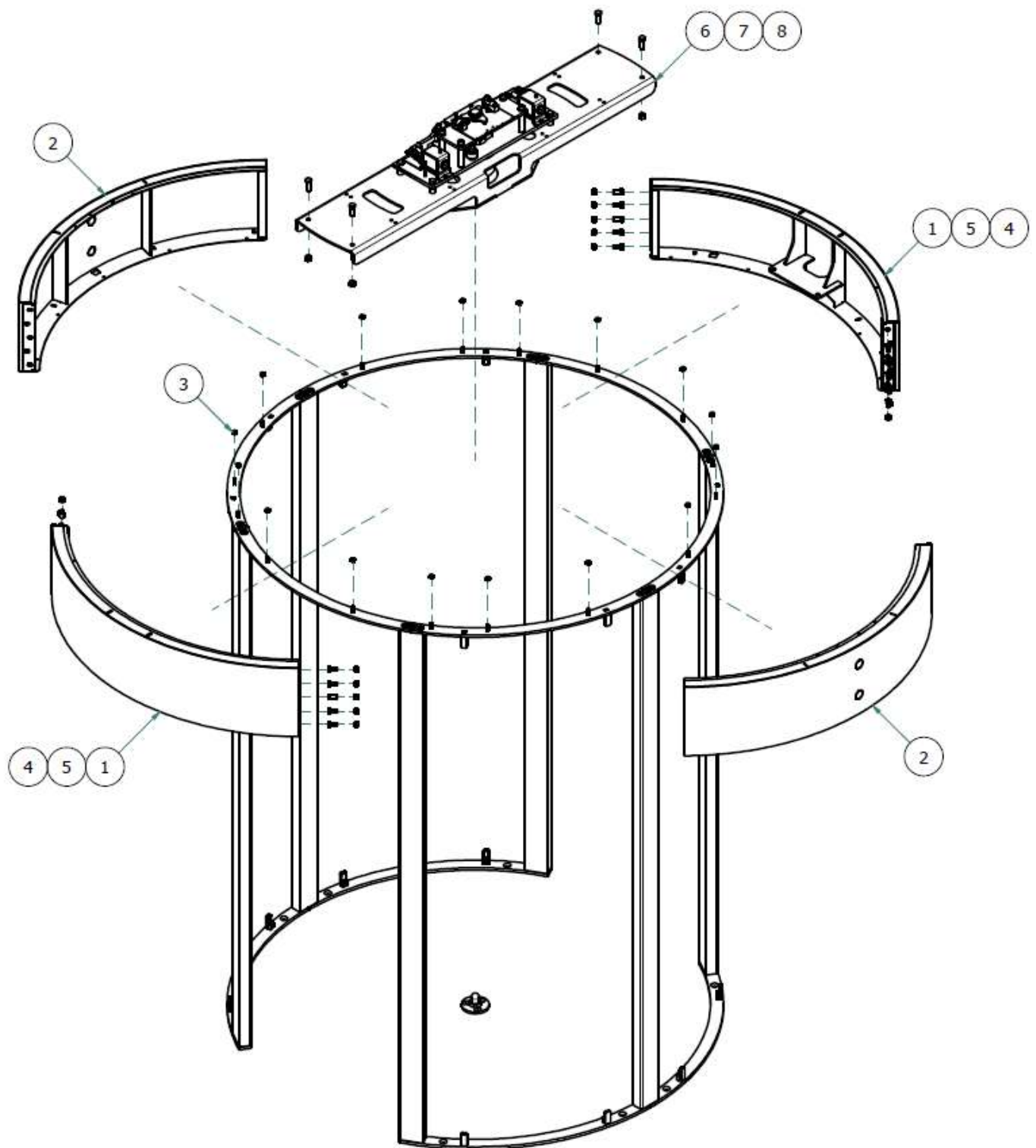


Figure 11: STEP 3 - Crown & Drive channel assembly

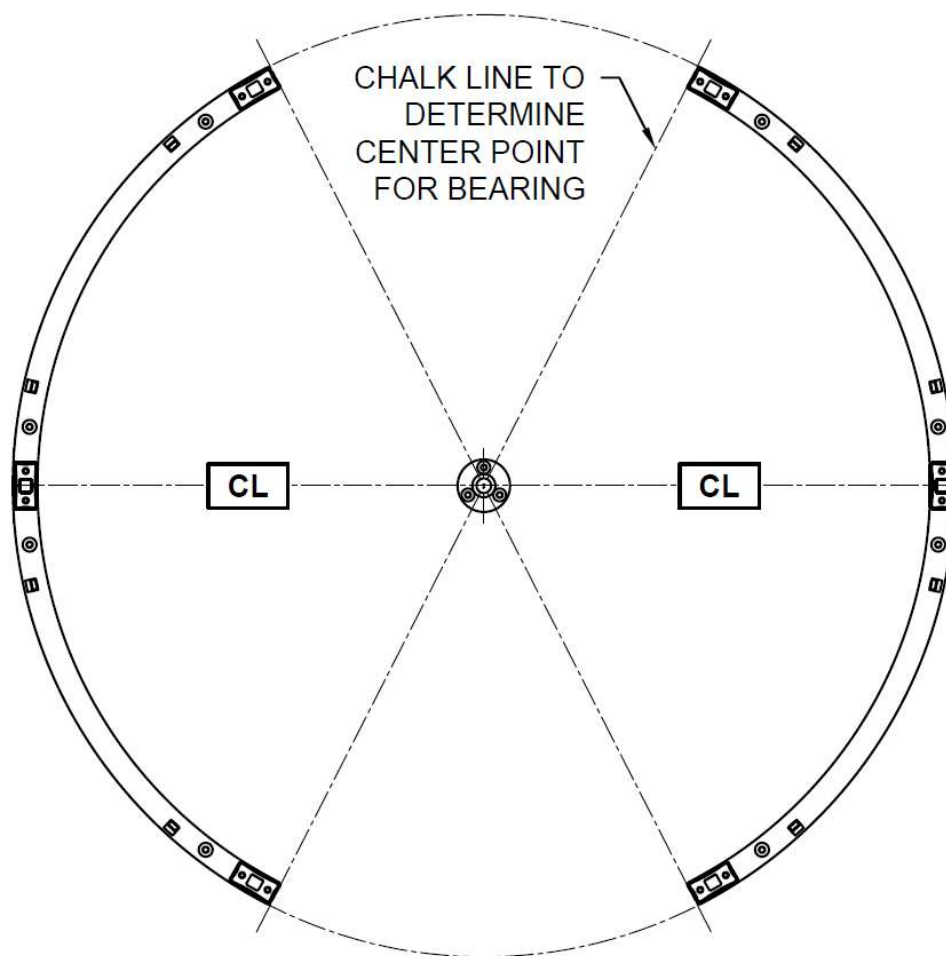


Figure 12: Marking for bearing plate

Table 4: Bottom Spider Assembly

No	Description	Part No	Quantity
1	BOTTOM SPIDER	CGT-WM-45	1
2	CLAMP RUBBER	CGT-PT-26	12
3	CGT FLAT GLASS	CGT-PT-27	3
4	TOP SPIDER	CGT-WM-44	1

5.17. Place the thrust bearing into the base of the bottom spider and secure with the circlip.

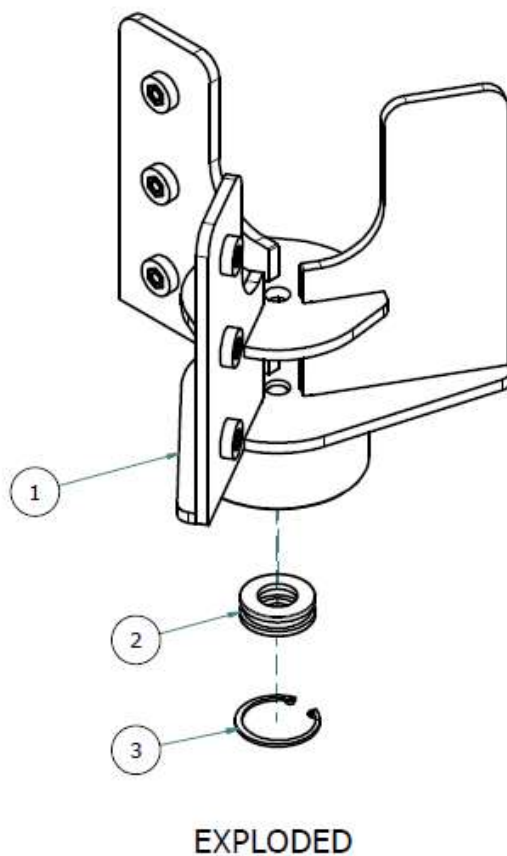
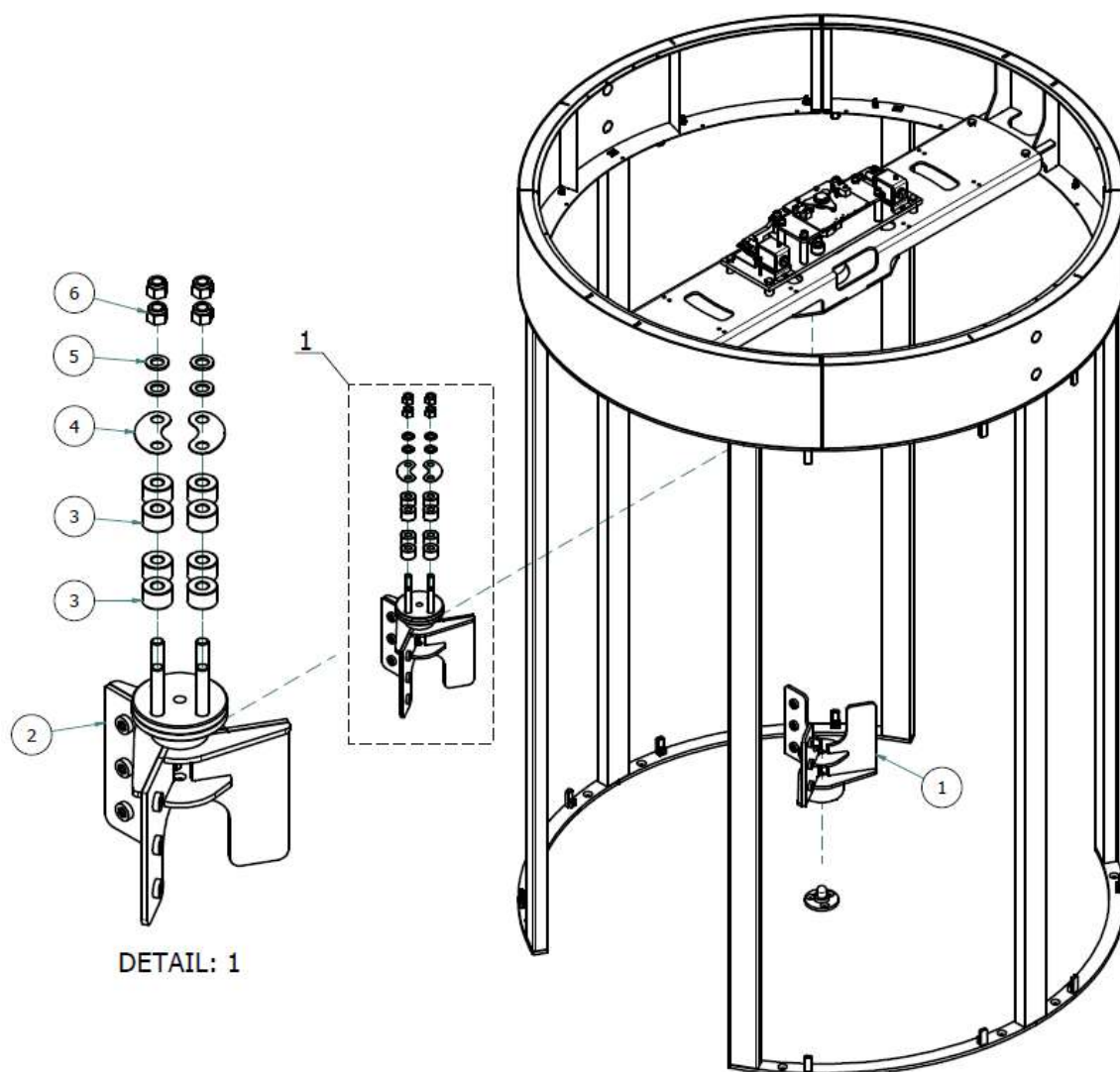


Figure 13: STEP 4 – Base spider assembly

Table 5: Glass Spider Clamps Assembly

No	Description	Part No	Quantity
1	BOTTOM SPIDER ASSEMBLY	CGT-SA-03	1
2	TOP SPIDER	CGT-WM-44	1
3	RUBBER BUFFER	CGT-PT-25	8
4	BEAN WASHER	CGT-LC-136	2
5	16 FLAT WASHER	M16-PFW-ZP	4
6	M16 NYLOCK HEX NUT, ZINC PLATED	M16-NHN-ZP	4

**Figure 14: STEP 5 – Glass spider clamps assembly**

- 5.18. Place the bottom spider onto the base bearing pin.
- 5.19. Place the top spider, with the buffers, bean washers, flat washers and M16 nylock nuts on the bottom disk of the mechanism. See *Figure 14* and *Figure 15*.

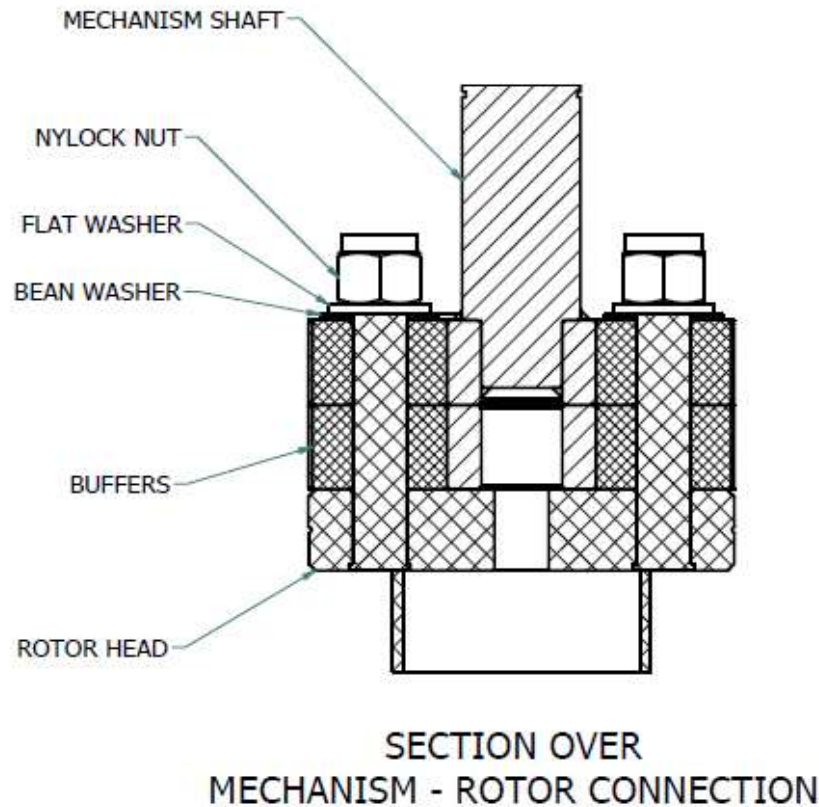


Figure 15: Top spider assembly to mechanism shaft

Table 6: Glass Assembly

No	Description	Part No	Quantity
1	CGT FLAT GLASS	CGT-PT-27	3
2	CLAMP RUBBER	CGT-PT-26	12
3	SILICONE SLEEVE	CGT-PT-210	18
4	CLAMPING PLATE	CGT-LC-138	6
5	M8x12 SOCKETHEAD COUNTERSUNK CAPSCREW, ZINC PLATED	M8x12-CSK-ZP	18

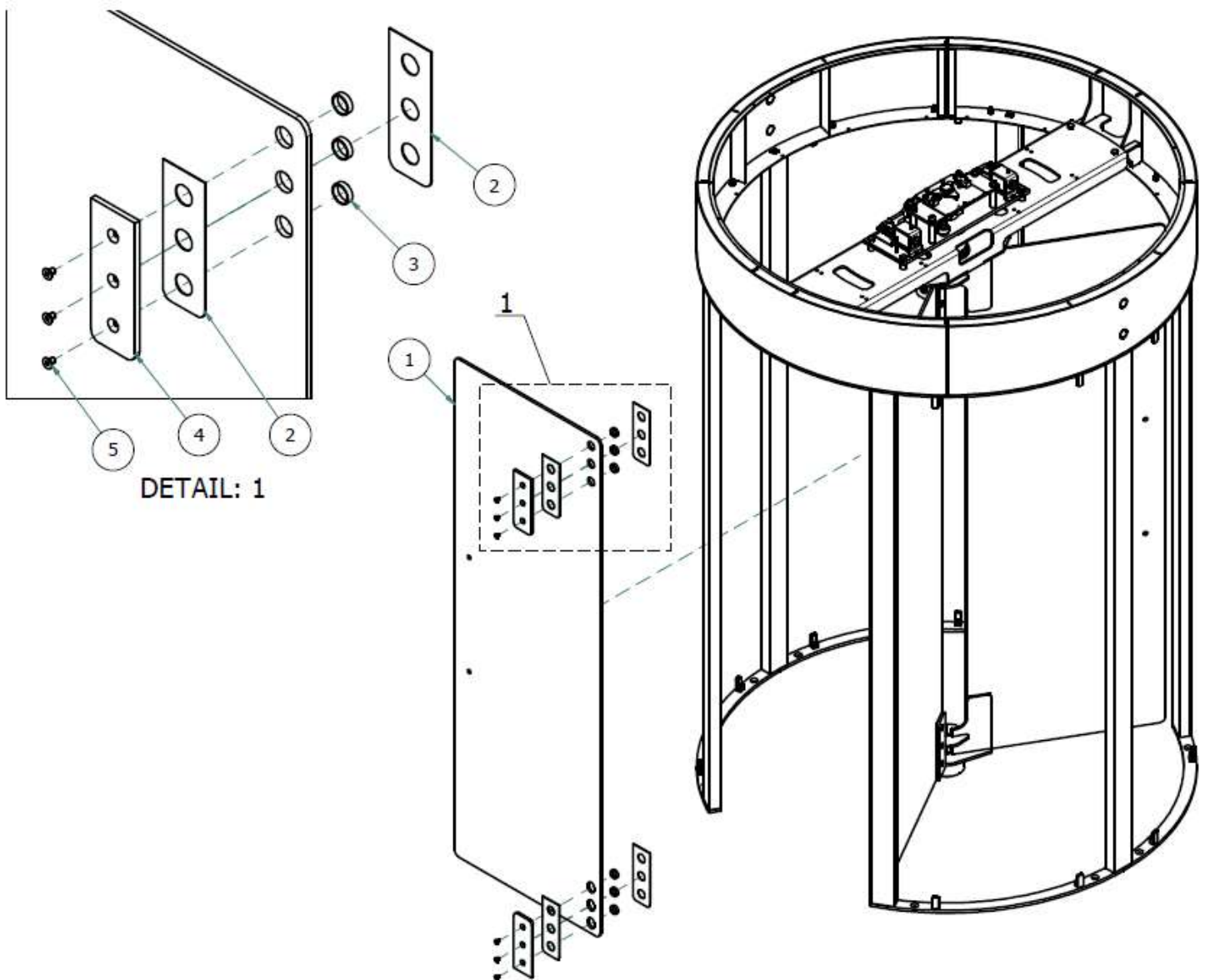


Figure 16: STEP 6 – Glass assembly

- 5.20. Place and glue on the clamp rubbers to the flanges of the glass spiders as well as to the clamping surface of the clamping plate. Check that the countersunk holes are on the far side to the rubber before setting with glue.
- 5.21. Place silicone or rubber sleeves around the 3x protrusions on the flanges of the glass spiders. This is important to ensure the glass does not touch the steel when clamping.
- 5.22. Locate the glass with the holes to the top glass spider first. Then locate to the bottom spider. The glass has slots at the bottom to allow for misalignment.

- 5.23. Clamp the glass using the clamp plates with rubber and the countersunk screws, to the top and bottom spiders. Tighten fully.
- 5.24. To make it easier to repeat the assembly for the other two glass pieces, unlock the mechanism using the override keys and turn the glass panel.
- 5.25. After assembling all three glass panels, unlock the mechanism and ensure that the rotor can rotate easily and that all glass panels centre correctly under the mechanism's centring device.

Table 7: Glass Handle Assembly

No	Description	Part No	Quantity
1	DOOR HANDLE	CGT-WM-55	6
2	M8x25 SOCKETHEAD COUNTERSUNK CAPSCREW, ZP	M8x25-CSK-ZP	6
3	12x10x8 HDPE BUSH	12x10x8-BUSH	6

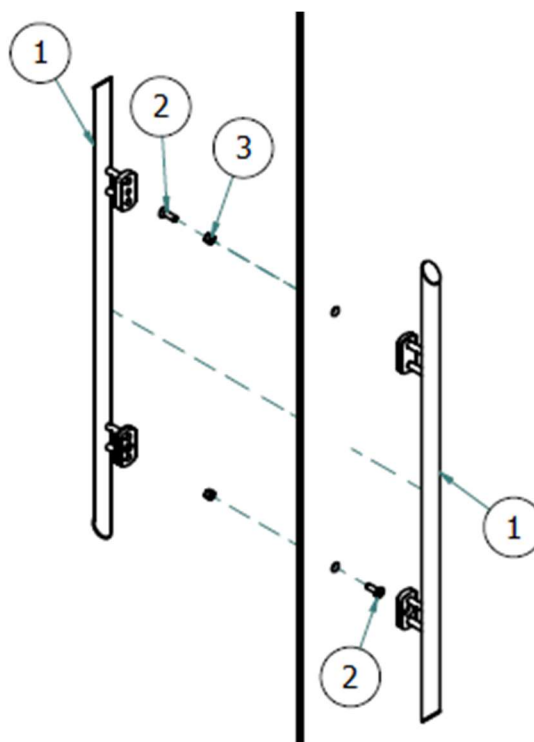


Figure 17: STEP 7 – Glass handle assembly

Table 8: Full Rotor Assembly

No	Description	Part No	Quantity
1	BOTTOM SPIDER	CGT-WM-45	1
2	CLAMP RUBBER	CGT-PT-26	12
3	CGT FLAT GLASS	CGT-PT-27	3
4	TOP SPIDER	CGT-WM-44	1
5	CLAMP PLATE	CGT-LC-138	6
6	M8x12 SOCKETHEAD COUNTERSUNK CAPSCREW, ZINC PLATED	M8x12-CSK-ZP	18
7	DOOR HANDLE	CGT-WM-55	6
8	M8x25 SOCKETHEAD COUNTERSUNK CAPSCREW, ZINC PLATED	M8x25-CSK-ZP	6
9	THRUST BEARING	BEARING - 51205	1
10	50x2 INTERNAL CIRCLIP, ZINC PLATED	50x2-CCIN-ZP	1
11	12x10x8 HDPE BUSH	12x10x8-BUSH	6
12	SILICONE SLEEVE	CGT-PT-210	18

5.26. The table above and image Figure 18 refers to the full assembly required for the rotor.

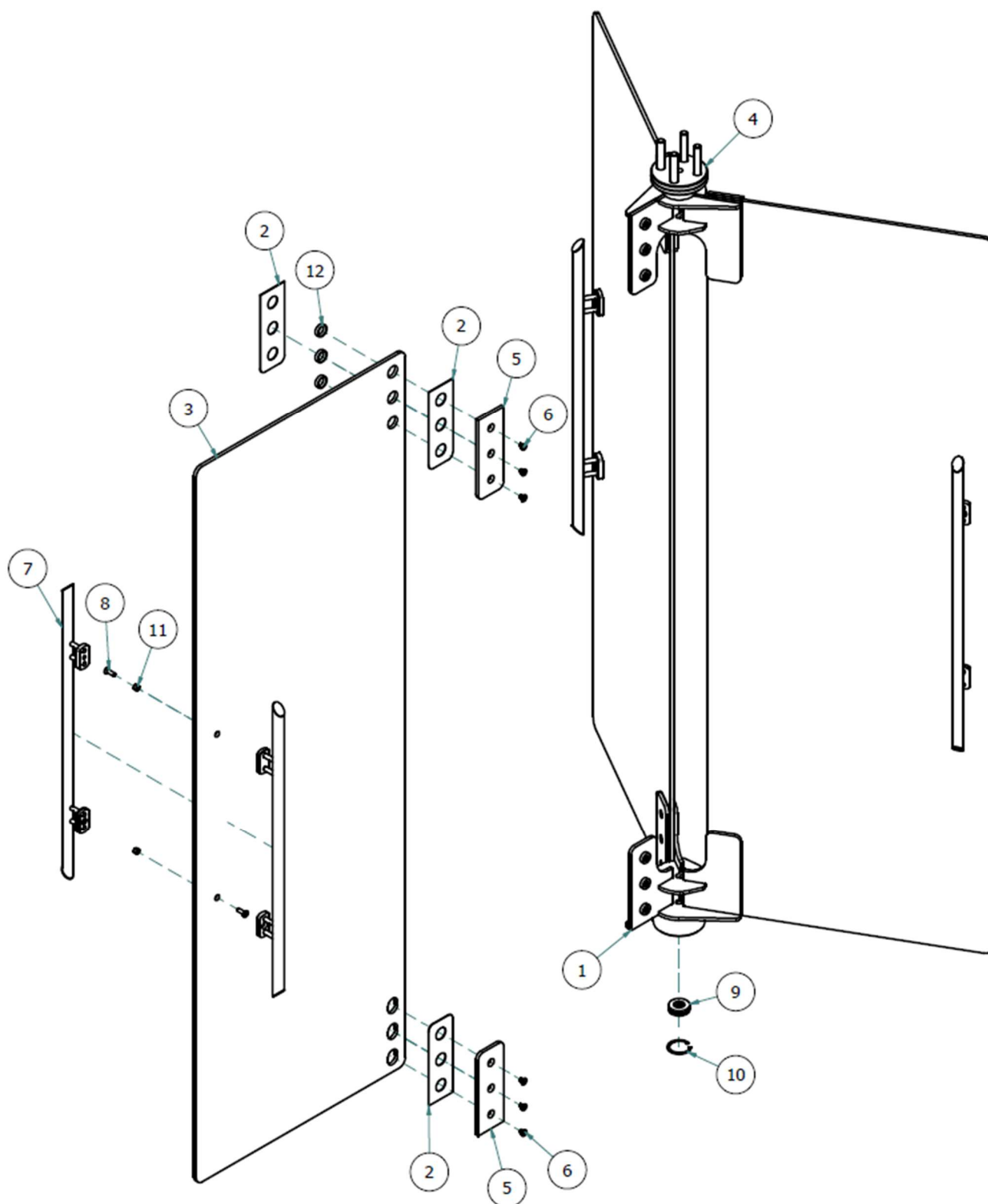


Figure 18: Full rotor assembly

Table 9: STEP 8 - Ceiling and Roof Assembly

No	Description	Part No	Quantity
1	CEILING SUB-ASSEMBLY B	CGT-SA-31	1
2	CEILING SUB-ASSEMBLY A	CGT-SA-30	1
3	CEILING SUB-ASSEMBLY C	CGT-SA-32	2
4	M6x10 BUTTONHEAD CAPSCREW, ZINC PLATED	M6x10-BHCS-ZP	8
5	M6 HEXNUT, ZINC PLATED	M6-HN-ZP	8
6	TOP HAT	CGT-LC-130	1
7	TOP COVER 2	CGT-LC-131	2
8	M8x10 BUTTONHEAD CAPSCREW, ZINC PLATED	M8x10-BHCS-ZP	12

- 5.27. The ceiling plates are installed by sliding the centre part with the half round cut between the drive channel bottom plate and the flange retainer. Then locked on the far curve with the locking tabs. See *Figure 19*.
- 5.28. Join the ceiling plates on the sides with the screw and nut pair.
- 5.29. Ensure all ceiling plates align to the override keys and downlights before locking in place. See *Figure 20*.
- 5.30. The roof is installed by placing and bolting the top hat first. Then the two top covers on the side. Bolt these in place as shown. See *Figure 19*.
- 5.31. The downlights can be inserted from the bottom of the ceiling.

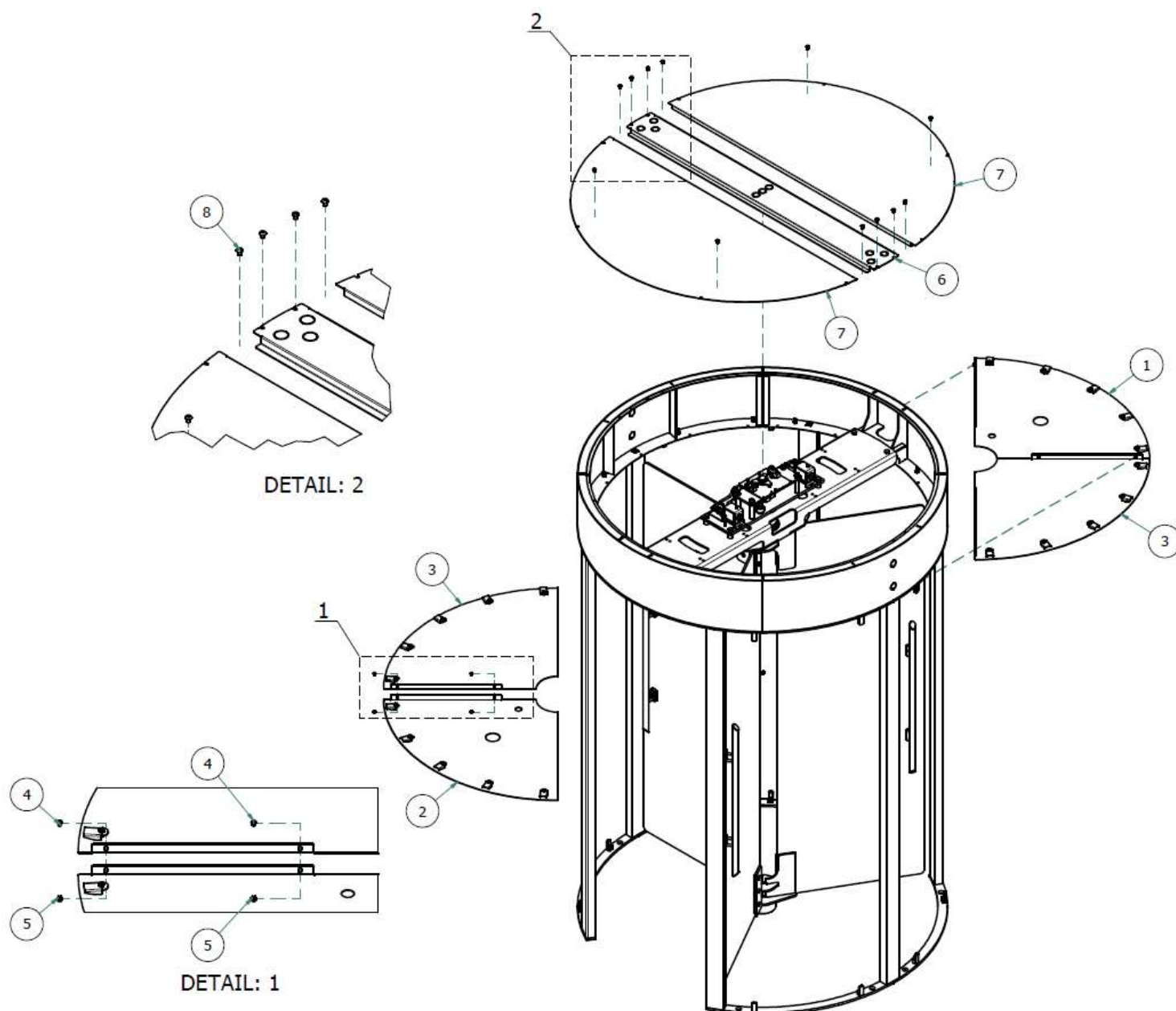


Figure 19: STEP 8 - Ceiling and roof assembly

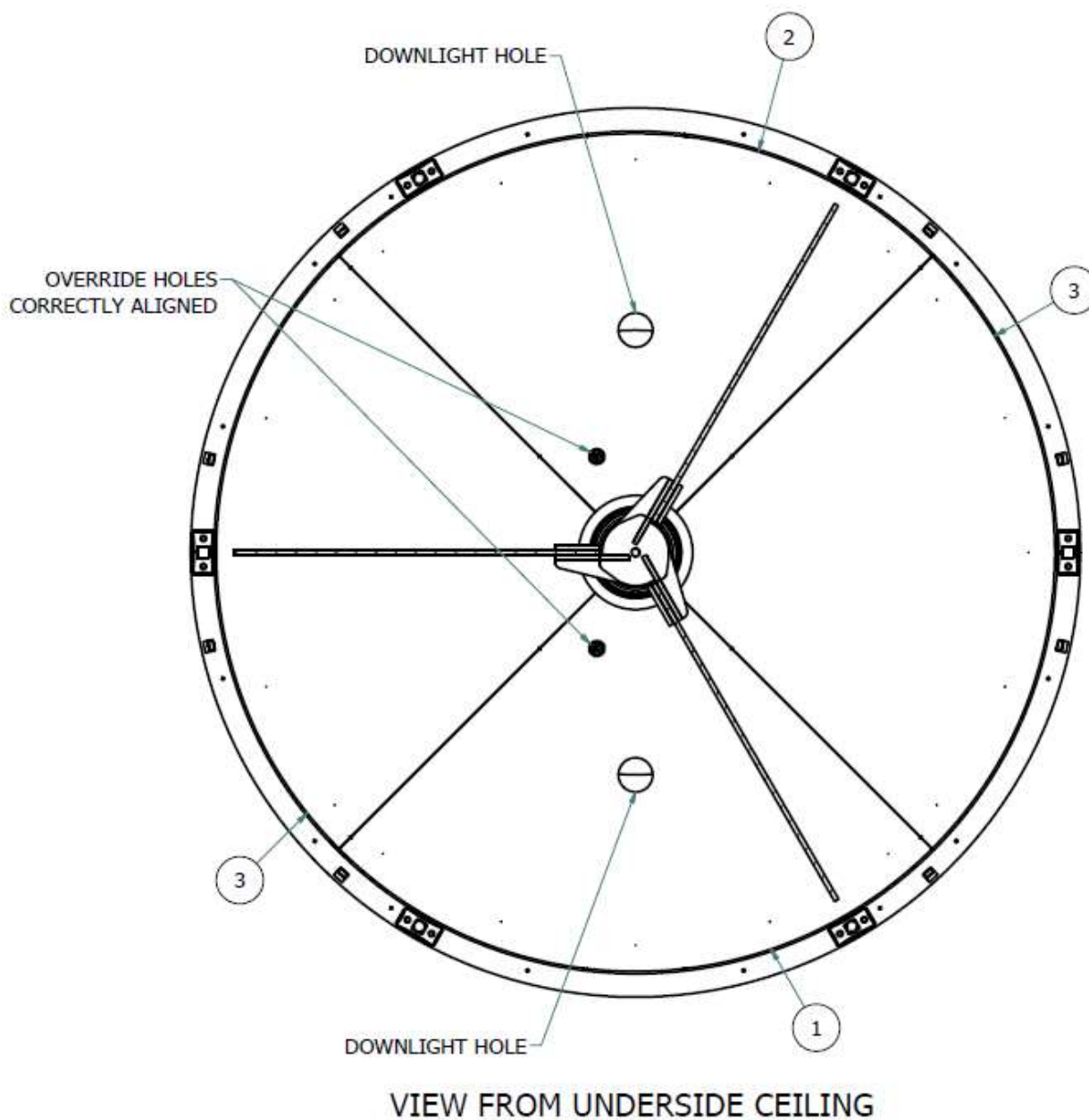


Figure 20: Ceiling placement

Table 10: STEP 9 - Side Glass Assembly

No	Description	Part No	Quantity
1	CURVED GLASS	CGT-PT-24	4
2	GLASS RUBBER GRIP	CGT-PT-31	16
3	SMALL CLAMP	CGT-LC-166	16
4	M8x20 SOCKETHEAD COUNTERSUNK CAPSCREW, ZINC PLATED	M8x20-CSK-ZP	16
5	BOTTOM COVER	CGT-LC-132	4

- 5.32. Place the bottom covers first to cover up the bolting holes. Use contact adhesive to glue the plate down. See *Figure 21*.
- 5.33. Check that the glass clamp parts on the side frame rings top and bottom have rubber gaskets fixed.
- 5.34. Place the curved glass on the rubber spacers on the bottom ring of the side frame. Space out the glass evenly on the sides to the uprights.
- 5.35. Place the small clamps with rubber and bolt to the side frame rings top and bottom.
- 5.36. Make sure the glass is fitted tightly.

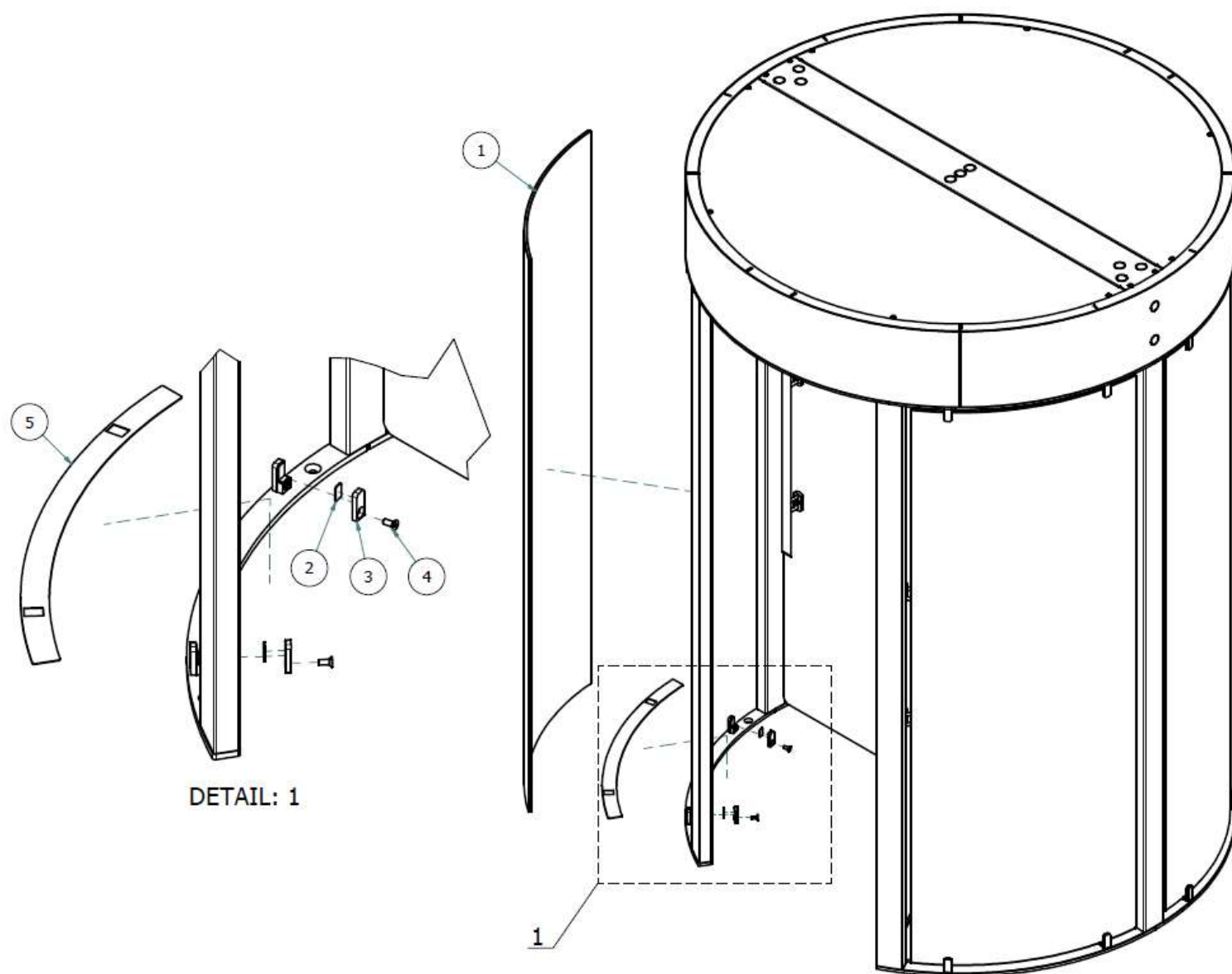


Figure 21: STEP 9 – Side Glass Assembly

Table 11: STEP 10A – Pressure Mat Assembly

No	Description	Part No	Quantity
3	PRESSURE MAT	CGT-SA-29	1

- 5.37. Place the pressure mat inside the no go area.
- 5.38. Pull through the wires for the pressure mat into the top bulkhead to the control panel.
- 5.39. Connect the pressure mat up to the control panel as per the diagram.
- 5.40. Ensure the pressure mat is placed evenly spaced over the entry and exit uprights. Bolt or glue down the pressure mat on the side aluminium 'L' sections. (Additional screws or glue required).

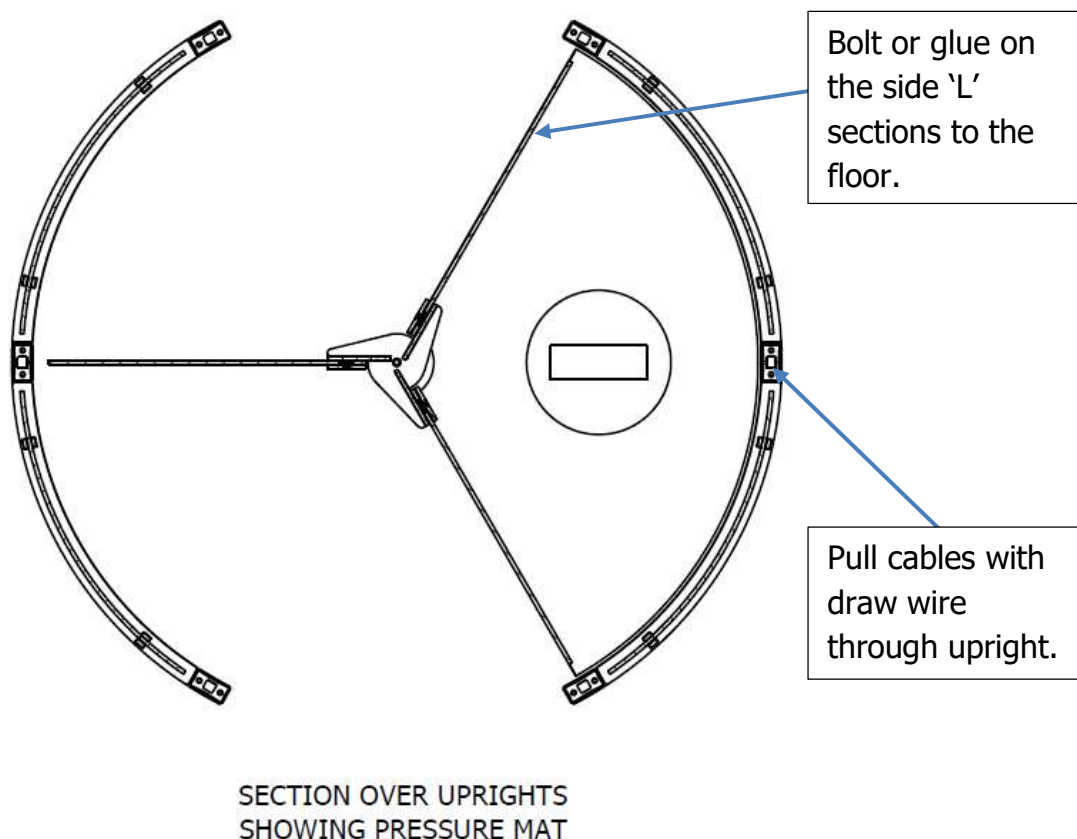
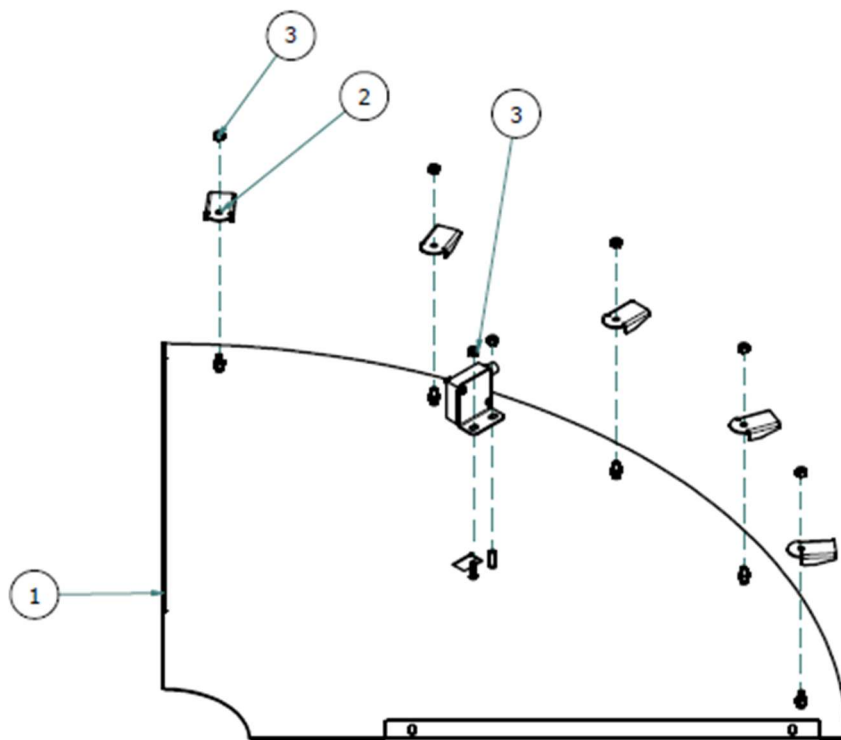
**Figure 22: STEP 10A – Pressure Mat Assembly**

Table 12: STEP 10B – Ceiling Sensor Assembly (CGT-SA-35)

No	Description	Part No	Quantity
1	CEILING WELDMENT (SINGLE SENSOR)	CGT-WM-60	1
2	SUPPORT	CGT-LC-173	5
3	M6-HN-ZP	M6 HEX NUT, ZP	12
4	SENSOR ASSEMBLY	TSRD-SA-101	1

- 5.41. For detection inside the 'No-Go' zone using a sensor from the ceiling, assembly the ceiling piece as shown. *Figure 23* shows the assembly of the sensor to the ceiling.
- 5.42. Place the ceiling assembly above the 'No-Go' zone of the turnstile and fit in the same way as the other ceilings.
- 5.43. Connect wires for the sensor to the appropriate terminals on the control panel, where the pressure mat trigger should be.

**Figure 23: STEP 10B – Ceiling Plate with Sensor Assembly**

6. **CHANNEL ASSEMBLY**

- 6.1. The channel assembly is typically pre-assembled in the factory. The following section is for reference to servicing.
- 6.2. *Figure 7* shows the assembly of the frame parts and the screws.

Table 13: Channel Assembly

No	Description	Part No	Quantity
1	WELDMENT DRIVE	CGT-WM-46	1
2	M12 HEX NUT, ZP	M12-HN-ZP	4
3	3-ARM FH MECHANISM - FAIL SAFE WITH DOUBLE DISK	TSM-AS-10	1
4	M12x55 HEX SET SCREW, 4.8, ZP	M12x55-HSS-ZP	4
5	BUSH	CGT-MA-46	4
6	LOCK SLEEVE	TSM-MA-42	2
7	M18 METRIC FINE CAMLOCK JAM NUT, CHROME	M18-MFJN-C	2
8	LOCKING MECHANISM	CGT-SA-33	2

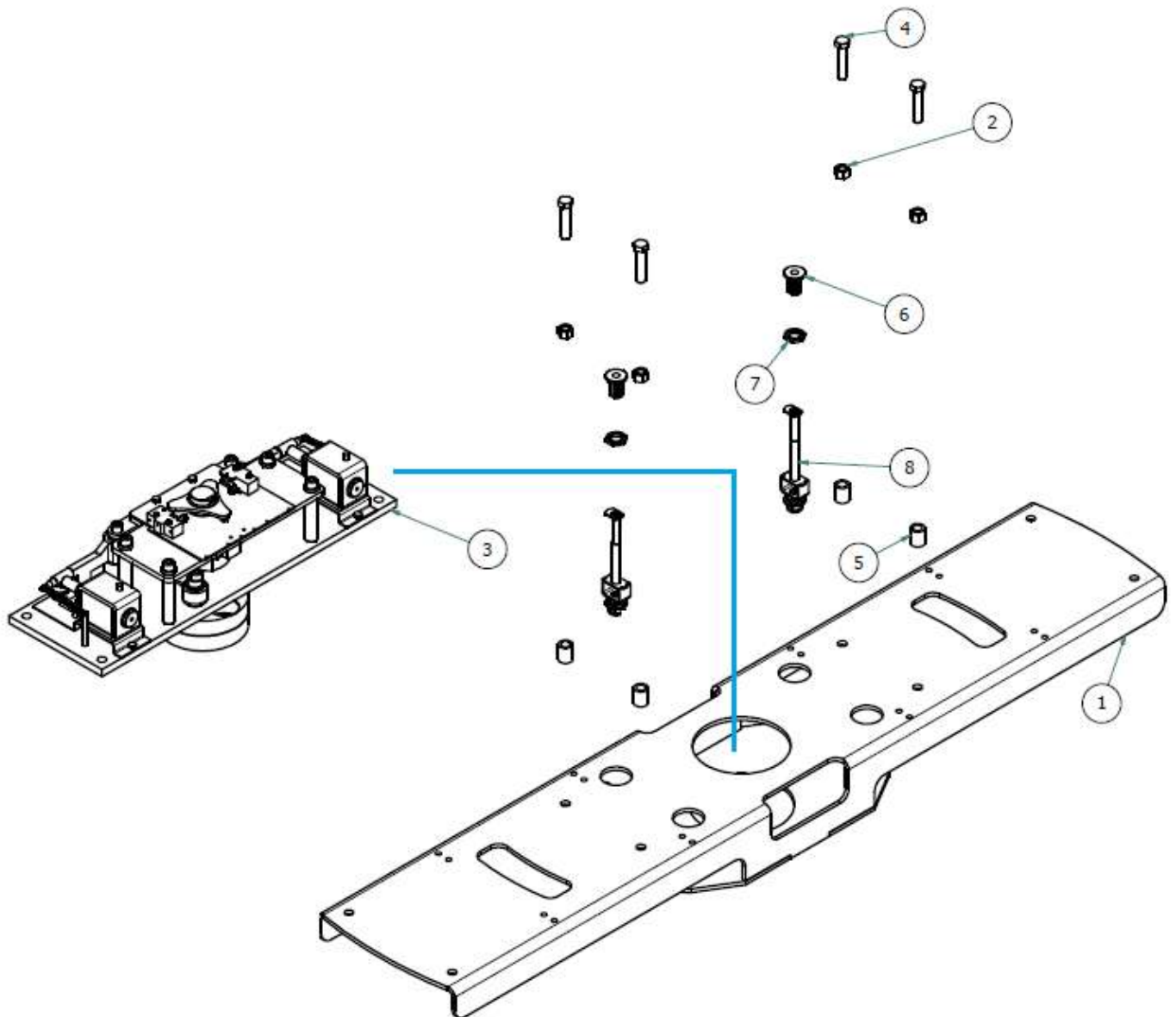


Figure 24: Channel Assembly

7. DIAGRAMS

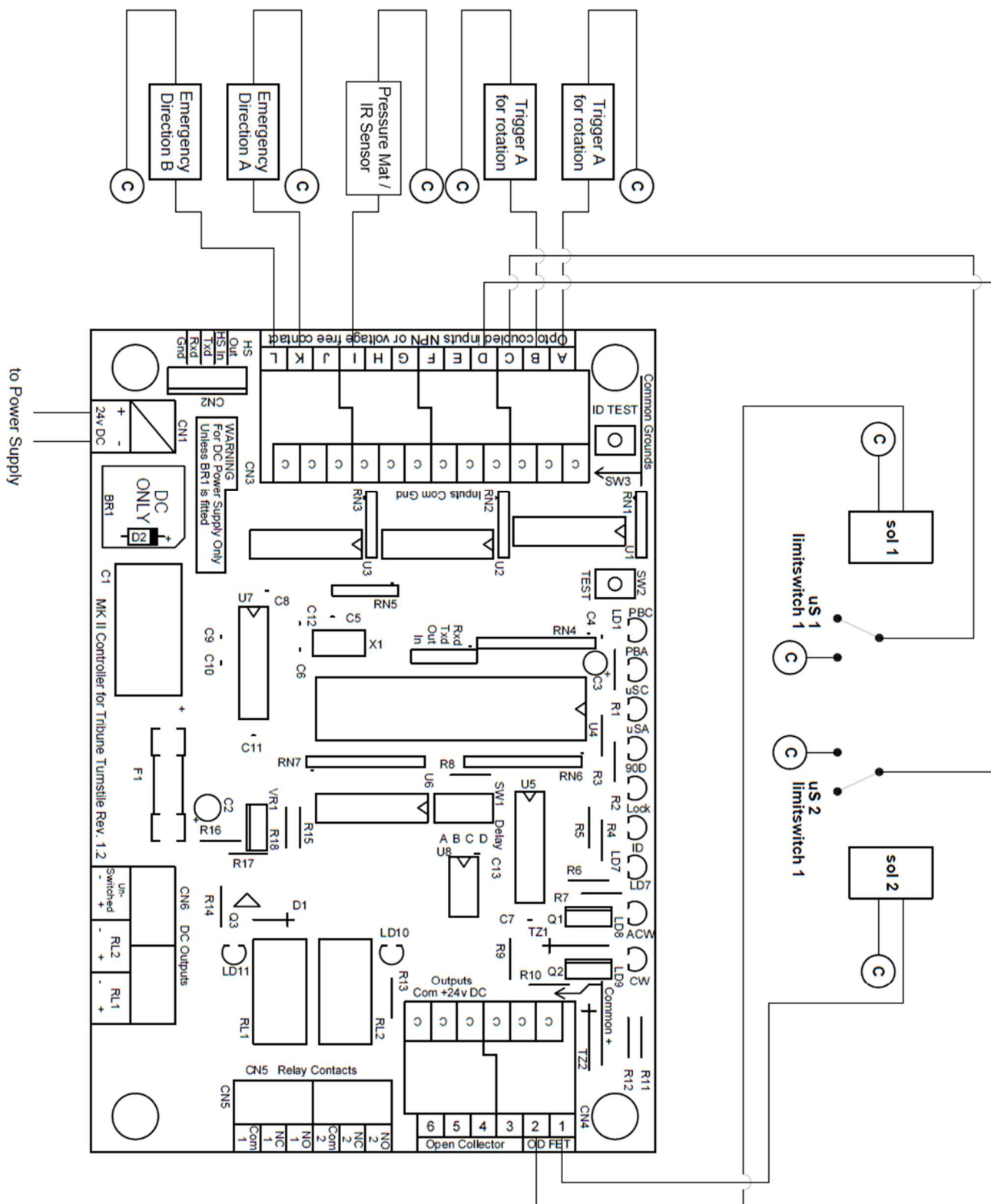


Figure 25: CGT Wiring Diagram

8. **TESTING**

- 8.1. Connect the trigger A and trigger B to the required access control system. These are normally open dry contacts. Use between 0.5 to 0.8 millisecond pulse.
- 8.2. Connect the pressure mat to the inputs as per the diagram.
- 8.3. Connect the release trigger for the pressure mat to either the remote control or pushbutton.
- 8.4. Connect mains power to the circuit breaker. Power requirement is 220V AC 50Hz 6A.
- 8.5. Ensure the override keys are disengaged and switch on the mains power. The mechanism is now locked. Check that the rotor is locked and cannot be rotated.
- 8.6. Trigger rotation A. The mechanism will unlock allowing one rotation.
- 8.7. Trigger rotation B. The mechanism will unlock allowing one rotation.
- 8.8. Trigger either rotation and enter in the 'no-go' area. The turnstile will lock when a user steps onto the carpet. After 5 seconds, the turnstile will unlock in the direction of entry and the user can exit.

9. **CLEANING**

- 9.1. Depending on the finish of the turnstile, different cleaning instructions will apply.
- 9.2. Dusting – Dust turnstile with a feather duster or soft cloth.
- 9.3. Wash – Cleaning of turnstile to be done with a soft cloth (non-abrasive) dipped into a mixture of warm water and mild dishwashing liquid (alkaline-based cleaner with a pH of 12 or lower). Then rinse the turnstile with clean water. Do not spray with high pressure water near the top channel as water can damage the internal electronics.

Table 14: Recommended Cleaning Frequency

Type	Action
Powder-coated mild steel	Dust once a month
	Wash stubborn dirt in the affected area
Hot-dipped Galvanised mild steel	Dust once a month
	Wash stubborn dirt in the affected area
304/316 grade stainless steel	Wash the entire turnstile twice a month with warm soapy water and a soft cloth
Powder-coated 304/316 grade stainless steel	Dust once a month
	Wash stubborn dirt in the affected area

10. SPARE PARTS

10.1. The below table shows the suggested spare parts to keep on hand for servicing the turnstile or to repair the turnstile in an emergency.

Table 15: Spare Parts List

Part Description	Qty
Transformer	1
Battery Backup UPS power supply (if supplied)	1
Battery (if supplied)	2
PC Board	1
Microswitch	2
Solenoid	2
Lock with Key	2
Lock cam	2
Indexing Roller	1
6mm Key	1
Clevice	2
Fail-secure spring	2
Fail-safe spring	2

11. FAULT FINDING

Fault	Cause	Solution
Turnstile rotates continuously, even without power.	The over-ride lock might be unlocked with the key.	Use the key to lock the over-ride.
Turnstile allows a user through after a trigger but locks for 5 seconds afterward and releases for the reverse direction.	'No-Go' Pressure mat is in short circuit. Wiring on pressure mat is faulty.	Check pressure mat and/or replace pressure mat. Check wiring on pressure mat.
Turnstile does not unlock automatically on power failure when in fail-safe mode.	The mechanism is not set-up for fail-safe.	Check if the mechanism is set-up for fail-safe operation.
	The logic is not set for fail-safe operation.	Set the pc board for fail-safe operation.
Turnstile unlocks automatically on power failure when in fail-secure mode.	The mechanism is not set-up for fail-secure.	Check if the mechanism is set-up for fail-secure operation.
	The logic is not set for fail-secure operation.	Set the pc board for fail-secure operation.
Turnstile does not unlock.	Solenoid needs cleaning.	Clean solenoid with alcohol. No Q20 allowed to be used for cleaning.
Turnstile rotor does not self-centre.	Indexing spring broken.	Replace indexing spring.
3-arm Turnstile trapping you	Assembly is wrong.	Check the rotor assembly and correct.
Batteries are not charging.	Battery output voltage incorrect.	Check output of battery backup UPS power supply and adjust output voltage to 27,6v.
Turnstile is on but does not rotate on trigger activation.	Trigger not received by control panel.	Isolate where the fault could be. Test the turnstile using a pushbutton directly on the triggers.
	Access control trigger faulty.	Check for continuity on the access control trigger.
	Possible faulty PC board.	Trigger either direction 1 or 2 terminals to isolate if there is a fault on the PC board.

Turnstile allows more than 1 person to go through at a time.	Trigger signal extended.	Check if the fire-alarm settings are active and check the length of trigger activation. The signal may be too long and should be $\frac{3}{4}$ of a second or less.
	Faulty microswitch.	Check if a microswitch is faulty or broken. Replace microswitch.

12. REVISION HISTORY

Revision	Date	Author	Description
2.0	26-07-2022	Eric Swart	New released version of major design update.
2.1	20-04-2026	Eric Swart	Added ceiling sensor and assembly for the ceiling plate, added channel assembly for reference. Minor updates to drawings and diagrams.