



User & Assembly Manual



MANTRAP

Access Control Cubicle

CONTENTS

1. COPYRIGHT & LIABILITY	4
2. INTRODUCTION	5
3. SAFETY.....	5
3.1. Safety during Maintenance.....	5
3.2. Safety during Operation.....	5
4. PARTS IDENTIFICATION	6
4.1 Base Plate	6
4.2 Side Frame, Door Pivot Side.....	7
4.3 Side Frame, Door Locking Side.....	8
4.4 Front Bulkhead	9
4.5 Door Assembly.....	10
4.6 Other Assembly Parts	11
5. ASSEMBLY	11
5.1 Frame Preparation	11
5.2 Assembly of side frames & bulkheads	12
5.3 Door preparation	15
5.4 Door assembly.....	16
6. WIRING	18
6.1 Wiring Diagram.....	18
6.2 Transmitters and receivers.....	18
6.3 Magnetic lock connections	19
6.4 LED Connections.....	20
6.5 Triggers	20
7. INSTALLATION.....	21
7.1 Conduit positions	21
7.2 Checklist before bolting to floor.....	22
8. FINISHING	23

8.1 Ceiling assembly 23

8.2 Roof assembly 23

8.3 Carpet..... 23

9. CHECKLISTS..... 24

9.1 Parts Packaging Checklist 24

9.2 Bolts List 25

9.3 Checklist before final packaging 25

1. COPYRIGHT & LIABILITY

No part of this module may be reproduced in any form, photocopy or otherwise, without the written permission of the copyright holder.

All information, drawings and diagrams may not be made public or shared with a third party.

In the event of any breach of abovementioned copyright, the rights of the copyright holder will be strictly enforced.

This product may need to undergo a yearly service to assure optimum performance. This service may only be carried out by TurnstilesUS or an approved agent.

Any guarantee on this product will expire should an unapproved person attempt to carry out a service. This product guarantee is only valid if the assembly is to TurnstilesUS specification, as described in this manual, and providing the product functions as is expected under standard operating conditions.

2. INTRODUCTION

The Mantrap cubicle is a high security, draft-proof physical access control product.

The frame is manufactured from the highest quality grade steel and powder coated for corrosion resistance and durability.

The glass in the door and frames are of 6mm clear laminate glass in aluminium beading.

The Mantrap cubicle is available in single or double units, and in narrow, standard and special needs passage sizes.

3. SAFETY

3.1. Safety during Maintenance

Avoid contact with moving parts.

Ensure power supply is off.

3.2. Safety during Operation

Children and minors must be accompanied and supervised while moving through the mantrap cubicle.

Wheelchairs and disabled people must use an alternative 'special needs' entrance, as in a special needs mantrap (900mm passage) or additional security controlled access door and are not allowed to use the standard mantrap under any circumstances, as this can increase risk of injury.

As an added safety measure, trained personnel should be stationed near the door to assist users with passing through.

In the event of a power failure, the magnetic locks will disengage, allowing the doors to be opened freely. An optional 'hold-open' door closer solution is available to keep the doors open indefinitely in the case of an emergency.

The standard mantrap is not to be used as an entrance for furniture and trolley deliveries. A special needs mantrap or side door should be used for this.

4. PARTS IDENTIFICATION

4.1 Base Plate

The base plate has 4 off M16 studs and 2 pivot pins welded to it, where the M16 studs are used to fix the side frames to the base and the pivot pins are used to place the doors in position for rotation with bearings.

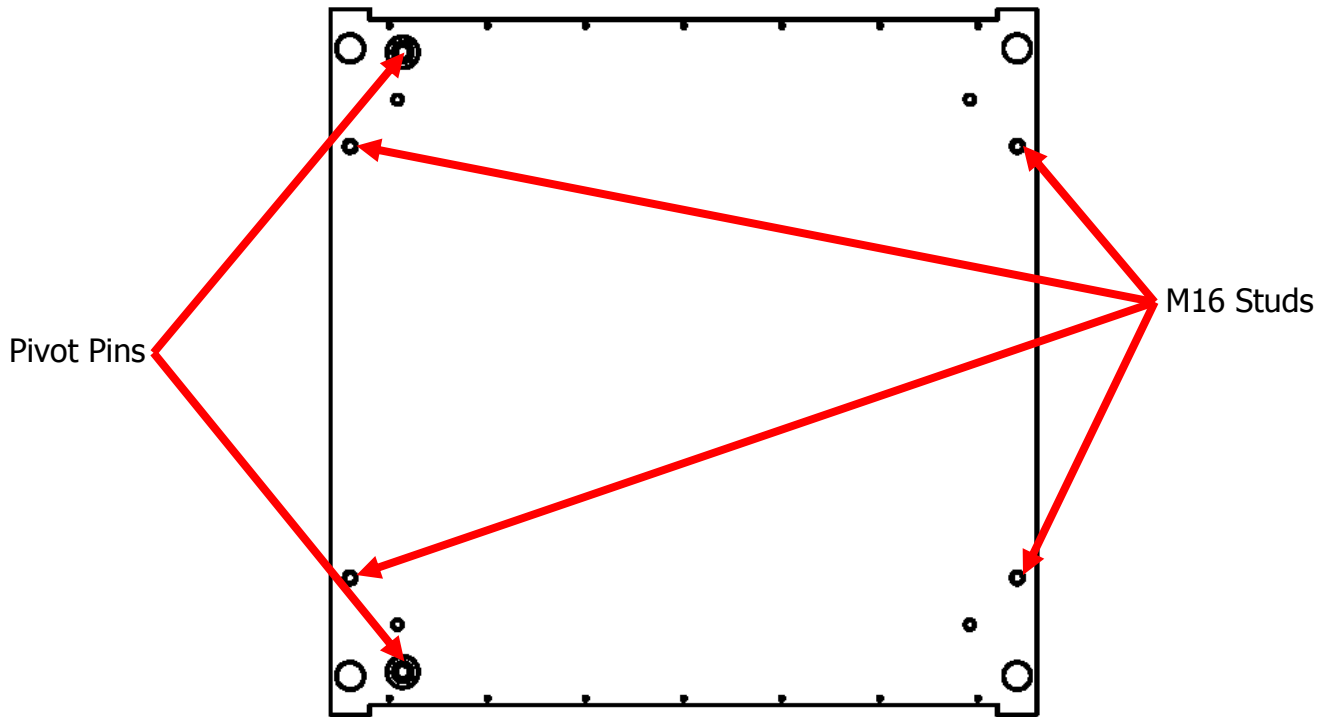


Figure 4a

4.2 Side Frame, Door Pivot Side

The side frame, door pivot side can be identified by two openings on the top of the frame, as shown.

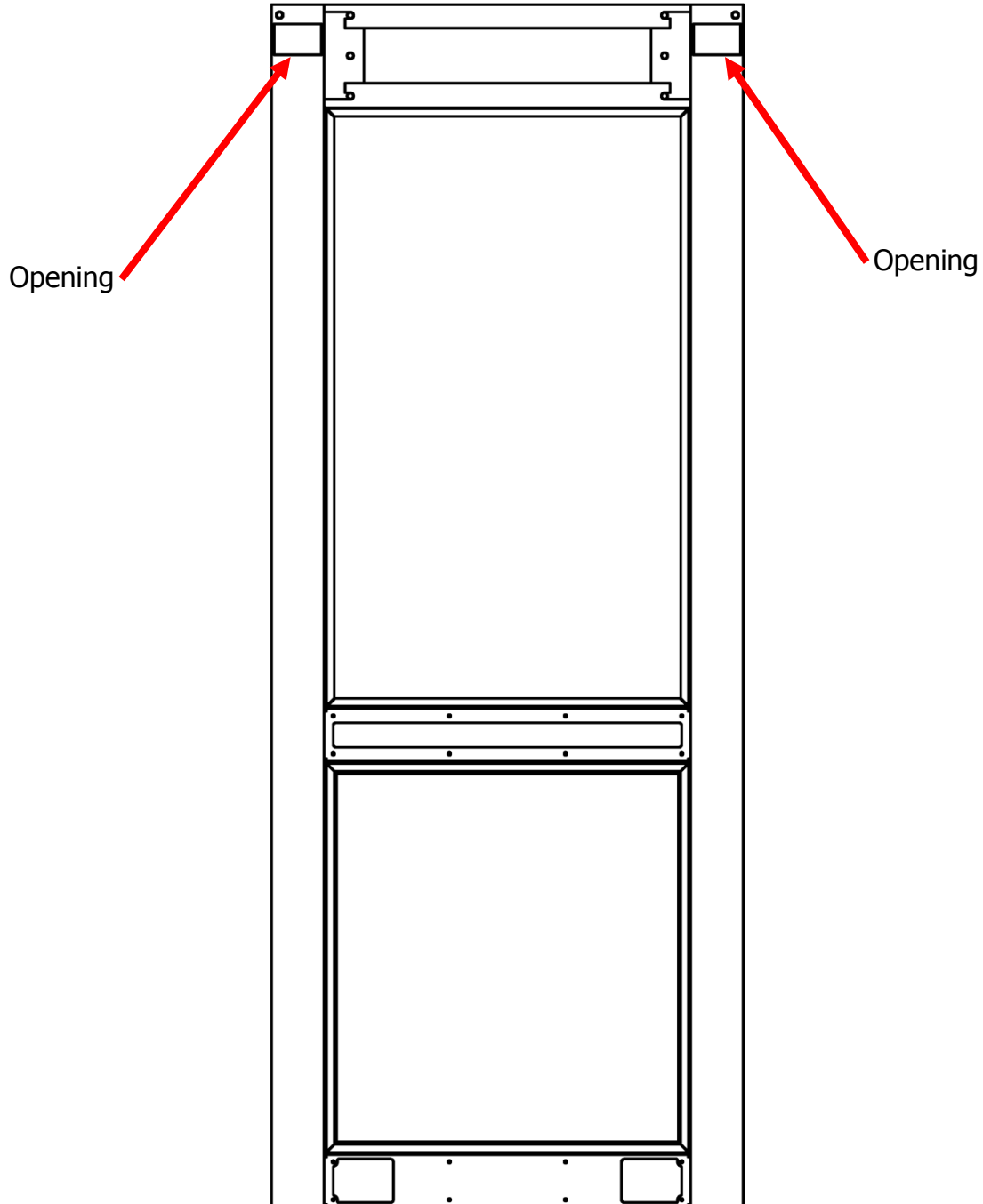


Figure 4b

4.3 Side Frame, Door Locking Side

The side frame, door locking side can be identified by the LED's on the side edges of the frame and the lock cut-outs as shown.

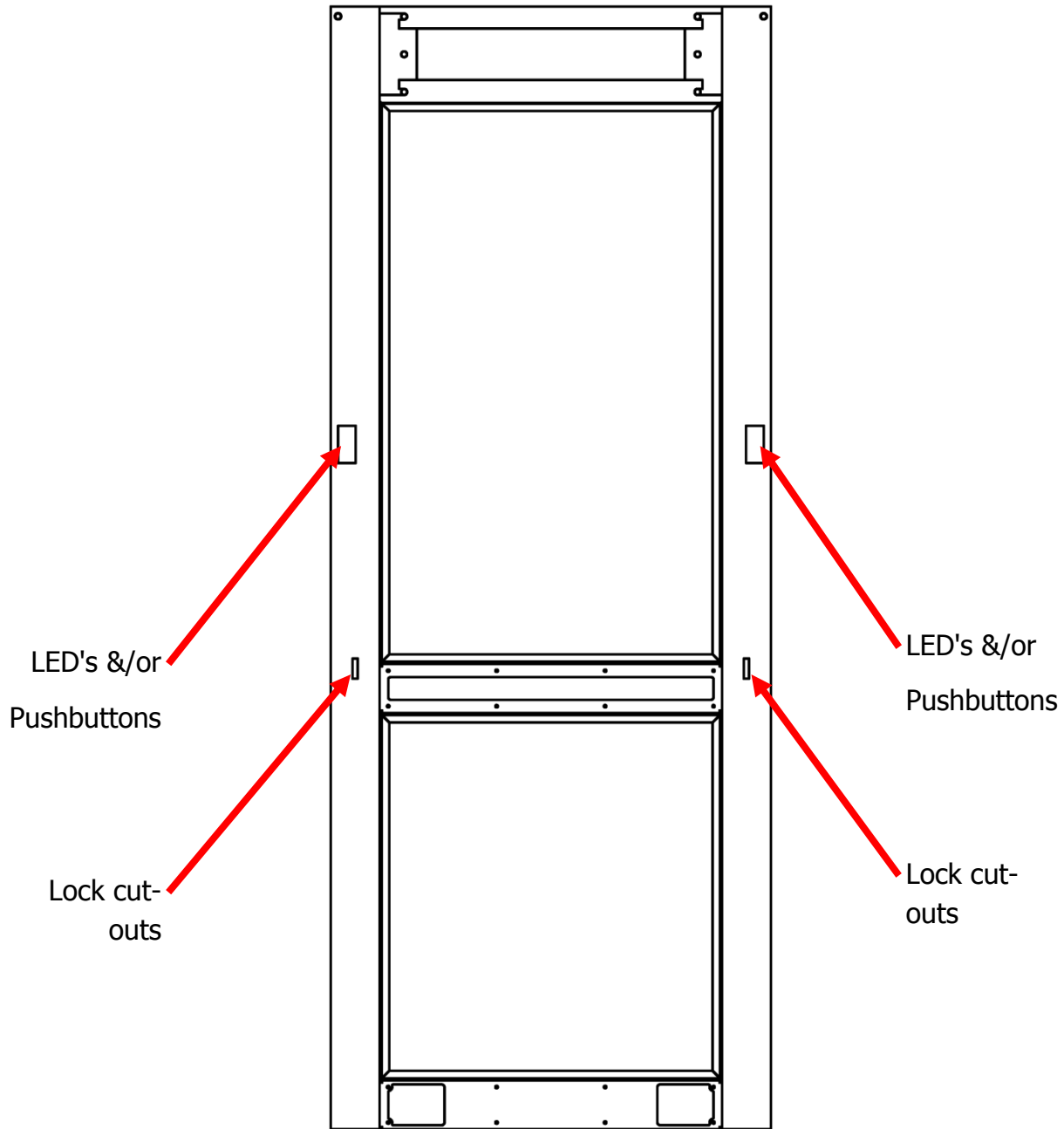


Figure 4c

4.4 Front Bulkhead

The front bulkheads are mounted between the two side frames. There are two bulkheads per single mantrap. In the packaged state, the bulkhead comes pre-assembled with the door closer and the magnetic lock. The two bulkheads are opposite and are assembled with door closers facing the same direction.

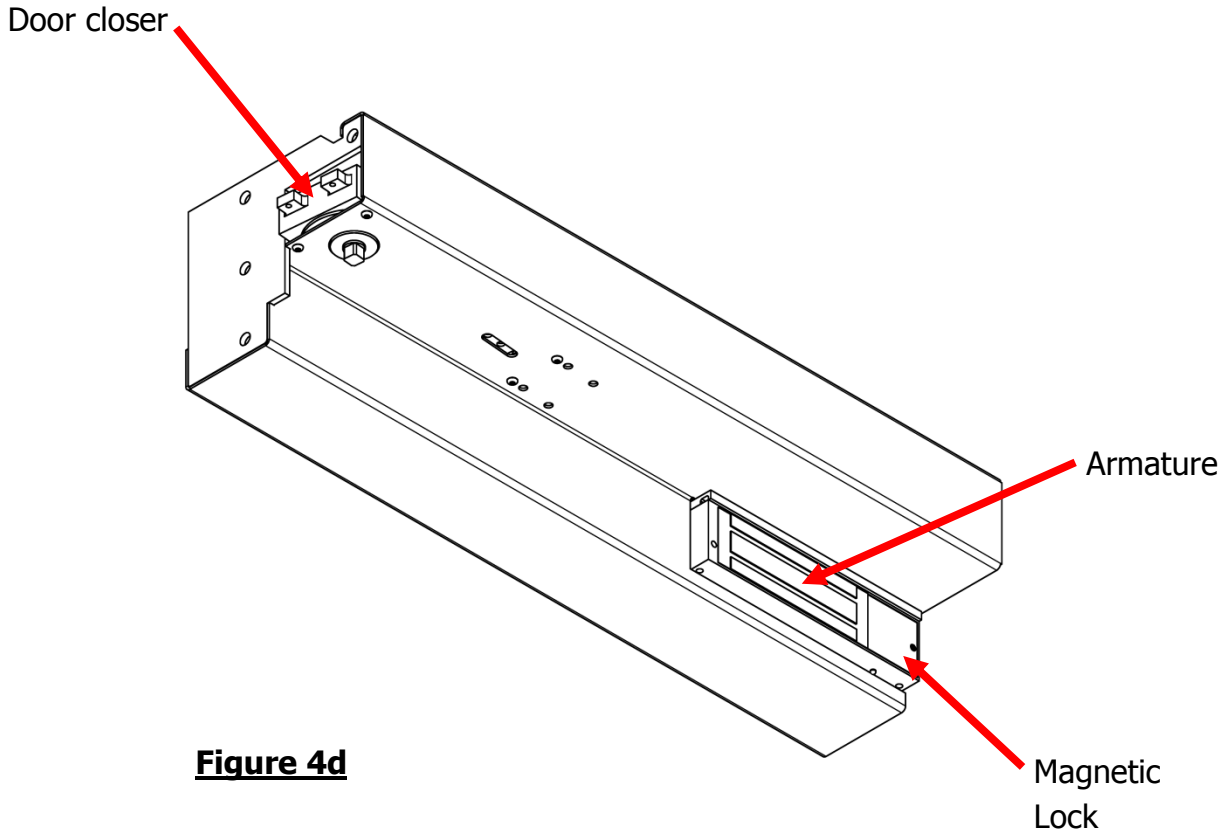


Figure 4d

4.5 Door Assembly

There are two door assemblies. The striker plate is located at a different position on each door. Take note that the striker plate will have to correspond to each maglock armature position on the bulkheads when placed in the frame.

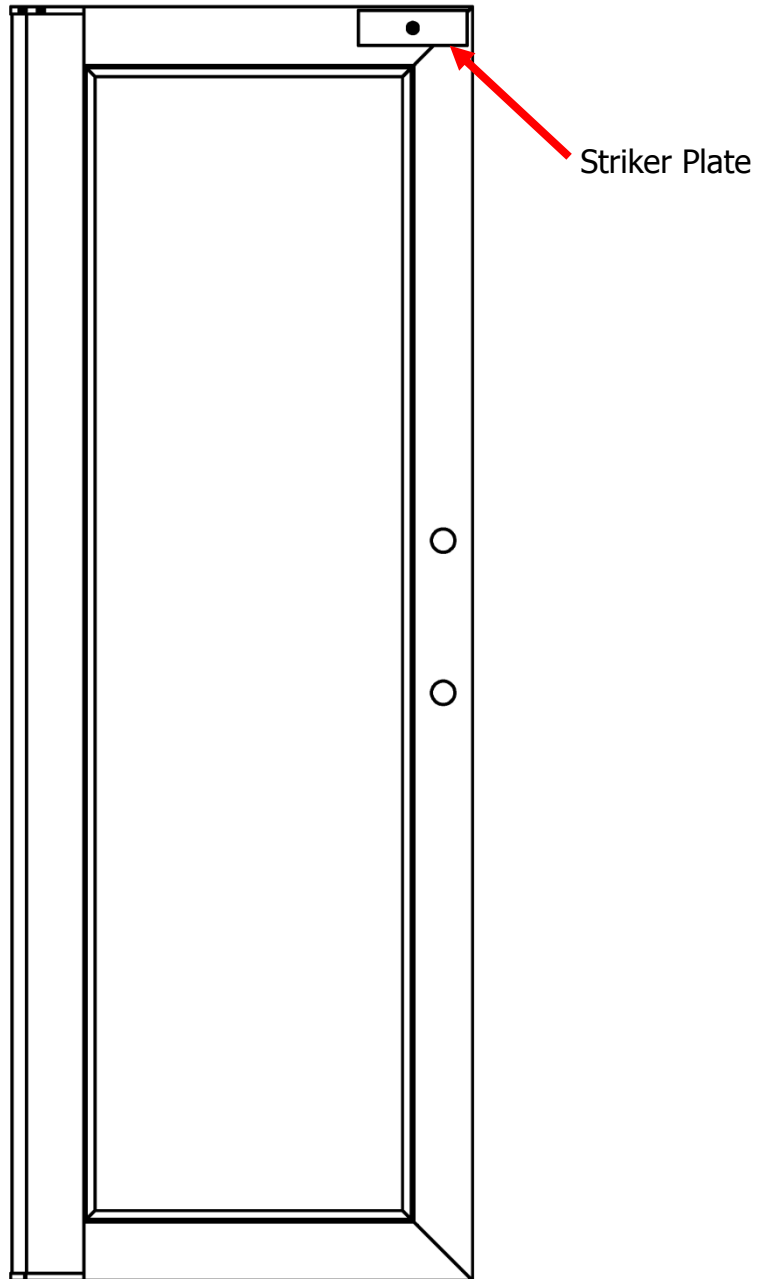


Figure 4e

4.6 Other Assembly Parts

Other parts for assembly include:

- 4.6.1: Ceiling panel in stainless steel (with downlight), 1 off
- 4.6.2: Roof Part, Powder coated, 2 off
- 4.6.3 : Coin Rubber Carpet, 1 off
- 4.6.4: Control Panel (with logic and beam board controller), 1 off
- 4.6.5: Carpet trim strip, in stainless steel, 2 off
- 4.6.6: Bolts, in packet

These parts will be referenced in assembly steps.

5. ASSEMBLY

5.1 Frame Preparation

Remove the cover plates on the inside of the side frames to allow access to base plate bolting holes.

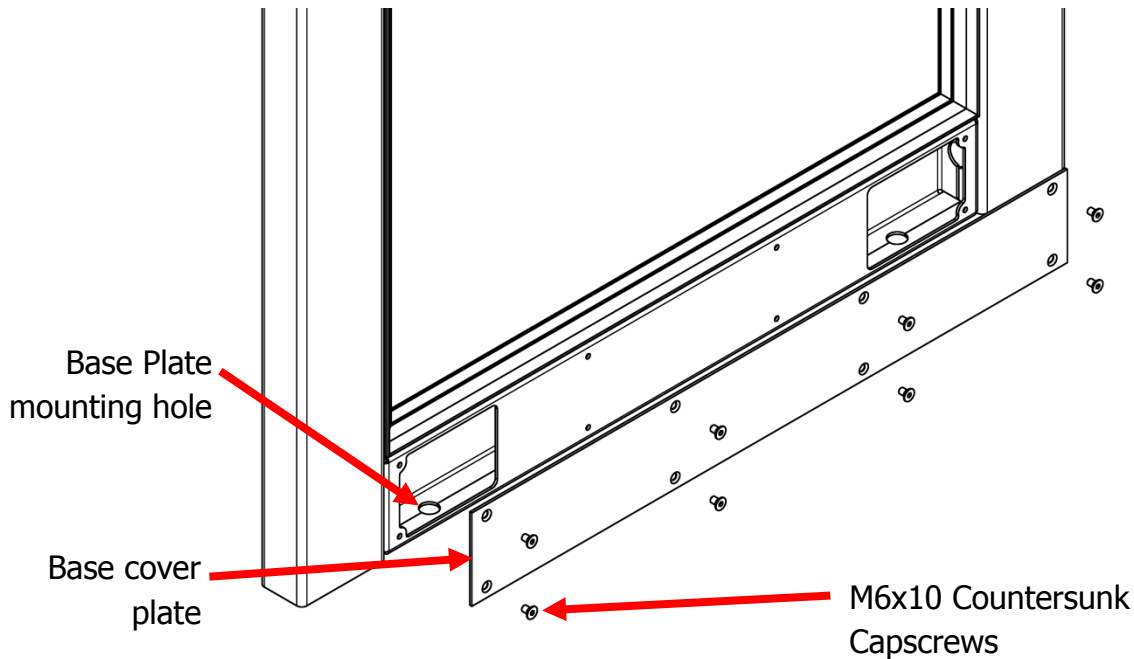


Figure 5a

5.2 Assembly of side frames & bulkheads

Place side frames on base plate, taking care that the correct type of frame mounts to the correct side on the base plate as shown.

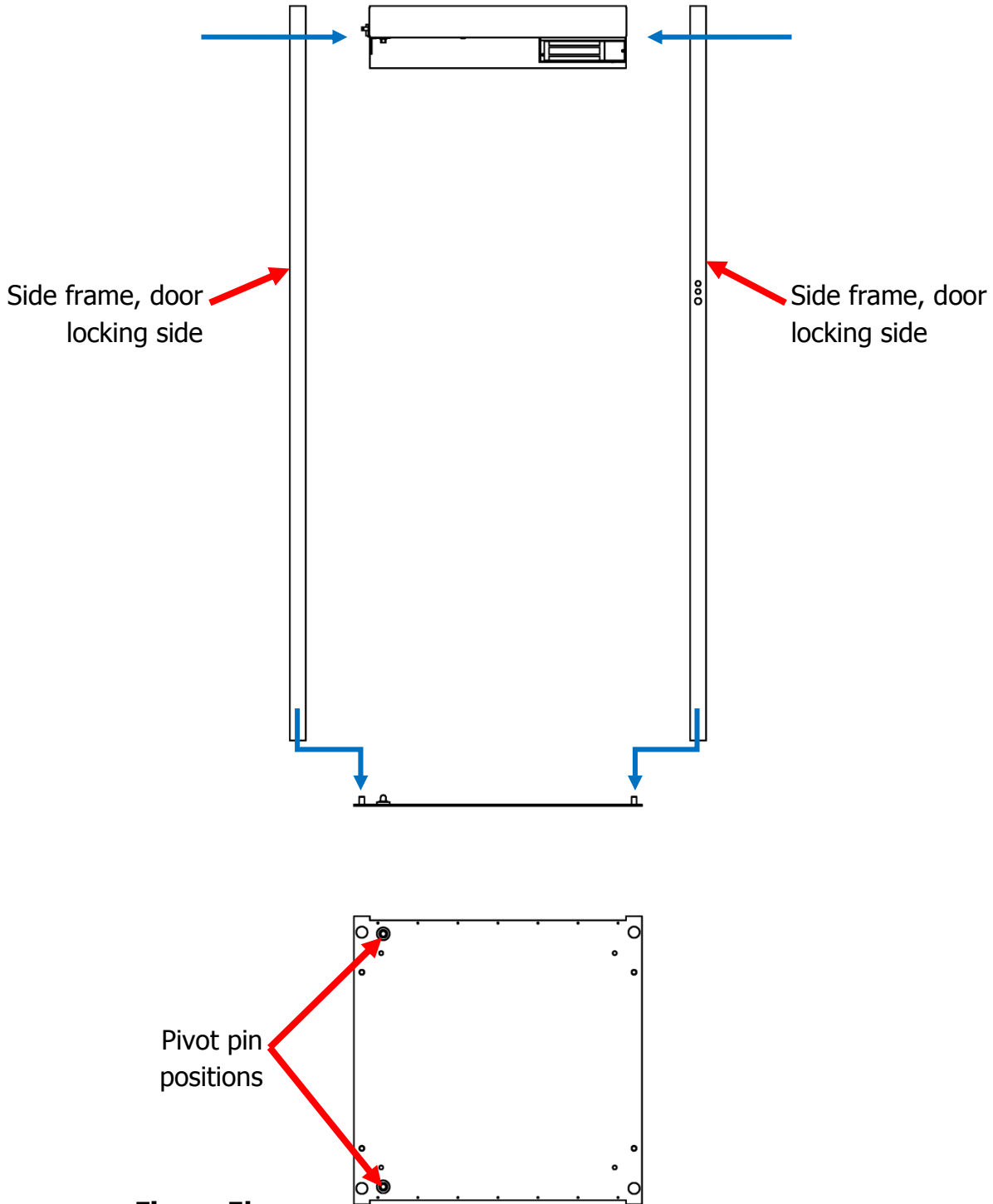


Figure 5b

Fix side frames to base plate using M16 Nylock hexnuts and washers provided. Do not tighten fully; allow slight movement of frames. This is to allow positioning and fixing of bulkheads.

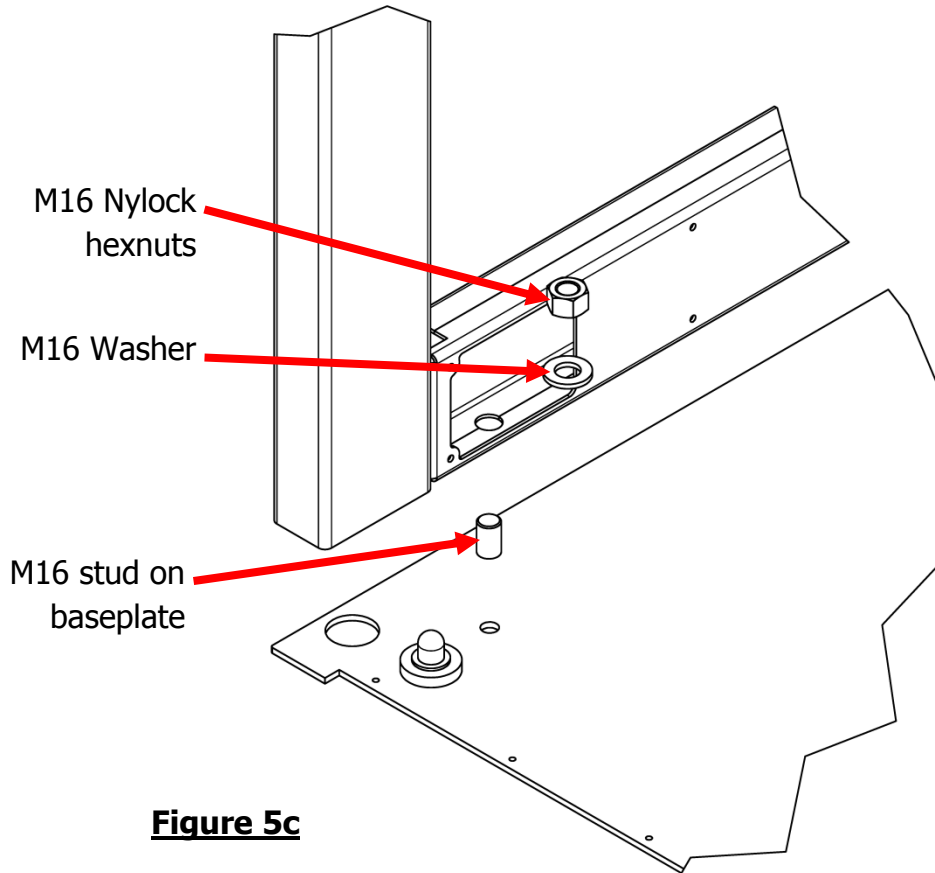
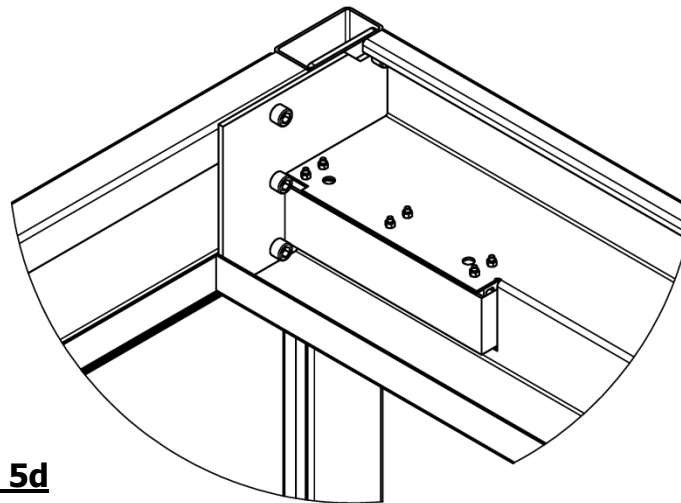


Figure 5d



Fix the bulkheads to the upper side frames using M12x20 allen head capscrews provided.

Take care when handling the bulkhead. Ensure the wiring from the magnetic lock protrudes on the inside of the mantrap above the bulkhead, also ensure that the sensor wiring from the side frames are loosely protruding inside the bulkhead. Do not damage the wiring when fitting parts.

After the bulkheads and side frames are in place, all bolts can be tightened. Check dimensions over all sides and height of the mantrap to ensure squareness. See drawing for table of sizes on mantraps.

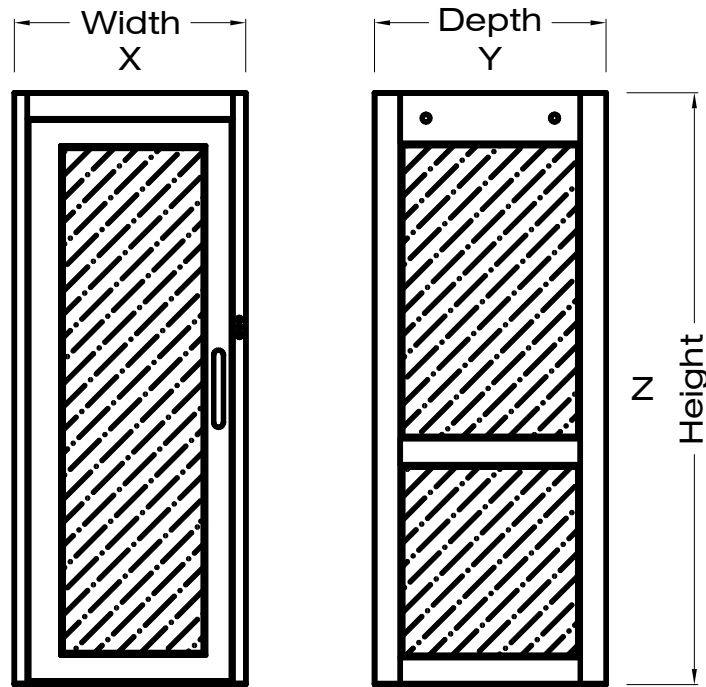


Figure 5e

Size	X	Y	Z
Narrow	800	700	2300
Standard	900	900	2300
Wide (Special Needs)	1000	1400	2300

5.3 Door preparation

Remove the door closer retainers from the top of the doors on the pivot side by loosening the two M6 allen head cascrews.

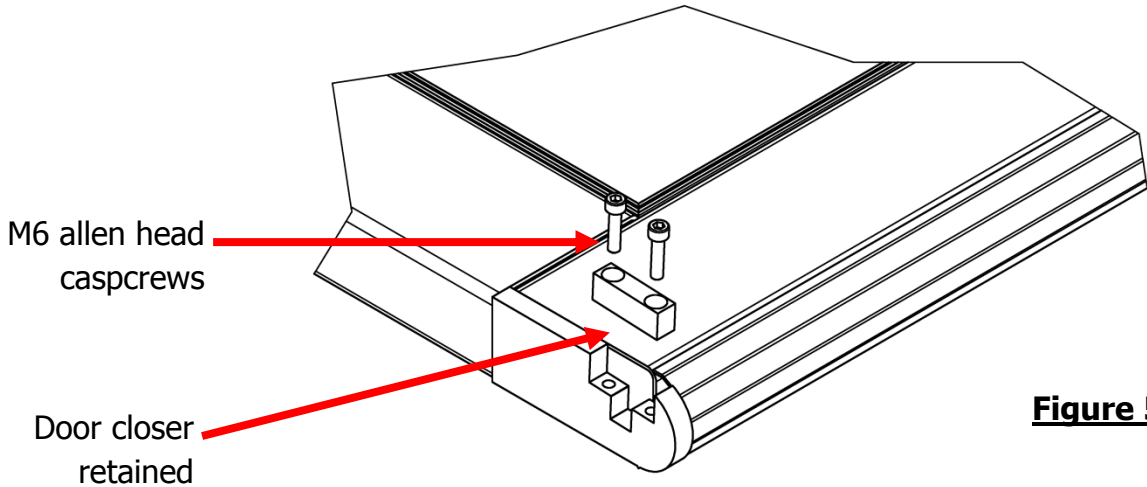


Figure 5f

Place the bearing in the base of the door on the pivot side as shown. Bearing must be flush with bottom of door after placement.

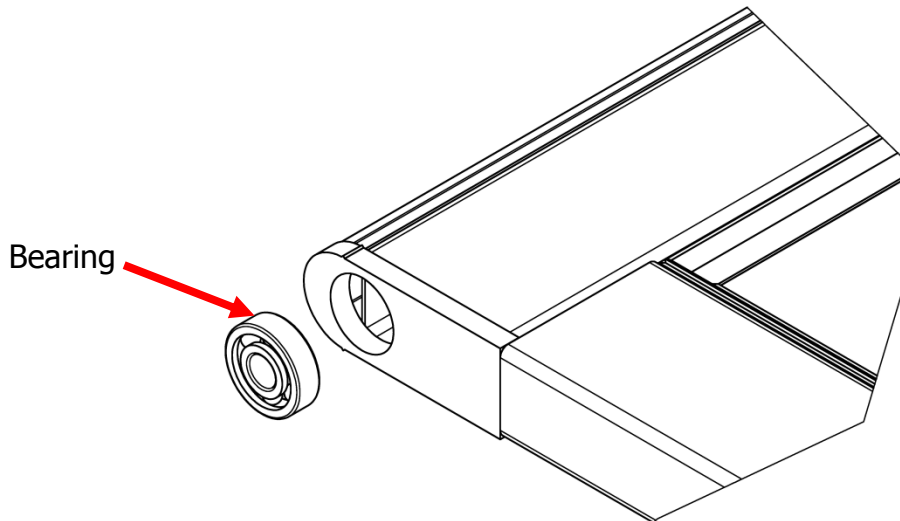


Figure 5g

5.4 Door assembly

Position the mantrap door at a slight angle onto the pivot pin on the base. Take care to check that the striker plate on the top of the door aligns with the armature of the magnetic lock in the bulkhead. The pivot pin is rounded to allow for the bearing to engage easily.

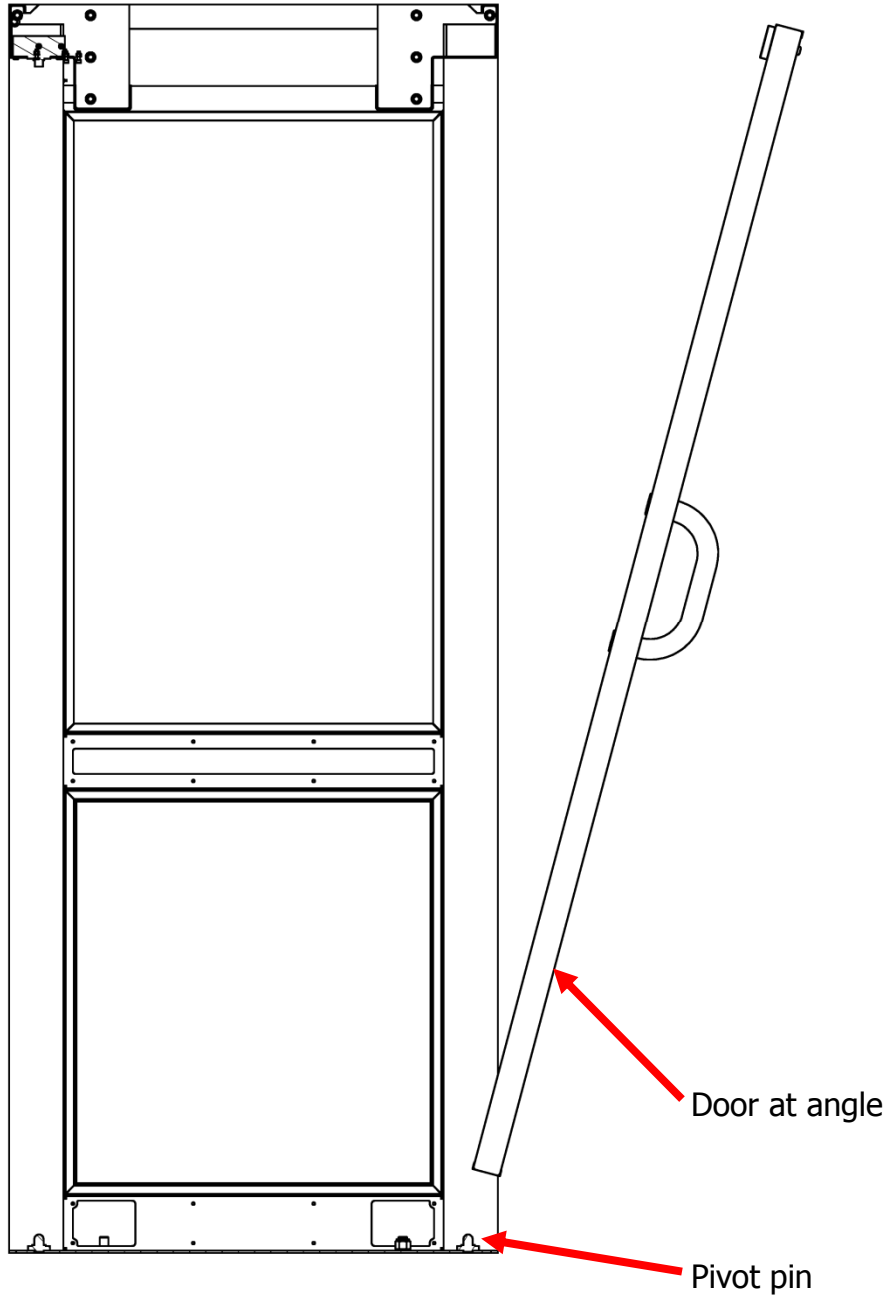


Figure 5h

Push the door inwards from angle to fit the square opening into the door closer pin protruding from the downwards front face of the bulkhead as shown. The door might have to be agitated from side to side to fit fully into the pin.

After the pin is situated, pull the door into the 'open' position and use the door closer retainer to secure the pin and replace the M6 allen head capscrews as shown.

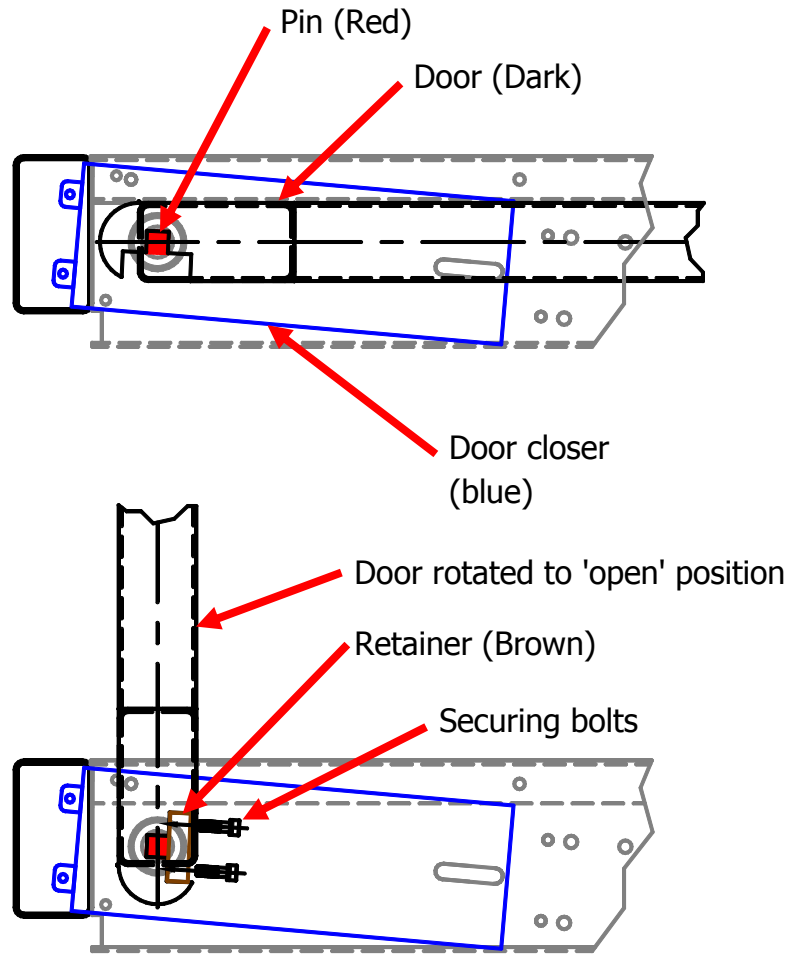


Figure 5i

6. WIRING

This section will explain how to connect the infra-red detector wires, the power and the triggers of the mantrap.

The control panel comes complete with a 18v transformer, a live power connector block and a infra-red beam control board (optional).

6.1 Wiring Diagram

On the next page, the full wiring diagram of the mantrap standard controller is shown. The most relevant connections from the magnetic lock to the control board, the LED connections and the triggers.

6.2 Transmitters and receivers

(Note: On a control board with no sensors, a push button or any other trigger is required on the inside of the mantrap to allow throughfare)

The infra-red transmitters and receivers are located on the center line of the frames and act as occupation sensors to detect pedestrians inside the mantrap. This is necessary for the mantraps to function correctly.

The connection harness from the transmitters can be identified by having the following colours: Red (power), brown, yellow, white, blue and green.

The connection harness from the receivers can be identified by the following colours: Red (power), black (common), brown, yellow, white, blue and green. The receivers have the same arrangement in colours with the difference being in having a black wire acting as a common signal.

The transmitter- and receiver harness can be found protruding on the top of each frame. It is not relevant which frame has which type of harness.

Connect these wires to the beam controller board as shown.

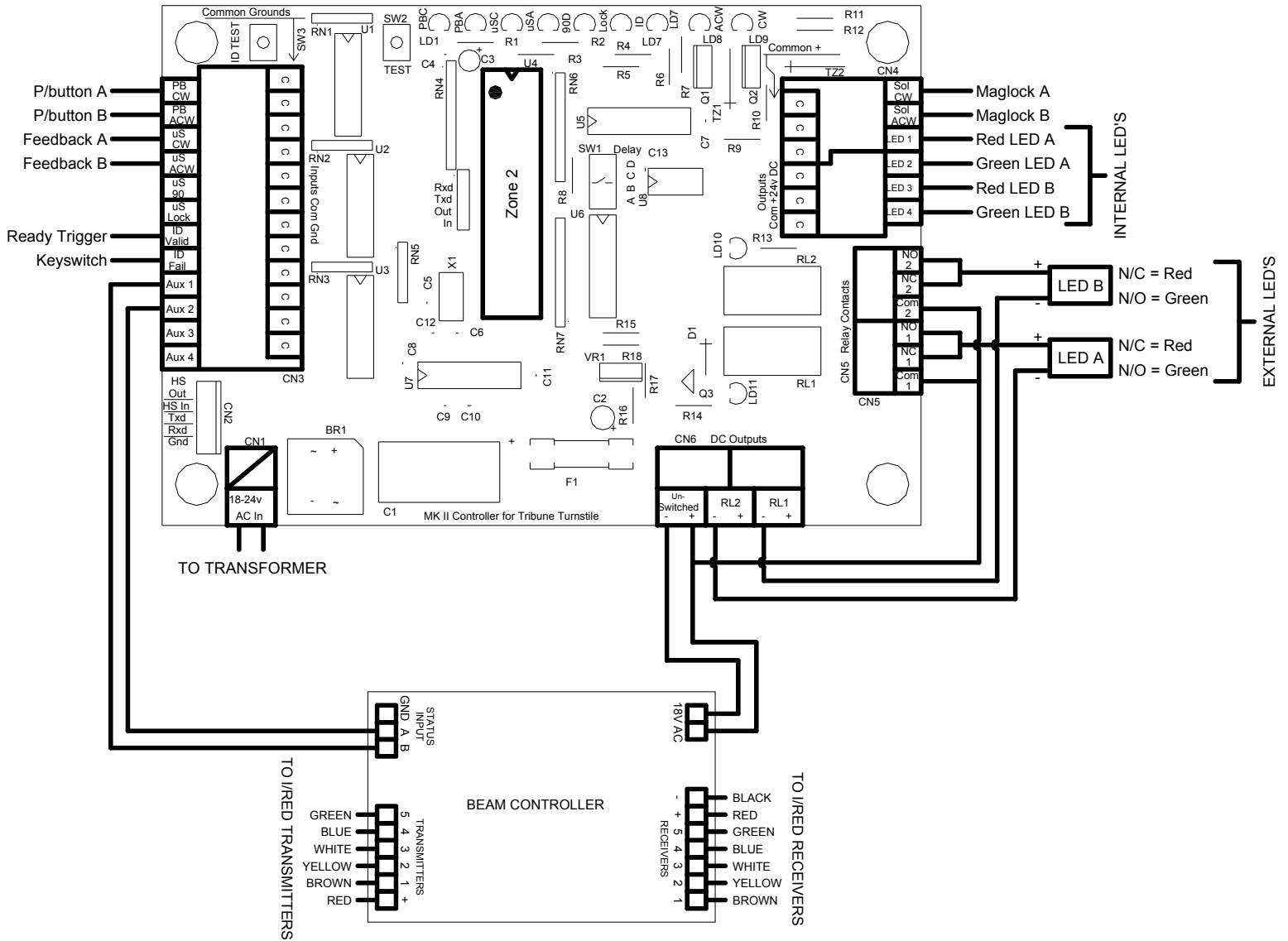


Figure 6a: Wiring Diagram for Mantrap Cubicle

6.3 Magnetic lock connections

The magnetic lock is connected at 'Maglock A' and 'Maglock B' on the wiring diagram. Also, a feedback signal from the magnetic lock must be connected to the corresponding 'Feedback A' and 'Feedback B' points as shown.

6.4 LED Connections

In the case of external LED connections only, connect the LED harness from the side frames to the control panel as shown on the wiring diagram. Note that the sides of 'A' and 'B' must correspond to with the magnetic lock on that side.

The same is true for internal LED's. Normally these LED's are located in the upper bulkhead above the occupant. Do not connect the internal LED's (if supplied) to external connections.

6.5 Triggers

In the case of external pushbuttons on the frame to trigger entry to the mantrap, the wires can be found with the external LED harness located from above the side frames.

Note that the sides of 'A' and 'B' must correspond with the maglock and LED's on that side.

In the case of external card reader/ access control trigger, use a dry contact, normally open with 0.3 to 0.7 second pulse, connected to the corresponding side 'A' and 'B' P/button triggers found on the control panel.

The transmitter- and receiver harness can be found protruding on the top of each frame. It is not relevant which frame has which type of harness.

Connect these wires to the beam controller board as shown.

7. INSTALLATION

7.1 Conduit positions

The following drawing shows the preferred conduit positions for the mantrap. The cables from the conduit will be routed through the side upright into the top cavity. There will be a draw-wire available for this purpose.

When preparing the floor and conduits, take care to avoid placing conduits in the area where the mantrap will be bolted to the floor.

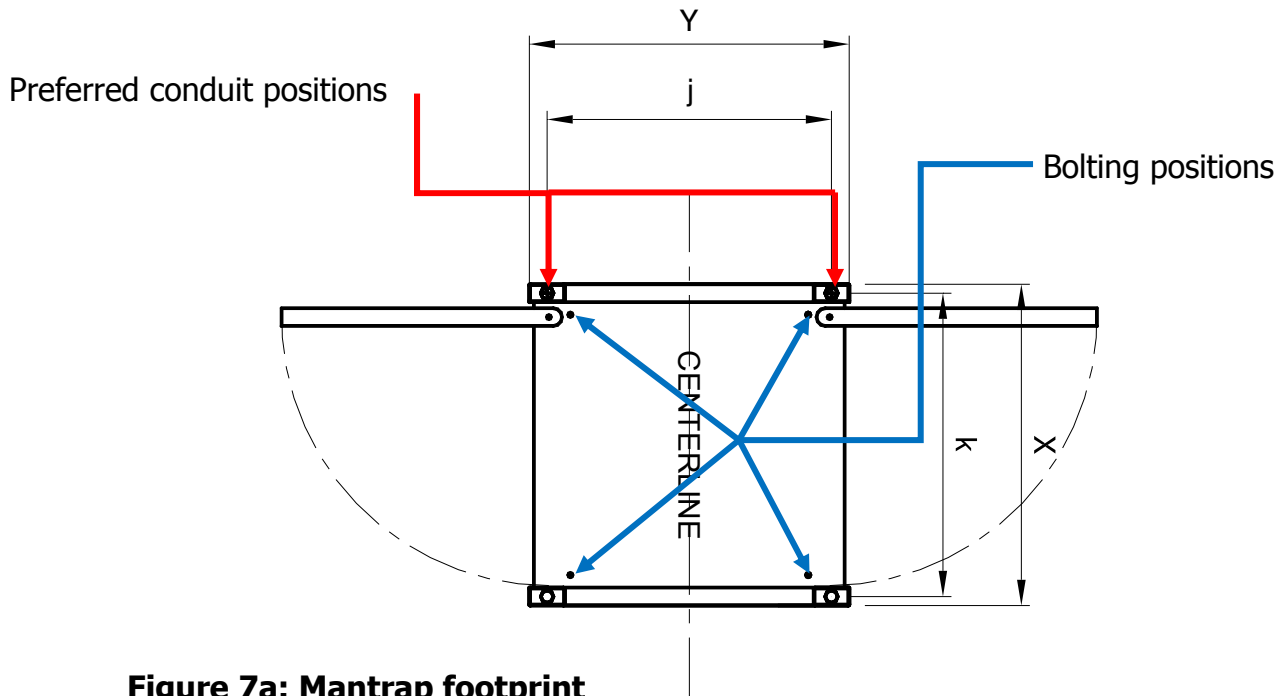


Figure 7a: Mantrap footprint

Size	X	Y	k	j
Narrow	800	700	750	600
Standard	900	900	850	800
Wide (Special Needs)	1000	1400	950	1300

The conduit required are 220V AC power and optional control cables, in the case of external client access control system. Cables to extend +/- 3500mm from floor level.

7.2 Checklist before bolting to floor

Follow the checklist and ensure the mantrap passes before positioning and bolting unit to floor.

Checklist before bolting unit to floor		
Area	Check	Pass / Fail
Side frames to Base plate	M16 Nylock nuts are securely tightened to avoid movement	
Bulkheads to side frames	M12 allen head screws are securely tightened to side frames	
Cover plates	All cover plates at the base of the side frames have been re-attached and fixed with provided countersunk stainless steel screws	
Doors	a) Door closer retainer is bolted securely at the top of the door b) Doors are opening and closing correctly, and speed of opening and closing is acceptable.	
Ceiling	Ceiling panel is securely tightened and not loose. Downlight is connected and working correctly.	
Triggers	The mantrap opens when triggered from both directions, and allows through-put	
Checked By		

Ensure the mantrap unit is level on all sides and the base with a spirit level.

Use provided countersunk bolts with RAWL sleeve anchors to bolt the unit to the floor in the four holes.

8. FINISHING

8.1 Ceiling assembly

From inside the mantrap, the ceiling panel has to be pushed up in place to align with the holes on the bulkhead and on the side frame. From the top of the mantrap, use M8x16 hex setscrews and hexnuts to fix the ceiling in place as shown.

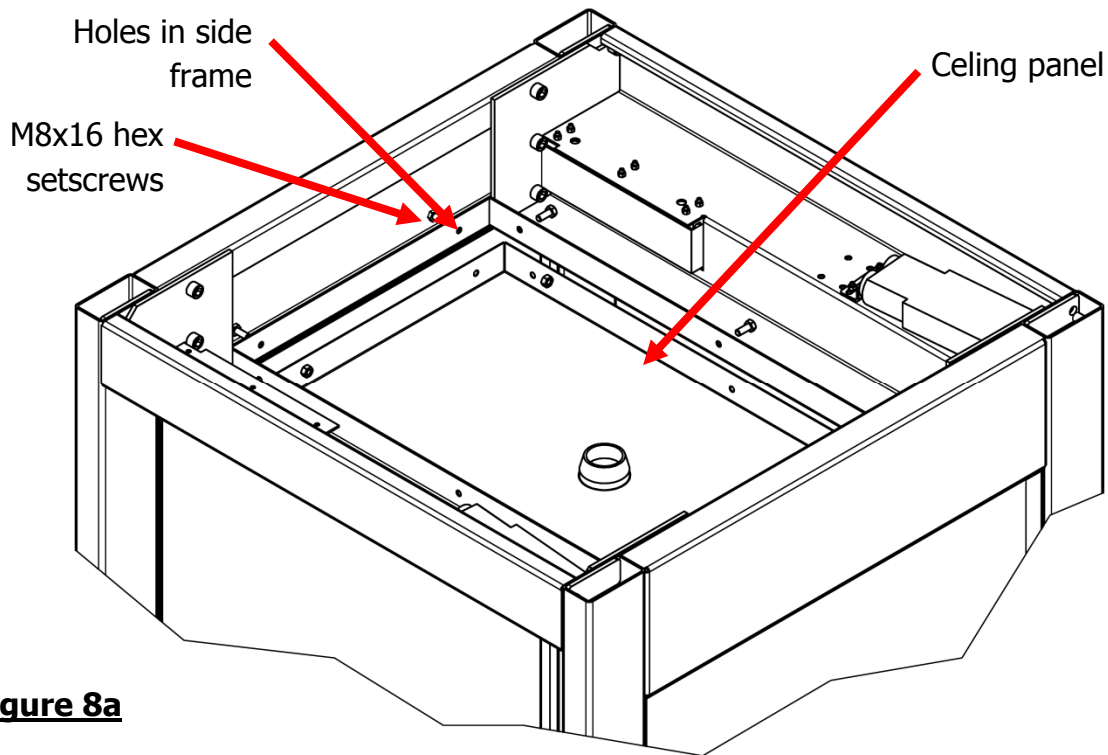


Figure 8a

8.2 Roof assembly

After testing of the mantrap, the roof can be installed. Use M8 screws provided to bolt each half of the roof onto the top of the mantrap, ensuring that the threaded holes in the top structure line up with the holes in the panels.

8.3 Carpet

Place the carpet onto the base of the mantrap, using the slots cut into the carpet to fit over the pivot pins. Fix the carpet trim strip to the inside door edge of the mantrap base plate, over the carpet and use screws supplied to fix.

9. CHECKLISTS

9.1 Parts Packaging Checklist

Parts Packaging Checklist				
Part Description	Quantity	Part Ref. No	Check Packed	Check Received
Base Plate	1	TSMT_AP_1		
Side Frame, Door pivot side	1	TSMT_AP_2		
Side Frame, Door locking side	1	TSMT_AP_3		
Door A (with Striker Plate)	1	TSMT_AP_4		
Door B (with Striker Plate)	1	TSMT_AP_5		
Bulkhead Left (with Maglock & Door closer)	1	TSMT_AP_6		
Bulkhead Right (with Maglock & Door closer)	1	TSMT_AP_7		
Ceiling Panel (with Downlight)	1	TSMT_AP_8		
Roof Part (powder coated)	2	TSMT_AP_9		
Coin Rubber Carpet	1	TSMT_AP_10		
Control Panel (with logic, PCB & beam board)	1	TSMT_AP_11		
Carpet Trim Strip (in stainless steel)	2	TSMT_AP_11		
Bolts & Fasteners (Packet)	1	TSMT_AB		
Checked By				

9.2 Bolts List

Bolts List				
Part Description	Quantity	Part Ref. No	Check Packed	Check Received
M12 x 25 Hex Setscrew (ep)	8	TSMT_AB_1		
M5 x 16 Countersunk Capscrew (304)	10	TSMT_AB_2		
Checked By				

9.3 Checklist before final packaging

Checklist before Final Packaging	
Action	Checked
Maglocks on bulkheads, wiring harnessed and numbered, screws tightened.	
Door closers on bulkheads, screws tightened.	
LED's &/or Pushbuttons fastened, cover plate screwed on, wiring harnessed and numbered.	
Striker plates fixed onto doors, allowance for movement (tilt) of striker plate, doors labeled.	
Doors checked for burrs, scratches and blemishes. Glass checked for scratches, chips or cracks.	
Side frames checked for burrs, scratches and blemishes. Glass checked for scratches, chips or cracks.	
Draw wire provided in side uprights	
Checked by	