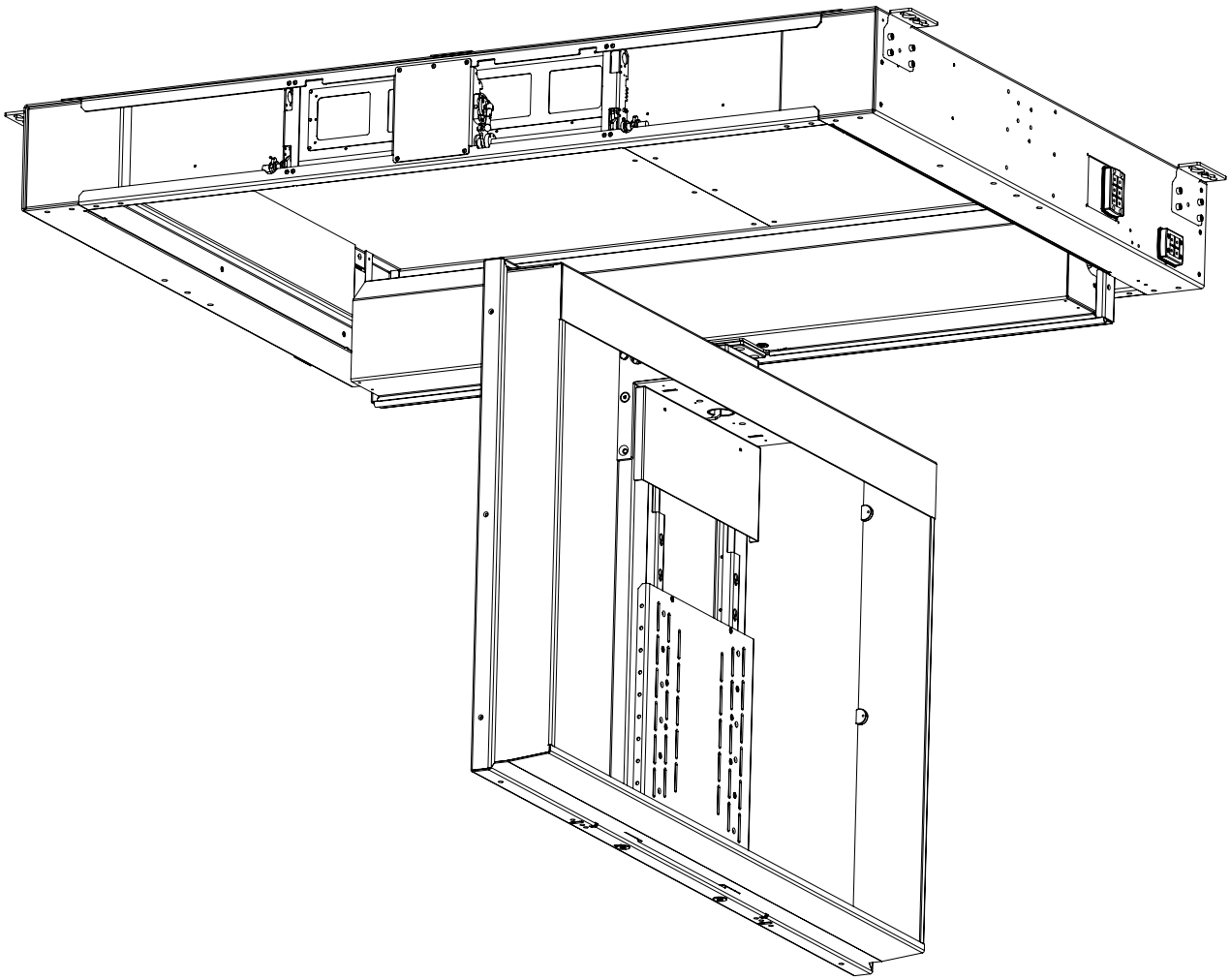
CHRS-M / MO

Marine Ceiling Hinge Range With Swivel

Installation Instructions



Issue 002

futureautomation
moving audio visual solutions

Safety Disclaimer

Product Safety Disclaimer - IMPORTANT SAFETY INSTRUCTIONS BELOW

WARNING: Failure to provide adequate structural strengthening, prior to installation can result in serious personal injury or damage to the equipment. It is the installer's responsibility to ensure the structure to which the component is affixed can support four times the weight of the component and any additional apparatus mounted to the component.
WARNING: Do not exceed the weight capacity for this product as listed below. This can result in serious personal injury or damage to the equipment. It is the installer's responsibility to ensure that the total combined weight of all attached components does not exceed that of the maximum figure stated.
WARNING: Risk of death or serious injury may occur when children climb on audio and/or video equipment or furniture. A remote control or toys placed on the furnishing may encourage a child to climb on the furnishing and as a result the furnishing may tip over on to the child.
WARNING: Risk of death or serious injury may occur. Relocating audio and/or video equipment to furniture not specifically designed to support audio and/or video equipment may result in death or serious injury due to the furnishing collapsing or over turning onto a child or adult.



Warning – Risk of Injury!



Only for use with equipment weighing
CHRS7 - 200KG (440LBS) OR LESS.
Use with heavier screens/equipment may lead to instability causing tip over or failure resulting in death or serious injury.

Mechanism Suitable for Marine use.

WARNING:
1. Keep all documentation/instructions after fitting.
2. Read all technical instructions fully before installation and use. It is the installer's responsibility to ensure that all documentation is passed on the end user and read fully before operation.
3. Do not use near water or outdoors unless the product has been specifically designed to do so.
4. Protect the any cables or cords being used near this bracket from being walked on or pinched to prevent damage and risk of injury.
5. Use this product only for its intended purpose as described in these instructions and only use attachments/accessories specified by the manufacturer.
6. Refer all servicing to qualified personnel. Servicing is required regularly on an annual basis.
7. Do not operate the product if it is damaged in any way, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped. Contact the original installer/ manufacturer to arrange repair or return.

WARNING - To reduce the risk of burns, fire, electric shock, or injury to persons:
1. Clean only with a dry cloth and always unplug any electrical items being used in conjunction with this product before cleaning.

Future Sound & Vision trading as Future Automation intend to make this and all documentation as accurate as possible. However, Future Automation makes no claim that the information contained herein covers all details, conditions or variations, nor does it provide for every possible contingency in connection with the installation or use of this product. The information contained in this document is subject to change without prior notice or obligation of any kind. Future Automation makes no representation of warranty, expressed or implied, regarding the information contained herein. Future Automation assumes no responsibility for accuracy, completeness or sufficiency of the information contained in this document.

Contents

Table Of Contents

Safety Disclaimer 2
Contents 3
Product Warranty 4
Package Contents 5
Installation Instructions 6
- Preparing For Installation 6
- Mechanism Installation - Beam Mounting 7
- Mechanism Installation - Stud Mounting 8
- Cable Routing - Marine Outdoor 9
- Cable Routing - Marine Indoor 12
- Removing Trim Panels 12
- Mount Plate Removal 14
- 15
- Screen and Mount Plate Installation 16

Mechanism Control 17
- General Control 17
- Infrared (IR) 18
- Contact Closure 19
- RS232 20

Mechanism Adjustments 21
- Hinging Main Tray Levelling 21
- Hinging Main Tray Positioning 23
- Hinging Back Tray Positioning 26
- Hinging Back Tray Levelling 27

Contact Information 28

Product Warranty

Future Automation - Product Warranty Details

Your warranty covers the cost of labour and spare parts incurred by any defects in materials and workmanship under normal use during a **two year period from date of purchase.**

Under the warranty, we aim to either solve the issue remotely (via telephone or email support) or if the mechanism requires a part, arrange a visit to your premises by a Future Automation approved engineer or send replacement items where appropriate.

Support for any problems that are not hardware or software faults are excluded from the warranty entitlement.

Warranty repairs will be carried out as rapidly as possible, but subject to parts availability.

Some things are not covered under warranty, the following is excluded from warranty service:
• Malfunctioning caused by misuse or damage, accidental or otherwise, or service modification by persons not authorised by Future Automation, or the use of any non Future Automation supplied parts;
• Any electrical, or other environmental work external to your Future Automation mechanism including power cuts, surges or lightning strikes;
• Additional items not supplied by Future Automation although they may have been supplied together by the retailer;
• Any 3rd party software products controlling your mechanism;
• Any transfer of ownership. Warranty is provided only to the initial purchaser;
• Compensation for loss of use of the product, and consequential loss of any kind.

Any part of your system that needs to be replaced during a warranty repair becomes the property of Future Automation.

Customer Support - Contact Details

European Office

Address:
Unit 6-8
Brunel Road
Bedford
Bedfordshire
MK41 9TG

Phone: +44 (0) 1438 833577
Email: info@futureautomation.co.uk

Office Hours:
Mon - Fri 8:00 to 17:30 GMT
Saturday & Sunday - Closed

North American Office

Address:
Enterprise Park
127 Venture Drive
Dover
NH
03820

Phone: +1 (603) 742 9181
Email: info@futureautomation.net

Office Hours:
Mon - Fri 7:00 to 17:00 EST
Saturday & Sunday - Closed

Product/Installer Details - To be Completed By Original Installer

Installer Contact Details:

Contact Address:

_____

_____

_____

_____

_____

Contact Phone: _____

Contact Email: _____

Original Installation Date: _____

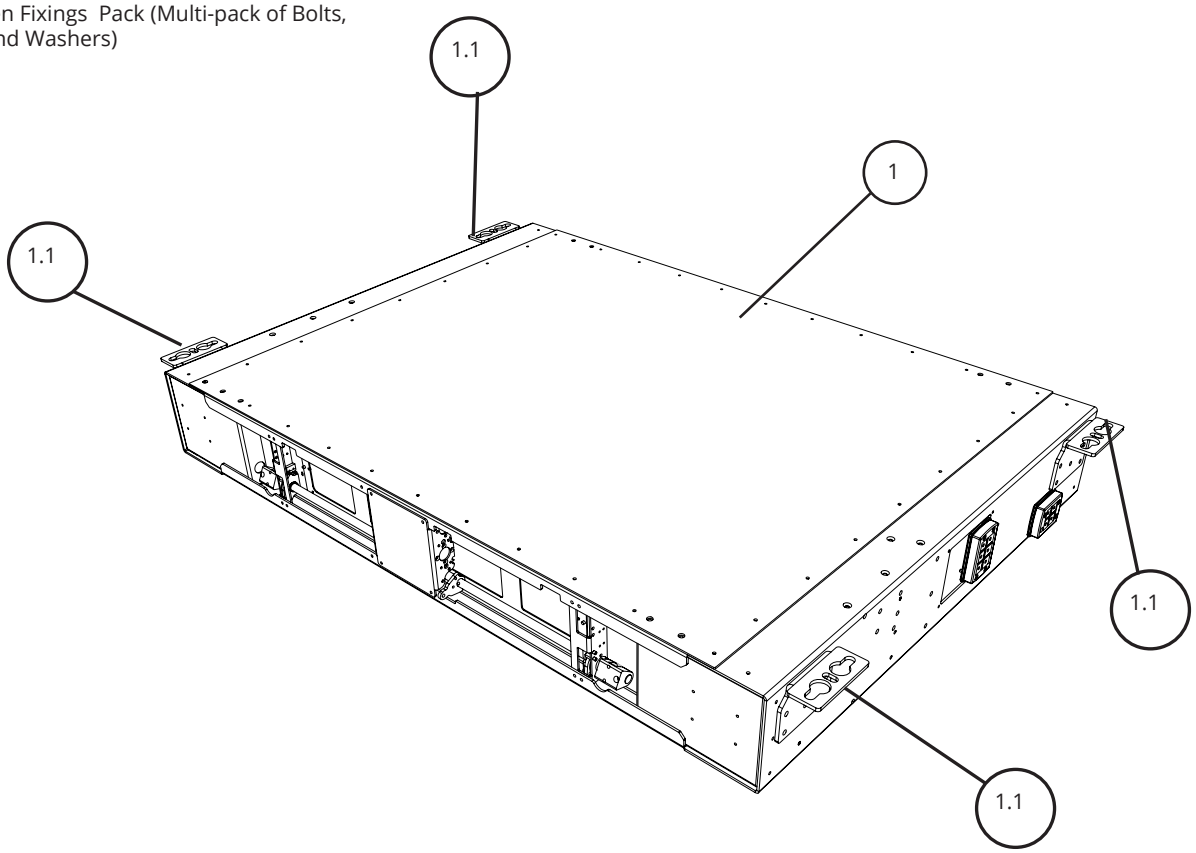
Product Serial Number: _____

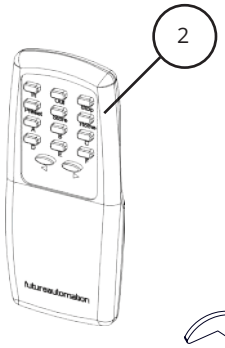
Package Contents

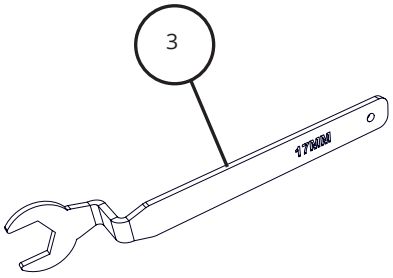
Package Contents:
1 - CHRS-M / MO Mechanism
    1.1 - Mount Brackets

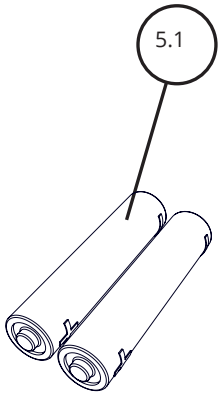
2 - Infra-Red (IR) Remote Control
3 - CHR 17mm Adjustment Spanner

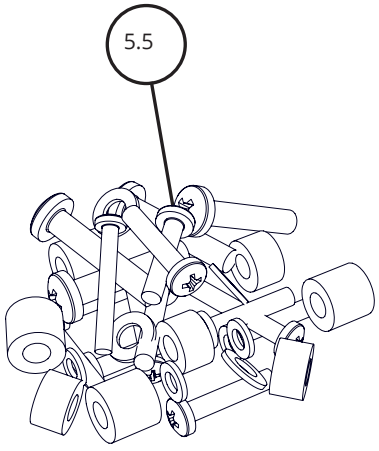
Standard Accessories
5 - CHRS-M / MO Accessory Pack
    5.1 - x2 AAA Batteries
    5.2 - Mains Power Lead - Installed in Mechanism
    5.3 - Infra-Red Control Lead -Installed in Mechanism
    5.4 - CAT5 Lead with RJ45 Connector
    5.5 - Screen Fixings Pack (Multi-pack of Bolts, Spacers and Washers)









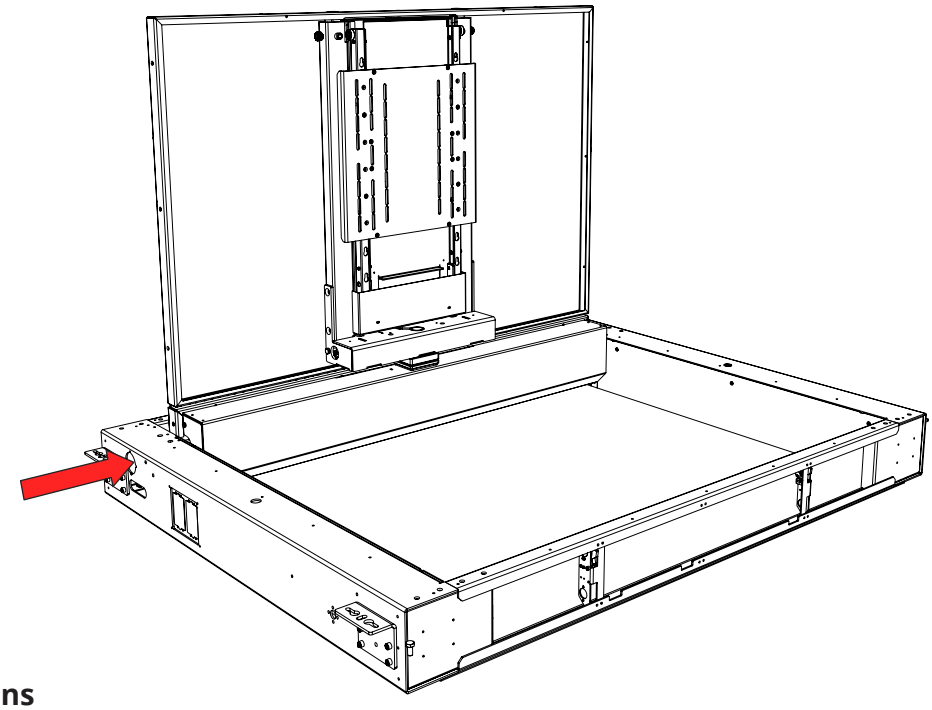


Installation Instructions

Preparing For Installation

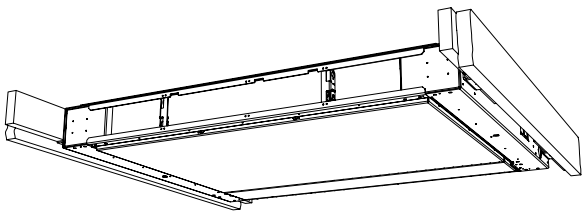
1. The power and IR receiver cables are secured for transit using a red cable tie to the right side of the mechanism.
2. Remove the red cable tie and carefully pull the power and IR cables to full extension ready for installation.
3. With the mechanism laying upside down, operate using IR Controller provided into the OUT position. Check no damage has occured during transit. See Page 15 for further control information.

WARNING: THE **CHRST** MECHANISM **DOES NOT** HAVE AN ANTI-JAM CAPABILITY.
THE MOTOR DRIVE SYSTEM WILL CONTINUE TO MOVE UNTIL A LIMIT SWITCH IS CONTACTED. KEEP HANDS AND ANY OBJECTS CLEAR OF MECHANISM DURING OPERATION TO REDUCE RISK OF DAMAGE OR INJURY.

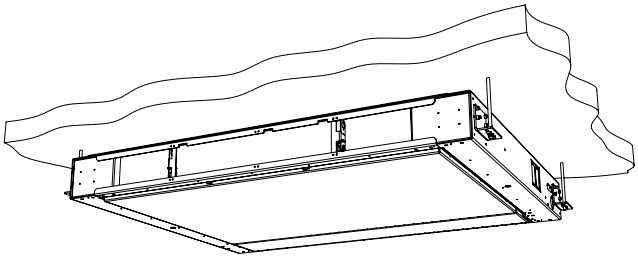


Mounting Options

Option 1 - Beam Mounting



Option 2 - Stud Hanging



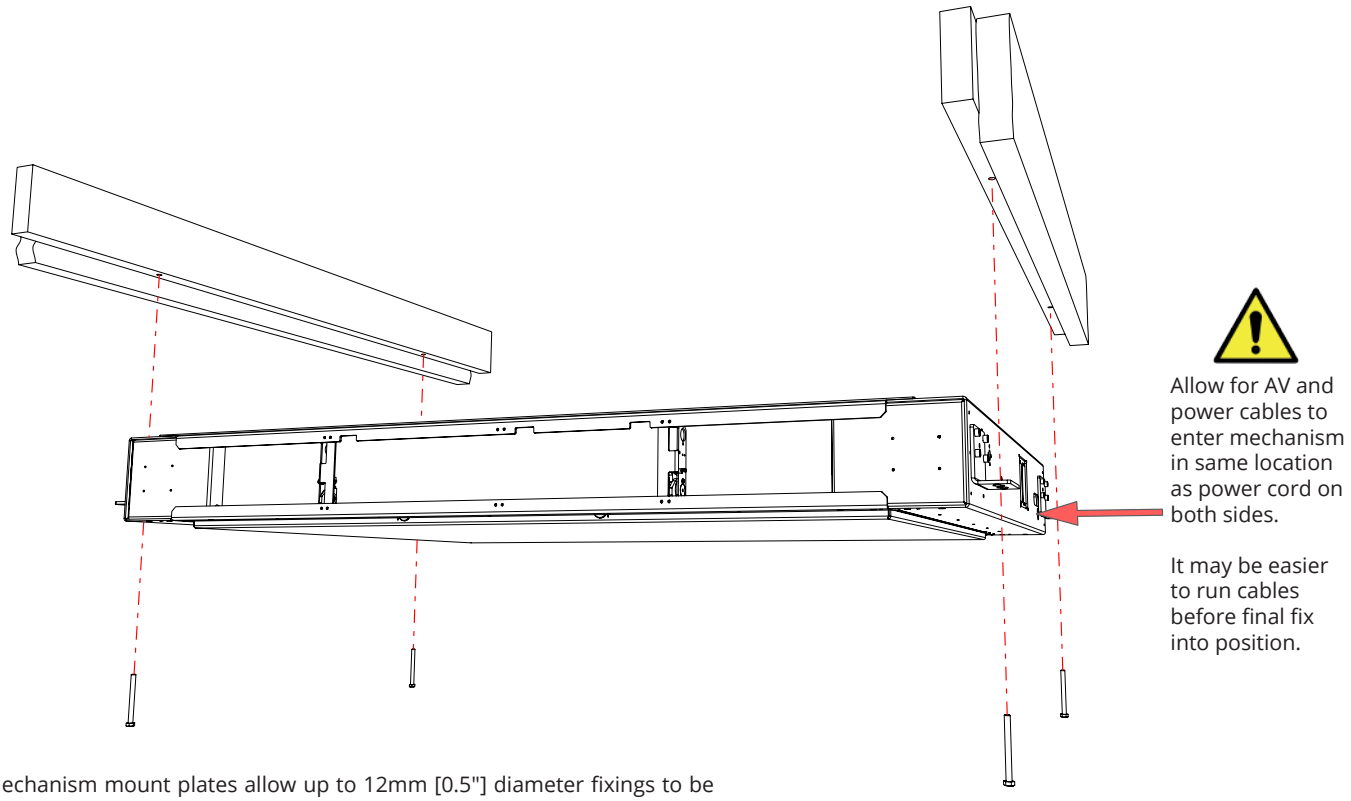
Installation Instructions

Mechanism Installation - Beam Mounting

With the mechanism CLOSED and in the correct orientation (UP AND TV VIEWING AREA IN FRONT OF UNIT) the mechanism can be fixed in the position securely using 4 mounting brackets and suitable fixings (Not Provided).

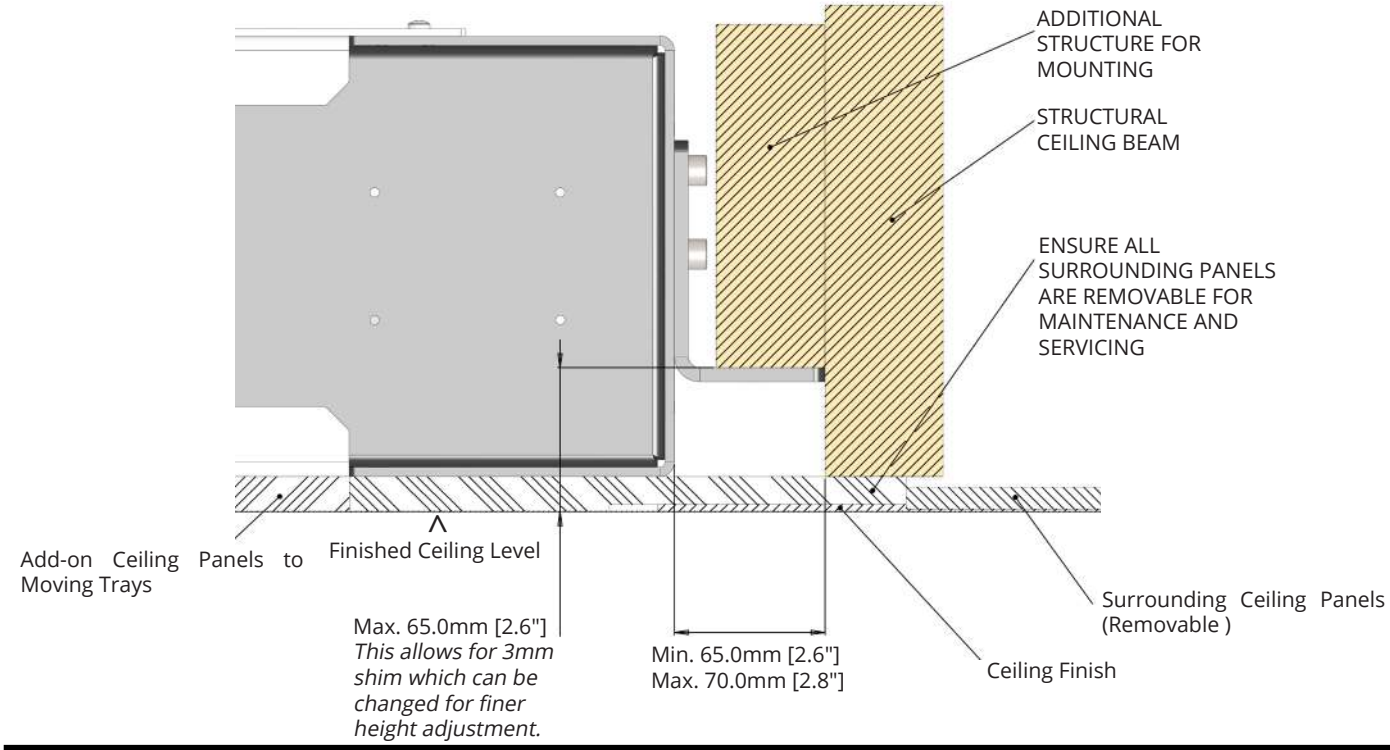
See below for critical dimensions for ceiling structure to allow for easy installation. Dimensional tolerances shown, allow for shims to be used to accurately adjust height.

NOTE: Beam width and ceiling opening dimensions can be found on the technical document for the model number mechanism specified.



Mechanism mount plates allow up to 12mm [0.5"] diameter fixings to be

Beam Mounting Dimensions



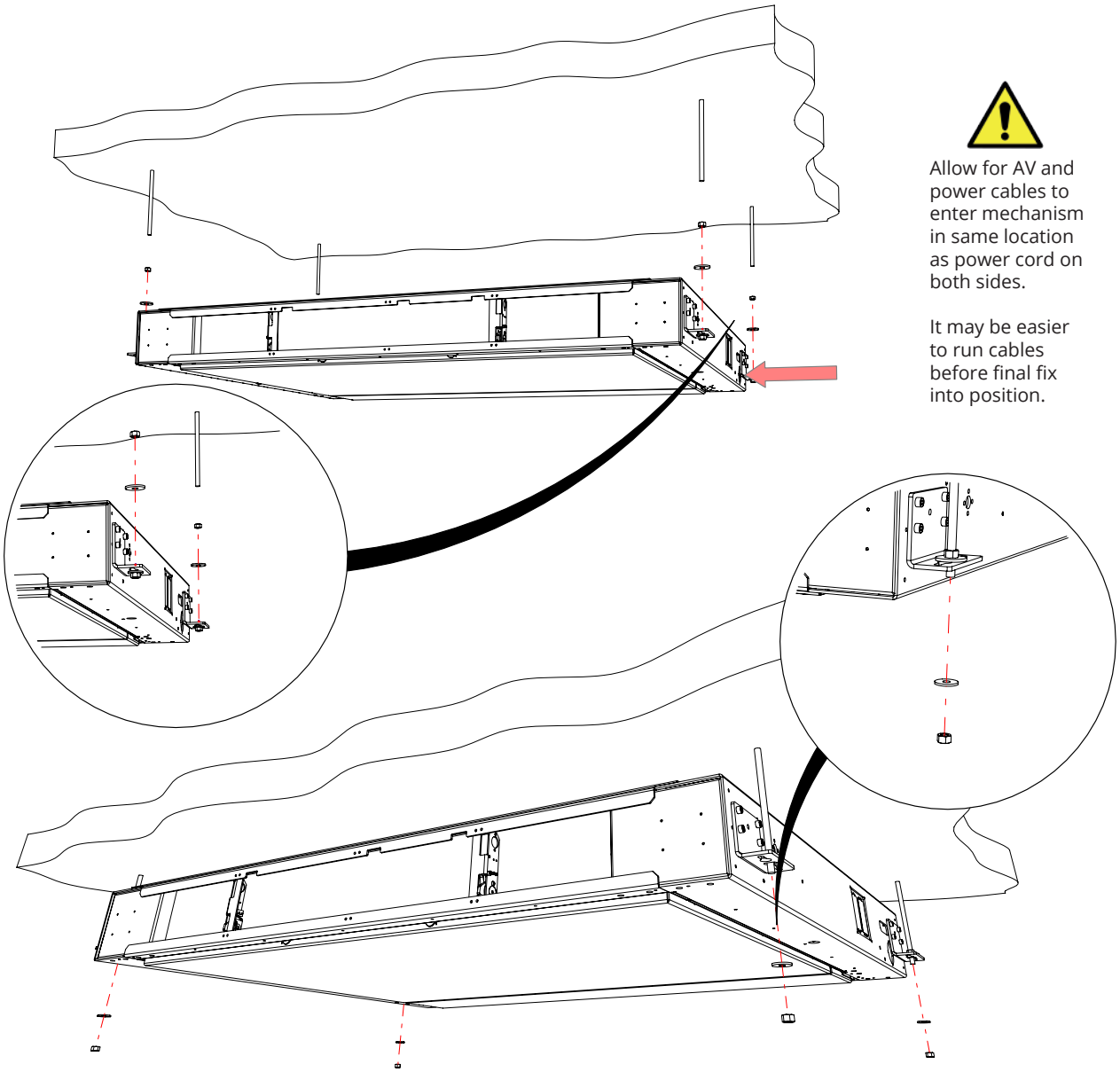
Installation Instructions

Mechanism Installation - Stud Mounting

With the mechanism CLOSED and in the correct orientation (Up and TV Viewing Area in Front of Unit) the mechanism can be fixed in the position securely using 4 mounting brackets and suitable fixings (Not Provided).

See below for directions for installation and ceiling structure layout to allow for easy installation.

NOTE: Stud positions and ceiling opening dimensions can be found on the technical document for the model number mechanism specified.

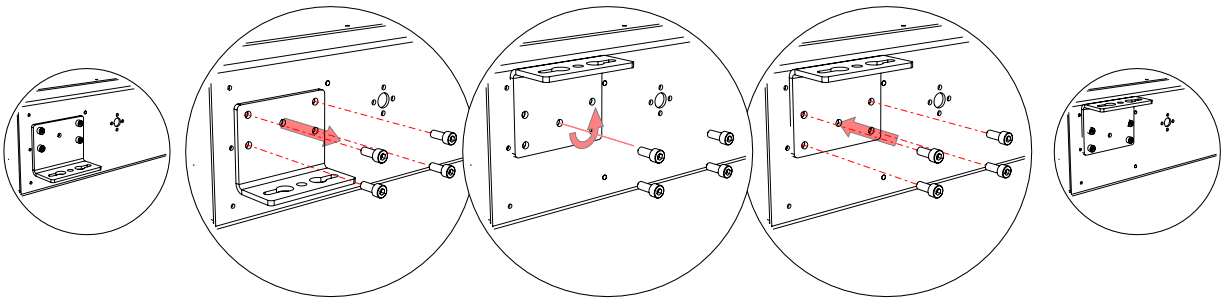


Allow for AV and power cables to enter mechanism in same location as power cord on both sides.

It may be easier to run cables before final fix into position.

To hang mechanism on studs fixed securely to the ceiling above, suitable fixings should be used (Not Provided).

Mechanism mount plates allow up to 12mm [0.5"] diameter fixings to be used and can be rotated 180° for shorter fixings.



Installation Instructions

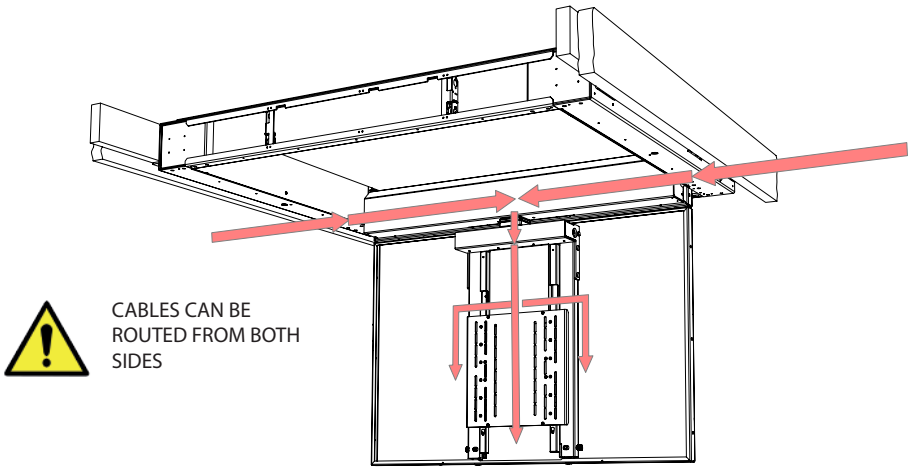
Cable Routing - Marine Outdoor

With the mechanism securely fixed in place, cables can be routed.

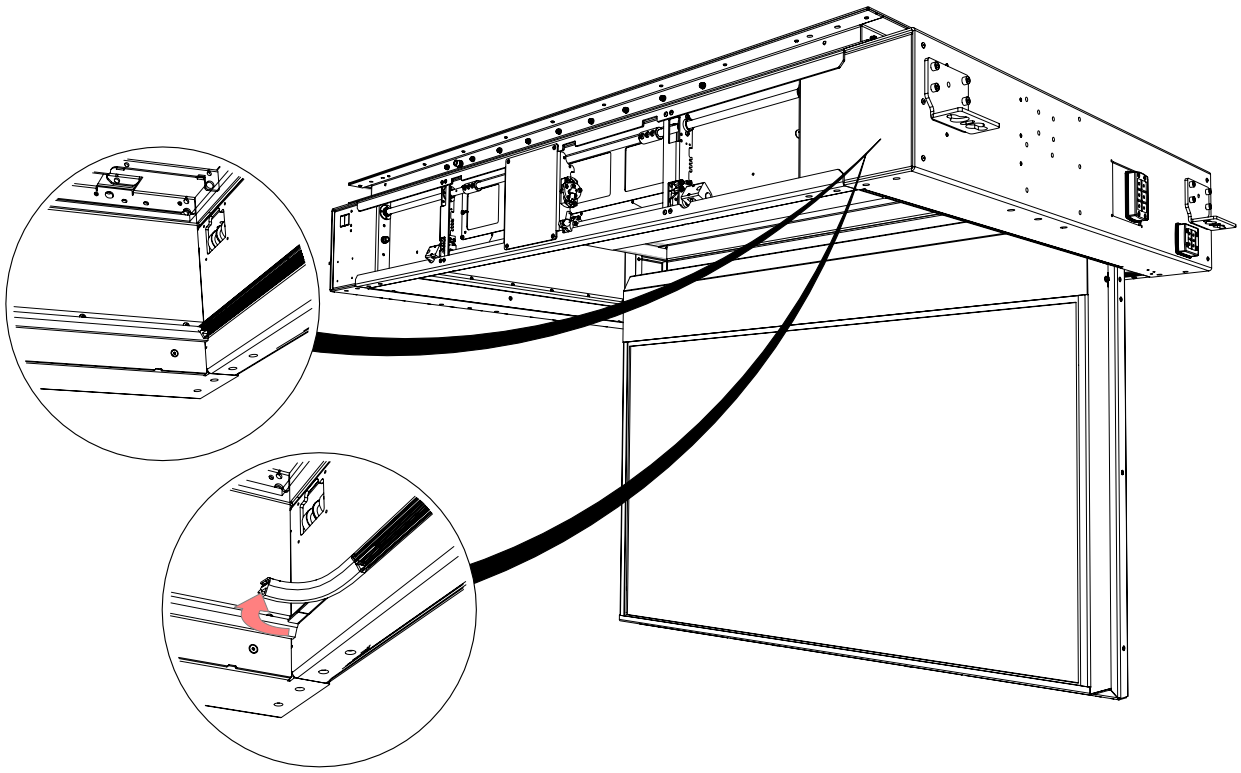
Supply mechanism with power and with area below mechanism clear, operate by sending 'OUT' command on IR Remote Control supplied.

Control system is located in external IP66 Control Box on loom.

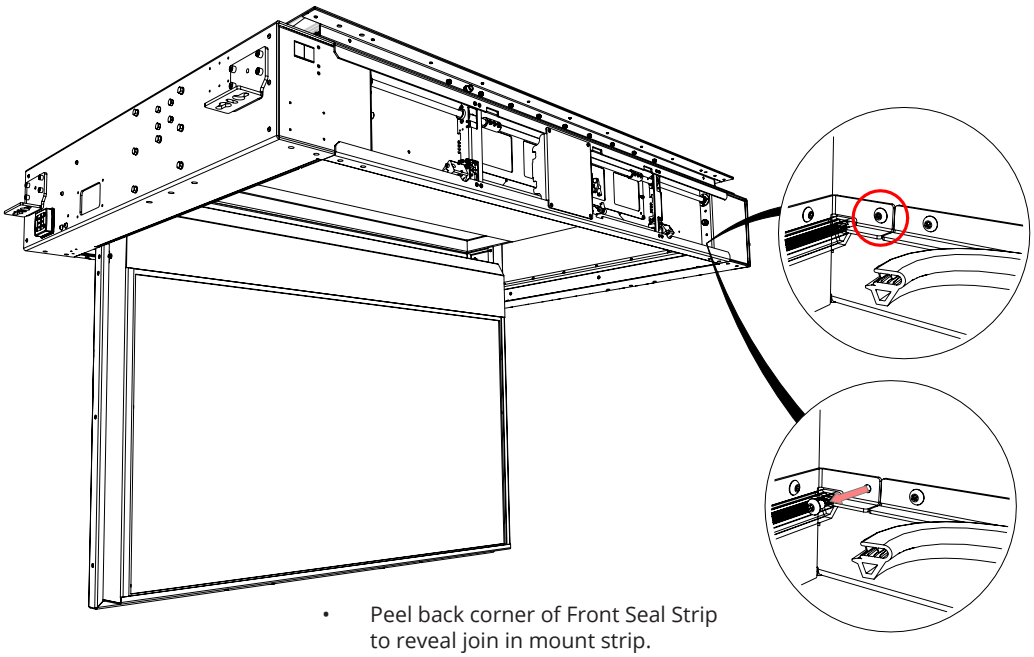
NOTE: Control cables should be routed to the mechanism and tested before installing TV.



Peel back corner of Front Seal Strip
to reveal join in mount strip.

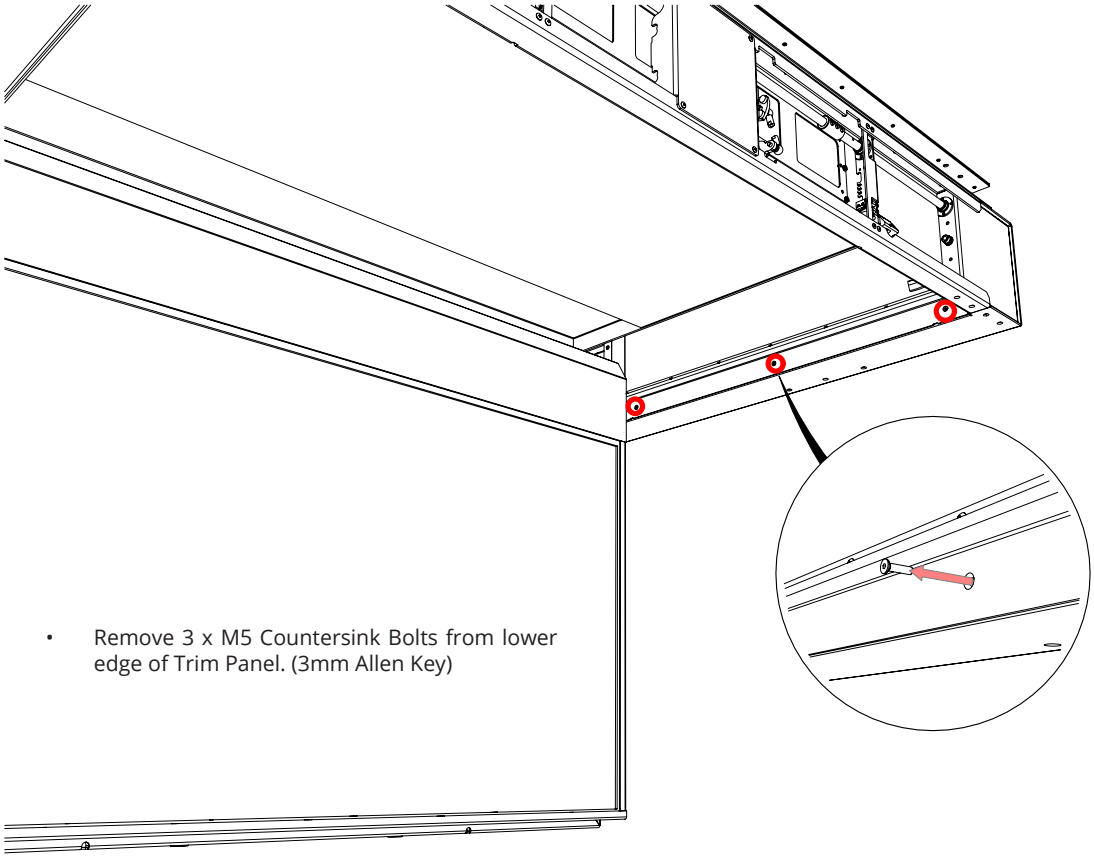


Installation Instructions



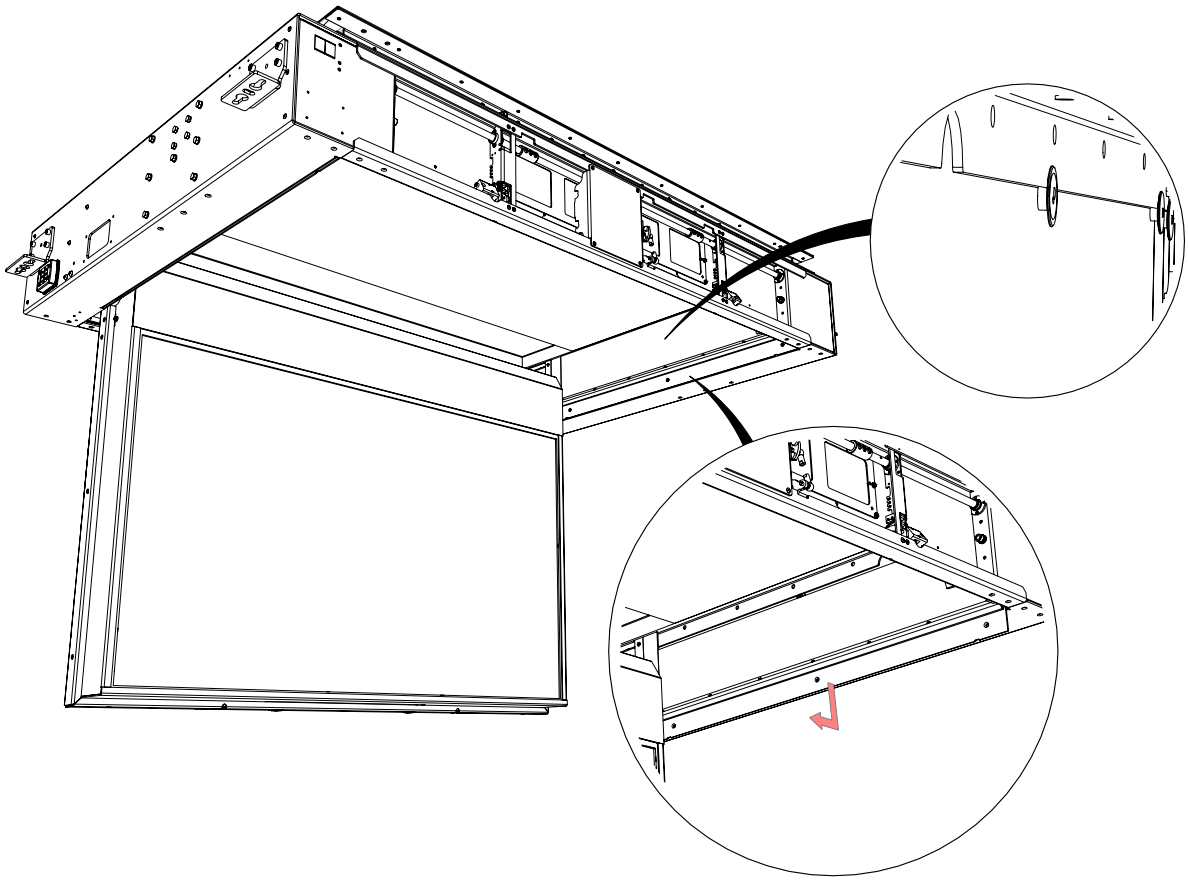
CABLES CAN BE ROUTED FROM BOTH SIDES

- Peel back corner of Front Seal Strip to reveal join in mount strip.



- Remove 3 x M5 Countersink Bolts from lower edge of Trim Panel. (3mm Allen Key)

Installation Instructions



- Trim panel can be lowered to unhook top edge and moved out of the mechanism, to gain access to the inside of the mechanism to run cables.

- Reverse procedure to reinstall panels.

Installation Instructions

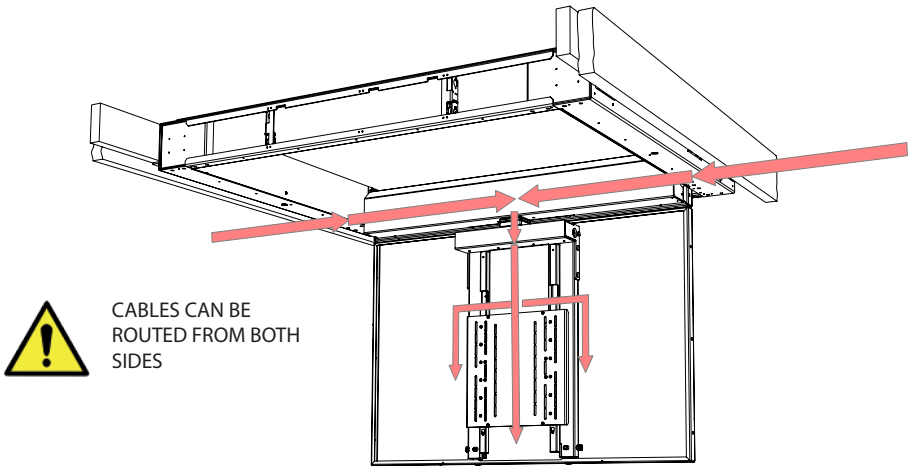
Cable Routing - Marine Indoor

With the mechanism securely fixed in place, cables can be routed.

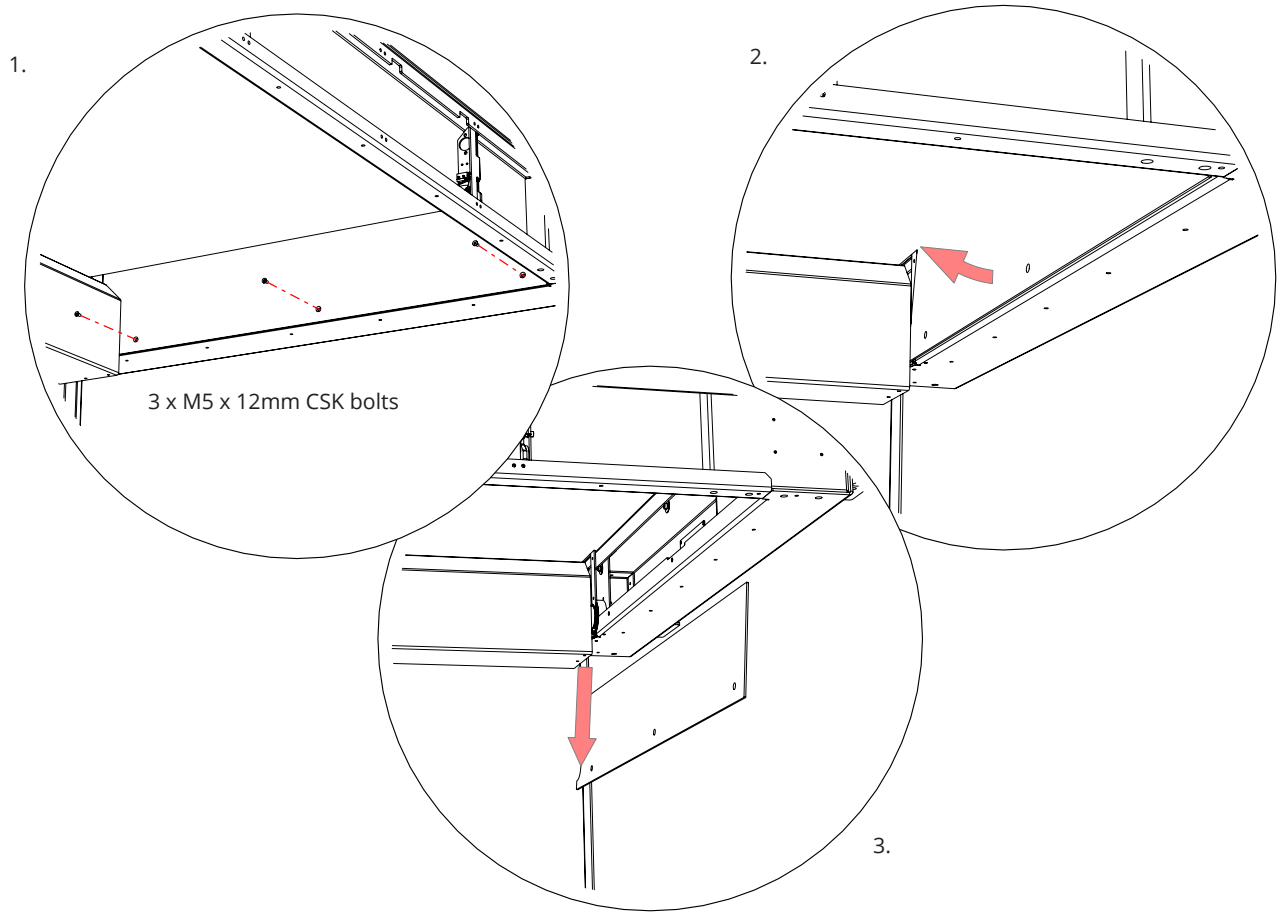
Supply mechanism with power and with area below mechanism clear, operate by sending 'OUT' command on IR Remote Control supplied.

Control system is located internally to mechanism.

NOTE: Control cables should be routed to the mechanism and tested before installing TV.

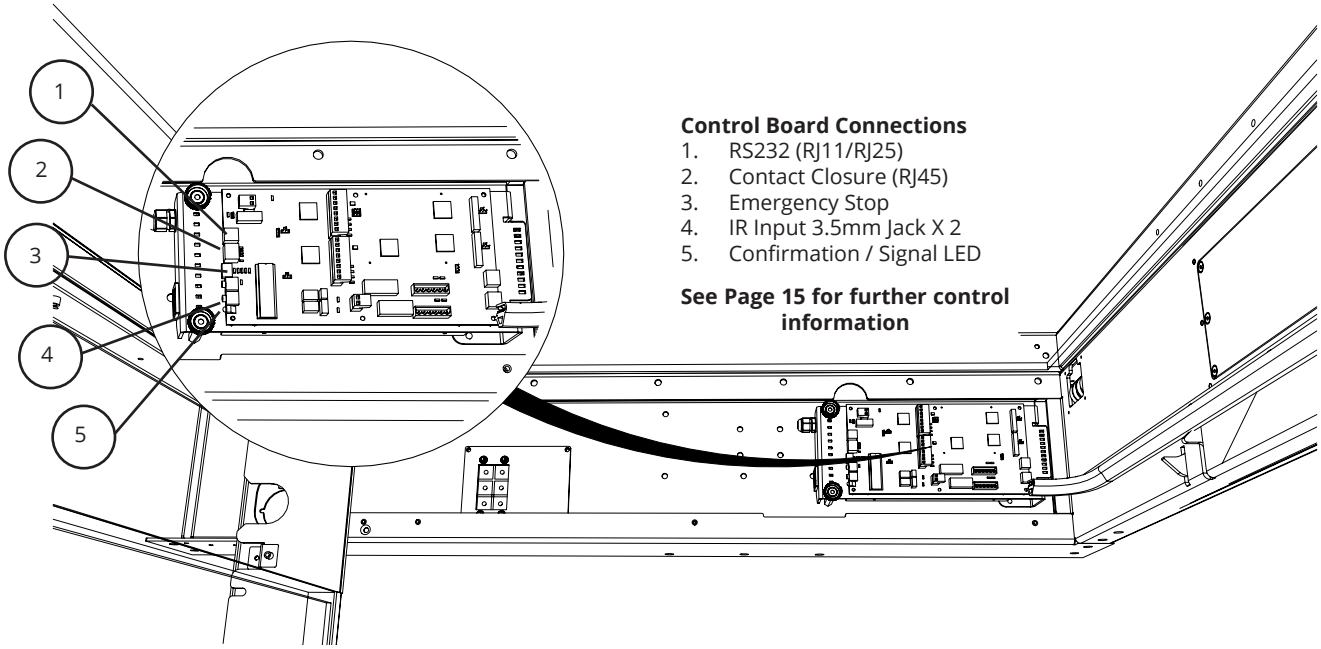


Removing Trim Panels



Installation Instructions

Cable Routing and Control Board Access

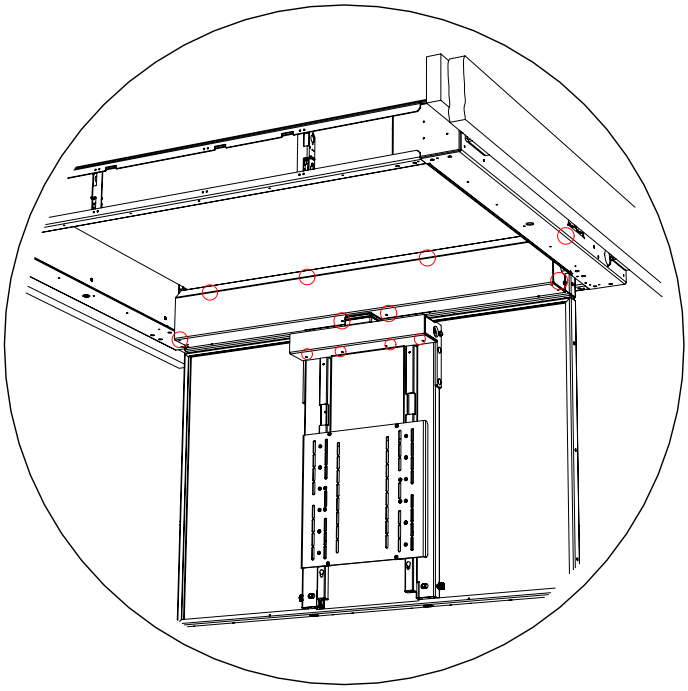


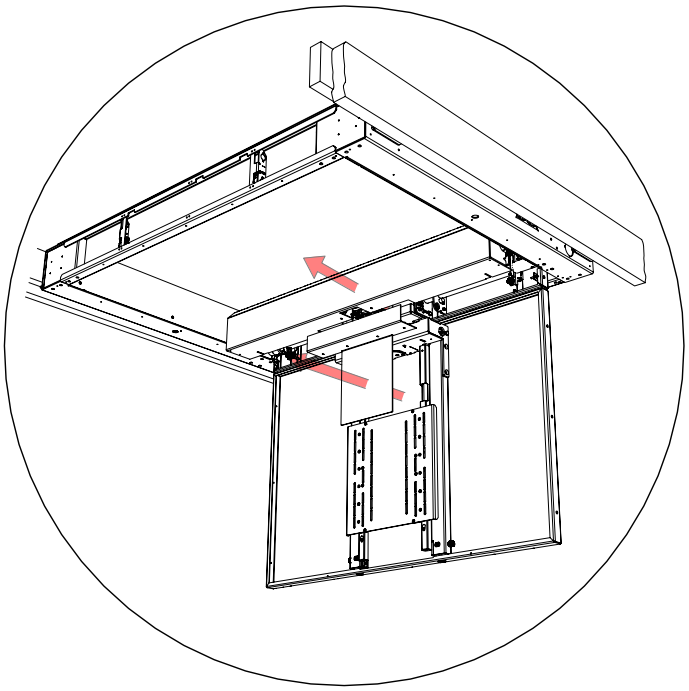
Control Board Connections

1. RS232 (RJ11/RJ25)
2. Contact Closure (RJ45)
3. Emergency Stop
4. IR Input 3.5mm Jack X 2
5. Confirmation / Signal LED

See Page 15 for further control information

Covers and Trims Removal

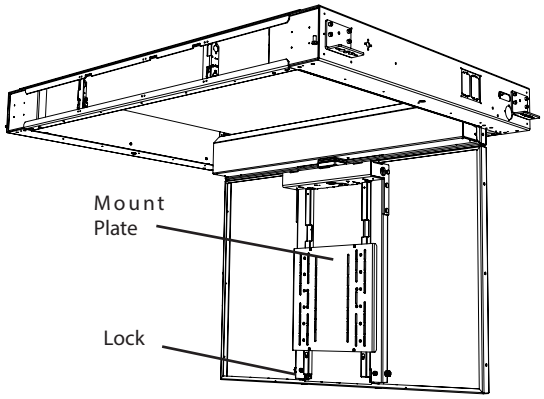


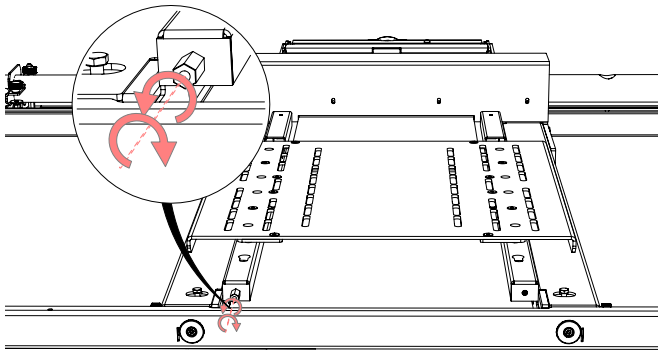


1. Remove / Loosen all retaining bolts holding on large top cover.
   - Loosen 4 x M6 Hex (10mm Spanner) along top edge.
   - Remove 2 x M5 x 12mm Pozi Machine Screws.
   - Loosen 1 x M6 Hex (10mm Spanner) on each side.
2. Remove lower front cover.
   - Remove 2 x M5 x 12mm Pozi Machine Screws.

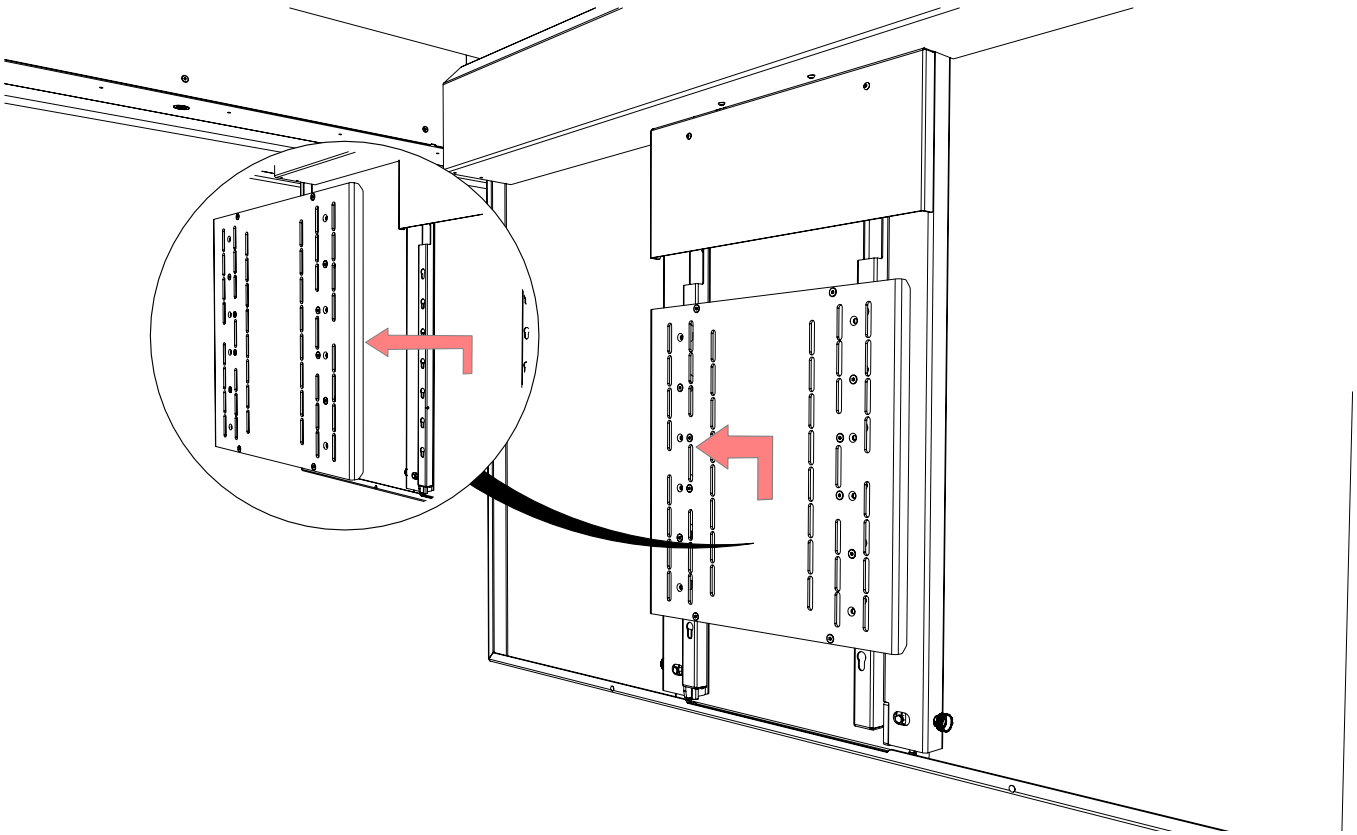
Installation Instructions

Mount Plate Removal





10mm Spanner/ 3mm Allen Key
CW - LOCK
CCW - UNLOCK



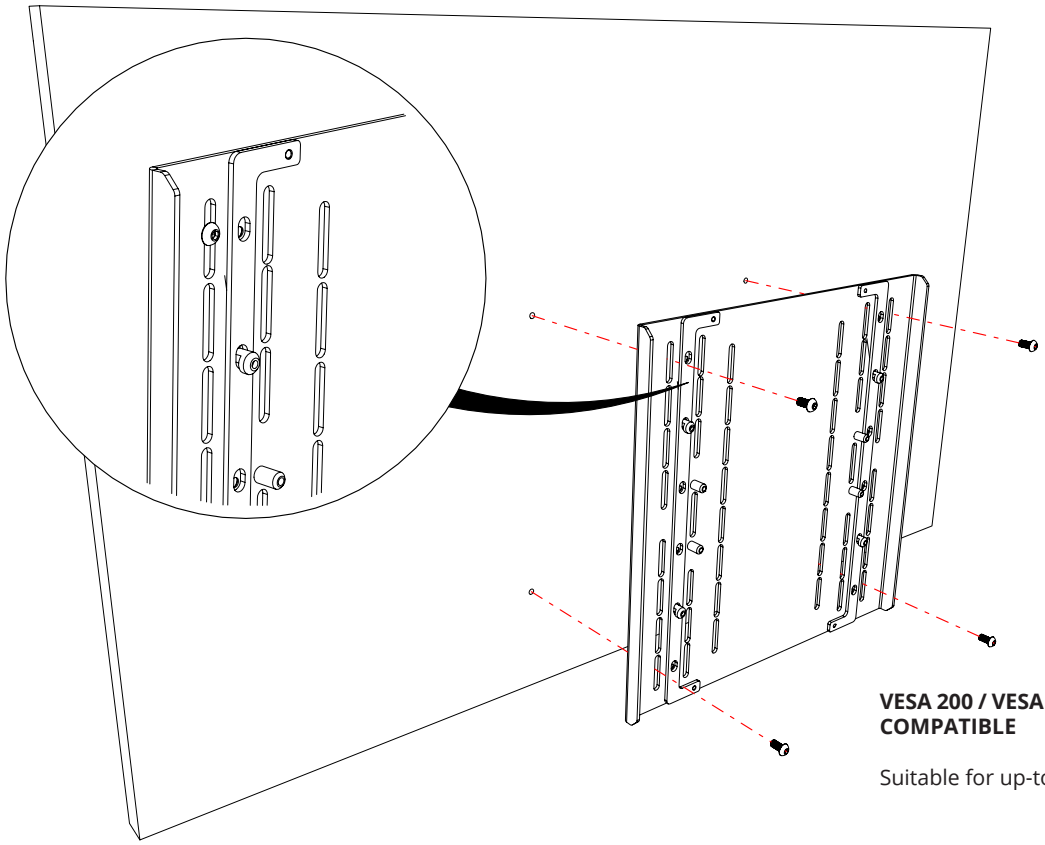
Once unlocked, the mount plate will lift up approximately 20mm [0.8"] and can be pulled forward away from the hinging tray.

Cables can now be routed through the mechanism.

Installation Instructions

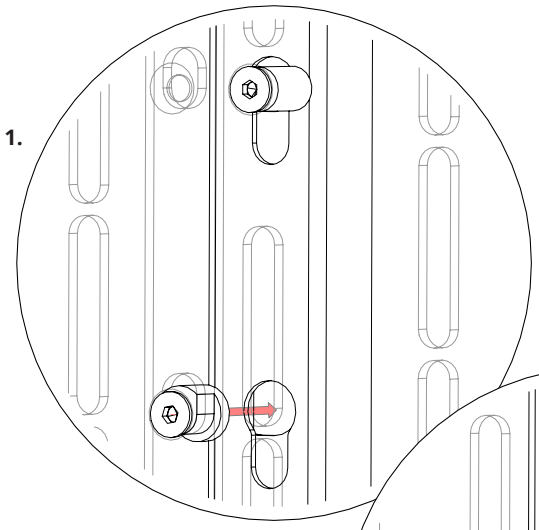
Installation Instructions

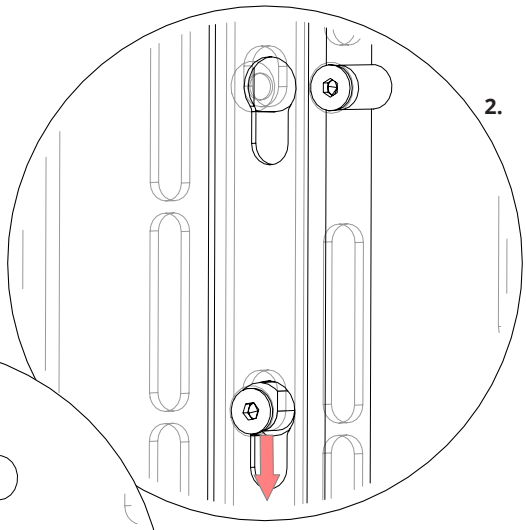
Screen and Mount Plate Installation

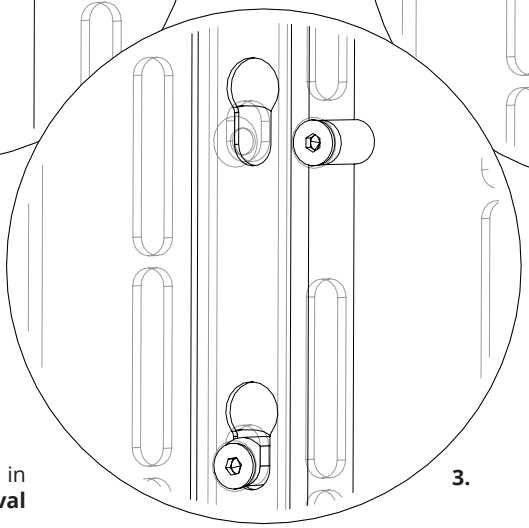


VESA 200 / VESA 300 / VESA 400 COMPATIBLE

Suitable for up-to M8 Bolts







1. Hook plate on at desired height on tray. ***(4 locating pins will centre plate on tray.)***
2. With plate located into side rails, plate will drop down into key shaped slots, apply light pressure to help engage slot.
3. Ensure plate is secure and lock plate in place as shown in **Mount Plate Removal Section.**

During installation, ensure TV does not overhang edge of moving tray.

TV should be no less and 20mm [0.8"] from lower edge of tray.

Adjust height of TV on mount plate to suit

Mechanism Control

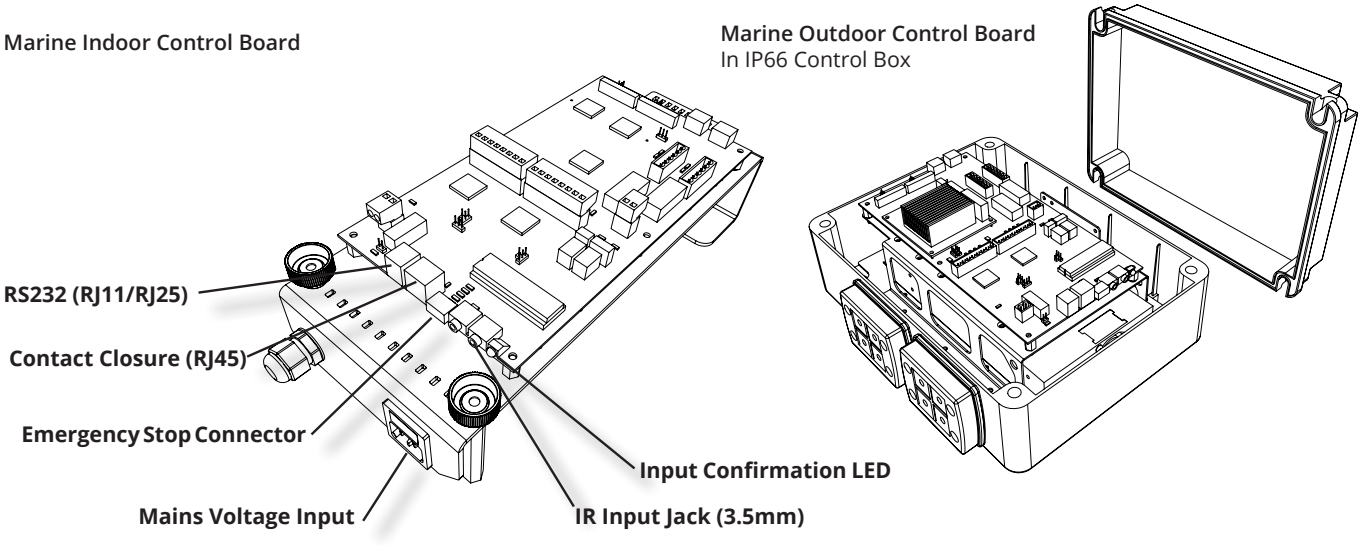
General Control

This mechanism has multiple standard control methods, each of which requires a different input method to the control box. For ease, the input sockets on the control board are labelled below.
(Control board size and style may vary to image shown based on mechanism)

Control Box Inputs

Marine Indoor Control Board

Marine Outdoor Control Board
In IP66 Control Box



Mechanism Emergency Stop Connector

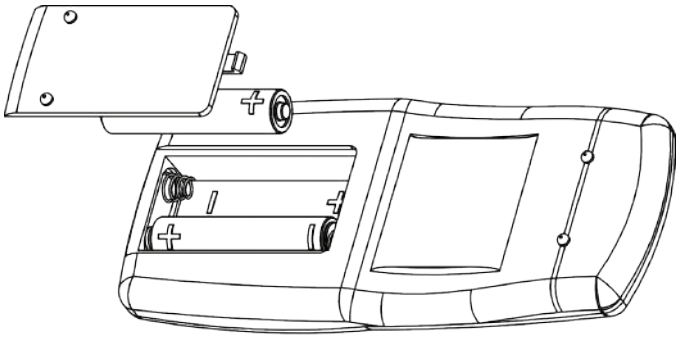
This mechanism features an Emergency Stop Connector, which MUST be plugged into the control box in the connector labelled above for the mechanism to operate. If this connector is not plugged in, the Input Confirmation LED will be permanently lit. As per the red plastic tag attached to the Emergency Stop Connector (and shown below), the small loop of wire in this connector is designed to be replaced by a third party safety mechanism.





Replacing Mechanism Batteries

The standard Future Automation Infrared (IR) remote control required x2 AAA batteries to operate. These are provided with the mechanism in the Accessories Pack. These batteries can be replaced as the per the image below.



Mechanism Control

Infrared (IR)
This Mechanism can be controlled via the supplied 14 button Infrared (IR) Remote Control, pair with the supplied Infrared (IR) lead and sensor.

The mechanism's functions can be controlled by plugging the Infrared (IR) lead and sensor into the 3.5mm IR Input Jack shown on the General Mechanism Control page.

Confirmation of Infrared (IR) input will be shown by a single flash of the large green LED located on the end of the control box.

As Infrared (IR) control works over line of site, the Infrared (IR) sensor must be directly viewable from what ever location the remote control is being used from.

Multi-button commands beginning with STORE should be tapped sequentially within 1 second of each other

Infrared (IR) Remote Control Button Layout

IN - Brings the mechanism into the ceiling.

OUT - Brings the mechanism out of the ceiling, to the fully 'OUT' position of 90 degrees and Swivel in the center position.

STOP - Will stop the operation of the mechanism at ANY position.

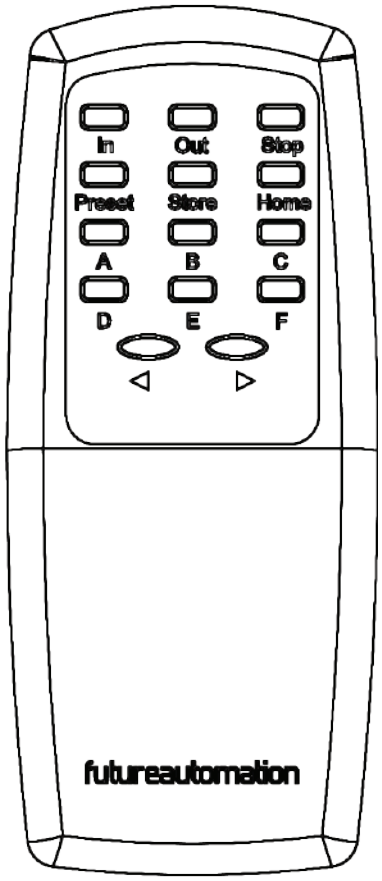
[STORE] + [A] - [F] - Stores any position. ***(6 positions available)***

To utilise this feature, press **[OUT]** and use **[<]** and **[>]** and **[IN]** buttons to position hinge, telescope and swivel and press **[STOP]** at the desired position.

Use the button combination above to store this position on the corresponding button.

To target stored position press button **[A] - [F]** that corresponds to position required.

Adjustments can be made to this position by repeating the process to reposition and then using the above button combination to relearn.



[STORE] + [<] / [>] - Limits the maximum rotation of the swivel unit.
Use this button combination with swivel stopped at desired position.

[STORE] + [STOP] + [<] / [>] - Clears stored maximum rotation of the swivel unit.
Use this button combination to clear maximum limits and revert to 180 degree rotation.

[STORE] + [STORE] + [HOME] - This carries out a Factory Reset. **This restores control system to factory defaults, clears all learnt positions and saved limits. Ensure all limits are re-learnt before normal operation is resumed.**

IMPORTANT
Only buttons indicated above are functional with the product. Any other button press will STOP the mechanism.

Mechanism Control

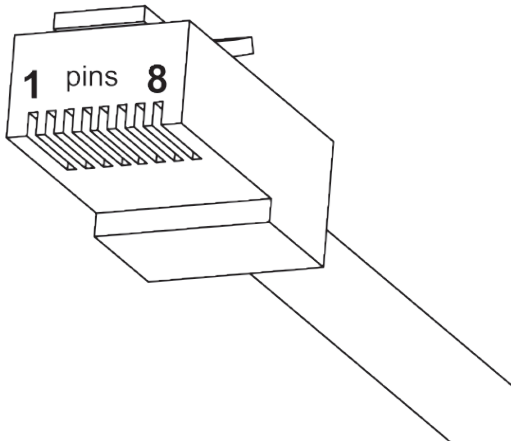
Contact Closure

This Mechanism can be controlled via Contact Closure, utilising an 8 Pin RJ45 Connector attached to a length of CAT5 (Type 568A or 568B) cable.

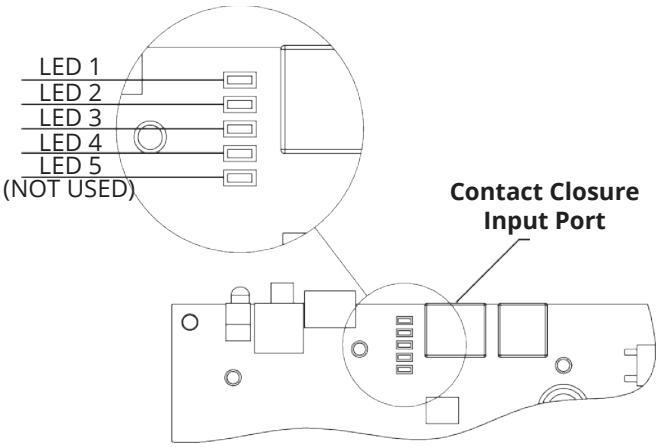
The mechanism's functions can be controlled by plugging this into the RJ45 port on the mechanism control board, then shorting pins 1-8 on this connector as shown in the Contact Closure Input Table below.

Confirmation of Contact Closure input will be shown by a single flash of the large green LED located on the end of the control box, as well as illumination of the corresponding Contact Closure LED on the printed circuit board as shown below.

RJ45 Pin Layout



Contact Closure LED Layout



NOTE: A short on any pin while the mechanism is operating will execute a STOP command and disable Contact Closure input for 1 second.

Contact Closure Input Table

PIN	DESCRIPTION	ACTION	WIRE/CABLE TYPE 568A	WIRE/CABLE TYPE 568B	LED INDICATOR
1	12V SUPPLY	12V SUPPLY - CURRENT LIMITED	W G	W O	
2	12V LATCH	WHEN 12V ATTACHED, DEVICE WILL MOVE TO POSITION 'A'. WHEN 12V REMOVED, DEVICE WILL GO IN.	G	O	
3	GROUND	GROUND	W O	W G	
4	POSITION B	MOMENTARY SHORT TO GROUND (PIN 3), DEVICE WILL MOVE OUT, THEN SWIVEL TO POSITION "B".	B	B	LED 5
5	DEVICE LEFT	MOMENTARY SHORT TO GROUND (PIN 3), DEVICE WILL MOVE OUT, THEN SWIVEL TO LEFT LIMIT.	W B	W B	LED 4
6	DEVICE RIGHT	MOMENTARY SHORT TO GROUND (PIN 3), DEVICE WILL MOVE OUT, THEN SWIVEL TO RIGHT LIMIT.	O	G	LED 3
7	POSITION A	MOMENTARY SHORT TO GROUND (PIN 3), DEVICE WILL MOVE OUT, THEN SWIVEL TO POSITION "A".	W BR	W BR	LED 2
8	DEVICE IN	MOMENTARY SHORT TO GROUND (PIN 3), DEVICE WILL MOVE TO IN POSITION.	BR	BR	LED 1

Mechanism Control

RS232

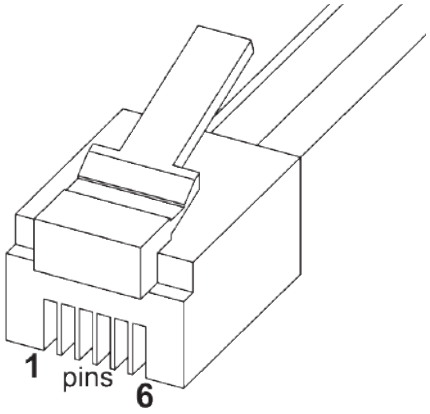
This Mechanism can be controlled via RS232, utilising a 6 Pin RJ11/RJ25 connector OR 9 Pin Serial connector attached to a length of 6 core cable.

The mechanism's functions can be controlled by plugging this into the RJ11/RJ25 port on the mechanism control box, then inputting the RS232 commands shown in the RS232 Input Table below.

Confirmation of Contact Closure input will be shown by a single flash of the large green LED located on the end of the control box.

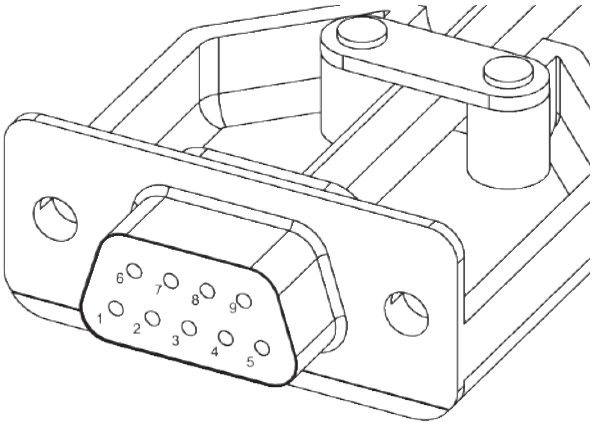
RJ11/RJ25 Pin Layout

PIN 1: TX
PIN 6: RX
PIN 3 & 4: GROUND



Serial Pin Layout

PIN 2: RX
PIN 3: TX
PIN 5: GROUND



RS232 Programming Details

Baud Rate: 9600

Stop Bit: 1

Parity: None

Databits: 8

RJ11/RJ25	Func.	9 PIN Serial	Colour
PIN 1	TX	PIN 2	Blue
PIN 3	GROUND	PIN 5	Green
PIN 4	GROUND	PIN 5	Red
PIN 6	RX	PIN 3	White

RS232 Input Table

IMPORTANT - Ensure all protocols are entered exactly as written below, including Carriage Return (ENTER / ASCII 13)

Protocol	Action
fa_in Carriage Return (Enter / ASCII 13)	Device IN
fa_out Carriage Return (Enter / ASCII 13)	Device OUT with NO SWIVEL
fa_right Carriage Return (Enter / ASCII 13)	Device OUT RIGHT limit
fa_left Carriage Return (Enter / ASCII 13)	Device OUT LEFT limit
fa_home Carriage Return (Enter / ASCII 13)	Device to HOME (Hinge Down, Swivel Centre) position
fa_a Carriage Return (Enter / ASCII 13) - fa_f Carriage Return (Enter / ASCII 13)	Device OUT to memory position A - F respectively
fa_stop Carriage Return (Enter / ASCII 13)	Device STOP (At any position)

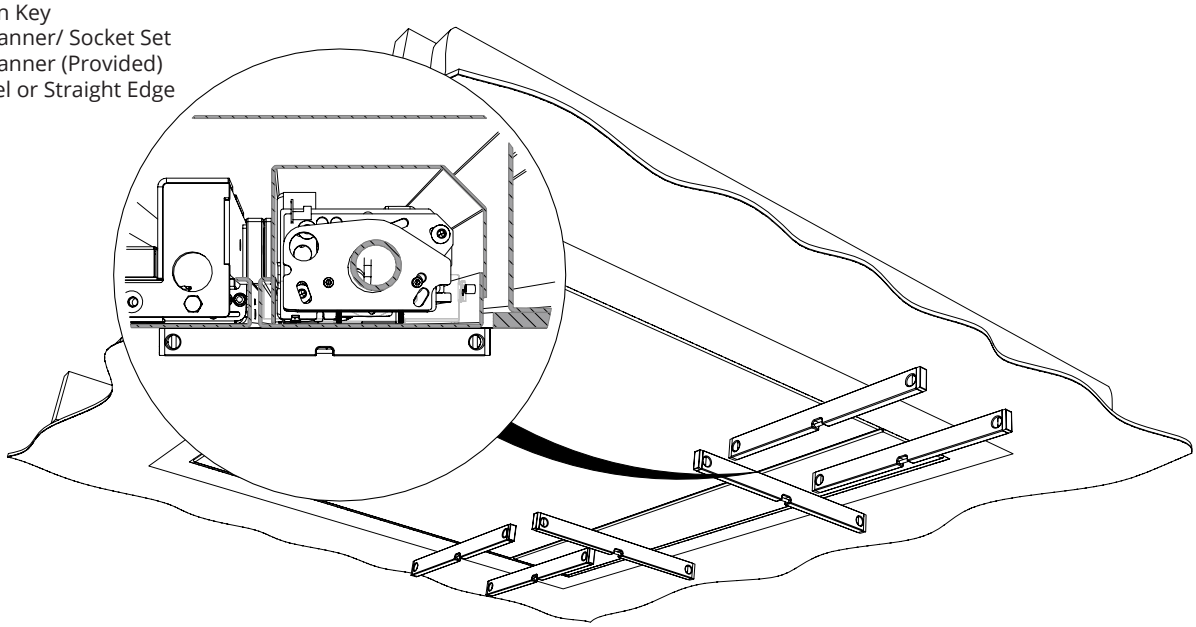
Mechanism Adjustments

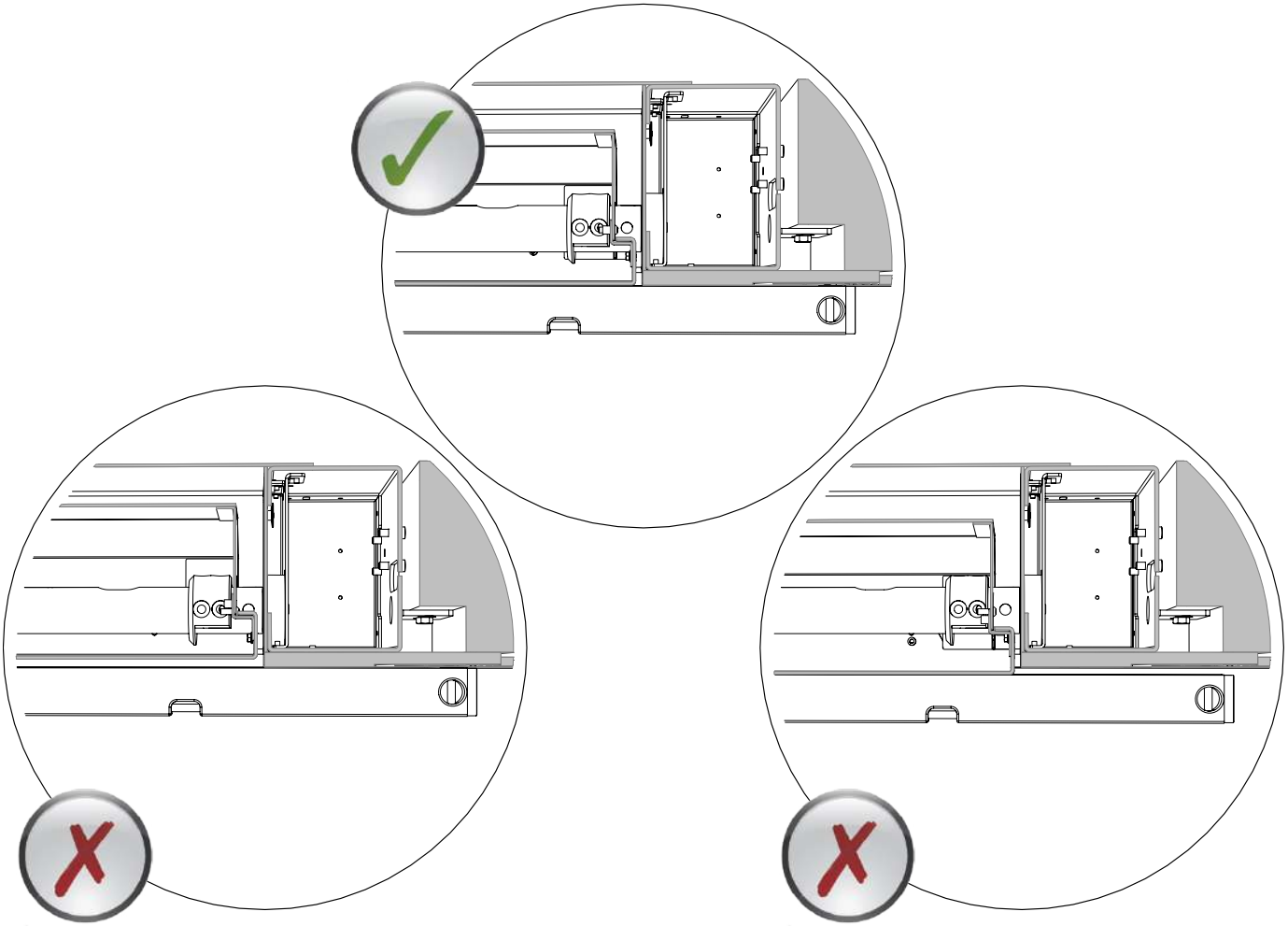
Hinging Main Tray Levelling

The moving tray on the mechanism is factory set and should not require any further adjustment after install, however the tray may become misaligned during transit or if removed for maintenance or painting.

Tools required

- 4mm Allen Key
- 10mm Spanner/ Socket Set
- 17mm Spanner (Provided)
- Spirit Level or Straight Edge

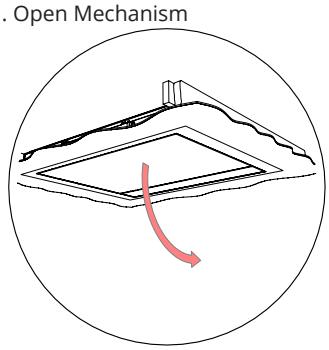




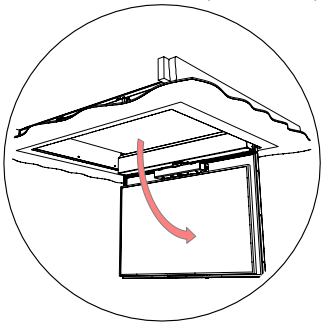
Mechanism Adjustments

Hinging Main Tray Levelling

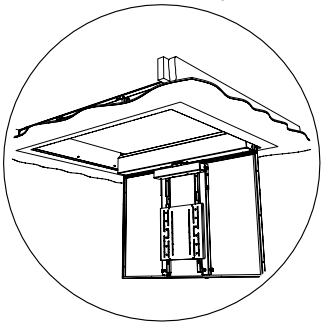
1. Open Mechanism



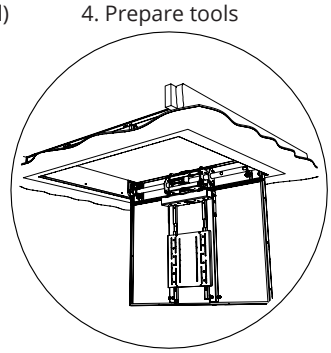
2. Remove Screen (If Installed)



3. Remove Covers (If Installed)

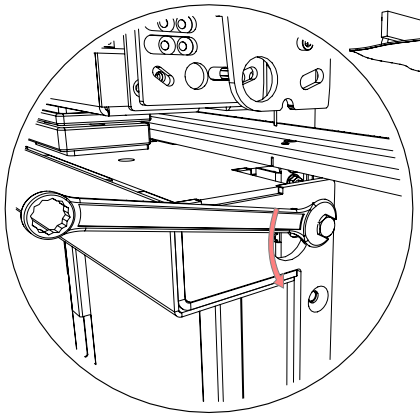


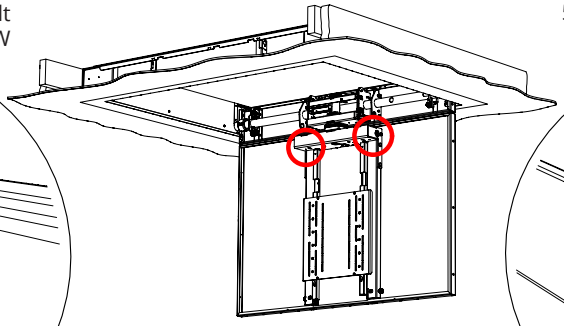
4. Prepare tools



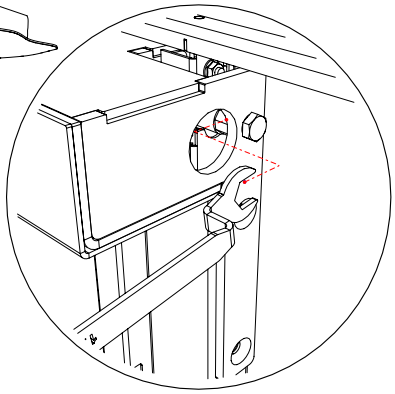
5. Loosen Clamp Bolts on both sides of tray

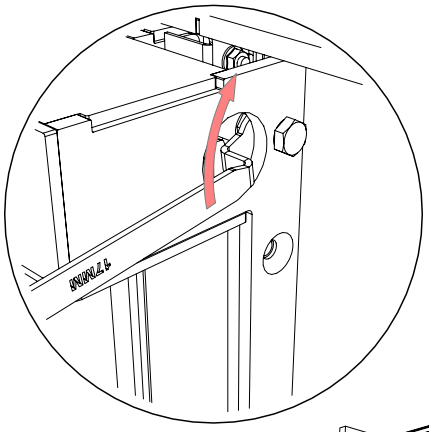
5a. 17mm Spanner - Loosen Bolt - 1/4 Turn Bolt CCW





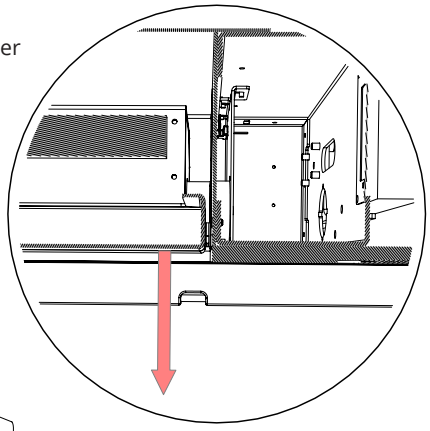
5b. Insert supplied spanner into opening

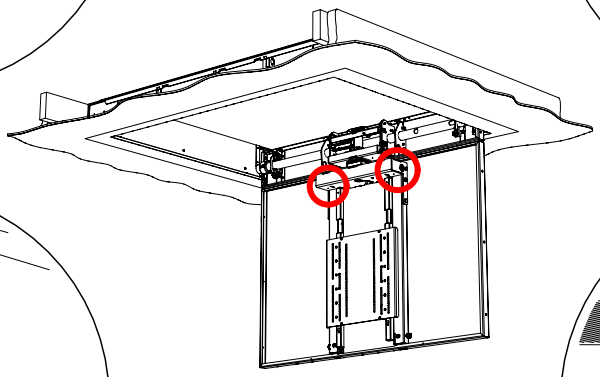


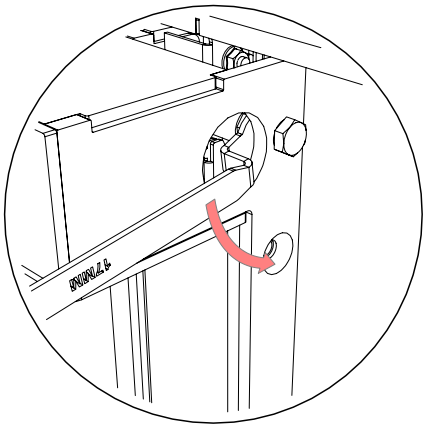


6. Adjust Height of Tray Using Cam Adjuster

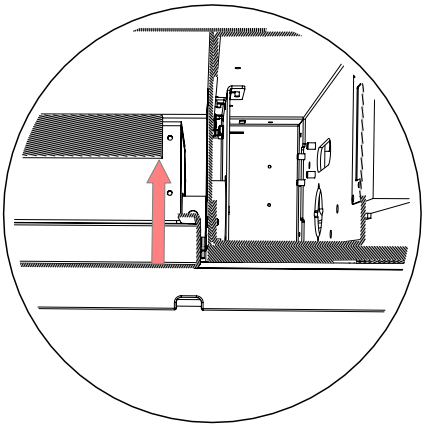
6a. Rotate UP 1/2 turn = DOWN 2.5mm [0.1"]







6b. Rotate DOWN 1/2 turn = UP 2.5mm [0.1"]

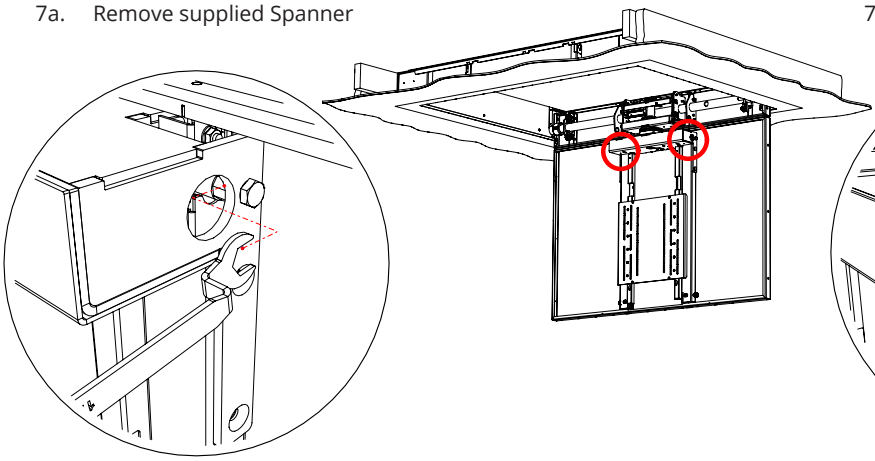


Mechanism Adjustments

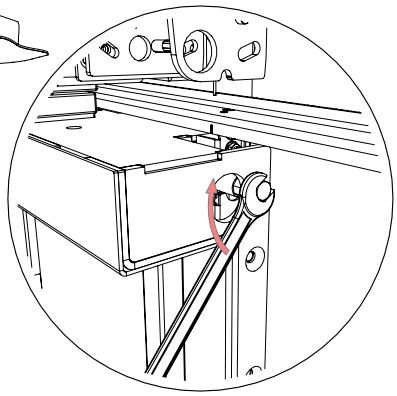
Hinging Main Tray Levelling

7. Tighten Clamp Bolts on both sides

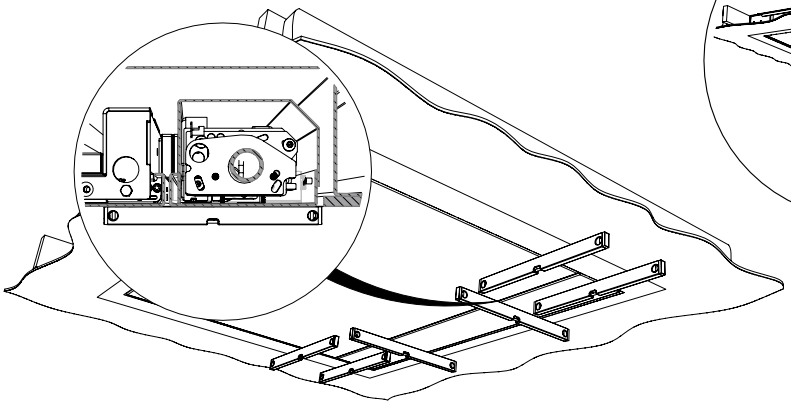
7a. Remove supplied Spanner



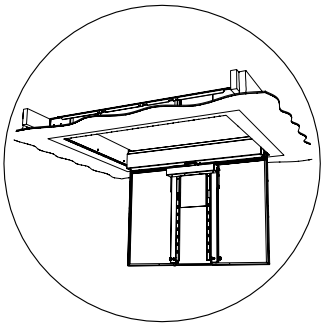
7b. Tighten Clamp Bolt
- 1/4 Turn Bolt CW



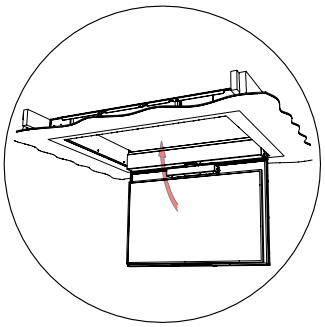
8. Close Mechanism And Check Levels.
Repeat steps 5 to 7 if necessary



9. Reinstall Covers (IF REMOVED)



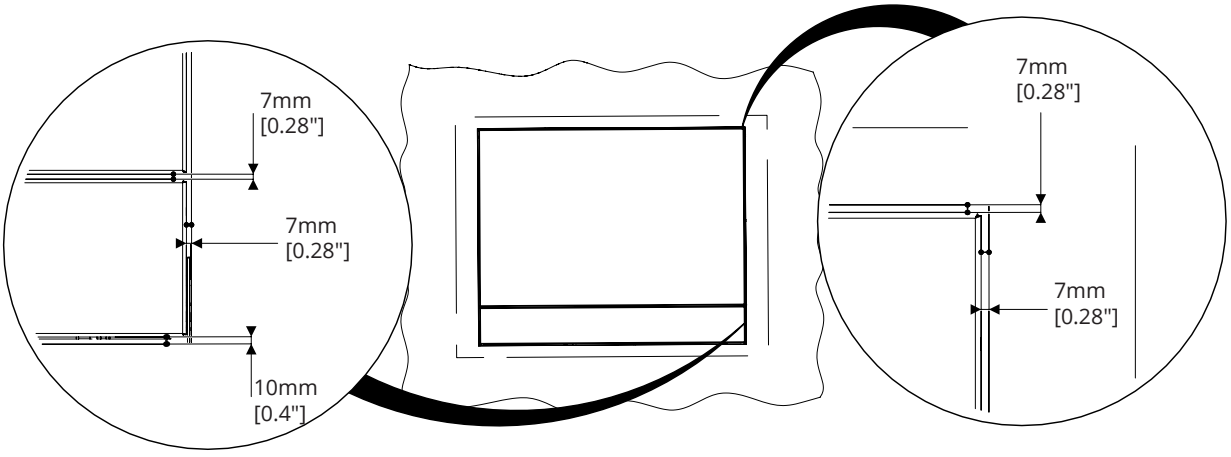
10. Reinstall Display (IF REMOVED)



Hinging Main Tray Positioning

Adjustments can be made to the tray position within the ceiling.

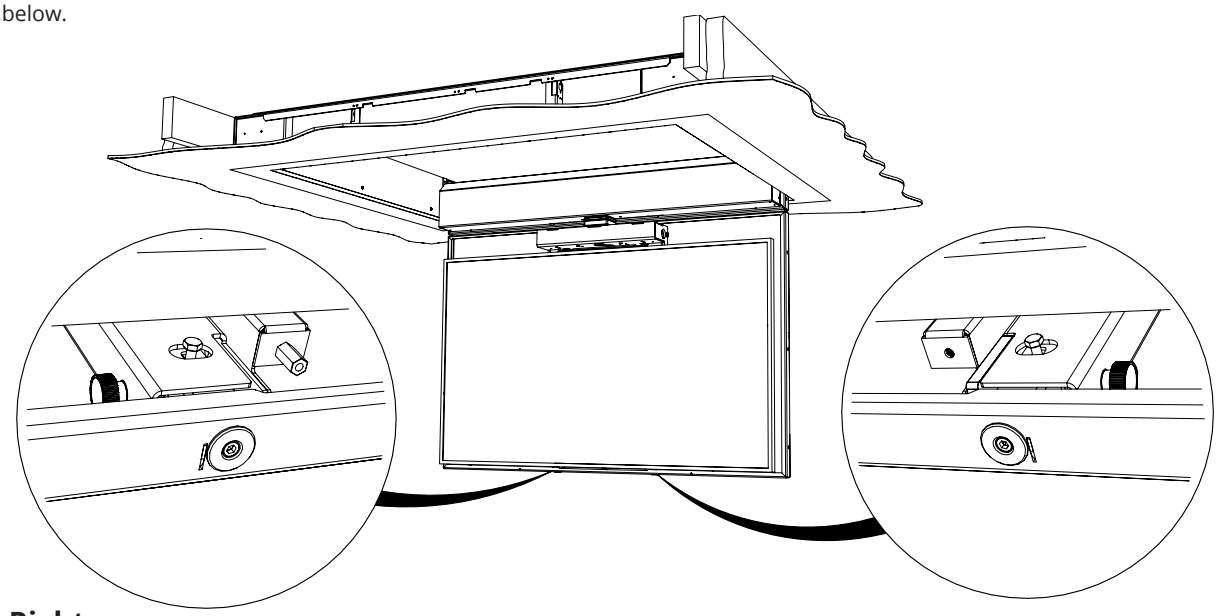
The CHR is designed to have a 7mm [0.28"] shadow gap at the Front, Left and Right and a 10mm [0.4"] gap at the back.



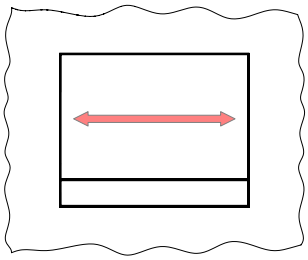
Mechanism Adjustments

Hinging Main Tray Positioning

Adjustments to tray position can be carried out with Screen in place as shown below.



Left to Right



Tools required

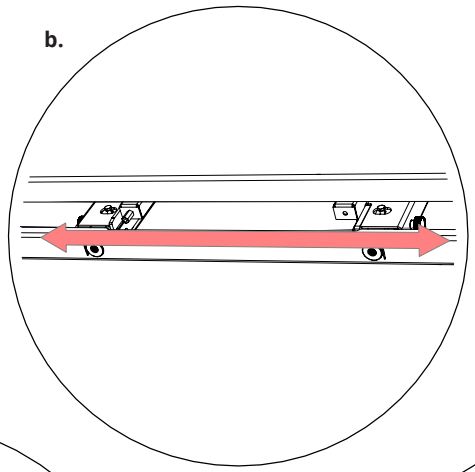
(10mm Socket / Spanner)

a. Loosen 2 M6 Hex Bolts - 1 turn

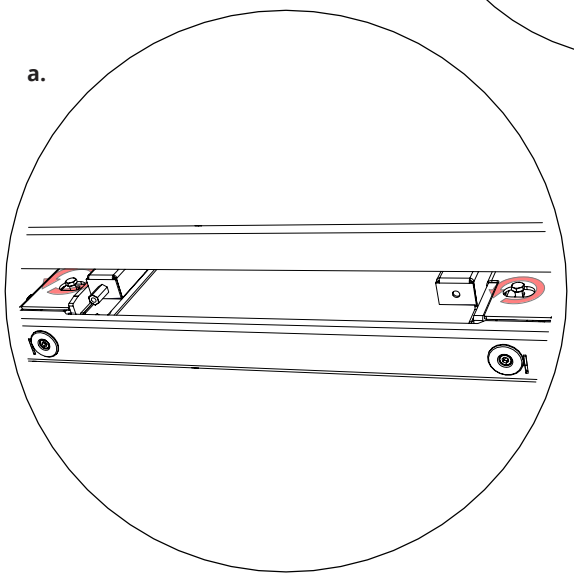
b. Move tray as needed

c .Tighten 2 M6 Hex Bolts - 1 turn

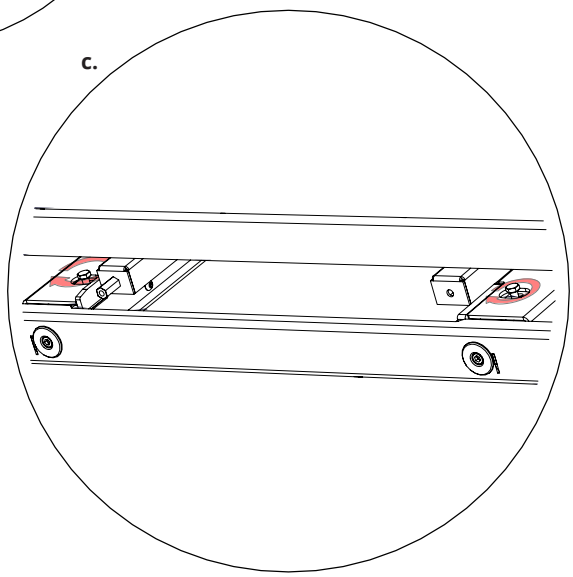
b.



a.



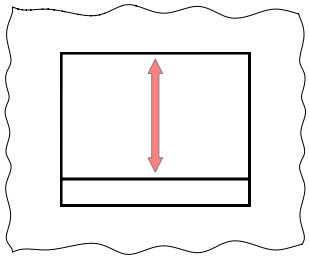
c.



Mechanism Adjustments

Hinging Main Tray Positioning

Front to Back

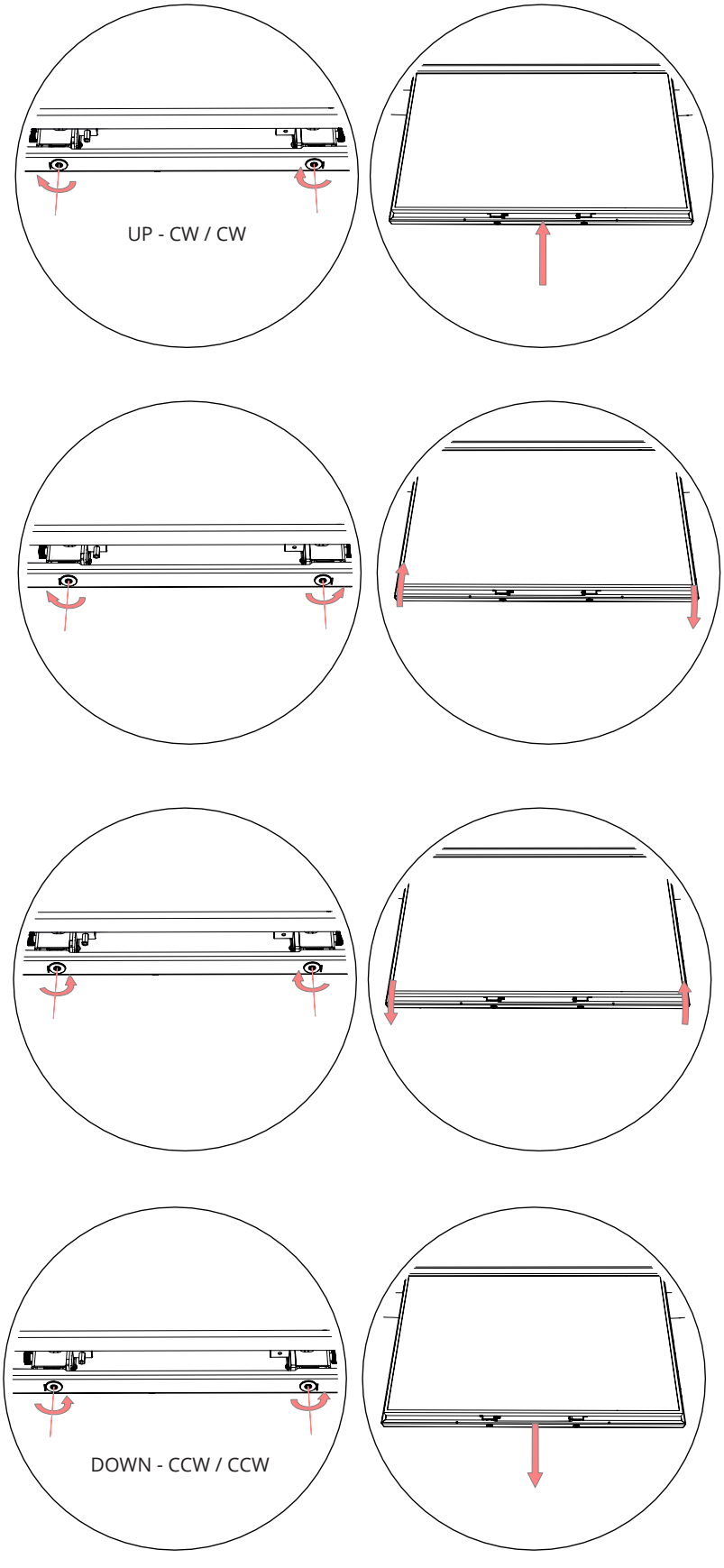


Tools required

(5mm Allen Wrench / Key)

Rotate socket on each side as needed.

1 CW Turn = 1mm Up
1 CCW Turn = 1mm Down

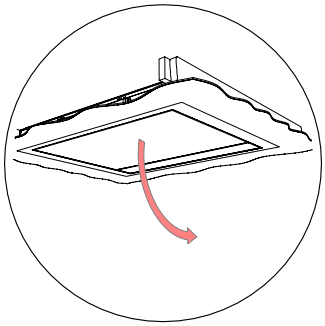


Mechanism Adjustments

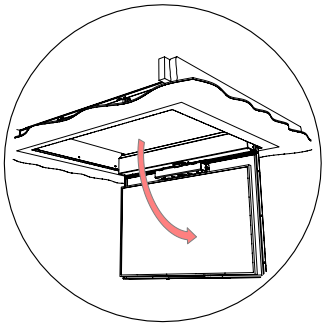
Hinging Back Tray Positioning

Adjustments to tray position can be carried out with Screen in place as shown below.

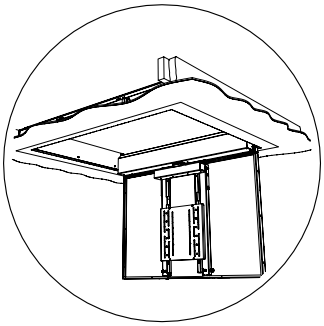
1. Open Mechanism



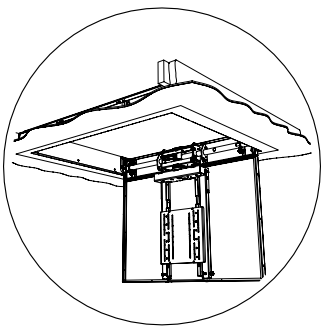
2. Remove Screen (If Installed)



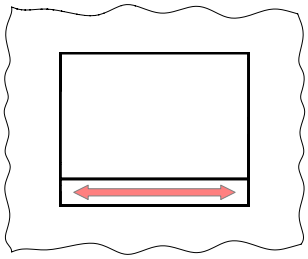
3. Remove Covers (If Installed)



4. Prepare tools



Left to Right



Tools required

(10mm Socket / Spanner)

a. Loosen 2 M6 nuts on outer clamps **(both sides)** - 2 turns

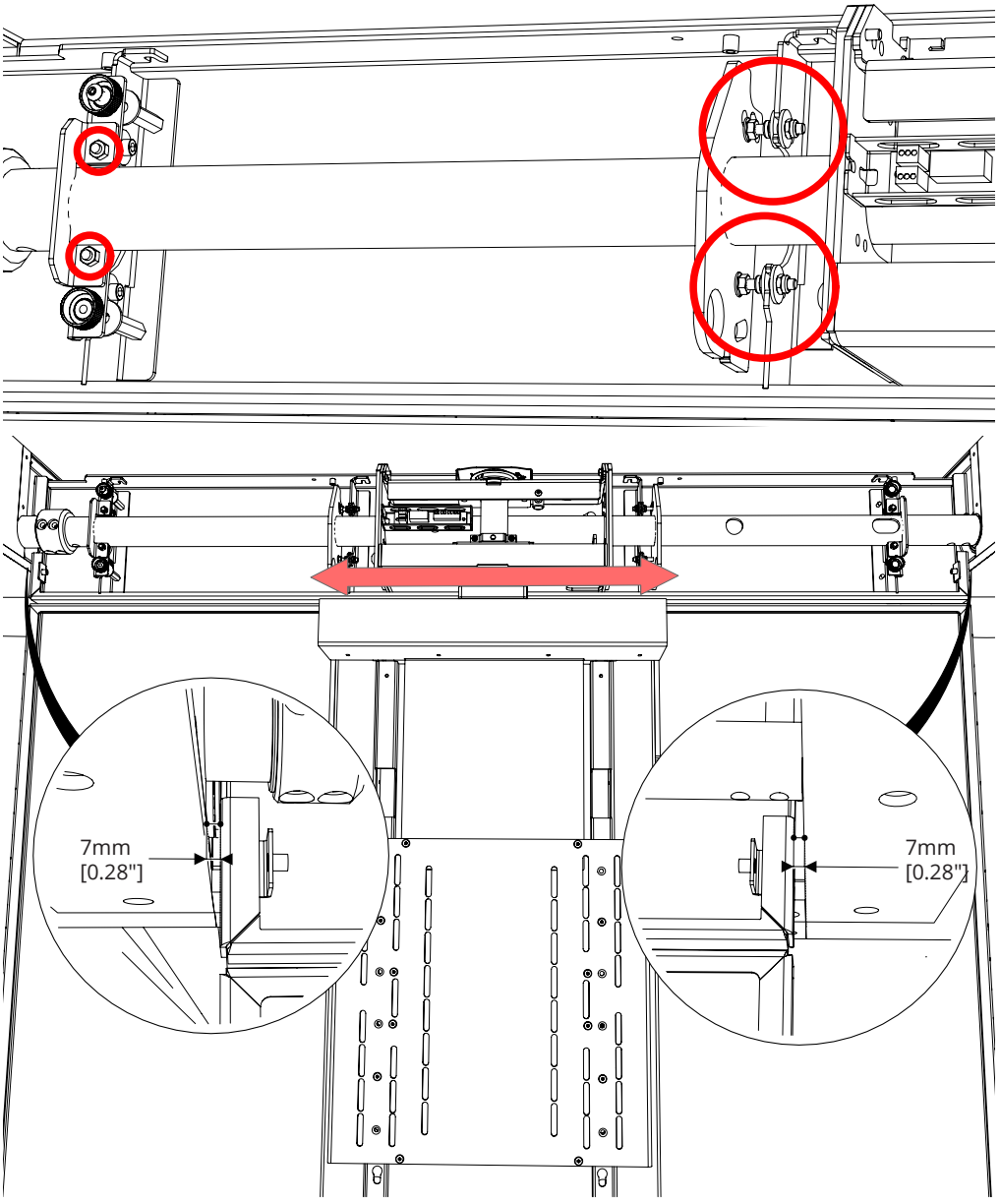
b. Loosen 4 M6 nuts on inner mount studs **(both sides)**

c .Move tray as needed.

d. Tighten 2 M6 nuts on outer clamps **(both sides)** - 2 turns

e. Tighten 4 M6 nuts on inner mount studs **(both sides)**

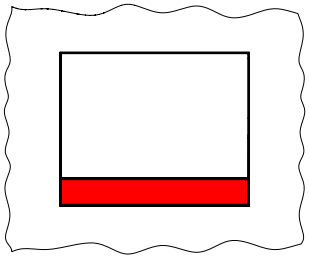
a / d **b / e**

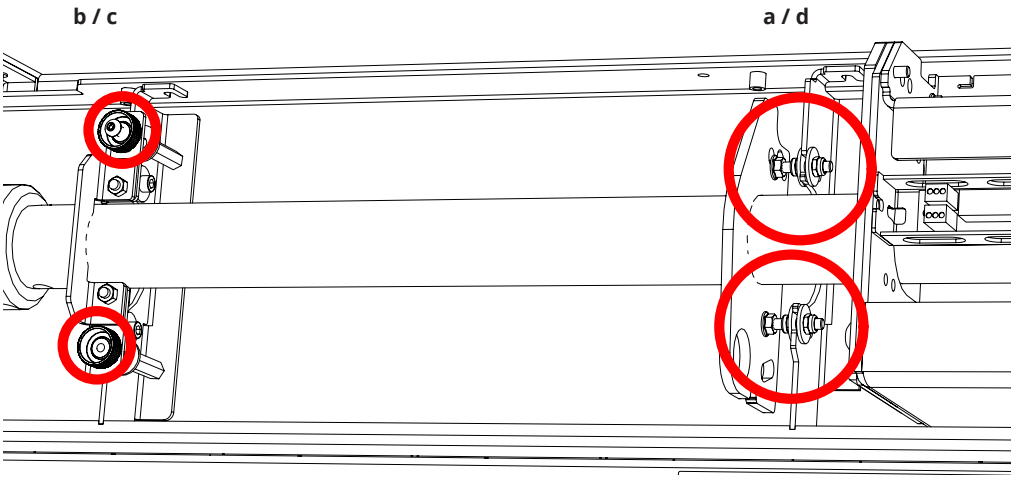


Mechanism Adjustments

Hinging Back Tray Levelling

Height and Rotation





Tools required

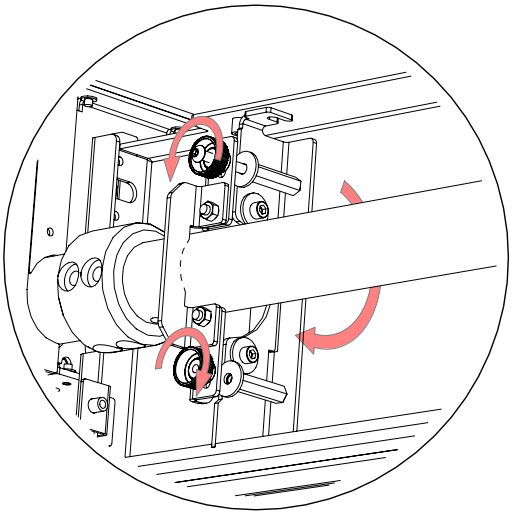
(10mm Socket / Spanner)

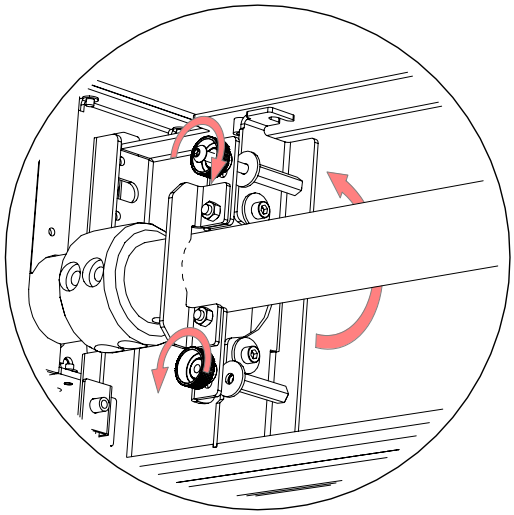
a. Loosen 4 M6 nuts on inner mount studs **(both sides).**

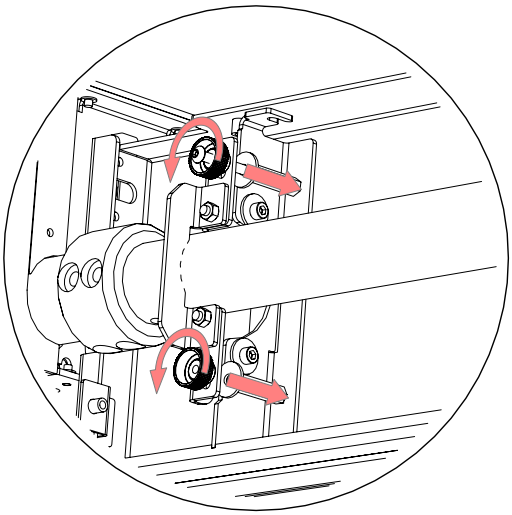
b. Loosen lock nuts and rotate thumb nuts as required **(both sides).**

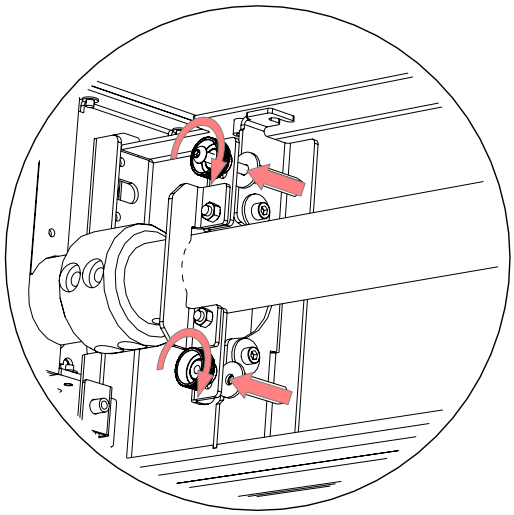
c. Tighten lock nuts **(both sides).**

d. Tighten 4 M6 nuts on inner mount studs **(both sides)**









Contact Information



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Email: info@futureautomation.net

Office Hours:
Mon - Fri 7:00 to 17:00 EST
Saturday & Sunday - Closed