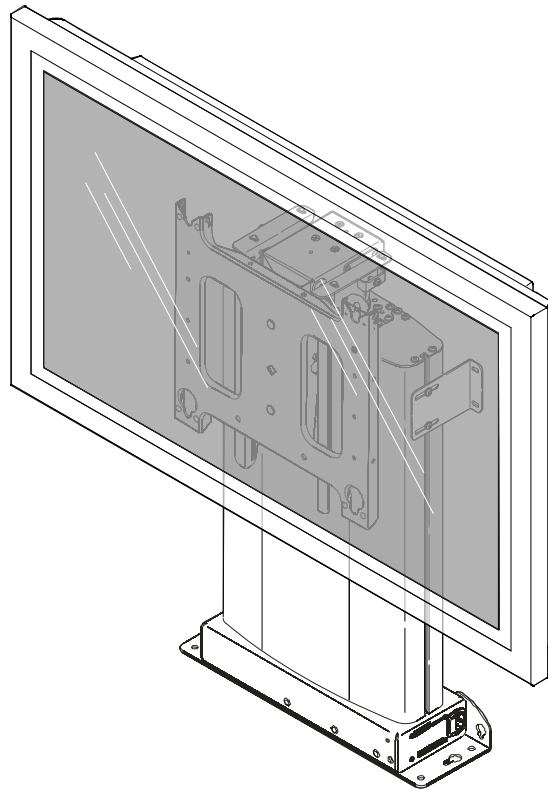


INSTALLATION INSTRUCTIONS



Automated Display Lift

This device complies with part 15 of the FCC rules. Operation is subject to the following 2 conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio or television communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment to an outlet on a circuit other than that to which the receiver is connected

Consult the dealer or an experienced radio/TV technician for help

 **CHIEF**[®]

CM2

CSAV, Inc., and its affiliated corporations and subsidiaries (collectively, "CSAV"), intend to make this manual accurate and complete. However, CSAV 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 notice or obligation of any kind. CSAV makes no representation of warranty, expressed or implied, regarding the information contained herein. CSAV assumes no responsibility for accuracy, completeness or sufficiency of the information contained in this document.



IMPORTANT WARNINGS AND CAUTIONS!

The Alert messages **DANGER**, **WARNING**, **CAUTION**, **IMPORTANT**, and **NOTE** are used throughout these instructions and on the product to alert the reader and/or operator of the existence of dangerous situations, conditions and/or important operational and maintenance information.

"SAVE THESE INSTRUCTIONS"



WARNING: WARNING alerts you to the possibility of serious injury or death if you do not follow the instructions.



CAUTION: A CAUTION alerts you to the possibility of damage or destruction of equipment if you do not follow the corresponding instructions.



WARNING: FAILURE TO READ AND FOLLOW THE FOLLOWING INSTRUCTIONS CAN RESULT IN SERIOUS PERSONAL INJURY, DAMAGE TO EQUIPMENT OR VOIDING OF FACTORY WARRANTY. It is the installer's responsibility to make sure all components are properly assembled and installed using the instructions provided. Read all instructions before using this furnishing.



DANGER: TO REDUCE THE RISK OF ELECTRIC SHOCK:

- ALWAYS unplug this furnishing from the electrical outlet before cleaning.



WARNING: TO REDUCE THE RISK OF BURNS, FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS:

- Unplug from outlet before putting on or taking off parts.
- Close supervision is necessary when this furnishing is being used by, or near, children, invalids, or disabled persons.
- Use this furnishing only for its intended use as directed in these instructions. DO NOT use attachments not recommended by the manufacturer.
- NEVER operate this furnishing if it has a damaged cord or plug, if it is not working properly, if it has been dropped or damaged, or dropped into water. Return the furnishing to a service center for examination and repair.
- Keep the cord away from heated surfaces.
- NEVER operate the furnishing with the air openings blocked. Keep the air openings free of lint, and the like.
- NEVER drop or insert anything into any opening.
- DO NOT use outdoors.
- DO NOT operate where aerosol (spray) products are being used, or where oxygen is being administered.
- To disconnect, turn all controls to the off position, then remove plug from outlet.



WARNING: RISK OF ELECTRICAL SHOCK! Connect this device to a properly grounded outlet only.



CAUTION: ONE END OF POWER CORD MUST REMAIN ACCESSIBLE AT ALL TIMES! DO NOT block or impede access to plug at any time!

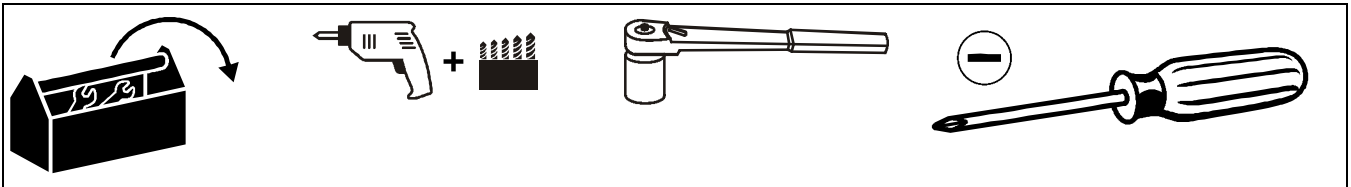


CAUTION: Changes or modifications to this unit not expressly approved by the manufacturer can void the units FCC compliance rating and make the unit illegal to operate.

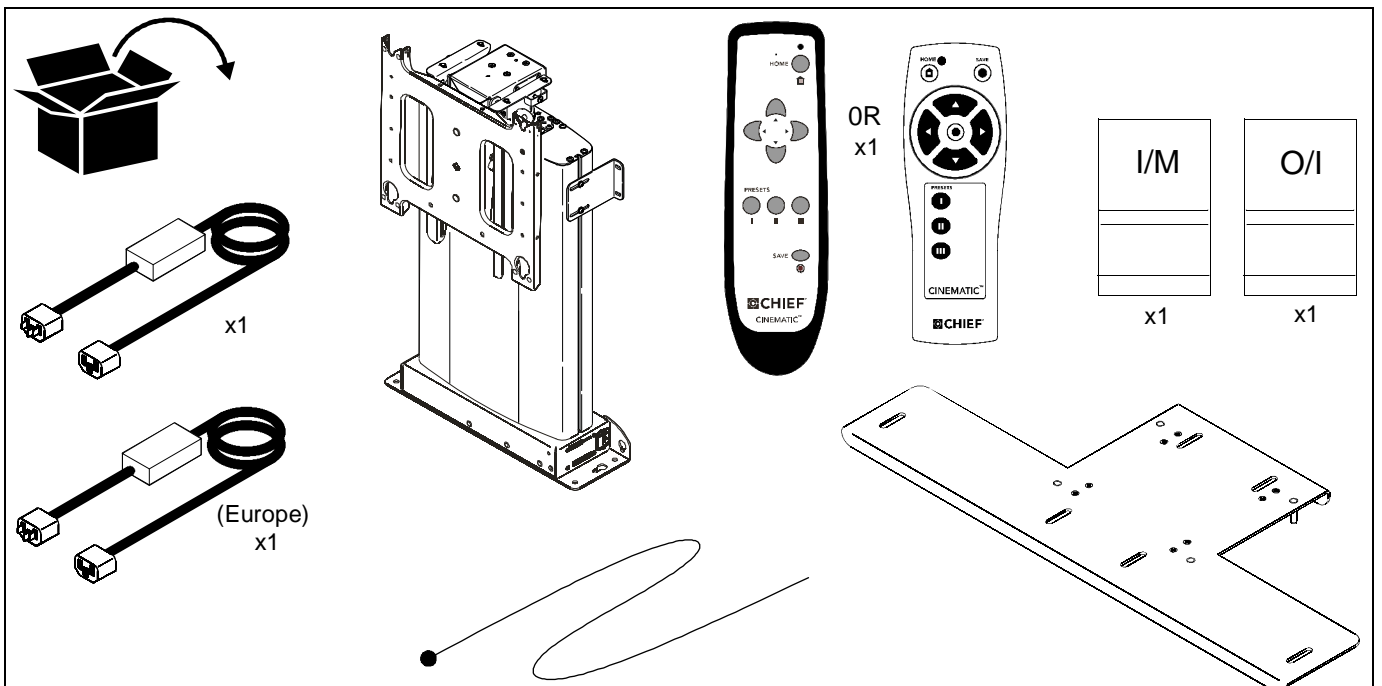
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TOOLS REQUIRED FOR INSTALLATION





PARTS




LEGEND


	Tighten Fastener
	Apretar elemento de fijación
	Befestigungsteil festziehen
	Apertar fixador
	Serrare il fissaggio
	Bevestiging vastdraaien
Serrez les fixations	


	Loosen Fastener
	Aflojar elemento de fijación
	Befestigungsteil lösen
	Desapertar fixador
	Allentare il fissaggio
	Bevestiging losdraaien
Desserrez les fixations	


	Phillips Screwdriver
	Destornillador Phillips
	Kreuzschlitzschraubendreher
	Chave de fendas Phillips
	Cacciavite a stella
	Kruiskopschroevendraaier
Tournevis à pointe cruciforme	


	Open-Ended Wrench
	Llave de boca
	Gabelschlüssel
	Chave de bocas
	Chiave a punte aperte
	Steeksleutel
Clé à fourche	


	By Hand
	A mano
	Von Hand
	Com a mão
	A mano
	Met de hand
À la main	


	Hex-Head Wrench
	Llave de cabeza hexagonal
	Sechskantschlüssel
	Chave de cabeça sextavada
	Chiave esagonale
	Zeskantsleutel
Clé à tête hexagonale	


	Pencil Mark
	Marcar con lápiz
	Stiftmarkierung
	Marcar com lápis
	Segno a matita
	Potloodmerkteken
Marquage au crayon	

	Drill Hole
	Perforar
	Bohrloch
	Fazer furo
	Praticare un foro
	Gat boren
Percez un trou	

	Adjust
	Ajustar
	Einstellen
	Ajustar
	Regolare
	Afstellen
Ajuster	

	Remove
	Quitar
	Entfernen
	Remover
	Rimuovere
	Verwijderen
Retirez	

	Optional
	Opcional
	Optional
	Opcional
	Opzionale
	Optie
En option	

	Security Wrench
	Llave de seguridad
	Sicherheitsschlüssel
	Chave de segurança
	Chiave di sicurezza
	Veiligheidssleutel
Clé de sécurité	

INSTALLATION REQUIREMENTS

The CM2 has been designed to be mounted into a cabinet or similar type of furnishing.



WARNING: IMPROPER INSTALLATION CAN LEAD TO LIFT TIPPING CAUSING SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT! It is the installers responsibility to make certain the structure to which the lift is being mounted is capable of supporting 4 times the weight of the lift and all attached equipment.

Power Requirements and Wiring

The CM2 requires 120VAC (220/240VAC 50 Hz for European installations) power to operate.

A 6' long power cable is provided with the mount.

INSTALLATION

Pre-Installation Configuration and Adjustments

Prior to being installed, the CM2 requires the configuration of the mount for display, cable installation and routing, and the rough adjustment of the top cover mounting bracket.

To prepare the CM2 for installation:

1. Remove mount from box.
2. Remove two wooden supports from under box.
3. Lay two wooden supports on floor and mount to supports using four 5/16" flat washers and four 5/16" x 2 1/2" lag bolts (hardware provided). (See figure 1)

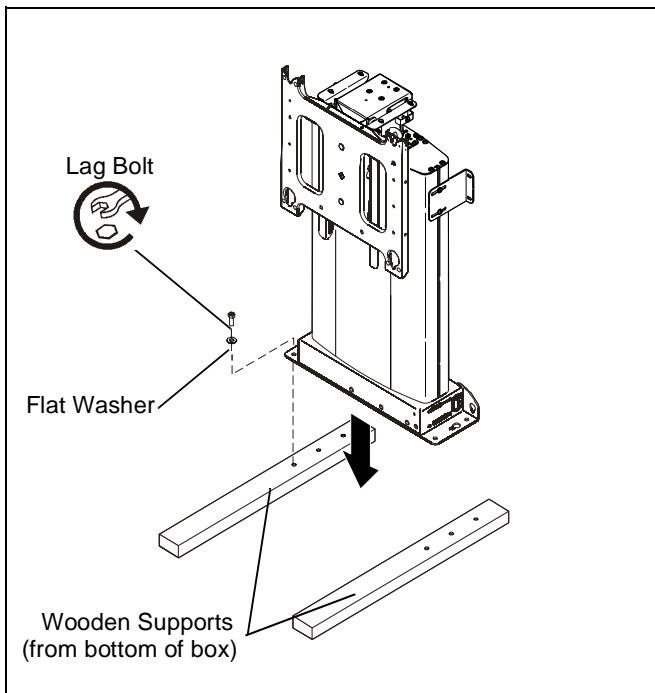


Figure 1

Configuring the Mount for the Display

Prior to installation, the CM2 needs to be configured for the size of the display being used.

To prepare the CM2 for the display being installed:

1. Install interface bracket or mounting buttons to display following the instructions provided with bracket.

2. Measure the distance from the center of a bottom mounting button to the lowest point of the display.
3. Record measurement.

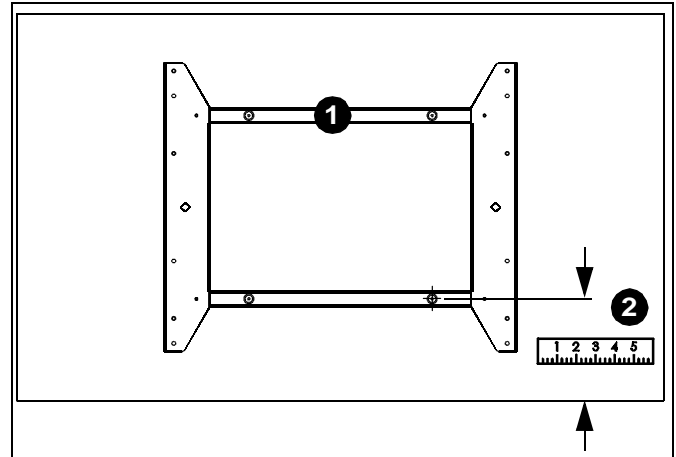


Figure 2

IMPORTANT ! : If the dimension taken in figure 2 is greater than 16" (406mm), the faceplate will need to be adjusted before mounting the display. If the dimension taken in figure 2 is less than 16" (406mm) proceed to *Install Display* below.

Adjusting Faceplate Location

The CM2 is designed to allow up to 6.5" of adjustment. Up to 2" by adjusting the faceplate location on the faceplate mounting bracket, and up to an additional 4.5" by adjusting the faceplate mounting bracket.

Subtract 16" from the dimension determined in figure 2. The difference between the two is the total amount of adjustment the faceplate will require.

Example:

Dimension from step 2 = 19.5"

$19.5" - 16" = 3.5"$ (Amount of faceplate adjustment required)

If 2" or less faceplate adjustment is required proceed to step 5. If more than 2" of faceplate adjustment is required proceed to step 8.

NOTE: Depending upon the amount of faceplate adjustment required, it maybe necessary to adjust both the faceplate and faceplate mounting bracket.

If 2" or less faceplate adjustment is required:

4. Install IR receiver. (See figure 3)
5. Plug appropriate power cord into mount and power source.
6. Using the remote control, raise lift until locknuts on back side of faceplate can be accessed. (See figure 3)



WARNING: PINCH HAZARD! FINGERS OR HANDS BETWEEN MOVING PARTS CAN LEAD TO SEVERE PERSONAL INJURY! Keep fingers and hands away from mount when operating.

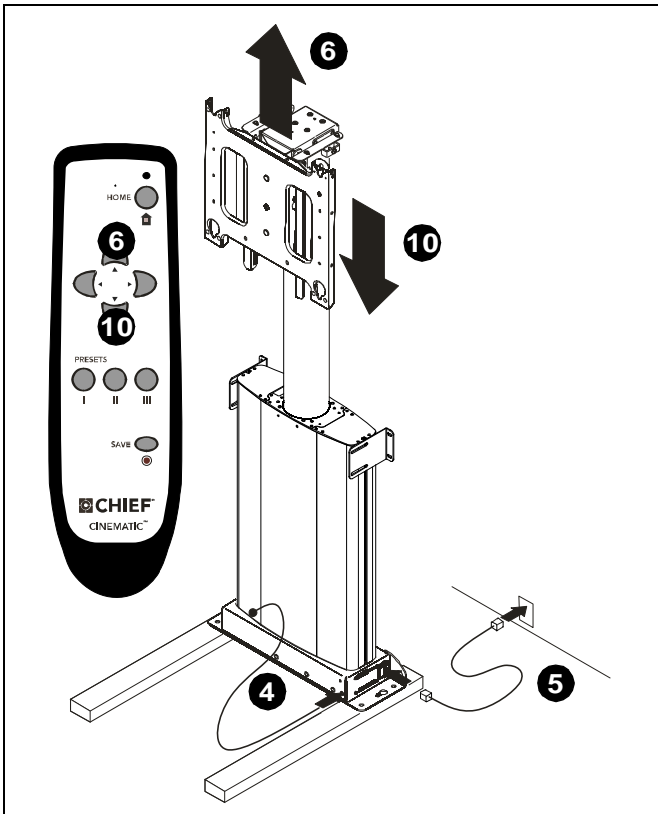


Figure 3

7. Remove two locknuts securing faceplate to faceplate mounting bracket. (See figure 4)
8. Move faceplate up one set of holes to adjust location 1" or two sets of holes to adjust 2". (See figure 4)

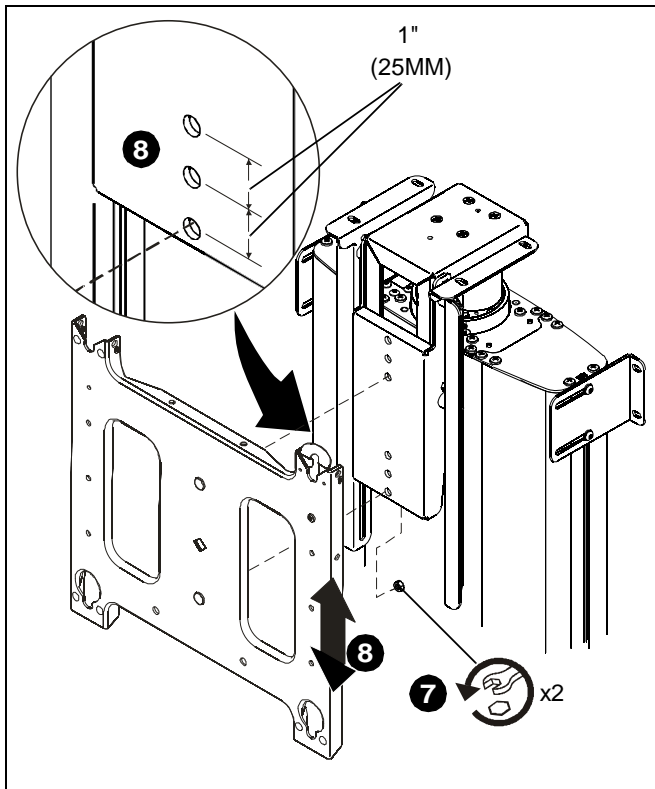


Figure 4

9. Secure faceplate to faceplate mounting bracket using two locknuts. (See figure 6)

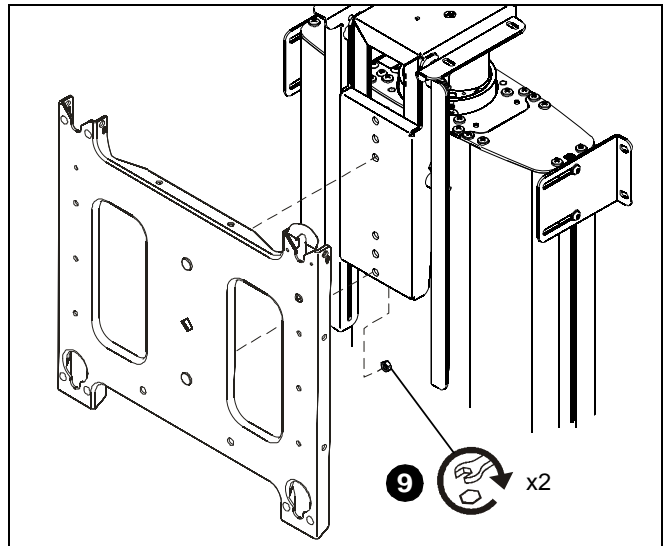


Figure 5

10. Using the remote control, lower the lift until it stops. (See figure 3)

If more than 2" of faceplate adjustment is required:

11. Raise lift following instructions in step 6. (See figure 3)
12. Loosen four nuts securing faceplate mounting bracket to frame. (See figure 6)
13. Slide faceplate mounting bracket upward desired amount. (See figure 6)
14. Tighten four nuts to secure faceplate mounting bracket to frame.



WARNING: IMPROPER INSTALLATION CAN LEAD TO SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT! Make sure all four nuts are tight before continuing installation!

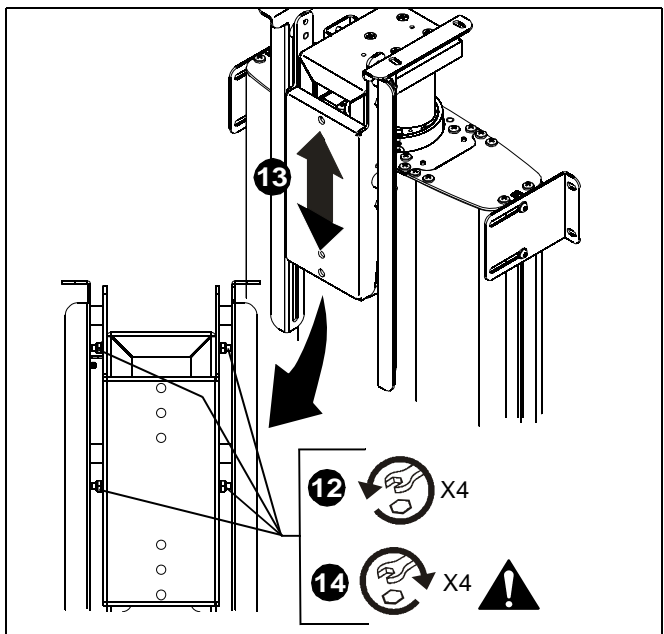


Figure 6

15. Align studs in faceplate with appropriate holes in faceplate mounting bracket and hang faceplate on bracket with studs.
16. Secure faceplate to faceplate mounting bracket using two locknuts. (See figure 7)

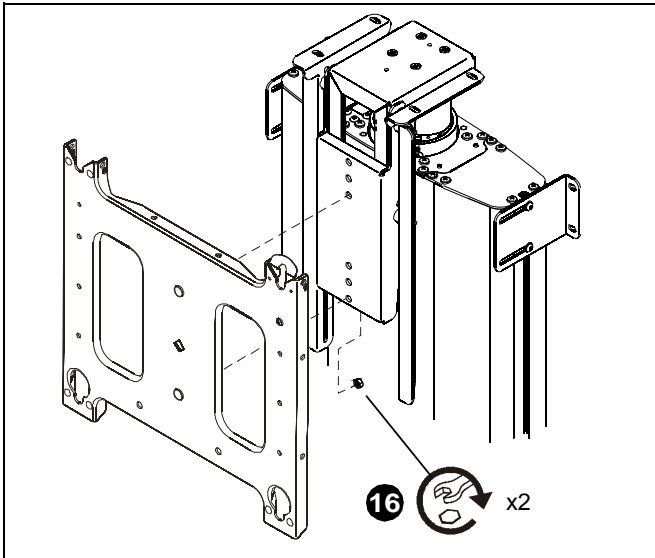


Figure 7

Display Installation

WARNING: EXCEEDING MAXIMUM WEIGHT CAPACITY CAN LEAD TO SERIOUS PERSONAL INJURY OR DAMAGE TO EQUIPMENT! It is the installers responsibility to ensure the total amount of weight placed on the mount does not exceed 190lbs (86.18 kg) the maximum capacity of the CM2.

1. If lift was raised during faceplate configuration, lower the lift until it stops using the remote control.

WARNING: PINCH HAZARD! FINGERS OR HANDS BETWEEN MOVING PARTS CAN LEAD TO SEVERE PERSONAL INJURY! Keep fingers and hands away from mount when operating.

WARNING: IMPROPER INSTALLATION CAN LEAD TO MOUNT FALLING CAUSING SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT. Displays can weigh in excess of 40 lbs (18.1kg). ALWAYS use two people and proper lifting techniques when installing display.

WARNING: IMPROPER INSTALLATION CAN LEAD TO MOUNT FALLING CAUSING SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT. Make sure mounting buttons on display are properly seated in mounting holes in faceplate.

To install display:

1. While supporting both sides of display, align four mounting buttons on display or interface bracket with four mounting holes in faceplate. (See figure 9) and (See figure 10)
2. Lower display into place listening for audible "click" to ensure recessed area of mounting buttons are properly seated in lower area of mounting holes and "click lock" mechanism has engaged. (See figure 9) and (See figure 10)

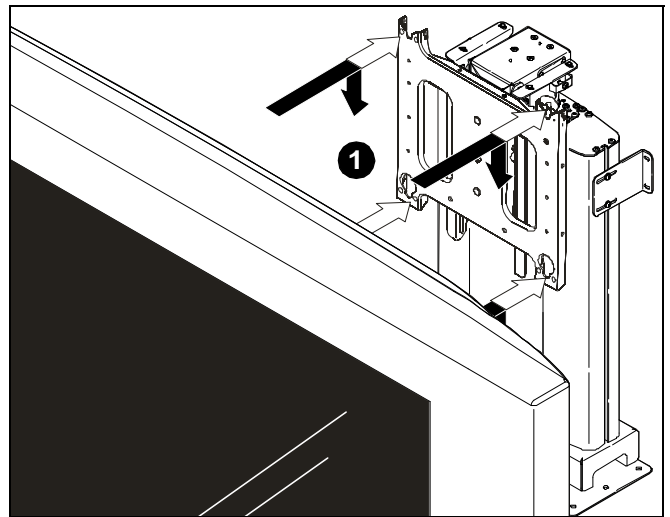


Figure 9:

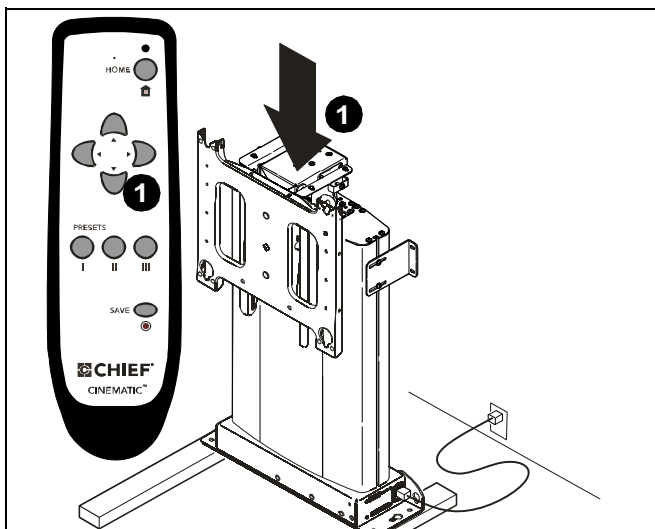


Figure 8

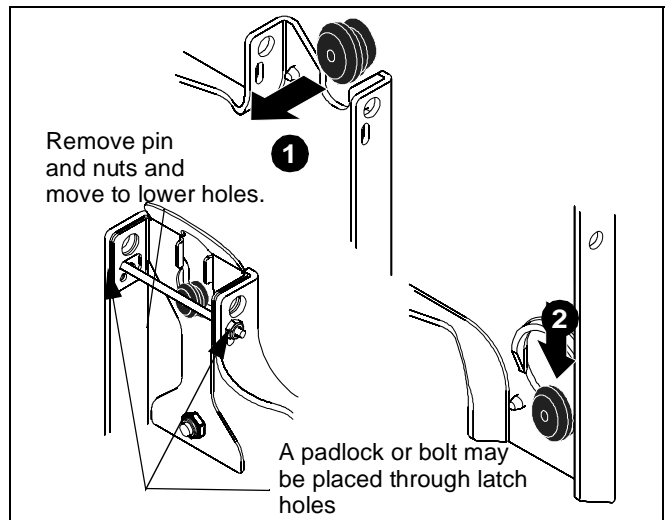


Figure 10

NOTE: Verify that there is at least 1" of clearance between bottom of display and mount base.

3. If there is less than 1" of clearance, remove the display and refer to *Adjusting Faceplate Location* section, and adjust display height accordingly.

NOTE: Holes are provided in the faceplate for use with a padlock or similar locking device, if desired. In addition, the pin and nut may be removed from the upper holes and moved to the lower holes for use as a more permanent locking device. (See figure 10)

Shelf Height Adjustment

After the CM2 has been properly configured for the display and the display installed, the shelf height needs to be adjusted to the top of the display.

To set shelf height:

1. Using the remote control, raise lift until locknutssecuring right and left shelf adjustment brackets can be accessed.

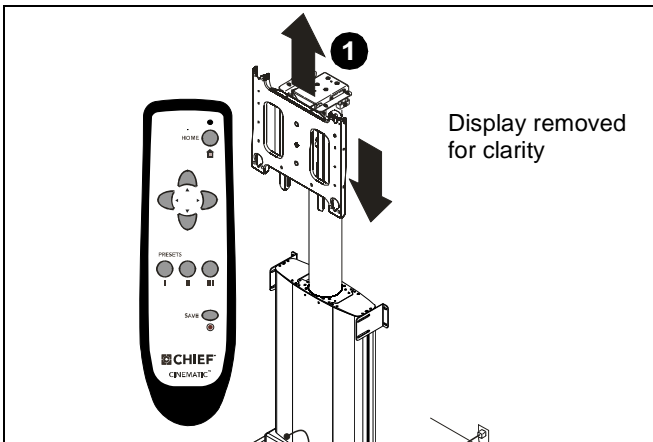


Figure 11

2. Loosen four nuts securing right and left hand shelf adjustment brackets to faceplate mounting bracket.
3. Slide shelf adjustment brackets upward until top of brackets are positioned higher than top of display.

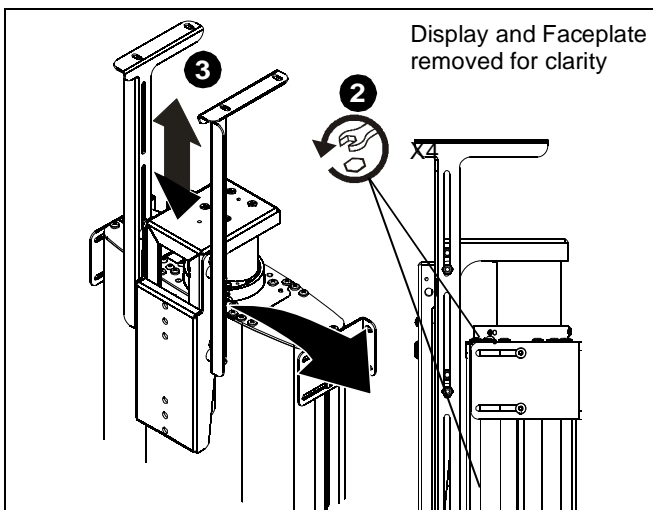


Figure 12

4. Re-install shelf assembly to shelf adjustment brackets by aligning studs in shelf bracket with clips in shelf adjustment brackets.

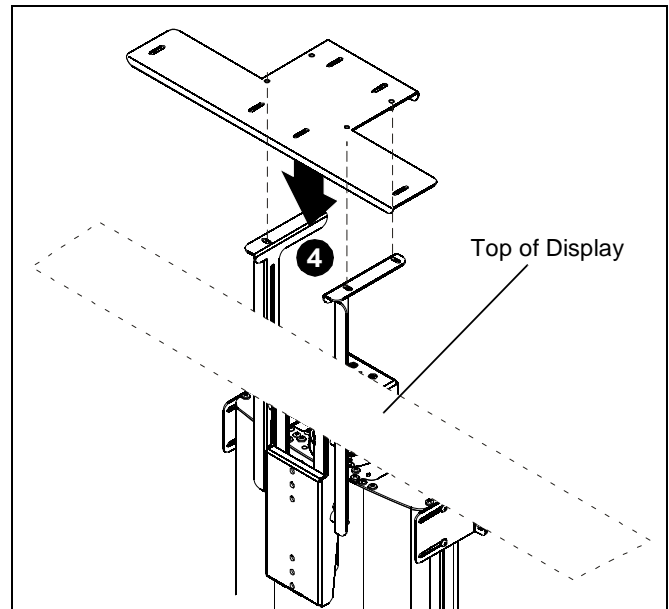


Figure 13

5. Shelf and shelf mounting brackets down until shelf is 1/4" (6.5mm) above top of display.
6. Tighten four nuts to secure shelf mounting bracket in position.

WARNING: IMPROPER INSTALLATION CAN LEAD TO SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT! Make sure all four nuts are tight before continuing installation!

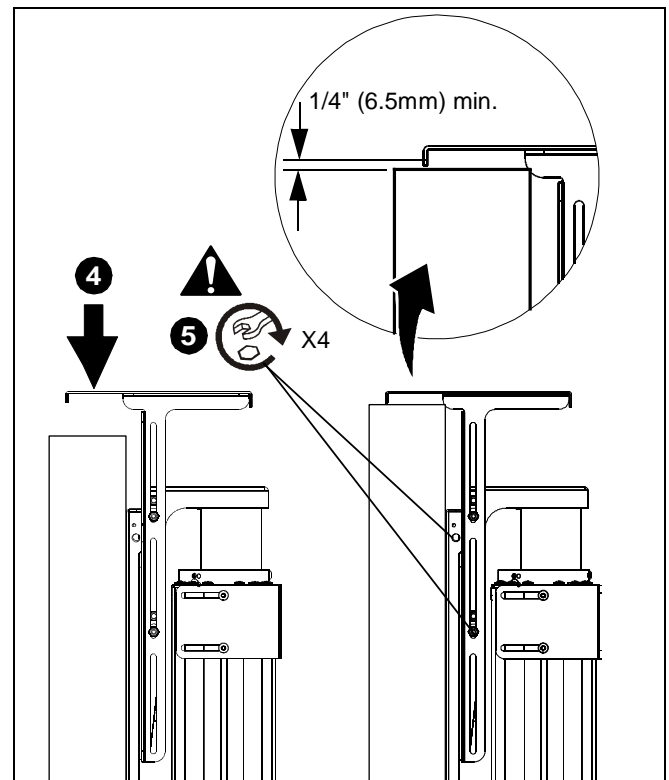


Figure 14

NOTE: With the mount configured for the display and the display installed, it is now possible to calculate the minimum I.D of the cabinet.

Determining Minimum I.D. of Furniture

1. Measure and record distance "A" in figure below. (See figure 16)
2. Measure and record distance "B" from figure below. This is the material thickness of the cover that will be mounted to the CM2. (See figure 16)
3. Add measurements from step one and two together. The total is the minimum inside height of the furniture.
4. Measure and record distance "C" in figure below. This dimension is from the back side of the CM2 vertical mounting bracket to the furthest point forward on the display. (See figure 16)



CAUTION: IMPROPER FIT TOLERANCES CAN CAUSE AREAS OF MOUNT OR FURNITURE TO COLLIDE WHEN OPERATING THE MOUNT CAUSING SERIOUS DAMAGE TO EQUIPMENT! Always provide for adequate tolerances when building cabinet especially between base and cover. (See figure 15)

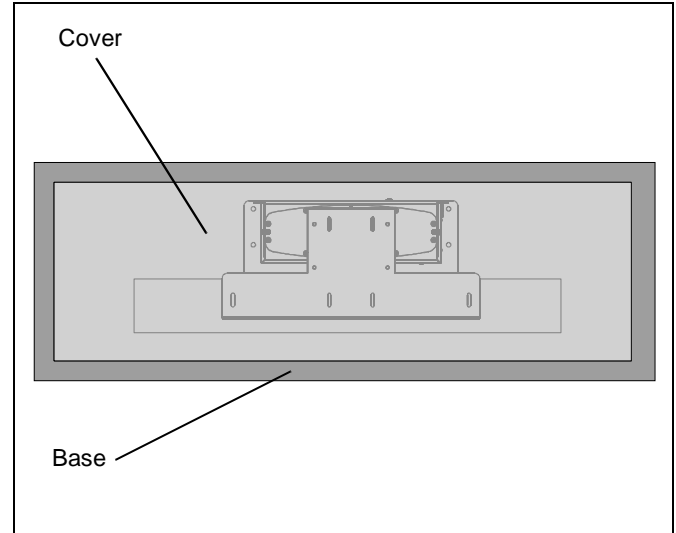


Figure 15



WARNING: EXCEEDING STATED WEIGHT LIMITS OF THE CM2 CAN LEAD TO SERIOUS PERSONAL INJURY OR DAMAGE TO EQUIPMENT! The weight of furniture cover must be calculated into the total weight being placed on the mount a total not exceed 180lbs (82 kg) the maximum capacity of the CM2.

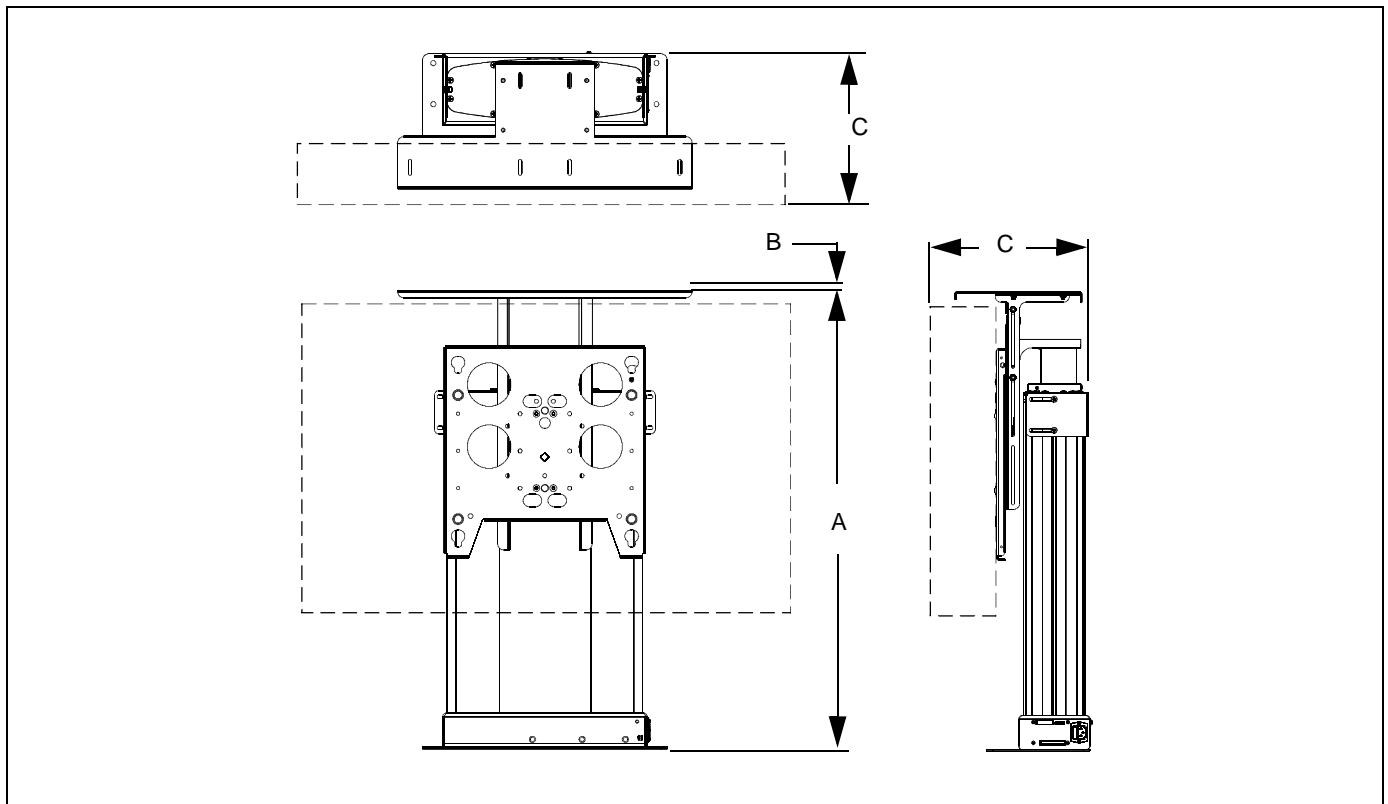


Figure 16

Cable Installation and Routing

The CM2 has an integrated cable management system that allows cables to be automatically "fed out" as the lift raises, and "reeled in" as the lift lowers while maintaining constant cable tension.

IMPORTANT ! : The CM2 requires minimum cable lengths of 8 feet from display through lower mount.

To install cables:

1. Remove two screws securing cable guide side cover.
2. Set screws aside for reuse. (See figure 17)

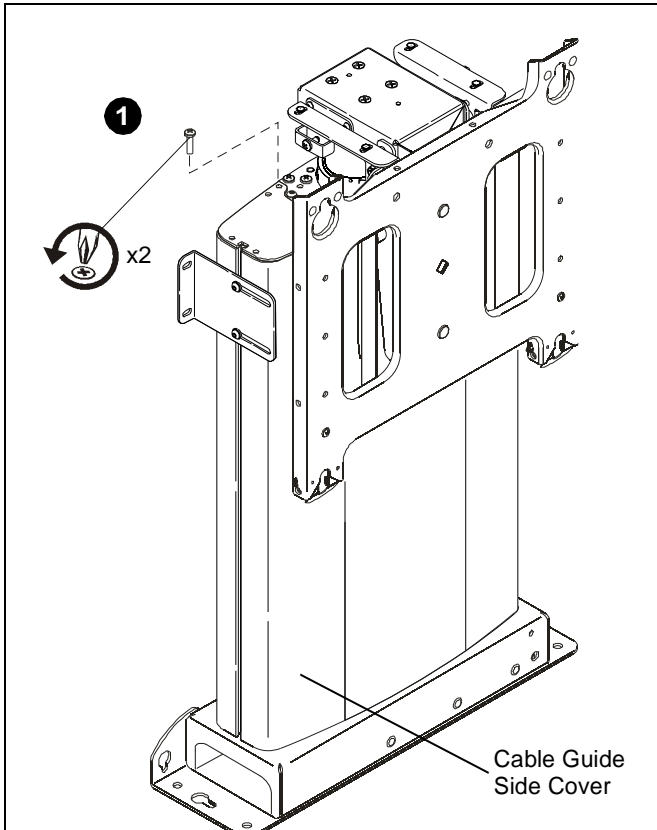


Figure 17

3. Slide cable guide side cover away from mount and carefully set aside.

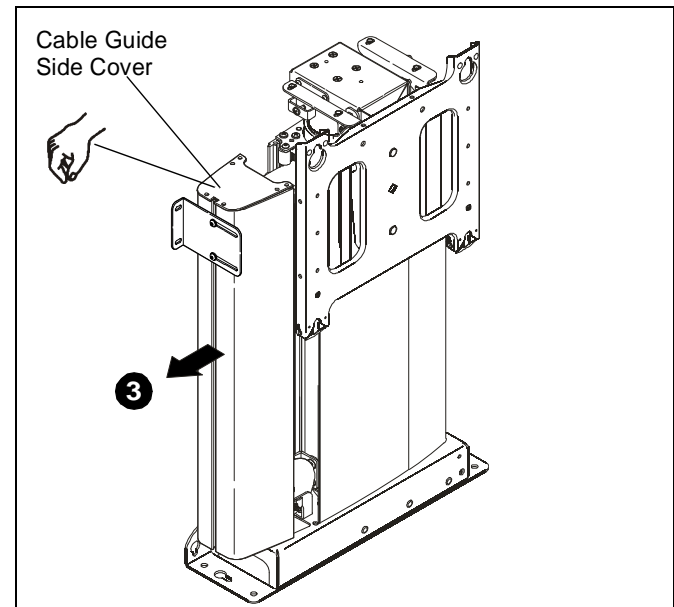


Figure 18

4. Loosen six cable clamps. (See figure 19)
5. Route cable(s) down through upper cable clamp. (See figure 19) and (See figure 20)

IMPORTANT ! : Leave enough cable length available above upper cable clamp to allow the routing and tie-down of cables between upper cable clamp and display.

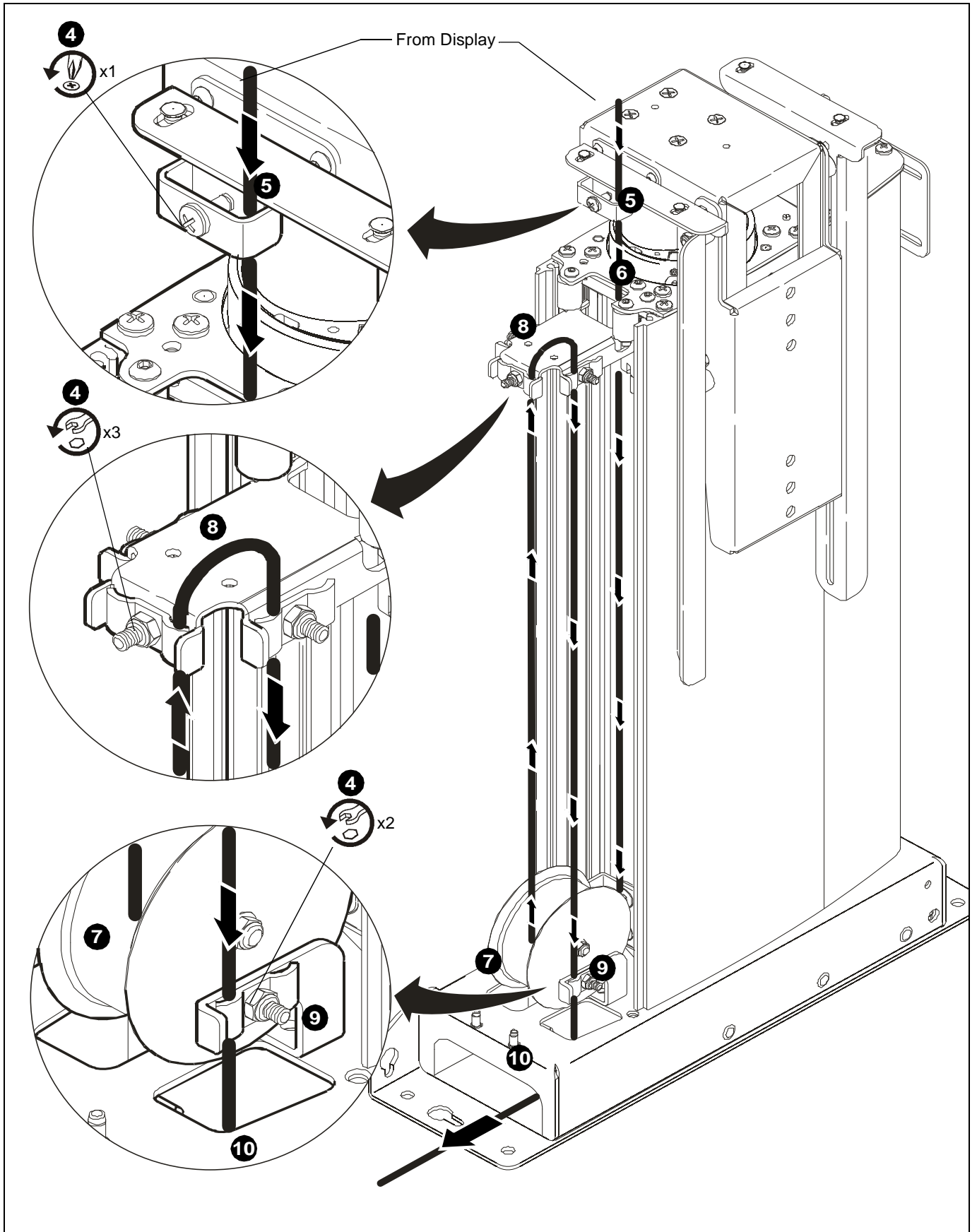


Figure 19

6. Route cable(s) down through opening at rear of middle cable clamp mounting bracket. (See figure 19) and (See figure 20)

NOTE: If plug on cable will not fit through opening loosen or remove one screw securing middle cable clamp mounting bracket to mount frame and pivot middle cable clamp mounting bracket to the side until plug can be routed behind bracket.



CAUTION: Bracket mounting hardware **MUST** be reinstalled and tightened before continuing with cable installation. (See figure 20)

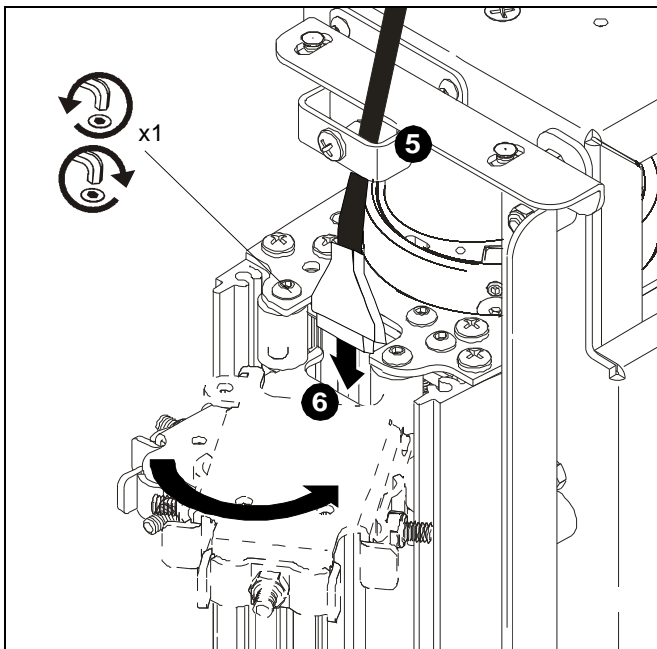


Figure 20

7. Route cable under cable pulley and up through front cable clamp on middle cable clamp mounting bracket. (See figure 19)
8. Loop cable and route cable down through side cable clamp(s) on middle cable clamp mounting bracket. (See figure 19)



CAUTION: Cables must not extend higher than 1" (25mm) above cable mounting bracket when looped! (See figure 19)

9. Route cable(s) down through lower cable clamp(s). (See figure 19)
10. Route cable through cable access opening in top of mount base and cable access opening in side of mount base. (See figure 19)
11. Tighten upper cable clamp making certain cables are properly seated in clamp and are not pinched.



WARNING: OVERTIGHTENING OF CABLE CLAMPS CAN CRUSH CABLES LEADING TO DAMAGE TO EQUIPMENT! DO NOT over tighten cable clamps.

12. Starting at upper cable clamp and working downward, remove slack from all cables and tighten remaining cable clamps. (See figure 19)

13. Slide cable guide side cover over cable guide making certain lip on back cover plate is fully seated in groove in cable guide side cover. (See figure 21)

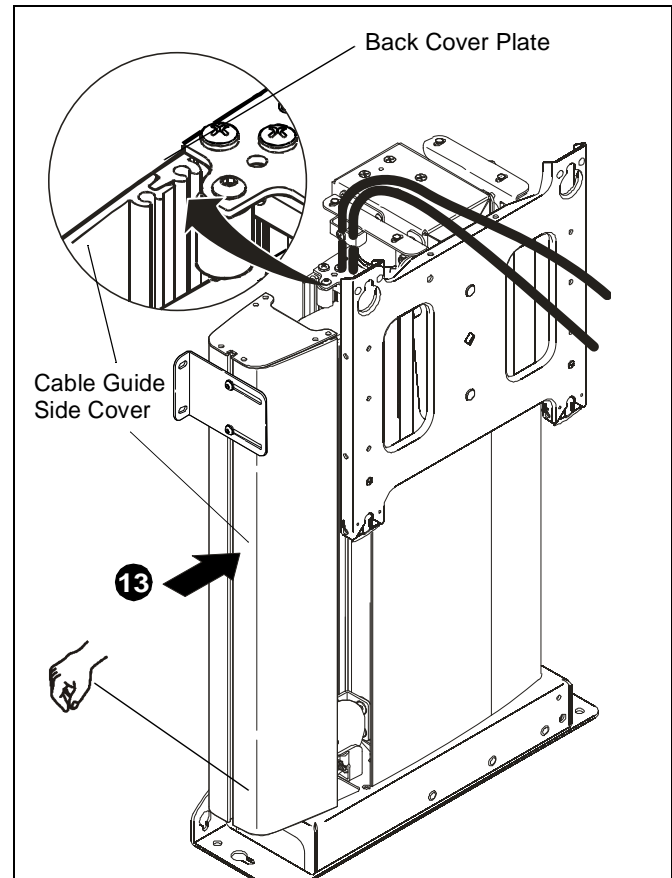


Figure 21

14. Secure cable guide top cover to mount and cable guide side cover, using two screws.

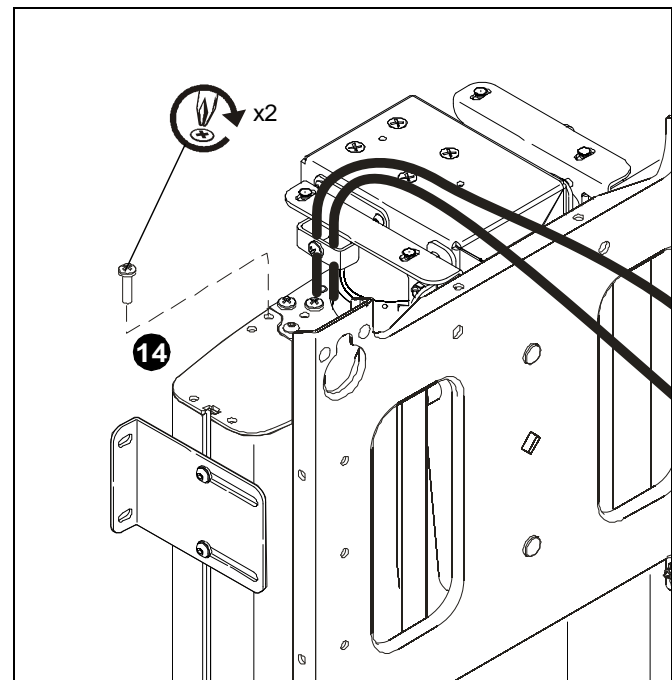


Figure 22

Mount Installation

The CM2 has been designed to be mounted into a cabinet or similar type of furnishing.

The following installation instructions assume a suitable structure and surface exists prior to installation.



WARNING: IMPROPER INSTALLATION CAN LEAD TO LIFT FALLING CAUSING SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT! It is the installers responsibility to make certain the structure to which the lift is being mounted is capable of supporting 4 times the weight of the lift and all attached equipment.

IMPORTANT ! : The finished furniture with display on and mount fully raised must be able to be placed at a 10° angle front and back without tipping.

To install the CM2:

1. If the display is installed and cables routed, disconnect wires and cables from display, uninstall top shelf and display.
2. Remove mount from wooden supports used during mount setup and configuration.



WARNING: MOUNT WEIGHS IN EXCESS OF 40LBS!
Always use two people and proper lifting techniques when installing or positioning mount.

3. Determine base position within furnishing framework.
4. Position mount until base is properly positioned and side mounting brackets are in line with vertical supports. (See figure 23)
5. Loosen four screws securing side mounting brackets to mount and adjust side mounting brackets until properly positioned against vertical mounting surface. (See figure 24)
6. Tighten four screws to hold position of side mounting brackets. (See figure 24)

7. Mark eight base mounting hole locations. (See figure 24)
8. Drill pilot holes at marked locations.
9. Mark four side bracket mounting hole locations. (See figure 41)
10. Drill four pilot holes at marked locations.
11. Secure mount base to mounting surface using eight screws. (See figure 24)
12. Secure mount to vertical mounting surface using four screws. (See figure 24)

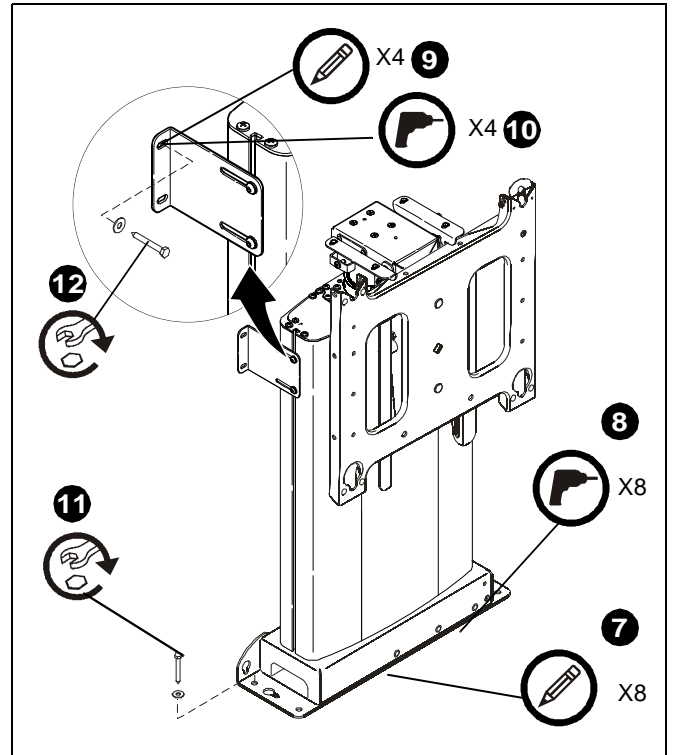


Figure 24

13. Install display following the procedures outlined in *Install Display* section on page 7.

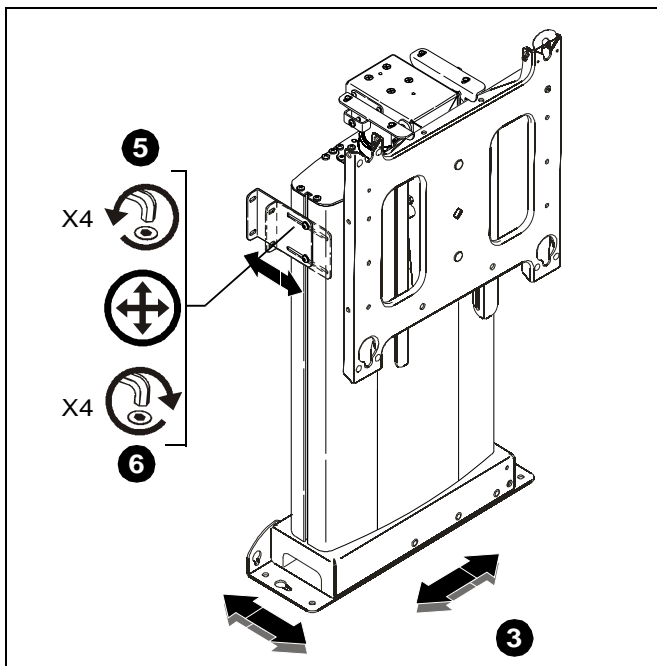


Figure 23

ADJUSTMENTS

Display Travel Adjustment

The CM2 is designed to allow the adjustment of both "Extend" and "Retract" display travel limits. The CM2 is shipped set at maximum extension and retraction.

There is an upward travel limit adjustment screw and a downward travel limit adjustment screw located on the top right hand side of the mount. (See figure 25)

NOTE: 10 full turns of the "Extend" or "Retract" travel adjustment screws is equal to 1" of display travel.

1. Turning the "Extend" travel adjustment screw clockwise will increase the amount of display upward travel. Turning the "Extend" adjustment screw counter-clockwise will decrease the amount of display upward travel.
2. Turning the "Retract" travel adjustment screw clockwise will decrease the amount of display downward travel. Turning the "Retract" adjustment screw counter-clockwise will increase the amount of display downward travel.

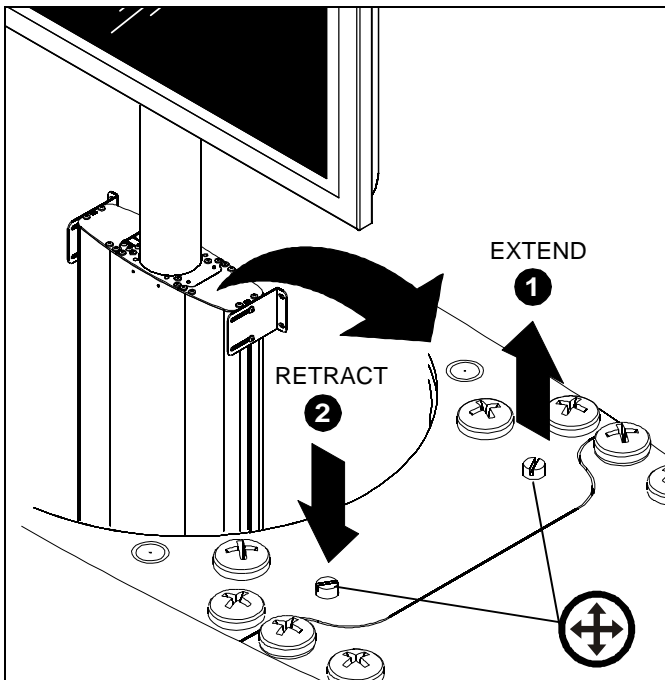


Figure 25

Lift Cable Tension Adjustment

Lift cable tension is preset at the factory and should not need adjustment during initial mount installation. However, after extended use it may be necessary to make minor adjustments. If there is visible slack in cables or a rattling sound can be heard in the area of the cable guides, cable tension may need adjustment.

Cable tension is adjusted by turning an adjustment screw located on the top left hand side of the mount using a hex wrench. (See figure 26)

Turning the screw clockwise will increase cable tension and counter-clockwise will decrease cable tension.

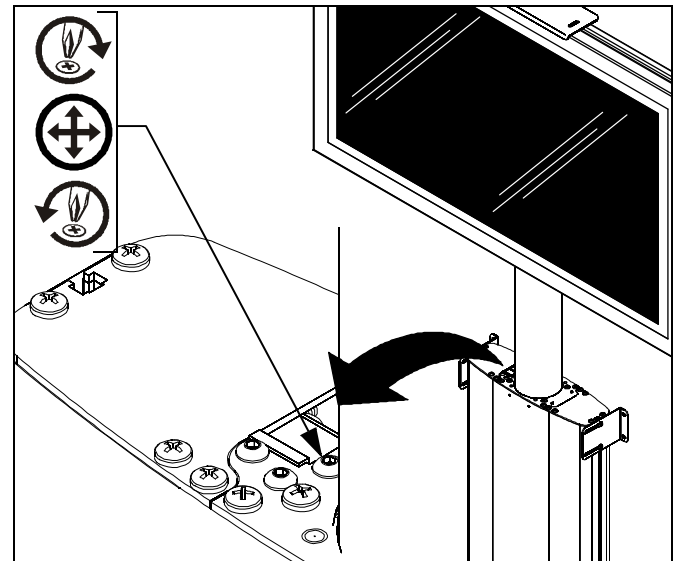


Figure 26

Drive Belt Tension Adjustment

Drive belt tension is preset at the factory and should not need adjustment during initial mount installation or operation. However, after extended use it may be necessary to make minor adjustments to belt tension. (See figure 27)

NOTE: If during operation the lift moves slower than normal or is not raising and lowering smoothly or making unusual noise, belt tension may need to be adjusted.

Drive belt tension is adjusted by turning an adjustment screw located on the lower back side of the mount using a 3/16" hex wrench. (See figure 27)



WARNING: OVERTENSIONING CAN LEAD TO DAMAGE TO EQUIPMENT! DO NOT overtension! Adjust drive belt tension in small increments.

Turning the screw clockwise will increase drive belt tension and counter-clockwise will decrease drive belt tension.

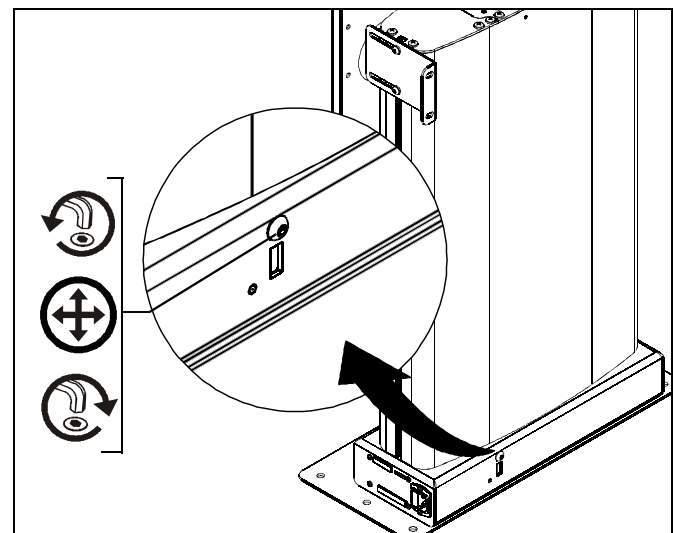


Figure 27

Lift Column Bearing Adjustment

The upper and lower lift columns are aligned using two lift bearings, one upper and one lower.

Bearing adjustment is pre-set at the factory, however, there may be times when it is required to make slight adjustments in bearing tightness to eliminate excess play in lift columns or noise.



WARNING: OVERTENSIONING CAN LEAD TO DAMAGE TO EQUIPMENT! DO NOT overadjust!

IMPORTANT ! : Display should be installed on mount prior to performing lift column bearing adjustment!

To adjust lift column bearings:

1. Determine if it is the upper or lower lift column that requires adjustment.
2. Using a hex wrench, turning in small increments evenly across all adjustment screws, loosen or tighten adjustment screws.
3. Run Display to fully up, and fully down position and verify proper lift column movement.
4. Repeat steps 1 through 3 until desired lift column movement is achieved.

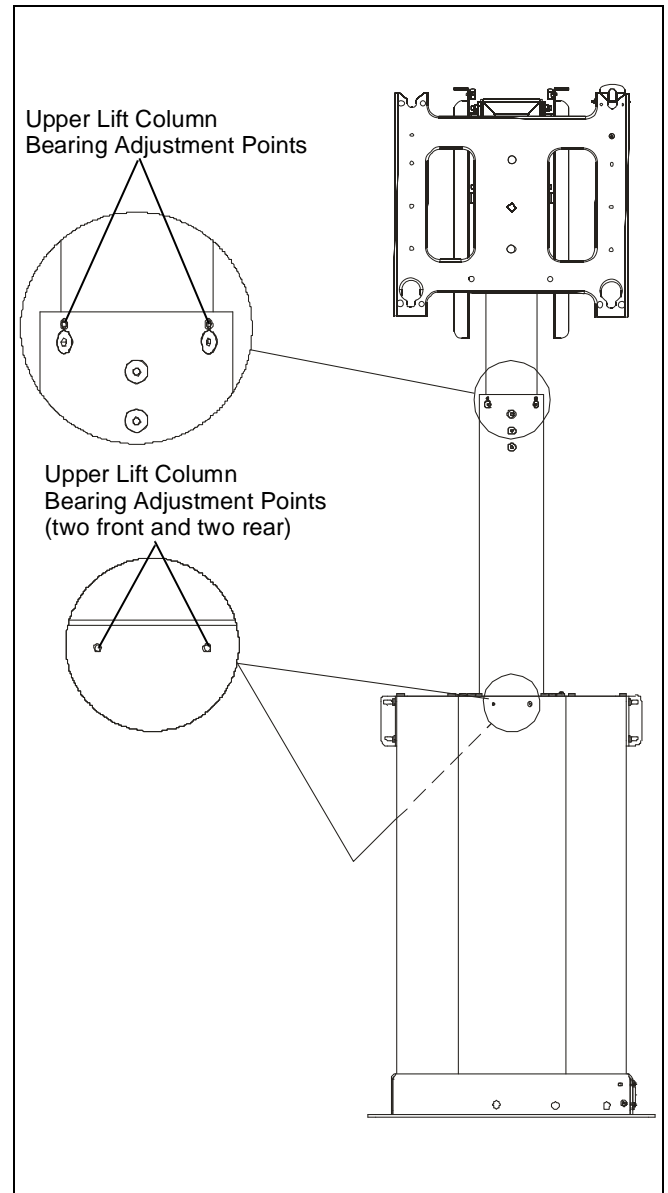


Figure 28

Extended Programming Capabilities

The CM2 allows for extended programming to make the mount compatible with other devices such as a Universal Remote or other control devices through a serial connection.

Setting or changing the configuration of the CM2 is done through the remote control provided with the mount.

The remote control has a range of 20-30ft (6-9m), and is powered by 2 AAA batteries that are accessed from the back of the remote.

NOTE: If operation of the mount is required at a greater distance than remote control will allow, the mount can be controlled through a hardwired switch or similar device. See *Dry Contact Closures* on page 24 and (See figure 33) .

The following table and illustration identify mount functionality and response by button on the remote control(s).

IMPORTANT ! : Power must be provided to mount and IR receiver must be installed in order to access extended programming options.

Normal Operating Mode

KEY	FUNCTION	REQUIRED ACTION
1	MOVE DISPLAY TO HOME	PRESS ONCE
2	EXTEND DISPLAY	PRESS AND HOLD
3	NOT USED	N/A
4	NOT USED	N/A
5	RETRACT DISPLAY	PRESS AND HOLD
6	PRESET POSITION 1	NOT USED
7	PRESET POSITION 2	NOT USED
8	PRESET POSITION 3	NOT USED
9	SAVE PRESET POSITION	NOT USED
10	STOP*	PRESS ONCE

NOTE: To restore mount to factory default settings, enter setup mode and press the "PRESET III" button four times.

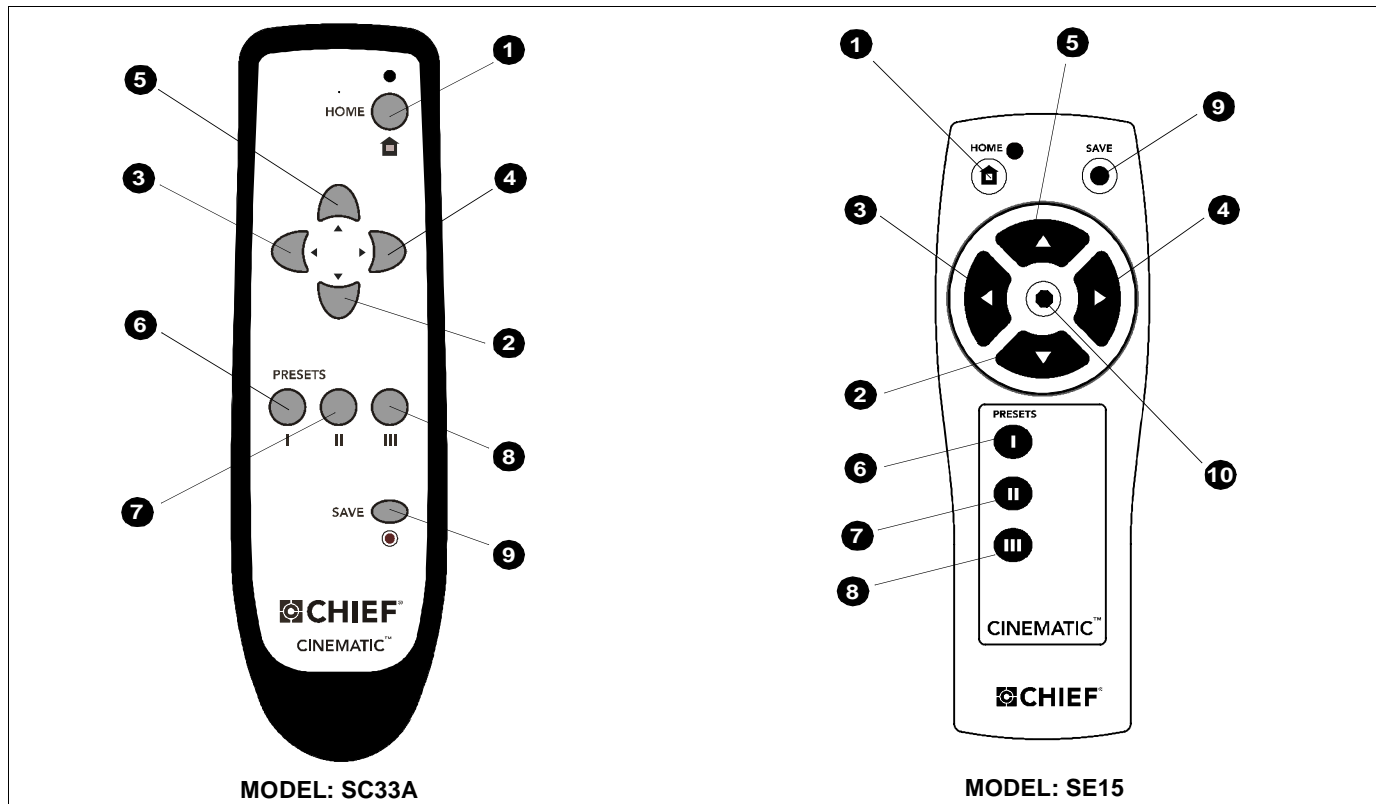


Figure 29 Remote Control Function

NEC Protocol:

The modulated carrier is usually derived from 455kHz and is 1/12 of the frequency with 1/3 duty cycle.

When data are transmitted repeatedly, the frame cycle is 107.9ms or 186 period.

A frame consists of a syn pulse, an eight-bit custom code, an eight-bit inverted custom code, an eight-bit data code and an eight-bit inverted data code.

The timing definitions of the output code waveform are shown below.

Table 1-1: IR System Code

Switch # 1	Switch # 2	Switch # 3	Custom Code
Off	Off	Off	6E
On	Off	Off	E1
Off	On	Off	E2
On	On	Off	E3
Off	Off	On	E4
On	Off	On	E5
Off	On	On	E6
On	On	On	E7

IR code is selected by Dipswitch settings, dipswitches are located next to power inlet.

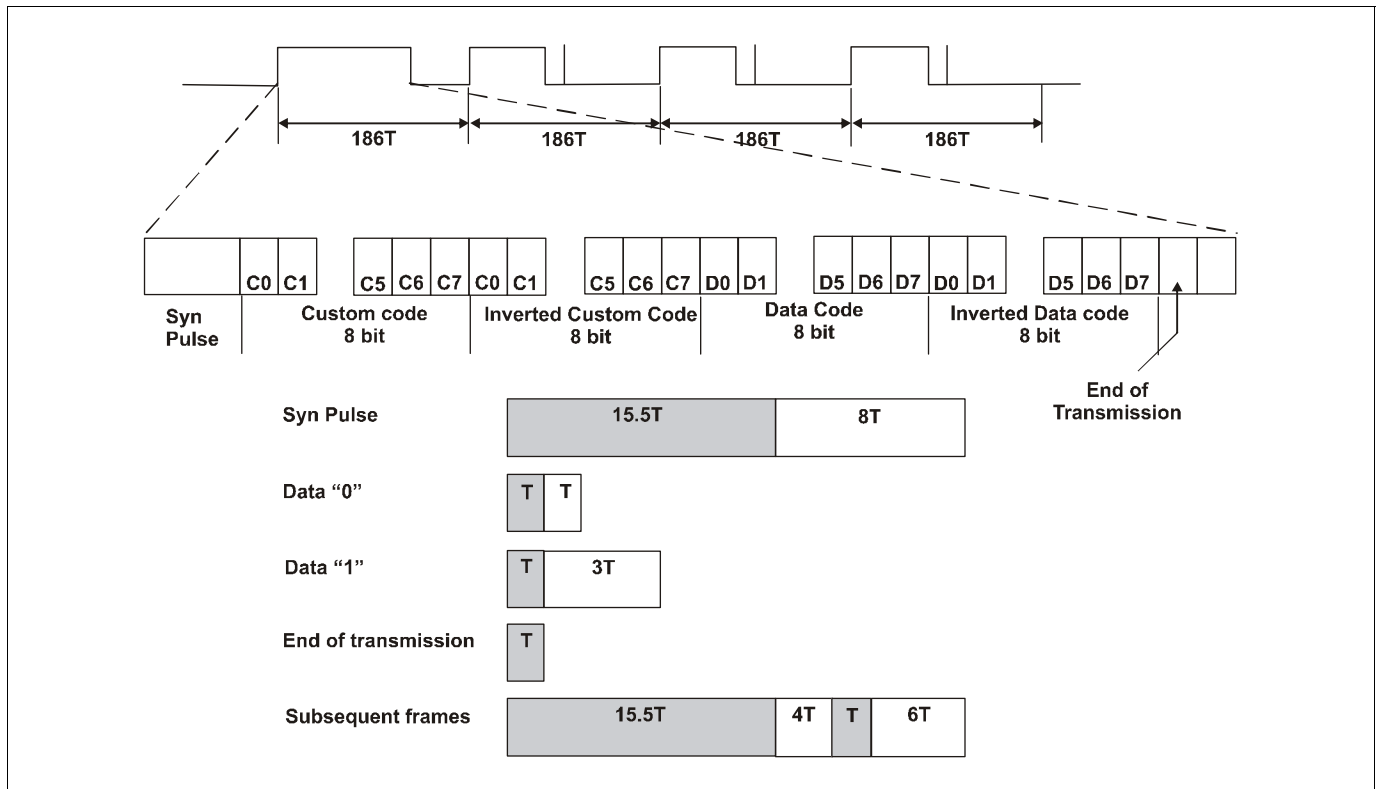


Figure 30

IR-SE15 Programming

IR-SE15 Control Features:

- Carrier Frequency:38KHz
- Protocol:NEC - Full Repeat
- System Code(s):6E (Default) - Multiple Codes Selected via Key-Press (see below)

Table 1-2: IR-SE15 Control Codes

Key Number	Key Name	Hex Code
1	HOME	02
2	SAVE	1A
3	UP	07
4	LEFT	09
5	STOP	0A
6	RIGHT	0B
7	DOWN	0D
8	PRESET 1	12
10	PRESET 2	13
12	PRESET 3	14

To Change System Code:

1. Press and Release Key 3 + 7 (Enter Setup Mode)
2. Press and Release Key 8
3. Press and Release Key 10
4. Press and Release Key 12 - LED Blinks Twice <Quick>
5. Select System Code - See Table Below
6. Press and Release Key 2 - LED Blinks 4 times <Quick> (Exit Setup Mode)

Table 1-3:

System Code	Press + Release
6E (Default)	8
E1	8,8,8,8
E2	10
E3	10,8
E4	10,8,8
E5	10,8,8,8
E6	10,8,8,8,8
E7	12

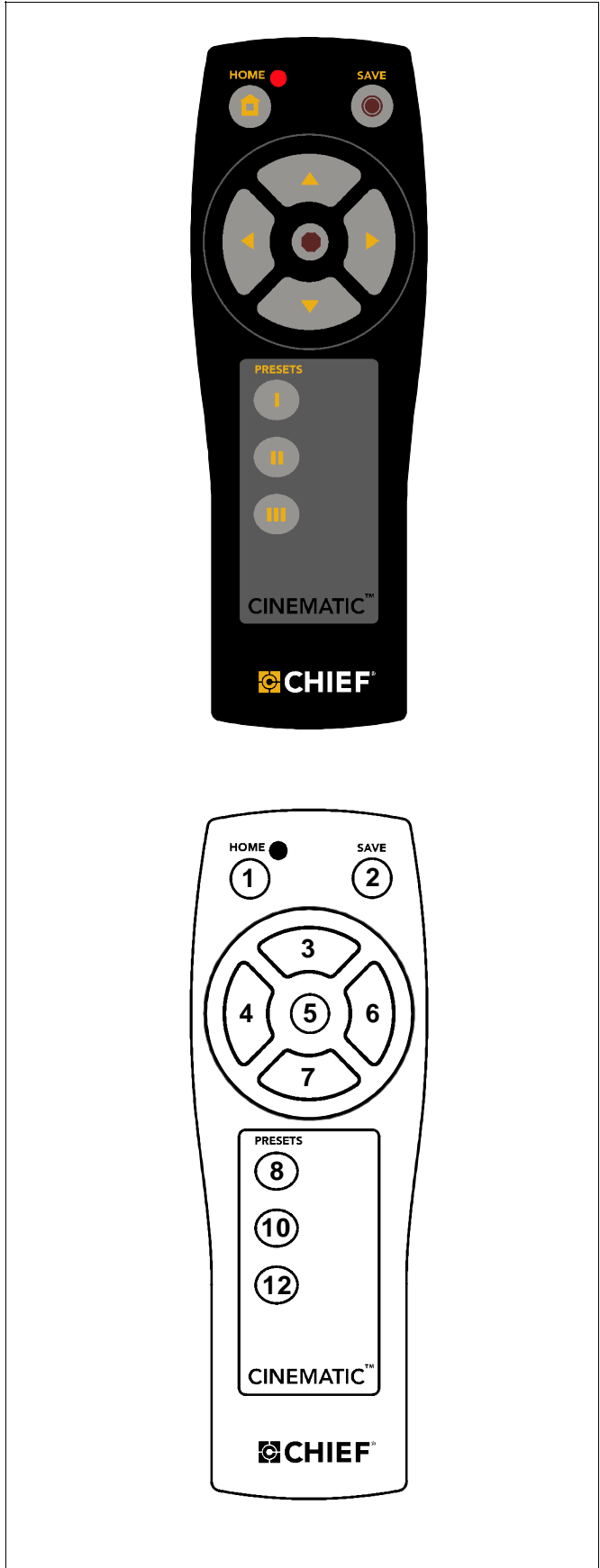


Figure 31

IR-SC33a Programming

IR-SC33a Control Features

- **Carrier Frequency:** 38KHz
- **Protocol:** NEC - Full Repeat
- **System Code:** 6E

Table 1-4:

Key Number	Key Name	Hex Code
3	HOME	02
8	RETRACT	07
10	LEFT	09
12	RIGHT	0B
14	EXTEND	0D
19	PRESET 1	12
20	PRESET 2	13
21	PRESET 3	14
27	SAVE	1A



Serial Communications

NOTE: Check with the appropriate automation system vendor for available drivers and/or software for any external devices.

Notes:

[PR] = Product ID (CM2 = 02)

[AD] = Address (see address description & table)

[CR] = ASCII Carriage Return

[CH] = Check Code

[ST] = Status (see status table)

Connections to be made to 9 pin connector as follows:

RS-485 REF	Pin 7
RS-485 +	Pin 8
RS-485 -	Pin 9

Communication parameters as specified in ANSI TIA/EIA-485-A:

Baud Rate:	9600
Data Length:	8 Bits
Parity:	None
Stop Bit:	1
Flow Control:	None

Command Table:

Action:	Command:	Expected Response:
Extend	>[PR][AD]0E[CH][CR]	<[ST][CH][CR] & unit should Extend
Retract	>[PR][AD]10[CH][CR]	<[ST][CH][CR] & unit should Retract
Cancel Move	>[PR][AD]03[CH][CR]	<[ST][CH][CR] & unit should Stop
Poll for Status	>[PR][AD]01[CH][CR]	<[ST][CH][CR]
Get Model #	>[PR][AD]66[CH][CR]	<(unit model #)[CH][CR]
Get Operation Count	>[PR][AD]64[CH][CR]	<[ST](4 digit hex operation count)[CH][CR]
Get Software Revision	>[PR][AD]67[CH][CR]	<[ST](4 digit revision level)[CH][CR]
Get Serial #	>[PR][AD]68[CH][CR]	<(10 digit unit serial #)[CH][CR]

Address Description:

Multiple Chief devices can be used on the same network by setting each device to a different address.

Note: All units ship with a default address of 0

Address Table:

Addresses are set using dipswitches located next to power inlet on mount. (See figure 32)

Switch # 6	Switch # 7	Switch # 8	Address
OFF	OFF	OFF	00
ON	OFF	OFF	01
OFF	ON	OFF	02
ON	ON	OFF	03
OFF	OFF	ON	04
ON	OFF	ON	05
OFF	ON	ON	06
ON	ON	ON	07

Status Table:

Status is a 4 character hex representation of a 16 bit value

Bit	1	0	Description
0	TRUE	FALSE	In Home Position?
1	TRUE	FALSE	Move in Progress?
2	TRUE	FALSE	Network Operation in Progress?
3	TRUE	FALSE	Parameter Changes Enabled?
4	TRUE	FALSE	Network Command Error?
5	-	-	Not Used - Permanently @ 0
6	-	-	Not Used - Permanently @ 0
7	-	-	Not Used - Permanently @ 0
8	TRUE	FALSE	At Extend Limit
9	TRUE	FALSE	At Retract Limit
10	-	-	Not Used - Permanently @ 0
11	-	-	Not Used - Permanently @ 0
12	-	-	Not Used - Permanently @ 0
13	-	-	Not Used - Permanently @ 0
14	-	-	Not Used - Permanently @ 0
15	-	-	Not Used - Permanently @ 0

Example:

Fully retracted, parameter changes disabled, no errors, not moving, in home position.

0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 1

Value returned as status: 0201 (hex)

Errors:

If no response message is received, the device does not exist on the network, or there was an error during message transmission

See Error Message Table

Error Message Table:

0x01	Command Not Supported	Returned when a device does not support the command sent
0x02	Index Error	Returned when the index value sent is out of range for the device
0x03	Value Error	Returned when the data value sent is out of range for the device
0x04	Message Length Error	Returned when the length of the command message is incorrect for the command code
0x05	Write Protect Error	Returned when parameter changes are attempted without first enabling parameter changes

CM2 Hardware Reference

Motor Control Hardware Information

(See figure 32)

RS485 Network Programmable Parameters and Status Bit Assignments

RS485 Network Programmable Parameters				
Parameter Identifier	Name	Range	Factory Default	Units
0	Custom Code	1-32687	0	-
1	Maximum Movement Time	100-6000	3100	0.01 sec
2	Extend Speed	1-100	100	%
3	Retract Speed	1-100	100	%
4	Ramp UP Time	10-100	100	0.01 sec
5	Ramp DOWN Time	10-100	100	0.01 sec
6	Show Extend Delay	31-300	100	1 sec
7	Show Retract Delay	31-300	100	1 sec

RS485 Network Status Bit Assignments		
Bit	Name	Bit Location
0	At Home Position	----- X
1	Move in Progress	----- X -
2	Network Operation in Progress	----- X --
3	Parameter Write Operations Enabled	----- X ---
4	Network Command Error	----- X ----
8	At Extend Limit	----- X -----
9	At Retract Limit	----- X -----

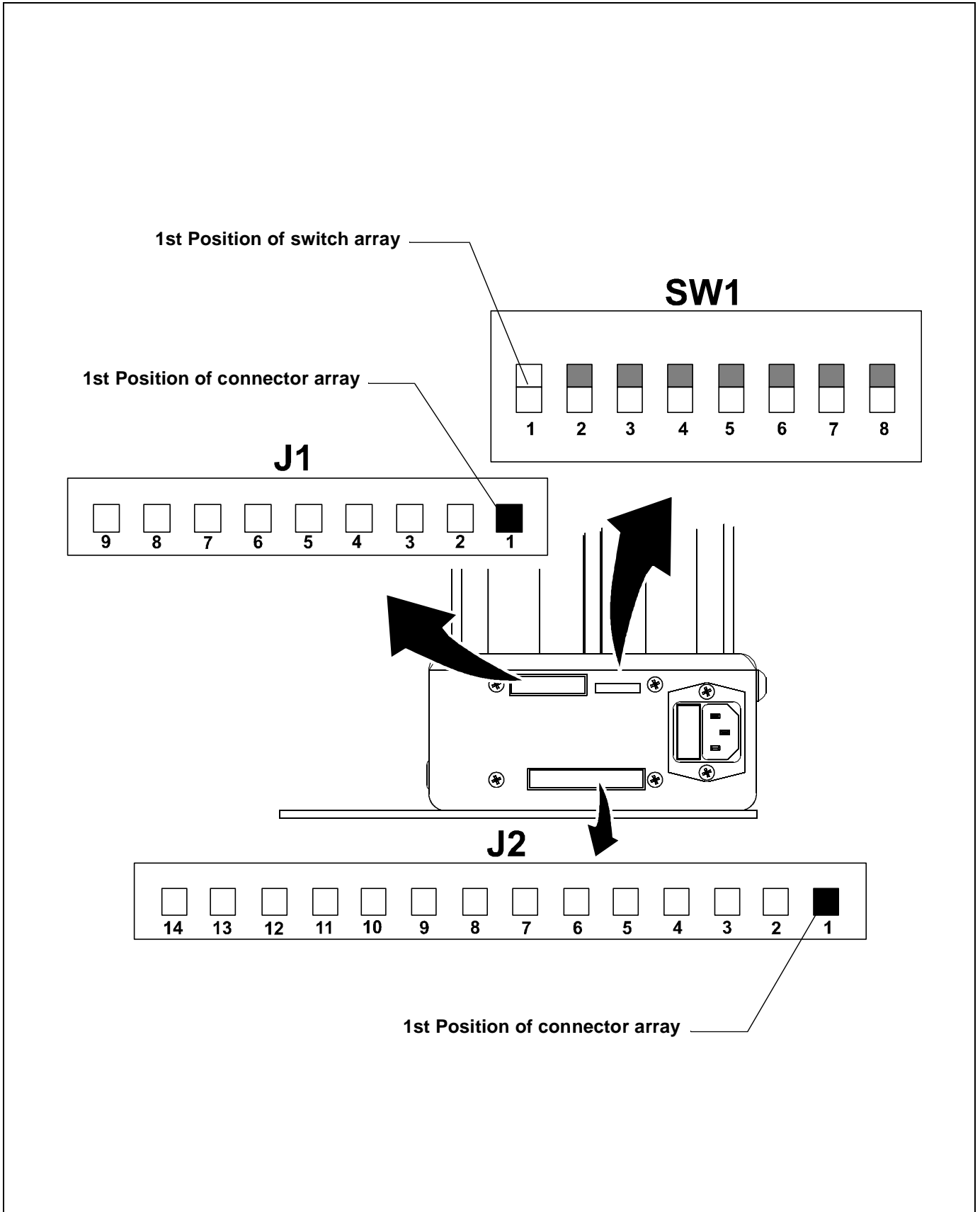


Figure 32 CM2 Connectors and Switches

CM2 Interface Board Hardware Information

(See figure 32)

Dry Contact Closures

The unit provides dry contact outputs for system feedback, or to control other devices.

To complete circuits to external devices:

7. Connect the common wire from your switch to terminal 7. (See figure 33)
8. Connect the 'up' wire from your switch to terminal 5.
9. Connect the 'down' wire from your switch to terminal 6.

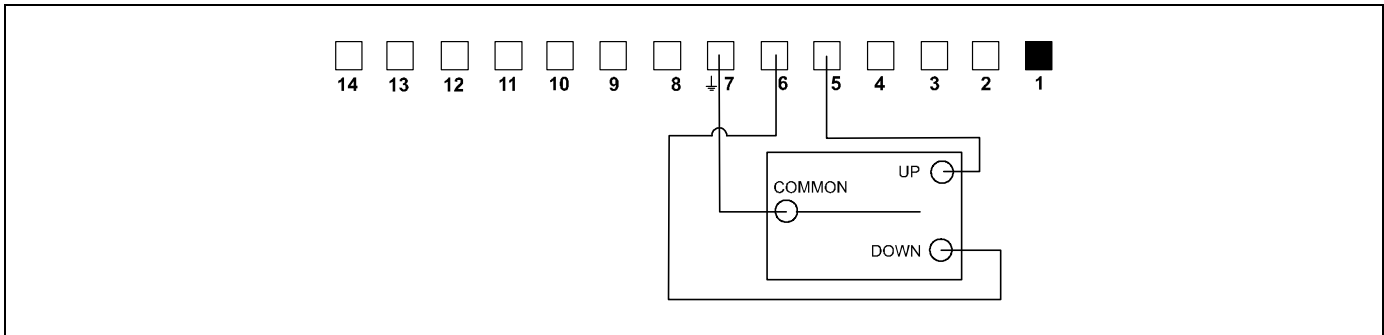


Figure 33

J1	
Pin 1	Isolated Extend/Retract Input (+)
Pin 2	Isolated Extend/Retract Input (-)
Pin 3	Isolated Voltage Sense Input (+)
Pin 4	Isolated Voltage Sense Input (-)
Pin 5	24V DC Supply Out (150ma Max.)
Pin 6	Ground
Pin 7	RS485 Ref.
Pin 8	RS485 (+)
Pin 9	RS485 (-)

J2	
Pin 1	Not Used
Pin 2	Not Used
Pin 3	Not Used
Pin 4	Not Used
Pin 5	Move Extend Terminal Input
Pin 6	Move Retract Terminal Input
Pin 7	Ground
Pin 8	Extend Error Input
Pin 9	Retract Error Input
Pin 10	Ground
Pin 11	Extend Limit Out
Pin 12	Extend Limit Out Return
Pin 13	Retract Limit Out
Pin 14	Retract Limit Out Return

Other Dry Contact Options

Extend Retract with Single Switch

Pins 1 and 2 on 9 pin Connector. (See figure 32) and (See figure 34)

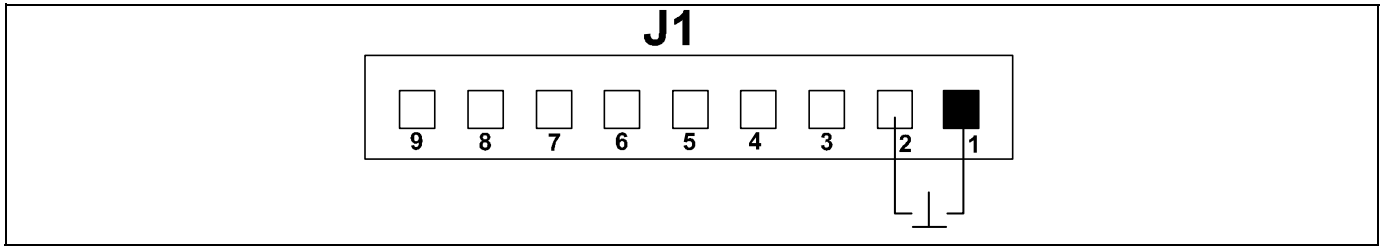


Figure 34

Voltage Sense External Power Source

Unit extends and stays extended when voltage from an external source is applied across pins 3 and 4 on connector J1. When voltage is removed unit retracts. (See figure 32) and (See figure 35)

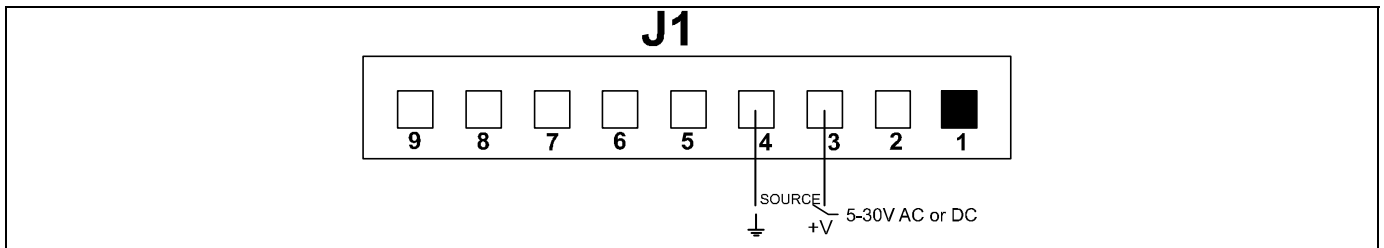


Figure 35

Voltage Sense Internal 24V DC Power Source

The 24V DC power supply that is built into the unit can be used to power external devices by using pins 5 and 6 on connector J1.

NOTE: Using this input will force a complete UP/DOWN cycle of the unit. No other inputs, with the exception of error inputs, are available until the cycle has completed. (See figure 32) and (See figure 36)

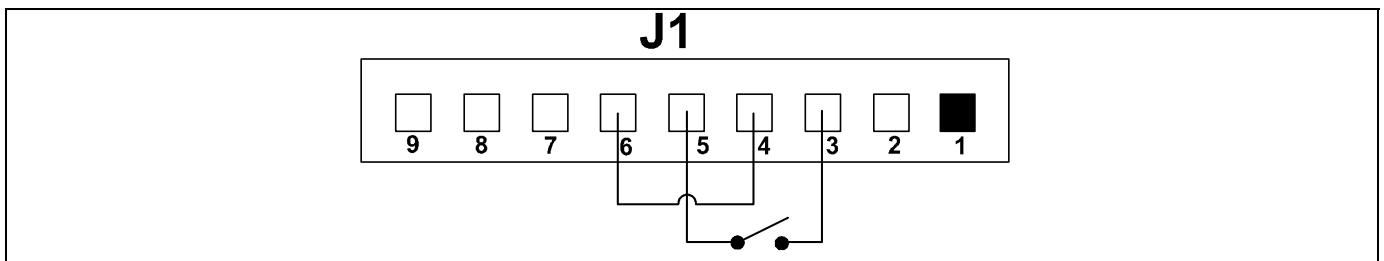


Figure 36

Extend Error Input

NOTE: Units are shipped with error contacts "Normally Open". To set unit to respond to "Normally Closed" error contacts contact a Chief Technical Support representative by calling 1-800-582-6480, or by visiting www.chiefmfg.com.

When unit receives an Extend error signal during an extend operation, the unit will immediately stop and reverse direction.

(See figure 32) and (See figure 37)

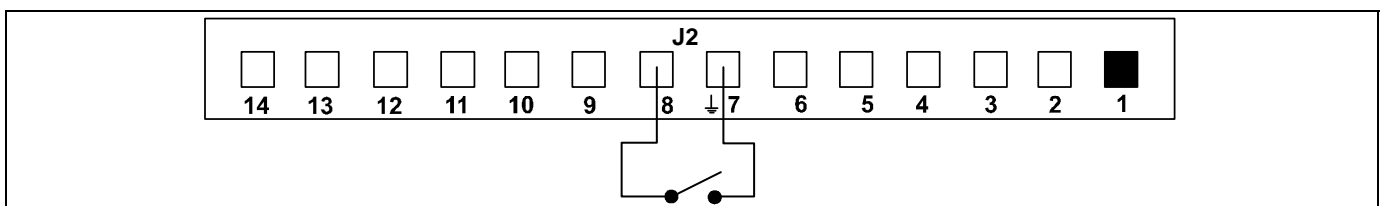


Figure 37

Retract Error Input

NOTE: Units are shipped with error contacts "Normally Open". To set unit to respond to "Normally Closed" error contacts contact a Chief Technical Support representative by calling 1-800-582-6480, or by visiting www.chiefmfg.com.

When unit receives a Retract error signal during a Retract operation, the unit will immediately stop and reverse direction.

(See figure 32) and (See figure 38)

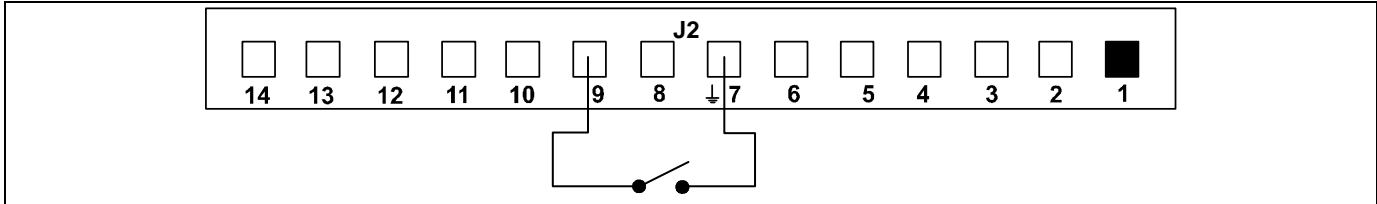


Figure 38

Extend Limit Option

Internal set of dry contacts close when unit is fully extended.

Contact Rating: 30V AC or DC 1A max.

(See figure 32) and (See figure 39)

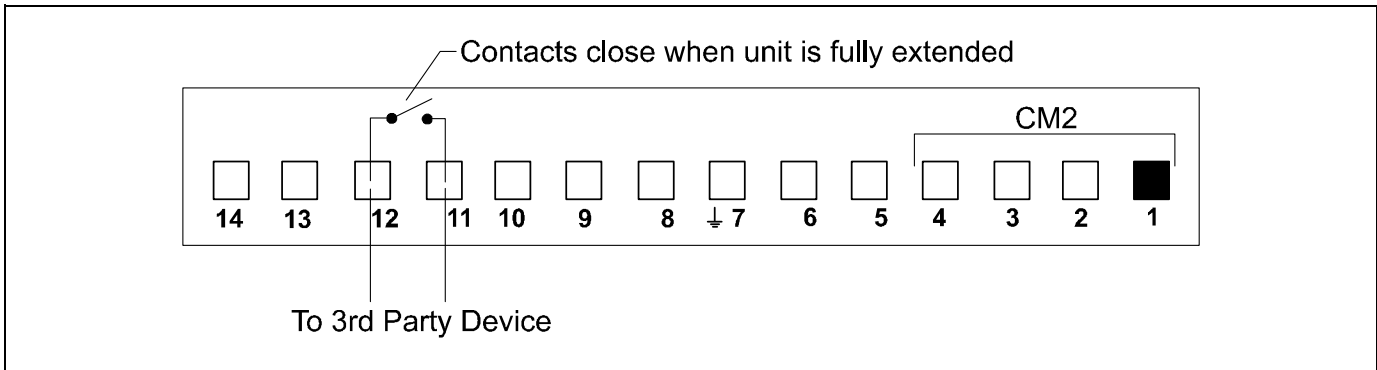


Figure 39

Retract Limit Option

Internal set of dry contacts close when unit is fully retracted.

Contact Rating: 30V AC or DC 1A max.

(See figure 32) and (See figure 40)

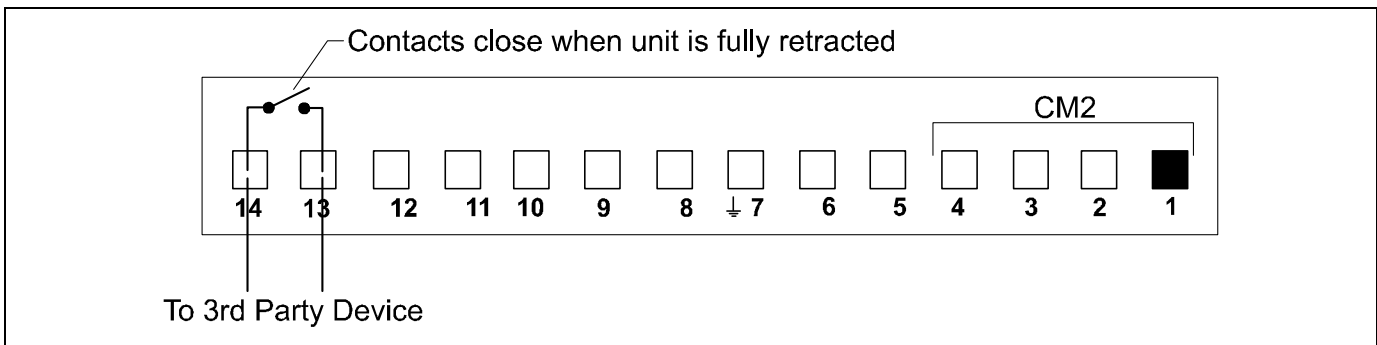


Figure 40

NOTE: Multiple control features can be used at the same time with the exception of the "Voltage Sense" feature.

Example: IR or Serial control along with a momentary pushbutton for service and a discreet UP/Down wall switch for operation.

IMPORTANT ! : When using multiple control features make sure ALL contacts are momentary and "Normally OPEN"

Connector and Switch Assignments

All Dipswitches are in the "OFF" position when shipped from factory.

SW1	
Switch 1	IR
Switch 2	IR
Switch 3	IR
Switch 4	Not Used
Switch 5	Not Used
Switch 6	485 Address
Switch 7	485 Address
Switch 8	485 Address

IR System Code Select Logic			
Switch Settings (Sw 1-3)			IR System Code
Select 2	Select 1	Select 0	
OFF	OFF	OFF	6E
OFF	OFF	ON	E1
OFF	ON	OFF	E2
OFF	ON	ON	E3
ON	OFF	OFF	E4
ON	OFF	ON	E5
ON	ON	OFF	E6
ON	ON	ON	E7

RS485 Address Select Logic			
Switch Settings (Sw 6-8)			RS485 Network Address
Select 2	Select 1	Select 0	
OFF	OFF	OFF	0
OFF	OFF	ON	1
OFF	ON	OFF	2
OFF	ON	ON	3
ON	OFF	OFF	4
ON	OFF	ON	5
ON	ON	OFF	6
ON	ON	ON	7

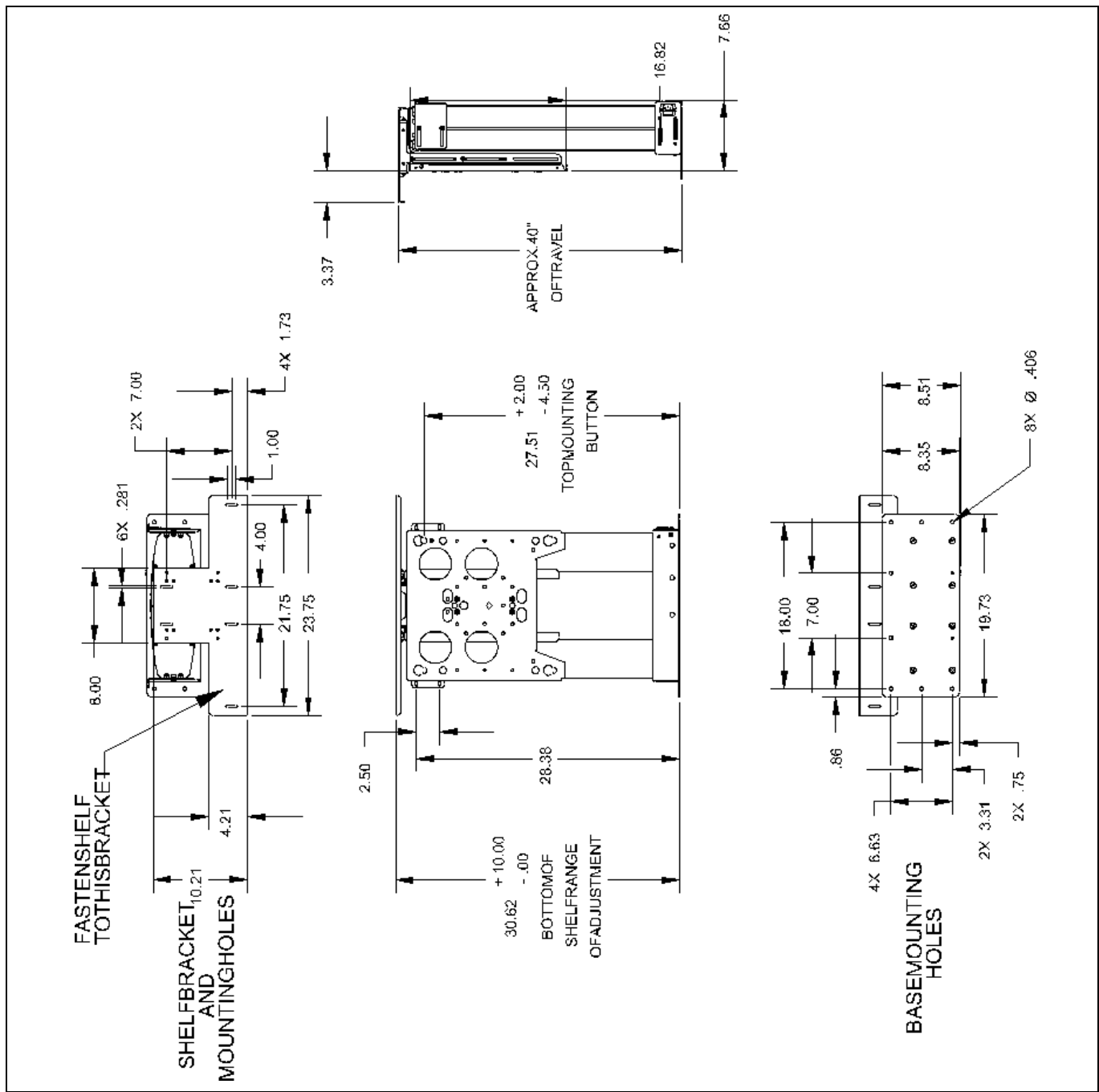


Figure 41

Troubleshooting

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Lift does not respond	<ul style="list-style-type: none"> No Power to Mount 12V trigger option being used Overheated motor 	Verify Power to Mount Normal Operation See "Low Voltage Sensing" section Allow motor to cool for 10 to 15 minutes



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For / Per

**Product identification /
Identificazione del
prodotto:**

Model/type / Modello/tipo : CM2 - TV Lift
 Category (descrizione) : Dispositivi di supporto, basi e altri accessori da utilizzare con l'elettronica per il tempo libero
 Brand / Marca : Chief

**Manufacturer /
Produttore:** CSAV Inc.
 8401 Eagle Creek Parkway
 Savage, MN 55378

**EU Representative /
Rappresentante nell'UE:** CSAV Inc.
 Follenwood 130 5611
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A sample of the product has been tested by / Un campione del prodotto è stato collaudato da:	TUV 0123	CSAV Inc.		
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