INSTALLATION INSTRUCTIONS
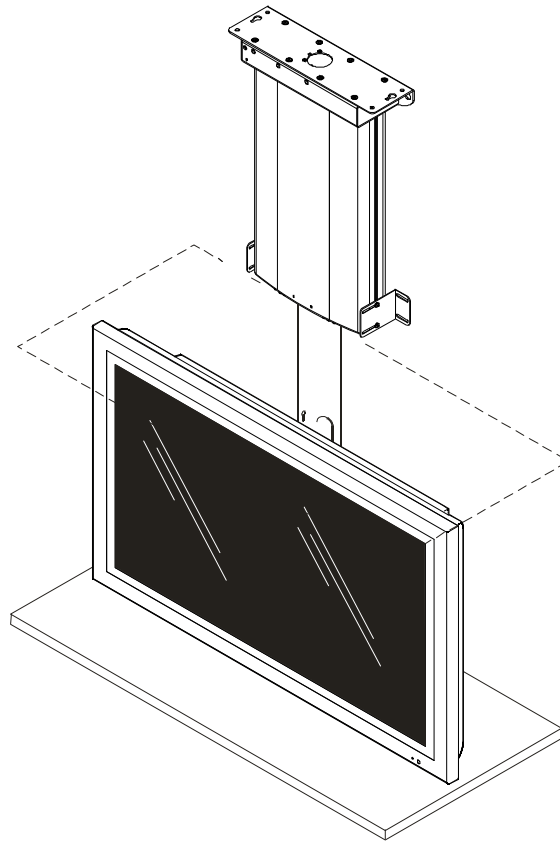
Automated Flat Panel Ceiling Lift

CHIEF®

CM2C40

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⚠ 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.

CONTENTS

TOOLS REQUIRED FOR INSTALLATION

PARTS

LEGEND

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

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

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

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

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

	Adjust
	Ajustar
	Einstellen
	Ajustar
	Regolare
	Afstellen
	Ajuster

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

	Remove
	Quitar
	Entfernen
	Remover
	Rimuovere
	Verwijderen
	Retirez

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

	Optional
	Opcional
	Optional
	Opcional
	Opzionale
	Optie
	En option

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

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

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INSTALLATION REQUIREMENTS

The CM2C40 has been designed to be mounted either hanging from an overhead structure or mounted to existing stud wall structures.

⚠️ **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 CM2C40 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 CM2C40 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 CM2C40 for Installation:

1. Remove mount from box.
2. Remove two wooden supports from under box.
3. Lay two wooden supports on floor and mount CM2C40C40 to supports using four 5/16' flat washers and four 5/16' x 2 1/2" lag bolts (hardware provided). (See figure 1)
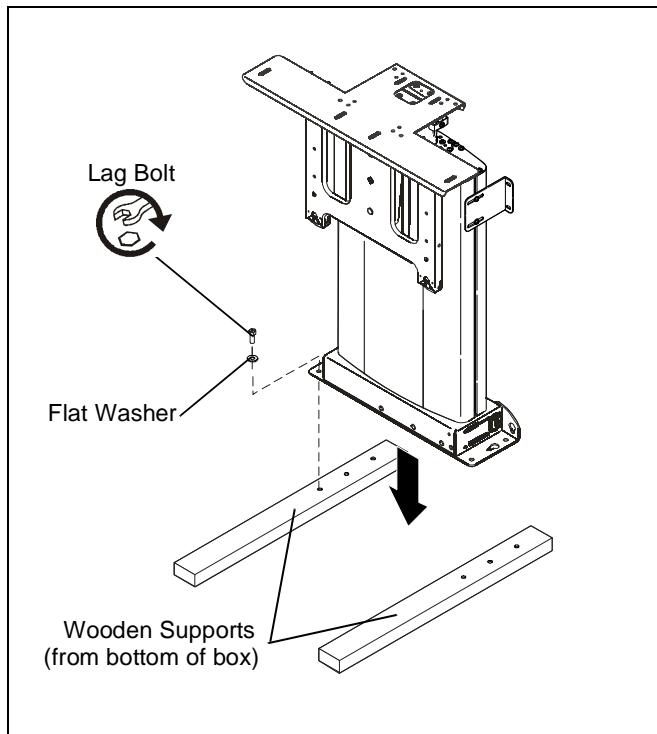

Figure 1

Configuring the Mount for the Display

Prior to installation, the CM2C40 needs to be configured for the size of the display being used.

To prepare the CM2C40 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.
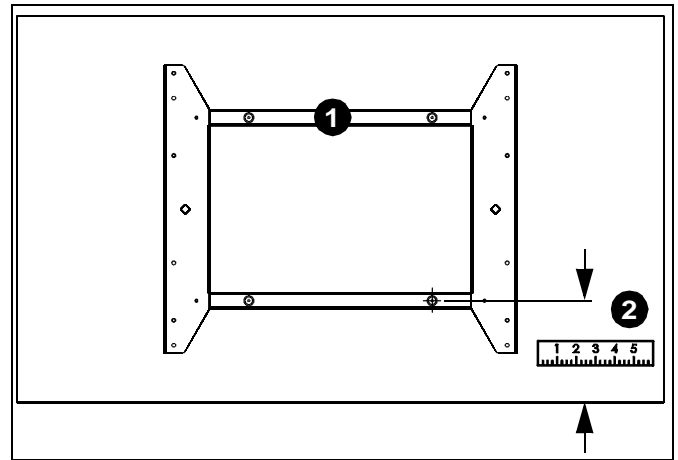3. Record measurement.

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 *Cable installation and Routing* below.

Adjusting Faceplate Location

The CM2C40 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.
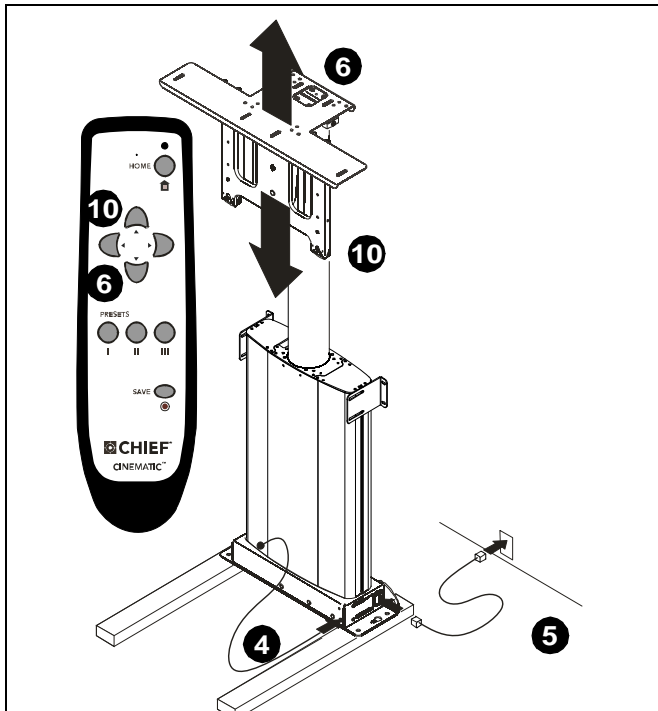
Figure 3

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)
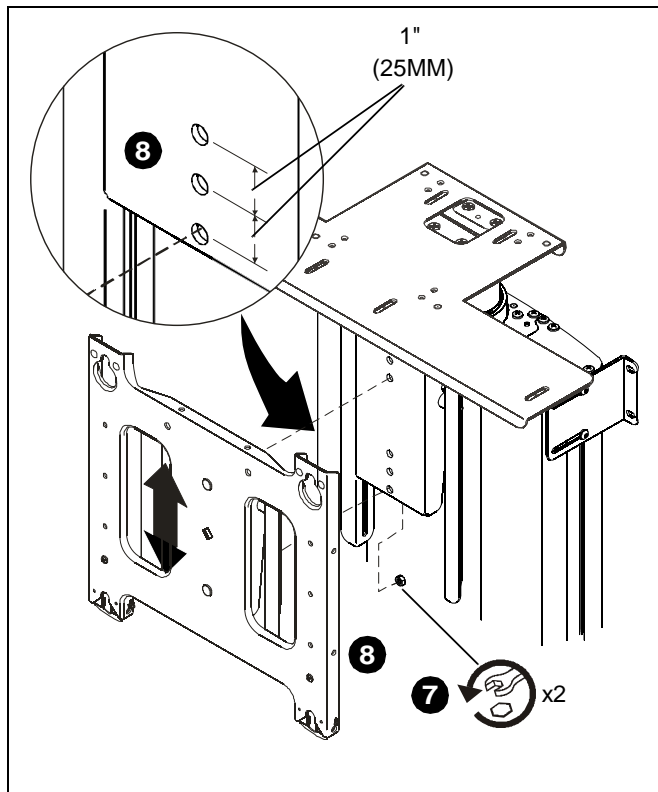
Figure 4

9. Secure faceplate to faceplate mounting bracket using two locknuts. (See figure 6)
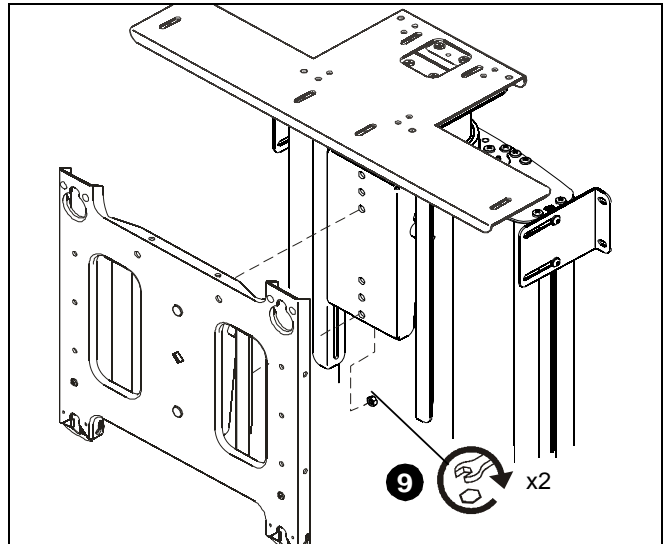
Figure 5

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. Move faceplate mounting bracket desired amount. (See figure 6)

NOTE: The CM2C40 is shipped with the faceplate mounting bracket installed in the lower slots. An additional 4 1/2" of faceplate adjustment can be obtained by moving the faceplate mounting bracket to the upper slots slots.

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!
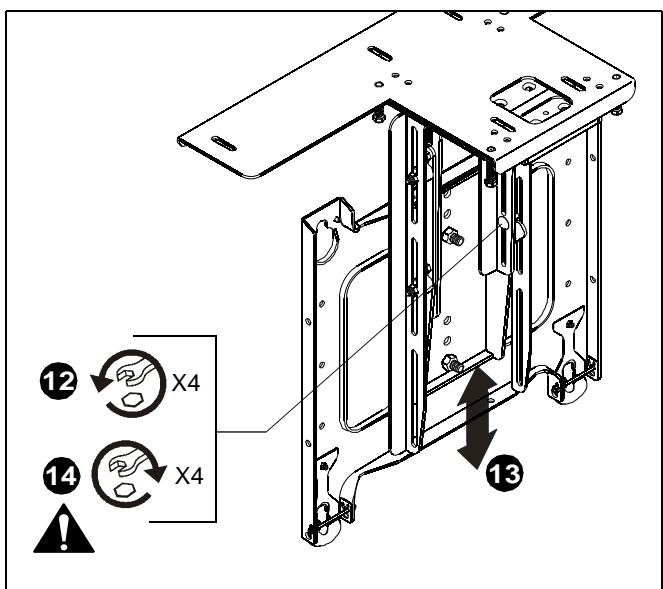
Figure 6

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)
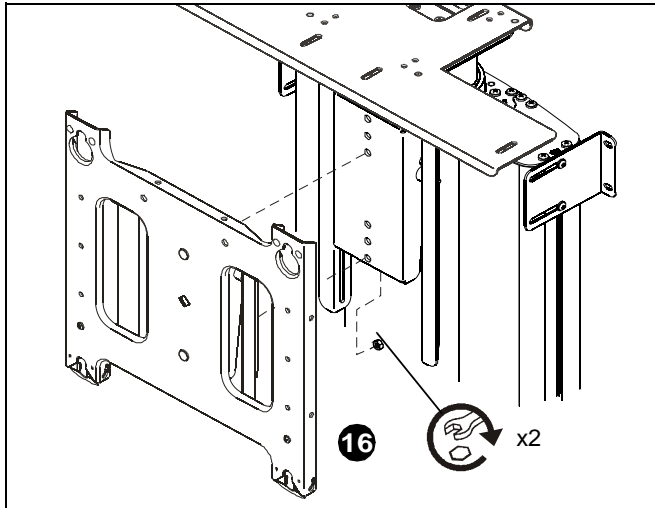
Figure 7

Cable Installation and Routing

The CM2C40 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.

NOTE: Some components have been removed for clarity in the artwork associated with this procedure.

IMPORTANT ! : The CM2C40C40 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 8)
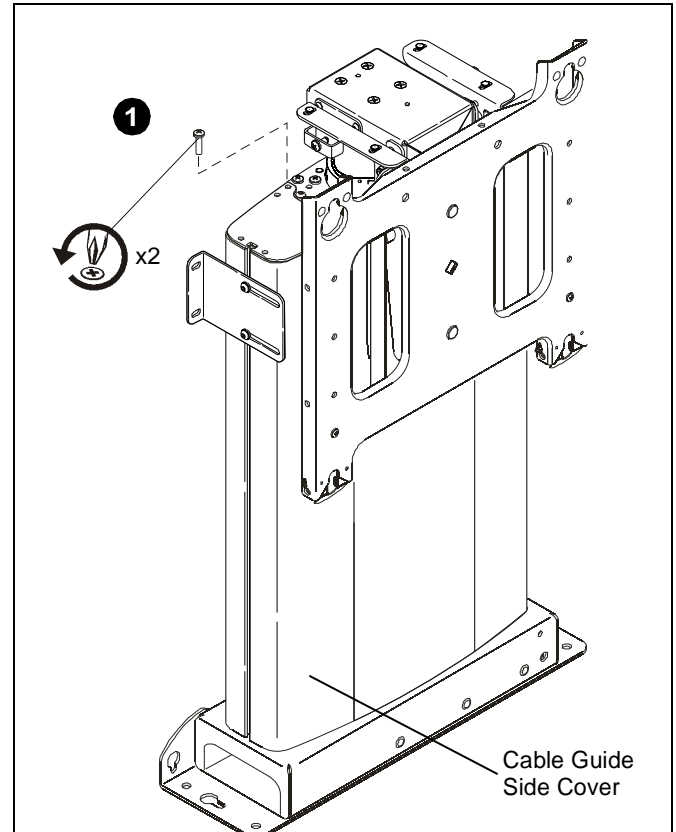
Figure 8

3. Slide cable guide side cover away from mount and carefully set aside.
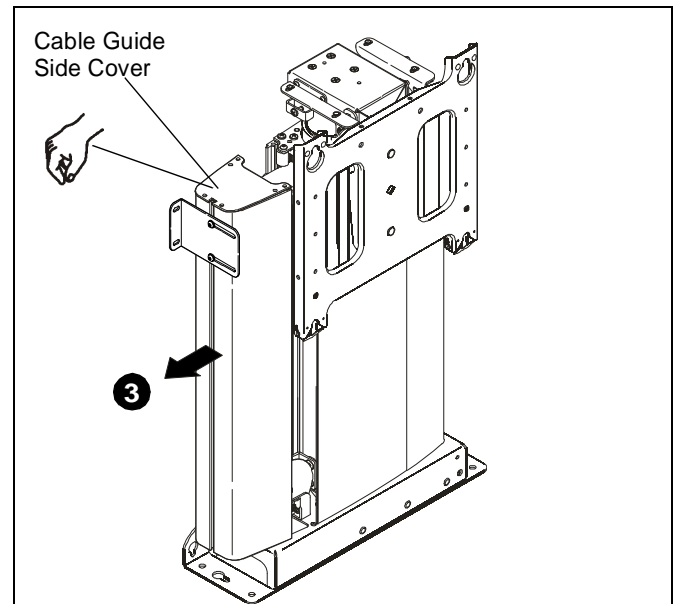
Figure 9

4. Loosen six cable clamps. (See figure 10)
5. Route cable(s) down through upper cable clamp. (See figure 10) and (See figure 11)

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.

From Display
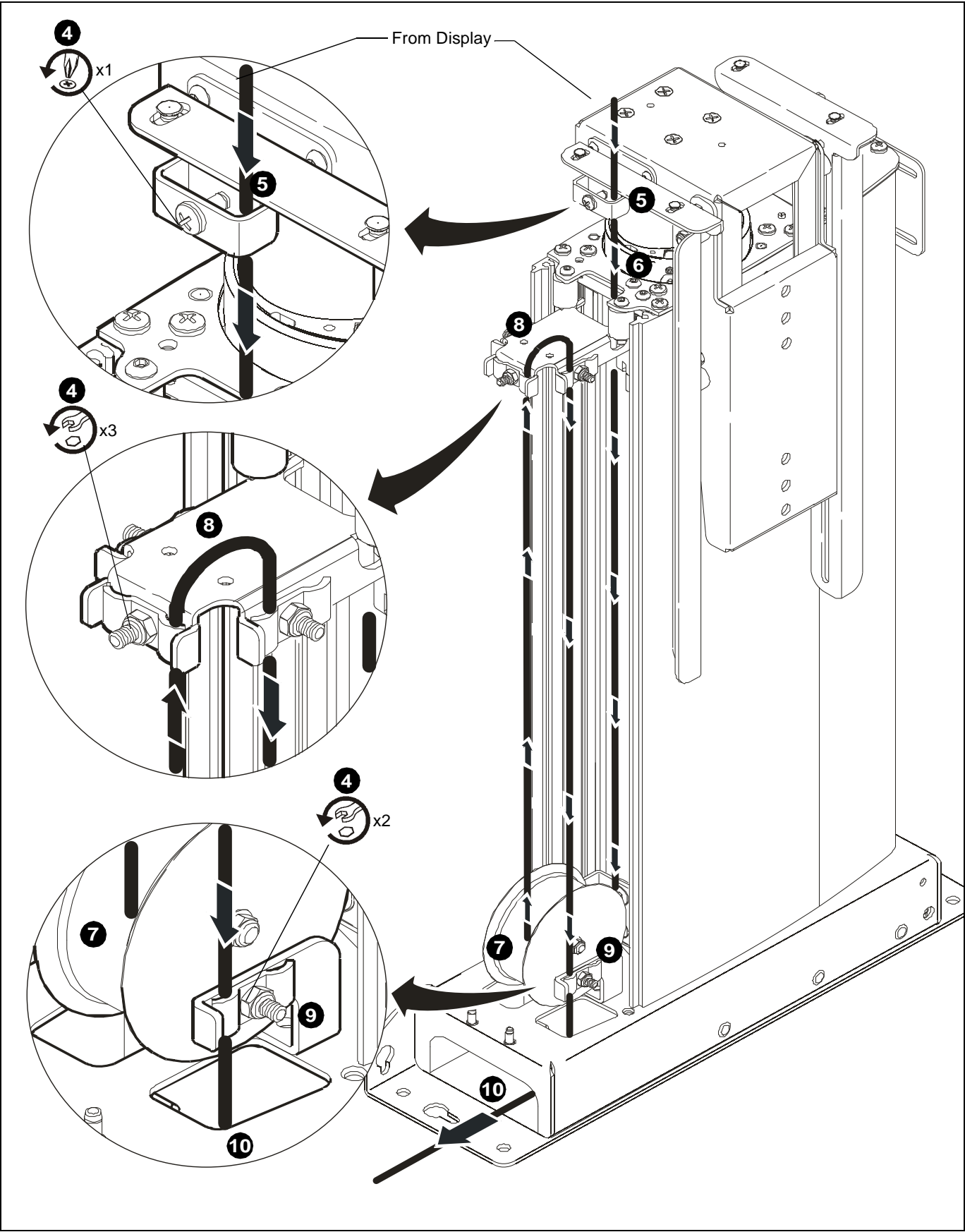
Figure 10

6. Route cable(s) down through opening at rear of middle cable clamp mounting bracket. (See figure 10) and (See figure 11)

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 11)
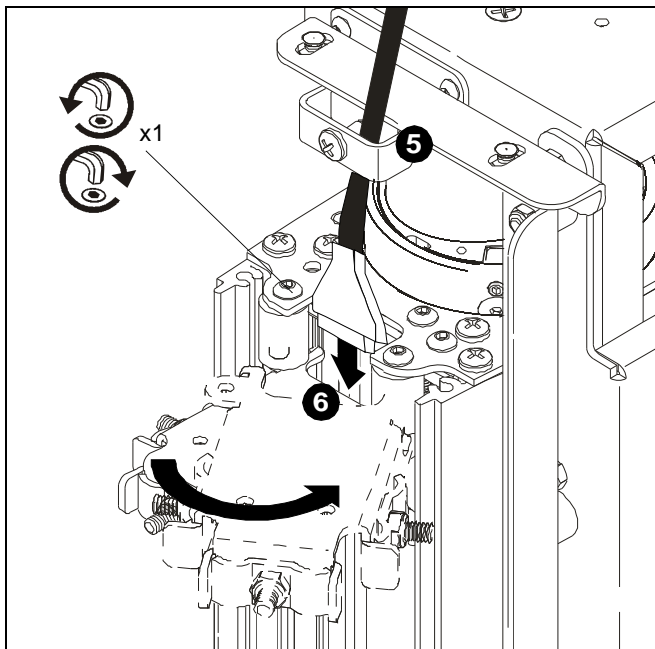
Figure 11

7. Route cable under cable pulley and up through front cable clamp on middle cable clamp mounting bracket. (See figure 10)

8. Loop cable and route cable down through side cable clamp(s) on middle cable clamp mounting bracket. (See figure 10)

⚠ **CAUTION:** Cables must not extend higher than 1" (25mm) above cable mounting bracket when looped! (See figure 10)

9. Route cable(s) down through lower cable clamp(s). (See figure 10)

10. Route cable through cable access opening in top of mount base and cable access opening in side of mount base. (See figure 10)

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 10)

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 12)
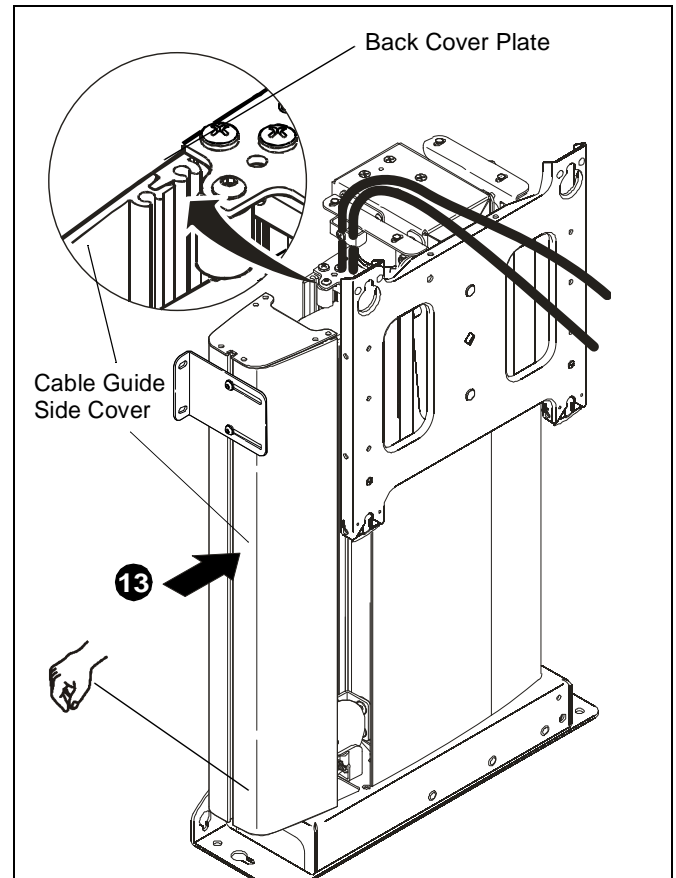
Figure 12

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

Figure 13

9
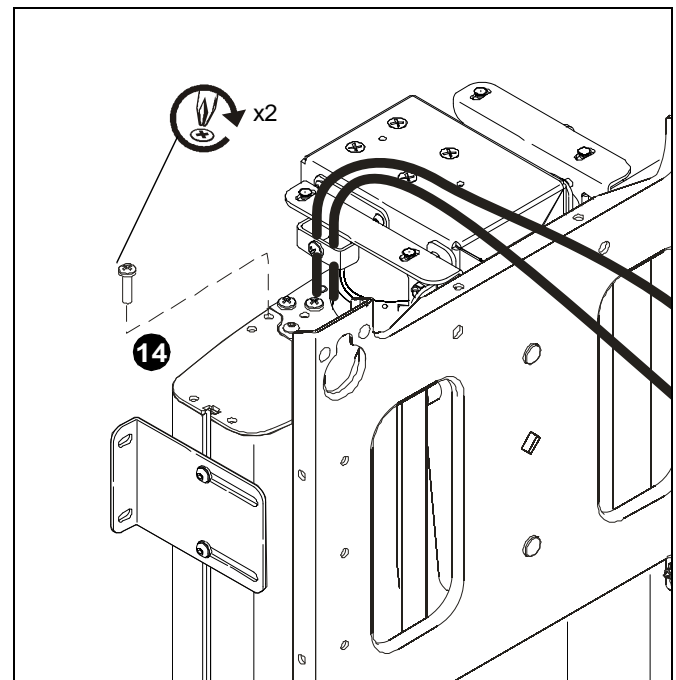
Mount Installation

The CM2C40 has been designed to be mounted either hanging from an overhead structure or mounted to existing stud wall structures. The following instructions assume a suitable mounting structure and surface exists prior to installation and all power and signal wires and cables have been properly installed.

IMPORTANT ! : The mounting pattern on the CM2C40 is 19" (483 mm) wide. If being mounted to an existing wall with 16" studs an additional stud will need to be added to each side in order for the mount to be installed.

⚠️ **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.

To install the CM2C40:

1. If the display is installed and cables routed, disconnect wires and cables from display,and remove display.
2. Remove mount from wooden supports used during mount setup and configuration. and orient mount as shown in figure below.

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

3. Align mounting holes in baseplate with studs making sure mounting holes are centered on studs.
4. Locate vertical and horizontal position of mount. (See figure 15)

NOTE: The mount is designed to continue traveling 1/2" after the bottom cover makes contact with an object when being raised. If it is desired to use this feature this 1/2" of travel must be considered when location the mount and a stop bar must be installed along the top edge of the opening in the ceiling. The stop bar must span the entire width of the front and back openings, and protrude outward into the opening a minimum of 1/2". *See Bottom Cover Location Adjustment* on page 14 and See (See figure 27)

5. Loosen four screws securing side mounting brackets to mount and adjust side mounting brackets until properly positioned against studs if applicable. (See figure 16)
6. Tighten four screws to hold position of side mounting brackets. (See figure 14)
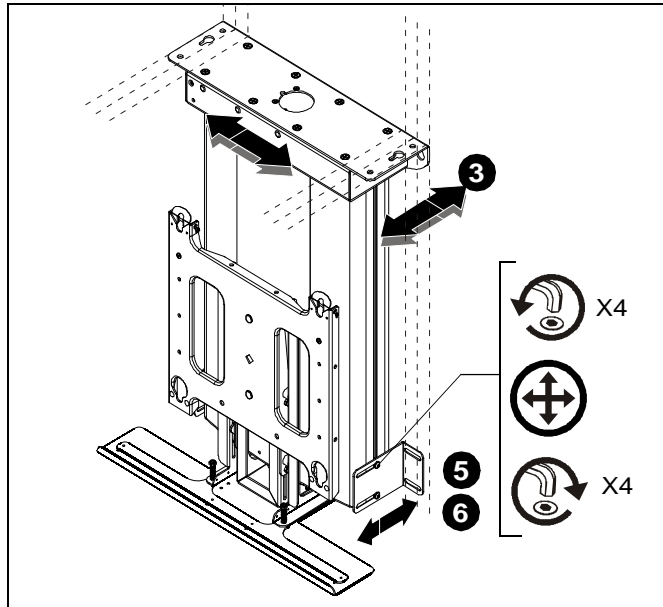

Figure 14

30.11" minus thickness of ceiling material (If mounted to vertical studs)

30.74" minus thickness of ceiling material (If hung from ceiling)

1 1/2" mimimum from back edge of bottom cover to wall or other surface
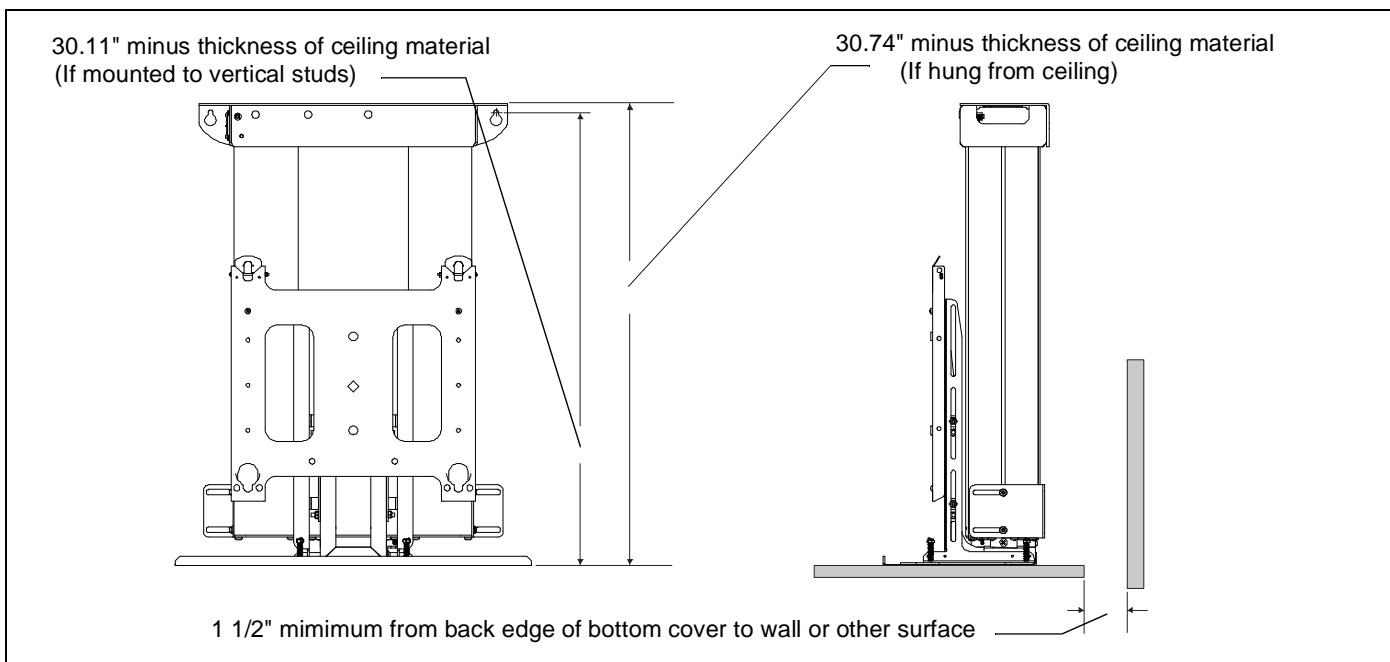
Figure 15

7. While maintaining dimensions referenced in figure 15, mark base plate mounting hole locations. (See figure 16)
8. Drill pilot holes at marked locations.
9. Mark four side bracket mounting hole locations if applicable. (See figure 16)
10. Drill four pilot holes at marked locations.
11. Secure base plate to structure using either two (wall mount) or six (ceiling mount) 5/16" flat washers and two or six six 5/16" x 2 1/2" lag screws.   (See figure 16)
12. Secure side brackets, if applicable, to studs using four 5/16" flat washers and four 5/16" x 2 1/2" lag screws. (See figure 16)
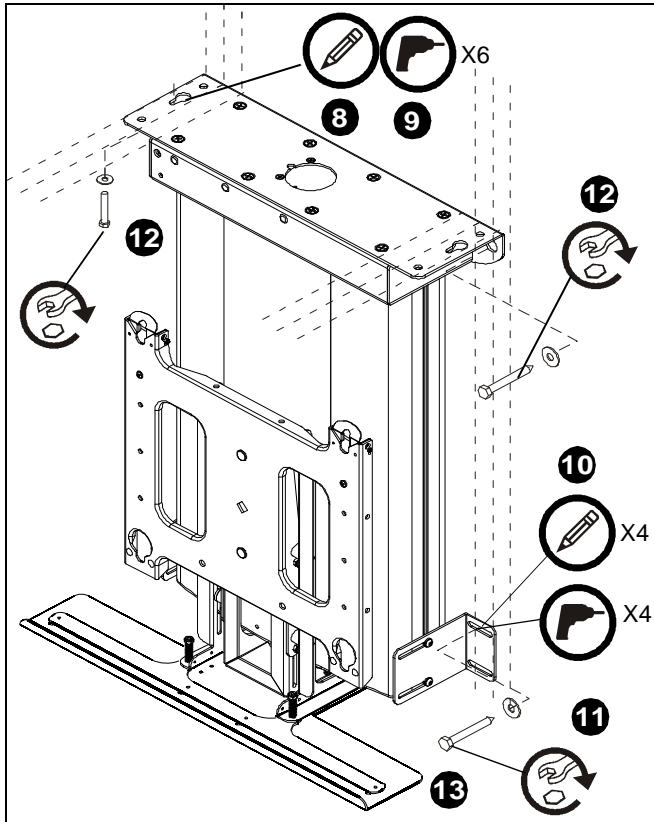
Figure 16

13. Connect mount power cord to outlet.
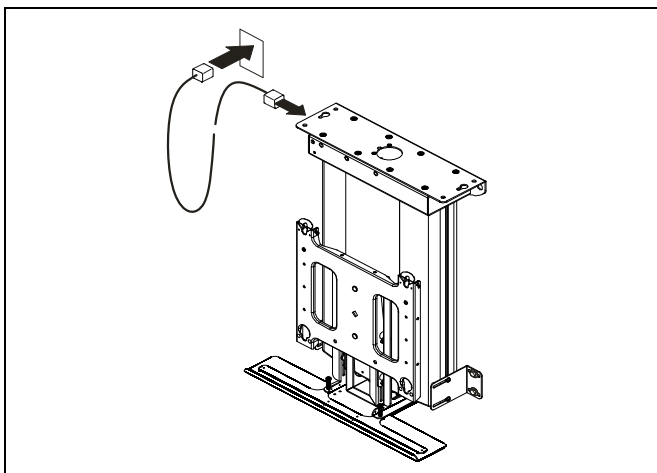
Figure 17

Display Installation

⚠ **WARNING:** EXCEEDING MAXIMUM WEIGHT CAPACITY CAN LEAD TO SERIOUS PERSONAL INJURY OR AMAGE TO EQUIPMENT! It is the installers responsability to ensure the total amount of weight placed on the mount does not exceed 190lbs (86.18 kg) the maximum capaity of the CM2C40.

⚠ **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. Lower lift using the remote control provided.
2. While supporting both sides of display, align four mounting buttons on display or interface bracket with four mounting holes in faceplate. (See figure 18) and (See figure 19)
3. 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 18) and (See figure 19)
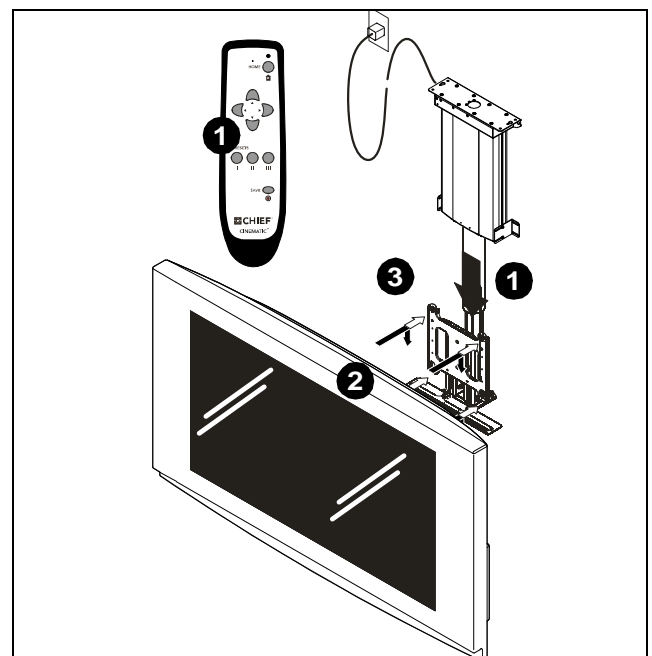
Figure 18:

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 19)

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

Remove pin and nuts and move to lower holes.

A padlock or bolt may be placed through latch holes
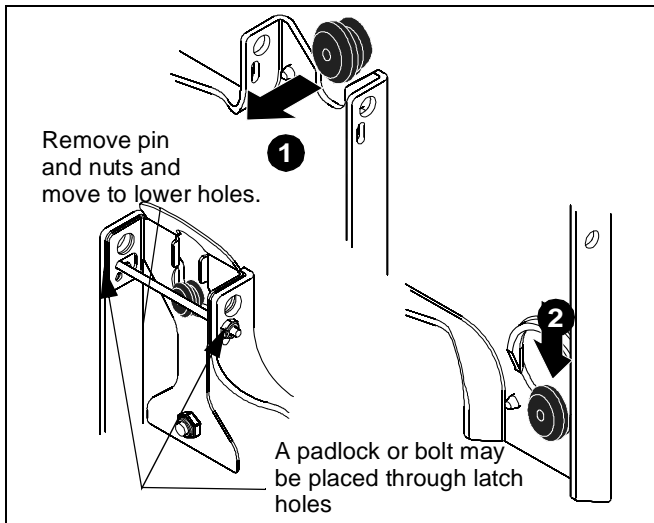
Figure 19

4. Loosen four nuts securing right and left hand bottom cover adjustment brackets to faceplate mounting bracket. (See figure 20)

5. Slide bottom cover adjustment brackets upward or downward until lip on bracket is positioned 1/4" below the bottom of display. (See figure 21)

6. Tighten four nuts to secure bracket in position. (See figure 20)

Display removed for clarity

X4

Figure 20

Display

Bottom Cover Mounting Bracket

1/4" minimum

Bottom Cover Mounting Bracket
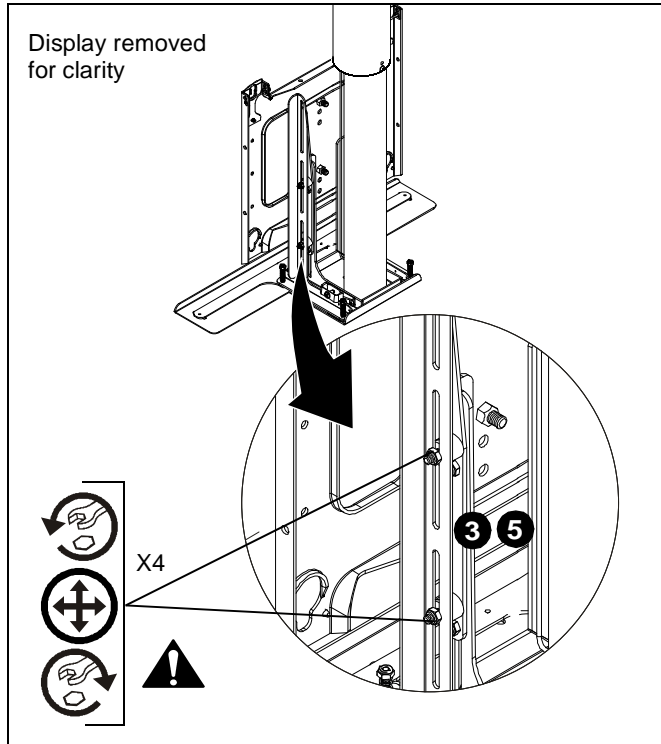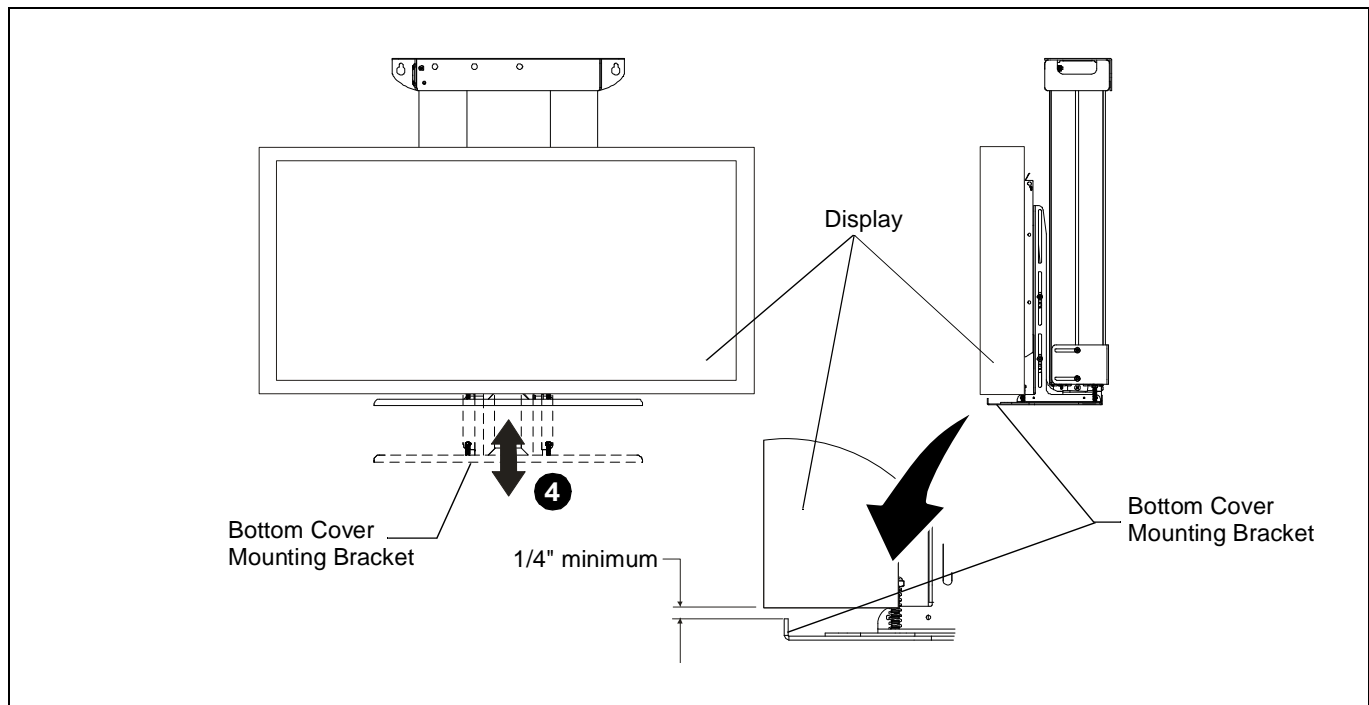
Figure 21

Bottom Cover Installation

After the CM2C40 has been properly configured for the display and the display installed, the bottom cover height must be adjusted to ensure proper fit into ceiling.

⚠️ **WARNING:** IMPROPER INSTALLATION CAN LEAD TO SEVERE PERSONAL INJURY OR DAMAGE TO EQUIPMENT! Weight of bottom cover MUST NOT exceed 25lbs (11.34kg).

To install the bottom cover :

1. Measure the distance between the bottom of botttom cover mounting plate and the top edge of the opening in the ceiling and record dimension for future use.
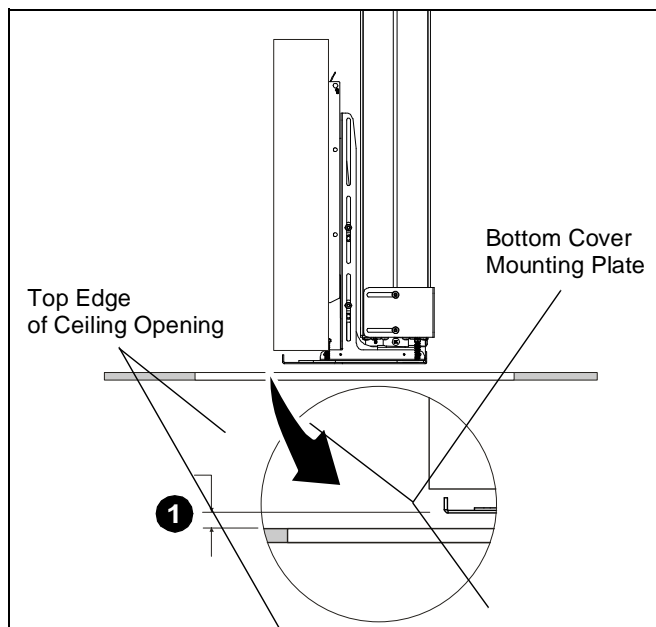
Figure 22

2. If the dimension identified during step 1 above is equal to or less than the thickness of the bottom cover being installed, the display travel limits must be adjusted before continuing to aviod a collision scenario between the bottom cover and the ceiling. Refer to step 6 below.

3. If the dimension identified during step 1 above greater than the thickness of the bottom cover being installed, lower the display using the remote control until locknuts securing right and left cover adjustment brackets can be accessed. (See figure 23)
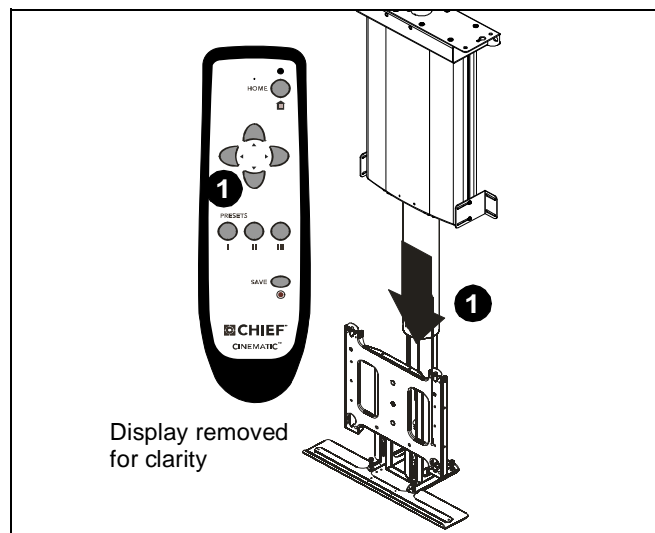
Figure 23

4. Prepare bottom cover by cutting to appropriate size, allowing for clearance between cover and opening in ceiling, and drilling 6 through holes using the dimensions and pattern in the figure below.. (See figure 24)

Drill 6 holes through bottom cover a diameter to accommodate a #10-24 screw.

7.00"

4.00"

21.75"

Figure 24

13
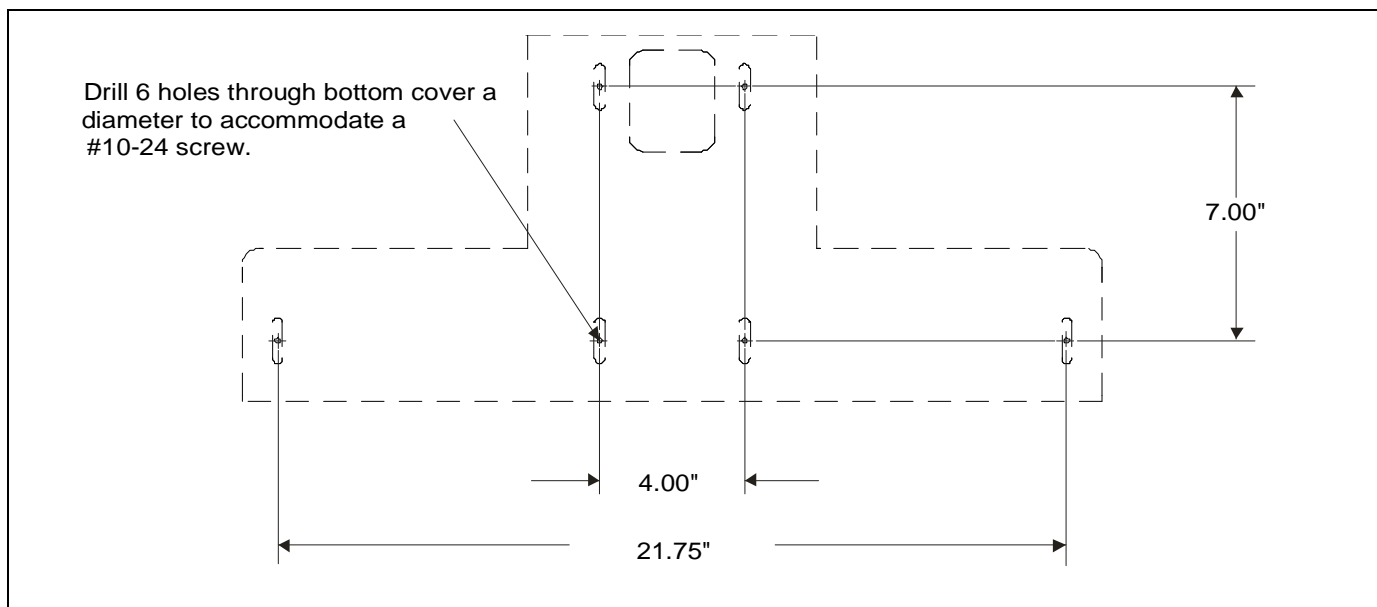
5. Assemble bottom cover to cover mounting plate using #10-24 screws a minimum of 1/4" plus the thickness of the cover material long. (not provided). (See figure 25)
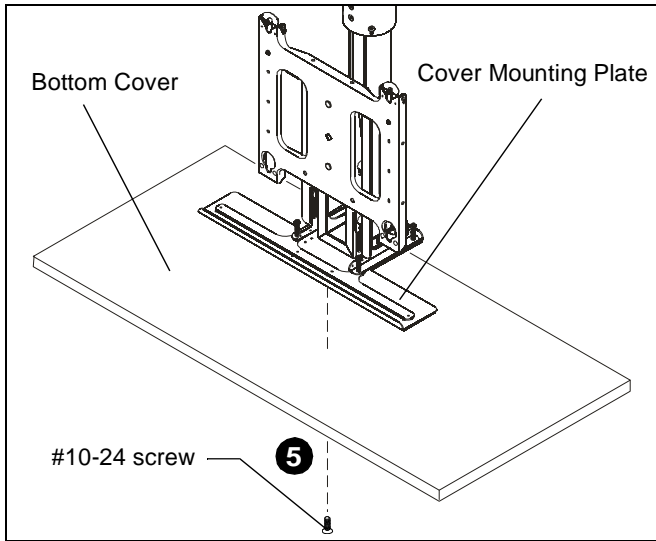
Figure 25

Bottom Cover Location Adjustment

The CM2C40 is designed to allow the adjustment of both "Extend" and "Retract" display travel limits. The CM2C40 is shipped set at maximum extension and retraction.

NOTE: The mount is designed to continue traveling 1/2" after the bottom cover makes contact with an object when being raised. If it is desired to use this feature when installing the bottom cover a stop bar must be installed along the top edge of the opening in the ceiling. The stop bar must span the entire width of the front and back openings, and protrude outward into the opening a minimum of 1/2". This 1/2" of travel must be taken into consideration during mount installation. (see page 10)

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 27)

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

6. Turning the "Extend" travel adjustment screw clockwise will increase the amount of display downward travel. Turning the "Extend" adjustment screw counter-clockwise will decrease the amount of display downward travel.

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

8. Adjust travel until bottom cover is flush with ceiling. (See figure 26) and (See figure 27)
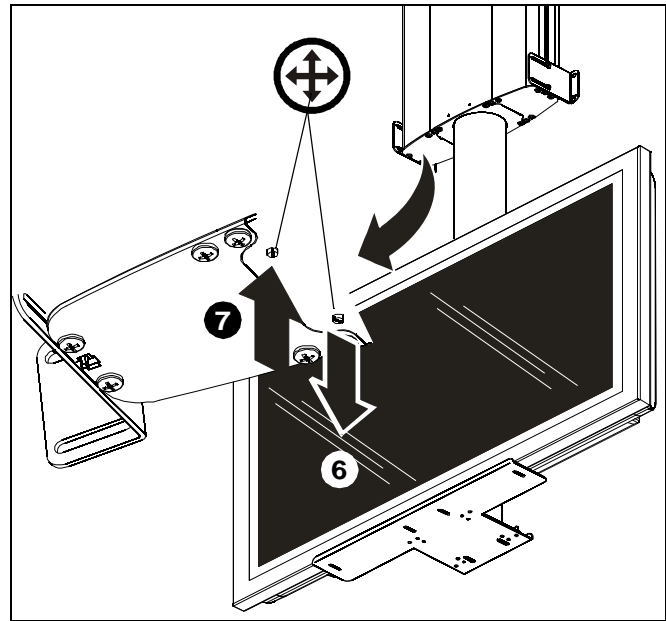
Figure 26
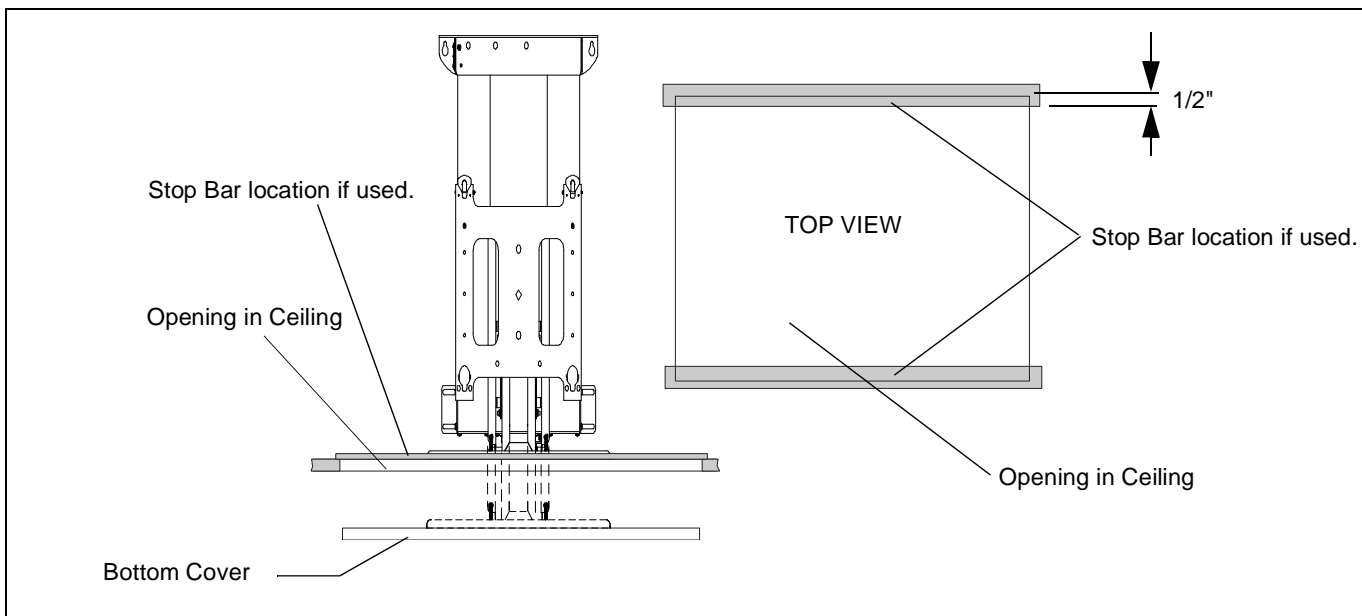
Figure 27

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 colimn 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 lift 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.

Upper Lift Column
Bearing Adjustment Points
(Located on back side)

Lowe Lift Column
Bearing Adjustment Points
(two front and two rear)
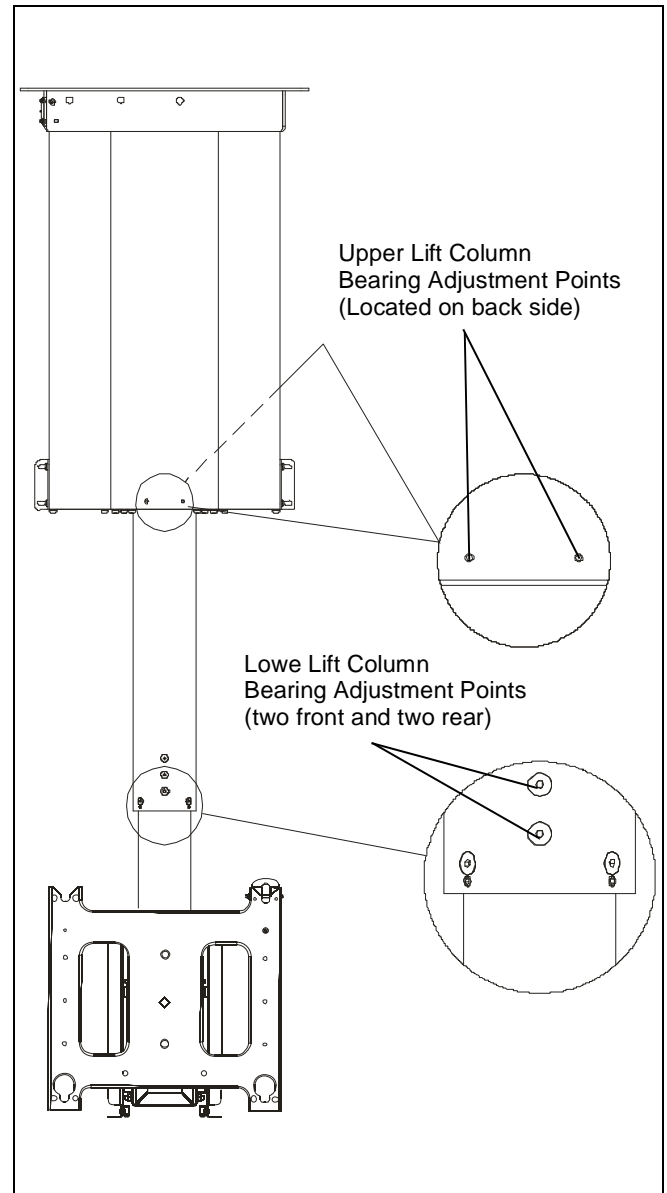
Extended Programming Capabilities

The CM2C40 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 CM2C40 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 divice. See *Dry Contact Closures* on page 24 and (See figure 32) .

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	RETRACT DISPLAY	PRESS ONCE
3	NOT USED	N/A
4	NOT USED	N/A
5	EXTEND DISPLAY	PRESS ONCE
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.

MODEL: SC33A   MODEL: SE15
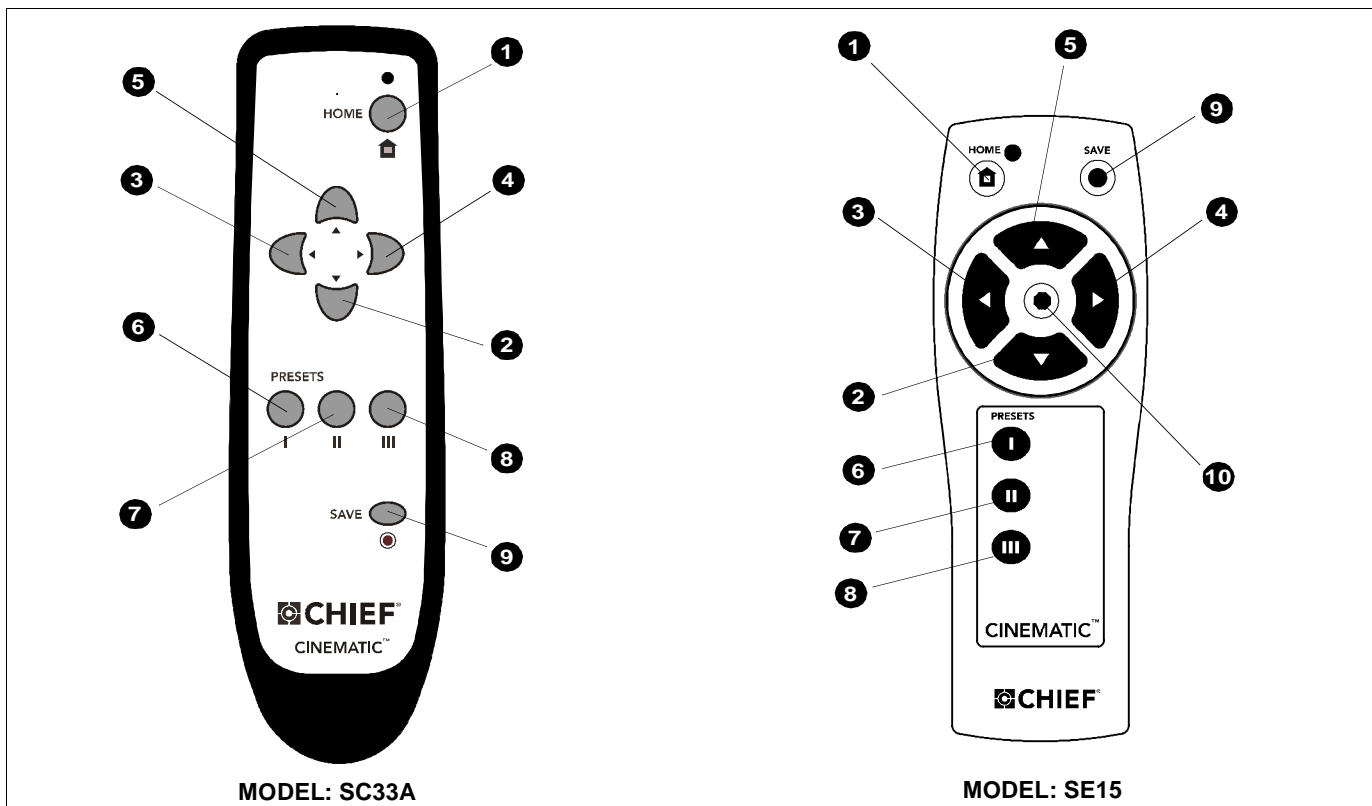
Figure 28 Remote Control Function

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.			
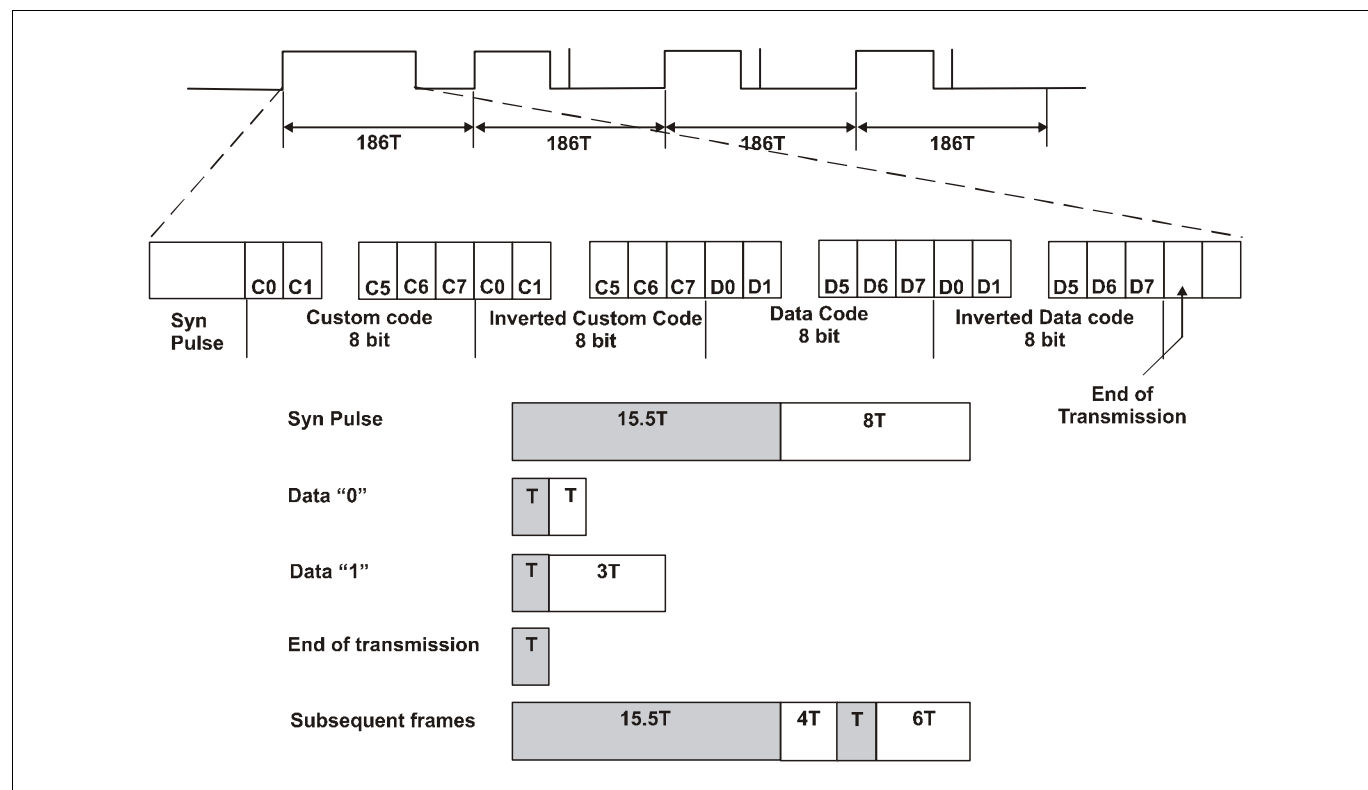
Figure 29

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
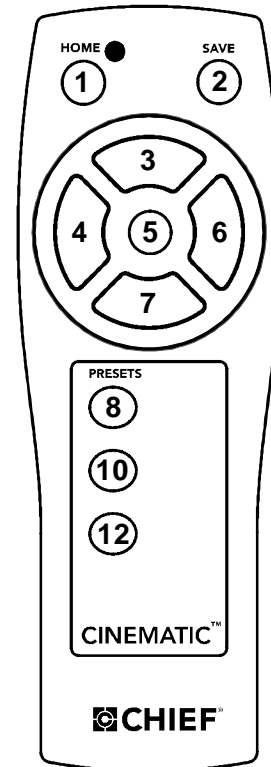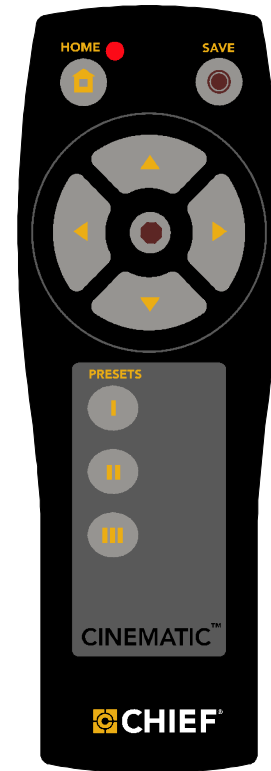
Figure 30

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
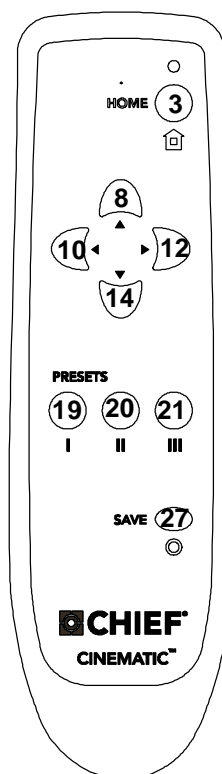
Serial Communications

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

Notes:

[PR] = Product ID (CM2C40 = 02)

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

[CR] = ASCII Carriage Return

[CH] = Check Code

[ST] = Status (see status table)

Connecctions 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 31)

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 or 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

CM2C40 Hardware Reference

Motor Control Hardware Information

(See figure 31)

RS485 Network Programmable Paramaters 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 - - - - - - - - -

1st Position of switch array

SW1

1st Position of connector array

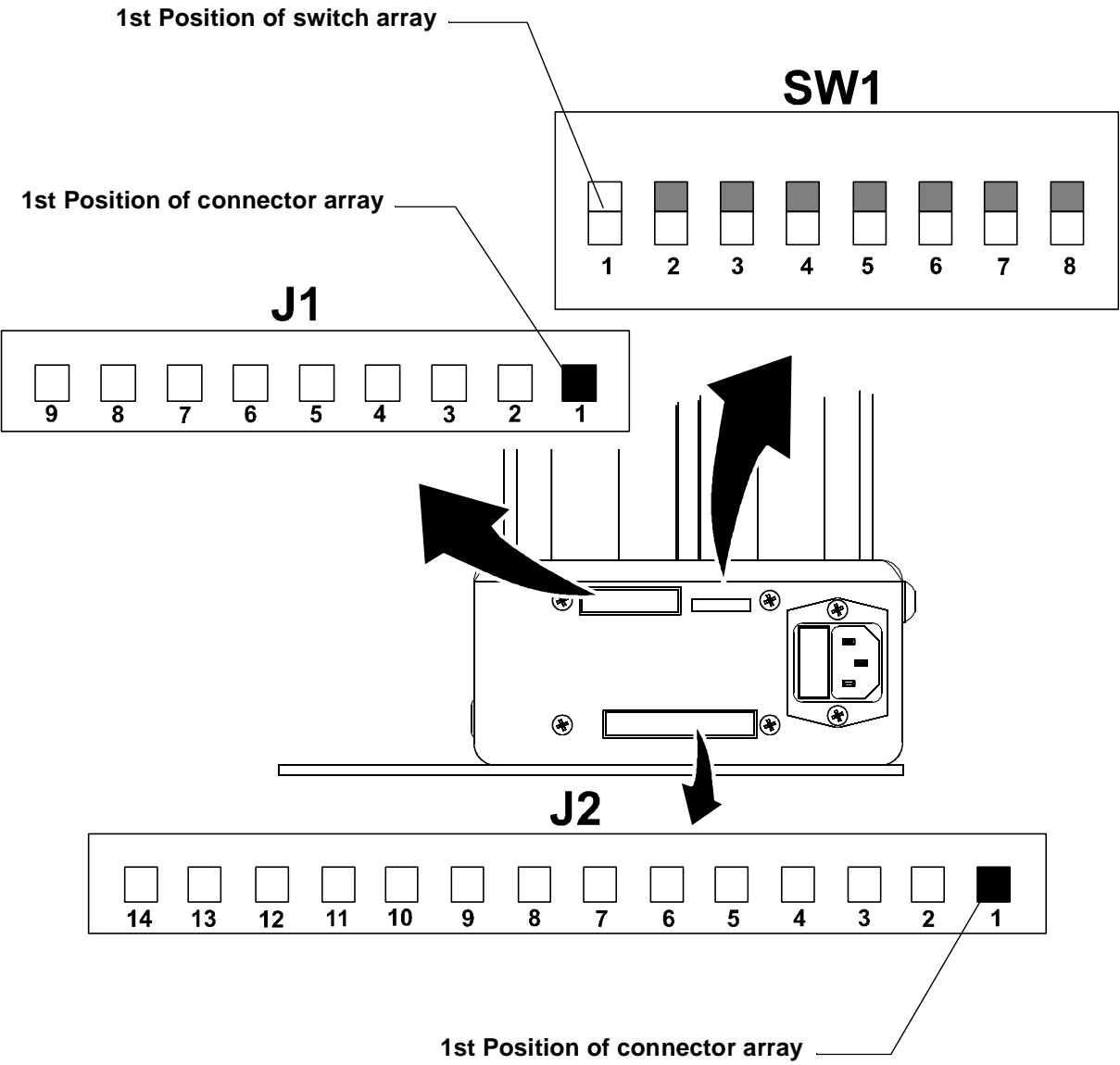**J1**

J2

1st Position of connector array

Figure 31 CM2C40 Connectors and Switches

CM2C40 Interface Board Hardware Information
(See figure 31)

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 32)
8. Connect the 'up' wire from your switch to terminal 5.
9. Connect the 'down' wire from your switch to terminal 6.
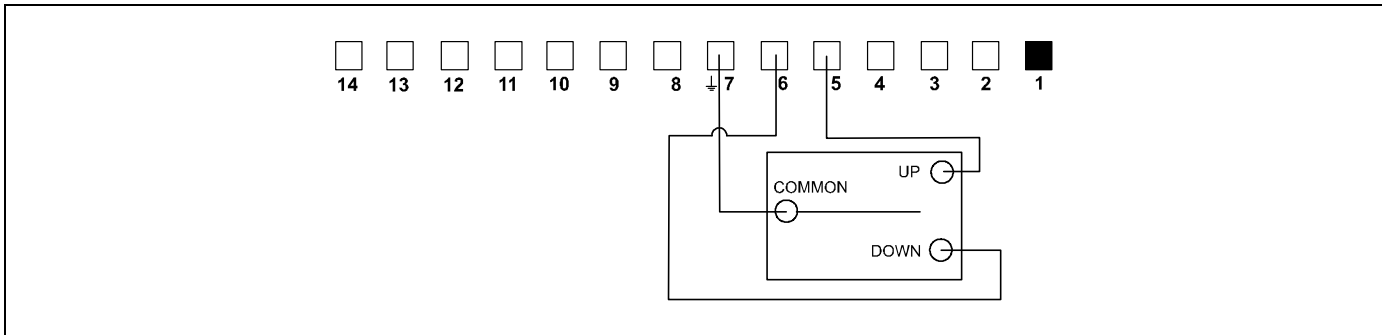
Figure 32

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
Pin14	Retract Limit Out Return

Other Dry Contact Options

Extend Retract with Single Switch

Pins 1 and 2 on 9 pin Connector. (See figure 31) and (See figure 33)
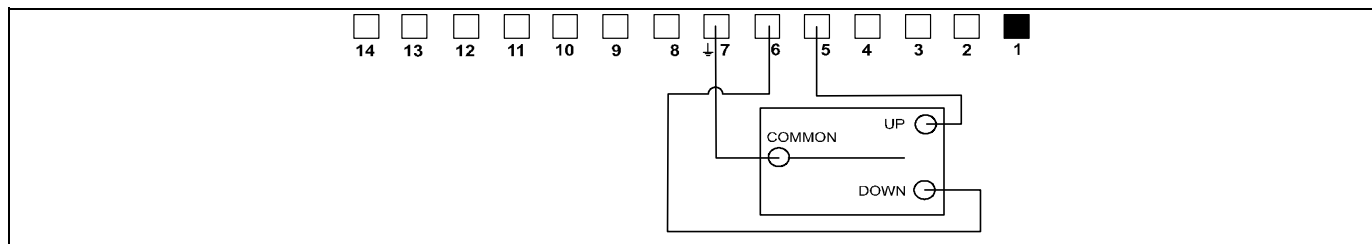

Figure 33

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 31) and (See figure 34)
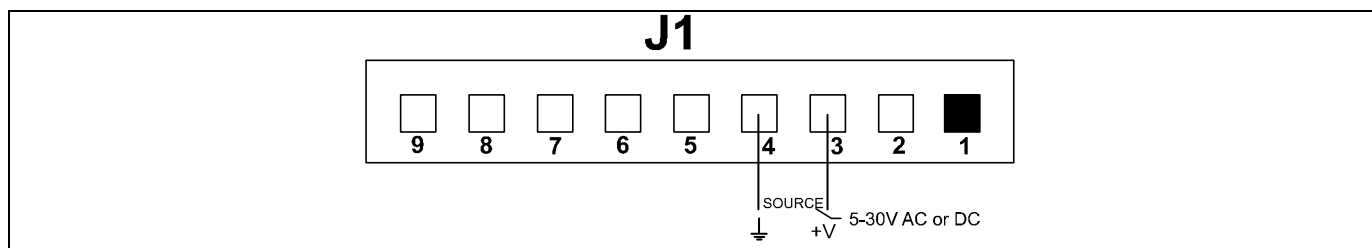

Figure 34

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 31) and (See figure 35)
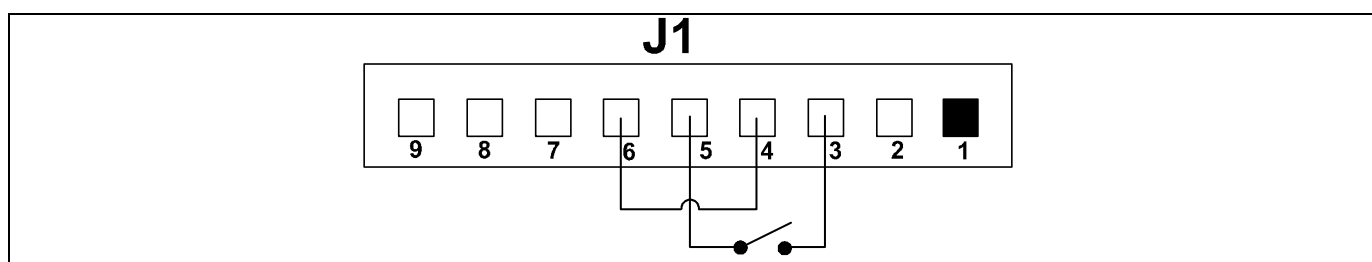

Figure 35

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.
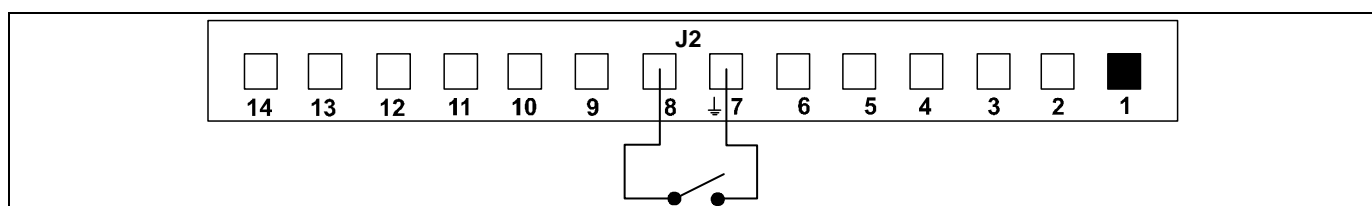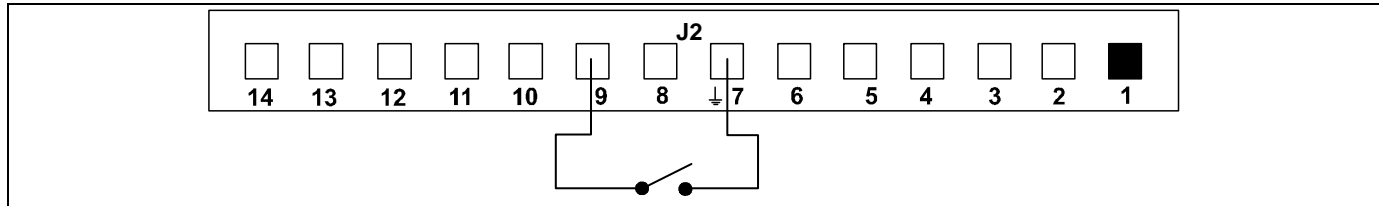
(See figure 31) and (See figure 36)

Figure 36

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.
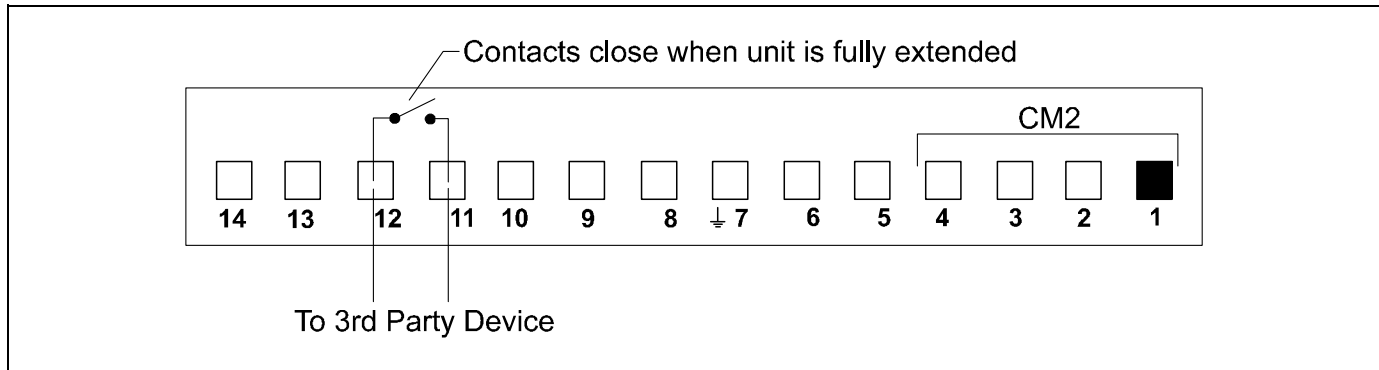
(See figure 31) and (See figure 37)

Figure 37

Extend Limit Option

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

Contact Rating: 30V AC or DC   1A max.
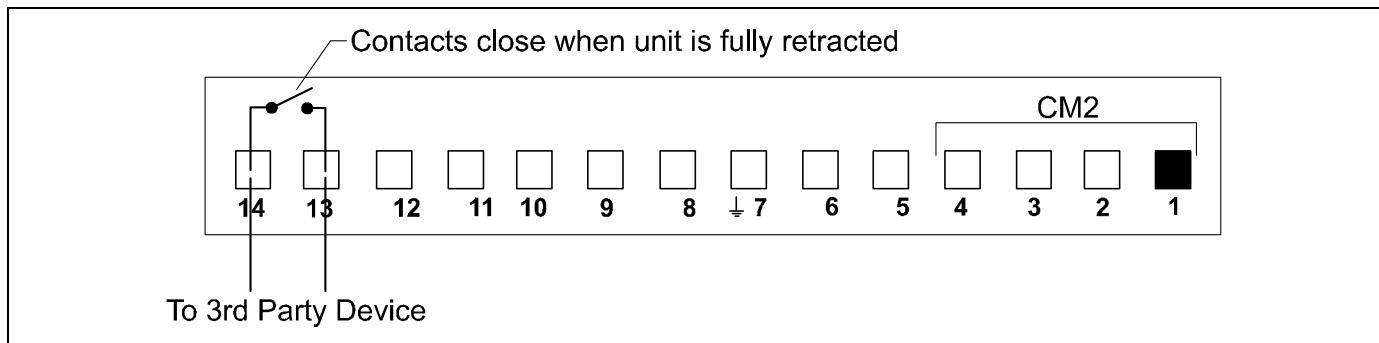
(See figure 31) and (See figure 38)

Figure 38

Retract Limit Option

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

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

(See figure 31) and (See figure 39)

Figure 39

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)			
Select 2	Select 1	Select 0	IR System Code
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)			
Select 2	Select 1	Select 0	RS485 Network Address
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
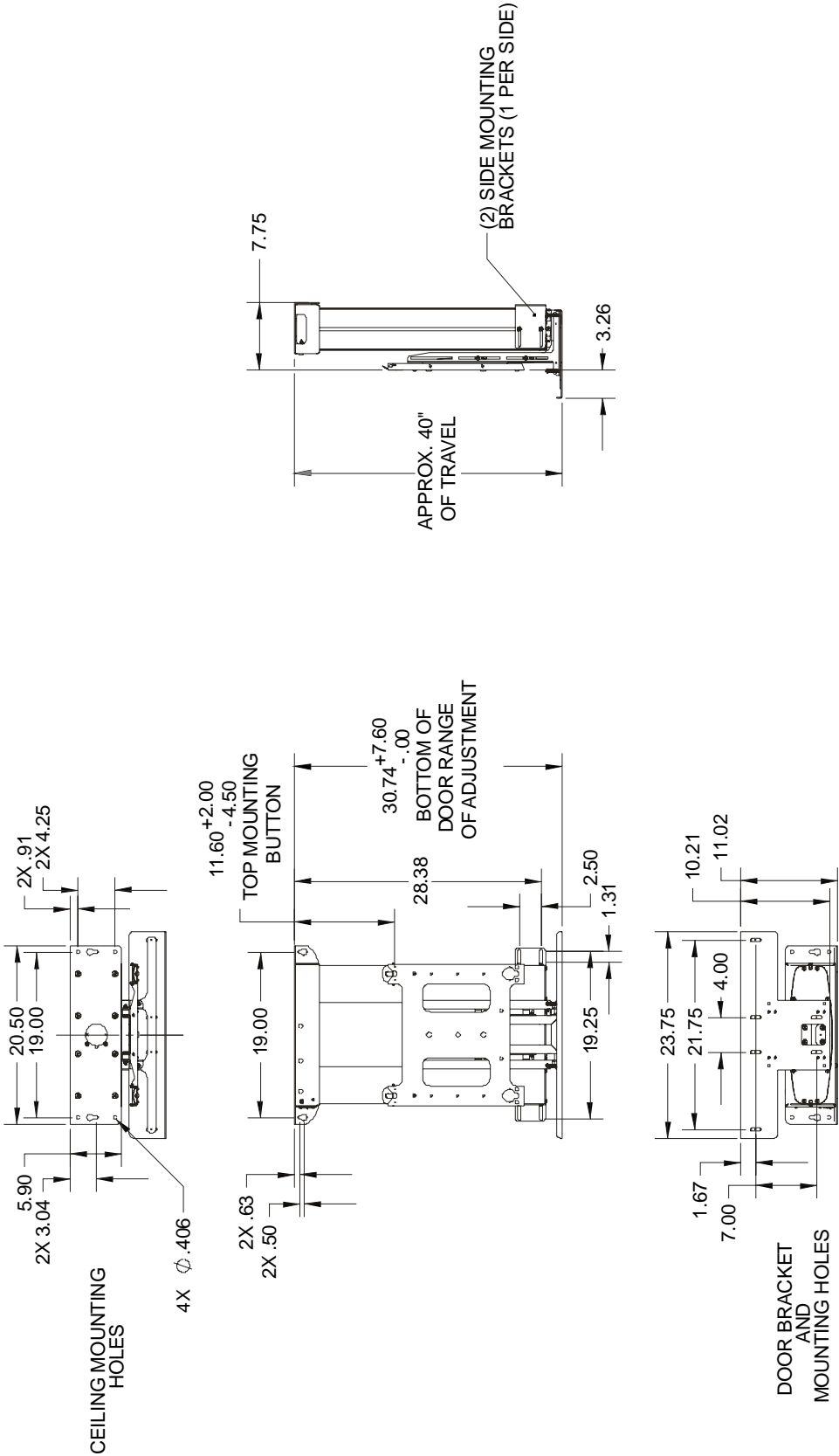
Figure 40

Troubleshooting

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Lift does not respond	• 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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