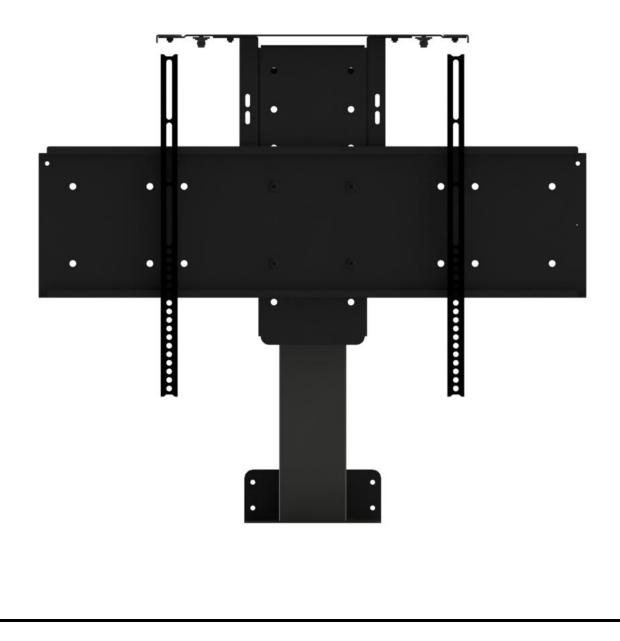
# NEXUS 21

TECHNOLOGY IN MOTION

TV Lift System Model L-50 Installation Instructions

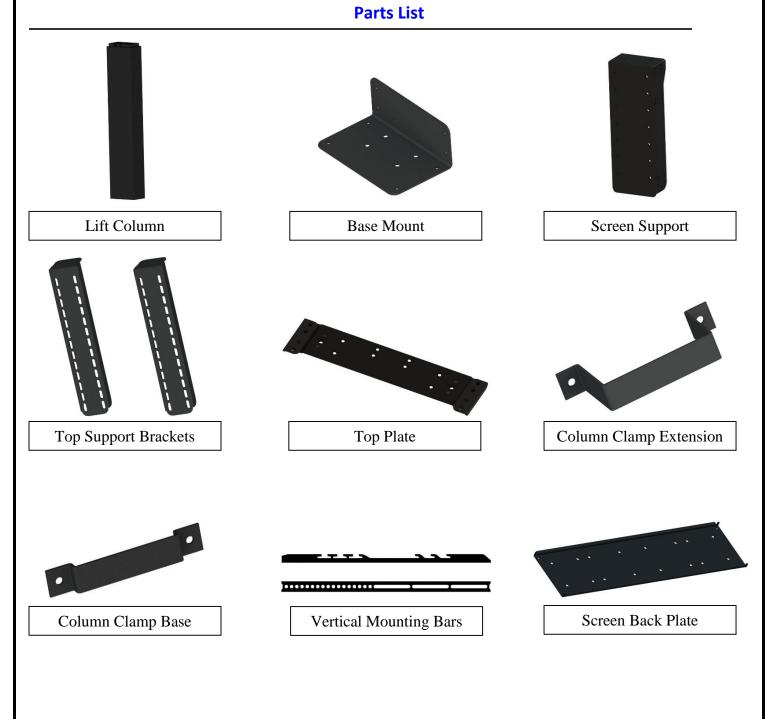


# NEXUS 21 TECHNOLOGY IN MOTION

Contact: Support@Nexus21.com Toll Free: (866) 500-5438 Phone: (480) 951-6885 Fax: (480) 951-6879 Revised: 1/22/18

Below is a parts list describing all of the items included with the Model L-50 Lift System. You may also wish to refer to the dimensional diagram shown on "Supplemental Page A" (at the end of this document).

Before beginning assembly and installation, please make sure that you have all items included on the list. If any parts are missing or damaged, please contact Nexus 21. Our contact information is shown at the top of this page.



### Parts List, continued





Control Box

Assorted TV Mounting Screws

#### Cables

- Motor Cable 2.5m (1) Black cable with white, six-pin plugs. Use this cable to connect the Lift Column to the Control Box.
- Power Cable Connects Control Box to power outlet. Three feet long.
- **RF Cable (only present if you ordered the RF version of the Lift System)** Use to connect the RF Receiver to the Control Box. Ends have RJ-45 connectors. One-foot long.

#### Hardware

- 1. Eight (8) -- 6 x 12mm BHMS (Button Head Machine Screw)
- 2. Four (4) -- 6 x 16 BHMS (Button Head Machine Screw)
- 3. Four (4) -- 3/8" 16 x 3/4" BHMS (Button Head Machine Screw)
- 4. Four (4) 6 x 12mm FHMS (Flat Head Machine Screw)
- 5. Four (4) 6 x 16mm FHMS (Flat Head Machine Screw)
- 6. Four (4) -- #8 x ¾" FHWS (Flat Head Wood Screw)
- 7. Two (2) -- #10 x 1-¾" FHWS (Flat Head Wood Screw)
- 8. Eighteen (18) -- #10 x ¾" THWS (Truss Head Wood Screw)
- **9.** One (1) Small Hex Key (4mm)
- 10. One (1) Large Hex Key (7/32")
- 11. Four (4) Universal Lid Catches
- **12.** One (1) Large Assorted TV Hardware Pack
- 13. Two (2) Threaded Tapered Pins
- 14. Four (4) Wire Clips
- 15. Four (4) Snakeskin Ties
- 16. Four (4) Plastic Wire Ties

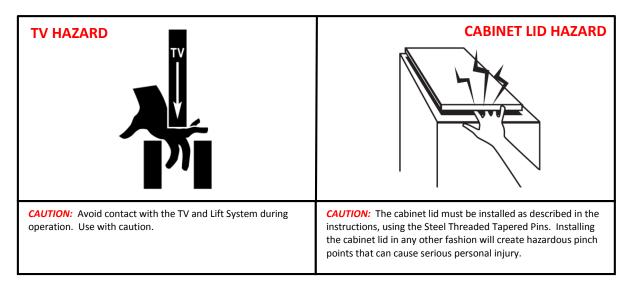
#### Wire Management



The Lift System has no exposed gears or moving parts that can damage your wires, so wire management is simple. We have included a four-foot long "SNAKESKIN" sleeve, which is a state-of-the-art wire bundling and protection system (the sleeve can be cut shorter if you wish). The System also includes 4 Velcro end ties and 4 plastic ties. Use the Velcro ties at the ends of the SNAKESKIN, to close the ends of the sleeve and to keep the wires together inside it. Use the plastic ties to fasten the cable bundle in a fixed position, so it moves up and down with the lift.



### SEVERE PERSONAL INJURY AND PROPERTY DAMAGE CAN RESULT FROM IMPROPER INSTALLATION OR ASSEMBLY. READ THE FOLLOWING WARNINGS BEFORE BEGINNING:



#### WARNINGS:

- 1. Do not use this product for any application other than those specified by Nexus 21.
- 2. Do not exceed the weight capacity. 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.
- 3. Follow all technical specifications and instructions during the installation.
- 4. Only use attachments/accessories specified by the manufacturer.
- 5. Close supervision is necessary when this system is being used by, or near, children, or disabled persons.
- 6. It is the responsibility of the installer to warn all potential users of the dangers of interfering with the mechanism during operation.
- 7. Read all technical instructions fully before installation and use. It is the installer's responsibility to ensure that all documentation is passed on the users and read fully before operation.
- 8. 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 Lift System is affixed can support four times the weight of the system.
- 9. Risk of electric shock. Do not attempt to open the Control Box.
- 10. To reduce risk of fire or electric shock, do not expose parts to rain or other liquids.
- 11. Protect the power cord from being walked on or pinched.
- 12. Keep all documentation.
- 13. Heed all warnings.
- 14. Clean only with a dry cloth.
- 15. Refer all service questions to Nexus 21 if the system does not operate normally.

Nexus 21 disclaims any liability for modifications, improper installations, or installations over the specified weight range. Nexus 21 will not be liable for any damages arising out of the use of, or inability to use, Nexus 21 products. Nexus 21 bears no responsibility for incidental or consequential damages. This includes, but is not limited to, any labor charges for the servicing of Nexus 21 products performed by anyone other than Nexus 21.

Nexus 21 intends to make this and all documentation as accurate as possible. However, Nexus 21 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. Nexus 21 makes no representation of warranty, expressed or implied, regarding the information contained herein. Nexus 21 assumes no responsibility for accuracy, completeness or sufficiency of the information contained in this document.

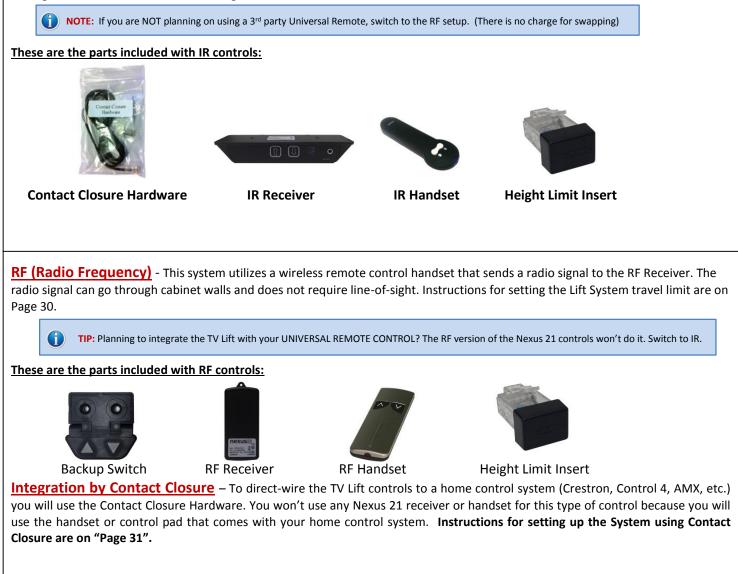
### **Types of Controls for Nexus 21 Lift Systems**

All Nexus 21 Lift Systems come standard with a **wireless remote control** and receiver. We offer a choice of two different types of remotes: IR and RF (both of which are explained in detail below). Our standard control type is RF, so unless you specifically requested the IR version when you made your purchase, you probably received the RF controls with this Lift System. The method of installation for each type of remote control is slightly different, so you should now identify which type of remote you have by reading below, and then follow the instructions for that type of remote.

**NOTE:** If you will be using the Lift with a home control system (like the ones made by companies such as Crestron or Control 4) the most common form of control is to WIRE IT DIRECTLY to the relays of your home control system. This direct-wire method is called **Integration by Contact Closure**, and is accomplished by using the Contact Closure Hardware that is supplied with the IR Control Kit to connect the Lift to your home control system.

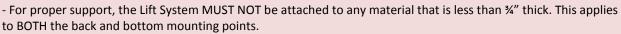
### Before You Begin the Installation: Identify Your Control Type

**IR (Infrared)** – This control option allows you to utilize a 3<sup>rd</sup> party universal style remote control to raise and lower the TV Lift. Your universal remote will "learn" the IR codes from the provided IR Handset, which will enable you to control the lift. The universal remote will then communicate with the "eye" located on the IR Receiver via your 3<sup>rd</sup> party emitter (or flasher). Instructions for setting the TV Lift's travel limit are on Page 30.



### Assembly and Mounting – Things to Think About First

#### **SAFETY NOTICE:**



- The Lift Column is ONLY designed and rated for VERTICAL, NON-INVERTED USE. **DO NOT MOUNT THIS LIFT SYSTEM UPSIDE DOWN or SIDEWAYS (HORIZONTALLY)!** 

TIP: Inverted (drop-down) lift systems are available from Nexus 21. Contact Customer Service at (866) 500-5438.

#### Space requirements for the L-50 Lift System are as follows:

Depth = TV Depth + 6" Height = TV Height + 1.5" or 29.5", whichever is greater Width = TV Width + 2" or 34", whichever is greater



**IMPORTANT NOTE:** The Lift System must be mounted **as high up as possible inside the cabinet,** so that when the Lift is in the fully "DOWN" position (fully retracted), the top of the TV will be just underneath the lid of the cabinet. A 1/8" gap between the lid and the Top Plate is ideal.

#### Lift System height and mounting position:

The Top Support Brackets allow you to adjust the installation height of the Lift in ¼" increments if necessary. When fully assembled in the standard configuration, the HEIGHT of the Lift will be a minimum of 28.5" up to a maximum of 40.5" with the Top Support Brackets in the highest position. Reference the dimensional drawing for more information.

### About the Cabinet Lid (Cabinet Top)



#### SAFETY NOTICE:

WARNING! YOU MUST NOT DIRECTLY SCREW THE CABINET LID (TOP) TO THE LIFT SYSTEM!! THIS CREATES HAZARDOUS "PINCH POINTS" AND MAY AFFECT THE OPERATION OF THE LIFT OR CAUSE DAMAGE TO THE CABINET TOP. For floating lids, DO NOT USE SCREWS to attach the lid to the Lift System. Instead, use the "Threaded Taper Pins". This will keep the lid firmly in place, but will also allow it to separate from the lift system if anything (like a finger) gets in the way when the TV lowers.

#### Which Lid Style Will You Use? (There are 2 Different Styles) - Hinged Lid Compatible

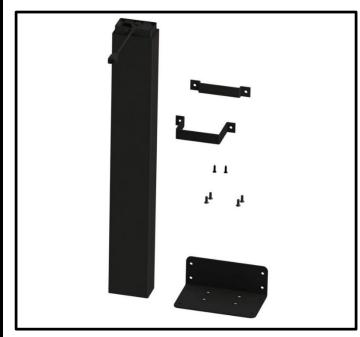
**<u>Floating Lid (Floating Top)</u>** – The whole top of the cabinet sits on top of the Lift System and raises/lowers with the TV. This is the standard Installation method, using the Top Plate and Threaded Tapered Pins.

<u>Cut-Out Floating Lid (Top)</u> – You will "cut out" part of your cabinet top, customizing it to the size of your TV. That cut-out lid then sits on top of the Lift System and raises/lowers with the TV. This method uses the Top Plate and Threaded Taper Pins, but you must set up a "catch" for the cut-out lid so that when the TV lowers, the lid stops level with the rest of your cabinet top (like a manhole cover).

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- 1. Assembling and Installing the Actuation System
- 2. Connecting the Lift
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- 4. Important Information About the Floating Lid
- 5. Installing the Tapered Pins in the Floating Lid
- 6. Installing the Lid Catch
- 7. Setting a Height Limit
- 8. L-50 Dimensional Drawing
- 9. Supplemental Page C: Connect the Lift to Home Control System

### **Assembling and Installing the Actuation System**

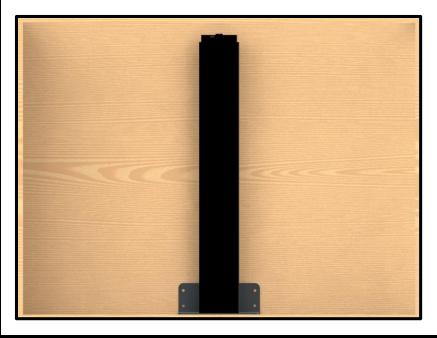


### For these steps you will need the following parts:

- Lift Column
- Base Mount
- Column Clamp Extension
- Column Clamp Base
- (4) 6 x16 FHMS
- (2) #10 x ¾" THWS

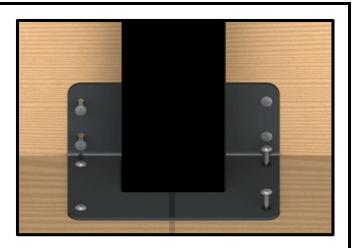
**Step 1:** Attach the Lift Column to the Base Mount using the (4) 6 x 16 FHMS. Ensure the pigtail for the Lift Column is facing towards the front of the enclosure.

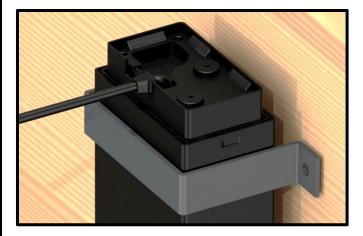




**Step 2:** Center the Lift Column and Base Mount inside your enclosure.

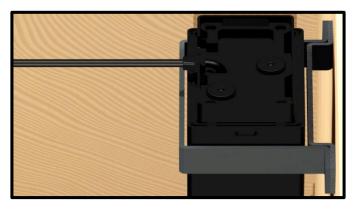
**Step 3:** Fasten the Base Mount to both the bottom and rear panel of the enclosure using (8)  $\#10 \times \frac{3}{4}$ " THWS





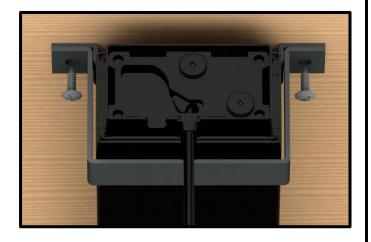
**Step 4:** Slide the Column Clamp Extension around the front of the Lift Column and place it right below the slots located on the left and right side of the Lift Column.

**Step 5:** Slide the Column Clamp Base behind the Lift Column and line the holes up with the holes on the Column Clamp Extension.





**Step 6:** Fasten the two brackets against the rear panel of the enclosure using (2) #10 x ¾″ THWS



### **Connecting the Lift**

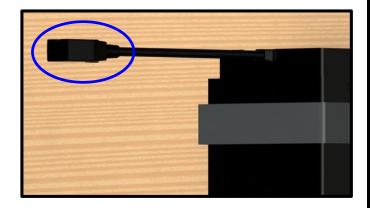
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### For these steps you will need the following parts:

- Control
- Power Cord
- Wired Backup Switch
- CSI Control Kit (If IR was ordered)
- RF Control Kit (If RF was ordered)
  - (2) #10 x 1-¾" FHWS
- (4) #8 x ¾" FHWS

**Step 7:** Connect the 2.5m Motor Cable to the pigtail at the top of the Lift Column.





**Step 8:** Connect the other end of the 2.5m Motor Cable to Port 1 on the Control Box.

**Step 9:** Connect the Wired Backup Switch to Port A1 on the Control Box, if you are using RF Controls. Connect the IR Receiver to Port A1 on the Control Box, if you are using IR Controls.





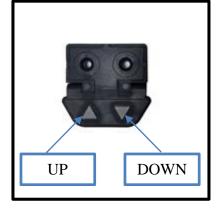
**Step 10:** Connect the Power Cord to Port AC on the Control Box then connect the cord to a power receptacle.



**Step 11:** Connect the RF Receiver to Port A2 on the Control Box, if you are using RF Controls. Leave Port A2 blank if you are using IR Controls.

**Step 12:** Using the Wired Backup Switch or IR Receiver, press the DOWN button once, then press and hold it again for 5 seconds to "Initialize" the Lift System.

**Note:** You will hear or see the lift jog or move up and down very slightly. This is the "reset/calibration" feature of the lift system and must be done to ensure proper function.

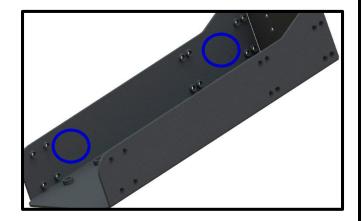


**Step 12:** Extend the Lift System by pressing the UP button on the Wired Backup Switch.

### Assembling and Installing TV Mounting System

- For these steps you will need the following parts:
  - Screen Support
  - (2) Top Support Brackets
  - Top Plate
  - Screen Back Plate
  - (2) Vertical Mounting Bars
  - Screen Locks
  - (4) 3/8"-16 x ¾" BHMS
  - (8) 6 x 12mm BHMS
  - (4) 6 x 16mm BHMS
  - (4) 6 x 12mm FHMS
  - (2) Wire Clips

**Step 13-1:** Place (2) Wire Clips on the Interior of the Screen Support in the two locations shown in the photo to the right then push the Motor Cable into the both Wire Clips.



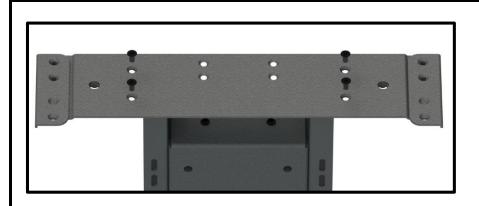


**Step 13-2:** Attach the Screen Support to the top of the Lift Column using (4) 6 x 16mm BHMS. Ensure you use the four mounting locations that DO NOT have dot marks.

**Step 14:** Measure the Interior Height of the Cabinet and subtract 28.125" from it. This will be the distance you will need to attach the Top Support Brackets above the Screen Support.

**Step 15:** Attach both Top Support Brackets to the sides of the Screen Support using (8) 6 x 12mm BHMS, (4) per side.

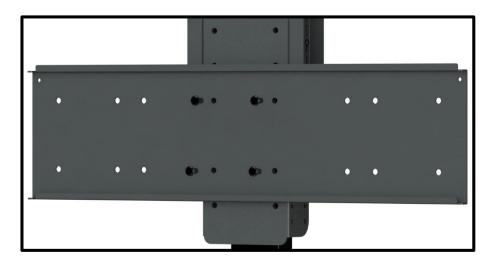




**Step 16:** Attach the Top Plate to the top of the Top Support Brackets using the (4) 6 x 12 FHMS

**Step 17:** Attach the Screen Back Plate to the Screen Support using the (4) 3/8 – 16 x 3/4" BHMS.

**Tip:** You can generally measure from the Top of the TV to the center of the VESA pattern, this is the distance the center of the Screen Back Plate will need to be from the Top Support Brackets.

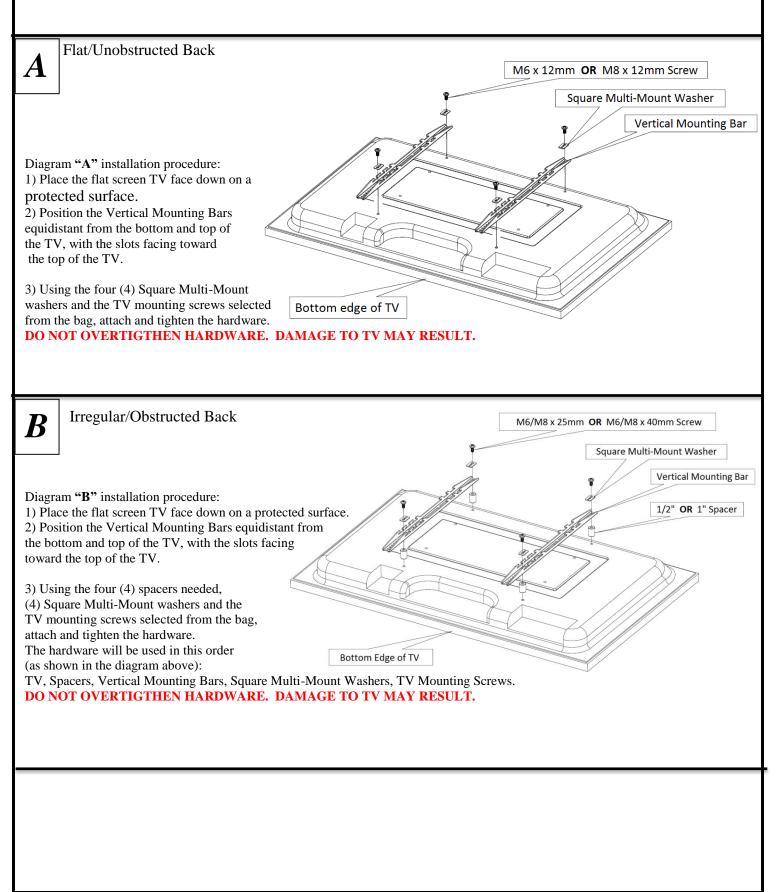


**Step 18:** Attach the Vertical Mounting Bars to the back of the TV using the provided Large Assorted TV Hardware.

The diagrams on the following page are provided for reference.

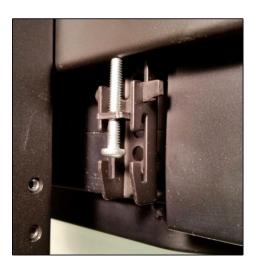
The following Diagrams show information on how to attach the Vertical Mounting Bars to the TV in 2 Scenarios.

All hardware mentioned in these diagrams is inside the Large Assorted TV Hardware Pack, however other hardware may be necessary based on TV model. Refer to the TV Manual for screw sizing information.



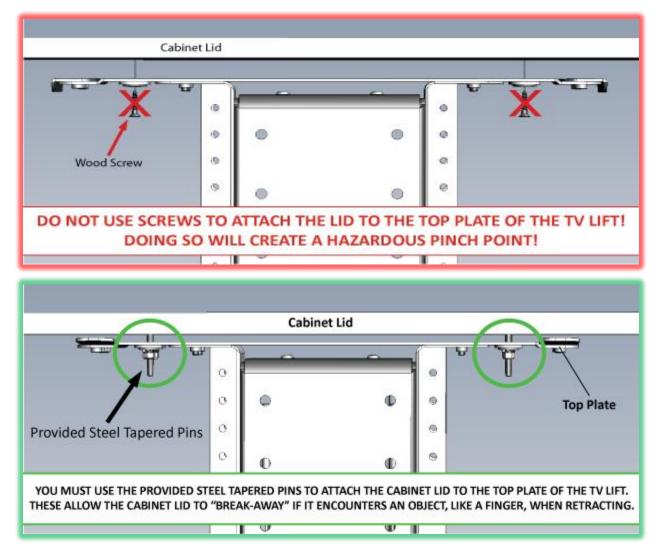
**Step 19:** Mount the TV to the Lift System by hanging the Vertical Mounting Bars on the Screen Back Plate.





**Step 20:** Insert the Screen Locks into the lower section of hooks the rest right below the Screen Back Plate and fasten them using a Phillips Screw Driver.

### **Important Information About the Floating Lid**



#### What Are the Tapered Pins, and Why Use Them?

The two 1½" x ¼" Steel Threaded Tapered Pins are used IN PLACE OF SCREWS to hold your cabinet top (lid) in place on the Lift System Top Plate (Part #8). The Tapered Pins will keep your lid firmly in place, but will also allow it to **separate from the lift system** if anything (like a finger) gets in the way when the TV lowers. <u>See Safety Notice above. Please do NOT use screws with your cabinet</u> <u>lid.</u>

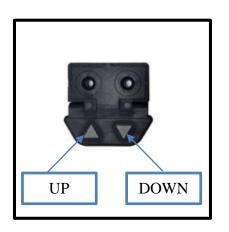
Before You Install the Tapered Pins, Here is a Reminder of the Two Types of Floating Lids (Floating Tops): Floating Lid (Floating Top) – The whole top of the cabinet sits on top of the Lift System and raises/lowers with the TV.

**Cut-Out Floating Lid (Top)** – This option assumes that you have "cut out" part of your cabinet top, customizing it to the size of your TV. That cut-out lid then sits on the Top Plate of the Lift System, held in place by the Taper Pins, and raises/lowers with the TV. You must set up a "catch" for the Cut-Out Lid so that when the TV lowers, the Lid stops level with the rest of your cabinet top (like a manhole cover), and the Lift System continues down a little further into the cabinet (no more than ¼" to ½"). In this way, when the Lift System is fully retracted, the Cut-Out Lid will always be level, and the Top Plate of the Lift System will always be positioned just below the Lid. Since the Lid and the Top Plate are slightly separated from one another, but still very close, the Taper Pins (which are 1½" long) will still be hanging down through the holes in the Top Plate so when the Lift System moves, everything is properly aligned and the Lid rides smoothly up and down.

### Installing the Tapered Pins in the Floating Lid

For these steps you will need the following parts:

- Threaded Tapered Pins
- 7/32" Drill Bit
- Phillips Screw Driver
- Cabinet Lid
- (Optional) Wood Glue
- (Granite Only) Epoxy



**Step 21:** Fully retract the lift by pressing the DOWN button on the Remote or Wired Backup Switch.

**Note:** If you need to stop the lift at any point, tap the UP button to stop it.

**Step 22:** Place the Cabinet Lid on top of the Top Plate and position it so it is centered within the enclosure cutout.



**Step 23:** Run the lift up by pressing the UP button on the Remote or Wired Backup Switch. Ensure the lid stays in position and is not bumped, shifted, or moved out of place.

**Step 24:** Using a pencil, sharpie, or felt-tipped pen, mark the position for the Tapered Pins from the underside of the Top Plate.





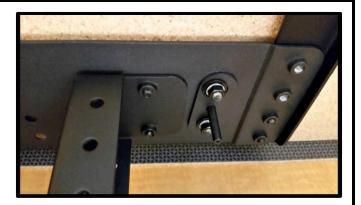
**Step 25:** Remove the Lid, and drill two holes  $\frac{1}{2}$ " deep in the two marked positions using a 7/32" drill bit.

**Step 26:** Thread the provided Tapered Pins into the holes using a phillips screwdriver.

**Note:** Glue can be used to further secure the pins into position. If using granite, you can bore the hole slightly larger than the pins and Epoxy it into place.

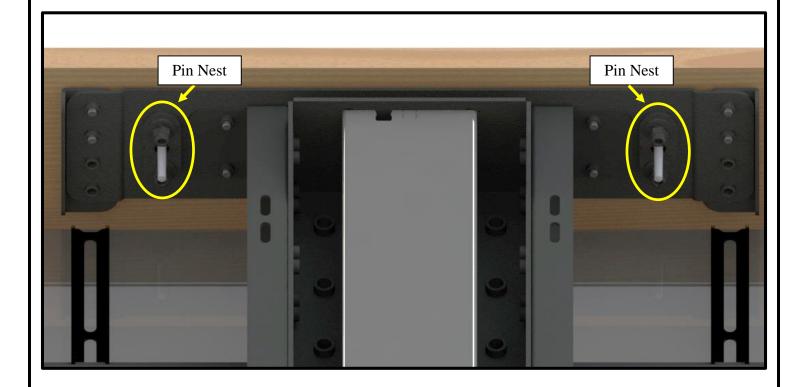


**Step 27:** Place the Lid on top of the Lift System, lining the Tapered Pins up with the holes used to locate the pins in step 22.



**Step 28:** Run the lift down then up to test and ensure the position of the lid is correct. If the position of the pins are off, loosen the nuts for Pin Nests located on the underside of the lid and position the lid so that it is centered within the enclosure cutout.

**Note:** The Pin Nests are adjustable <sup>1</sup>/<sub>4</sub>" in every direction.



### **Installing the Lid Catch**

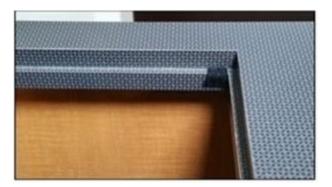
In order for the Lid to always rest flush with the surrounding cabinet or countertop, you must install a Lid Catch. A Lid Catch functions similar to a "manhole cover" in the it catches lid allowing the Lift System to breakaway and allow gravity to ensure the lid sits flush. A few examples of this are depicted below:

Using the provided Universal Lid Catches:





Alternative using a wooden "Lip" or "Catch" built into the cabinet:





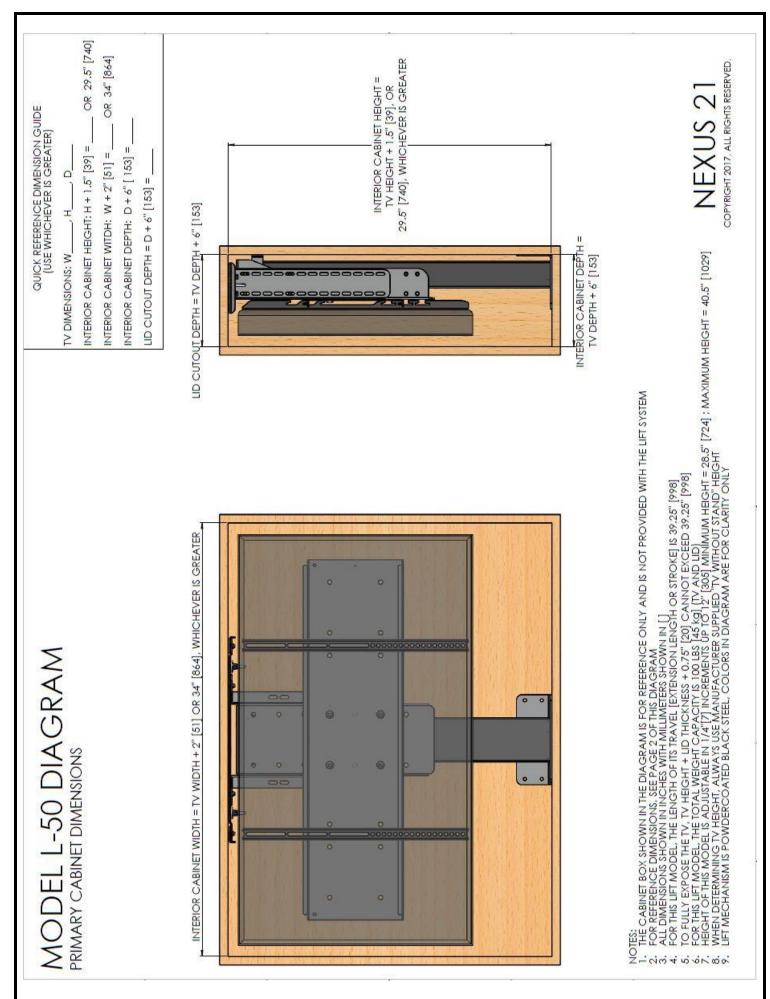
### **Setting a Height Limit**

This lift system has 39.25" of travel [extension or stoke], if your installation requires less than the maximum travel of the system, follow the steps below to limit it:

- 1. Extend the lift to your desired position.
- 2. Tap the DOWN button to stop the lift once it reaches your desired height.
- 3. Plug the Height Limit Insert into an available RJ45/Phone port on either the Control Box or RF Receiver.
- 4. Fully retract the lift by pressing the DOWN button and extend it again to test the position.

### **About Lower Limits:**

You cannot set a lower limit on any of our Lift Systems as the lower limit is fixed. The reason is because this is the position in which the lift systems starts and/or initializes from. If you are having an issue where a lower limit may seem necessary, contact Technical Support at 480-275-8613 for assistance as a lower limit should never be necessary on any of our products due to the adjustment built into the bracketry.



### Supplemental Page C: Connect the Lift to Home Control System

### Connecting the Nexus 21 Lift System to Other Control Systems

Use these instructions if you need to wire the Lift System directly to a Home Control System, like those made by Crestron, AMX, Control 4, RTI, etc. A common term for this method of integration is "connection by contact closure."

#### Step 1: Contact Closure Hardware Pack

This pack contains the following parts:

- 1 Contact Closure Cable, RJ-45 to Relays
- 1 Height limit Insert

Contents of Contact Closure Hardware Pack:





Contact Closure Cable, RJ-45 to Relays

Height Limit Insert

#### Step 2: Connecting the Lift System to the Control System

Using the *Contact Closure Cable* to connect the three wires directly to the relays on your control module (see image below). Then connect the RJ-45 plug on the *Contact Closure Cable* to the Nexus 21 system, using either one of the two RJ-45 ports on the side of the Nexus 21 *Control Box*.

#### The colored wires function as follows:

BLUE = common (Pin 4 from RJ45) GREEN = Extend (Pin 5 from RJ45) RED = Retract (Pin 8 from RJ45)

#### Wire combinations for the relays:

The lift system uses two relays. One for "extend" and one for "retract." The common wire runs between both relays, by using the **BLUE common wire**, together with a jumper wire you supply.

#### Relay 1 Extend: BLUE common wire with GREEN normally open. Relay 2 Retract: BLUE common wire (use jumper) with RED normally open.



Close-up View of RJ-45 Pins



#### Step 3: Setting a Height Limit for the Lift System

Begin with the Height Limit Insert UNPLUGGED. Then send the "UP" command from your control system and run the Lift System up to your desired height. Once the Lift System is at the desired height, send the "DOWN" command to stop the lift at the point. Now PLUG the Height Limit Insert into the available RJ45 port on the Nexus 21 Control Box. The Lift will now remember the height and always stop at that point. To change, unplug the Height Limit Insert and repeat Step 3.

For technical support or to ask questions, call Nexus 21 Customer Service, toll-free at (866) 500-5438.

Contact Closure Integration Document for L-90



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866-500-5438