

# Installation/Operating Instructions

## 220V SL Scissor Lift Video Projector Lift by Draper

U.S. Patent  
Number  
D395,909

These Installation/Operating Instructions are available in the official language of the country where you purchase the product. Please contact your distributor to request a copy.

Vous pourriez demander les instructions d'installation et d'opération traduites dans la langue officielle du pays où vous achetez le produit. Veuillez demander à votre distributeur.

Die Gebrauchsanweisung für Installation und Konstruktion sind in der offiziellen Sprache des Landes, indem Sie das Produkt gekauft haben, vorhanden. Fragen Sie die jeweilige Verkaufs-Abteilung.

### ⚠ Caution:

- ① Read instructions completely before proceeding.
  - ② **⚠ Caution: Do not operate Scissor Lift SL without a minimum of 7 kg. of weight attached to the pan. Operating without weight may cause cables to unspool.**
  - ③ Test lift prior to installation. **Please Note: Packaging must be removed from lift before testing.**
  - ④ Follow instructions carefully. Installation contrary to instructions invalidates warranty.
  - ⑤ Do not obstruct operation of Scissor Lift SL with fingers or any object. Serious injury or damage could result.
  - ⑥ Maximum lifting capacity is 45 kg.
  - ⑦ Scissor Lift SL is designed to accommodate ceiling suspended equipment. Equipment should not be allowed to rest on optional ceiling closure during operation (refer to section titled "Installing Projector").
  - ⑧ Entire bottom of unit must be unobstructed to permit proper operation. Sufficient clearance must be allowed below projector or optional ceiling closure: 305cm for Model SL10, etc.
  - ⑨ Unit must be installed level (use a carpenter's level).
  - ⑩ Unit operates on 220V AC.
  - ⑪ Verify the show position when testing lift. Make required changes by referring to adjustment instructions on page 4 of this document.
- ⚠ CAUTION: Before servicing unit, disconnect hardwired control and any remote control.**  
**Note: Unit has been thoroughly inspected and tested at factory and found to be operating properly prior to shipment.**

### Planning

- ① Based on screen location and projector specifications, determine proper position for projector installation.
- ② Confirm that there is adequate space for installation and operation. Minimum clearance above ceiling level varies according to Scissor Lift model, plus height of projector, optional mounting bracket, optional ceiling closure, and optional Environmental Air Space Housing.
- ③ Arrange to provide service access to the unit.
- ④ Maximum lifting capacity is 45 kg.

### As Soon As Scissor Lift Arrives

- ① Open carton and inspect for damage.
- ② Locate the following parts:  
A. The unit itself  
B. Controls  
C. Optional equipment: Environmental Air Space Housing, Universal Projector Mount, closure panel or ceiling finish kit (all ship in separate cartons).
- ③ Test lift prior to installation. **Please Note: Packaging must be removed from lift before testing.**

### Hanging Unit

Please note: If using Environmental Air Space Housing option, go to Environmental Air Space Housing instructions on page 3.

The Scissor Lift may be installed in a variety of ways; recessed above the ceiling, or suspended below the ceiling. The lift should be supported by four 9.5 mm threaded mounting rods. If ceiling recessed, the entire unit (including the projector) should set approximately 38 mm above the finished ceiling in its "stored" position. The threaded rods should pass through the corner mounting flanges and be secured by nuts above and below. The unit should then be guy wired or blocked to prevent swinging.

All installations should observe the following guidelines:

- ① If installing above a hard ceiling, optional Draper Access Panels are available to allow access to the unit.
- ② Installer must ensure that all fasteners and supports are of adequate strength to securely support Scissor Lift and projector.
- ③ Fastening methods must be suitable for mounting surface, and securely anchored so that vibration or abusive pulling on unit will not weaken installation.
- ④ Unit should be level, with weight shared more or less equally by all four threaded mounting rods.
- ⑤ Bottom of unit must be unobstructed after installation. Sufficient clearance must

be allowed below projector or optional ceiling closure.

- ⑥ Do not use unit to support adjacent ceiling, light fixtures, etc.
- ⑦ Do not complete the ceiling below unit until electrical connections have been completed and unit has been operated successfully.
- ⑧ We recommend that safety cables be attached to the Scissor Lift SL for added security (a sound installation practice with overhead equipment).
- ⑨ **When the Scissor Lift SL is to be installed in "other space used for environmental air" the optional environmental air space housing must be installed per instructions to isolate the lift from the "other space used for environmental air."**

### Electrical Connections

Unit operates on 220V AC.

Opening the electrical box exposes terminals for field connections. Unit is shipped with internal wiring complete. Wire to connect unit to power supply should be furnished by installer. Connections should be made in accordance with wiring diagram, and wiring should comply with national and local electrical codes. All operating switches should be "off" before power is connected.

**⚠ Caution: Make sure electrical supply has been disconnected before attempting to connect Scissor Lift to electricity.**

Scissor Lift should be operated and checked prior to installing projector and/or optional ceiling closure.

Low Voltage Control Switch shown below comes with 22.8 meters of cable and should be plugged in to Control Panel on top frame of lift for control of the "Closed" and "Show" positions. Momentary Key Switch shown below comes with 22.8 meters of cable and should be plugged in to Control Panel on top frame of lift for control of the "Service" position.

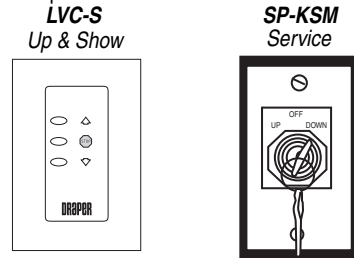


Figure 1

### Operation

Before operating or testing the unit, make sure the packaging has been removed from the unit. Remove the corrugated block from the cardboard sleeve (bottom-most packaging material), then collapse the sleeve and remove it, along with the rest of the packaging. Next, operate the lift in the "up" direction, so the lift's control encoder will recognize it's "home" location. Until you do this, the Down function will not work.

When unit is first operated, be cautious! If unit fails to operate properly, press "off" and recheck electrical connections before proceeding. Cycle unit down and up several times to confirm satisfactory operation.

**⚠ Caution: Do not pull on or touch safety belt when unit is in motion. If belt locks, the cables will unspool.**

**⚠ Caution: Obstructing bottom pan may cause cables to unspool.**

**⚠ Caution: Do not operate Scissor Lift SL without a minimum of 7 kg. of weight attached to the pan. Operating without weight may cause cables to unspool.**

**Standard Single Station Low Voltage Control (See Fig. 1) (CE Approved)—**

One three-button switch with "up", "down", and "off" buttons. Lift starts up or down when appropriate button is pressed, and may be stopped by pressing "off" button. Factory set limit switches stop lift automatically when projector is in "show" position. One momentary key switch lowers lift from "show" to "service" position.

**Optional Multiple Station Control (Not CE Approved)—**Optional, moves lift from "stored" to "show" position only. Each switching station has a three-button switch with "up", "down", and "off" buttons. Lift starts up or down when appropriate button is pressed, and may be stopped by pressing "off" button. Factory set limit switches stop lift automatically when projector is in "show" position.

**Optional Key Operated Switch (Not CE Approved)—**If ordered, the standard LVC-S can be replaced with a second single station, momentary key-operated three position (up/off/down) switch. Multiple Station Control required for this option. Moves lift from "stored" to "show" position only.

**Optional Infrared or Radio Frequency Remote Control (CE Approved)—**If ordered, a three-button transmitter is provided, with "up", "down", and "stop" buttons. Unit starts up or down when appropriate button is pressed, and may be stopped by pressing "off" button. Factory set limit switches stop unit automatically when projector is in "show" position. Only controls "show" and "stored" positions.

**Optional RS232 Control (CE Approved)—**For Serial communication an R2D7 Serial Communications Interface is optionally available.

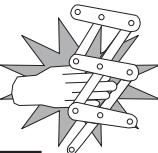
**Low Voltage Trigger (CE Approved)—**Input provided for Low Voltage Trigger from projector (see diagram on page 4).

**Please Note: Scissor Lift SL must be installed in accordance with the requirements of the Local Building Codes, the Canadian Electrical Code (CEC), CAN/CSA C22.1 and the National Electric Code (NEC), NFPA 70, as required. An appropriate disconnect device shall be provided as part of the building installation.**

If you encounter any difficulties installing or servicing your Scissor Lift, call your dealer or Draper, Inc. in Spiceland, Indiana, 765-987-7999, or fax 765-987-7142.

# DRAPER®

**Caution:**  
**⚠ Beware of pinch points**



411 S. Pearl St., Spiceland, IN 47385 USA ■ 765-987-7999

www.draperinc.com ■ fax 765-987-7142

Copyright © 2011 Draper Inc. Form 220VSLScissorLift\_Inst11-R2 Printed in U.S.A.

## Installing Projector

Generally, the video projector should be suspended from the Projector Pan according to projector manufacturer's instructions and recommended standard ceiling mounting hardware.

The Scissor Lift SL has a grounded 220V AC power cord for projector power supply. The power cord is laced down the back scissor and is "hot" at all times.

Control cables should be laced through our Cable Management System. Make sure to use flexible cables, and to allow enough cable at each turn so cables do not stretch or kink. This will ensure that cords do not become tangled and damaged during Scissor Lift SL operation.

Unit and projection system should be operated, checked and adjusted as necessary at this time.

**NOTE:** Immediately upon completion of the surrounding ceiling, units should be operated to confirm that optional ceiling closure panel stops just short of touching ceiling in closed position.

**⚠ Warning:** Keep fingers and other objects away from automatic ceiling closure and scissor mechanisms when unit is operating. Serious injury or damage could result.

## Adjusting for Level or Center of Gravity

### Preferred Method—Adjusting Projector Pan

The Projector Pan can be moved forward or back.

- ① **Make sure Bottom Pan is supported.**
- ② Remove the Lifting Cable Bar (see Fig. 2).
- ③ Remove screws holding Projector Pan on Bottom Pan (see Fig. 2).
- ④ Move Bottom Pan forward or back.
- ⑤ Replace screws.
- ⑥ Replace Lifting Cable Bar.

### Secondary Method—Adjusting Lifting Cable Bar (if above does not work)

Run the unit to its "Service" position and make sure pan is level. **Try and set so that pan is not more than 19 mm out of level. However, the pan does not have to be perfectly level, as long as the positioning is consistent and repeatable in "Show" and "Closed" positions.**

- ① Make sure Bottom Pan is supported.
- ② Remove screws holding Lifting Cable Bar to the Bottom Pan (see Fig. 2).
- ③ Move Lifting Cable Bar forward or back (see Fig. 2).
- ④ Replace screws.
- ⑤ Check level again. If still not level, repeat.

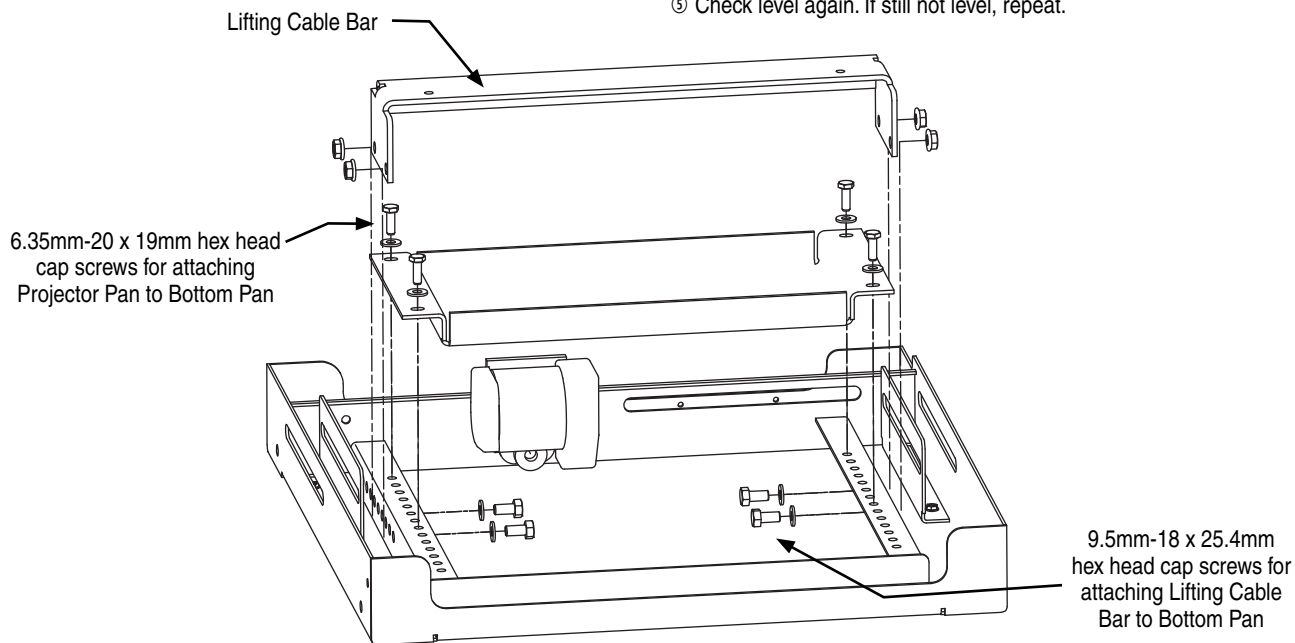


Figure 2

## Installing Optional Universal Projector Mount

If you ordered the unit with optional Universal Projector Mount pre-installed, disregard these instructions.

If you did not order the mount pre-installed, you will need to install a new Projector Pan, which includes the Universal Projector Mount's rectangular plate.

Maximum weight capacity for the Universal Projector Mount is 11.7 kg.

- ① Lower unit until the Bottom Pan is resting on a tabletop or other stable and sturdy surface.
- ② Remove Lifting Cable Bar from Bottom Pan (see Fig. 2).
- ③ Remove bolts holding Projector Pan to Bottom Pan (see Fig. 2).
- ④ Remove Projector Pan and set aside.
- ⑤ Place new Projector Pan with Universal Mount into place.
- ⑥ Re-attach Projector Pan to Bottom Pan.
- ⑦ Re-attach Lifting Cable Bar to Bottom Pan.

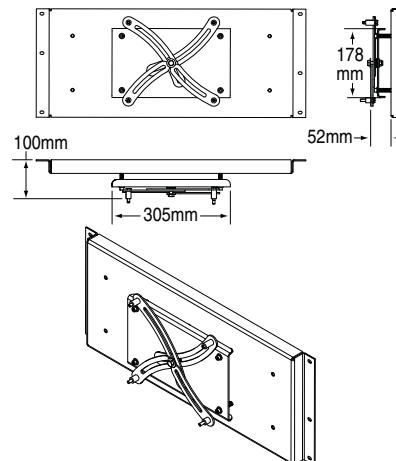


Figure 3

## Installing Projector Using Universal Projector Mount

The universal projector mount includes:

- 2 x long arms
  - 4 x short arms
  - 4 x M3, 4 x M4, 4 x M5 and 4 x M6 mounting bolts (30mm in length)
  - 4 spacers (13 mm, 16 mm, 19 mm, 22 mm)
- ① Determine which size mounting bolts suit your projector, and set others aside. They are no longer required. If your projector has only three mounting holes, set aside one of the mounting arms (see Fig. 3).
  - ② Attach the appropriate mounting arms to the rectangular plate via center bolt. Spread out the arms so each end is over one of the mounting holes.
  - ③ Connect projector mounting arms.
  - ④ Tighten the mounting bolts.
  - ⑤ Use the 6.35 mm-20 bolts and springs which hold the rectangular plate to the bottom pan to adjust roll and tilt (the springs will ensure that the projector is held still during motion). The center 8 mm bolt provides Yaw adjustment (see Fig. 4).

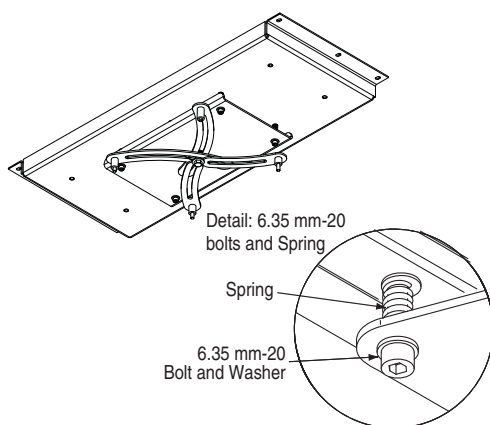
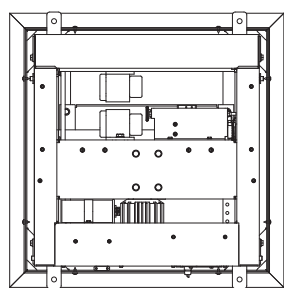


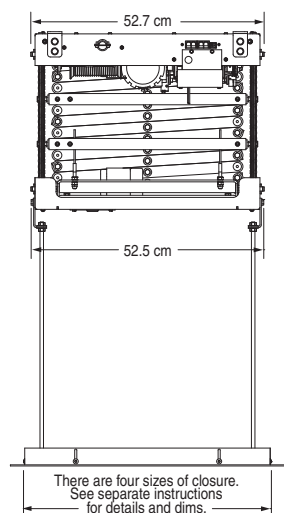
Figure 4

## Scissor Lift SL Dimensions

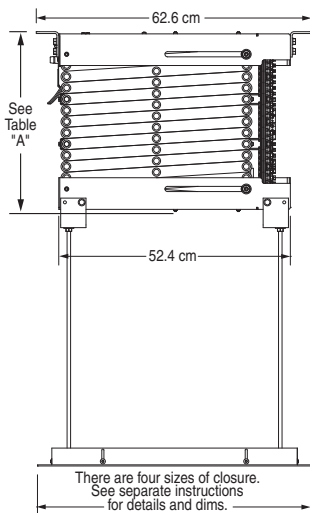


Top View

Model	Table A	
	Closed Height	Extended Height
SLX4	20.3cm	1.2m
SLX6	25.4cm	1.8m
SLX8	30.5cm	2.4m
SLX10	35.5cm	3.0m
SLX12	40.6cm	3.6m



Front View



Side View

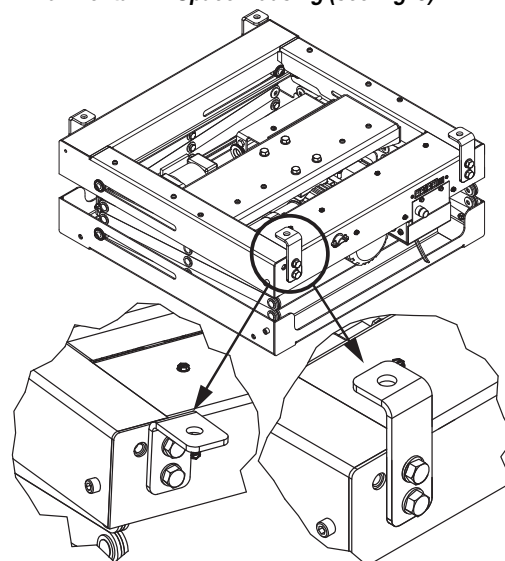
## Installing Optional Environmental Air Space Housing

The Environmental Air Space Housing is shipped in pieces, and must be assembled by the installer. The height of the Environmental Air Space Housing can be adjusted by moving the screws to different mounting holes in side panels. Aluminum tape is provided to cover unused holes. It is recommended that an access panel be installed in the ceiling to allow future access. The optional environmental air space housing must be installed per instructions to isolate the lift from the "other space used for environmental air."

Includes trim ring for ceiling opening.

See installation instructions included with Environmental Air Space Housing.

**Please Note:** When using the Environmental Air Space House "SL" size, the mounting brackets attached to the top four corners of the Scissor Lift SL must be removed, and replaced with brackets which are shipped with the Environmental Air Space Housing (see Fig. 5).



Standard Mounting Bracket Configuration (B, E, U sizes)

SL Size Mounting Bracket Configuration

Figure 5

## Installing Optional Ceiling Closure

If your Scissor Lift SL is equipped with optional ceiling closure, it can be used as is, or in conjunction with a square of existing ceiling tile. See installation instructions included with ceiling closure.

## Installing Optional Ceiling Trim Kit

The Scissor Lift SL is available with a ceiling trim kit, which consists of the lower section of the Environmental Air Space Housing and the optional closure panel. See installation instructions included with Ceiling Trim Kit.

## Scissor Lift SL Inspection and Maintenance

Draper recommends inspecting the Scissor Lift SL at least annually or every 300 cycles—whichever comes first.

A recommended maintenance schedule includes:

- Cables: Check for fraying
- Fasteners along scissor arm assemblies: Make sure they are not loose. If any are loose, hand tighten the nuts. *(Please Note: there is no need to tighten nut in the top scissor which slides back and forth in the side slot in the lift. Tightening this fasteners assembly will cause the unit to lock up and lead to damage to the unit.)*
- Closure: Make sure threaded rod remains seated firmly in the closure panel corners, and that the nuts remain tight. If they are loose, tighten them.

## Connecting Controls

Controls plug into the data cable inputs on the Control Panel, which is located on the Top Frame on the front side of the lift, using RJ14 connectors.

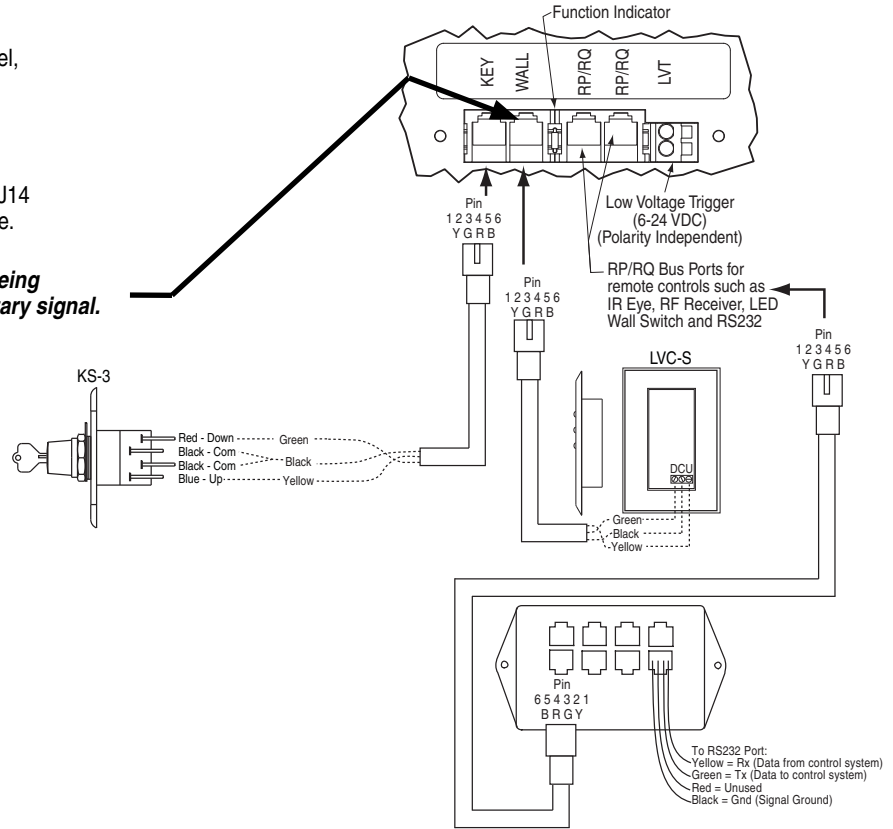
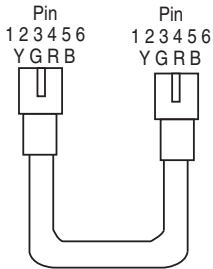
For IR or RF Remote Control, use data cable with RJ14 connectors on both ends.

For serial control of "Show" position, use data cable with RJ14 connectors on both ends and an R2D7 Serial Control Interface. Plug into the "RP/RQ" input.

**Any control, including automated dry contact systems, being connected to the wall switch input MUST send a momentary signal.**

### Please Note:

Data cable connections must be made using **electrically straight** 4-conductor modular cable (RJ14). If making your own cables, this means colors do not cross over: blue leads to blue, green to green, etc. (see diagram below).



## Adjustments

**CAUTION:** Be sure all switches are in "off" position before adjusting limit switch. Always be prepared to shut lift off manually when new adjustment is being tested. Please refer to wiring diagram.

Limit switches for the Scissor Lift SL are preset at the factory. The "Up" limit switch is set for fully closed. The "Down" limit switch is set for the fully down (maintenance) position for the size lift you have ordered. The limit switch assembly is located inside the lift and behind the Lifting Cable Drum.

### Set Show Position

**(can only be set if it is cleared, i.e. it cannot be re-set)**

- ① Use Main UP/DN to get lift to desired Show Position.
- ② Press and hold Key in the "down" position.
- ③ Continue holding until lift starts moving up (approx. 5 sec, Key can be released anytime after movement starts). The lift will move up for 2 seconds, then stop for 1 second, then go down for 1 second and stop. This action is used to measure the amount of coast that happens near the Show Position.
- ④ The coast is now calculated and the Show Position set. The lift now goes down to the Show Position, which should be where the process started.

### Clear Show Position (Method 1)

- ① Put the lift at the show position using the Main Down button.
- ② Press and hold Key in the Up position.
- ③ Continue holding until lift starts moving up (approx. 5 sec, Key can be released anytime after movement starts). The lift will move up for .75 seconds then stop. This indicates the Show Position is cleared.

**Note that once the Show Position is cleared, the Key Switch no longer works! (See the operation above where Show Position is not yet set.)**

### Clear Show Position (Method 2)

- ① Press and hold Key in Down position to get lift to bottom limit.
- ② Release the Key.
- ③ Again, press and hold Key in the Down position.
- ④ Continue holding until lift starts moving up (approx. 5 sec, Key can be released anytime after movement starts). The lift will move up for .7 seconds then stop. This indicates the Show Position is cleared.

**Note that once the Show Position is cleared, the Key Switch no longer works!**

"Main" refers to commands sent via the wall switch or main channel commands sent via IR or RF remote through the RP Bus.

The Up and Down limit switches shown in the drawing are for setting the "Up" and "Fully Down." These can be adjusted manually by loosening or tightening the screws to increase or reduce the travel.

