

LCD-1S LIFT

INSTALLATION MANUAL

SVS, Inc.

LIFTING YOUR IMAGE

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<p style="text-align: center;">LCD-1 LIFT INSTALLATION INSTRUCTIONS</p>

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PLEASE READ THROUGH ALL INSTRUCTIONS BEFORE PROCEEDING.

1. PRELIMINARY CHECKS AND CONSIDERATIONS FOR PLACEMENT OF LIFT.

Beginning installation, check the dimensions of projector or equipment to be mounted, against the available space within the lift. Be sure to include the lens or any accessory which may add to the overall dimensions of the equipment. Maximum projector dimensions that the Lift will accommodate are **17" Width (43.18 cm) X 22" Depth (55.88 cm) X 8.75" Height (22.22 cm)** -see figure 1.

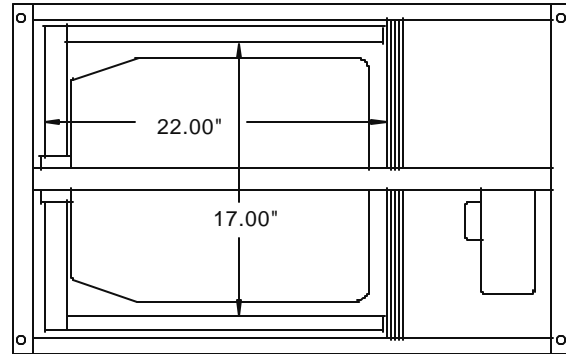


Figure 1.

Preliminary measurements should be made to layout the orientation of projector to screen and projector to lift.

The lens, on many projectors, is not centered and will affect placement of lift. Consideration must also be given to the placement of projector when the lift is in the down position. In the design of the lift, the platform and framework to which the projector attaches, lowers down and away from screen. This places the projector **4 inches (10.16 cm)** further from the screen in its down position, in comparison with its closed position -see figure 2.

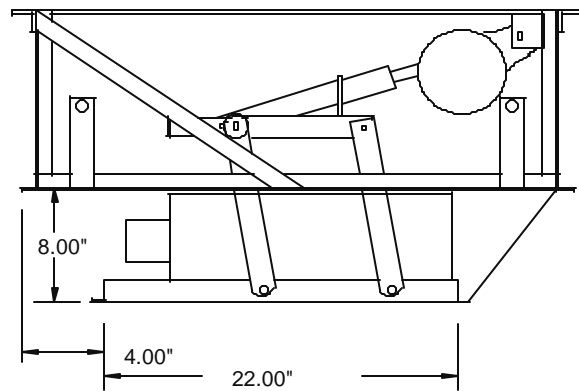


Figure 2.

Placement of the lift in a 2x2 ceiling framework:

When installing the LCD-1S Lift in the existing 2'x2' ceiling framework, only the width of the lift will fit between the 23" distance between the standard "T" rods. The depth required to install the LCD-1 Lift will need to be 35.5" (or 35" if using existing ceiling trim). If the supplied SVS trim ring cannot be used, you can still cut the front and back sections and attach them to the side runners -see figure 3.

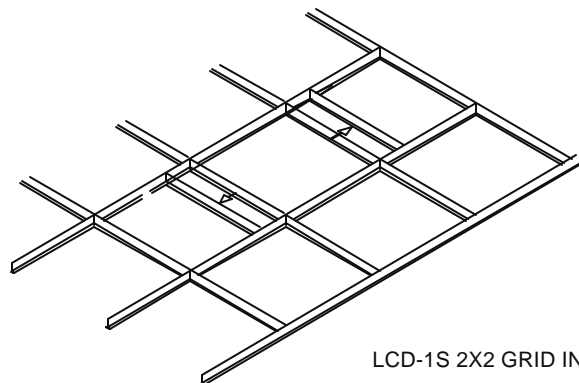


Figure 3.

The "T" rods should lap over the ceiling frame by ½" but should not touch the bottom panel of the lift. If the SVS shroud is installed on the existing ceiling framework, the shroud will sit on the outside of each T-Rod and the bottom of the shroud must be cut at the intersection of the T-Rods in order to have a tight fit when resting on the ceiling tile.

2. SPACE REQUIREMENTS AND CUTTING THE HOLE IN THE CEILING:

- a. Once the location of the lift is determined, it is necessary to verify that there is sufficient space above the ceiling to accommodate the lift and that nothing will interfere with its operation. Sometimes it is necessary to cut a small inspection hole to confirm available space and beam placement.
- b. The minimum space required is **23.375" W (59.37 cm) X 35½" D (90.17 cm) X 11¾" H (29.84 cm)** when using the supplied SVS trim ring or **22.88" Wide (58.11 cm) x 35" Deep (88.9 cm)** when using the existing trim ring.
If the accessory shroud is used, the dimensions are **24¼" W (61.60 cm) X 35.82 "D (90.98 cm) X 12" H (30.48 cm)**. Height is measured from the finished ceiling up. The bottom frame on lift should be flush (even) with finished ceiling when install is complete.
- c. When working with a new construction, required space, lift support, and necessary feeds (i.e. low voltage control lines, audio/video control and power supplies) should be considered or installed prior to the finished ceiling installation. It is also beneficial to have the lift and other components on hand to verify specific dimensions and orientation.
In most cases, when dealing with a wood structure, at least one floor/ ceiling beam will need to be cut and resupported. Main support beams or main load bearing beams should not be cut , notched , or modified as this will affect the integrity of the structure. **Always follow local and national codes in the modification of any structure.**
- d. Once the exact location is finalized, mark-out and cut the hole in ceiling. Ceiling opening must be cut straight, square, and with very little variation from designated size.

CUT SIZE FOR LIFT ONLY	CUT SIZE FOR LIFT ONLY
(Using Supplied SVS Trim Ring)	(Using Existing Ceiling Trim)
23.375" Wide x 35½" Deep	22.88" Wide x 35" Deep
59.37 cm W x 90.17 cm D	58.11 cm W x 88.9 cm D
 CUT SIZE FOR LIFT AND SHROUD	
24¼" Wide X 35.82" Deep	
61.60 cm W X 90.98 cm D	

Caution must be used when cutting into areas which could conceal pipes, wiring, or other hazards. If the floor/ ceiling supports need to be cut and resupported, routing of audio, video, control and power cables should be considered in this process. Cutting of beams could open-up potential pathways for "fishing" cabling to lift and equipment. Installing headers or resupporting beams before considering this could make the running of the necessary feeds more difficult.

- e. Once the hole has been cut to size, trial fit the trim ring (which is supplied with lift) in the ceiling opening. With the trim ring in place, measure for squareness and check to make sure the trim's finished face covers the ruff cut hole. If a shroud is used, also trial fit shroud. This will reveal whether enough height is available. When proper fit has been achieved, remove items and continue.

3. MOUNTING METHODS AND SUPPORT RECOMMENDATIONS :

The support of the lift can be approached in two ways. One method would be to utilize the holes supplied in the top frame of lift. Another method would be to fasten the unit in from the sides using the side support tabs. Typically top mounting holes can be used when there is sufficient height available for using mounting channels such as unistrut, which span the distance to other support beams in the vicinity of the lift. Top mounting can also be utilized when structure, that is directly above the unit, is capable of supporting the required load and can be easily modified to provide four mounting points or rods. Side mounting tabs are intended for low profile installs or situations where beams are readily available at or around ceiling height. This is typically the case with wood structures or when the ceiling space has been boxed in.

A. TOP MOUNTING:

Line up and install support structure which will accommodate four 3/8" threaded rods spaced at **21" wide (53.34 cm) x 34½" deep (87.63cm)** -see figure 4. The location of these rods within the ceiling opening will be centered and equally spaced for each dimension. The rods should extend to within 10½" (26.67cm) of the finished face of ceiling. If the length of the rods exceeds 24" (60.96cm) from support structure to the lift mounting points, it may be necessary to install lateral bracing at lift height or cross bracing between the rods to increase the stability of the installation.

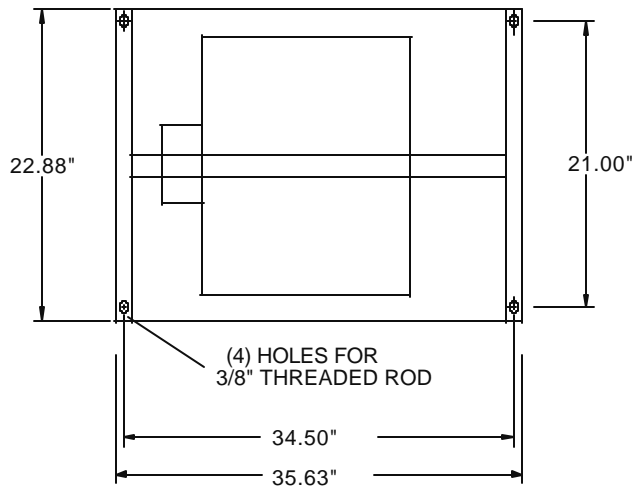


Figure 4.

B. SIDE MOUNTING:

Line up and install support structure along both sides of lift and flush with ceiling opening sides. Structure should be able to provide a secure mounting point at approximately 5½" (13.97 cm) up from finished ceiling and 4" (10.16cm) in from ends. SVS, Inc. recommends the mounting structure to be capable of supporting a minimum of four times the weight of the projector and lift combined. Always adhere to local and national codes throughout all aspects of lift install.

4. SHROUD INSTALLATION:

If a shroud is used, determine the location of any holes that might be required for cabling and drill or cut shroud as necessary. The back 1/3 of the shroud is the preferred location for penetrations, taking into account the location of the lift framework and mountings. A hole saw is an effective tool for this modification. It may be necessary to seal these holes after install is finished -see **figure 5**.

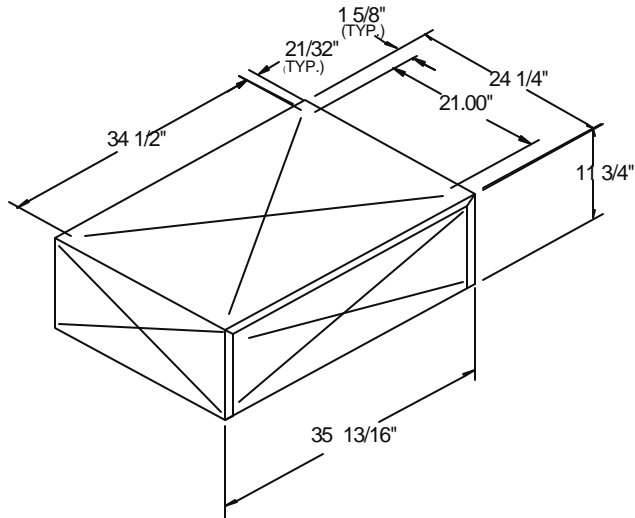


Figure 5.

WARNING! Always make sure all power cords and cabling are protected from sharp edges. Electrical grommets or bushings should be used for all shroud penetrations.

- a. Install shroud by sliding housing up into the hole until the bottom open end is flush with finished ceiling.
- b. Secure shroud by sliding keeper clips over 3/8" threaded rods until clips support shroud at proper height. If top mounting is not used, secure shroud to the side supports with appropriate screws. Do not install screws in the same location as the side support tabs on lift, as this could interfere with the mounting of lift. When applicable, painting interior of shroud should take place prior to installation to prevent paint over spray on ceiling.

5. PREPARATION OF LIFT FOR INSTALLATION:

- a. To prepare the lift for installation, position lift upside down with closure panel facing up.
- b. Using a 5/32" allen wrench, remove the seven stainless steel screws which secure the closure panel to the inner framework.
- c. Carefully turn lift on its side and swing hinged panel out and away from lift. This will allow for access to mounting points when inserting the lift into ceiling cavity. If access or install is awkward and difficult, the panel may be completely removed by unbolting the rear hinge from the main frame. This hinge is attached with 8 -10/32 x1/2 HXHDZ/P machine screws and can be removed using a 5/16" wrench and a 3/8" wrench.

6. INSTALLING THE LIFT IN CEILING AND MOUNTING OF THE TRIM RING:

The Lift can now be installed in ceiling. Using two people:

- a. Raise and turn lift carefully, allowing closure panel to hang freely. While raising the lift into place, it may be necessary to guide previously installed cables through the frame of the lift. Make sure not to position the cables in an area that will conflict with the motion of the lift.

- b. Insert lift into the ceiling and secure to upper threaded rods or to side mounting tabs. It is important to use locking nuts and washers to ensure a safe installation. When adjusting and leveling lift within the ceiling, do not warp or distort frame of lift by creating stress between opposing fasteners. When mounting to the top frame, and using nuts above and below the frame, always leave top nuts loose until final adjustment is complete and then secure top nuts. It is important not to over tighten fasteners, as this will greatly reduce their strength.

Note: The bottom frame of the lift should be flush with finished ceiling after final adjustment and tightening. Lift should be centered in the hole and have a **1/4" gap (0.635cm)** between frame of lift and ceiling hole. When a shroud is used, a **1/4" gap (0.635cm)** should exist between lift frame and shroud. This gap is to accommodate the trim ring, which is used to cover rough cut hole and to dress out the lift frame.

If side mounting tabs are used, the vertical placement of lift must be accurate. There are two holes in each mounting tab. A small fastener can be placed in the lower hole of each tab as a preliminary mounting. Once the proper height is achieved, a **3/8"** fastener can be secured through the upper hole of each of the four side mounting tabs. Side mounting tabs can be drawn out up to **3/8" (0.9525cm)** to the side supports. If a gap of more than **3/8" (0.9525cm)** exists, a spacer should be used between mounting tab and side support to prevent distorting the bottom frame of the lift. Do not reinstall hinged panel until the electrical connections are made and mounting of the projector has been considered.

- c. Trim ring can now be installed. Insert ring to the outside of lift frame and push up into gap until face is tight to finished ceiling and to lift frame. The sheet metal tabs which extend up from the ring can then be fastened to the interior of the shroud or to the perimeter beam supports.

If installed in a drop tile ceiling, the ring can be supported by wire hangers in the same manner as the rest of the ceiling. It is usually a good idea to leave the blue tape in place until installation is near completion to avoid scratching painted surface.

7. ELECTRICAL WIRING, MOTOR SPECIFICATIONS AND LIFT CONTROL:

Electrical connections should be made at this time. Field wiring to the lift must comply with the National Electrical Code, and local electrical codes in effect. In particular, refer to Article 430 (Motor, Motor Circuits and controllers) of the NEC. Lift should be grounded by use of separate grounding conductor, connected to the green wire. Whenever possible, Lift should be powered from a separate branch circuit of adequate capacity to keep voltage drop to a minimum. Do not use a wire smaller than # 14 AWG. Extended wire runs may require heavier gauge wire. For motor specifications- see **fig. 6 below**.

MOTOR HP 1/10 VOLTS 115 HZ 60 AMPS 1.4 PH 1 INS CL B AUTOMATIC THERMAL PROTECTION

**Motor Specifications
Figure 6.**

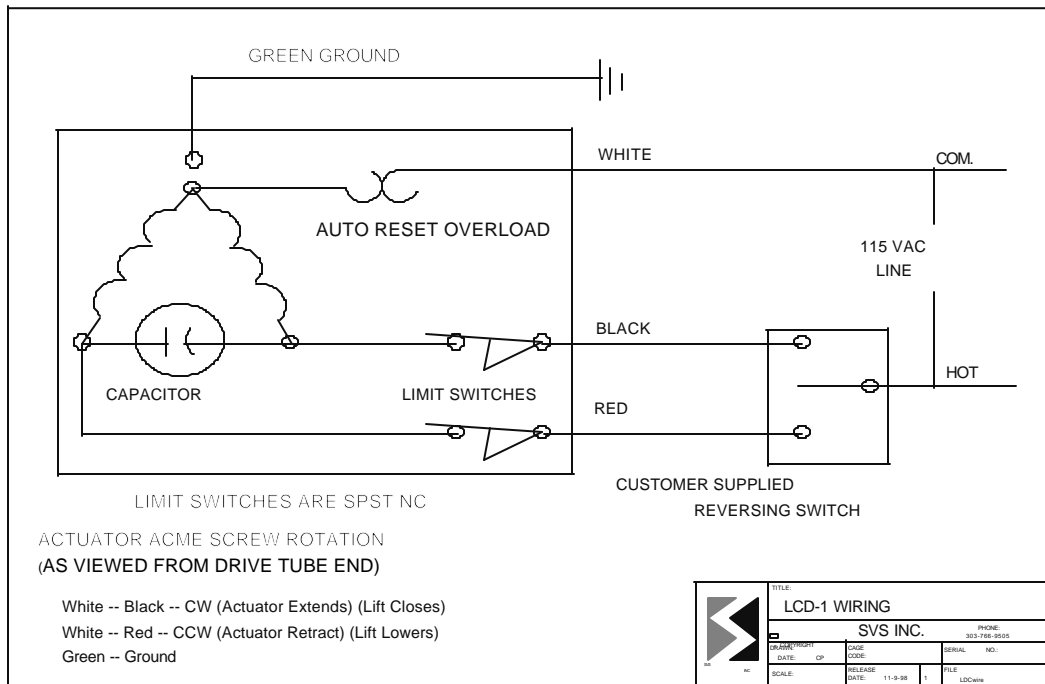


Figure 7.

- a. Make wiring connections to Lift according to the diagram in **figure 7**. A junction box will need to be installed within 12" (30.48 cm) of motor to make a proper connection to the motor cord.

There are many ways in which the Lift may be controlled. A **three position wall switch** that uses the middle position as the off, is one method. Using a **touch screen controller** is another. When using a touch screen, program a lockout between the up and down so both the up and down cannot be activated at the same time. Voltage must be applied and maintained until either full up or full down is achieved. Program a time out just beyond the normal run time of the lift in both the up and the down modes. This will provide additional protection to the Lift mechanism and motor. Regardless of the type of controller being used, install a shut-off or stop switch in close proximity to the Lift which will immediately stop the lift operation.

WARNING! The Actuator motor is provided with internal automatic reset thermal protection. If the unit malfunctions, always shut off power to Lift prior to troubleshooting or servicing. Otherwise, the Lift could start unexpectedly and create a potentially hazardous situation.

- b. After electrical connections have been made, locate the two angled runners on each side of Lift, and make sure the bearing rollers are still properly positioned with the runner tracking in the groove of rollers. With the closure panel still unattached, carefully lower the Lift to the full down position. The lift mechanism will stop automatically via limit switches internal to the actuator. Care must be taken not to pinch any unattached cabling.

8. MOUNTING THE PROJECTOR:

The projector can be mounted in two ways, either inverted or platform mounting.

- a. Inverted Mounting:** It can be accomplished by using the supplied channel brackets. These brackets are attached to the projector using feet mounting locations or other secure points commonly available depending on the projector model. Drilling of bracket is required -see figure 8, 9 and 10.

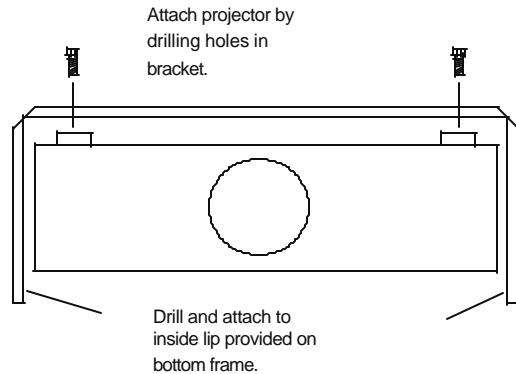


Figure 8.

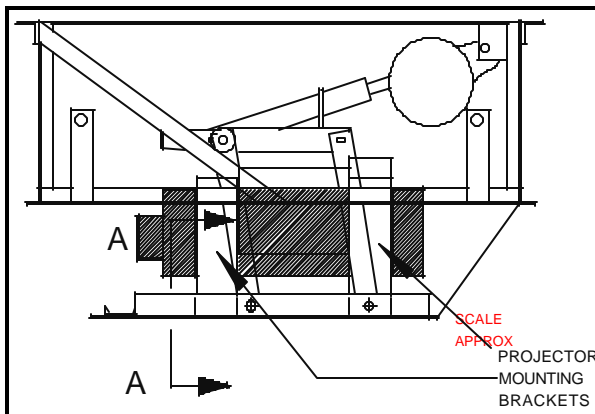


Figure 9.

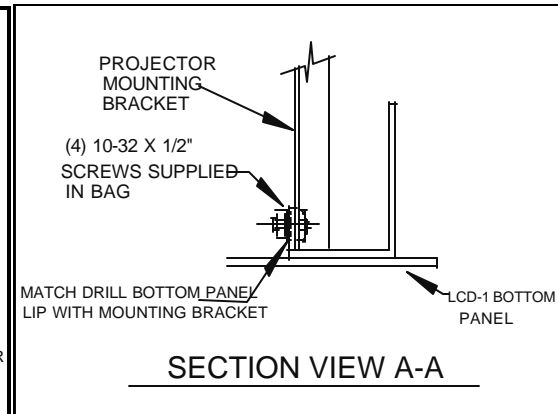


Figure 10.

Once these brackets are mounted to the projector, the assembly can be slid onto the bottom panel framework which extends down from the ceiling. This is accomplished by tilting the frame forward and inserting assembly between the four pivoting flat bar supports. Do not loosen or remove the eight bolts which are located at the ends of the four flat bars that connect the closure framework to the upper sliding frame. These fasteners must maintain a torque spec of 25 in lbs. With the projector and channel assembly resting on the side rails, pivot bottom frame back to level. Position the projector and channel assembly so that it does not extend beyond the front or back of the bottom closure frame.

Clamp this assembly to the outside of the 1/2" rib which runs along each side of frame and drill two 3/16" holes through each junction of mounting channel and rib. Use the eight 10-32 x 1/2" bolts and keep nuts supplied with Lift to finish securing projector mount. Hinged panel can now be reattached to closure frame.

- b. Platform mounting:** It is achieved by resecuring the bottom closure panel to the inner framework extending down from ceiling. Projector can be set directly on the inside of panel, within the frame and flat bar supports. Adhesive backed hook and loop fasteners can be placed between the feet of projector and panel to maintain positioning. The orientation of projector to Lift is consistent with hanging mount -see figure 1.

Note: Power and input cables should be routed and connected to projector prior to operating Lift. This is to avoid pinching and damaging them.

Cabling should be routed to the rear of Lift along hinged panel. This path will mirror the motion of the Lift and keep flexing and twisting to a minimum. Before finalizing cable placement, double check that rollers are still on track and carefully run Lift through its complete motion while checking all clearances between projector, cabling, Lift and surrounding structure. When operating the Lift, always allow the Lift's motion to stop completely before reversing. After determining sufficient clearance in all areas, affix cables. Run the Lift through several cycles to ensure proper operation.

TILT OPERATION AND ADJUSTMENT:

As the Lift descends to the full down position, the actuator tube separates from the roller framework and pivots upward. This separation is restricted by a cable strung over the tube and restrained on one end within a slip tube, and the other end through a clamp. The greater the distance between the tube and framework, the lesser the degree of tilt.

Tilt is set at the factory at 0°. The Lift will accommodate settings up to **15 ° of downward tilt**. If tilt adjustment is necessary, lower the Lift and locate the **3/16" cable** which extends over the middle of the actuator tube and through a cable clamp on one end. Shortening cable which extends over the tube by **1/2" (1.27cm)** will allow for approximately **2 1/2° of tilt**. Shortening the cable by **1" (2.54cm)** allows for **5° of tilt**, etc.

Cable is adjusted by loosening the clamp with a **7/16" wrench or socket** and pulling the loose end farther through the clamp, thus shortening the portion of cable as it extends over the tube. After adjusting tilt, run the Lift through a cycle to see if desired tilt was achieved. If not repeat procedure until the proper image placement or degree of tilt is obtained -**see figure 11 for tilt cable location and platform torque adjustment.**

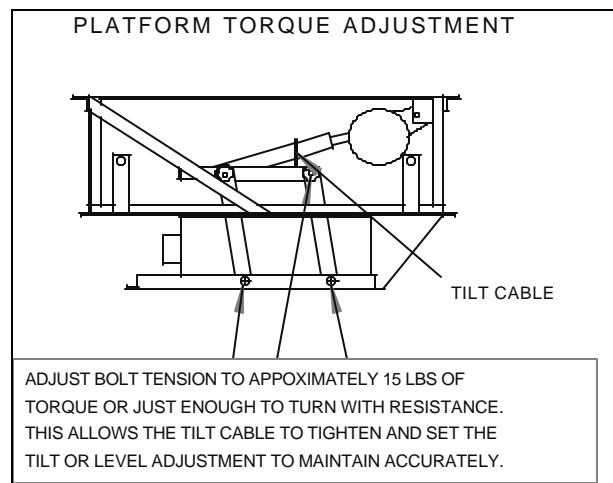


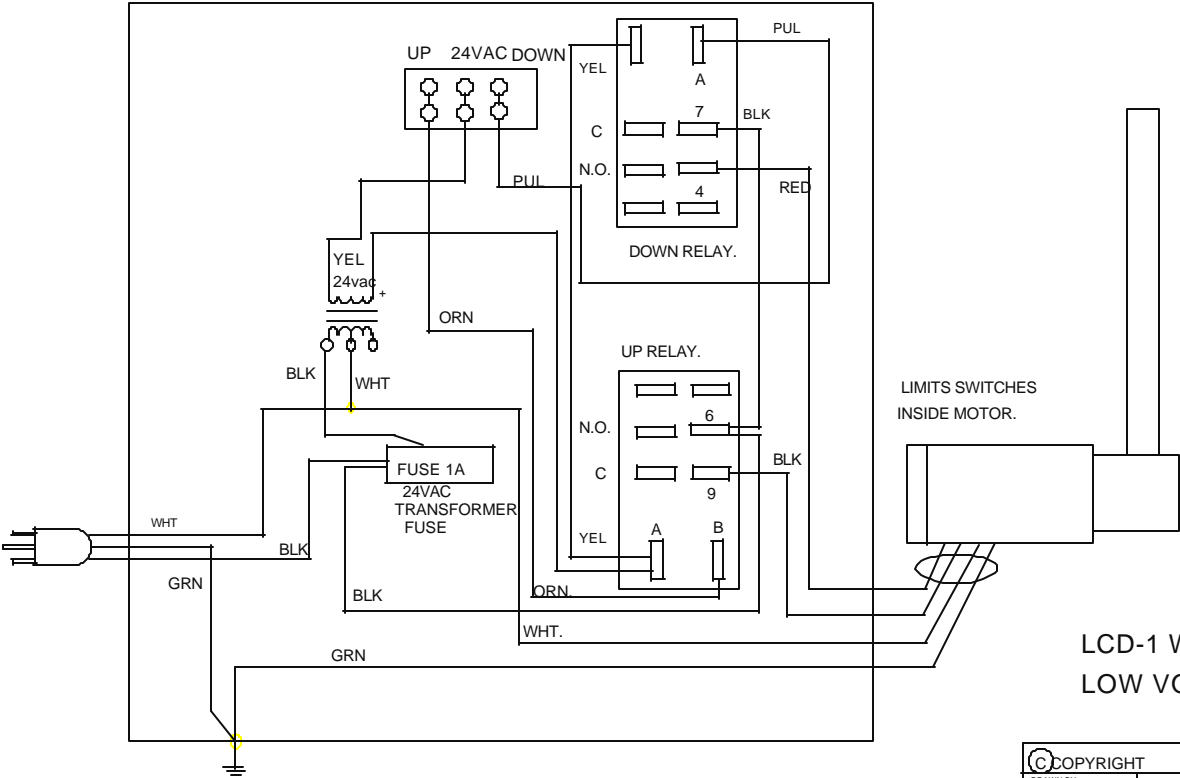
Figure 11.

After completing installation, review manual and all phases of Lift operation. This manual is not intended to cover all possible conditions and situations as they may relate to this product. It must be understood that common sense and caution are necessary factors in the installation and operation of this Lift.

LCD-1 WIRING SPECIFICATIONS

CONNECT THE 24VAC TO THE DOWN TERMINAL AND THE LIFT WILL GO DOWN TO THE SHOW POSITION.

CONNECT THE 24VAC TO THE UP TERMINAL AND THE LIFT WILL RAISE TO THE CLOSE POSITION.

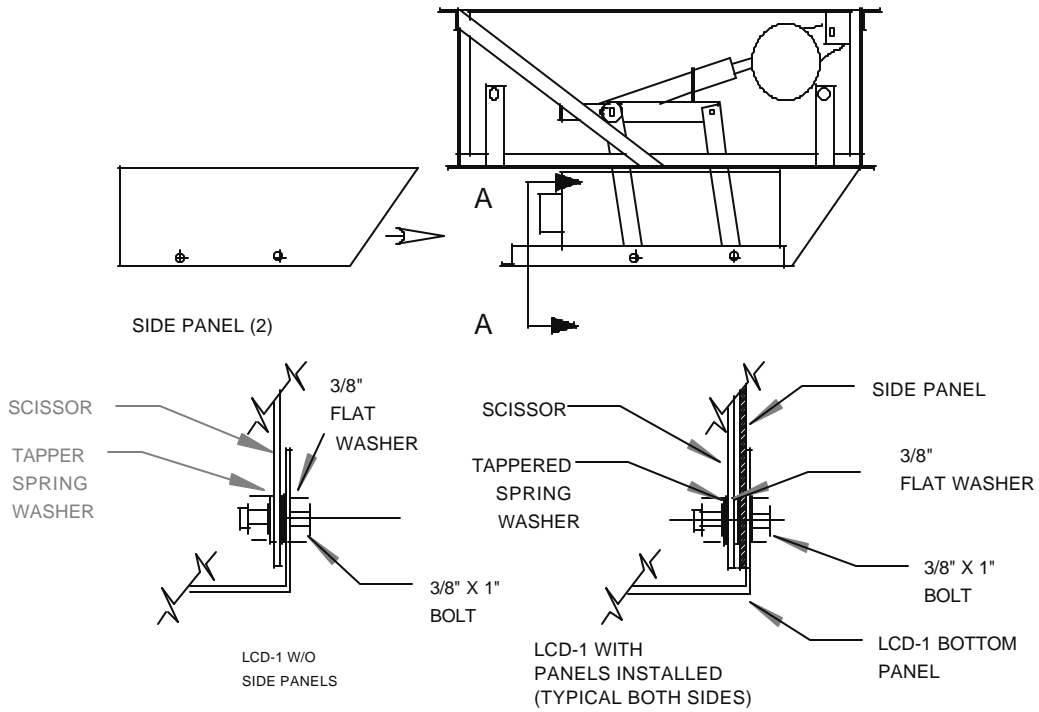


LCD-1 WIRING FOR LOW VOLTAGE

COPYRIGHT		SVS, INC.	
DRAWN BY:	C.H.	8-01	PROJECT
CHECK BY:	C.H.	1-01	LCD PROJECTOR LIFT
DESIGNED BY:	SVS, INC.	2-98	DRAWING NO. DESCRIPTION
CAGE CODE:	OKPR7	2-89	LCDLV LOW VOLTAGE
PHONE	303-766-9505	REVISION	RELEASE DATE SER # AND UP
		2	1-01 200

Accessory #17: LCD-1S Side Panels

LCD-1 SIDE PANEL INSTALLATION



SECTION VIEW A-A

COPYRIGHT		SVS INC.	
DRAWN BY:	W. S.	MODEL LCD-1	
CHECKED BY:		DRAWING NO.	DESCRIPTION
DESIGNED BY:	SVS		
CAGE CODE:		SERIAL NO.	RELEASE DATE rev 1 12-99
PHONE	303-766-9505		

SVS LCD-1S Lift Warranty

Service Labor: SVS, Inc. provides factory labor warranty 90 days from the ship date (invoice date).

Parts: SVS, Inc. will provide new or rebuilt replacement parts for the parts that failed due to defects in materials or workmanship for a period of one (1) year from the invoice effective date. Proof of date of original purchase will be required before warranty performance is rendered.

This warranty only covers failures due to defects in materials or workmanship which occur during normal use. It does not cover failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, modification or service by anyone other than a factory authorized person or company.

Please contact SVS, Inc. by phone or fax for return authorization. Unit can then be shipped to the factory, adequately insured, with shipping cost prepaid. COD not accepted on return shipments to SVS.

_____ Cut-Here _____

WARRANTY CARD

CUSTOMER NAME _____
ADDRESS _____
CITY _____ ST _____ ZIP _____
PHONE _____

SERIAL # _____
MODEL # LCD-1S
DATE PURCHASED _____
DATE INSTALLED _____

PURCHASED FROM _____
DEALER NAME _____
ADDRESS _____
CITY _____ ST _____ ZIP _____
PHONE _____

SEND TO: SVS, INC
2513 Jenks Avenue
Panama City, FL 32405

PHONE: 850-522-4747
FAX: 850-522-4739

CARD MUST BE SENT IN WITHIN 10 DAYS FROM DATE OF INVOICE