



**950/1000 lb HYDRARIDE
ROPED HYDRAULIC ELEVATOR
With UC601 CONTROL SYSTEM
MECHANICAL INSTALLATION
INSTRUCTIONS**

**ELEVATOR INSTALLERS MUST INSTALL THIS ELEVATOR
AND ALL ITS COMBINED EQUIPMENT TO COMPLY WITH
ASME A17.1, N.E.C., AND ALL APPLICABLE NATIONAL,
STATE, AND LOCAL CODES.**

**601 Gibson Blvd.
HARRISBURG, PA 17104
PHONE: 1-800-343-9007 (M-F 8am-5pm EST)
FAX: 717-939-8076 / 8075
www.inclinators.com**

READ AND UNDERSTAND

Extreme caution should be used when working in the shaft or on the equipment. Hydraulic elevators move virtually silent. The fluids are under high pressure and the mechanical advantage is great. Therefore, never work in the shaft unless pit, top of car, and overrun switches are installed and working properly. Never work in the shaft unless the power is off. When working under car always brace under each side of car with 4 x 4's or equivalent. Only qualified electrical and hydraulic personnel should install this equipment.

NOTE: THERE ARE SEVERAL PARTS AND TOOLS NECESSARY FOR INSTALLATION OF THIS EQUIPMENT THAT ARE NOT PROVIDED. READ INSTRUCTIONS AND NOTE.

NEVER OPERATE THIS ELEVATOR ON TEMPORARY POWER. CHECK VOLTAGE AGAINST FACTORY CONTROLLER LABEL.

ELEVATOR INSTALLERS MUST INSTALL THIS ELEVATOR AND ALL ITS COMBINED EQUIPMENT TO COMPLY WITH ASME A17.1, N.E.C., AND ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES.

CONTROLLERS ARE DESIGNED FOR INDOOR USE ONLY. NEVER INSTALL CONTROLLERS WHERE THEY WILL BE EXPOSED TO THE ELEMENTS.

***BE CAREFUL!
SHOULD YOU HAVE A QUESTION,
CALL THE FACTORY!***

**INCLINATOR COMPANY OF AMERICA
601 GIBSON BLVD.
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CAUTION

FAMILIARIZE YOURSELF WITH THESE INSTRUCTIONS

THIS ELEVATOR MUST BE INSTALLED TO COMPLY WITH ALL NATIONAL, STATE, AND LOCAL CODES.

- Installers are cautioned that there are many potential hazards involved in the installation of Elevators and Dumbwaiters. Accidents may be disabling or fatal. Installers should be reminded of the hazards involved.
- Installers should never work alone. There are safety in numbers. Installers should always be aware of their fellow installers presence and the area in which they are working.
- Installers should be properly clothed before starting the installation. Wearing loose clothing should be avoided. Keep all buttons, particularly ones on cuffs, buttoned at all times.
- Installers should be aware of the fact that objects may fall in a shaftway at any time. Proper head protection should be worn.
- Shaft doors should be locked or nailed shut any time an area is left unattended and door interlocks are not installed.
- Extreme care should be exercised when working overhead, in the pit, or around an elevator platform when power is applied.
- Power should be removed from the controller and operating systems before any electrical work is attempted.
- Installers should never enter an elevator pit when it contains water or work in a machine room which has a wet floor. Accidents from electric shock have occurred under these conditions, and sometimes fatal.
- When elevator car is not parked on a switch, and is called or sent, direction of travel cannot be determined.
- All installers should read and understand a current Elevator Safety Handbook prior to installation.
- Turn power off at the 208/240 VAC disconnect, the 110-120 VAC disconnect, and turn off the UPS inside the CPU control enclosure prior to making any adjustments on the elevator.
- Installers should never place themselves in a position where they may be harmed, such as near rotating machinery, between shear points, under heavy objects, etc.
- Installers repairing or adjusting equipment they do not understand should contact the manufacturer prior to making any adjustments or repairs.

NOTE: All statements, technical information and recommendations contained herein are based on data believed to be reliable, but the accuracy or completeness thereof is not guaranteed.

WARNING

- 1. Never run this elevator on temporary power. Make certain power supplied to the elevator system is the same as printed on the face of the controller.**
- 2. When installing elevator, write on the inside of the controller lid the voltage supplied to the elevator when under power on L1 and L2. This will help in troubleshooting later.**
- 3. Never push in contactors to run elevator, use jog switch.**
- 4. Controllers are designed for indoor use only. Never expose the Controller to the elements.**

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IMPORTANT – FAMILIARIZE YOURSELF WITH THESE INSTRUCTIONS

PRE-INSTALLATION CHECK

1. Unpack all boxes and check parts with the packing list that's provided.
2. **Read and understand all instructions!**

NOTE: The three sheave wheels supplied have been pre-lubed at the factory. Keep dirt away from the bearing area while installing.

PREPARATION FOR GUIDE RAIL INSTALLATION

1. Begin by using plumb line and measuring the hoistway to determine the narrowest point between the bottom and top landing. Use this information to verify running clearances and for locating the guide rail.
2. If not installed by general contractor, install a 2" x 12" wood plank against the proper finished wall. The location of the plank centerline is determined by taking half of car's width and adding the running clearance.

Example: 48-inch wide car and a running clearance of 2" would equal a distance of 26" for the location of the 2 x 12 plank off the finished wall:

Car Width/2 + running clearance = location of plank

3. Once the plank location is determined install the 2 x 12 plumb and square extending to the ceiling and securing with recommended 3/8" x 5" lags every 2' - 0" approximately 1" in from each side of plank.

NOTE: Some states require the 2 x 12 plank to be painted with a fire rated paint.



CAUTION

There must be a minimum space of 2 inches between the bottom of the plank and the pit floor for proper installation of the Jack Support Assembly (see Figure 1).

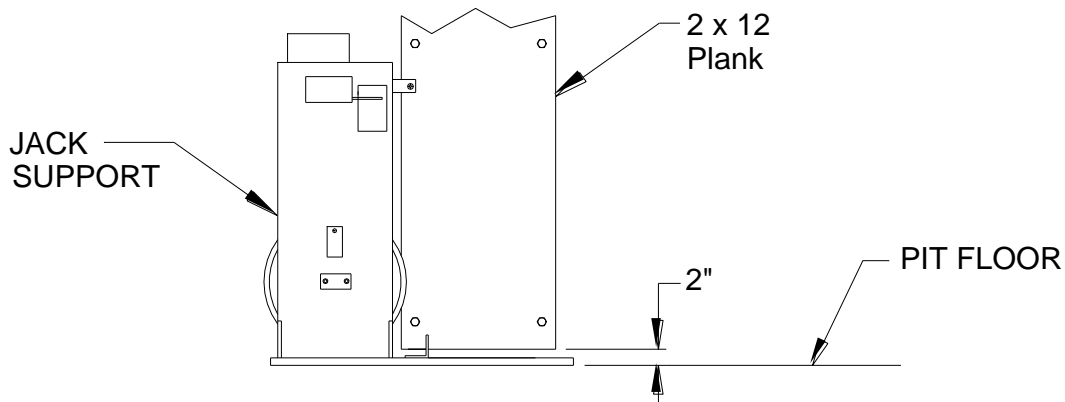


Figure 1

3. Place the Jack Support Assembly bottom plate under the plank and against the wall as shown above. Make certain the support fits solidly against the wall. It may be necessary to chip away concrete at the base of the wall and floor. **Do not anchor the Jack Support until properly located by the steel guide rail and plumbed and leveled.**

RAIL ASSEMBLY

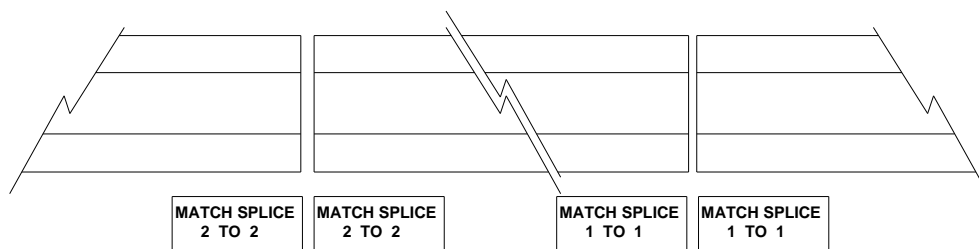
NOTE: IT IS IMPORTANT THAT THE RAILS ARE INSTALLED PROPERLY TO INSURE THE BEST POSSIBLE RIDE.



CAUTION

INSTALL THE TROLLEY AND UPPER AXLE INTO THE BOTTOM SECTION OF RAIL PRIOR TO RAIL INSTALLATION.

1. Locate the numbered labels on the sides of the rail as shown below.



2. The splice number is the number that indicates the sequence in which rails are to be assembled. The smaller the number the closer it is to the bottom of the shaft. The larger the number the closer it is to the top of the shaft. The rail with the lowest number is the first rail to be installed.

NOTE: MAKE CERTAIN WELDED STOP IS AT THE BOTTOM.

EXAMPLE: If there are three rail sections, and two splices then the rail sequence is as shown in Figure 2.

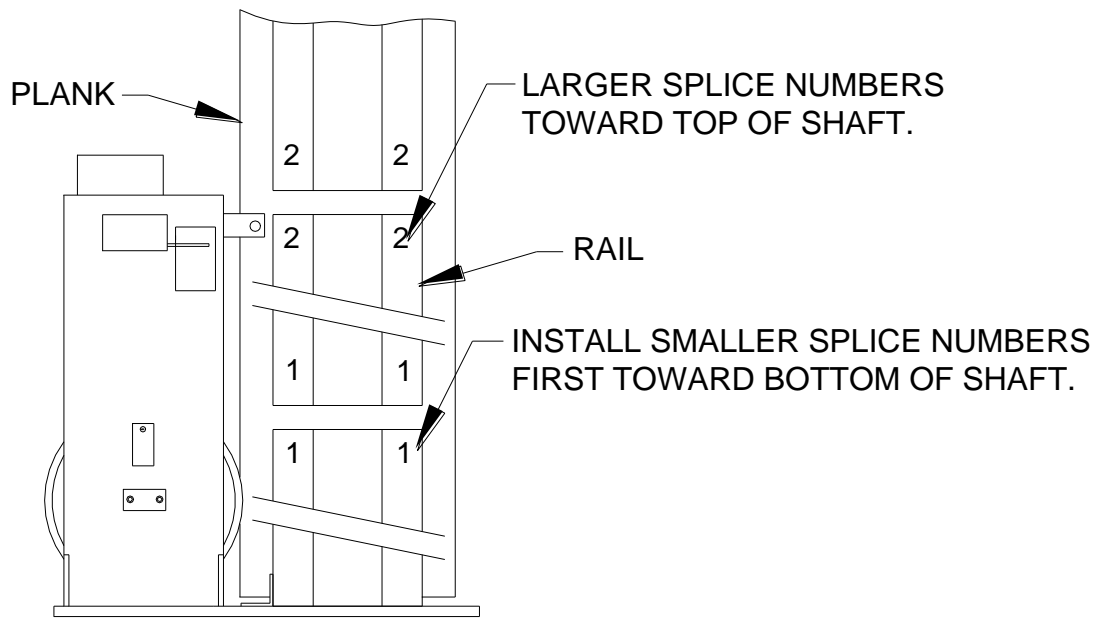
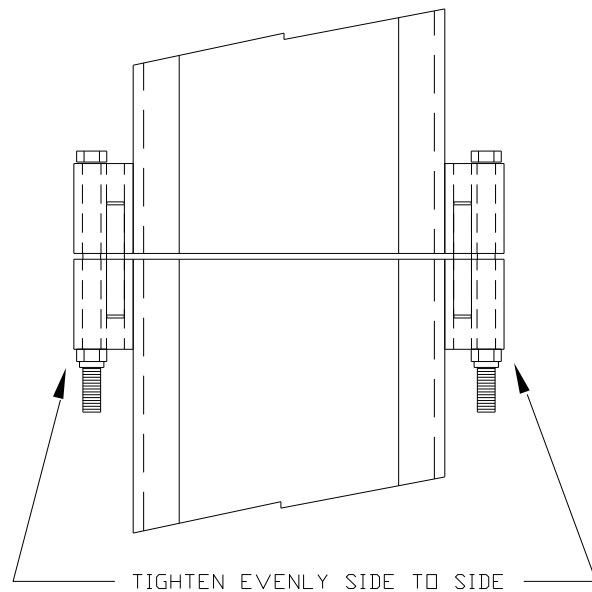
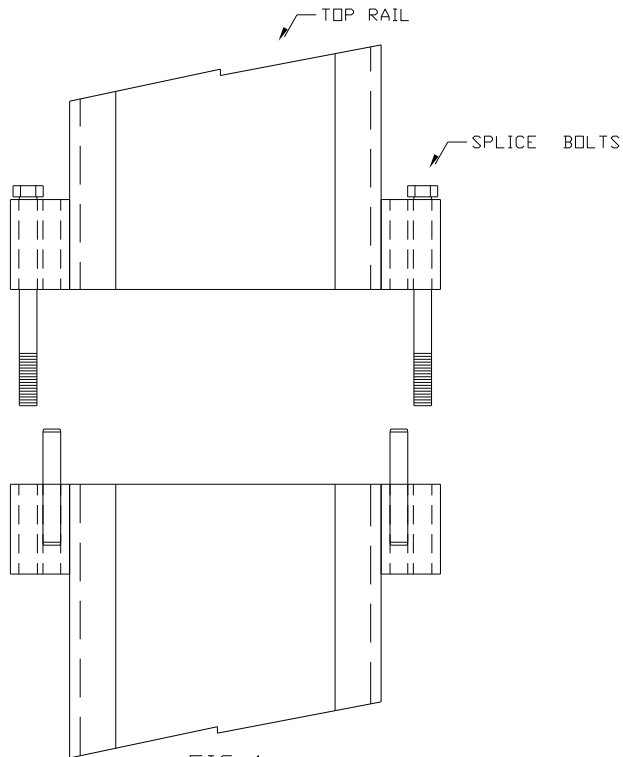


Figure 2

IMPORTANT INFORMATION

RAIL SPLICE PROCEDURE

1. INSTALL BOTTOM RAIL SECTION, DO NOT PLACE RAIL MOUNTING SCREWS IN TOP TWO SETS OF RAIL SCREW HOLES.
2. INSERT A SPLICE BOLT INTO EACH SPLICE BLOCK AS SHOWN. (FIG 1)
3. BOTTOM RAIL CONTAINS FOUR (4) DOWEL PINS SHIPPED IN THE SPLICE BLOCKS. PLACE TOP RAIL, OR NEXT LABELED SECTION OF RAIL OVER AND DOWN ONTO THE DOWEL PINS, GUIDING THE BOLTS THRU THEIR RESPECTIVE HOLES.
4. TO CLOSE THE GAP IN THE RAIL, STRIKE THE HEADS OF THE SPLICE BOLTS WITH A BRASS HAMMER MOVING FROM SIDE TO SIDE TO MOVE THE RAIL SECTIONS TOGETHER ENOUGH TO PUT STOVER NUTS ON THE SPLICE BOLTS.



5. TIGHTEN THE STOVER NUTS DOWN EVENLY ALTERNATING FROM SIDE TO SIDE. (FIG. 20)
6. FINISH DRIVING THE DOWEL PINS DOWN UNTIL THEY ARE FLUSH WITH THE SPLICE BLOCK.
7. INSTALL RAIL MOUNTING SCREWS ON EACH SIDE OF RAIL SPLICE AND IN THE TOP RAIL SECTION.
8. CHECK THE INSIDE RAIL SURFACES AT THE SPLICE LOCATION, IF THESE SURFACES ARE NOT FLUSH, CONTACT INCLINATOR COMPANY.
9. REPEAT THIS PROCEDURE (STEPS 1 THRU 8) FOR MULTIPLE SPLICE JOBS.

NOTE: ALWAYS START AT THE BOTTOM OF THE SHAFT WITH THE SMALLEST SPLICE

NUMBER (UNLESS OTHERWISE SPECIFIED).

- Place rail on jack support assembly. Locate rail centerline by measuring from finished hoistway wall (refer to construction drawing, if available). The distance from the finished wall to rail center will be the sum of half the car width plus the running clearance. Where applicable, always measure from gate side of hoistway.
- With the rail located and plumb, secure to 2 x 12 plank using #14 x 1 3/4" flat head screws provided by factory.



CAUTION

Install both trolley and upper axle into the bottom section of rail before installing the next rail section. See instructions below and Figure 4.

- Install rest of rails in proper sequence.

NOTE: THERE MUST BE AT LEAST 14 INCHES BETWEEN THE TOP OF THE RAIL AND THE TOP OF THE HOISTWAY (to allow for installation of rail sheave). ALL WORKMEN MUST BE WARNED TO KEEP PARTICLES OF DIRT FROM ENTERING THE RAIL AREA.

- Complete installation of Jack Support Assembly by anchoring to pit floor and 2 x 12 plank. Be certain the support is plumb before fastening to floor and plank. Refer to Figure 4.

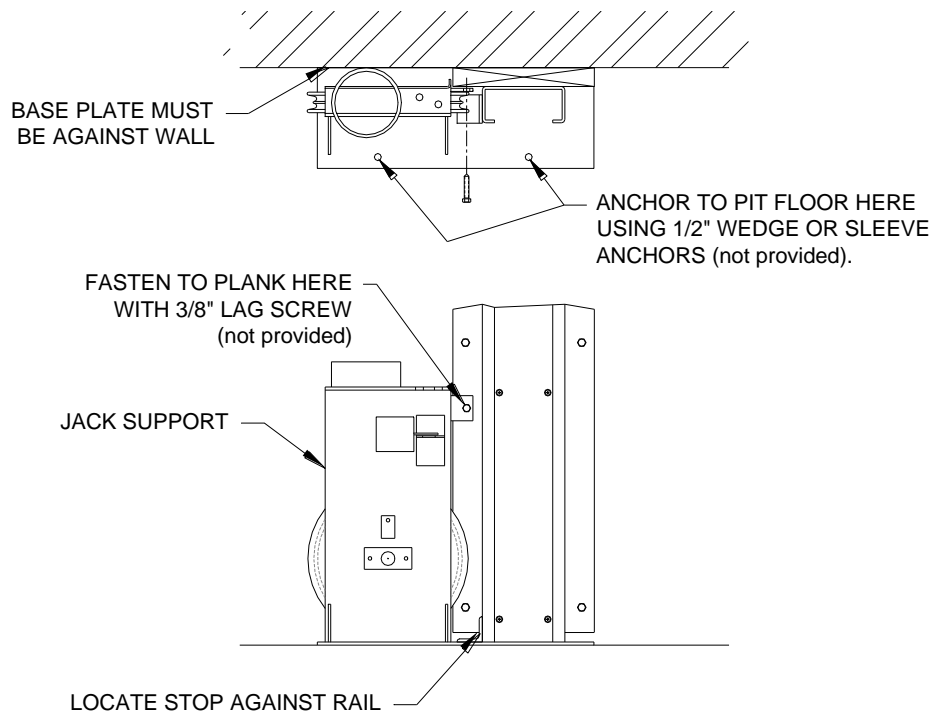


Figure 4

TROLLEY INSTALLATION

1. Note that four (4) slide blocks are supplied. Two slide blocks are located on the upper (loose) axle, and two on the lower axle mounted on the trolley plate (see Figure 5)

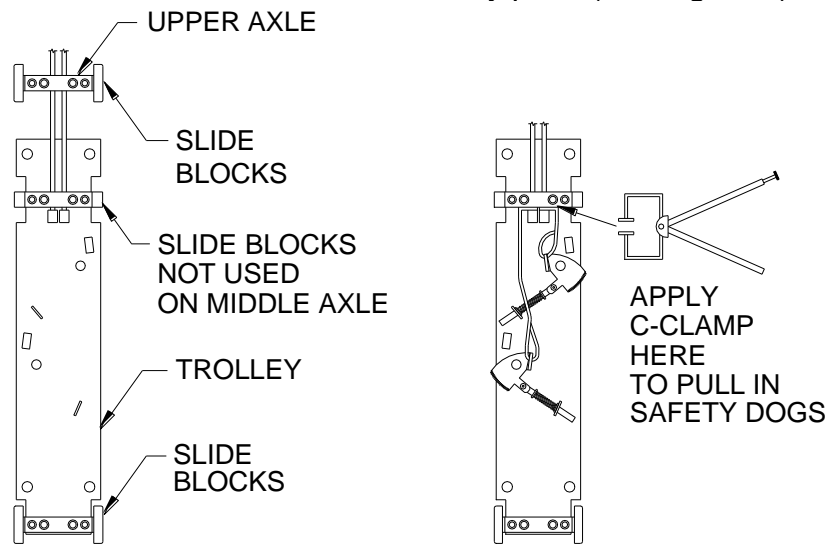


Figure 5

2. Install both trolley and upper axle in the bottom rail section before proceeding with installing the rest of the rail.

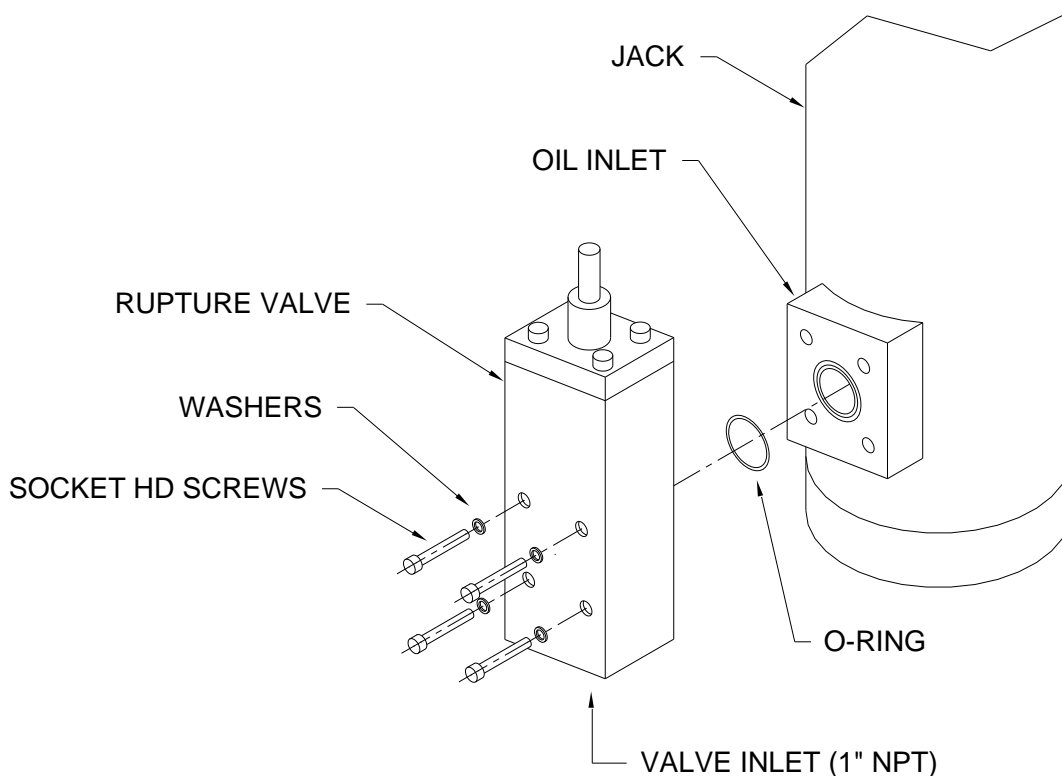
NOTE: TROLLEY SAFETIES WILL NOT ALLOW THE TROLLEY TO SLIDE DOWN THE RAIL. USE VICE GRIPS OR C-CLAMP TO HOLD THE SAFETIES IN.

RUPTURE VALVE INSTALLATION

The line rupture valve has a 1" NPT port. Before installing, determine what adapters will be needed. Reducer bushings are supplied for reducing to either 3/4" or 1/2" NPT. Use pipe thread sealant on threads when installing. Page 13 shows how the rupture valve must be positioned to clear the suspension ropes. Keep this in mind when selecting hydraulic fittings to be used. If necessary, the Rupture valve can be mounted with the adjusting screw pointing down (valve rotated 180°).

1. Remove the protective cap from the valve inlet.
2. On the Jack, remove the protective cover plate and O-Ring (if installed).
3. Install the O-ring supplied with valve into the o-ring groove on the jack port.
4. Mount the valve with the four screws and washers provided with the valve.
5. Tighten all four screws evenly to 14 ft-lbs.

IMPORTANT – The rupture valve must be adjusted after the cab is installed. See page 30 for instructions on adjusting the rupture valve.



JACK INSTALLATION

1. Measure the length of jack cylinder. Using this measurement, measure from Cup on Jack Support Assembly up the shaft wall and make a mark on

the wall (refer to Figure 6). This will be used for locating the jack support strap.

2. Hoist jack into position, placing the bottom of the jack into the cup located on the Jack Support Assembly. Rotate the jack until the rupture valve is located in the position shown below. This position is necessary for the valve to be clear of the car base and cables. Fasten the jack to the wall using the clamp(s) provided.
3. When the jack is plumb, tighten clamp. Foam strips are provided for filling the gap between the jack and the cup on the jack stand.

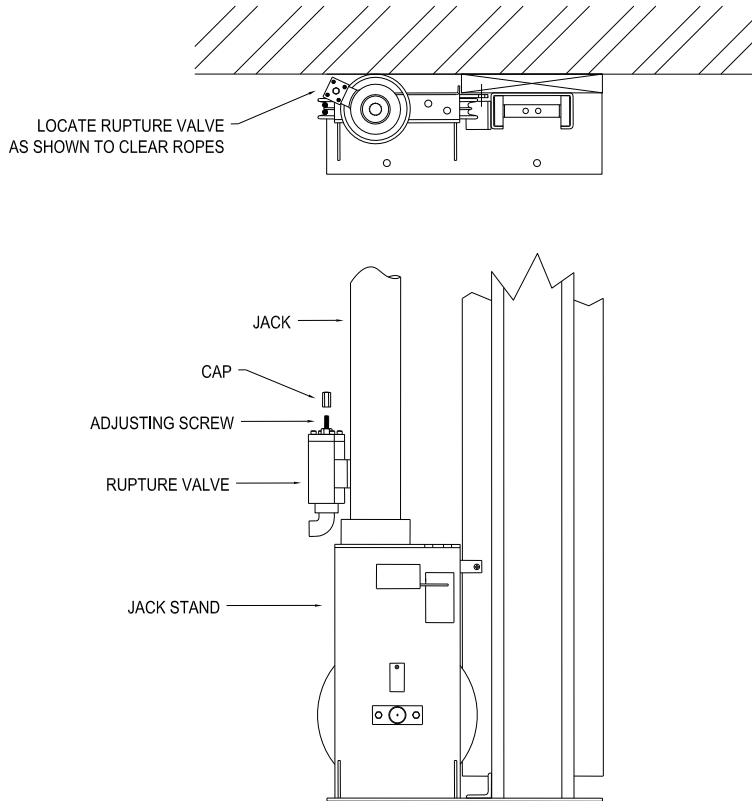


Figure 6

4. Remove the shipping bracket from the end of the piston. Remove the base plate from the cylinder sheave assembly and mount on the piston using the 1 1/8" hex head bolt (see Figure 7), the guide assembly will be toward the wall. The guide assembly should be centered (side to side) on the base plate.
5. With the jack fully collapsed, fasten the two strut channels to the wall by first sliding the lower ends into the guide assembly. The two channels must extend the full travel of the jack and be plumb and parallel from bottom to top. Fasten channels at lower end, then fully extend jack to locate top end of channels. Fasten the channels to the wall using flat head screws (not provided by factory). **The alignment of each channel is very important for the proper working of the jack.**
6. Reassemble the cylinder sheave onto the base plate.

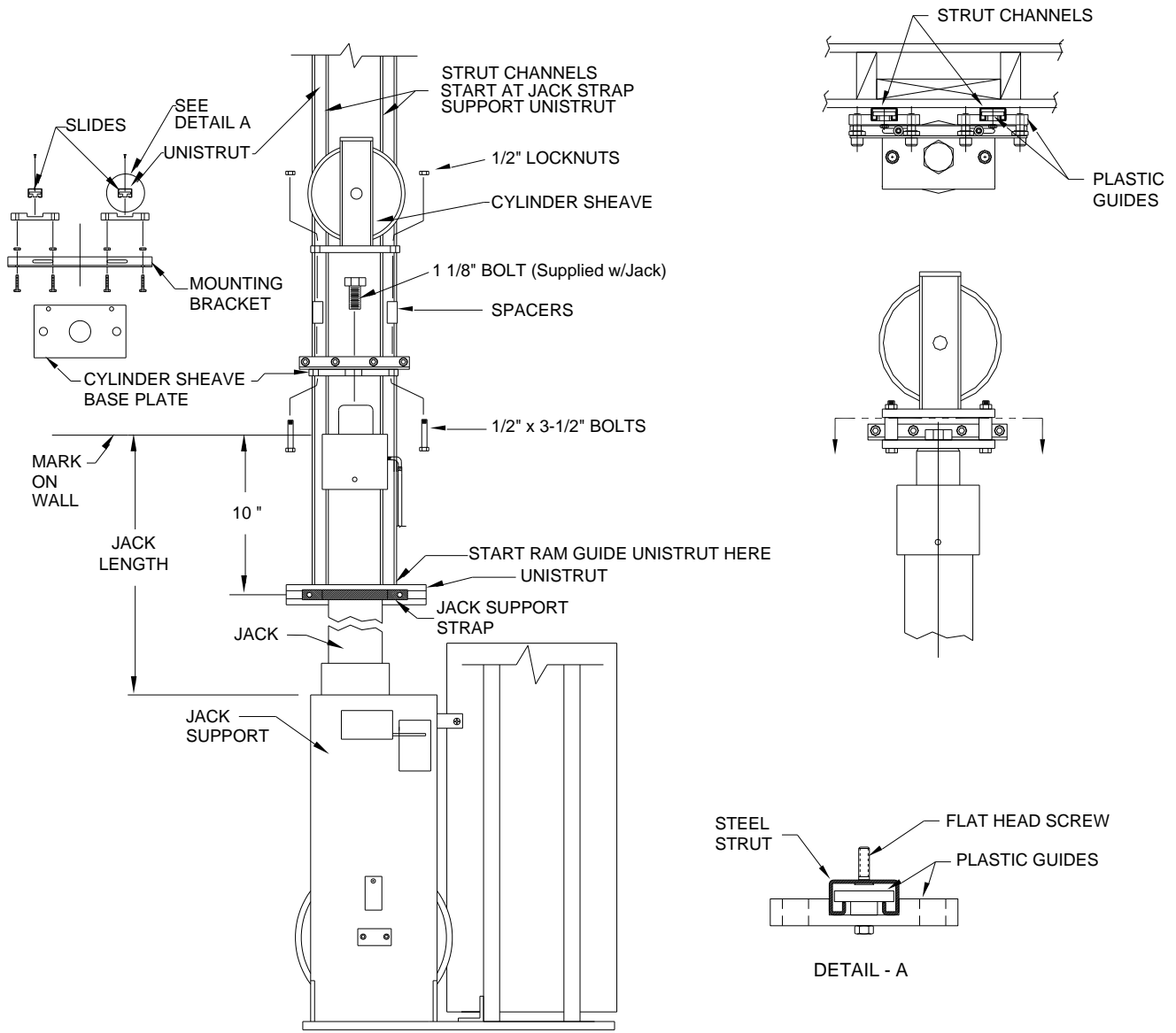


Figure 7

RAIL JAW INSTALLATION

1. Place Rail Jaw Assembly on the top of the rail with the sheave to the left (or jack side) as shown in Figure 8.

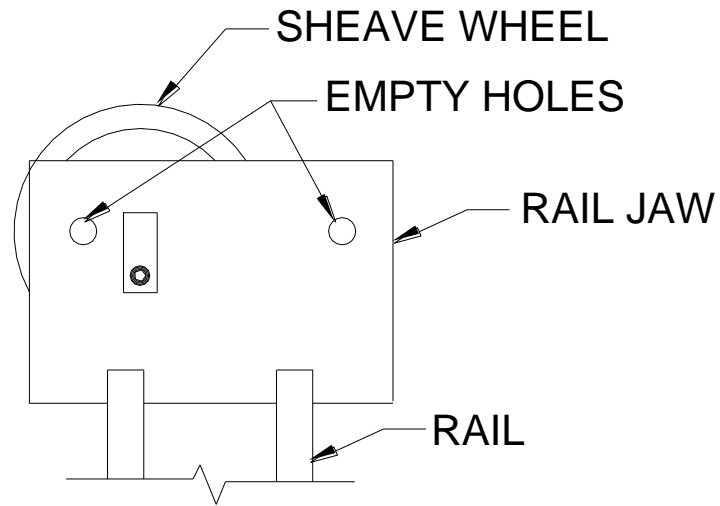


Figure 8

PUMP UNIT INSTALLATION

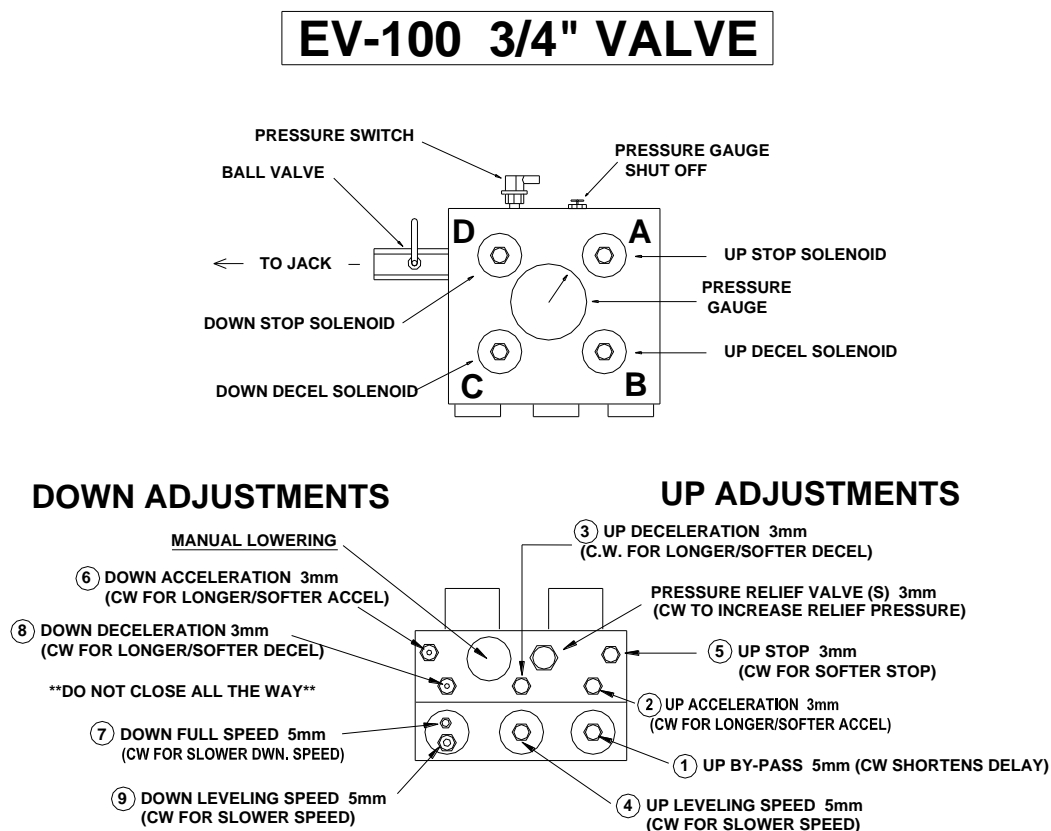
1. Pump unit should be placed in an easily accessible location in the machine room.
2. Four round rubber pads are supplied with the power unit. A pad should be placed under each tank support angle to isolate the tank from the floor. This should be done before adding hydraulic oil to the tank.
3. A shut-off valve along with an 3/4 to 1/2 NPT bushing reducer is supplied. Turn the shut-off valve to the closed position.

HYDRAULIC CONTROL VALVE

1. The control **valve is pre-adjusted at the factory**. If the elevator does not operate properly check electrical operation before changing valve settings. Test that the correct solenoid is energized by removing the nut and raising the solenoid slightly to feel pull.
2. Refer to figure on page 16 for the location of valve components.

IF ADJUSTMENTS ARE NEEDED, refer to document 67210852 Valve Adjustments.

Figure 9



PLUMBING OF HYDRAULIC LINES

Plumbing Supplies needed for 1/2" or 3/4" (depending on pipe used) but not provided.

2 – Unions

90 & 45 degree elbows

Assorted pipe nipples

1/2" or 3/4" black pipe (schedule 80) (3/4" recommended)

Inclinor does supply 1" x 1/2" and 1" x 3/4" Bushing Reducers for the Rupture Valve inlet (use one according to the size pipe used).

NOTE: IF BLACK PIPE IS USED, IT MUST BE SCHEDULE 80 AND ALL THREADED FITTINGS SHALL BE STEEL, RATED FOR 3000 PSI.

WARNING: DO NOT USE 150 OR 300 PSI RATED FITTINGS OR SCHEDULE 40 PIPE.

If hydraulic hose is used, it cannot be installed within the hoistway and must not pass into or through any wall. The hose must be SAE 100R2 and have a minimum burst strength of ten times the operating pressure. Do not use reusable style hose fittings.

If steel tubing is used, it must be hydraulic grade tubing. Recommended size for tubing is 3/4 OD x .072 wall.

1. Keep the inside of all pipes and fittings as clean as possible from contamination by dirt, metal burrs, water, etc. (This is the common source of problems with valves).
2. The use of Teflon tape is not recommended. Use thread sealant on pipe threads.
3. Use as few elbows as possible, elbows add to pressure drop between the jack and valve.
4. A union as well as a ball valve should be placed in the hoistway as well as a union in every room your plumbing runs through including the machine room.
5. All piping should be clamped every four feet to eliminate vibration and to provide adequate support of joints.
6. Make certain the piping will not interfere with areas where ropes will pass.
7. A plastic 90-degree elbow is included for installation into the 1/8" drain port on the jack. Run plastic tubing (not supplied) from this fitting to a container for collecting oil that seeps past the piston seal.
8. Run plumbing, as described in this section, from rupture valve on jack to hyd. power unit.
9. Fill reservoir with clean, new hydraulic oil (AW32 oil is recommended if the machine room temperature is maintained at 60° to 90° F). The reservoir has a capacity of 30 gallons. The greater the travel the more oil that is required. Recommend approximately 25 gallons be added to the tank. When adding additional oil to the tank, always have the plunger fully retracted or the car at the lowest landing.

NEVER ALLOW THE OIL LEVEL TO DROP BELOW THE LOWER LINE ON THE OIL LEVEL SIGHT GAGE.

WIRING OF CONTROLLER

Refer to document number 67209922, UC601 Electrical Installation Directions, for information on installing the control system.

WIRING OF PUMP

The Pump control enclosure has been attached to the cover plate of the Hydraulic Power unit at the factory. All pump wiring has been routed and connected to the circuitry inside the Pump Control Enclosure.

BLEEDING THE CYLINDER

NOTE: - Approximately 250 lbs. must be placed on the platform to perform this procedure. Make sure all valves are open.

ONE MAN SYSTEM:

1. Run pump until jack extension occurs.
2. Open Bleeder Screw on jack until oil appears.
3. Shut Bleeder Screw:
It is recommended that the cylinder be bled several times to ensure all air is removed. The best time to bleed the cylinder is after it has sat overnight under pressure. Before starting pump, open bleeder until oil is seen, then close. Once all air is removed, check for leaks with jack extended. Check all joints for leaks and tighten if necessary.

TWO MAN SYSTEM (most effective):

One man operates the pump while other man operates bleeder valve.

1. Open Bleeder screw on jack.
2. Run pump, slowly raising fluid level in column.
3. Adjust Bleeder valve as air escapes.
4. Close Bleeder valve when oil is seen.
5. With jack extended, check all joints for leaks and tighten if necessary.

ATTACHING WIRE ROPES

1. Position the bottom of the trolley 5" below the lowest landing (see Figure 11). Place a 'C' clamp or vice grip on the rail to hold the trolley in place.
2. **IMPORTANT:** To rope for solid stop 2" above the top floor level, extend the piston according to Table II on page 43 or determine the amount of extension from the formula:

$$\text{JACK EXTENSION} = (\text{JACK SIZE} - 2") - (\text{TOTAL TRAVEL} / 2)$$

NOTE: IT IS INSTALLER'S RESPONSIBILITY TO ENSURE ADEQUATE CLEARANCE BETWEEN TOP OF JACK SHEAVE AND TOP OF HOISTWAY.

3. Rope the unit by running the wire ropes from the trolley up and over the Rail Jaw Assembly. Then down the side of the rail and under the Jack Support Assembly sheave wheel. Then up and over the sheave wheel on the Jack Sheave, and finally down the side of the Jack to the wedge sockets.
4. Tighten ropes evenly using Wedge Socket adjusting nuts. When completed check to make certain all cotter pins are in place and nuts are tight. Install Retaining Clips on ropes as shown in Figure 11. Install two Anti-Rotation clips to wedge sockets.
5. Remove vice grip or C-Clamp.

NOTE: LUBRICATE FRONT AND BACK OF RAIL WHERE SLIDE BLOCKS TRAVEL WITH (NYLUBE) RAIL LUBE.

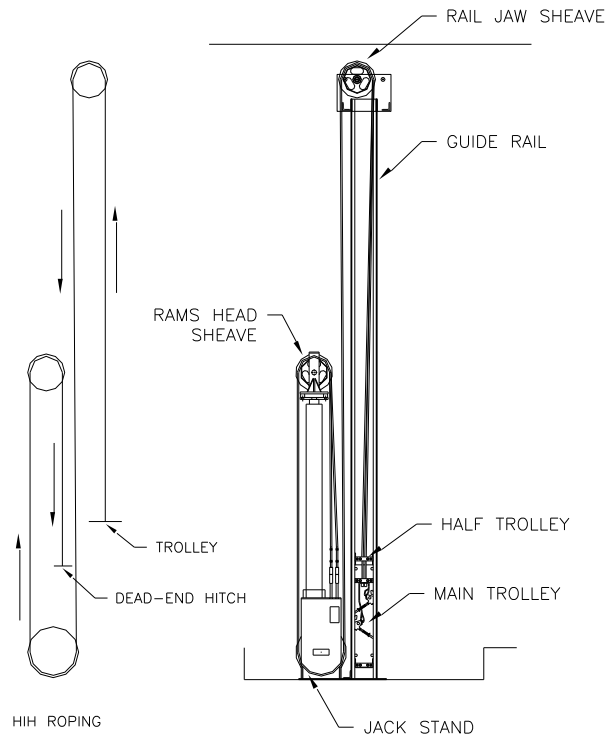


Figure 10

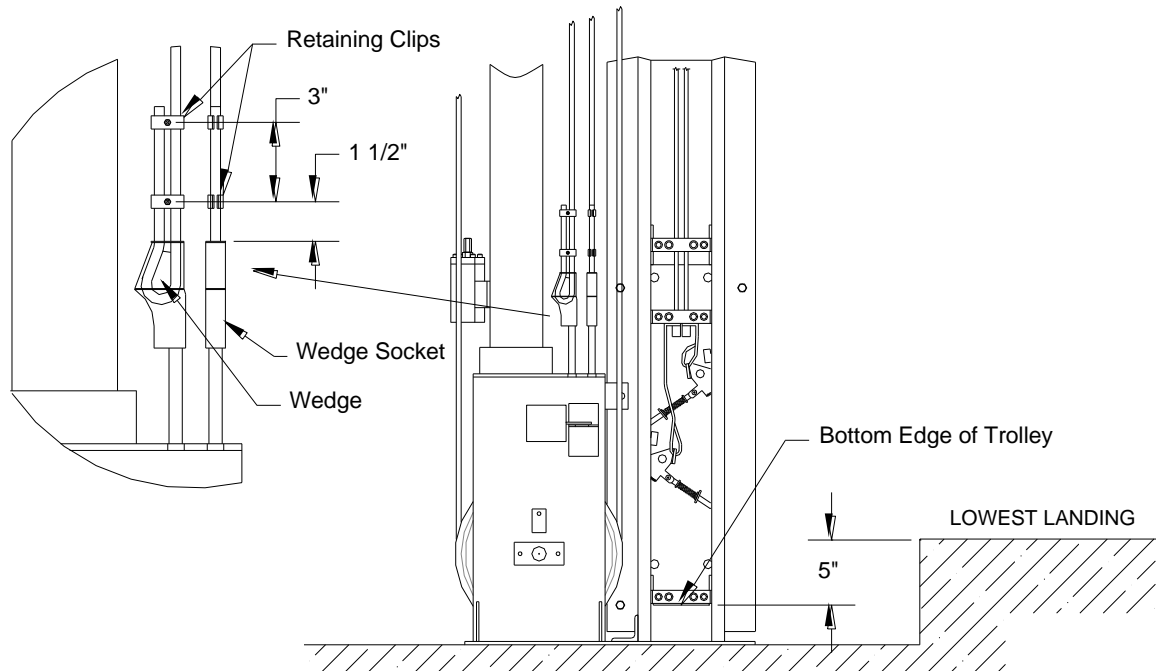


Figure 11

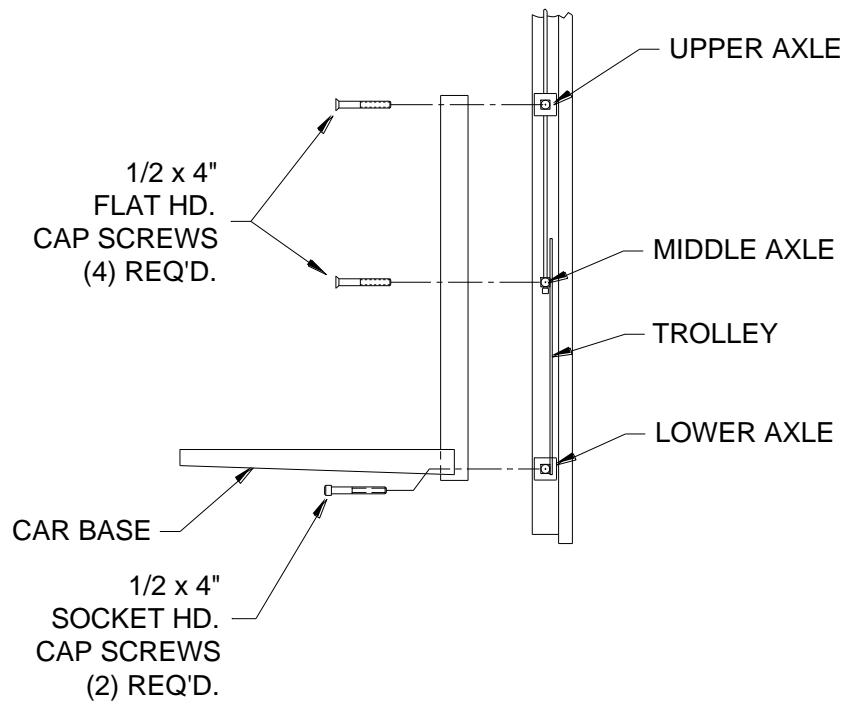


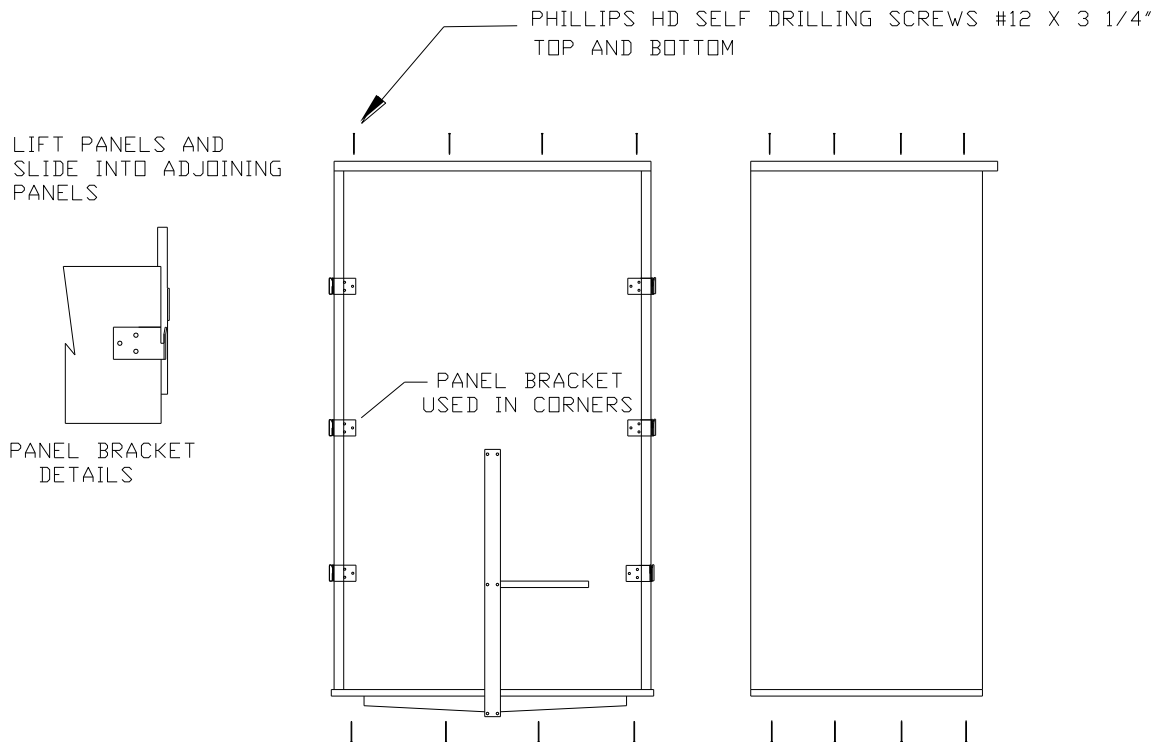
Figure 12

CAR BASE INSTALLATION

Disassemble the steel base from the car floor. Install steel base onto trolley with Six (6) Trolley bolts provided (see Figure 12).

NOTE: A weight of 200 lbs. or more is required on the platform for the hydraulic control valve to operate properly in the down direction.

INSTALLING WOOD CAB

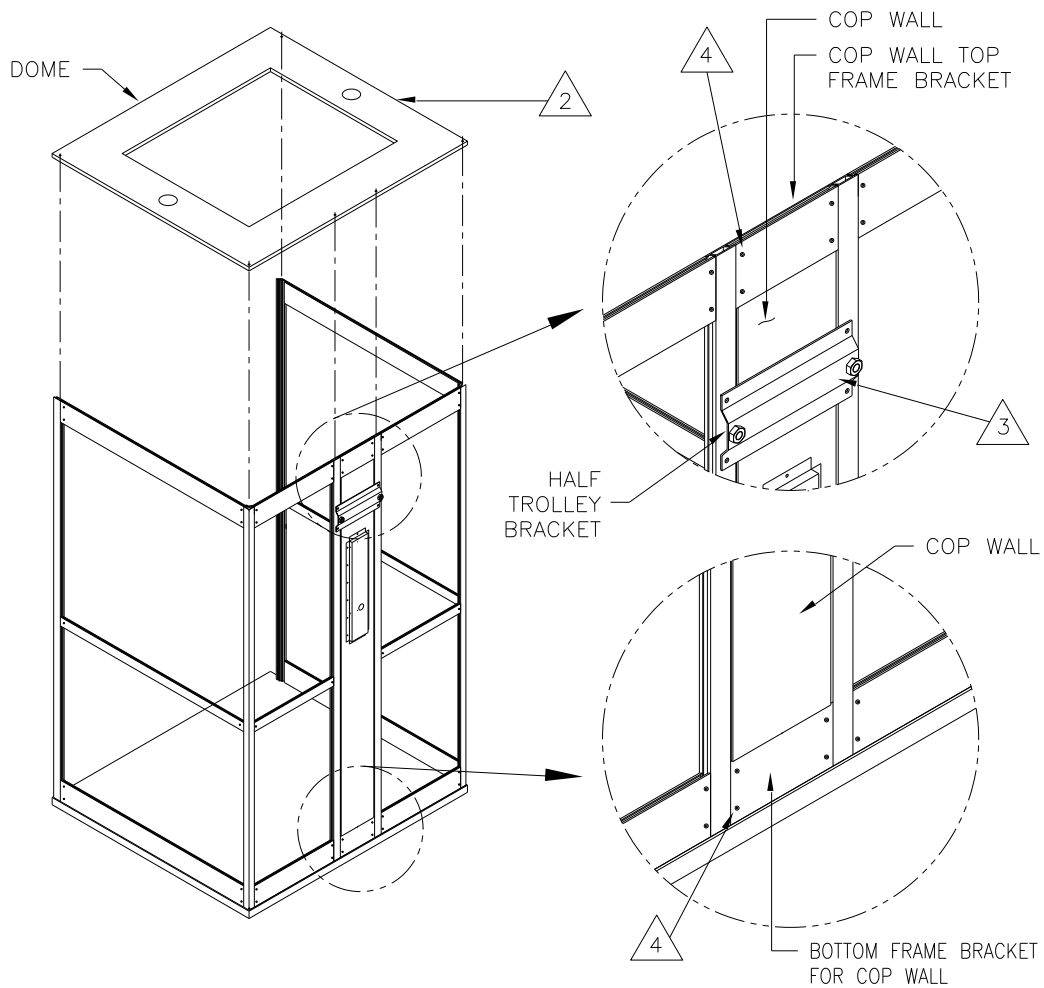


Figure

13

1. Install the Plywood Floorboard onto the steel base, align the holes in the underside of the floorboard with the holes in the base, then secure with the lag screws that came with the car. Run the platform from the bottom to the top floor to insure there is adequate running clearance on all sides.
2. Install rail side panel first. A clip may be provided on the back of this panel that sets into the top of the base stem. This will help hold the panel in place. Secure with screws through the floorboard.
3. Install the adjoining panels by aligning the panel brackets above those on the fixed panel and then lower the panel so the brackets lock together. Fasten panels to floorboard with screws.
4. Install the car dome and secure with screws.

INSTALLING 500 STYLE CAB

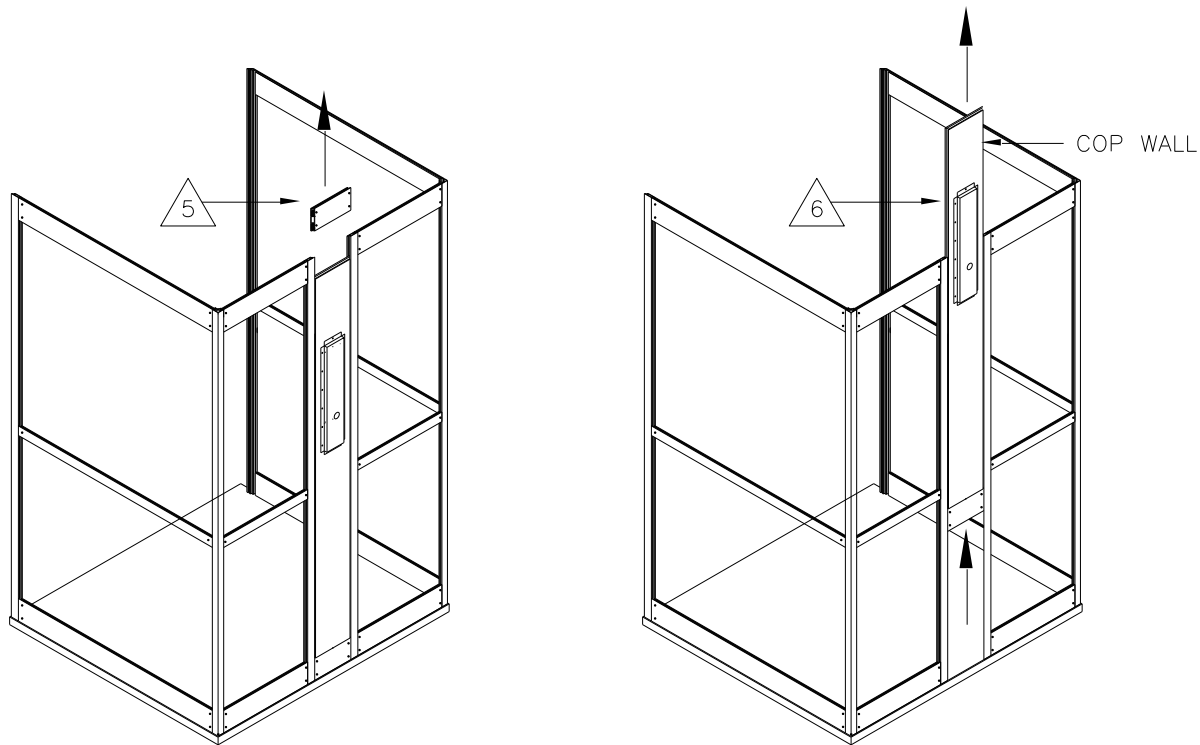


500 Cab DISASSEMBLY INSTRUCTIONS:

1. If a steel base is attached to the cab floor, remove it. If gates are installed, remove them.
2. Separate the dome from the cab walls by removing the $\frac{1}{4}$ -20 x 1 $\frac{3}{4}$ " Lg. Hex Hd. bolts and flat washers along the perimeter of the dome.
3. If installed, remove the half trolley bracket from the cab wall by removing the four (4) $\frac{1}{2}$ -20 x $\frac{3}{4}$ " Lg. Hex Hd. Bolts located at each corner of bracket.
4. Using a 5mm (Allen) wrench, loosen the four (4) set screws in each frame bracket above and below the COP wall of the cab. Turn each set screw $1\frac{1}{2}$ TO 2 turns CCW.

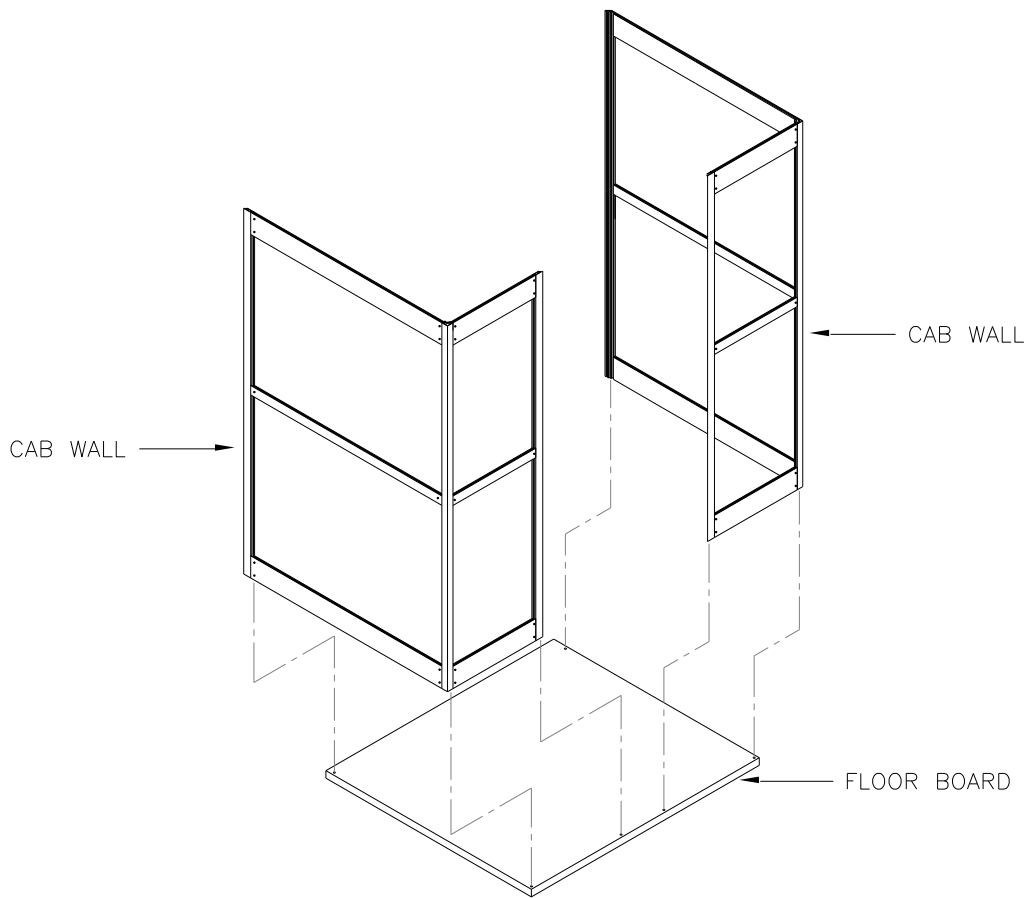
(Disassembly instructions continued on next page.)

INSTALLING 500 STYLE CAB (CONT.)



5. Remove the COP wall top frame bracket. If necessary, place a wood block on the bottom edge of the bracket and tap lightly with a hammer to separate the bracket from the COP wall.
6. Remove the COP wall along with the bottom frame bracket from the cab wall by pulling upward on the COP wall and/or pushing up on the bottom frame bracket.
7. Separate the remaining cab walls from the floor board by removing the ¼-20 x 2" Lg. Hex Hd. Bolts and flat washers located along the perimeter of the floor. **DO NOT ATTEMPT TO DISASSEMBLE THE WALL SECTIONS ANY FURTHER.**

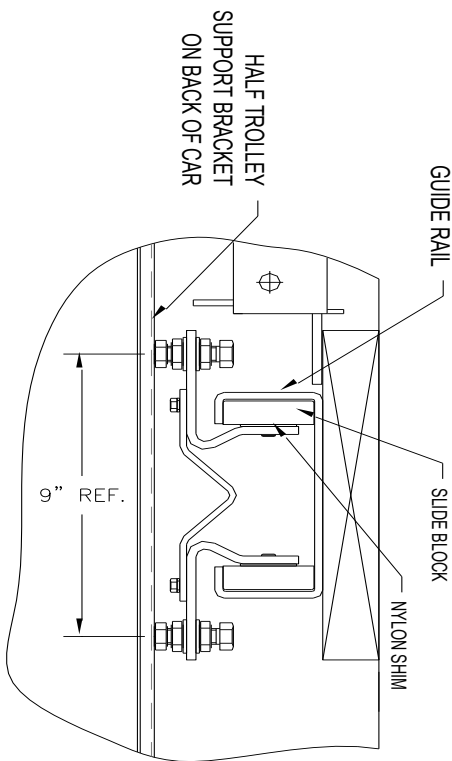
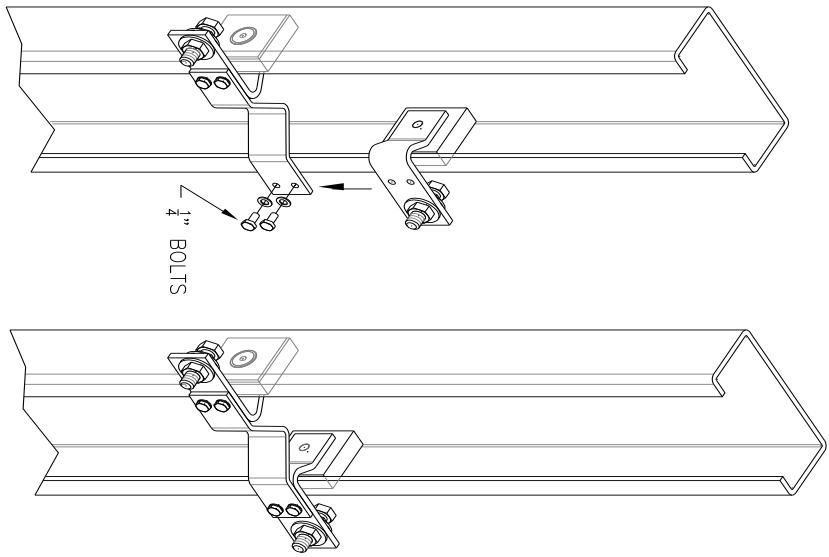
INSTALLING 500 STYLE CAB (CONT.)



500 Cab Assembly Instructions

1. With the cab floor board secured to the cab platform frame, move the wall assemblies into the shaft and set on the cab floor.
2. Position each wall on the cab floor and secure with the ¼-20 x 2" lg. bolts and flat washers, but do not tighten at this time.
3. Re-install COP wall then tighten all set screws in the bottom and top frame brackets. Be certain the top frame bracket is flush with the walls. Tighten all bolts holding walls to floor.
4. Re-install half-trolley bracket if part of assembly.
5. Set dome on top of walls and secure with ¼-20 x 1 ¾" Hex Hd. Bolts and flat washers.
6. Assemble gate(s) onto cab.

INSTALLING HALF TROLLEY



HALF TROLLEY INSTALLATION INSTRUCTIONS:

1. SEPARATE ONE SIDE OF THE HALF TROLLEY BY REMOVING TWO $\frac{1}{4}$ "-20 BOLTS AS SHOWN.
2. ABOVE THE CAR, POSITION BOTH SLIDE BLOCKS INSIDE THE GUIDE RAIL, THEN REASSEMBLE AND TIGHTEN $\frac{1}{4}$ " BOLTS.
3. SLIDE THE ASSEMBLY THROUGH THE RAIL TO CHECK FIT. IF THE SLIDE BLOCKS ARE TOO TIGHT INSIDE THE RAIL, DISASSEMBLE AND REMOVE A NYLON SHIM FROM BEHIND ONE OF THE SLIDE BLOCKS.
4. LOOSEN THE $\frac{1}{2}$ " NUTS ON THE HALF TROLLEY THEN SCREW THE $\frac{1}{2}$ " BOLTS ONTO THE CAR SUPPORT BRACKET. RE-TIGHTEN THE NUTS AGAINST THE HALF TROLLEY BRACKET TO LOCK THE BOLTS IN PLACE.

Figure 14

INSTRUCTIONS FOR MOUNTING TOE GUARD

Note: Do not install the Toe Guard on the car until the Elevator is completely installed and operating.

1. Remove Toe Guard from back of car and set aside being careful not to lose the screws in the bag.
2. Remove Toe Guard from Plastic Bag.
3. Mount the Toe Guard under the car using the pre-drilled holes and the screws provided.

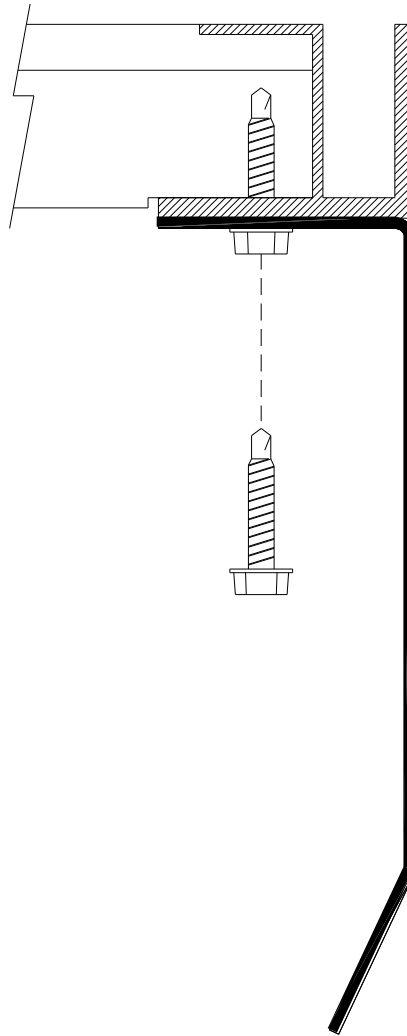


Figure 15

STABILIZER RAIL INSTALLATION

A car stabilizer rail and roller assembly is supplied per order for the purpose of steadying the elevator car. The parts include a 1/4 x 2 x 2 steel angle, a three-roller bracket assembly (A3) and a two-roller bracket assembly (A2). Hardware is supplied for mounting the angle to the hoistway wall and the roller assemblies to the car.

1. On all cars except codes 1 & 2, the stabilizer angle should be located opposite the main guide rail. If available refer to shop drawings for location. A minimum running clearance of 3 inches is required between the car and finished hoistway wall for mounting the rail. The rail should be backed double 2x4 studs (or a 4 x 4) from bottom to top.
2. The angle is typically supplied in sections that are bolted together. Each section end is numbered and should be joined with another section with the same number.
3. Start installation at the pit and work up. Secure angle to wall using #14 x 1 3/4" flat head screws provided by factory. The angle must be installed plumb and run parallel to the main guide rail.
4. Attach the A3 roller assembly to the car top using (3) 1/4" x 3/4" hex head wood screws. Attach the A2 roller assembly to the car bottom using (3) #12 x 1" wood screws. Holes must be drilled in each bracket for securing to car with screws.

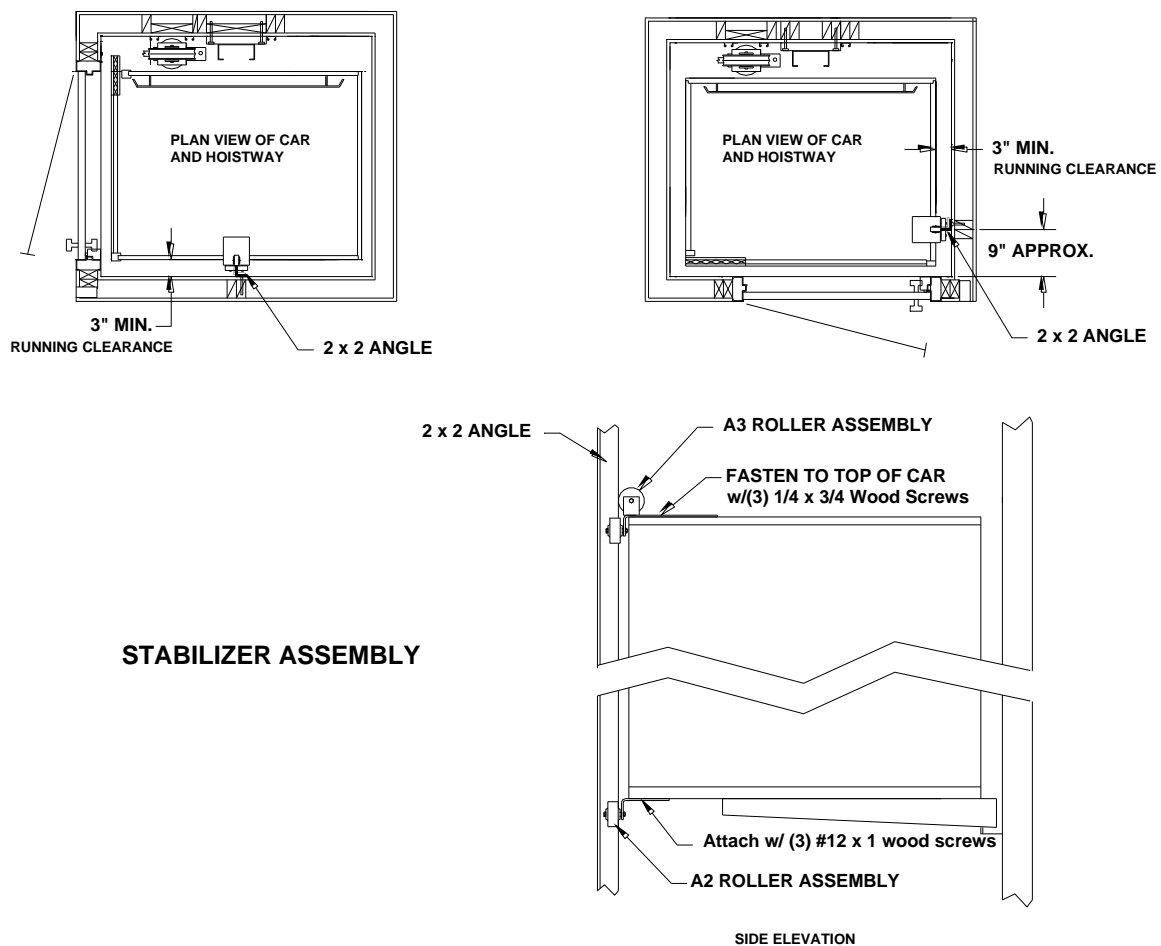
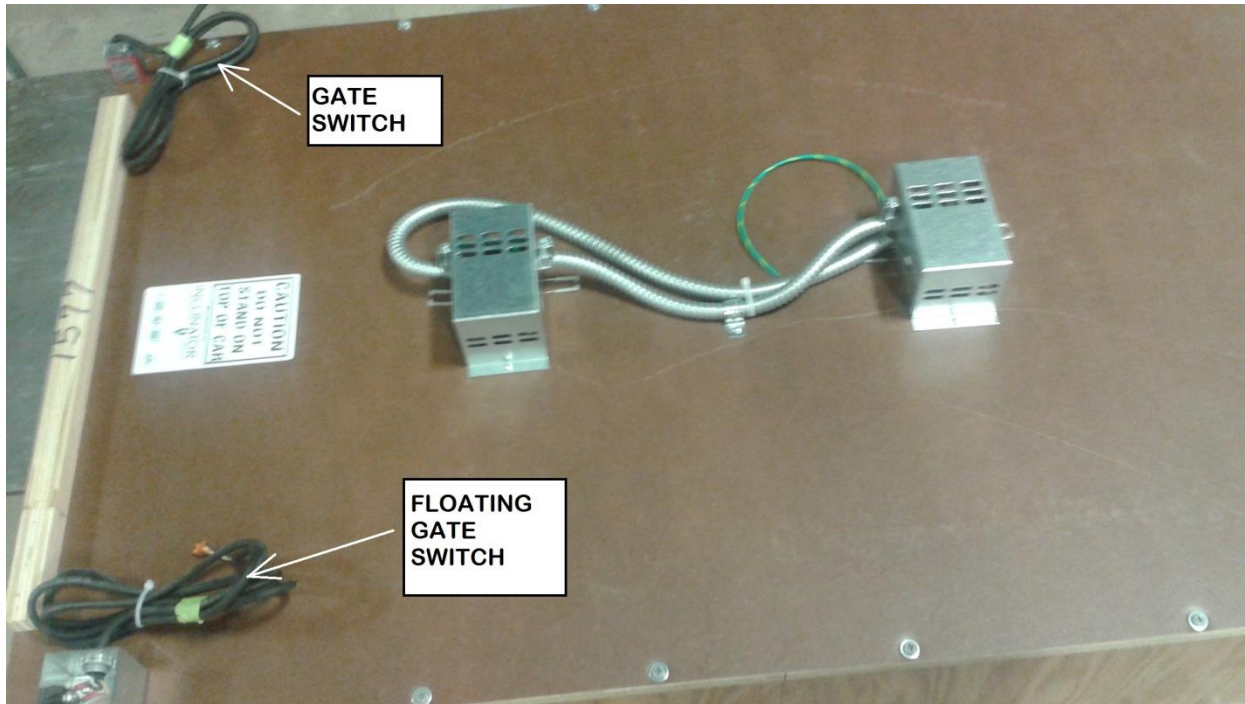


Figure 16

TOP OF CAR WIRING

Mount the Top Of Car (TOC) enclosure in a convenient location but in close proximity to the LED light boxes. See UC601 electrical installation instructions for wiring details.



Check continuity

- Wire carefully and be sure of connections
- Wire neatly and coil or pigtail unused wires
- Label and tag all wires when needed

TRAVELING CABLE INSTALLATION

Install the traveling cable between the CPU enclosure and the Top Of Car box. Two (2) mesh grips are provided for supporting the cable. A short section of steel strutting with an eyebolt is supplied for supporting the traveling cable at the top of the car. To prevent possible slippage of the grip, it is recommended that the tail end be secured to the cable jacket using vinyl electrician's tape. In order for the traveling cable to perform trouble-free certain installation procedures must be followed.

1. The cable should be inspected before installing to be sure it has not been damaged in shipment.
2. Pre-hanging of the cable can relieve any internal stress or torsion that may have developed. The idea in pre-hanging is to hold the upper end of the cable firmly while the lower end is free to rotate.
3. After the cable has been pre-hung, it is suggested that chalk or some other means be used to mark the exact orientation of the cable before forming the loop and attaching to the car hanger. This will prevent torsion as the loop is formed by giving the installer a reference mark to indicate whether or not the cable is being twisted.
4. The loop curvature should be smooth and free of kinks and pivot points.

VALVE ADJUSTMENT

For detailed information see separate instructions document number **67210852, Blain Valve Adjustments.**

Do not adjust valve until elevator is installed completely. The valve has been pre-adjusted. If changes in settings need to be made, refer to the Blain EV100 Valve Adjustment instructions.

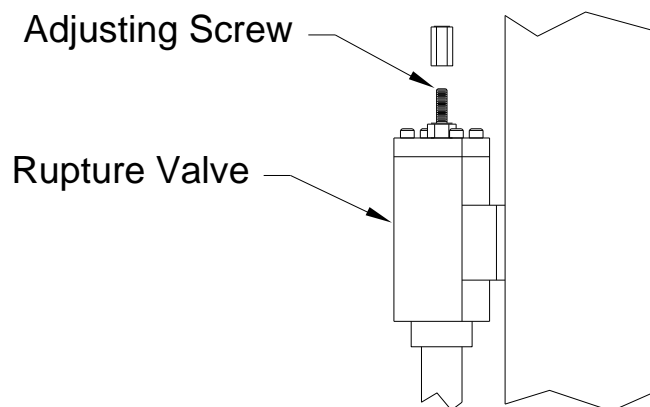
Pressure Relief Valve Adjustment: The relief valve has been factory preset but may need to be adjusted to meet local code requirements. The relief pressure should be 125% of the maximum working pressure. Determine the maximum working pressure by loading car to capacity (950 or 1000 lbs.) then call the elevator to the top floor. Note the gauge pressure reading as the car is moving at full speed. Multiply this pressure by 1.25 to obtain the pressure relief setting. To set the pressure relief valve (S): Close the shut-off valve. Start the motor then turn adjustment screw clockwise to increase and counterclockwise to decrease relief pressure.

RUPTURE VALVE ADJUSTMENT (OLS JACKS)

IMPORTANT – The down speed must not exceed 40fpm with a full capacity load per ASME A17.1-2016/CSA B44-16 section 5.3.1.10.2. . **The Rupture Valve must be adjusted only after the car is installed and adjustment to the car down speed has been completed.**

NOTE: Adjusting the Rupture Valve requires a 4mm Hex key wrench and a 13mm wrench to loosen or tighten the lock nut.

1. Load the car to full capacity.
2. Send the car to the top floor.
3. Loosen lock nut with 13mm wrench. Screw the Adjusting screw out (counterclockwise) to stop.
4. Call elevator down at full contract speed. Rupture valve should not trip.
5. Send the car to the top floor.
6. Screw the Adjusting screw in two (2) turns and call elevator down. If the rupture valve does not trip, repeat steps 5 and 6 until it does trip.
7. When the Rupture valve trips, send car to top floor and screw the adjustment screw out (CCW) 3 turns.
8. Call the car down and the Rupture valve should not trip.
9. Tighten lock nut holding adjustment screw at the same time. Note – lock nut is also a seal nut, do not over-tighten. Replace the cap onto screw.



TESTING RUPTURE VALVE

IMPORTANT: The rupture valve must close at no less than 110% or no more than 140% of the normal down speed per ASME A17.1-2016/CSA B44-16 section 3.19.4.7.5.. **A CALIBRATED TACHOMETER MUST BE USED TO ACCRUATELY MEASURE THE SPEED OF THE CAR IN THE DOWN DIRECTION.**

1. With car loaded to capacity, send car to top floor. Call the car down and use a tachometer to measure the down speed. The car speed must not be greater than 40 feet/minute. Adjustment #7 on Blain Valve controls the down full speed. Turn adj. #7 in (CW) to reduce speed, or turn out (CCW) to increase the down speed.

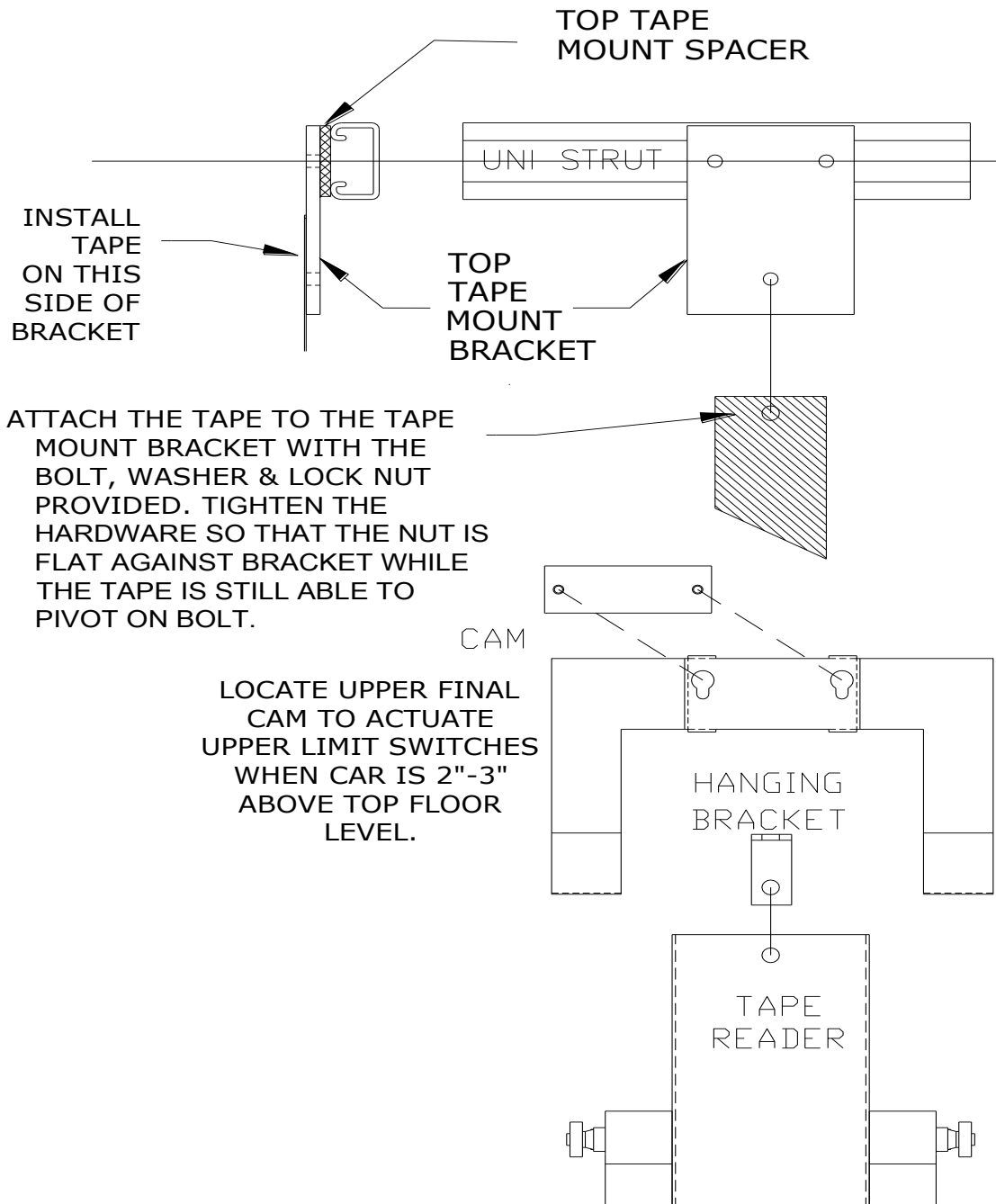
CAUTION: Elevator will overspeed in the down direction when the following steps are performed.

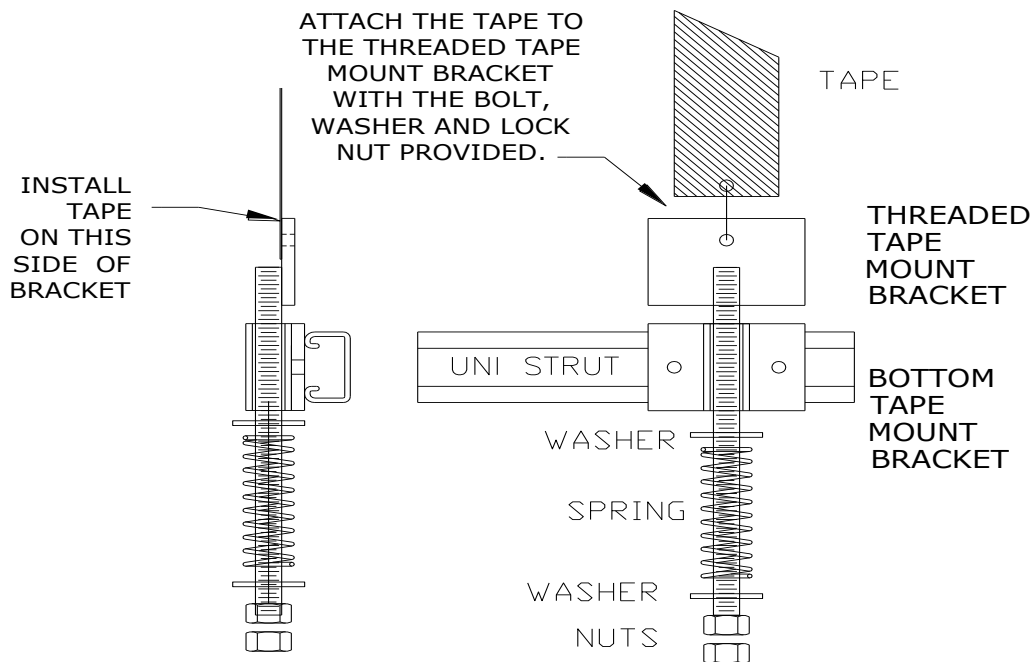
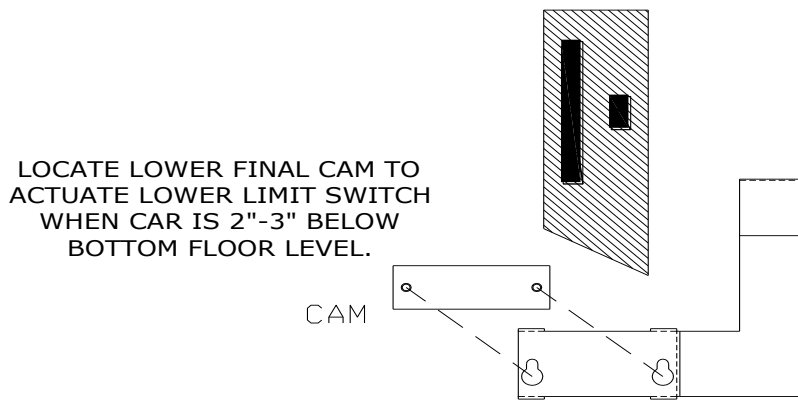
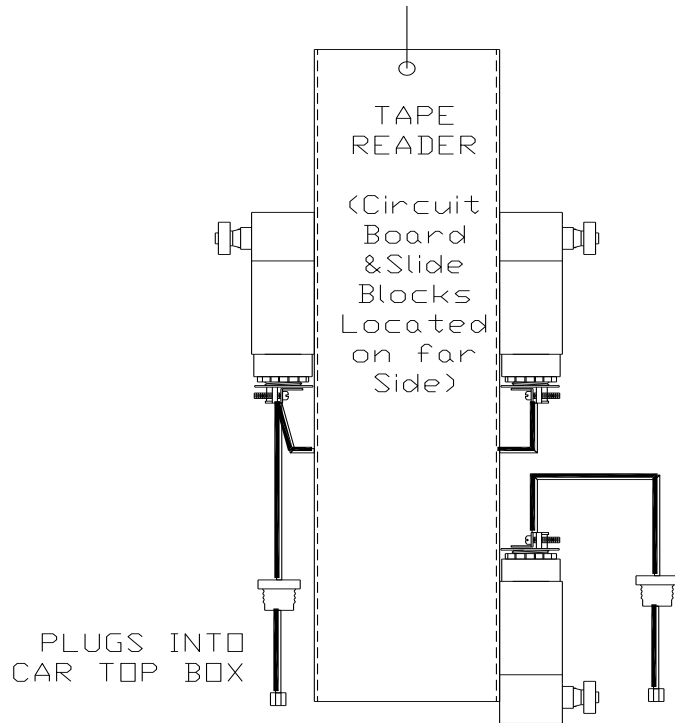
2. With the car down speed known, call the car to the top floor. At the valve, turn adjustment #7 out (CCW) at least $\frac{1}{4}$ turn. Call the car down and measure (and note) the increase in car speed.
3. Continue turning adjustment #7 out (CCW) in $\frac{1}{4}$ turn increments and measuring the car down speed until the Rupture Valve closes. Keep record of the amount the #7 adjustment is turned out so you can return it to the original valve setting.
4. If the Rupture Valve is working properly and the normal down speed is 40fpm, the car will stop at no less than 44 fpm or no more than 56 fpm. If it stops outside this range, contact Inclinator about replacement of the rupture valve.
5. When the testing is complete, return the down speed adjustment #7 to its original setting. With the car still loaded to capacity, verify the down speed is no more than 40 fpm.

MOUNTING THE STEEL TAPE & THE TAPE READER GEN III

Reference drawing 80211227, Tape Reader Installation.

1. Unpack all the Tape Reader System parts and verify against the installation drawing.
2. Decide which side of the car the Tape Reader will be mounted on. Insure that the tape reader will not be interfered with by the traveling cable or any other obstructions.
3. Refer to the installation drawing listed above for installation details.





INSTALLATION OF ELECTRICAL COMPONENTS

Refer to Inclinator's Electrical installation instructions for electrical component installation including the two controller boxes, top of car box, traveling cable, remote plates, primary disconnects and secondary disconnects. Refer to any national, state and/or local codes required by the local authority having jurisdiction.



ELECTRICAL DANGER

Extreme caution must be taken when working around electrical circuits. There must be a reliable ground and neutral available for the elevator system in compliance with the National Electric Code. Do not use temporary power.

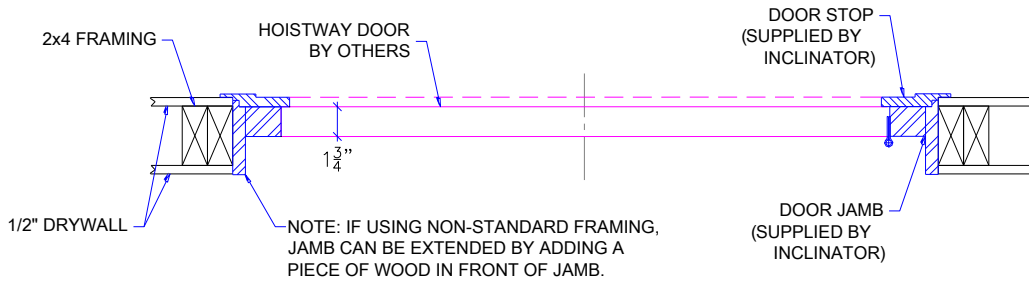
MOUNTING DISCONNECT SWITCHES

Mount both a 208/240VAC and a 110VAC disconnect in the machine room. Become familiar with N.E.C. and local codes for proper wiring and clearances. Remember to run a separate ground lead.

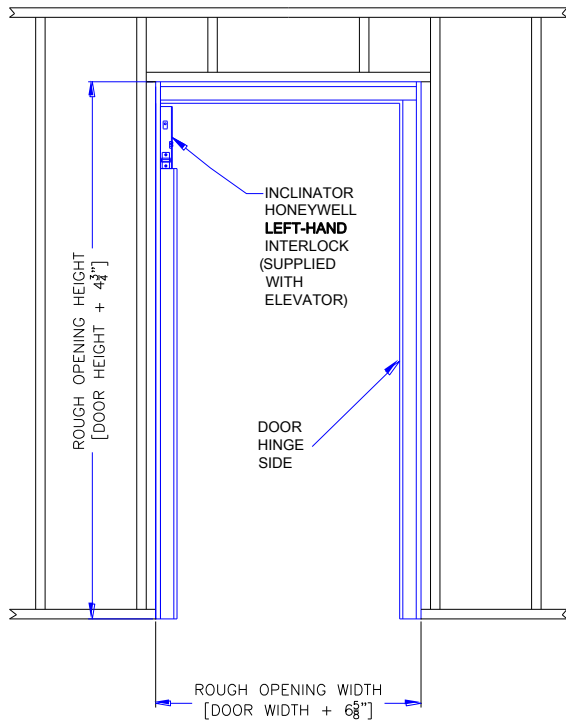
Install a light and outlet box in the machine room as well.

INSTALLATION OF LANDING DOOR FRAME OR PRE-HUNG DOOR KITS.

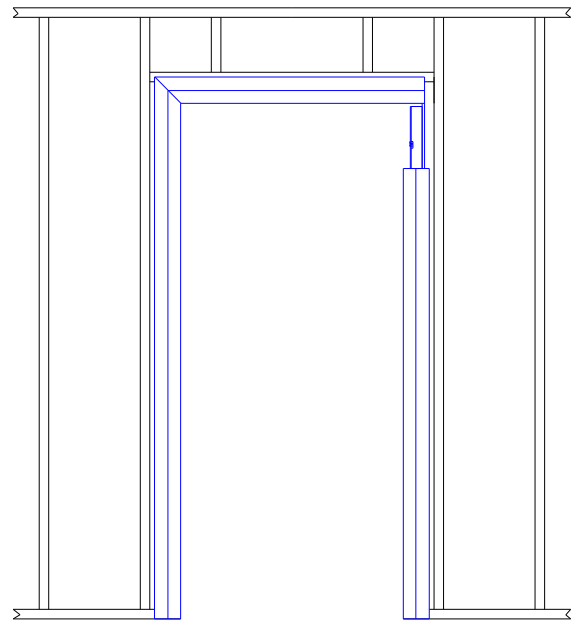
Inclinor manufactures optional ASME 17.1-2016 5.3 code compliant flush door frame kits and pre-hung flush door assembly kits. Installation is relatively straight forward using the information included with these kits as well as the diagram below. Contact Inclinor for more information.



DOOR FRAME DETAIL
 STANDARD 2x4 CONSTRUCTION WITH
 1/2" DRYWALL (INSIDE & OUTSIDE OF HOISTWAY)



HALLWAY VIEW



HOISTWAY VIEW

INSTALLATION OF DOOR INTERLOCKS

⚠️ WARNING

FAILURE TO INSTALL INTERLOCKS CORRECTLY MAY RESULT IN INJURY OR DEATH.

GENERAL INFORMATION

Inclinor-Honeywell residential door interlock switches are electromechanical devices designed for use in residential swing door applications. The interlock holds the door in place and prevents it from being opened in potentially unsafe conditions (e.g. the elevator car is not present at the landing door).

Inclinor-Honeywell interlocks comply with ANSI/ASME A17.1 & A18.1 :2010, (the safety code standards for elevator and escalators), CAN/CSAB44, and UL104 standards. The snap-action cam mechanism reduces adjustment set-up time and the key engagement was designed to minimize maintenance costs. The Inclinor-Honeywell interlocks has a robust zinc die cast housing and cover with a powder coat finish (white or bronze). Inclinor-Honeywell interlocks are available in left- and right-hand versions, allowing for simplified installation.

The Inclinor-Honeywell interlock must be specified as either “left” or “right” hand since it cannot be changed in the field. *When standing on the landing floor, looking into the elevator cab, if the lock mounts on the RIGHT side of the doorjamb it is a “RIGHT HAND LOCK”. If it mounts on the LEFT side it is a “LEFT HAND LOCK.”*

⚠️ WARNING

INCLINATOR-HONEYWELL RESIDENTIAL DOOR INTERLOCKS ARE NOT A SEALED ASSEMBLIES. IT IS NOT RECOMMENDED TO BE USED IN THE AREAS WHERE LIQUID OR OIL MAY SPLASH.

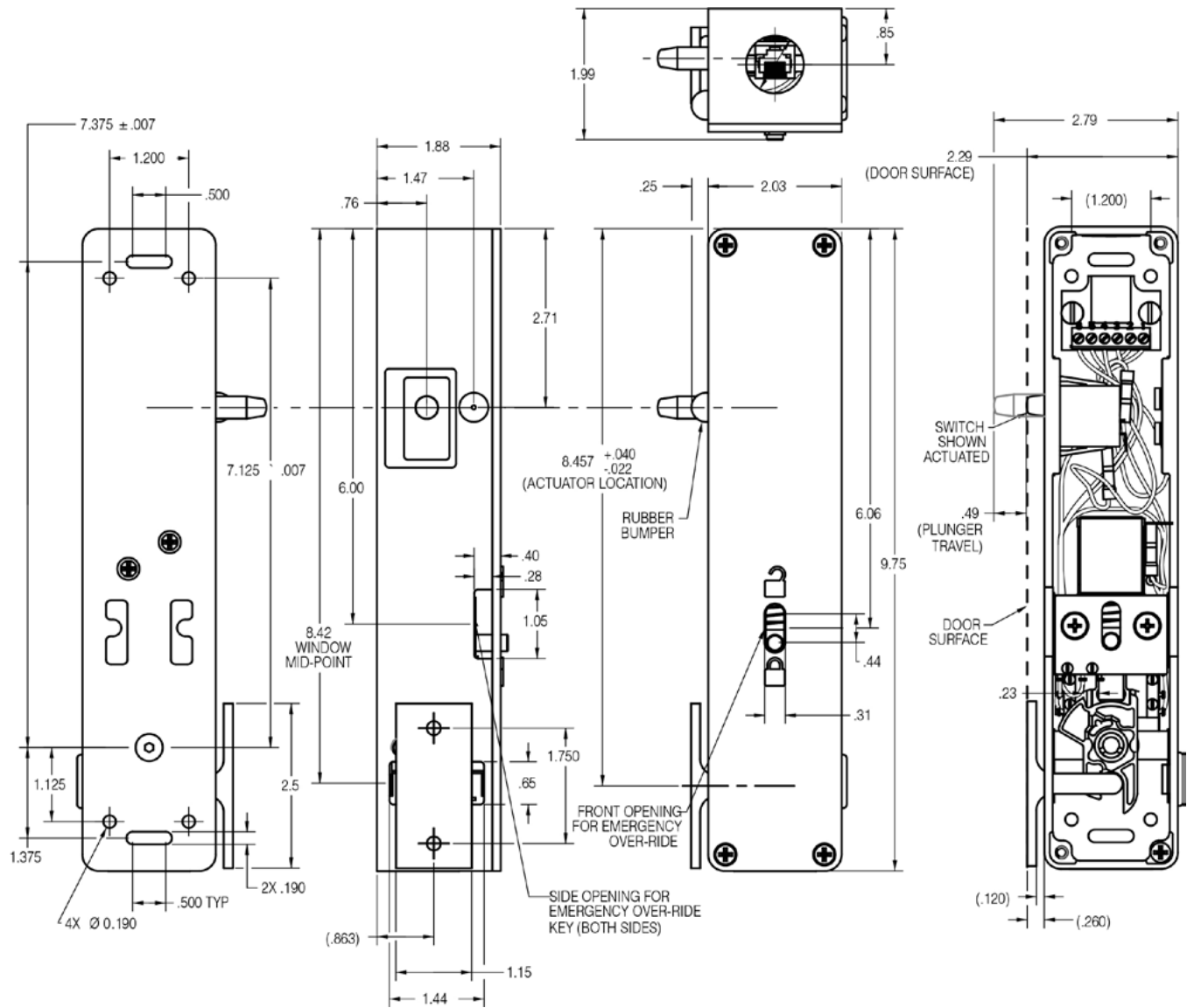
⚠️ CAUTION

The Inclinor-Honeywell residential door interlock is not to be used for non-residential applications where interlocking of swing type doors is required.

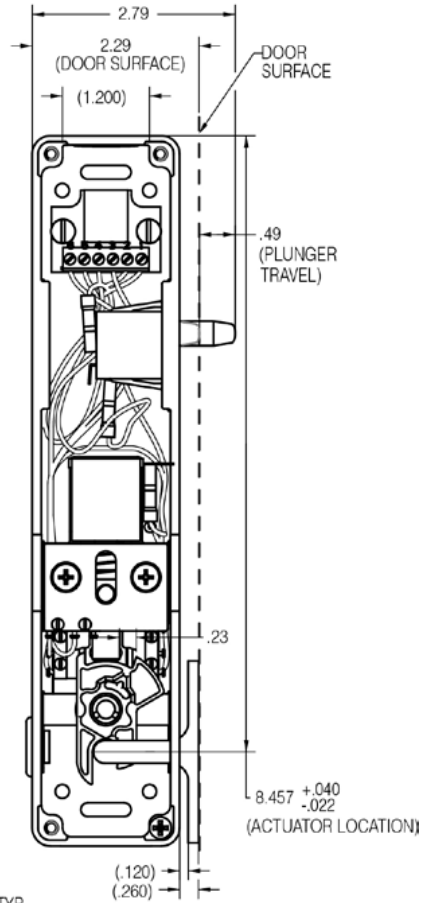
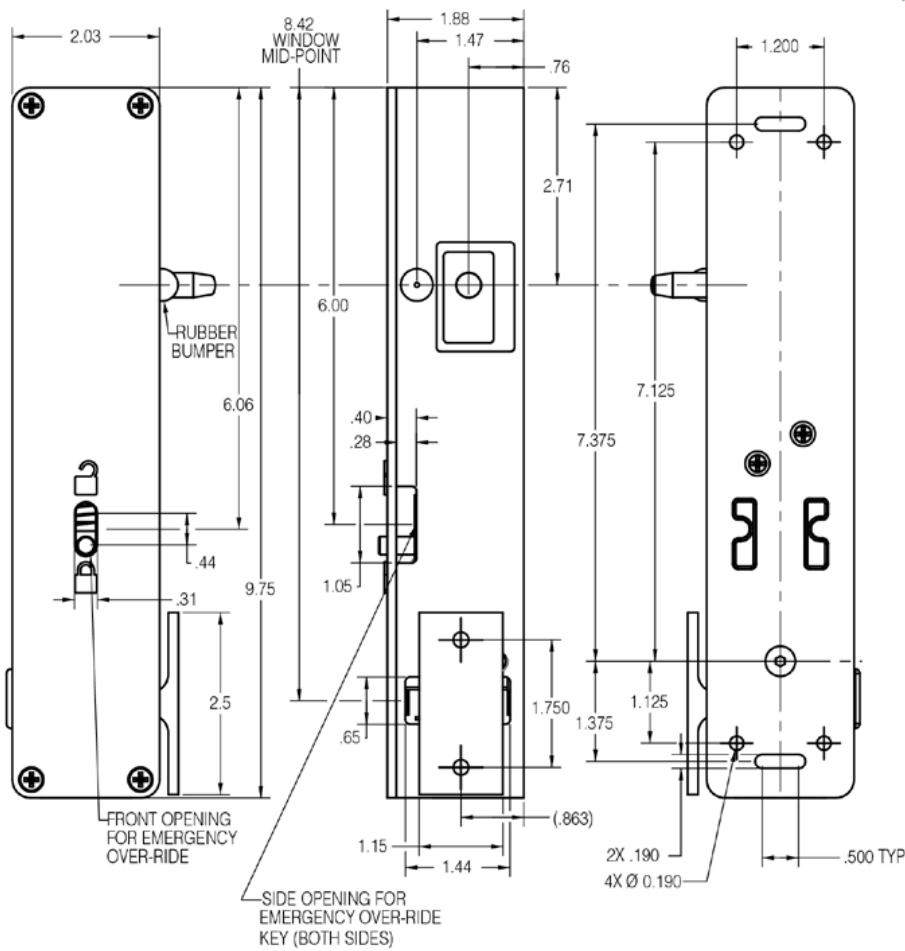
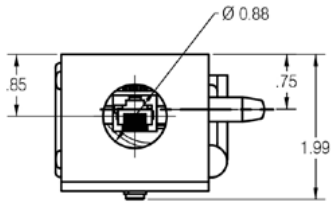
MOUNTING

Refer to the following mounting dimension drawings for the installation locations. A separate mounting template is provided in the product packaging which will guide the installer on how to prepare for the installation of the interlock. The interlock shall be mounted only in vertical orientation with the conduit opening at the top. Remove the terminal block assembly inside the housing to reach the mounting holes. Ensure that the terminal block is assembled back onto the housing securely using the screws, once the interlock is mounted.

LEFT-HAND MOUNTING DIMENSIONS (For reference only)



RIGHT-HAND MOUNTING DIMENSIONS (For reference only)



ADJUSTMENT

The mounting template aligns the key to the center of the opening in the interlock housing allowing for door sag over time without any adjustment.

IMPORTANT NOTICE

Strict compliance with installation instructions / mounting template is essential for safety. It is the customer's responsibility to ensure they are followed. It is imperative any wear on the actuator key or on the switch itself are identified at an early stage and the necessary corrective actions implemented (replacement), thus ensuring safety.

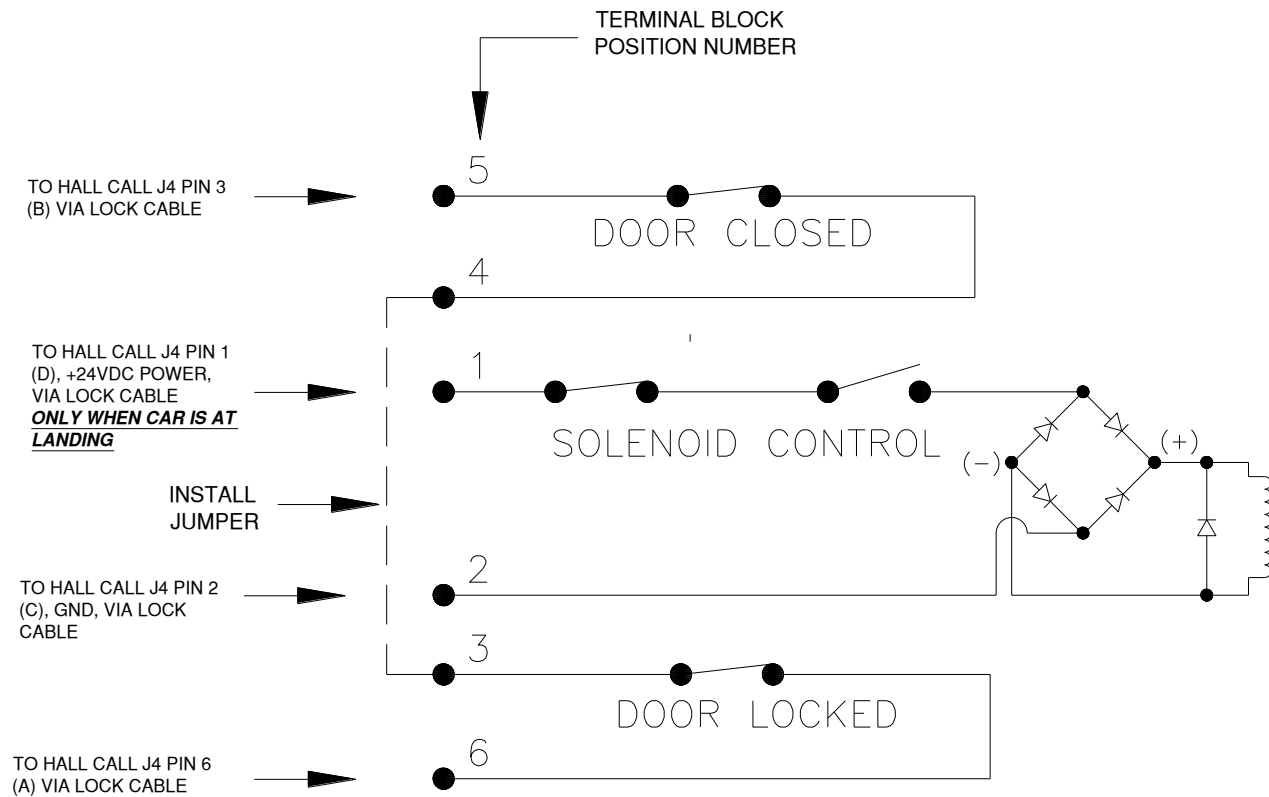
GENERAL DIRECTIONS

- A. The actuator key for the switch **MUST** move freely without jamming during operation.
- B. The alignment of the key to the switch **MUST** be checked as per the mounting template.
- C. Visually ensure that no mechanical damage has occurred to the switch body or key. If damage is found the complete switch assembly **MUST** be replaced.
- D. Test the switch for correct electrical operation while installed and operated normally.

INTERLOCK WIRING INSTRUCTIONS

The Inclinor-Honeywell interlock will be assembled with a wire harness designed to plug directly into the lock cable. If you need to disconnect the wire harness, use the following instruction and diagram to reconnect the harness.

1. Remove the cover by unscrewing the cover screw(s).
2. Unscrew the terminal screws. Connect wires per the schematic provided below. Torque all terminal screws with a tightening torque of 0.5 Nm to 0.7 Nm.
3. Reinstall the cover and securely tighten the screw(s). Recommended tightening torque for the cover screw(s) is 1.5 Nm max.



DOOR INTERLOCK EMERGENCY ACCESS

The Inclinor-Honeywell interlock has a lock lift pin for manually unlocking the hoistway door.

If the interlock is being used with an Inclinor-Honeywell Keeper Mounting Bracket Kit or a Pre-hung Flush Door Assembly Kit, a special key is required to unlock the door. Insert the key through the hole and push down (outside of door) to lift the lock pin and unlock the door. This key, Inclinor part number 21301116 Door Interlock Escutcheon key, must be ordered separately.

If mounting the interlock without the Keeper Mounting Bracket, a hole must be drilled in the door to access the lock lift pin. Use the mounting template included in the packaging of the lock for details on the location and size of this hole. To unlock the door, place a long slender screwdriver or 1/4" diameter pin through the hole and push down (outside of door) to lift the lock pin and unlock the door.

ESTIMATING OPERATING PRESSURE FOR THE HYDRARIDE SYSTEM

OPERATING PRESSURE = FORCE (on piston)/ AREA (of piston cross-section)

AREA

70mm diameter piston = 5.96 sq. in.

80mm diameter piston = 7.79 sq. in.

FORCE

The force on the piston is equal to (Car weight + 1000 lb. capacity) x 2.

With a 450 lb. car, the force on the piston would be (450 + 1000) x2= 2900 lbs.

(The pressure required to overcome friction is approximately 50 psi. This has to be added to the pressure required to lift the load.)

JACK PRESSURE

70mm dia. piston = (2900 lbs. / 5.96 sq. in.) + 50 psi = 537 psi (37 bar)

80mm dia. piston = (2900 lbs. / 7.79 sq. in.) + 50 psi = 422 psi (29 bar)

IDENTIFYING JACK SIZE – The Jack Size (stroke) is noted on the Jack Data Label. The size can also be determined by measuring the closed length of the jack (base of cylinder to top of plunger). See table below.

TABLE I (Max. travel for typical Jacks)

Jack Size	Closed Length	Maximum Travel	Minimum Shaft *
65	73"	10'-6"	14'-5"
93	101"	15'-2"	20'-1"
120	128"	19'-8"	23'-7"
147	155"	24'-2"	28'-1"
180	188"	29'-8"	33'-5"
205	213"	33'-10"	37'-9"
228	236"	37'-8"	41'-8"
253	261"	41'-10"	45'-8"
278	286"	46'-0"	49'-10"
304	312"	50'-4"	54'-2"

*Shaft as measured from pit floor to ceiling.

TABLE II Jack Extension (when roping)

Jack Size	Travel	Jack Extension	Jack Size	Travel	Jack Extension
65	4'-0"	39"	180	24'-0"	34"
	4'-6"	36"		24'-6"	31"
	5'-0"	33"		25'-0"	28"
	5'-6"	30"		25'-6"	25"
	6'-0"	27"		26'-0"	22"
	6'-6"	24"		26'-6"	19"
	7'-0"	21"		27'-0"	16"
	7'-6"	18"		27'-6"	13"
	8'-0"	15"		28'-0"	10"
	8'-6"	12"		28'-6"	7"
	9'-0"	9"		29'-0"	4"
	9'-6"	6"		29'-6"	1"
	10'-0"	3"		29'-8"	0"
10'-6"	0"				
93	10'-0"	31"	205	29'-0"	29"
	10'-6"	28"		29'-6"	26"
	11'-0"	25"		30'-0"	23"
	11'-6"	22"		30'-6"	20"
	12'-0"	19"		31'-0"	17"
	12'-6"	16"		31'-6"	14"
	13'-0"	13"		32'-0"	11"
	13'-6"	10"		32'-6"	8"
	14'-0"	7"		33'-0"	5"
	14'-6"	4"		33'-6"	2"
	15'-0"	1"		33'-10"	0"
	15'-2"	0"			
	120	15'-0"		28"	228
15'-6"		25"	33'-6"	25"	
16'-0"		22"	34'-0"	22"	
16'-6"		19"	34'-6"	19"	
17'-0"		16"	35'-0"	16"	
17'-6"		13"	35'-6"	13"	
18'-0"		10"	36'-0"	10"	
18'-6"		7"	36'-6"	7"	
19'-0"		4"	37'-0"	4"	
19'-8"		0"	37'-6"	1"	
			37'-8"	0"	
147	19'-0"	31"			
	19'-6"	28"			
	20'-0"	25"			
	20'-6"	22"			
	21'-0"	19"			
	21'-6"	16"			
	22'-0"	13"			
	22'-6"	10"			
	23'-0"	7"			
	23'-6"	4"			
	24'-0"	3"			
24'-2"	0"				

$$\text{JACK EXTENSION} = (\text{JACK SIZE} - 2'') - (\text{TOTAL TRAVEL}/2)$$

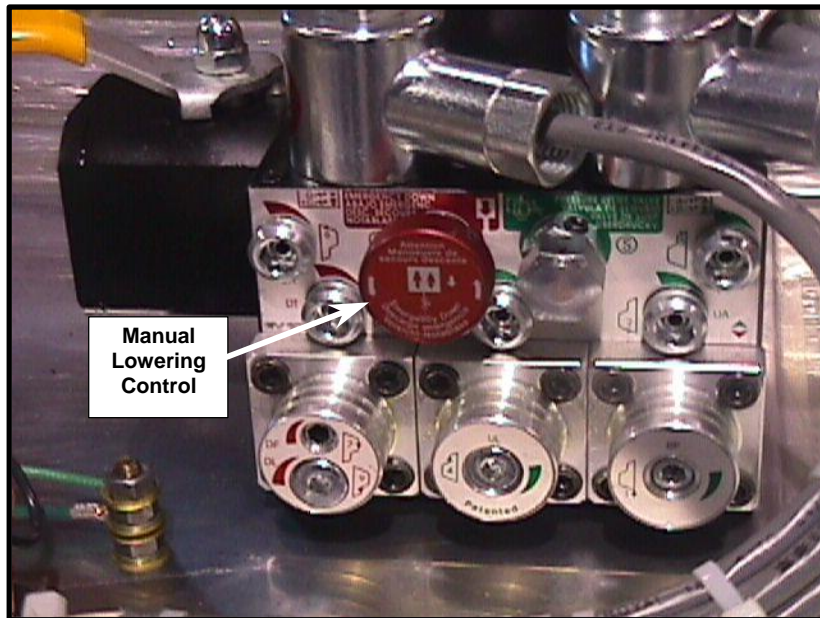
MANUAL LOWERING INSTRUCTIONS

The HydraRide is equipped with a manual-lowering valve. The manual lowering valve may be used to lower the car in the event it is stopped between floors. Turning a red colored dial located on the hydraulic power unit operates the manual-lowering valve. See picture for location of the control.

1. In the machine room, pull the main disconnect switch to the "OFF" position.
2. Locate the manual-lowering control dial on the hydraulic power unit. Turn the control counter-clockwise approximately 1/4 turn to lower the elevator. Keep constant pressure on the control. You will hear the sound of oil flowing to the reservoir as the car descends. When the car reaches the bottom landing, release the control.

-CAUTION-

If turning the manual lowering dial does not cause the car to descend, the system hydraulic pressure may be too low. Call for service immediately.



Manual Lowering Control Knob located on Hydraulic Power Unit

Inclinor Company of America
601 Gibson Blvd.
HARRISBURG, PA 17104
PHONE: 1-800-343-9007 (M-F 8am-5pm EST)
FAX: 717-939-8076 / 8075
www.inclinor.com