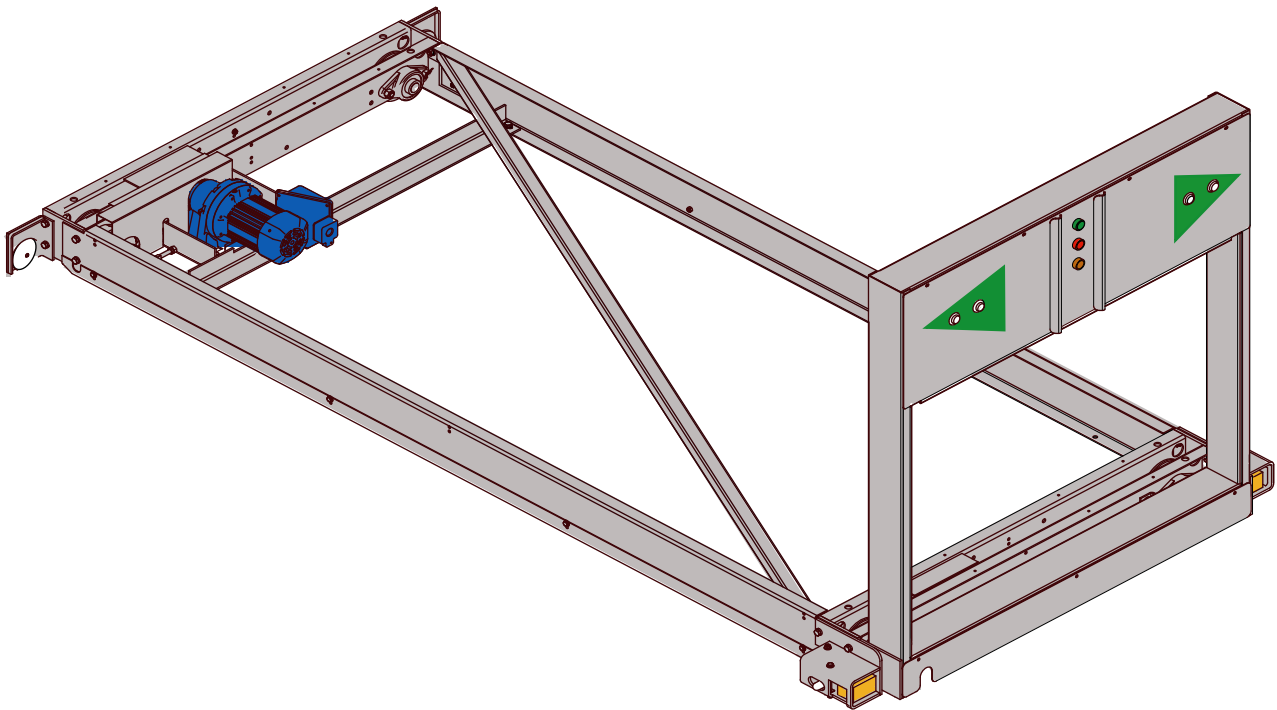


# RETAIL MOBILE STORAGE SOLUTIONS

## INSTALLATION MANUAL



PIPP MOBILE STORAGE SYSTEMS  
MOVABLE LAYAWAY BIN INSTALLATION  
16 THROUGH 32 FOOT SYSTEMS

## INDEX

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**FACTORY  
AUTOMATION  
EQUIPMENT  
25GH**

Manufactured By: Pipp Mobile Storage Systems Inc.  
Grand Rapids, Mi 1(800) 234-7477  
Model: EC - Type 1 Enclosure  
Operating Ambient: 25 °C

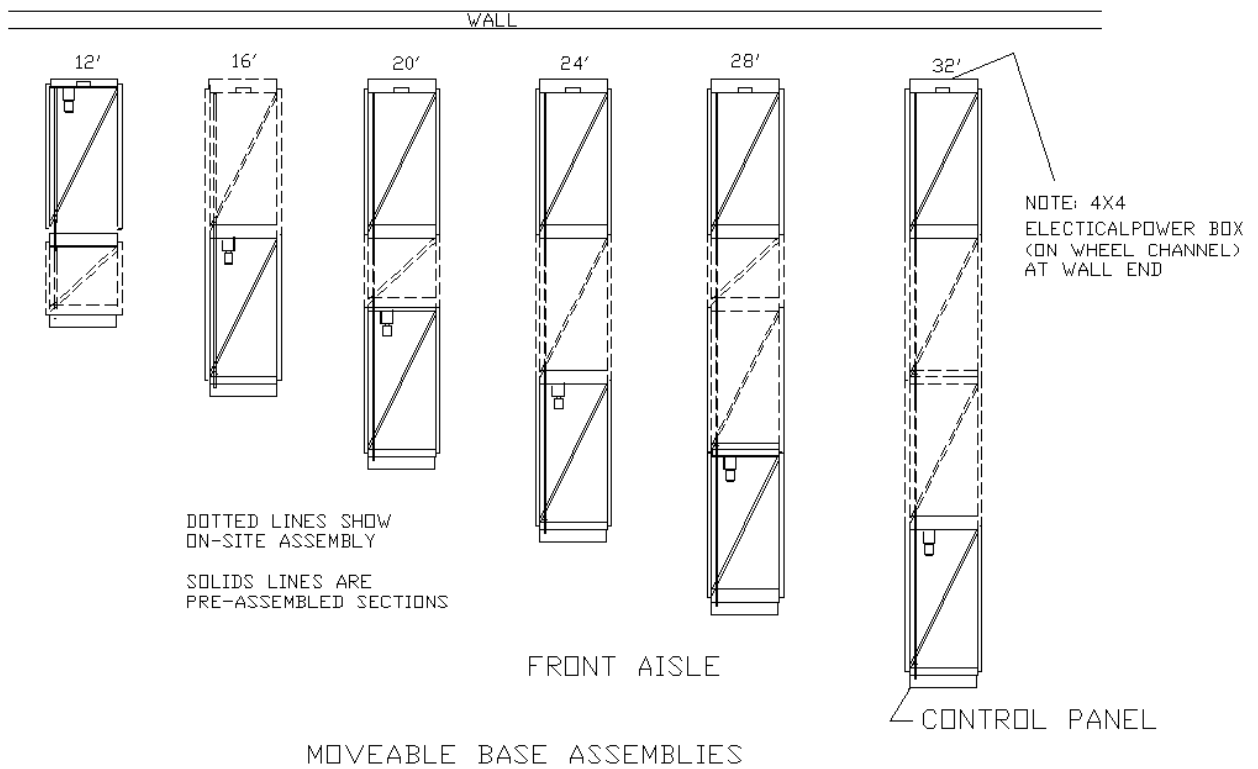
Revision: 8/30/10

## I. Movable Base Installation Procedure

**Introduction:** The successful operation of the movable base system depends primarily upon the accurate installation of the track system. A level, parallel, and precisely laid track system is crucial in eliminating any possible binding of the base during its travel. This track system does not allow for any shimming or any other further adjustments after installation. Familiarize yourself with the base lengths for this store given in the print. Refer to Figure 1 for the general base configurations available from PIPP.

*Overview:* This track installation project, from start to finish, will encompass the following basic steps:

- A. Review the store layout prints to familiarize yourself with the general installation area.
- B. Clean the installation work area.
- C. Determine from the store layout print exactly where the stationary racks are to be located and mark accordingly.
- D. Starting from the outside of the system and moving inward, the track runs will start from the inside facing of the stationary racks. Measure out the entire rear track run (closest to the wall).
- E. Locate, mark, and verify the center stationary rack.
- F. Locate the track gauges and confirm the center line dimensions.



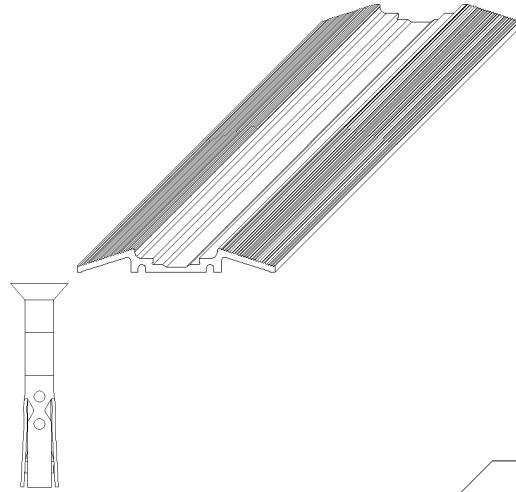
*Figure 1*

## *Tools And Equipment*

1. (1) Rotor hammer, (2) 5/16" x 4" masonry drill bits, (1) 1/2" x 4" masonry drill bit.
2. (2) 3/8" variable speed drill motors to use as screw guns.
3. 250 ft. electric extension cord.
4. (1) Heavy hammer (small sledge or dead blow)
5. (1) Magic marker
6. (2) Tape measures (1 to be at least 25' long)
7. (1) 16 oz. claw hammer.
8. (1) Metal band cutters.
9. (1) Chalk box with chalk.
10. (2) Three way electric splitters for extension cords.
11. (1) Box or utility knife.
12. (3) Large drift pins.
13. (1) Pair oil resistant gloves.
14. (1) 7/16" nut driver (hollow shafted) and (1) 3/8" nut driver (hollow shafted)
15. (2) 5/8" combination wrench.
16. (3) 3/8" ratchets.
17. (1) Each: 3/8" sockets, size 3/4", 1 1/16", 5/8, 9/16" deep well, 1/2" & 7/16"
18. (2) 6" extensions for 3/8" socket set.
19. (1) 3" extension for 3/8" socket set.
20. (1) Set of L-end wrenches.
21. (1) Pair of standard pliers.
22. (1) Pair of needle nose pliers.
23. (1) Pair of cutter (dike) pliers.
24. (1) Small set steel drilling bits 1/16"-1/2"
25. Small assortment #2 & #3 Phillips screwdriver and 3/16" & 1/4" flat head screw driver tips to fit.
26. Screw gun
27. (1) Roll electrical tape.
28. (1) Set electrical crimpers.
29. (1) Electrical continuity tester.
30. Knee pads
31. 1/8" & 5/32" Allen Wrenches

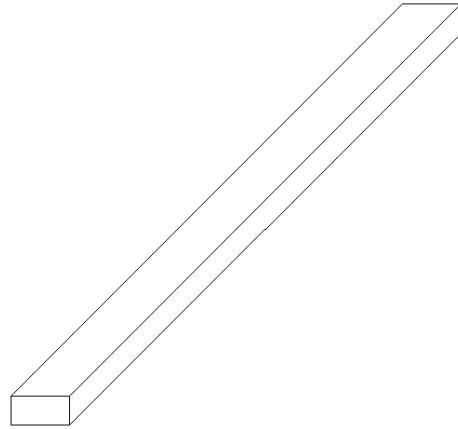
*Parts List*

- A1. Aluminum Track  
21" - FT5031-02100  
69" - FT5031-06900  
96" - FT5031-09600

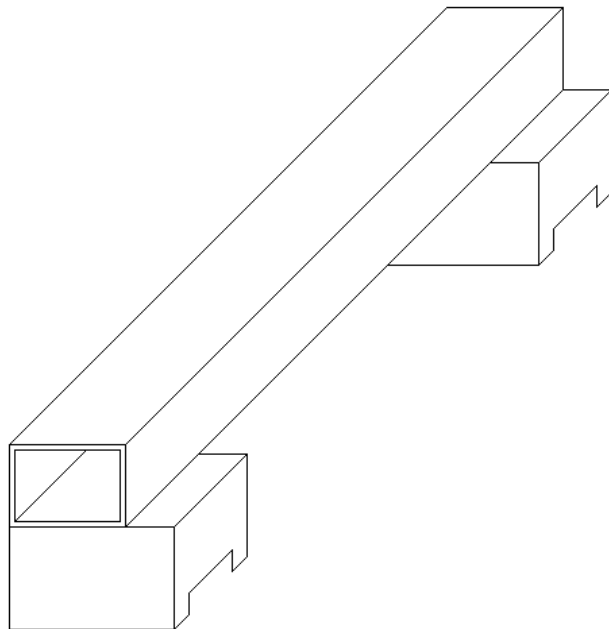


- A2. Hilti Sleeve Anchors -  
1/4x2"  
TRA311

- A3. Steel Track 3/8" x 3/4"  
21" - WM1060-02100  
69" - WM1060-06900  
96" - WM1060-09600

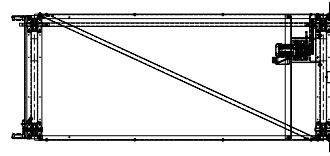


- A4. 4' and 8' Gauge Bar  
WM1023-04800,  
WM1023-09600

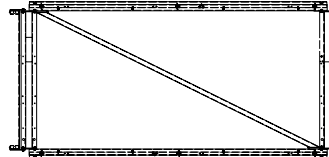


*Parts List*

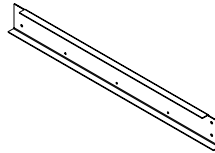
- B1. Front Base w/motor  
WM1001



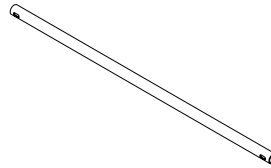
- B2. Rear Base  
WM1002



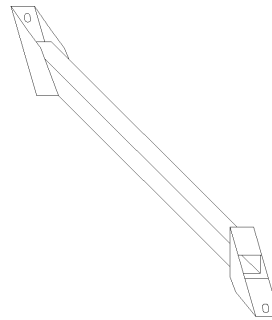
- B3. Side Channel 96" and 48"  
96": WM3006  
48": WM3007



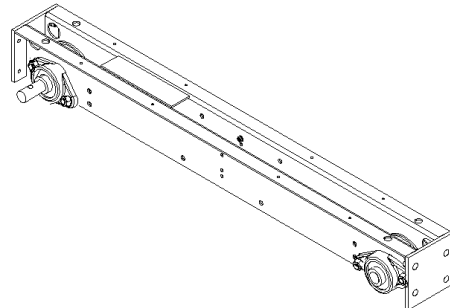
- B4. Drive Shaft  
89 1/8": WM3009  
90 1/4": WM3010  
42 1/4": WM3011



- B5. Cross Brace  
96": WM3007  
48": WM3008

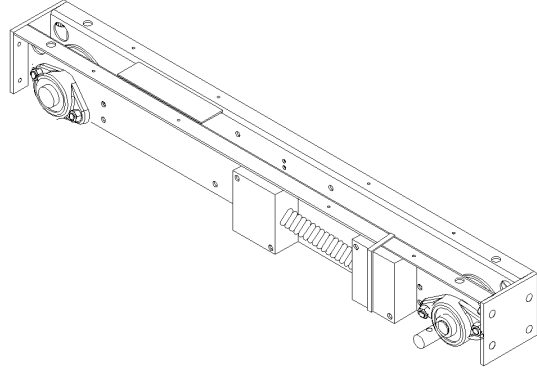


- B6. Wheel Channel C  
WM2003



*Parts List*

- B7. WM1003 - Wheel  
Channel C-16



- B8. Front Kick Plate  
WM1009

Attach with 3 - 1/4-20x3/8 button head bolts. (Comes mounted on Control Panel Upright)



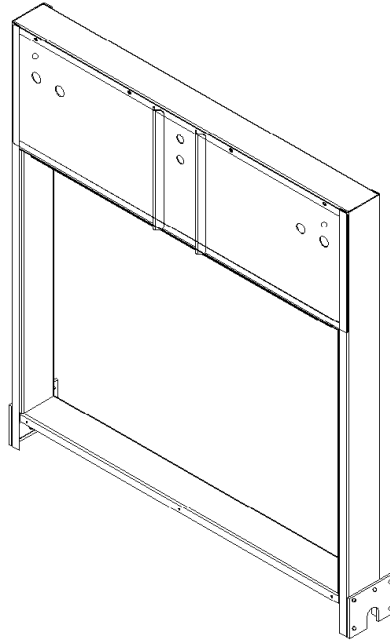
- B9. Chain Guard  
WM3013





## *Electrical Controls*

- B10. Control Panel  
Assembly - WM1005

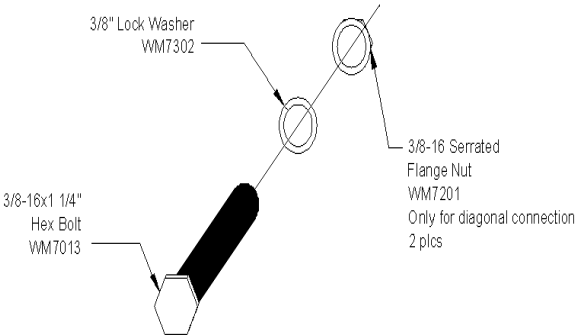


- B11. Power Extension Cords

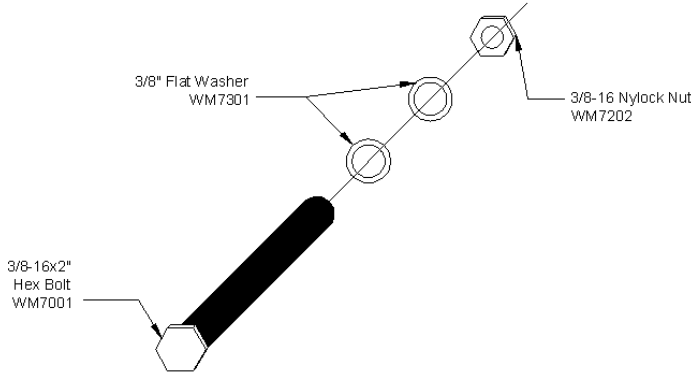
For 16' Base: WM3208 - Actual Length 17' 6"  
For 20' Base: WM3209 - Actual Length 21' 6"  
For 24' Base: WM3210 - Actual Length 25' 6"  
For 28' Base: WM3211 - Actual Length 29' 6"  
For 32' Base: WM3212 - Actual Length 33' 6"

*Connecting Hardware  
In QWM101*

FOR SIDE CHANNEL



FOR DRIVE SHAFT



*Hardware Parts For Track Installation.*

Hilti Fastener  
1/4" Rotary Masonry Drill Bit (For Drilling  
Holes in the Aluminum)  
Cement Drill Bit

*Hardware Kit QWM101*

Base Assembly Parts for side channel and shaft  
Bolts  
Nuts  
Split Washers  
Flat Washers

*Hardware Kit QWM105*

Cable ties/clamps

*Hardware Kit QWM106*

Racks To Base Hardware

*Hardware Kit QWM107*

Fire Flue Hardware  
2-Holders  
4-Straps

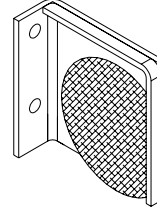
*Hardware Kit QWM119*

Misc.  
Spares

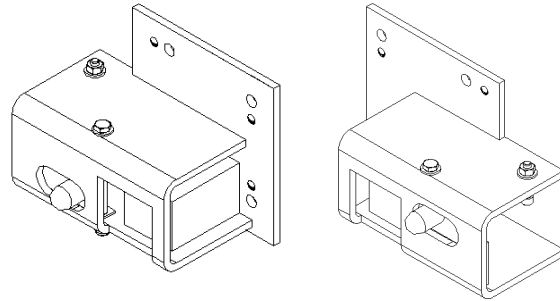
*Hardware Kit QWM103*

Electrical Control Frame Assembly Parts  
Lower Photo Eye Assemblies

- B12. Lower Reflector mirrors LH, RH  
Part of QWM103



- B13. Lower Photo Eye Switch  
Housings  
Part Of QWM103



**Hardware Kit QWM109**

Upper Photo Eye Assembly  
Panel Brace Kit

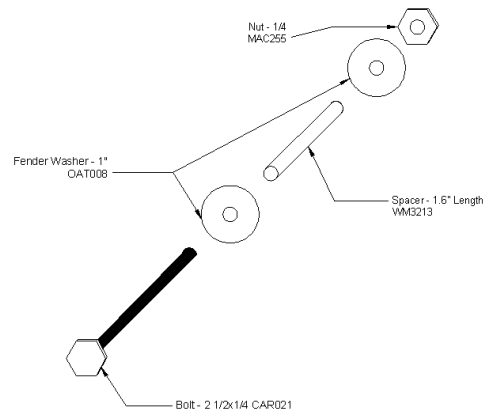
- B14. Upper Photo Eyes housing  
Part Of QWM109



- B15. Upper Reflector Mirrors  
Part Of QWM109



- B16. For Securing Panel  
Uprights



## II. Track Installation

Before proceeding with the track, review the general track lengths furnished for this installation. Four possible lengths are shown in Fig 2 (Page 12). The exact measurements between track runs for each base length are shown in Fig 3a to 3e (Pages 13-15). Please familiarize yourself with the specific aspects of the layout.

*Overview:* The essential steps required to install the track system are:

1. Verify that the floor is within 1" from it's highest point to the lowest point.
2. Place, locate exact positions for the aluminum extrusion
3. Insert 3/8" x 3/4" steel track bars.
4. Drill holes through aluminum.
5. Drill holes into the floor.
6. Insert and tighten the Hilti sleeve anchors.

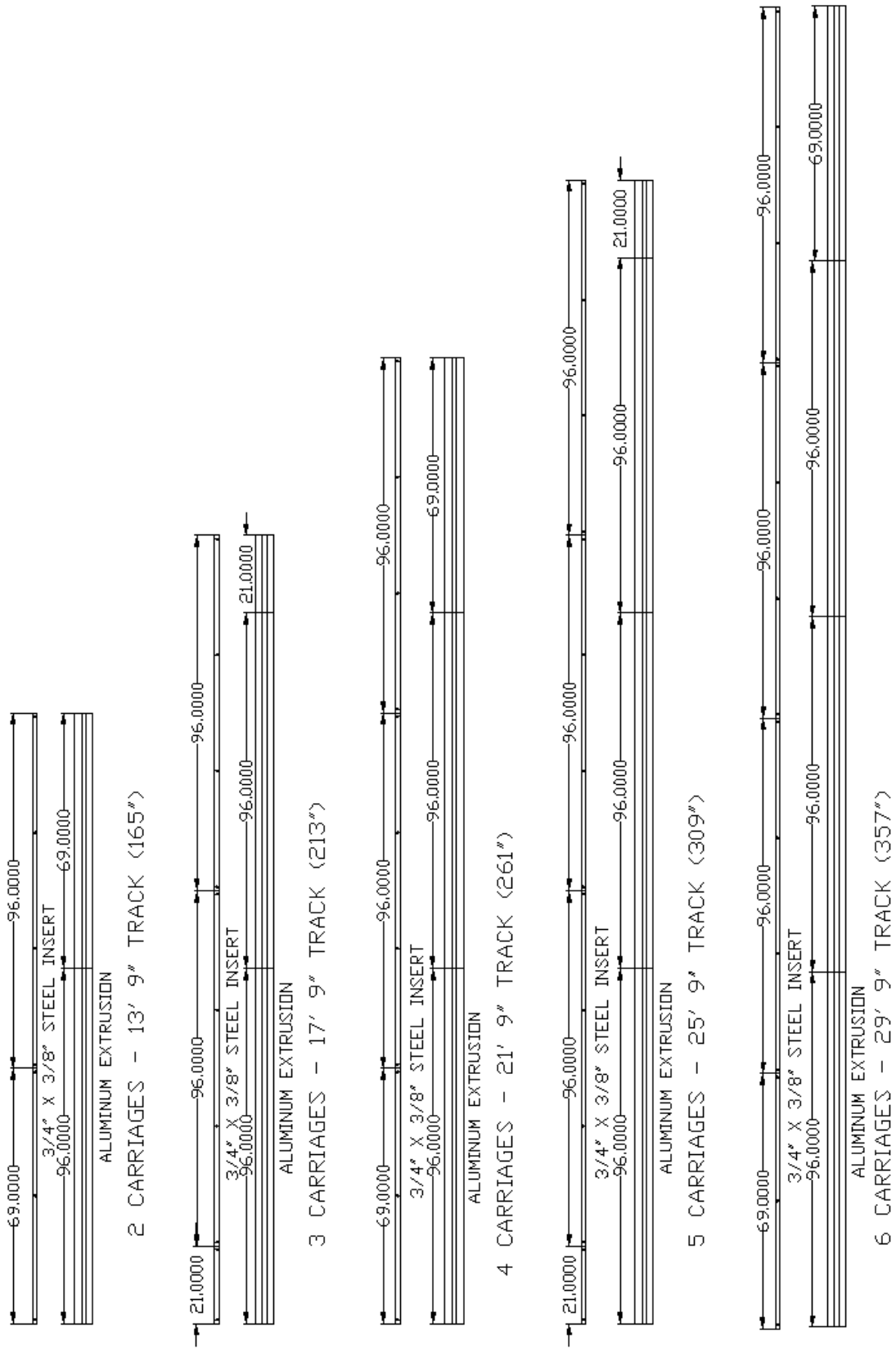
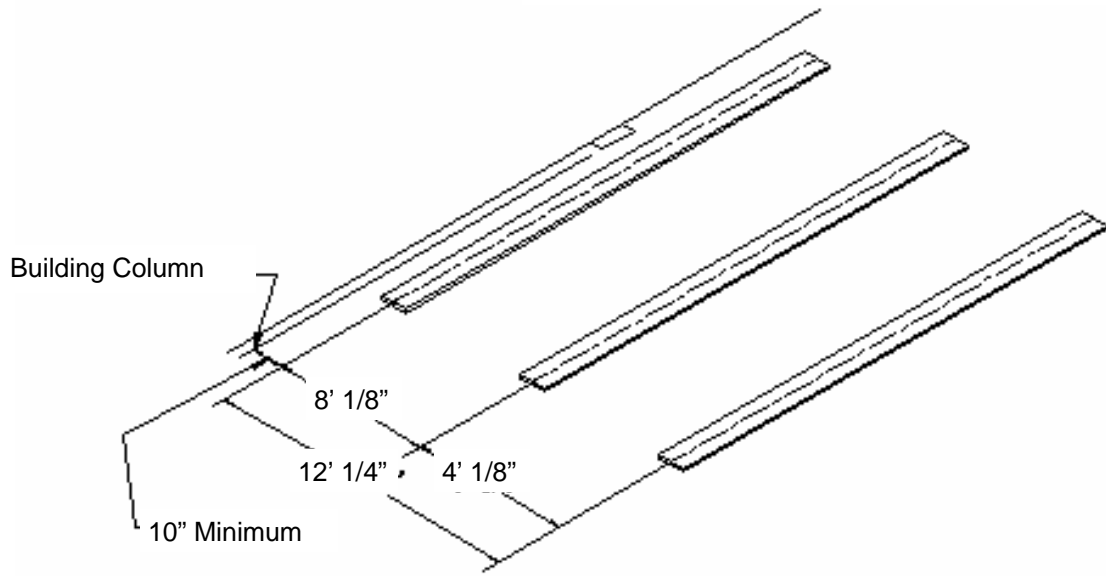


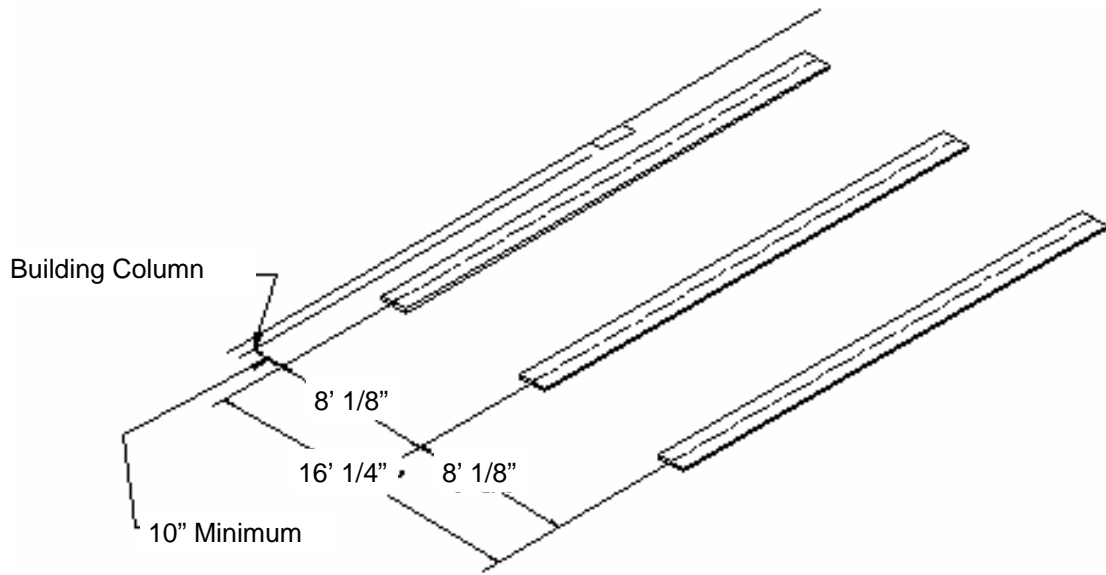
Figure 2 — Track Layouts

*Layout For 12' Carriage*



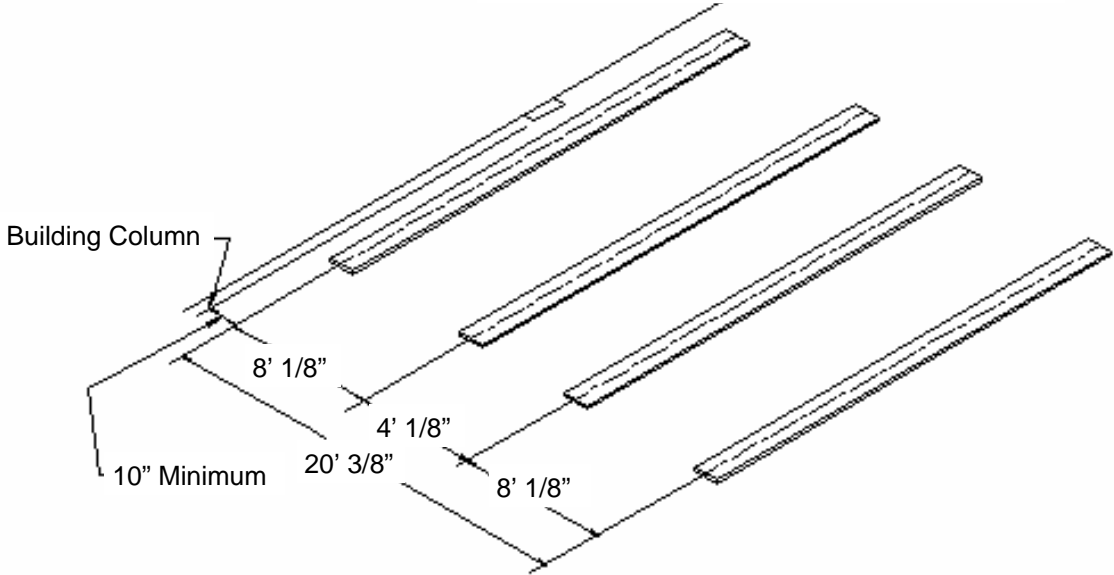
*Figure 3a*

*Layout For 16' Carriage*



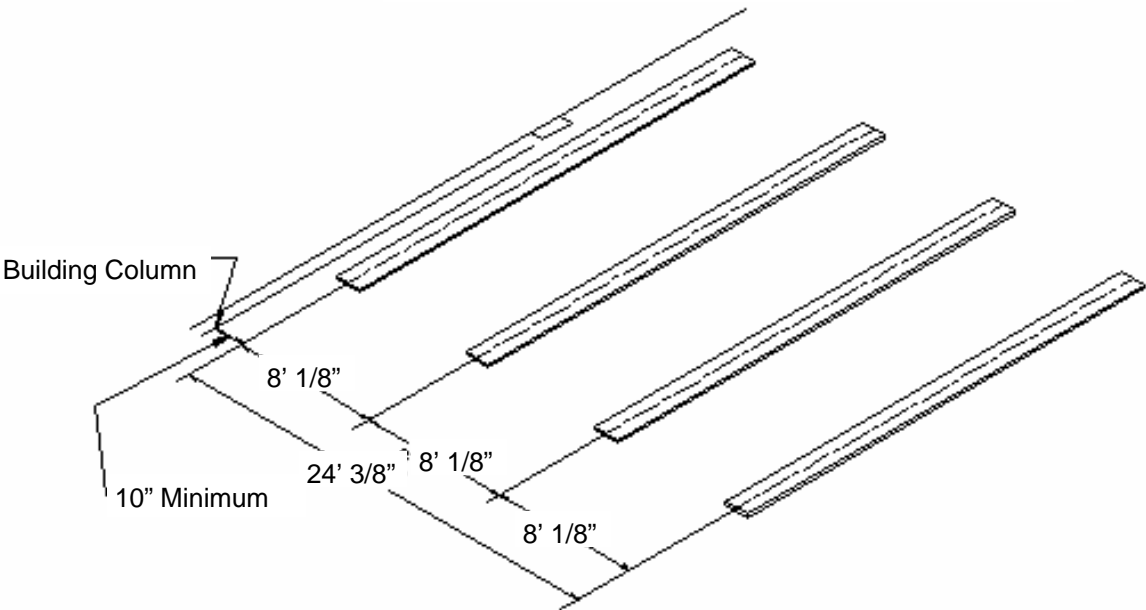
*Figure 3a*

*Layout For 20' Carriage*



*Figure 3b*

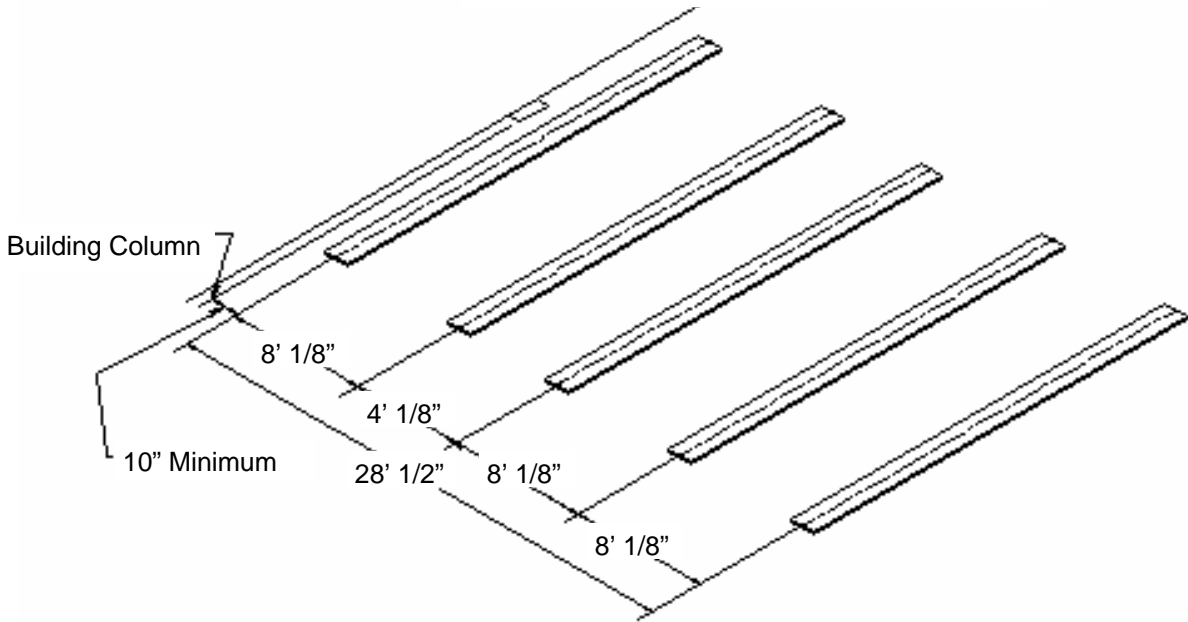
*Layout For 24' Carriage*



*Figure 3c*

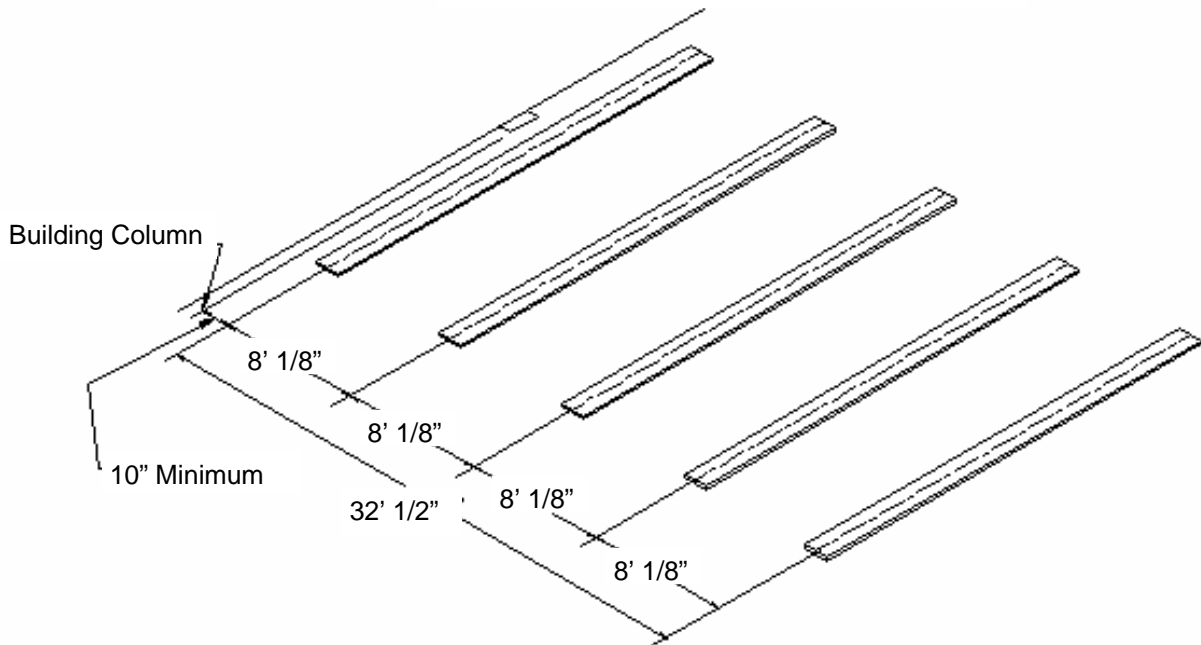


*Layout For 28' Carriage*



*Figure 3d*

*Layout For 32' Carriage*



*Figure 3e*

*Caution:*

- A. The floor should be within 1" between the highest and lowest points on the floor. If it is not, contact the site supervisor.
- B. Locate each zone from the doors. Locate and mark within each zone the location of the stationary racks as well as the starting point for the track. Set aluminum extrusion and steel inserts in the area.



*Figure 4*

- C. Set your minimum distance of 10" from aisle column. Snap a line across the floor at this 10" point. Place the aluminum extrusion and verify that the track is straight.

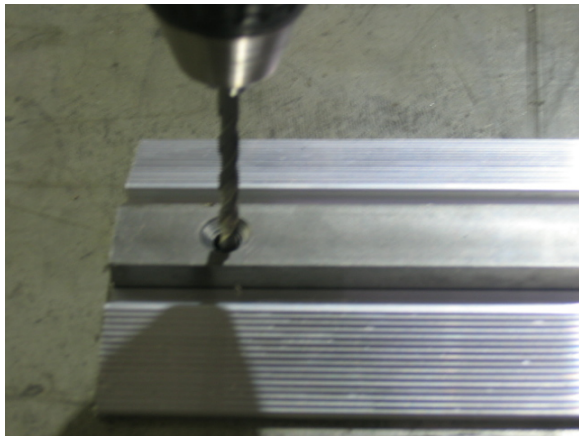
When the rear track run is in the approximate position, set the 3/8" x 3/4" steel Inserts, Figure 5.

Note: The steel should always overlap a aluminum joint. At no point during a track run should a steel and aluminum joint be at the same position.



*Figure 5*

Using the steel insert as a guide, anchor the end of the track by drilling through the aluminum using the drill bit provided (Figure 6). Drill until the bit has pierced the aluminum and gone slightly into the concrete. Then, using an impact drill and the SDS drill bit provided, drill a hole approximately 3" deep into the concrete (Figure 7). Blow out any debris from the hole and install the anchors provided (Figure 8). See page 18 for Anchor Installation details. Do not tighten anchors prior to inserting into the concrete. Verify that the head of the screw is flush to or below the surface of the steel. Once the first hole is anchored, verify that the track is straight and proceed in anchoring the rest of the run.



*Figure 6*



*Figure 7*



*Figure 8*



*Figure 9*

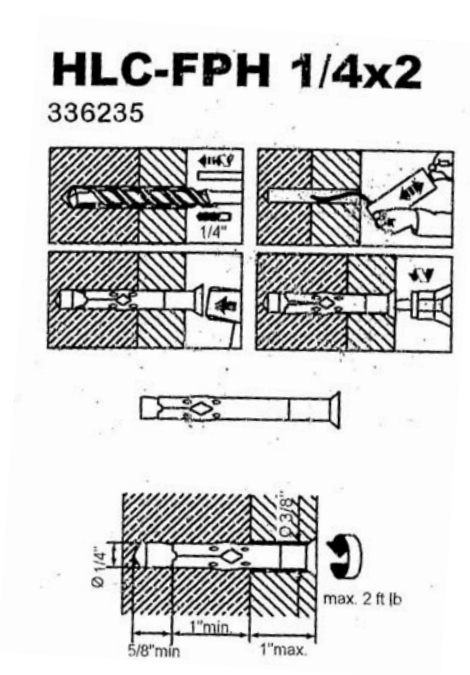
Once the first run is fastened down, place the next run using the provided gauges as guides for the spacing as shown in Figure 10. Anchor the track using the same process as the first run. Leave the track gauges in the track until that section is anchored to verify that the track stays in position. Repeat until all pieces of track are placed and fastened down.



Figure 10a



Figure 10b



Hilti HLC Sleeve Anchor Installation

### **III. Movable Base Assembly**

After the track is in position and anchored, assembly of the movable bases can begin.



For 16', 20', 24', 28', and 32' bases, set the first 8 foot front section. This is the drive section with the motor away from aisle.

For 12' bases, set the rear 8' section. This is the section with the motor. The motor should be on the rear track.

*Figure 11*

#### **Please note the following:**

A 12' movable base only has the rear section preassembled. This section contains the motor. The front section has to be assembled on site with the provided wheel mount.

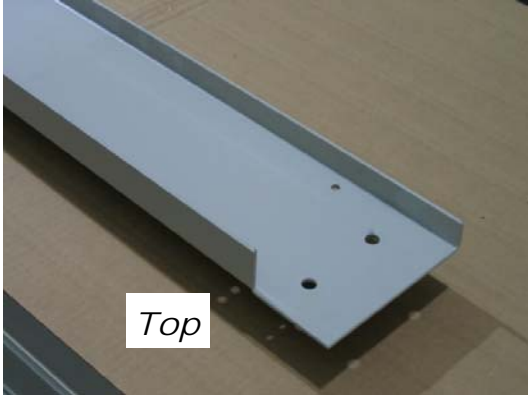
A 16' movable base only has the front section preassembled. The rear section has to be assembled at the site with the provided wheel mount, WM1003.

A 20', 24', 28' and 32' movable base will have the front and rear sections completely preassembled. The intermediate sections will be assembled on site. The rear base section will have a 4"x4" electrical box on the 'C' wheel mount. This box faces the wall. Note Figure 1.



*Figure 12*

Stage the materials for those sections to be assembled. Stage one drive shaft, two side channels, and one diagonal support. On 28' and 32' bases, one additional wheel channel (WM2003) is furnished for the Intermediate 2 sections.



*Figure 13*

Side channel: Note that the channel has one wider flange which is notched at each end. This is the top of the channel. Wide flange up for assembly.



*Figure 14*

Note the rear wheel channel (WM1003) has the pre-mounted 4x4 electrical box (**On the 16' carriage only**). Also note that the wall power mount box is pre-wired to the channel 4 x 4 electrical box.



*Figure 15*

Before assembling side channels, be sure the diagonal support is put in place. **THE DIAGONAL BRACE CANNOT BE ASSEMBLED AFTER THE SIDE CHANNELS ARE INSTALLED.** Assemble drive shaft, position diagonal brace, and side channel. Only hand tighten the fasteners.



Figure 16

### Assembly Of Drive Shaft

#### Drive Shaft Hardware (Figure 20)

Per drive shaft:

2- 3/8-16 x 2" bolts

4- 3/8 flat washers

2- 3/8-16 nylock nuts.

Do not tighten bolts until the base is measured for squareness. (Figure 22)



Figure 17a

Stage the hardware for the side channel assembly. Hardware per side channel: (Non-diagonal corner shown in Figure 21a)

4 - 3/8-16 x 1 1/4" bolts

4 - 3/8 split washers

2 - 3/8-16 serrated flange nuts (For bolts on the diagonal support corner- Figure 21b)

Finish assembly of section. Snug up bolts only, do not tighten at this time.



Figure 17b

Measure squareness of each section of the base unit. Go corner to corner. Dimensions should be held within 1/8" total squareness. When squareness is adjusted and confirmed, tighten all fasteners. **Do not forget to tighten the drive shaft bolts.**



Figure 18



*Figure 19*

Bases assembled and square. All fasteners secure.



*Figure 20a*

Note that the Chain Guard is shipped loose. The self tapping bolts are installed on the motor channel.



*Figure 20b*

Remove the self tapping bolts and position the chain guard in place.



*Figure 20c*

Re-install the two fasteners



#### IV. Electrical Assembly Procedure:

Verify that all fasteners at drive shafts and side channels are tight.



Figure 21

The Prox switch is factory installed on the inside of the forward most wheel channel. The Gap is factory set at approximately  $9/32$ ". On the right side of the carriage, feed the yellow, (90 degree fitting) cable through the upper wire clearance on the front channel. Secure the cable to Prox switch. Note that the cable assembly has a detent on it and only will go on the back of the Prox switch in one orientation. Tighten the cable by pushing on the connector, tightening the nut, and repeating until the nut is tight. Tie wrap cable per photo, Figure 21.

If the Proximity switch is out of adjustment, the carriage will only run for 1.5 seconds and will fault out. Both fault lights on the control panel will illuminate when the Proximity switch safety is violated. When the carriage is moving the light on the Prox switch will pulsate as the teeth of the sprocket pass in front of the switch. If the light on the Prox switch is steady on, or steady off then when the carriage is briefly in motion, the switch is out of adjustment. Use a  $13/16$ " wrench and adjust the switch gap.



Figure 22

Figure 22 shows the left side of the bottom crossbar of the control panel frame. It has one yellow cable and a plastic strip. This plastic strip, snake, will be used as a fish line to pull the motor power cord through left hand side of the control panel frame.



*Figure 23*

Figure 23 shows the bottom right side of the electric control unit. Note there are 3 cables. The black cable is the 110V panel input cable. This cable will be connected to the interconnect cord detailed in Figure 24. There is a yellow 90 degree connector cable to be attached the proximity switch at the right front idler wheel. The yellow straight connector cable is connected to right hand side lower photoelectric switch.



*Figure 24a*



*Figure 24b*



*Figure 24c*



*Figure 24d*

The panel power cord can be located at the bottom of the right hand upright of the end frame and can be identified by the 3 prong male plug. Feed the plug through the 1 1/4" hole in the wheel channel 'A' and secure to the side channel with a nylon tie (Figure 24c). The female plug of the interconnect cord is connected to the panel power cord. The pig-tail end is threaded through each wheel channel and finally connected inside the 4 x 4 electrical box on the rear most 'C' wheel channel. Be sure to secure the cord along the side channels in 3 places with the nylon ties (Figure 24d). It is essential that these cords be carefully secured and taut around the wheels and off of the floor to prevent any rubbing or snags.

Position Electrical Control Assembly at the front of the carriage.

Position Lower Photo Eye assemblies at the front of the carriage. (Kit QWM103)



*Figure 25a*



*Figure 25b*

Connect Photo Sweep cables (yellow straight connector on right side, Figure 25a, yellow 90 degree connector on left side, Figure 25b).

**Caution:** Yellow cables only install in one position. Find the detent position, push connector into position, hand tighten sleeve. Repeat push/tighten process until the sleeve is tightened. Failure to do so could cause improper function of the photo eyes.

Position electrical base to the outside of the front wheel channel.

Be sure that the uprights of the end frame are level (Figure 26).



*Figure 26*

Be sure all electrical control bolts & Photo Eye bolts are tight.

## *End Frame/Photo (Lower) Assembly*

The end frame is assembled to the front of each base using hardware kit QWM103. The frame and lower L/R photo eye housing may be installed at the same time.



*Figure 27a*



*Figure 27b*

- A. Orientate the end frame and the 2 lower photo eye housings at the front end of the movable base unit. The 2 through holes in the end frame connector plates must be lined up with the tapped holes in the wheel mount end plates.
- B. Feed the yellow photo switch cable (with the straight connector) from the control panel through the access hole in the end frame connector plate and attach to the photo eye in the housing. The indent in the plugs will direct you to the correct orientation.
- C. The following sequential steps are to be followed for the correct attachment of the end frame and photo eye housing:
  1. Hand tighten the 3/8-16 x 1" bolts with lock washers into the upper and lower tapped hole in the wheel mount end plate through the end frame connector plate (Figure 27a).
  2. Making sure that frame end post is level, tighten the 3/8-16 x 1" bolts with lock washers from step 1.
  3. Attach the photo eye housing with the three 3/8-16 x 1" bolts with lock washers provided in the kit into the wheel mount end plate and side channel making sure the bolts are tightened (Figure 27b).
  4. The 3 Allen screws on the photo eye housing assembly will be used for alignment of the beam.

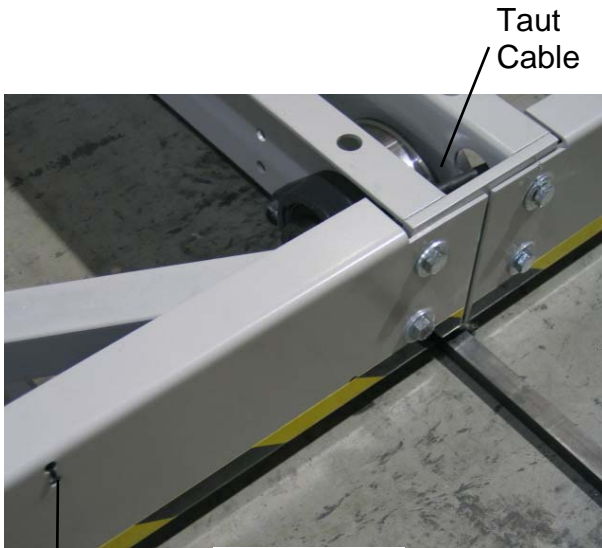


Figure 28

Tie Wraps

The ends of the tie wraps are to be on the inside of the side rails.

The holes along the upper side channels are used for the tie wraps. There are 1 1/4" holes through the wheel channels for running the wire.

**Caution:** Be sure all wires are taut in the area of the wheel channels.

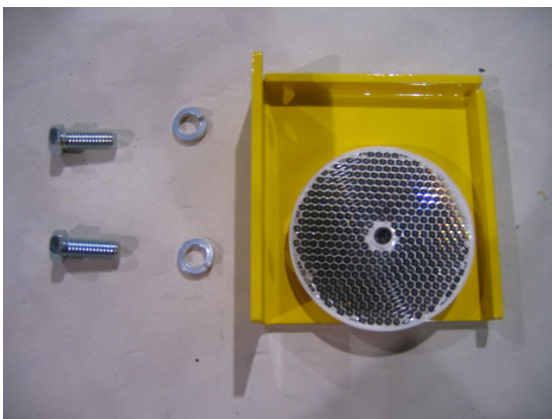


Figure 29

### Installation of lower mirrors for photo eye system (QWM103 Kit)

Install lower mirror assemblies. LH mirror shown with mounting hardware.

Mirror installation per movable base:  
1 LH mirror assembly, 1 RH mirror assembly

4- 3/4" 3/8-16 bolts

4- 3/8" split washers

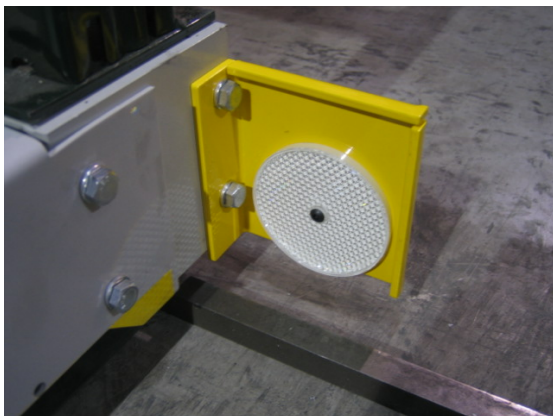


Figure 30

Install rear Photo Eye Mirrors using a 9/16" socket. There is a left & a right assembly. The mirror extends to the bottom of the bracket.

Mirror assembly installed. **Be sure mirror is square and normal to the track.** Tighten fasteners. Repeat assembly for other mirror assembly.

Snake



Figure 31

At The Electrical Control End, (Front Of Base), Remove 4 (and save) screws from the top of the control panel. Let control panel swing down carefully. Note that there is a “cable snake” taped to the control panel back, running down the left leg of the electrical base. Tape motor power cord to end of snake and **carefully** pull power cord up through the leg, into the control box.



Figure 32

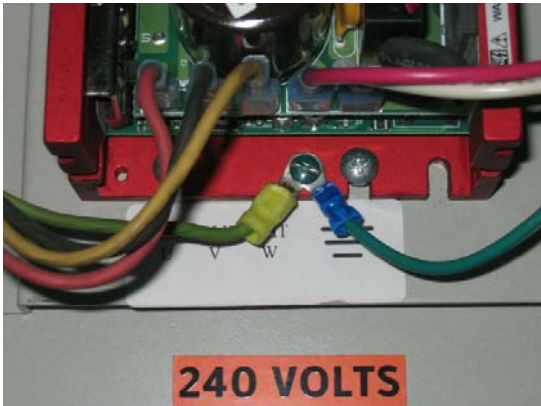
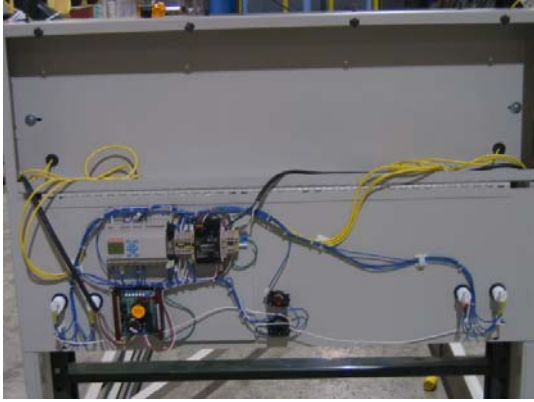


Figure 33

Remove Snake.  
Pull wire to the control unit (frequency drive) and connect 3 spade connectors.

Wires are installed from Left to Right. Red, Black, White and the ring terminal. (Green wire goes to the base)



*Figure 34*

Leave approximately 12" of the yellow upper photo eye cable outside the back of the control panel. Both left and right side.

Tie off wires inside control panel.



*Figure 35*

Carefully arrange wires as to eliminate pinching of wires when closing cover. Pull in any slack found in the lower photo eye / prox switch cables.

Close and secure cover with 4 1/4-20 screws, which were previously removed when the cover was opened.



*Figure 36*

**Caution:**

Secure photo eye on left side of front channel. Secure yellow cable away from idler wheel axle as required. Utilize white nylon cable anchor.

**Caution:**

Secure left side front yellow cable away from drive shaft.

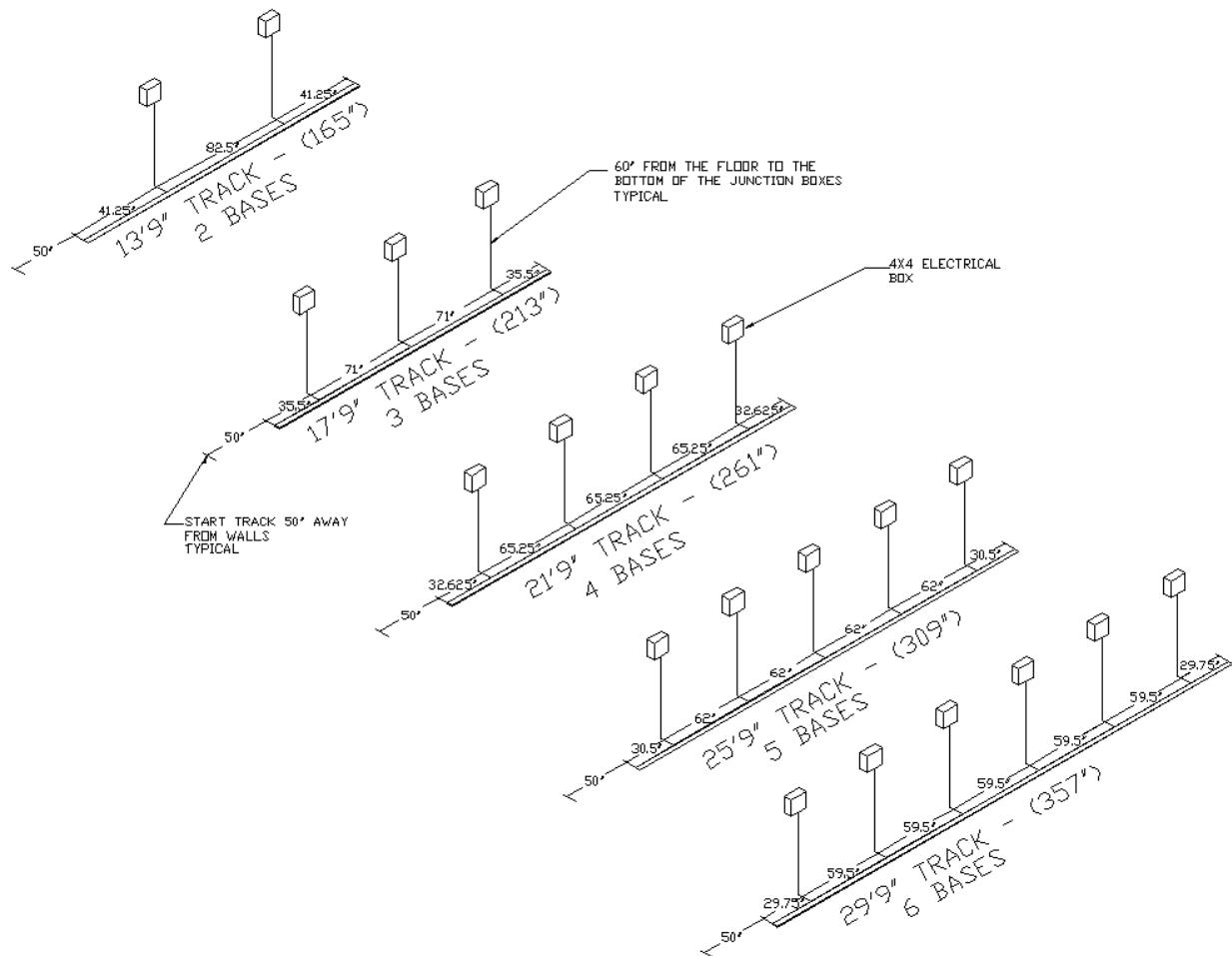
**Note:** On the underside of the bottom control panel brace, there is a white nylon cable anchor that can be used to secure the wire.



Figure 37

Connect the 16-3 base power cable to the 4 x 4 box in the rear channel of the carriage. Insert the cable through the strain relief fitting and connect the black and white wire to the black and white from the coil cord. The ground wire (green) goes to the ground screw on the box. Allow for a little slack in the cable inside the box, and tighten the strain relief fitting. Wire tie cable to right rear wheel channel. Extra length of cable will be doubled and wire tied in the right rear corner of the base unit.

### STOCKROOM POWER DROP LOCATION



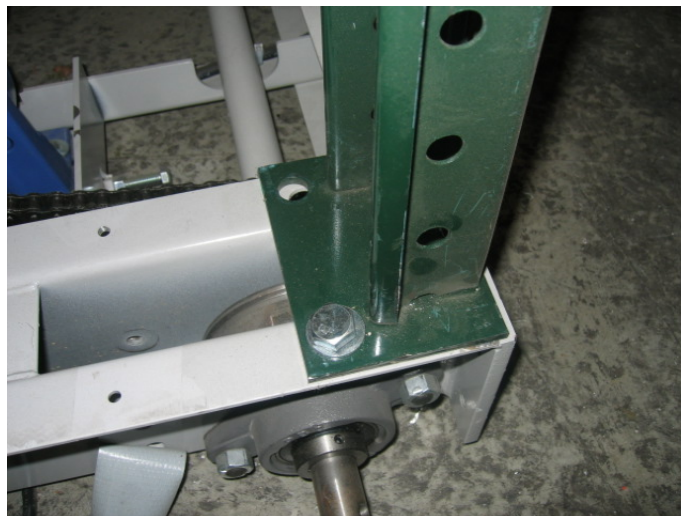


## *Upright Installation*

Uprights should be assembled based on the drawings provided by the store. Hardware for the attachment of the uprights to the mobile base can be found in the hardware box that was delivered with the mobile units (QWM106). 2 bolts should be used per upright and these bolts should be placed in the opposite corners (See Figure Below). 2 washers and 1 nut should be used with each bolt.

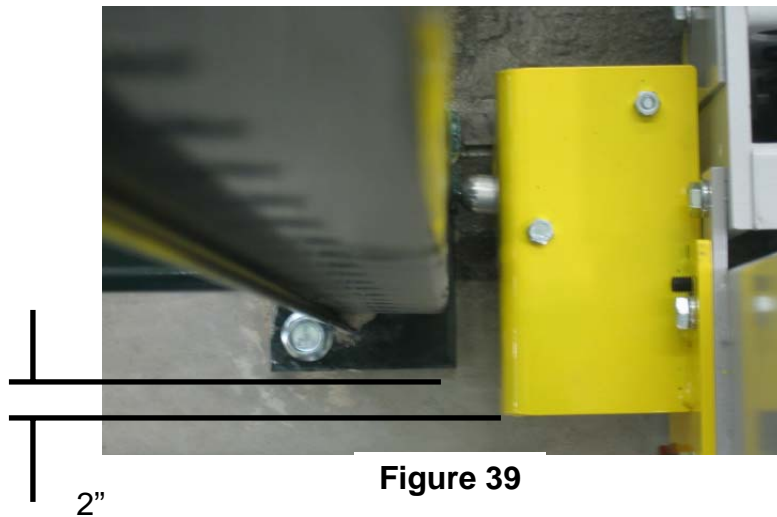


**Figure 38a**



**Figure 38B**

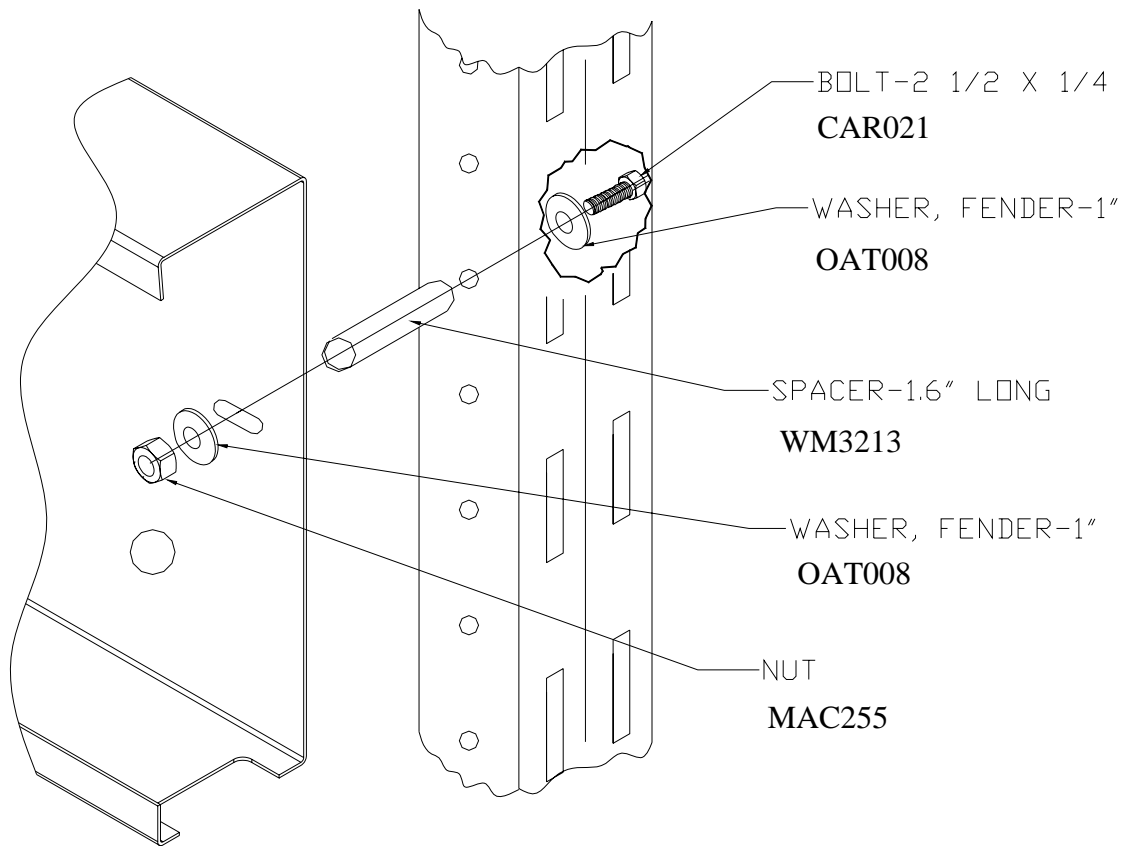
## Positioning Stationary Units



**CAUTION:** When positioning stationary units, position the front of the upright, closest to the photo eye, 2" aft of the photo eye bracket, as shown in Figure 39. The aluminum "bullet" style detent must strike the leg of the upright to stop. Be sure that the stationary base is installed straight and parallel to the mobile base.

*Install Control Panel Brace*

Parts packed in Upper Photo Eye Parts kit (QWM 104).  
Install as shown in Figure 40.



**Figure 40**

## Installation of the Upper Photo Eye Assembly, QWM109

Install level to the 2nd beam; the center of the mirror must be at center of the photo eye (Same height above the floor). Run the photo eye cable to the inside of the spacer and up along the upright as shown in figure 43. **Once the photo eye cables are installed, be sure to tuck any excess cable back into the control box and tie wrap the cable to the upright to avoid pinching of the wires.**



**Figure 41a**  
Front



**Figure 41b**  
Front



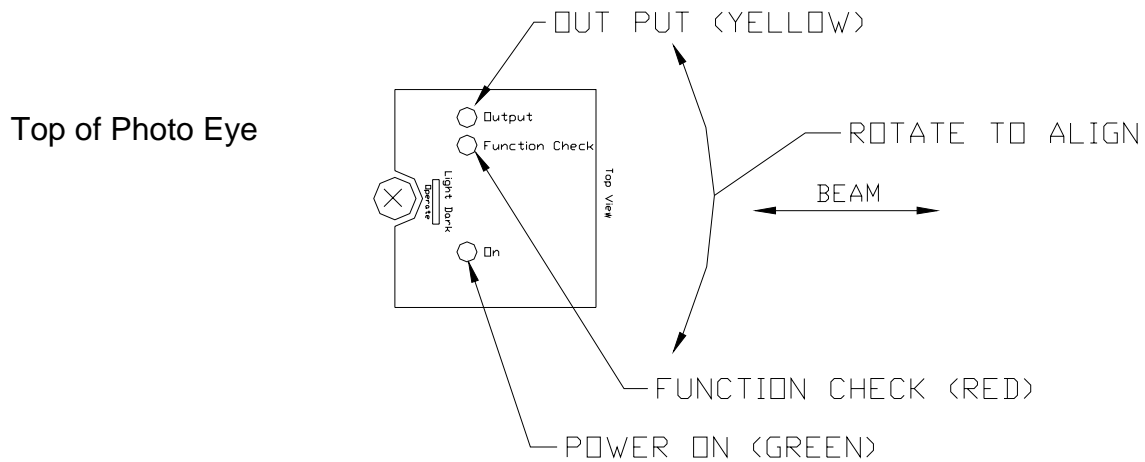
**Figure 42**  
Rear



**Figure 43**

**Caution:** Movable base will not function unless all Photo Eyes are connected and Mirrors are in place.

*Alignment of Photo Eye Beam (Upper & Lower Photo Eye)*



**Figure 44**

Normal operation—All three lights on, steady.

Power on—Green light on, if no other lights on, there is a fault, or misaligned photo eye.

Solution: Clear obstruction or re-align beam.

Marginal Alignment:—Yellow & green on (steady light), and a flashing red light.

Solution: Re-align photo eye.

Marginal Power: - Faint green light on

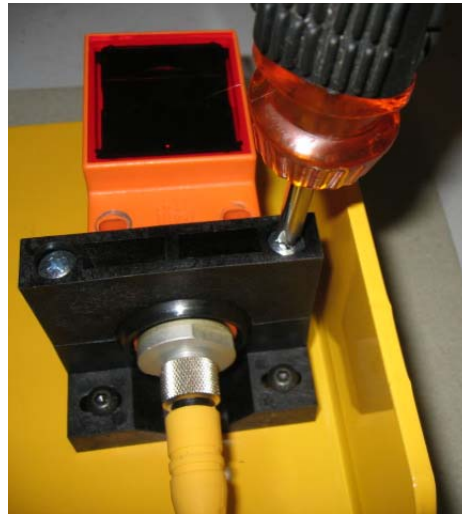
Solution: Tighten yellow cable on photo eye and verify that blue wire from the yellow cable is not loose inside the control panel.

## Alignment Of Upper Photo Eye

To align the upper photo eye, loosen the 2 Philips head screws (Figure 45b) and twist/turn the photo eye until all 3 lights are on (Figure 46). Once all 3 lights are on, retighten the 2 Philips head screws and verify that all lights are still on.



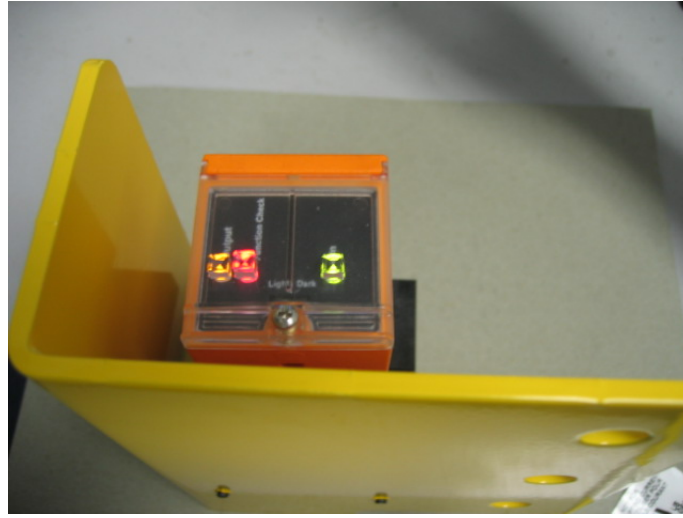
**Figure 45a**



**Figure 45b**

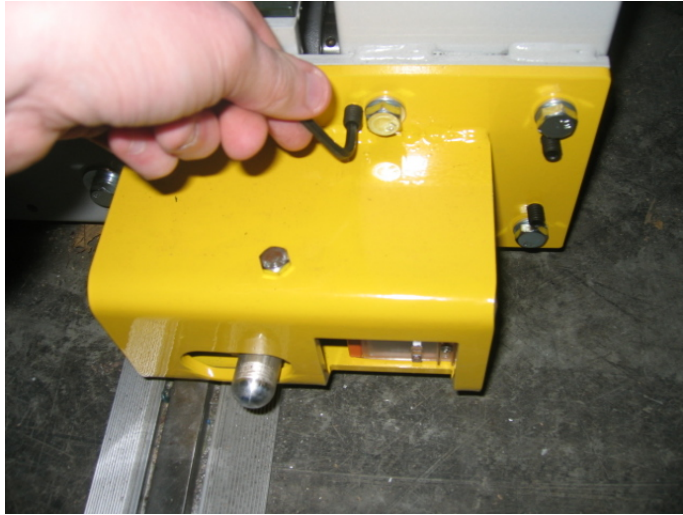
Photo eye out of alignment—only “Green” light on.

Photo Eye In Alignment  
All Three Lights On Steady.



**Figure 46**

## Lower Photo Eye Adjustment



**Figure 47**

To adjust the alignment of lower photo eye:

Slightly loosen the three bolts holding the photo eye bracket to the control panel brace.

Adjust the 3 set screws as necessary until the 3 lights on the photo eye are on and steady.

Tighten the three bolts holding the photo eye bracket to the control panel brace.

Verify the 3 photo eye lights are still on & steady.

Repeat process by adjusting set screws as required to bring the photo eye into alignment.



## *LED Replacement*

Insure power is "off" to panel and open front cover by removing the four (4) Phillips head screws.



To remove lamp holder insert a small flat head screw driver into one of the two locking legs and pry gently.



The lamp holder will lift out to expose the LED bulb.



Depress LED bulb and turn ccw a 1/4 turn and remove. Insert a new LED bulb and depress with a 1/4 turn in a cw direction. Reinsert lamp holder to lens assembly by pressing down on lamp holder until locking legs click.

Close panel cover and secure with the four (4) Phillips head screws. Power up and press reset button.

TROUBLESHOOTING GUIDE  
WAL-MART/PIPP ELECTRIC LAYAWAY  
STORAGE BINS

Movable bin dead, no power.

- Pull out "Emergency Stop" button
- Press "System Reset" button

"No Power" persists, proceed as follows:

- Check panel power cord / base power cord plug connection.
- Check circuit at main breaker panel, verify it is on.
- Check breaker/switch at wall power box. Breaker should be pushed in, and switch on.
- Verify connections at junction 4X4 box at back of base unit
- Check fuses in control panel. Remove 4 screws from top of panel. Fuses located on the left and right of transformer. Check placard on panel for sizes and location. **BE SURE POWER IS OFF BEFORE CHANGING FUSES**

Base will not move:

- Pull out "Emergency Stop" button
- Press "System Reset" button. Green panel light should be on. If either of the fault lights are illuminated, check to see that the aisles are free and clear of obstruction and that the carriages are not bumped up next to each other. Verify that all 4 photo eyes, (2 upper and 2 lower) have three steady lights illuminated. If you see a flashing red or a green light only on a photo eye, you must re-align photo eyes per instructions.

If the carriage only moves for a brief instant (1 ½ or 2 seconds), stops and shows both fault lights.

- Check the proximity switch on the right front wheel/axle. Make sure there is no obstruction of the switch.
- Check the gap between the end of the proximity switch and the tooth tip. The gap between the switch head and a tip of the gear teeth should be 9/32".
- If the light on the proximity switch is always on, move the switch farther away from the sprocket.
- If the light on the proximity switch is always off, move the switch closer to the sprocket.
- When the Proximity switch is set correctly, the light in the proximity switch will pulse as the base is moved.

Only a faint green light appearing on photo eyes:

- Check yellow cable and verify that the cable is fully seated on the photo eye and that the nut on the cable is tight.
- Open control panel and check the terminal block where there are 5 small blue wires. Tug on the wires to verify that none are loose.
- If problem persists, test photo eye on a known working cable to verify that the photo eye is working properly.

A Bin is moving slower than the others:

- Open control panel, locate freq drive (big red housing), and verify that the POTs at the top are as shown below.



## Operational Check

	Left	Right
1. System On		<input type="checkbox"/>
2. Verify Manual Move	<input type="checkbox"/>	<input type="checkbox"/>
3. Verify Automatic Move	<input type="checkbox"/>	<input type="checkbox"/>
4. Verify Emergency Stop		<input type="checkbox"/>
5. Verify function of Upper Photo Eyes	<input type="checkbox"/>	<input type="checkbox"/>
6. Verify function of Lower Photo Eyes	<input type="checkbox"/>	<input type="checkbox"/>
7. Verify function of Proximity switch		<input type="checkbox"/>
8. Verify mechanical stop	<input type="checkbox"/>	<input type="checkbox"/>
9. Verify "System On" indicator light		<input type="checkbox"/>
10. Verify "Fault" indicator lights	<input type="checkbox"/>	<input type="checkbox"/>
11. Verify installation of grommets	<input type="checkbox"/>	<input type="checkbox"/>
12. All wires secured properly (No wires pinched or on ground)		<input type="checkbox"/>
13. All wires taut (No visible slack outside of control panel)		<input type="checkbox"/>
14. All photo eye / prox switch cables securely attached (Check by pushing each cable onto the connector and verify that the connector will not go on any farther be sure to also make sure the nut is tight)		<input type="checkbox"/>
15. All sensors tightened and secure. (Black plastic nut on Photo eyes tight and prox switch secure in bracket)		<input type="checkbox"/>

# Electric Carriage Anti-Tip Installation

1. Remove the lower reflector housings on both sides of the carriage (Figure 1).
2. Replace the old bolts with the 3/8-16x2" Hex Bolts and split washers provided with the anti-tip brackets.
3. Place anti-tip bracket inside the end plate on the wheel channel and fasten using provided washer and serrated flange nut.
4. After all brackets are installed on all mobile units, layout the z-rail behind the rear run of track.
5. The back edge of the Z-Rail should be approx. 6-3/8" behind the centerline of the rear track.
6. Z-rail is predrilled for 1/2" Hilti TZ anchors. Determine the placement of the end of the z-rail and drill the first anchor hole. Insert the first anchor and snug the nut on it.
7. Make sure the z-rail is parallel to the track and drill and insert the other anchors.
8. Before tightening all anchors, verify that all carriages move the full span without interference.

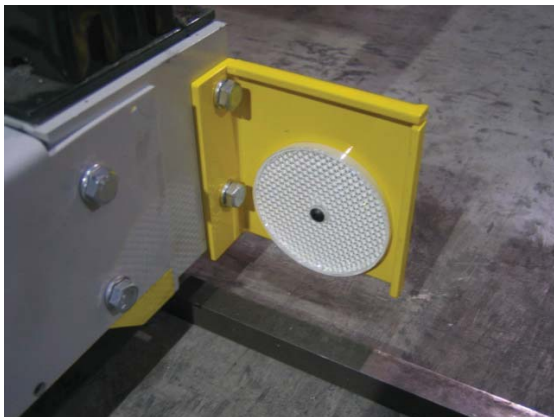


Figure 1



Figure 2