



# HALLCO<sup>TM</sup>

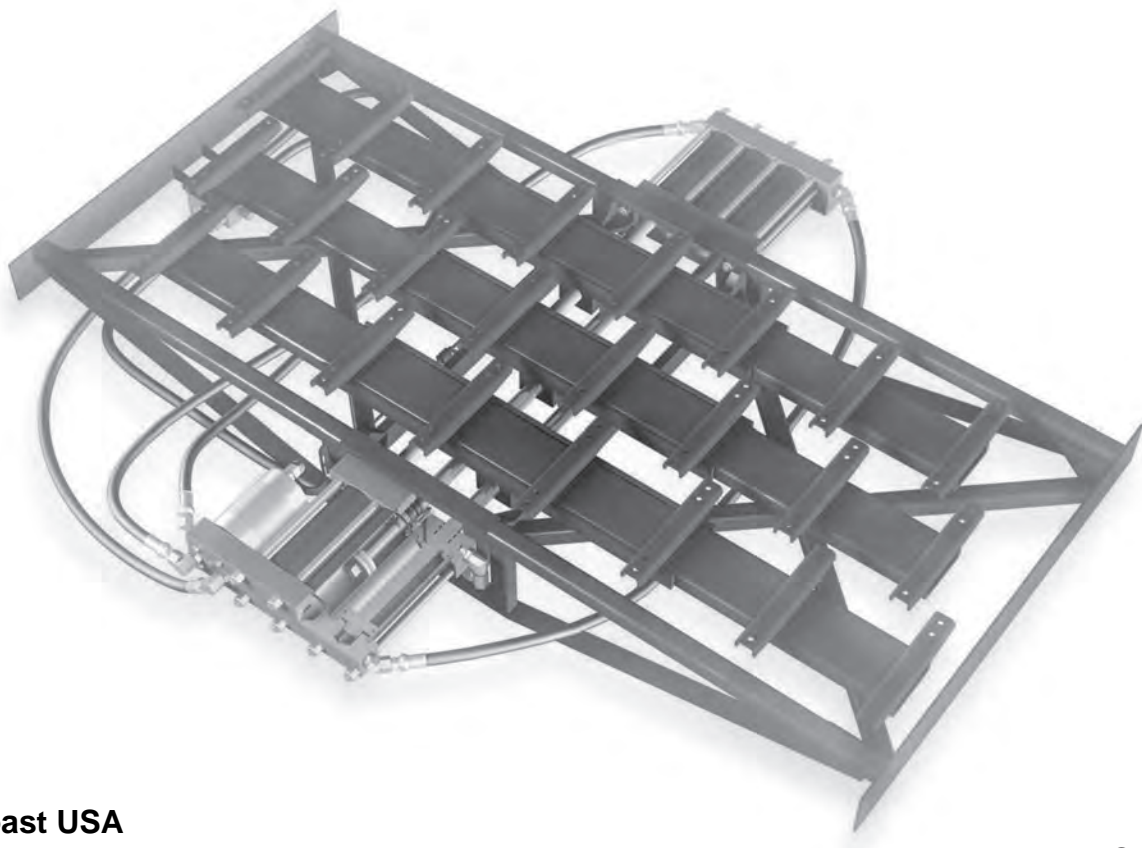
## INDUSTRIES

# INSTALLATION MANUAL

**i-4000 and i-6000 SERIES**

**LIVE FLOOR<sup>TM</sup> CONVEYING SYSTEMS**

*One-Way (i-4100/i-6100) and Two-Way (i-4200/i-6200)*



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## About This Manual

This manual is to be used as the primary guide for installing your i-4000/i-6000 conveying system. A separate Owner's Manual is also included in your kit.

Carefully read the Installation Manual and Owner's Manual. Make sure you have a complete understanding of the work to be carried out prior to starting. Both manuals include critical safety information that must be followed during the installation and operation of the equipment.

Refer to the i-4000 and i-6000 Series Owner's Manual, document #99-5846, for additional information which may not be included in this manual such as:

- Unload Speeds.
- Floor Maintenance: Cleaning, Inspections, Repairs.
- Subassembly Exploded Views.
- Part Numbers.

Hallco will periodically update these manuals. You can find the latest versions online at [www.hallcoindustries.com](http://www.hallcoindustries.com) or you can contact your Hallco representative. Also note, in the lower right corner of each page is the Hallco part number and, if revised, a revision letter of the manual. This will allow you to quickly identify if you have the latest version.



Use this QR code to quickly locate manuals on your smart phone.



## Safety

Your safety is the utmost importance to Hallco. Follow safe working practices while installing this system. Review all safety guidelines and pay attention to safety warning symbols as they will highlight specific dangerous aspects of the task at hand.

Only properly trained and authorized personnel shall install, operate and service Hallco equipment. Installers are expected to have a fundamental understanding of tool safety and safe working practices.

DO NOT deviate from these instructions or modify the equipment without written authorization from Hallco. Modifications can render the equipment unsafe and void your warranty.

Hallco is not responsible for equipment damage or personal injury as a result of failing to follow these instructions or failing to incorporate safe working practices.

### **FAILURE TO FOLLOW SAFETY GUIDELINES WILL RESULT IN INJURY OR DEATH**

#### **Tools and Processes Required for Installation**



Drilling



Riveting



Welding



Tightening Fasteners



Assembling Hydraulic  
Hose/Tubing



Measuring

**⚠ DANGER**

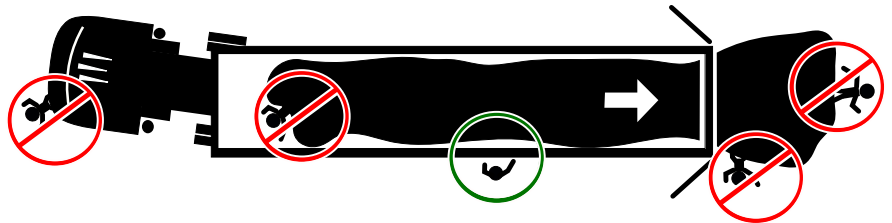
**AVOID the product hazards shown on this page DURING FLOOR MOVEMENT or personal injury or death WILL occur.**

**Product Hazards**

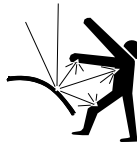
The discharge end of a Live Floor conveyor and in front of the vehicle during operation when a load is at the discharge end.



The space between the front wall and an object or pile on the floor that is near the front wall.



Damaged or cut hydraulic hoses, fittings or tubing. A small hole in a hose or fitting will produce a stream of fluids that can pierce the skin injecting oil into your blood.

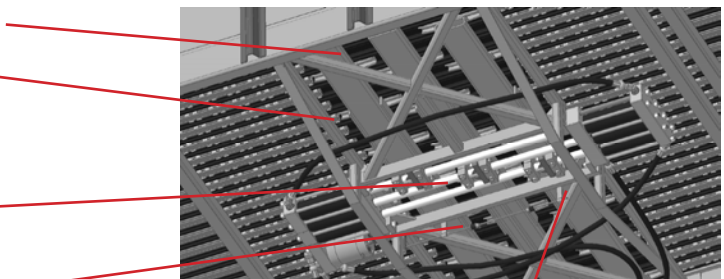


The space between cross-drive beams.

The space between shoe ends and the sub-deck ends.

The area between clamps.

The area between the triggers and the switching rod bumpers.



The area between the triggers and the surrounding framework.



The bolt hole in the hold down blocks.



**⚠ WARNING**

**AVOID the product hazards listed on this page while hydraulic FLUID IS FLOWING TO the floor systems or personal injury or death MAY occur.**



The end of the slats and the front wall.



**CAUTION**

Avoid the hazards listed below during installation or minor or moderate injury may occur.

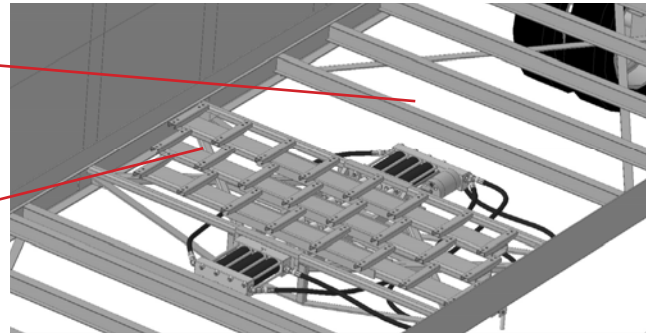
**Hazards**



The spaces between cross members.



If not secured, the cross drive beams will tip side to side if stepped on.



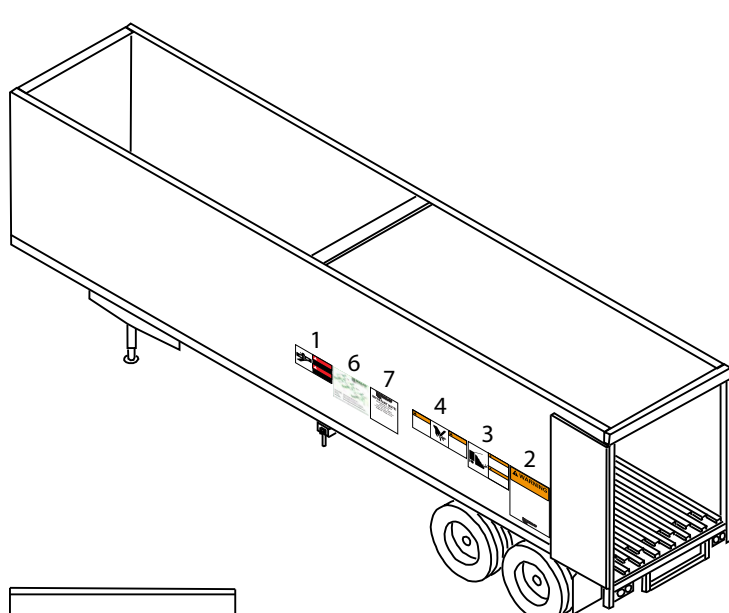
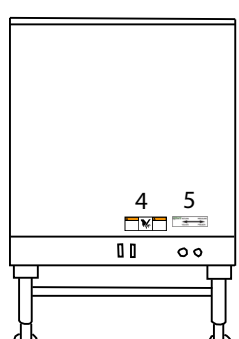
**NOTICE**

Take the following actions to prevent property damage:

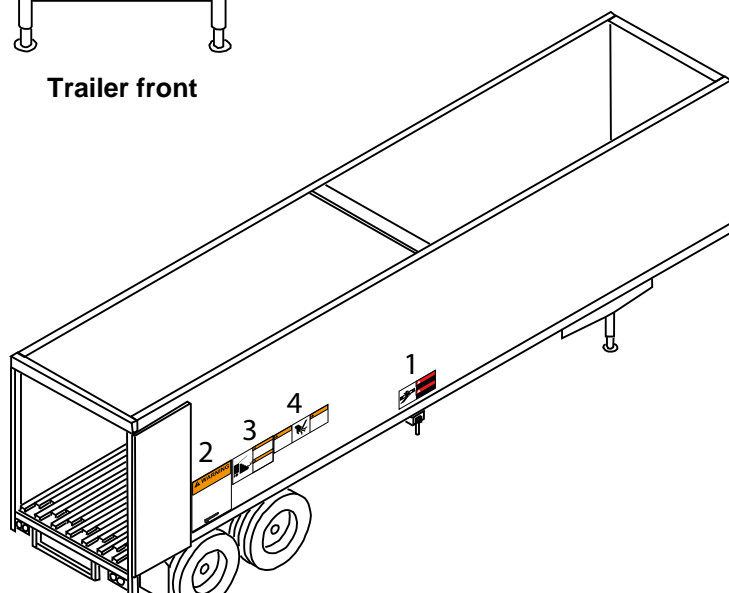
- For warranty purposes, get approval from the Original Equipment Manufacturer prior to welding or drilling on their product (trailer, etc.).
- Cover the shaft chrome during welding, burning, grinding and painting. Any scarring of the shafts will damage the hydraulic seals resulting in system leakage. Remove the shaft cover before operating system.
- Support hoses and protect them against abrasion from contact between other components.
- Install a filter in the return line as close to the tank as possible before operating the floor system.
- Install a high pressure filter in the pressure line between the pump and the conveyor system before operation.
- Make sure the system pressure never exceeds the maximum pressure specified in this manual.
- Monitor the oil temperature during operation to prevent it from exceeding 180 100° F (82° C).
- Watch the space between the front wall and the load while operating the Live Floor in the load mode. Stop the conveyor if it is in the load mode and the load is touching the front wall.
- Deck, mounting and tie bolts must be re torqued after the first 5-10 loads! Failure to do this will result in damage to the slats and drive unit.

## Operational Decals


Before operating the LIVE FLOOR™ system make sure the safety and operational decals are installed on the container per figure below.


**Trailer front**




**1 # 99-4400 | Qty 2**



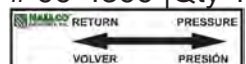
**2 # 99-4806 | Qty 2**




**3 # 99-4807 | Qty 2**




**5 # 99-4399 | Qty 1**




**4 # 99-4808 | Qty 3**




**6 # 99-4398 | Qty 1**



**7 # 99-4401 | Qty 1**




**8 # 99-4809 | Qty 1**



Logo sticker should be placed on rear door.

**9 # 99-4813 Qty 1**



Extra Logo Sticker



## Live Floor Kit Parts

These pictures show standard kit parts to help you understand the packing slip. Kits with custom parts will look different from these picture. Shipping dimensions given are for rough scale only. Actual sizes will vary considerably.

**Complete Drive Unit (Perimeter Frame).  
Special 2" [50mm] bearings in the box.**



8' [2.4m] x 6' [1.8m] x 1' [.3m]

**Deck Slats - 1 bundle/kit  
Multiple profiles available.**



20" [500mm] x 7" [180mm]  
x Floor Length

**Side Trim (Optional) Multiple  
profiles available.**



4" [100mm] x 3" [175mm] x 20'  
or 24' [6m or 7.3m]

**Bearings**



24" [600mm] X 36" [910mm]

**Deck Nuts**



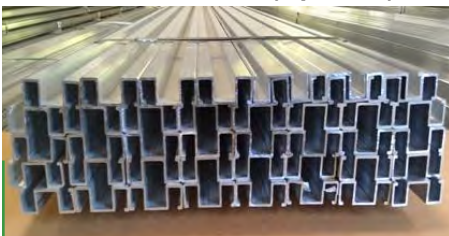
7" [180mm]

**Slope Sheet Wiper Block or Belt**



9' [2.7m]

**Aluminum Sub-Deck (Optional)**



16" [400mm] X 8" [200mm] X 20'  
or 24' [6m or 7.3m]

**Flat Head Hex Socket Cap Screw  
Deck Bolts**



7" [180mm]

**Hydraulic Tube (Optional)**



20' or 24' [6m or 7.3m]

**Hold Down Blocks**



12" [300mm]

**Sub-deck Spacers**



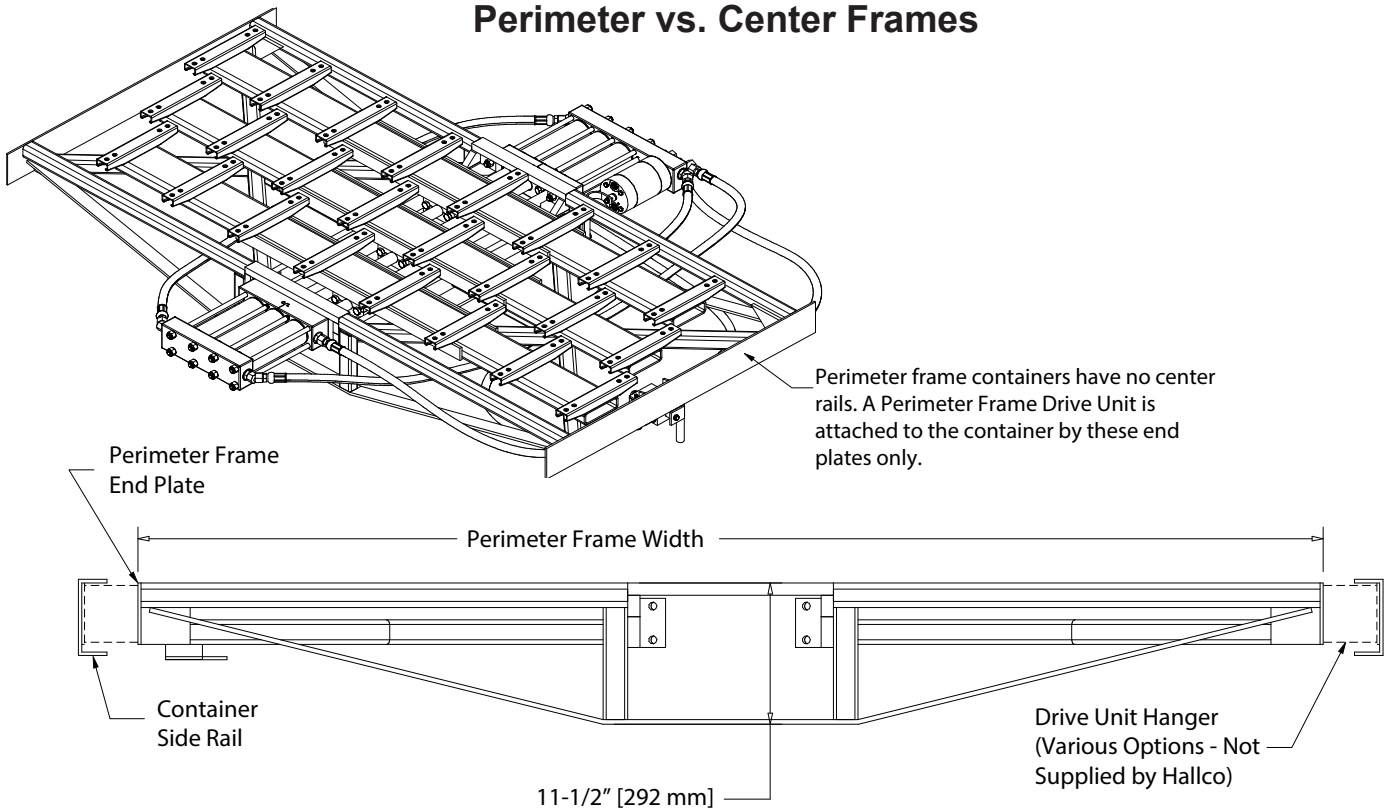
8' [2.4m]

**Hydraulic Hose and Fittings**



6' [1.8m]

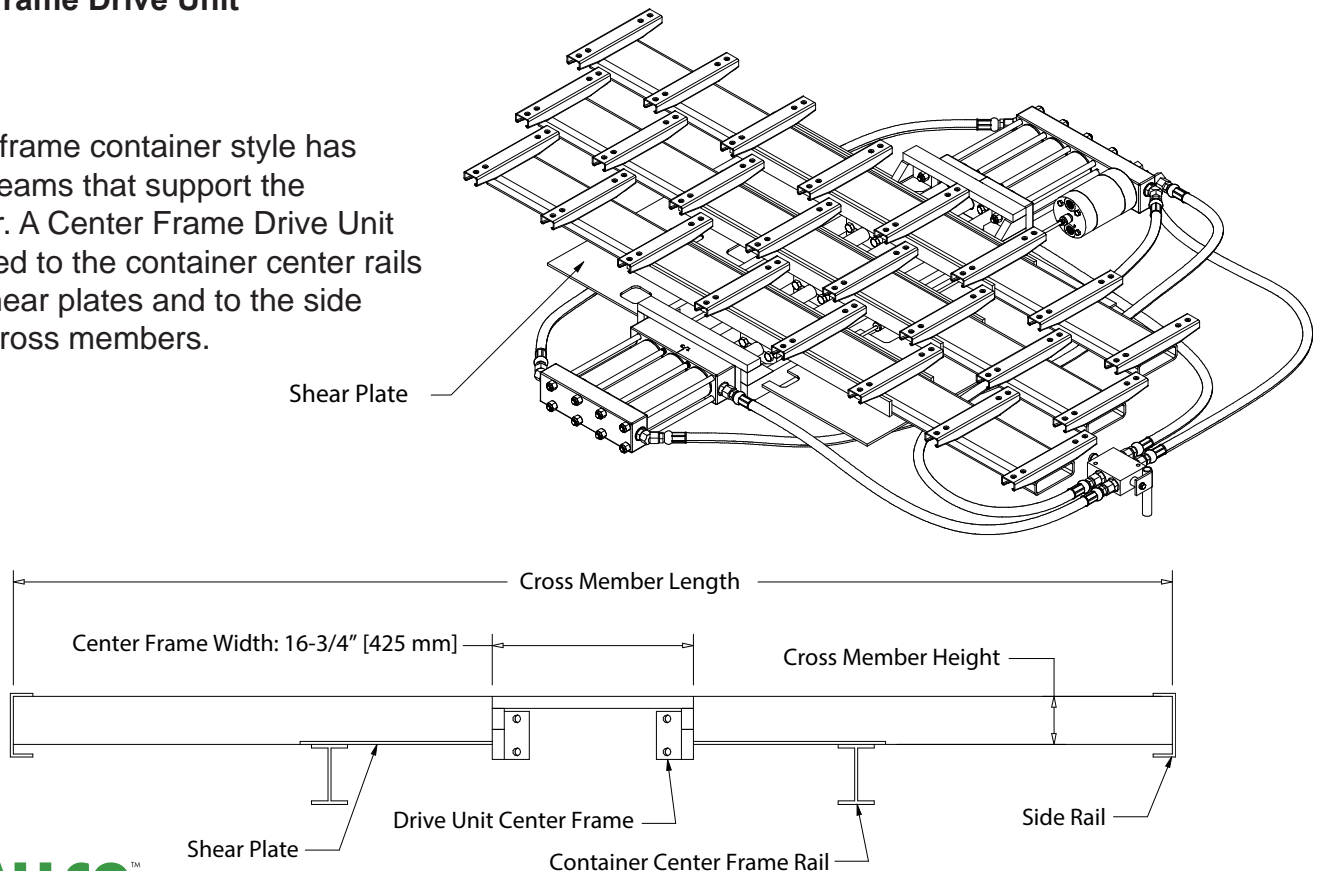
## Perimeter vs. Center Frames



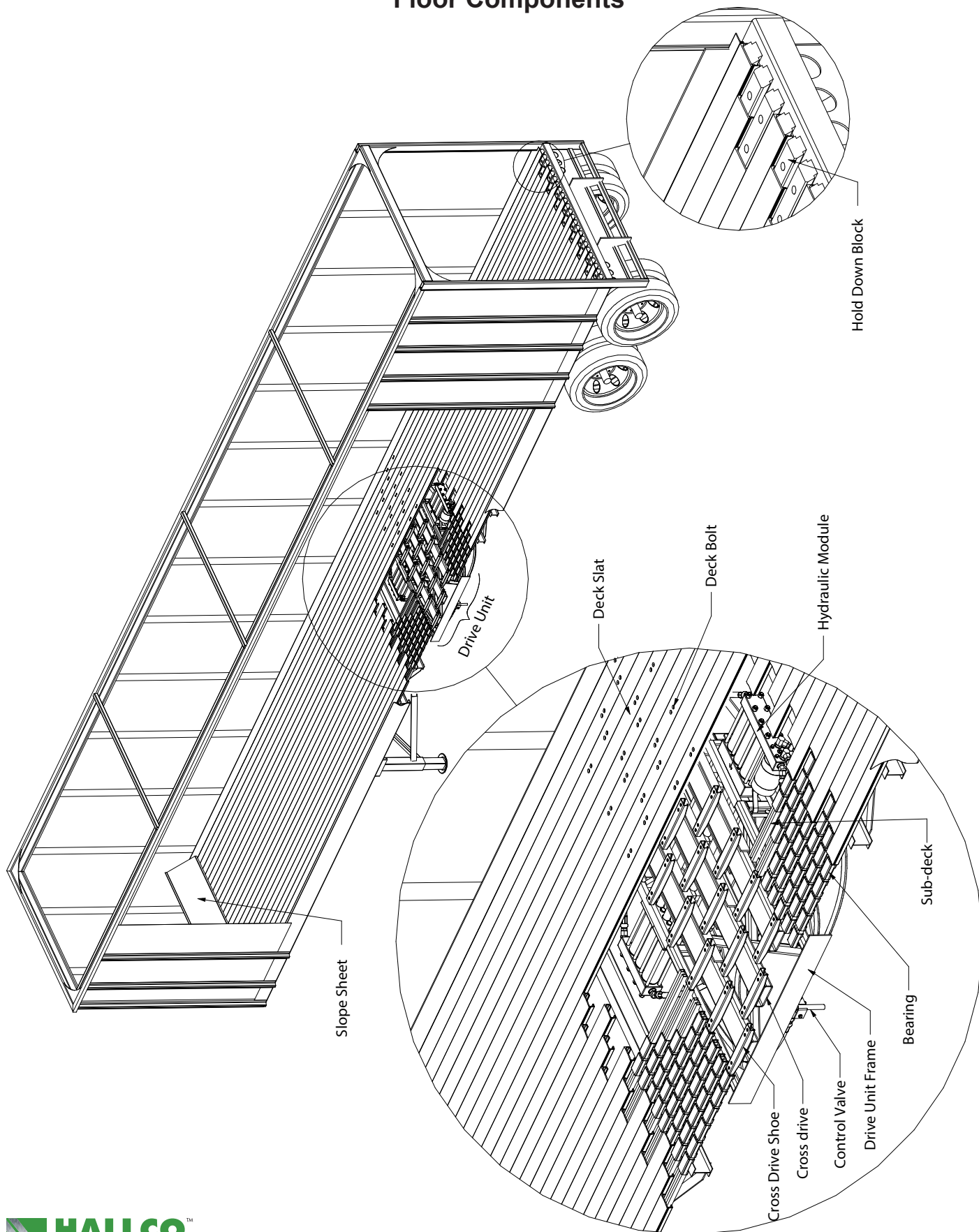
### Perimeter Frame Drive Unit

### Center Frame Drive Unit

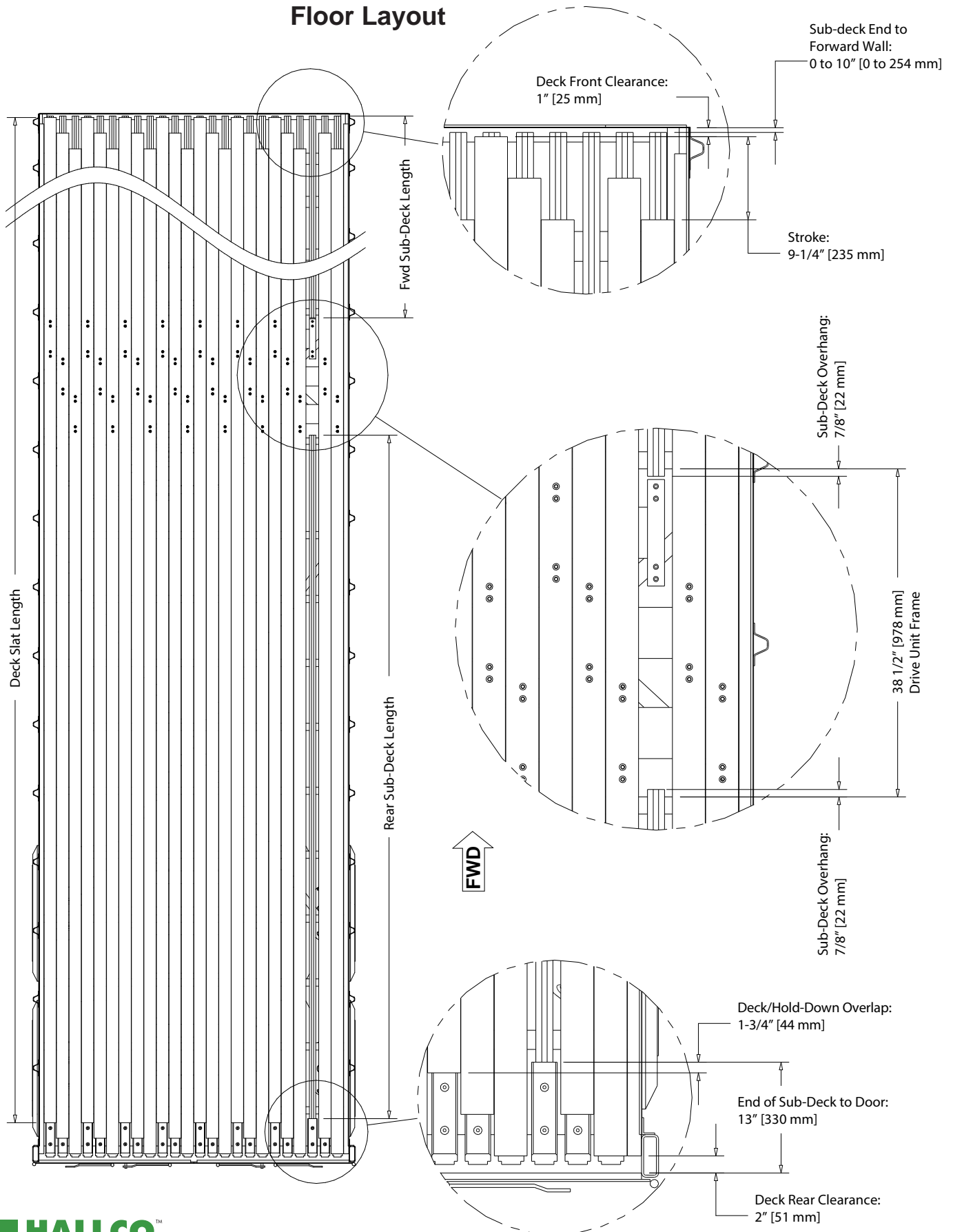
A center frame container style has central beams that support the container. A Center Frame Drive Unit is attached to the container center rails by the shear plates and to the side rails by cross members.



## Floor Components



## Floor Layout





## Hydraulic System Requirements



Anti-Wear (AW). Viscosity of ISO 46 to 68 Petroleum OR mineral base.  
Moisture content, H<sub>2</sub>O < 1%



Fluid Temperature: < 180° F [82° C]



Pump

Pump must be a Gear, Vane or Piston type that will pump no more than 30 gpm [114Lpm] at a full 3000 psi [207 bar].

Pump must be matched to it's power source. Drive it directly or through a PTO. Consult a hydraulic expert to determine the required motor/engine power.

### Summary:

Flow: ≤ 30 gpm [114 Lpm]

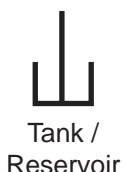
Pressure ≥ 3000 psi [207 bar]

Power Source ≥ Enough for the Flow and Pressure

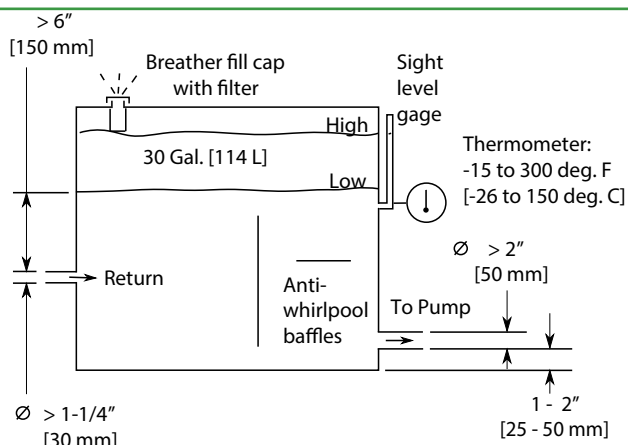
Speed: Motor or PTO ↔ Pump

Use a reservoir that has all of these features:

- 30 gal. [114 L] minimum capacity.
- Inlet diameter greater than 1.25" [30 mm].
- Outlet diameter greater than 2" [50 mm].
- Turbulence reducer on return inlet.
- Pump supply outlet near bottom.
- Whirlpool prevention on the outlet
- Filler cap with breather and filter.
- Visible fluid level gauge.
- Visible Thermometer.



Location and specification information is shown in the sketch to the right.



Use all these features:

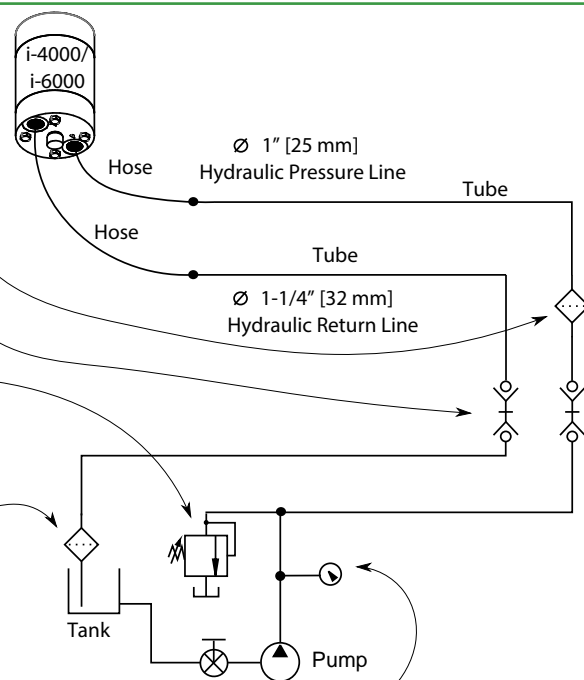
(Optional) 75 micron Pressure Filter rated to handle the maximum system pressure and flow.

Quick-connects that are matched and rated for the maximum system pressure and flow rate.

Pressure relief valve set at 2800 psi [193 bar] maximum, 3000 psi [207 bar] maximum and rated to handle at least the maximum pump output flow.

25 micron return filter rated to handle more than the maximum pump flow. Place it as close to the tank as possible. Make the hydraulic line between the filter and the tank at least 1-1/2" [38 mm] diameter to prevent filter failure.

Visible pressure gauge. 0 to 5000 psi [0 to 350 bar]. Glycerine filled.



**Hallco recommends consulting a hydraulic specialist to design the hydraulic supply system.**

## Preparation

These instructions are primarily for retrofit installations, but the principles still apply to new installations. Perform this installation with the trailer/container placed on a flat, firm and level surface.

### 1. Trailer/Container Preparation:

- Remove the old floor. This includes the floor pan/decking, deck screws, clips, debris, weld slag everything above the cross members and between the side walls where the LIVE FLOOR system will be installed. The tops of the cross members must be clean and smooth.

**NOTICE** *The existing floor may be keeping the trailer frame straight! Install cross bracing in front of and behind where the drive unit will be installed to keep the trailer frame straight after the floor is removed.*



*The open gap between cross members is dangerous! Place a board over the gap to stand/walk on.*

- Inspect and repair the container to make sure the cross members are straight and level and the side walls are straight. We have found the following inspection methods to work.

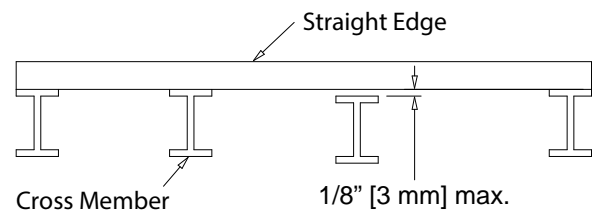
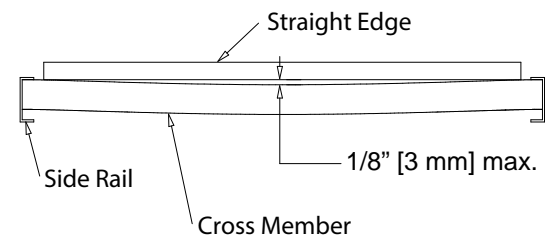
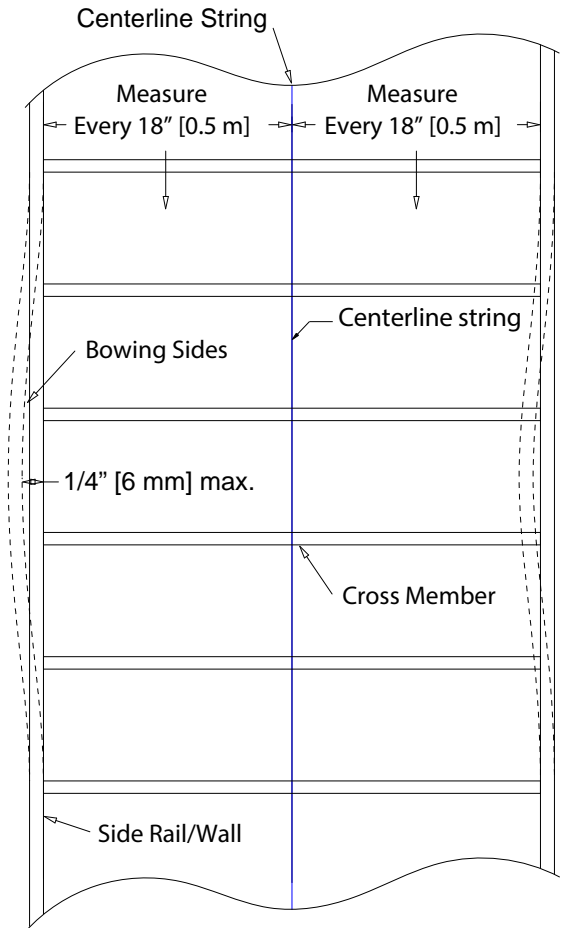
- **Frame & Side Wall Check:**

Visually check the frame as a whole for twisting, bowing, and other problems.

Stretch a string tightly down the center of the entire container to use as a straightness reference. Make sure the string doesn't contact anywhere but at it's ends! Measure every 18" [0.5 m] all along the length of the container from the side walls to the string. These measurements will show any bowing of the side rails and lower side walls. Repair bowing that is more than 1/4" [6 mm].

- **Cross Member Check:**

Use a straight edge slightly shorter than a cross member. Lay the straight edge across the length of each cross member and check them for bowing. Fix/replace any that are bowed more than 1/8" [3 mm].



Use a straight edge again to check that the tops of the cross members are level with each other. Fix/replace any that are off more than 1/8" [3 mm]. Low cross members can be shimmed to bring them to the level of the surrounding cross members.

- c. Determine where to install the drive unit. Pick a spot with easy access from underneath.

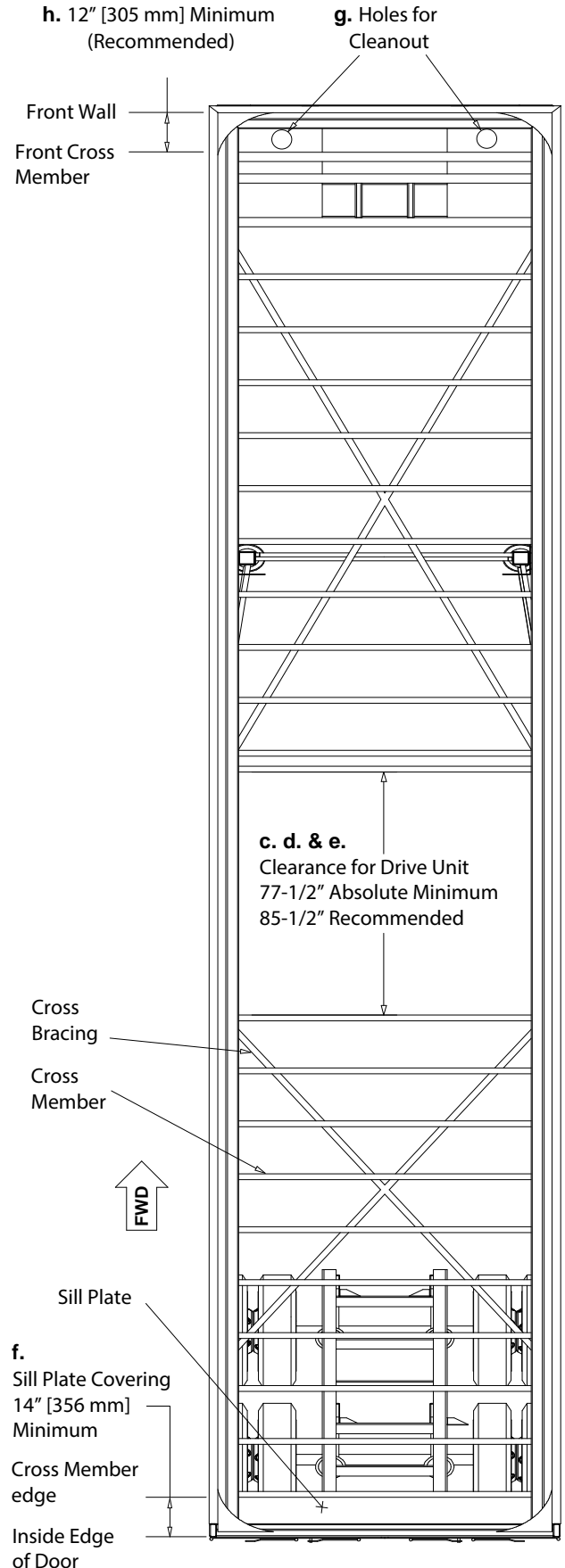
**TIP** Standard sub-deck lengths are 20 & 24 ft [6096 & 7315 mm]. Use the sub-deck placement dimensions on page 18 to help locate the drive unit so that one of the standard lengths fits without trimming.

- d. Temporarily remove or reroute the air and electrical lines in the area where the drive unit will be installed.
- e. Remove the cross members where the drive unit will be installed. The drawing to the right shows the clearance needed by the drive. The drive will mount to the side rails in this area so they must be smooth. No leftover weld. No bolts. No bend or dimples.



*The open gap between cross members is dangerous! Place a board over the gap to stand/walk on.*

- f. Cover an area from the rear bumper to a cross member located 14" [356 mm] from the rear door. Use .10" [2.5 mm] minimum thickness material. The top of this cover must be level with the tops of the cross members. This sill plate is used for mounting the rear hold-down blocks. It also keeps material from falling under the decking when the slats move forward.
- g. Make sure that any large flat surface that is under the decking has a big enough opening underneath or to the side of it to allow it to be cleaned out. The fifth wheel area is one example.
- h. In order to protect the bearings from the ends of the slats at the front we recommend that the front cross member be placed at least 12" [305 mm] away from the front wall. It is important to keep the front edge of the bearings behind the front edge of the deck when it moves back.

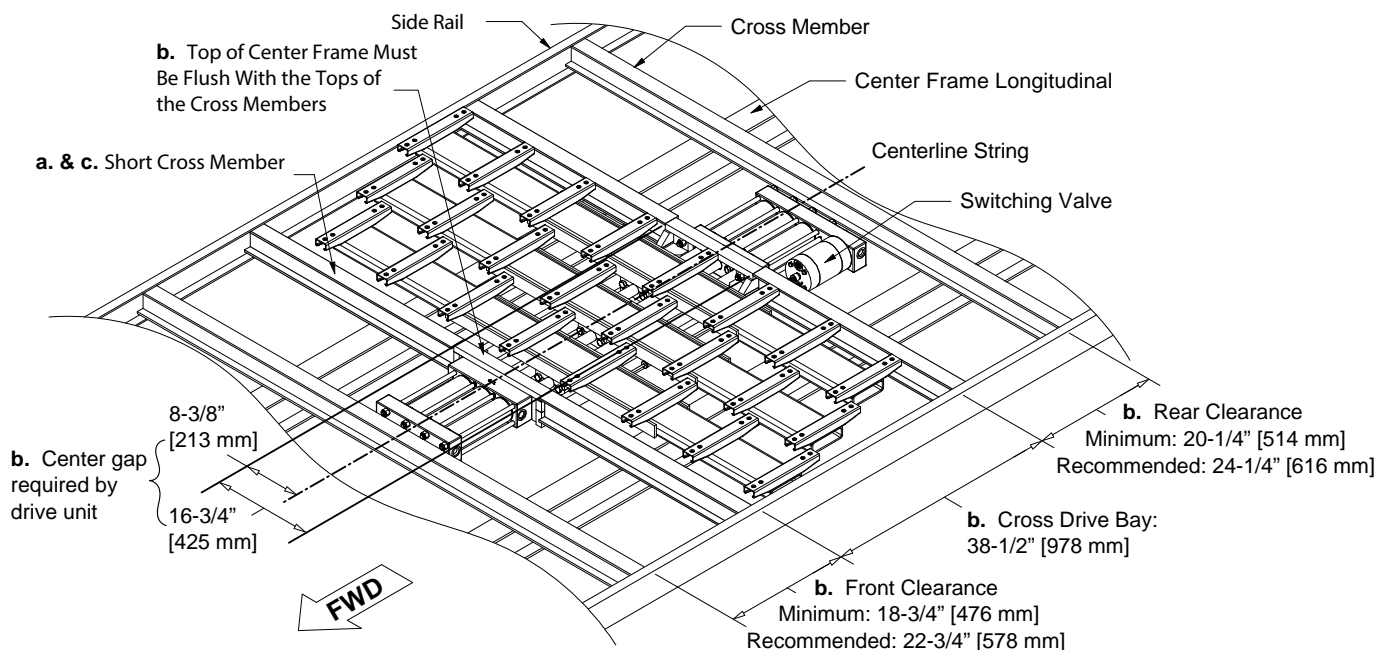
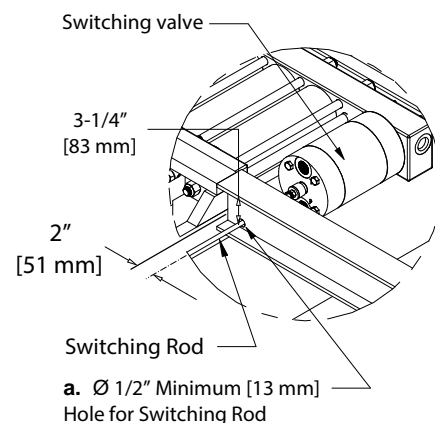


### 2. Drive Unit - Center Frame Style:

- a. Cut four short, steel cross members. They will support the sub-deck at the drive unit. They will also provide vertical support for the drive unit. Critical dimensions and clearances are shown in the figure.

A notch or hole will have to be made in the left rear short cross member for the switching rod.

Do not attach the short cross members to the trail/container at this point.

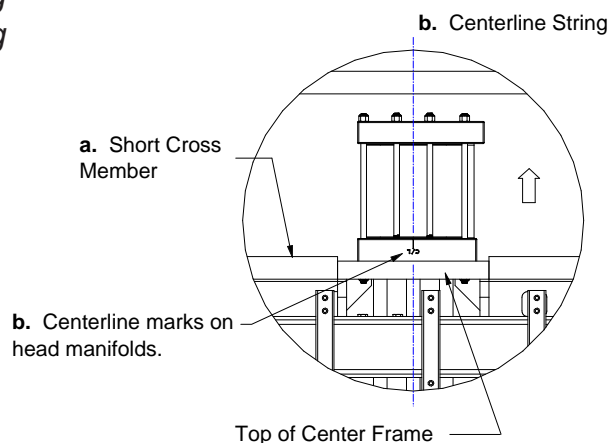


**NOTICE** Protect the chrome cylinder shafts during welding, burning, grinding and painting. Any scarring of the shafts will damage the hydraulic seals resulting in system leakage.

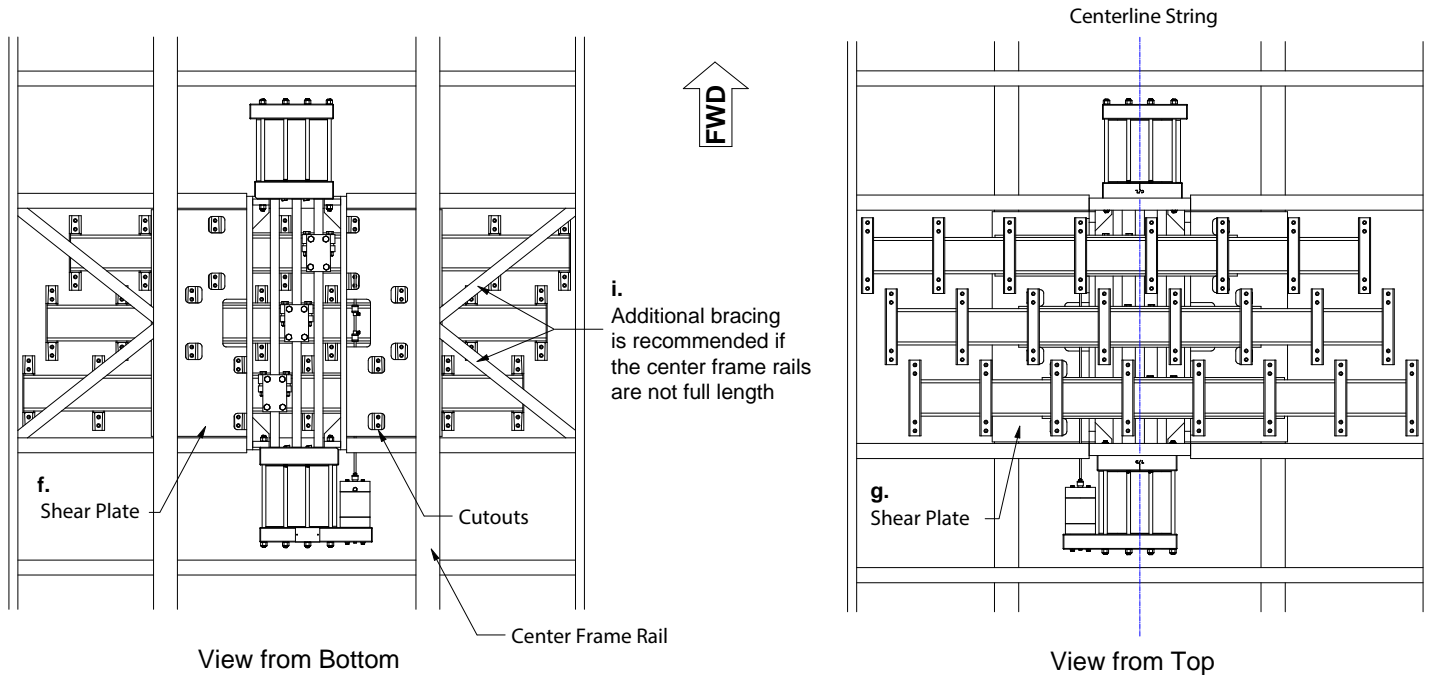
- b. Position the drive unit in place oriented as shown. Maintain the position and clearances specified in the figure above.

It is critical that the top bars of the drive unit are flush with the cross members. It is also critical that the centerline marks scribed in the head manifolds line up with the centerline string.

- c. Tack weld or clamp the four short cross members to the side rails, center frame longitudinal and the drive unit center frame.

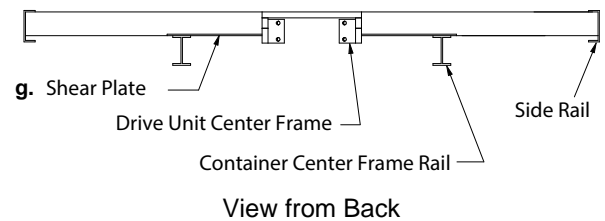


- d. Recheck/fix the alignment, position, and clearances of the drive unit and the short cross members.
- e. Weld the short cross members to the drive unit center frame and the container.
- f. A center frame drive unit requires two shearplates. A typical kit supplied by Hallco contains shearplates. If you do not have shearplates they can be obtained from Hallco.



*If not secured, the cross-drive beams will tip side to side if stepped on.*

- g. Tack and then finish weld the shear plates to the container center frame rails and to the drive unit center frame with 1/4" [6 mm] fillet welds, 2" [51 mm] long with 1" [25 mm] gaps between welds all along the lengths of the shear plates. Alternately, the shear plates may be bolted to the container center frame longitudinals per the following table:



**Table 1 - Minimum No. of Bolts\* in Each Shear Plate**

3/8" Diameter	1/2" Diameter	10 mm Diameter	12 mm Diameter
Qty 24	Qty 14	Qty 22	Qty 15

\*SAE Grade 5 or better [ISO class 8.8 or better] coarse or fine threads, or equivalent fastener.

- h. Grind any welds on the top surface of the short cross members flush.
- i. Install additional bracing on containers with partial length center frame rails to brace the side walls against the movement of the load.
- j. Paint the bare metal (weld joints, etc.).

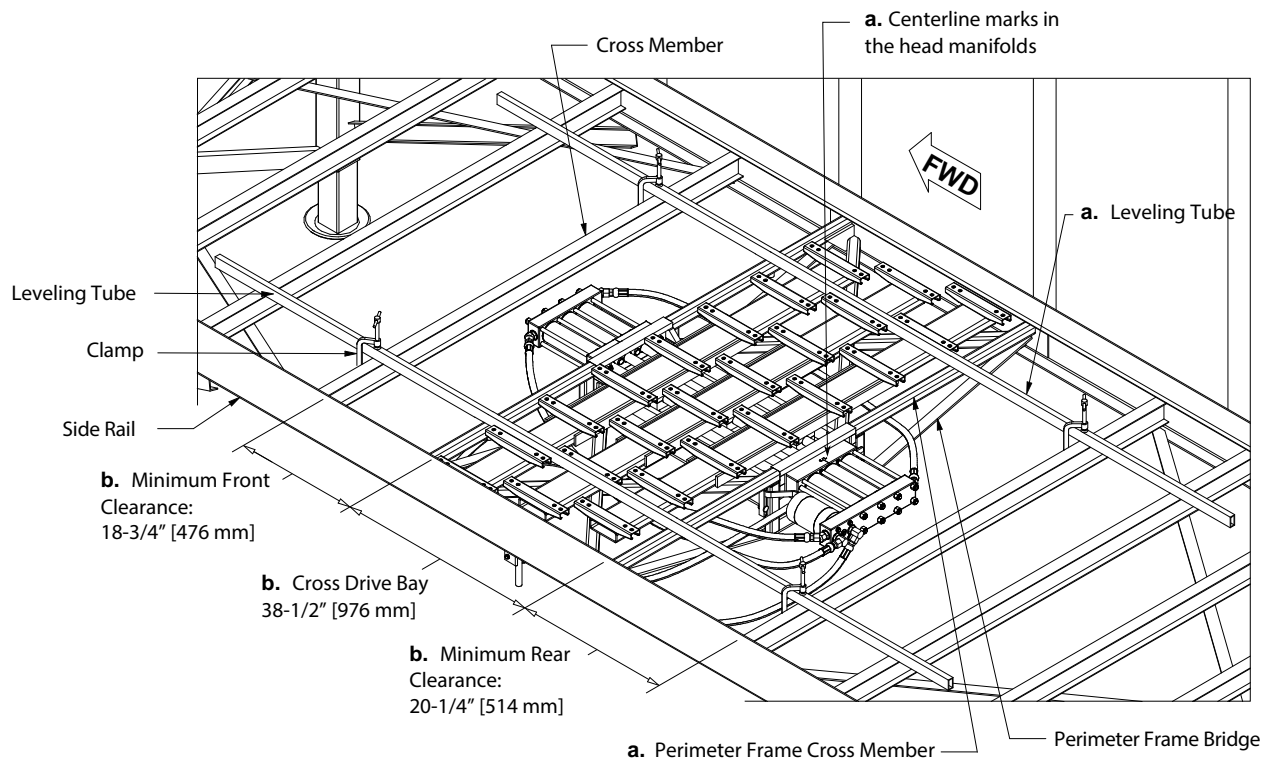
### 3. Drive Unit - Perimeter Frame Style:

- a. Position the drive unit in place oriented as shown. Maintain the position and clearance specified in the figure below.

It is critical that the tops of the drive unit frame cross members are flush with the tops of the container cross members. It is also critical that the centerline marks scribed in the manifolds line up with the centerline string.

The figure shows levelling tubes clamped to the container cross members across the drive unit. We suggest using this method to locate the drive elevation.

**NOTICE** When handling the drive unit, lift only by the perimeter frame cross members. Never lift by the perimeter frame bridge.



**NOTICE** Protect the chrome cylinder shafts during welding, burning, grinding and painting. Any scarring of the shafts will damage the hydraulic seals resulting in system leakage.

- b. Clamp or tack weld the drive unit frame in place and recheck the alignment, clearances, and position of the drive unit.
- c. Attach the drive unit frame end plates to the side rails by welding or bolting. Use the table below to determine the size and quantity of bolts to use.

If there is a gap between the frame end plates and the side rails then a shim or “hanger” will need to be used. See the next page for some examples.

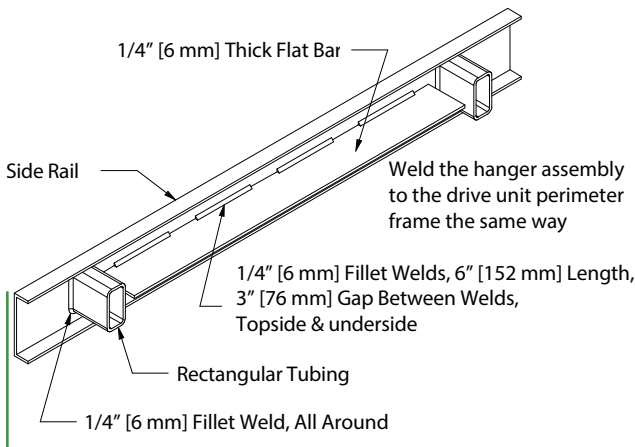


**c. Table 2 - Minimum No. of Bolts (Each Side) Attaching Perimeter Frame to Side Rails**

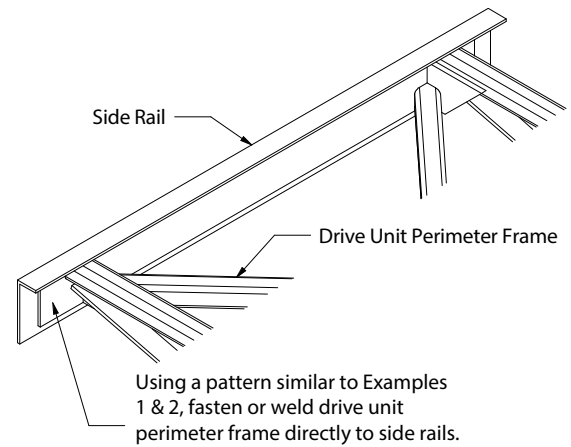
3/8" Diameter	1/2" Diameter	10 mm Diameter	12 mm Diameter
Qty 16	Qty 12	Qty 16	Qty 12

\*SAE Grade 5 or Better [ISO class 8.8 or better] coarse or fine threads, or equivalent fastener.

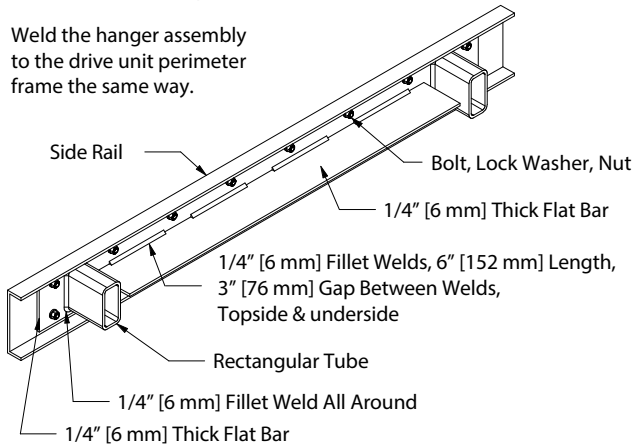
**Example 1 -  
Hanger Welded to Side Rail**



**Example 3 -  
Perimeter Frame Attached Directly to Side Rail**

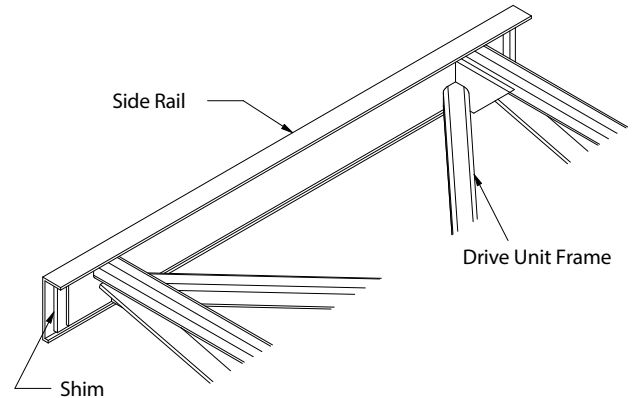


**Example 2 -  
Hanger Bolted to Side Rail**



**TIP** Use existing holes from fasteners removed with cross members or temporarily removed from side post as drill guides.

**Example 4 -  
Shim Between Perimeter Frame & Side Rail**



Fasten the perimeter frame through the shim to the side rail or weld the shim to the side rail, and then weld the perimeter frame to the shim. Use 1/4" [6 mm] fillet welds, 6" [152 mm] length, 3" [76 mm] gaps between welds, topside & underside.

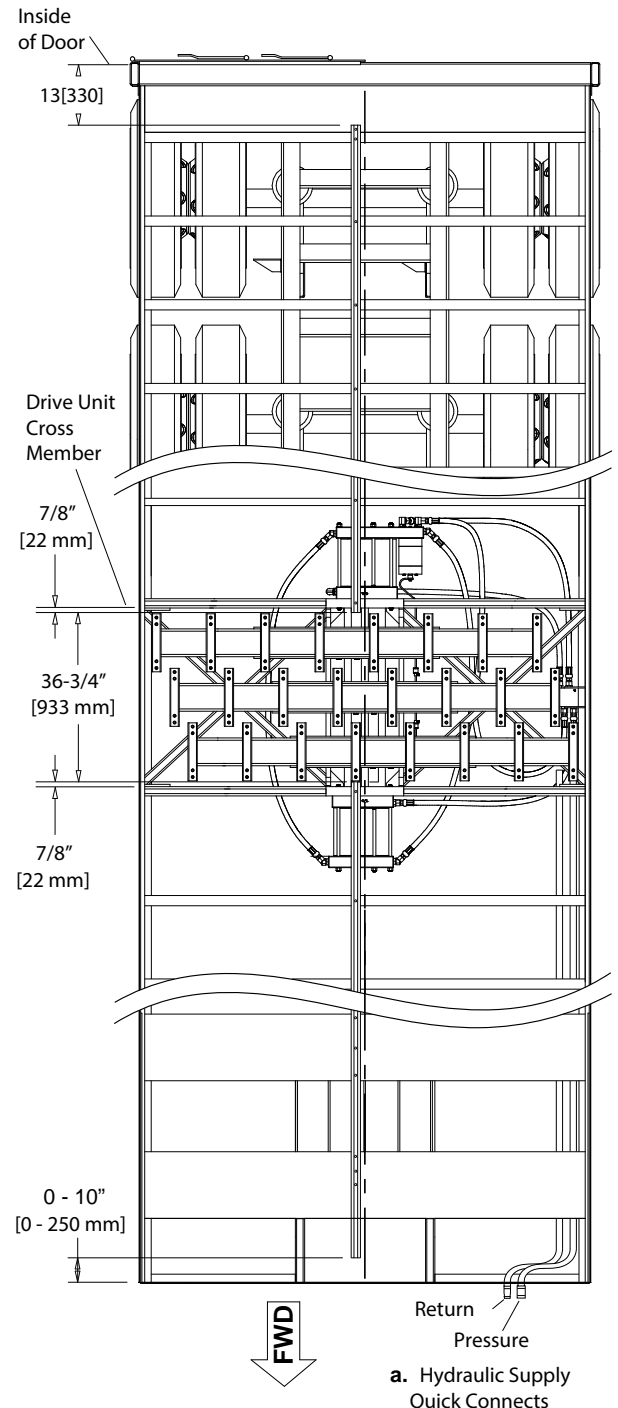
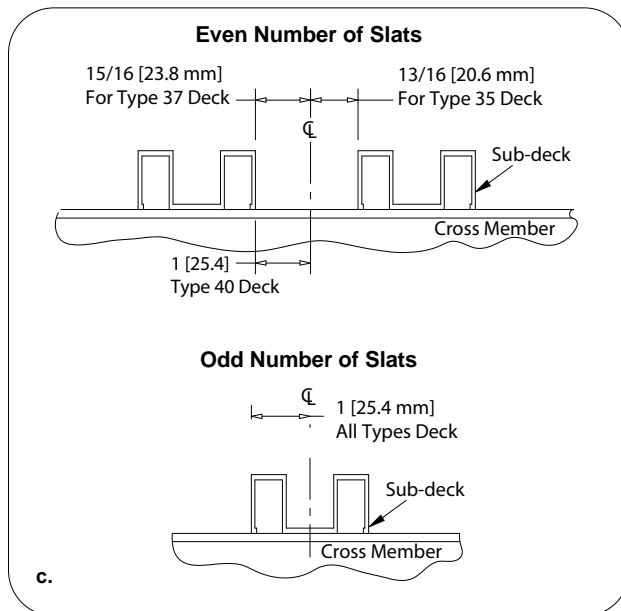
d. After attaching the frame grind flush any welds which extend above the top surface of the cross members.

e. Paint the bare metal (weld joints, etc.).

**NOTICE** Hangers must not extend above the tops of the cross members, otherwise they may interfere with the deck slats.

### 4. Sub-deck:

- Before installing the sub-deck, route the hydraulic Pressure and Return supply tubes. See the sketch to the right. The supply tubing must be below the top surface of the cross members (See page 20 for instructions on routing the supply tubing on top of the cross members). Mount the connects someplace convenient for the operator. Place the Return quick connect to the left of the Pressure in order to match the decal we provide.
- Cut the sub-deck to proper length for the front and rear sections. Use the sketch to the right and the inside length of the trailer/container to determine the lengths.
- Carefully align one row of sub-deck. Use the sketch to the right for proper front to rear placement. Use the sketch below to properly locate the row relative to the centerline string.



- Attach the sub-deck to each cross member by welding or riveting with 680 lb [3025 N] Min ultimate shear strength rivets.



*If not secured, the cross-drive beams will tip side to side if stepped on.*



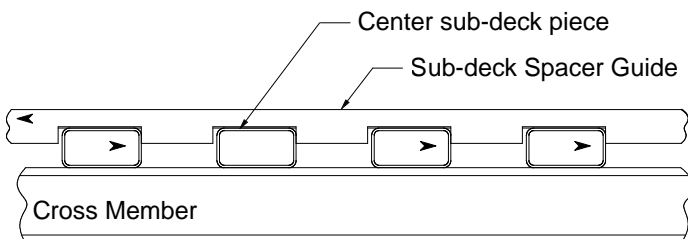
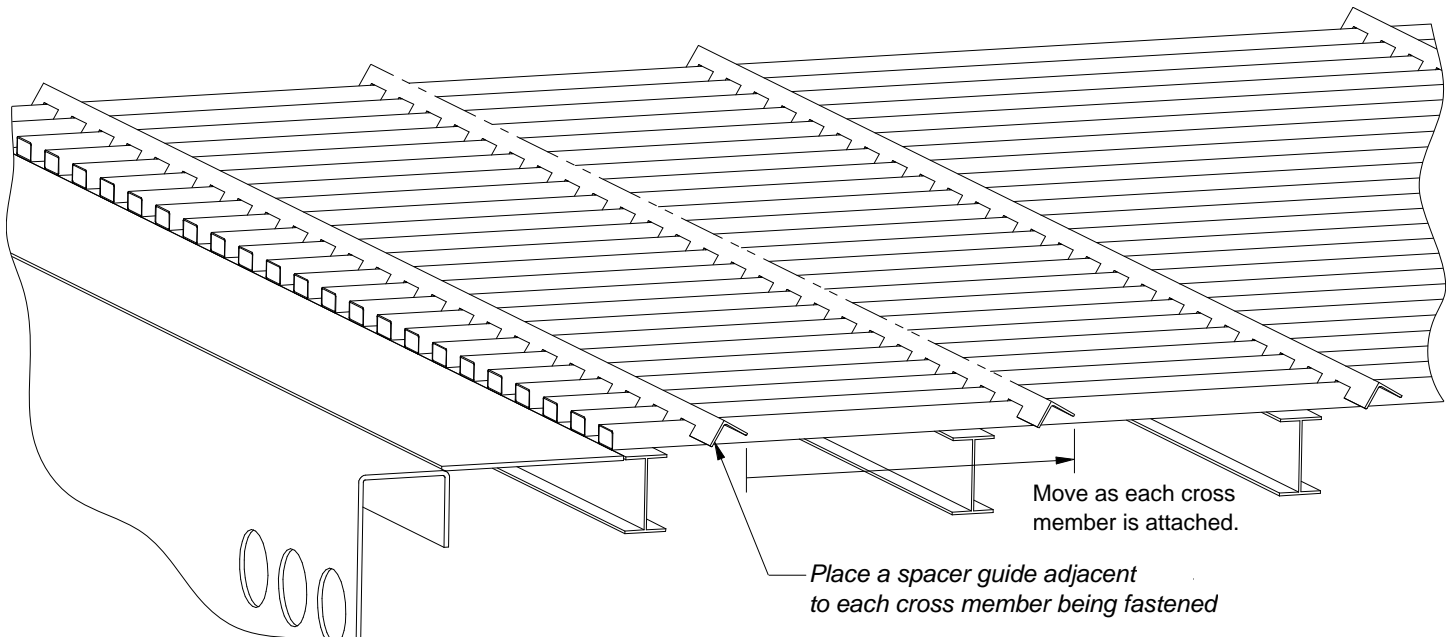
*The open gap between cross members is dangerous! Place a board over the gap to stand/walk on.*

**TIP** Place the Return quick connect to the left of the Pressure in order to match the decal we provide.

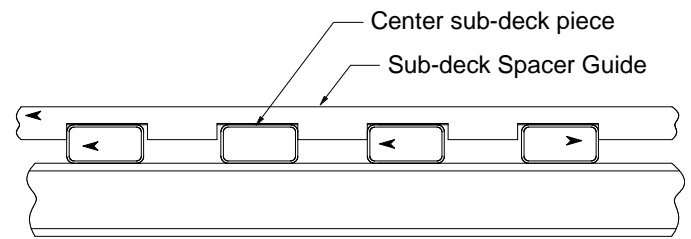
**NOTICE** Large spaces between the slats can be prevented by accurately installing the first row of sub-deck!



- e. Install the rest of the sub-deck pieces relative to this first row using spacing guides. Place the spacing guides near where the sub-deck is being fastened. Use as many clamps as practical to hold the sub-decks in place once they are properly aligned to the spacer guides and the center sub-deck row.

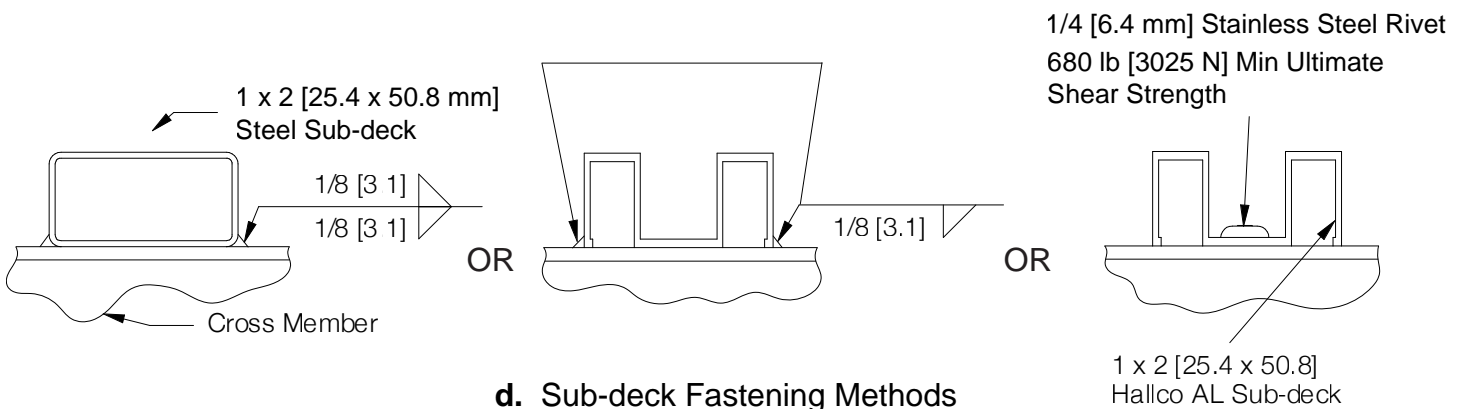


e. Proper use of sub-deck Guides -- CORRECT



e. Improper use of sub-deck Guides -- INCORRECT

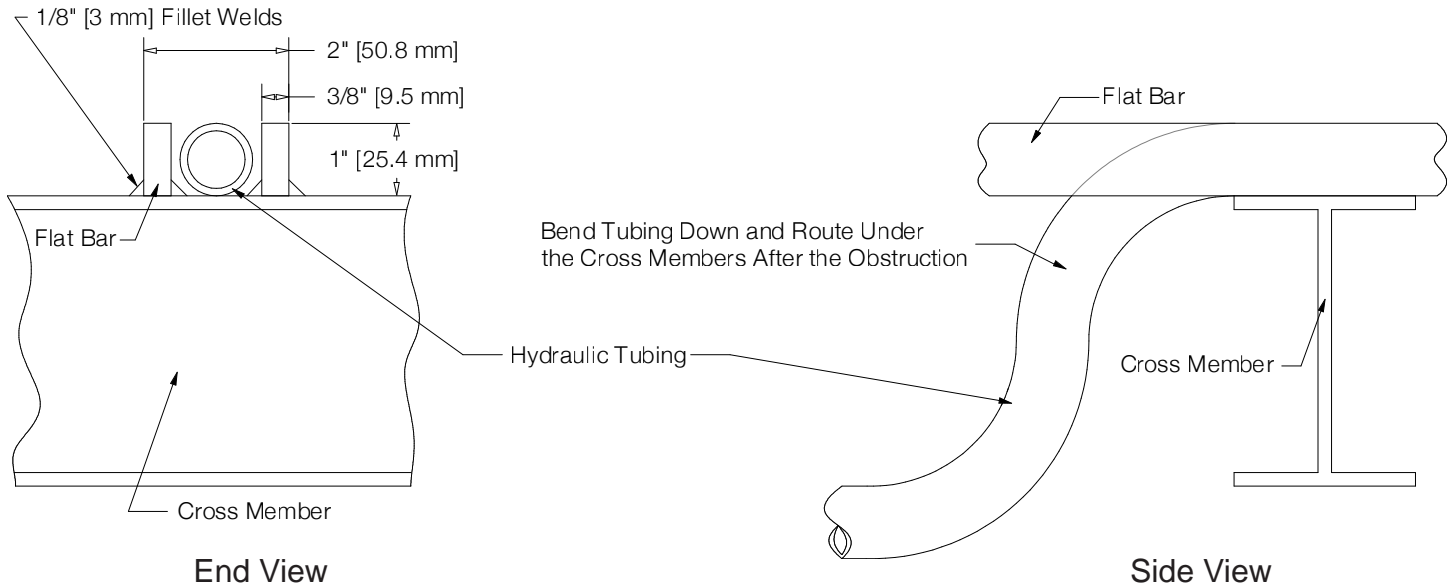
**NOTICE** The notches in the guides are slightly wider than the sub-deck. Use the same side of each spacer guide notch for alignment or large spaces between slats will occur!



d. Sub-deck Fastening Methods

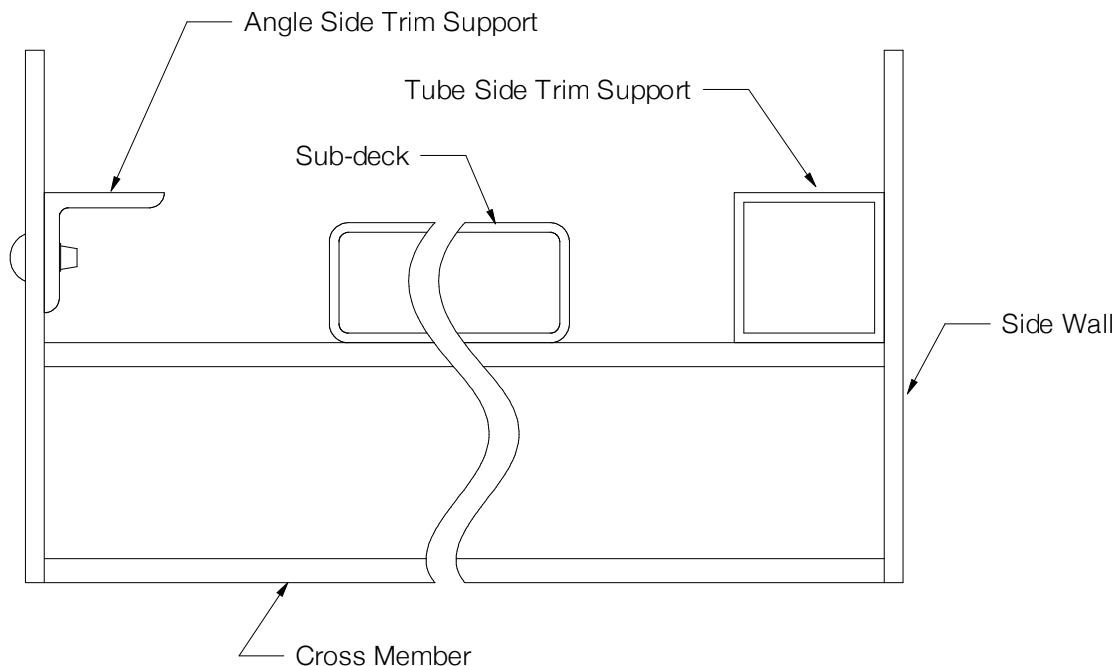
If the hydraulic supply tubing must be routed on top of the cross members, lay it inside the sub-deck as shown below.

**NOTICE** Use a tube bender when bending hydraulic tubing. DO NOT USE HEAT and DO NOT ALLOW TUBING TO BE CRIMPED.



## 5. Side Trim Support:

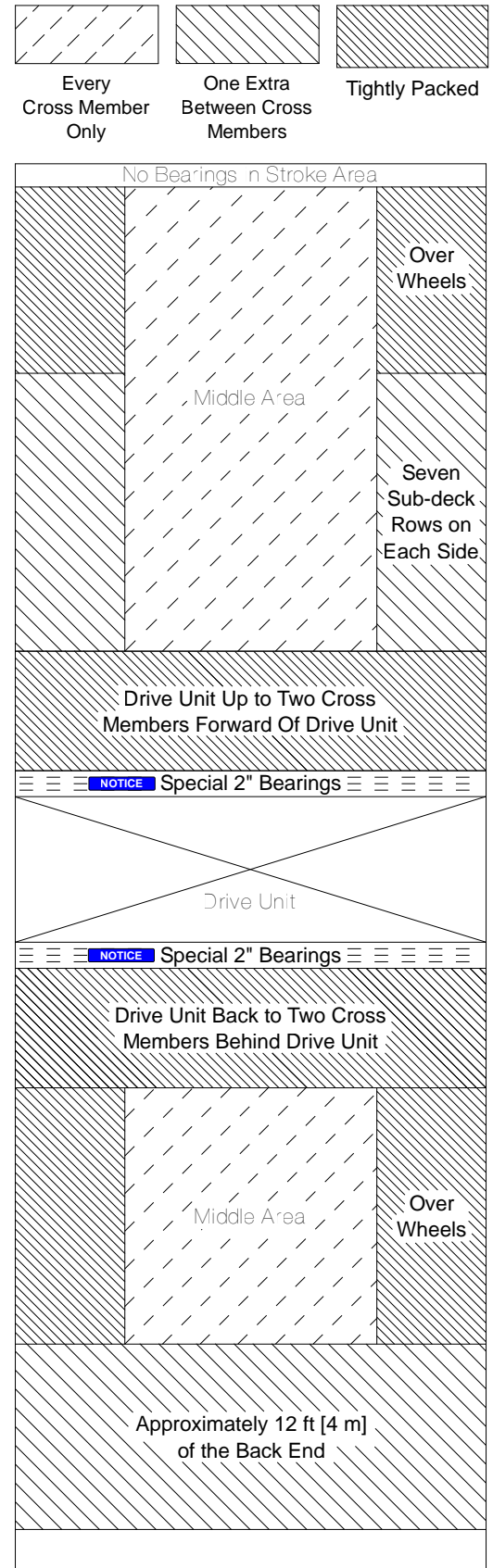
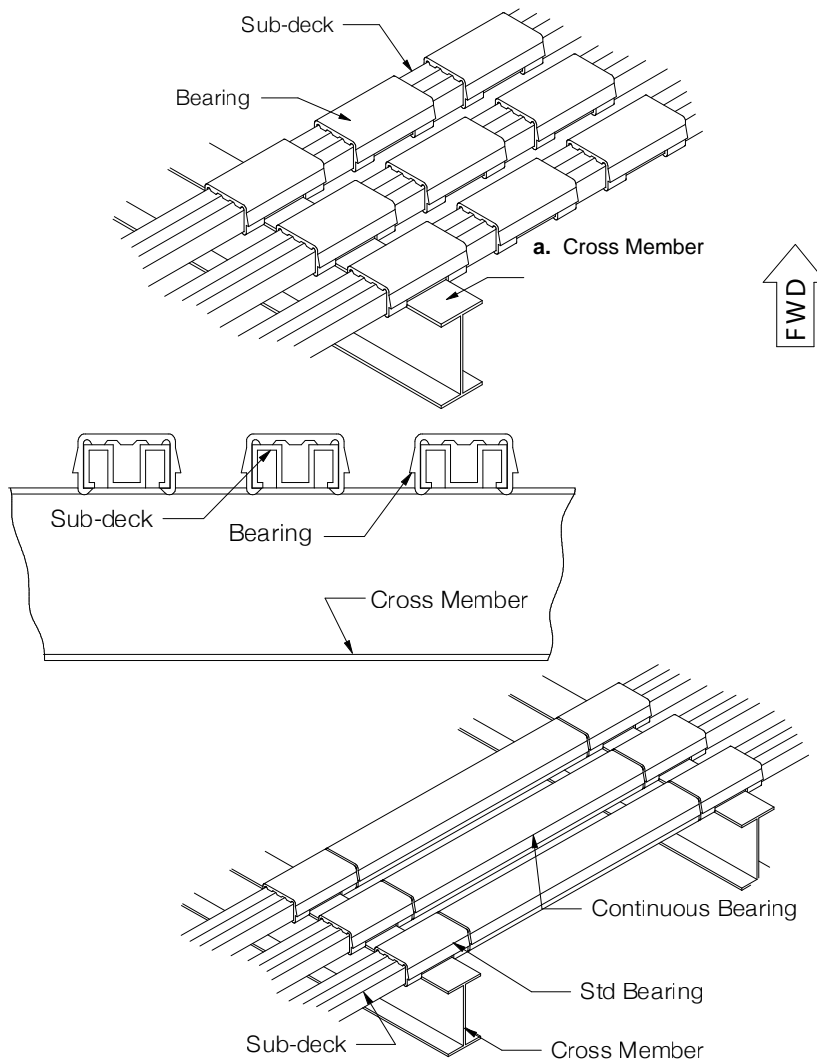
- Refer to the Hallco Decking Selection Guide located in the back of this manual for information about how the deck and side trim you have purchased lays out. Typical side trim supports are shown in the sketch below. Other styles of side trim support may work as long as they support the side trim in the correct position.
- Secure the side trim support to the trailer/container structure (side walls and/or cross members).



## 5. Bearings - Standard Style:

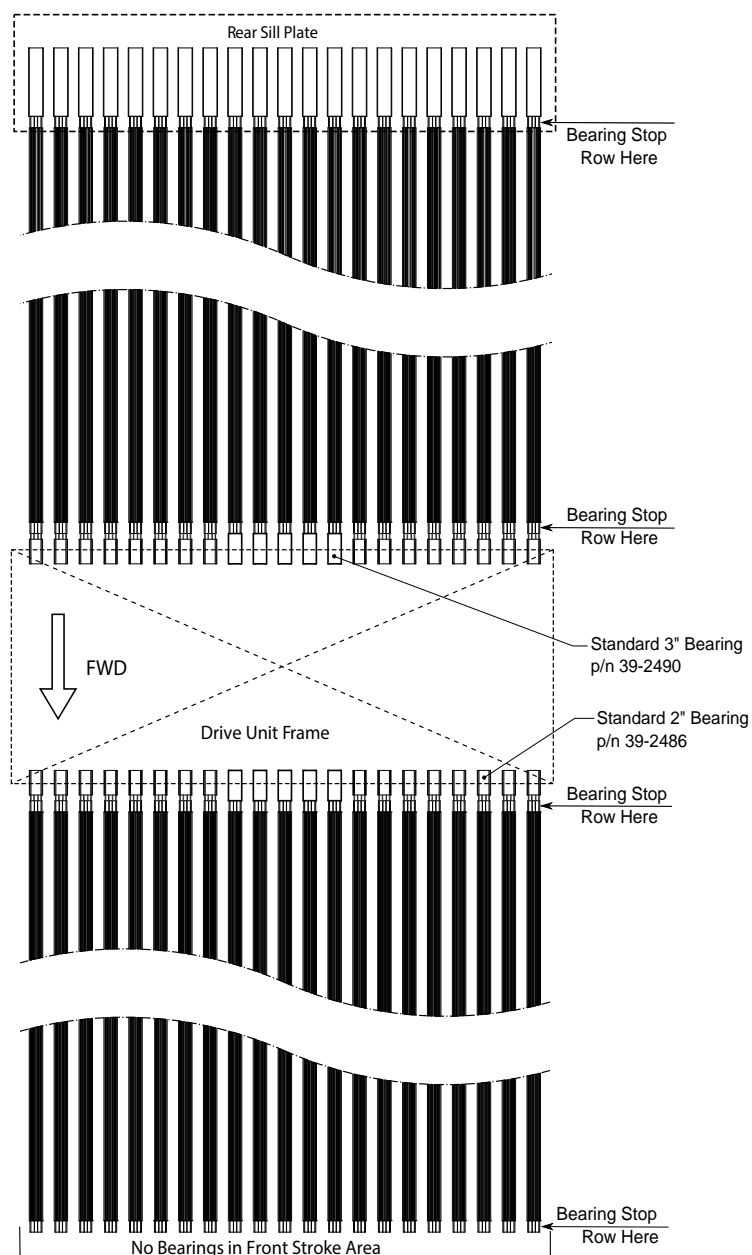
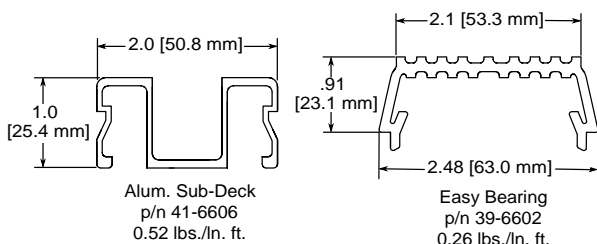
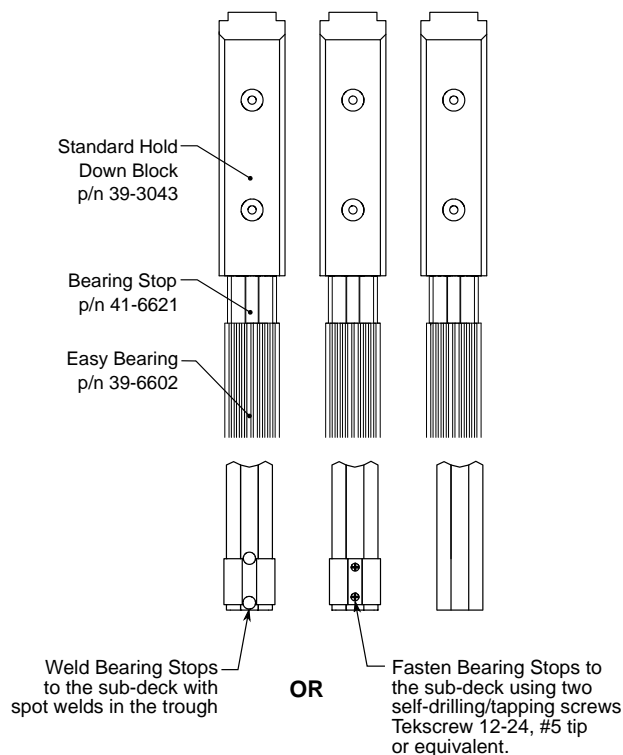
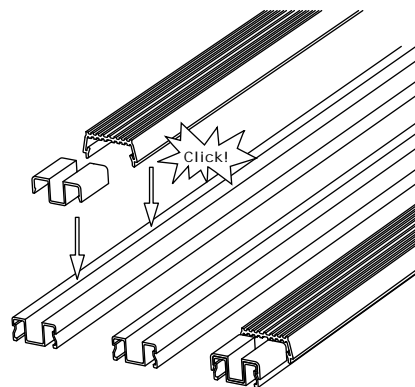
- Install bearings onto the sub-deck at the intersections with all the cross members. Bearings are sized to the flange width of the cross members. The cut-outs on the bottoms of the bearings must fit the cross member closely.
- Install the remaining bearings between the cross members. Some areas of the floor require more bearings than others. The view to the right and below shows the best locations for adding more bearings. Continuous bearings can be used to fill in between cross members. They can also be notched so that they run continuously over the cross members. These are especially useful over wheels where grime is thrown up from the road.

**NOTICE** Unless the frame has custom cross members it will require special 2" bearings to fit it. These bearings are packaged separately from the rest of the bearings.



## 6. Bearings - Easy Style:

- Easy Bearings requires a special sub-deck profile (#41-6606) installed according to the instructions found in section 4.
- Install 1 row of bearing stops (#41-6621) on either side of the drive unit frame.
- Install 1 row of bearing stops (#41-6621) each at both front and rear of trailer. *Note: Bearing stops can be welded in place using two spot welds or use two self tapping/drilling screws.*
- Install 2" bearings (#39-2486) on CDU frame where shown.
- Install ten 3" bearings (#39-2490) on CDU frame where shown.
- Install standard Hold Down Block (#39-2490) at rear of trailer.
- Install Easy Bearing over all the empty sub-deck. Do not leave any gaps for thermal expansion. The bearing will shrink over time.



## 7. Decking:

- a. Position the cross drives:

Cross Drive — Push All the Way Forward  
Rear Cross Drive — Push all the Way Back  
Center Cross Drive — Center Between Front & Rear

- b. At this point there should be a gap of (4-3/4" [121 mm]) between adjacent cross drives. Install blocking between the cross drives close to the cylinder shafts to hold their position.

**NOTICE** Drive units pre assembled by Hallco may be delivered with the cross drives spread out and with blocks keeping them separated.

- c. Close the rear door and mark three reference lines on the rear sill plate, labelling them A, B and C:

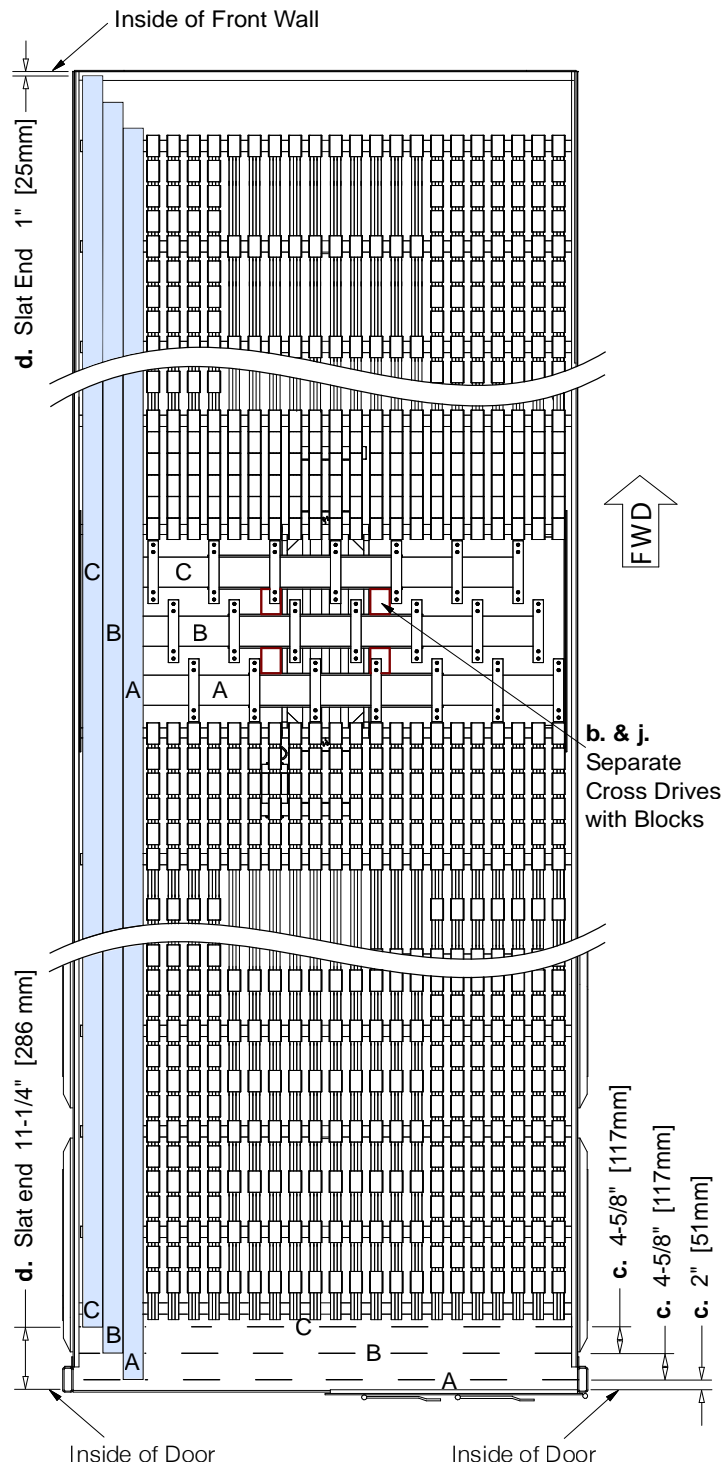
"A": 2" [51 mm] forward from the inside of the door.

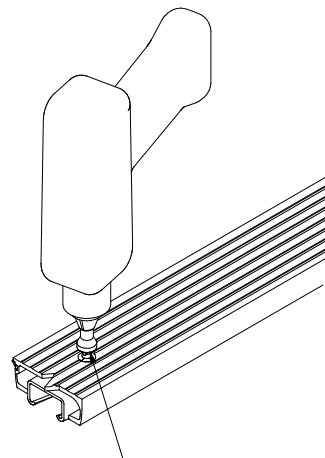
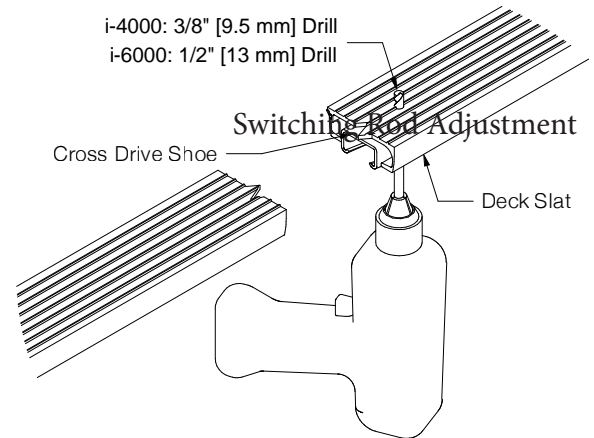
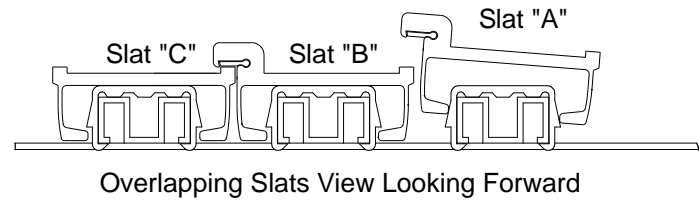
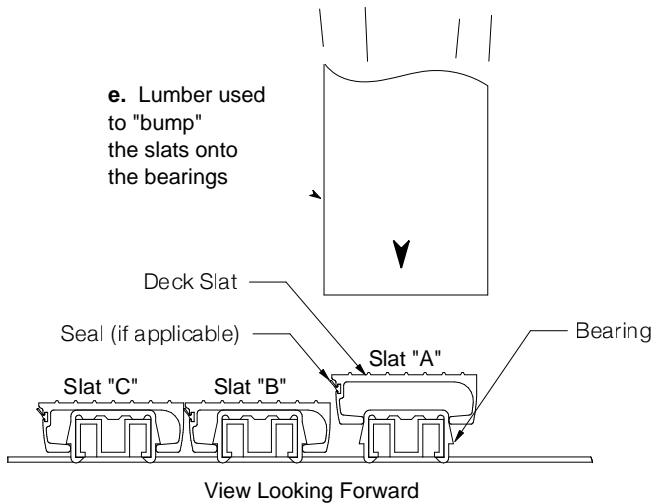
"B": 4-5/8" [117 mm] forward from line "A".

"C": 4-5/8" [117 mm] forward from line "B".

Lines A, B and C mark the locations of the ends of the deck slats that will attach to corresponding cross-drives A, B and C. This is shown in the figure to the right.

- d. If needed, cut the deck slats to the correct length. The figure to the right gives the details needed to determine the correct length of slats needed.
- e. Install the slats by "bumping" them onto the bearings using a piece of 4" x 4" [100 mm x 100 mm] lumber or similar tool. Orient the slats with their overlap or seal on the left side. Start installing them on the left side (as you are looking forward) of the floor. It is best to place the back edge of each slat a little behind its reference line (A, B or C). The slat ends will appear staggered like the cross-drive shoes following a CBA-CBA-CBA.... pattern from the left.

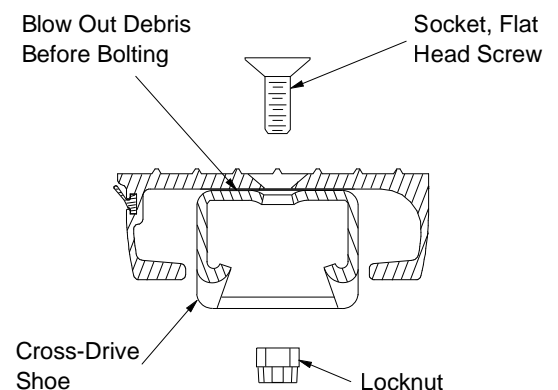




Countersink Tool  
P/N 93-2935 For 3/8" [9.5 mm] Holes  
P/N 93-3640 For 1/2" [13 mm] Holes

- f. Line up all the back edges of the slats with the reference lines. Check the full length of each slat to make sure that it is completely snapped onto its bearings. If the slat includes a plastic seal, inspect the seal to make sure it has not been damaged during installation. No part of the seal should protrude above the deck.
- g. Set the vertical location of the cross-drives by bolting one hole in each of the outside shoes of each drive. Drill from underneath through the holes in the shoes using a 3/8" [9.5 mm] bit for an i-4000 and a 1/2" [13 mm] bit for an i-6000. Countersink the holes in the slats from the top. Countersink just enough for the screw heads to be flush with the top of the deck. **DO NOT COUNTERSINK TOO DEEPLY.**
- h. Clean out the debris between the deck slats and the shoes and install deck bolts with nuts underneath. Torque the 3/8" [approx. 9.5 mm] bolts to 35 ft-lb [47 N-m] and the 1/2" [13 mm] bolts to 55 ft-lb [75 N-m].
- i. Drill and countersink the remaining holes in all of the shoes/slats. Holes that can't be drilled from underneath may be measured, marked, and drilled from the top. Install the remaining bolts and nuts. Torque each to the specified amount above.
- j. Remove the blocking from between the cross drives.

**NOTICE** Remove the blocking from between the cross-drives after the slats have been bolted.

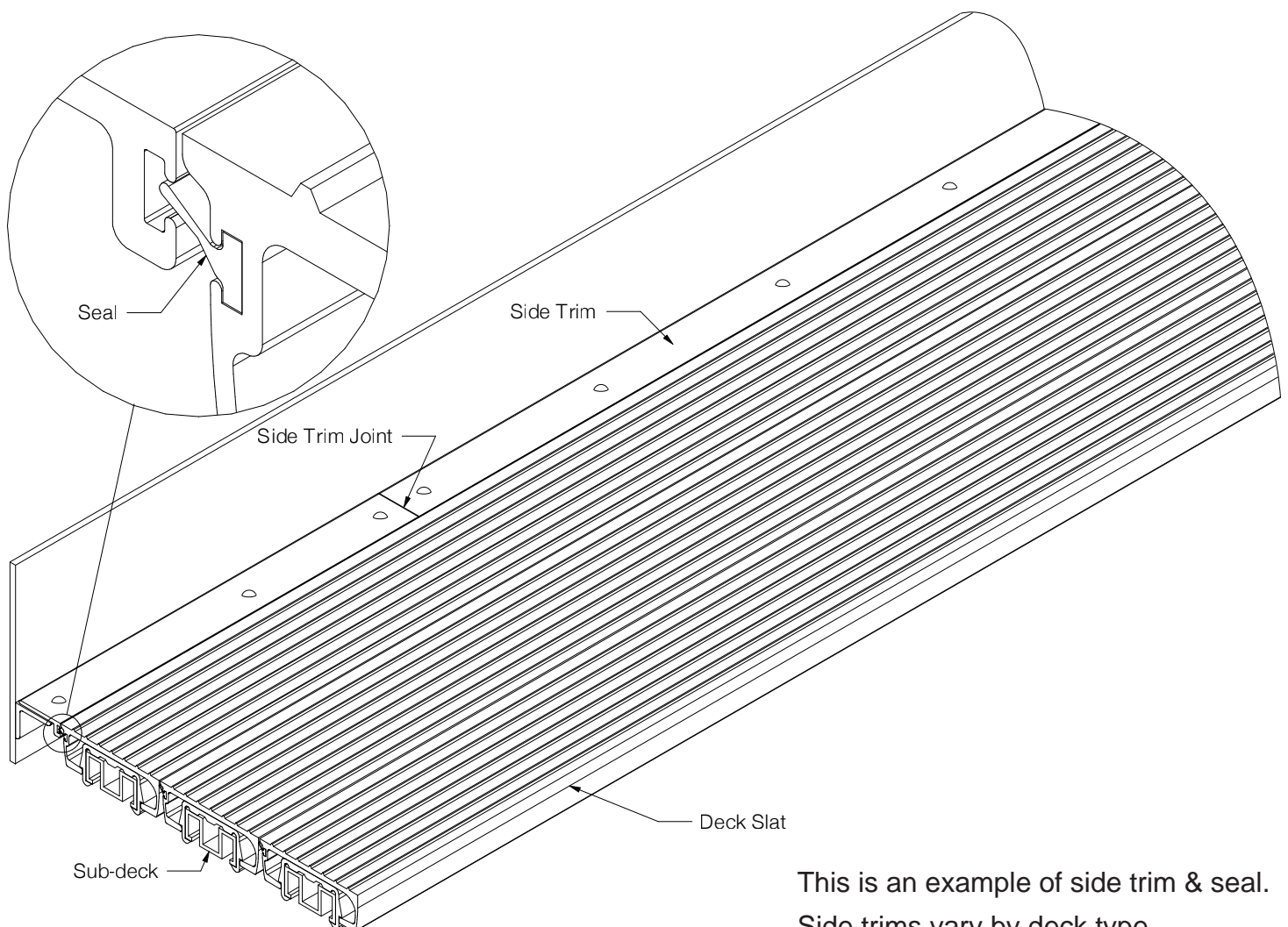




**8. Side Trim:**

- a. Position the side trim next to the wall and the side slats. Use the Deck Selection Guide at the back of this manual to determine the proper orientation of the side trim and the location for the deck seal if required.
- b. Fasten the side trim to the side trim support using blind rivets every 12 to 16 inches [305 to 406 mm] or welding.

**TIP** Side trim comes in standard lengths, 20 & 24 ft [6.1 & 7.3 m]. Place them end-to-end to achieve the correct length.

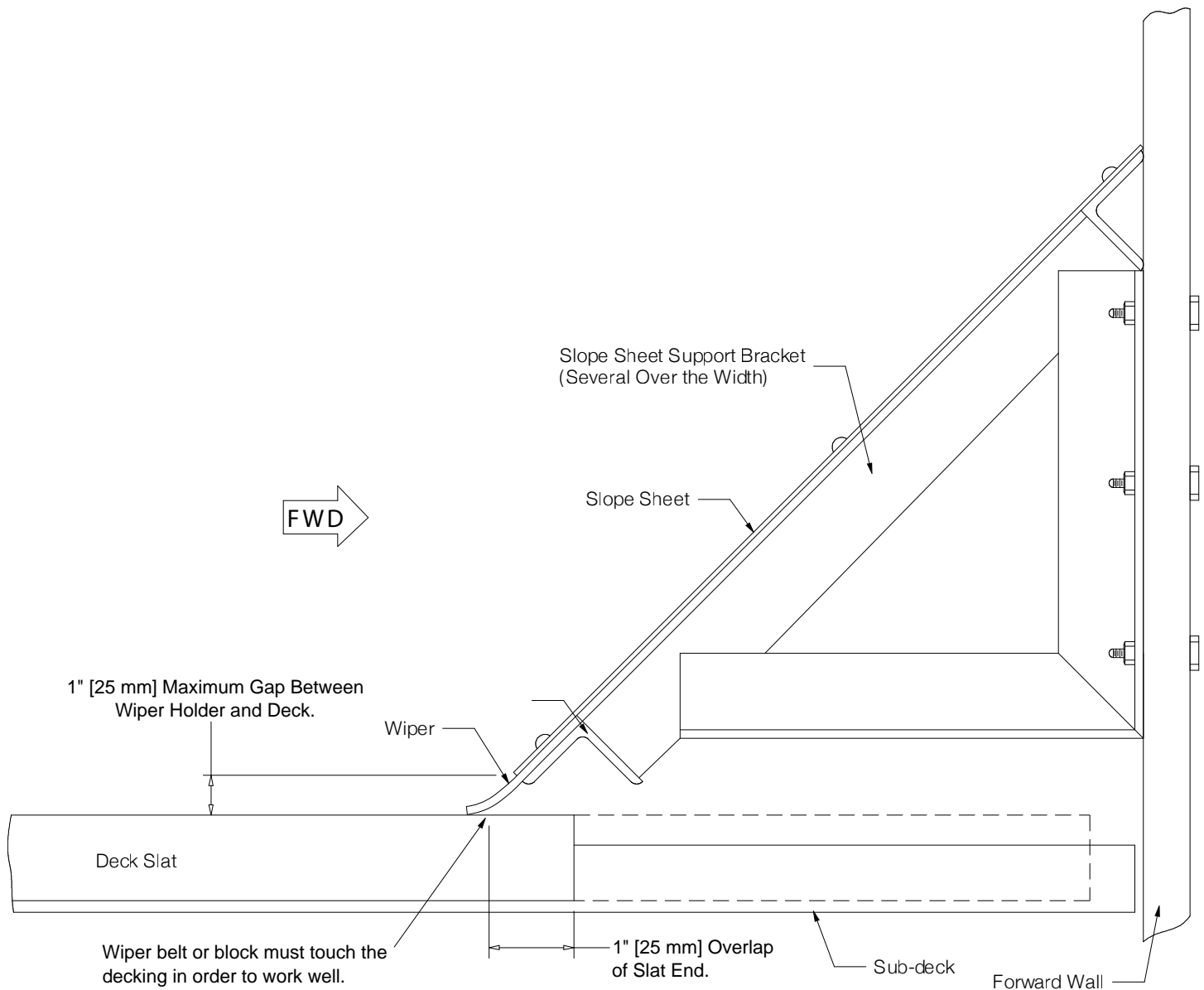


This is an example of side trim & seal. Side trims vary by deck type. Refer to the Decking Selection Guide at the back of this manual.

## 9. Slope Sheet & Wiper:

- Construct a slope sheet to cover the ends of the slats at the front of the floor. An example slope sheet is shown below. The slope sheet assembly must also hold the wiper strip or wiper block.
- Install the slope sheet frame with enough clearance from the deck that the frame does not contact the deck when fully loaded. The wiper must touch the deck to be effective.

**NOTICE** The slope sheet and supporting brackets must be strong enough to support the load over them.

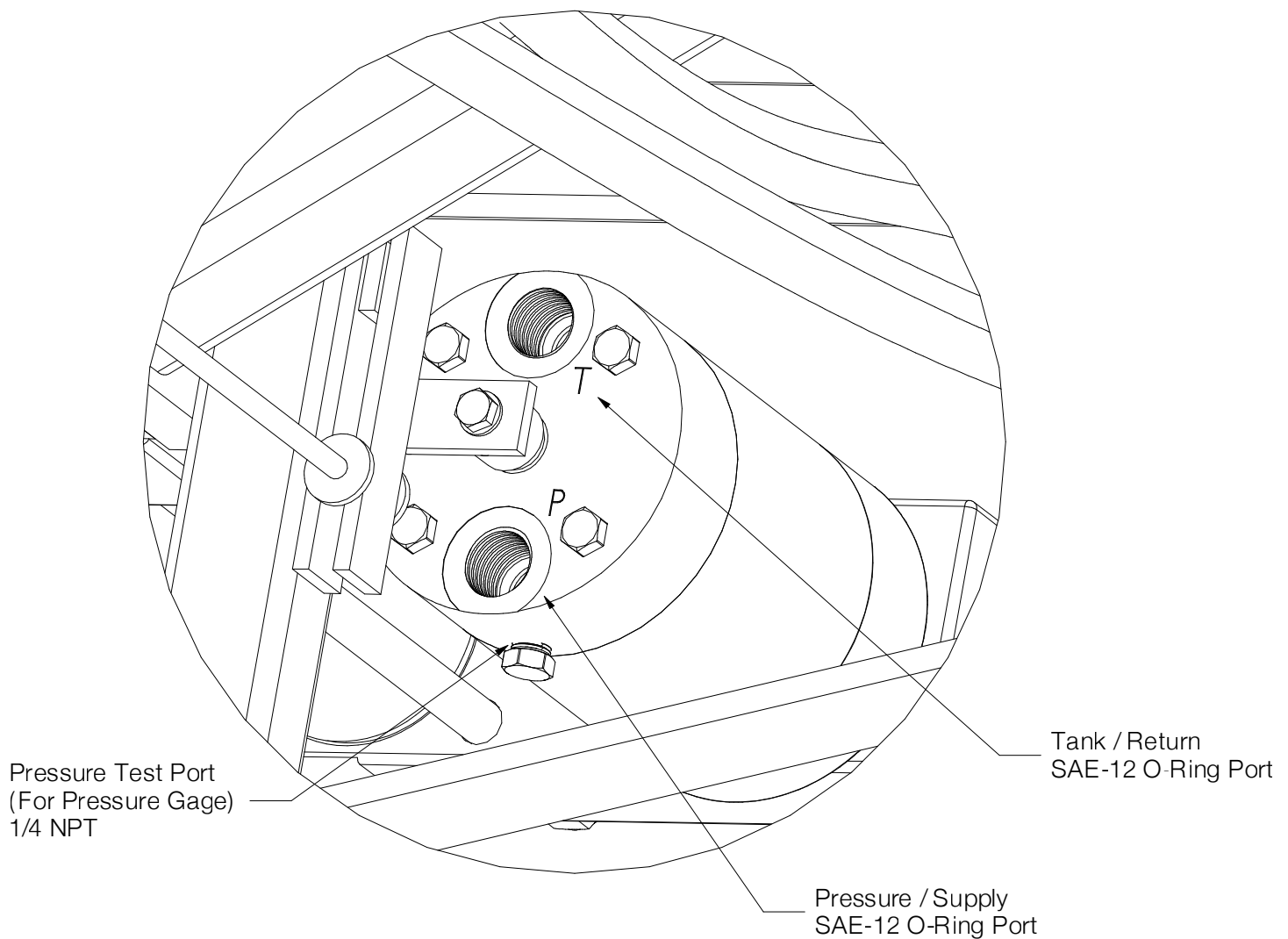


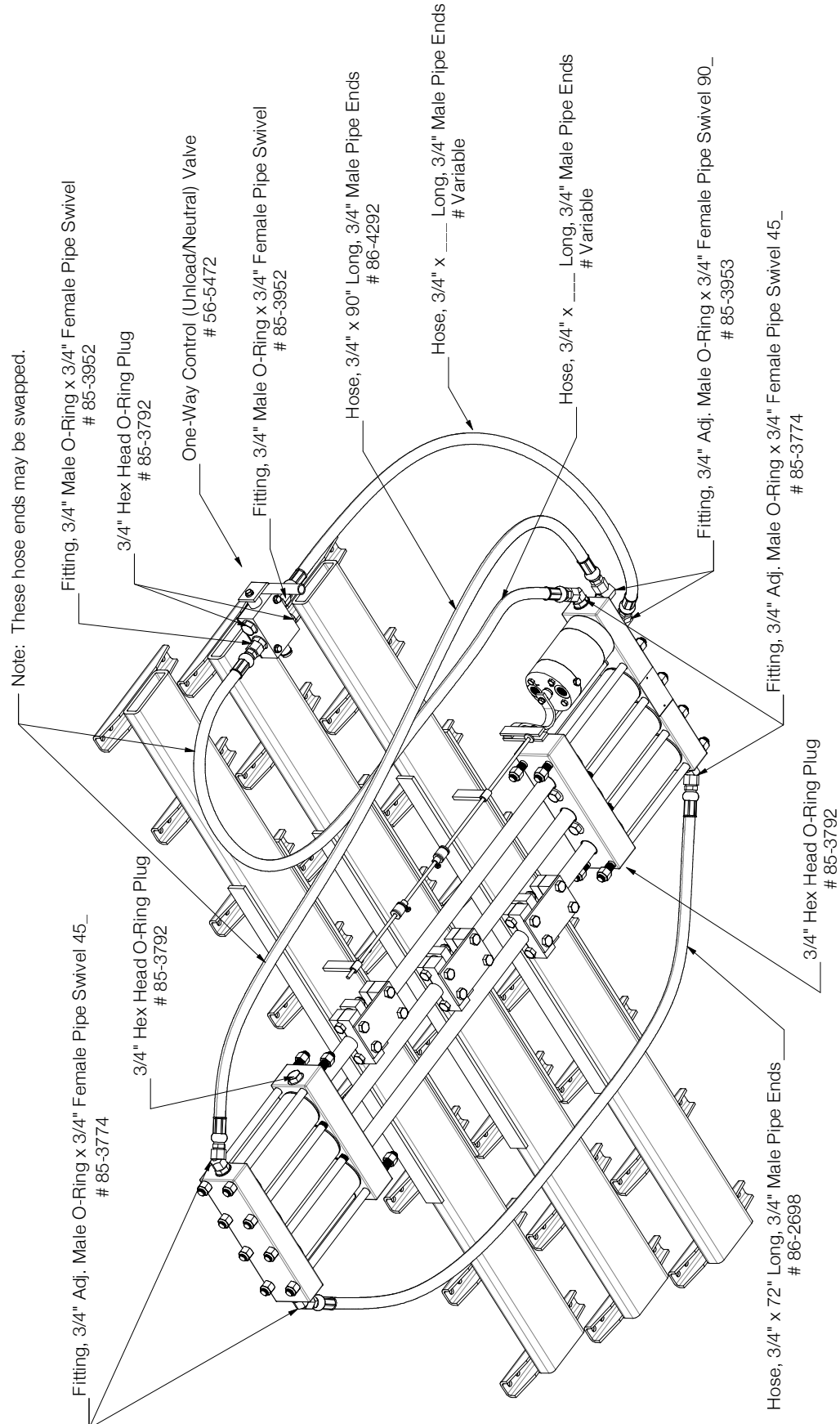


## 10. Plumbing:

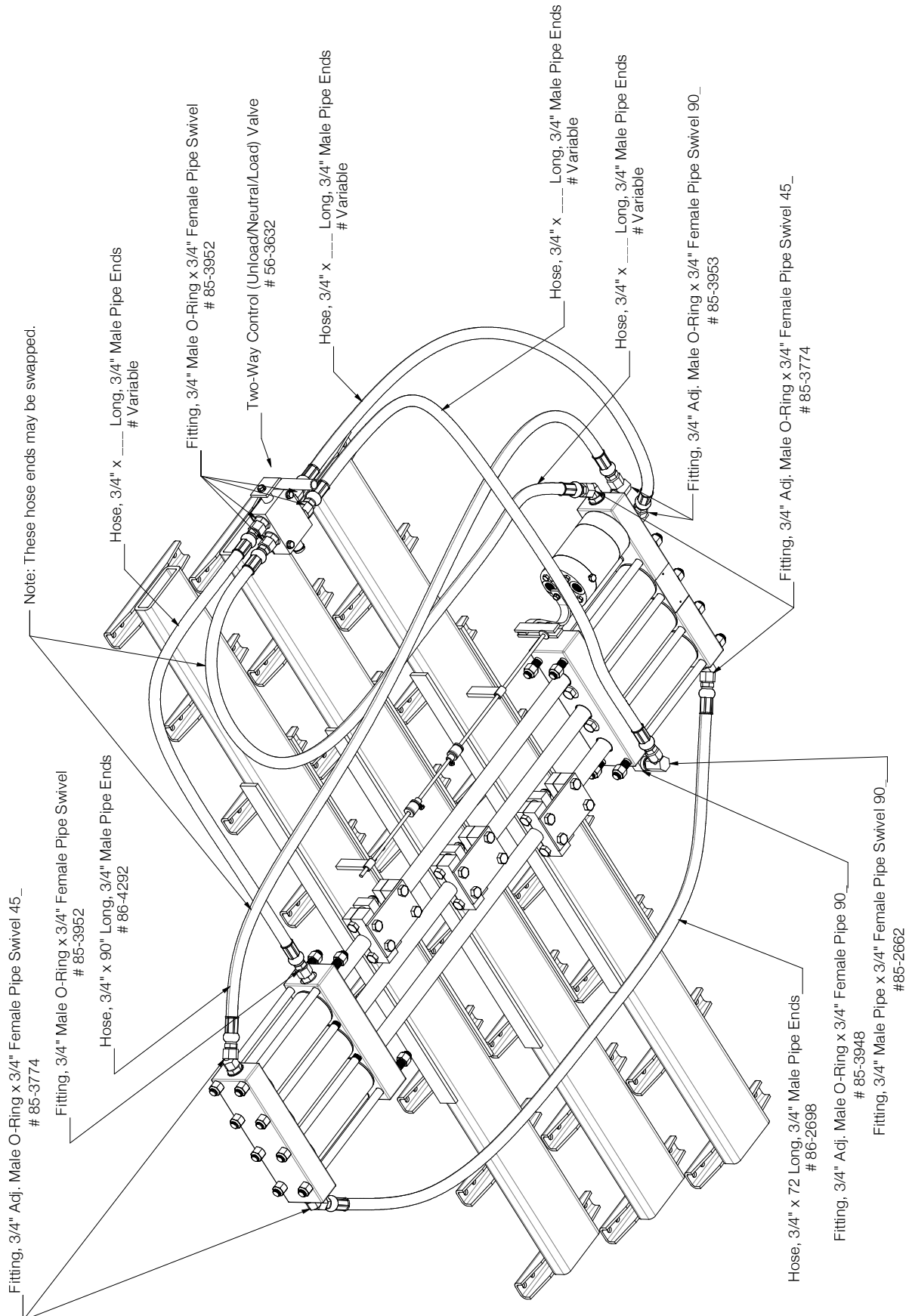
- In many cases drive units are supplied already plumbed. If not, refer to [page 30](#), for standard one-way plumbing or [page 31](#), for standard two-way plumbing.
- Attach the hydraulic system pressure/supply line to the port on the switching valve labeled “P”. Attach the tank/return line to the port labeled “T”. These ports on the switching valve are SAE-12 o-ring.

**NOTICE** Do not install fittings with pipe threads into the pressure and tank ports of the switching valve!





Standard One-Way Plumbing



Standard Two-Way Plumbing

**11. Before Turning The Floor ON:**

Complete the following checklist before sending hydraulic fluid to the Live Floor™ System:

- ☐ 1. Check the entire floor to make sure all the decking is properly snapped over the bearings.
- ☐ 2. Check the front and rear clearances (page [10](#) & [22](#)).
- ☐ 3. Recheck the torque of the deck bolts, drive unit anchor bolts and tie bolts, and cross-drive clamp bolts.
- ☐ 4. Make sure all the hydraulic fittings are tight.
- ☐ 5. Make sure the switching rod is straight and that the stops are tight. Skip this check if the stops have not been set yet.
- ☐ 6. Make sure the cross drive blocking has been removed.
- ☐ 7. Check that the pressure and return lines are correctly plumbed to the hydraulic power source.
- ☐ 8. Check the cylinder shafts for overspray, weld spatter, and other roughness which could damage the seals.

### 12. Switching Rod Adjustment:

**TIP** The switching rod stops are typically pre-set at the factory. If the drive unit has been pre-assembled and the switching rod stop collars are tight, you may skip this section.

- Release and move stops "A" and "B" away from the front and rear triggers.
- Move the switching rod rearward toward the switching valve until it stops.

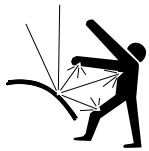
**⚠ DANGER Avoid these hazards:**



The space between cross-drive beams.

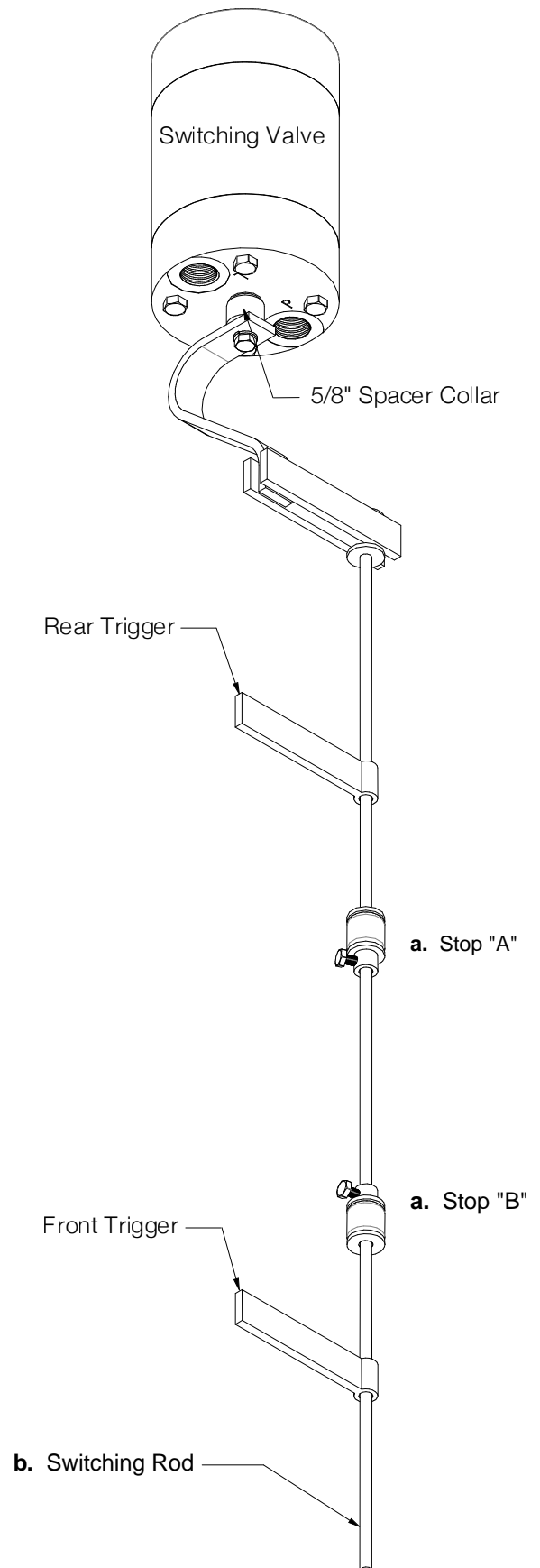
The space between shoe ends and the sub-deck ends.

The end of the slats and the front wall.



Damaged or cut hydraulic hoses, fittings or tubing. A small hole in a hose or fitting will produce a stream of fluid that can pierce the skin injecting oil into your blood.

- Apply hydraulic pressure (load or unload mode) until the shafts are fully extended forward away from the switching valve, then shut off pressure.
- Move the switching rod away from the switching valve until it stops. Move and set stop "A" firmly against the rear trigger.
- Apply hydraulic pressure until the shafts are fully retracted rearward towards the switching valve, then shut off pressure.
- Move the switching rod rearward toward the switching valve until it stops. Move and set stop "B" firmly against the front trigger.
- Mark the positions of stops "A" and "B" on the switching rod.
- Apply hydraulic pressure to the cylinders until the triggers are free from the stops by at least 3/8". Shut off the pressure. Move stop "A" 3/8" [10 mm] toward the rear trigger and tighten firmly. Move stop "B" 3/8" [10 mm] toward the front trigger and tighten firmly.



### 13. Operation & Testing:

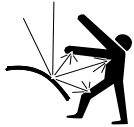
#### **⚠ DANGER** Avoid these hazards:



The space between cross-drive beams.

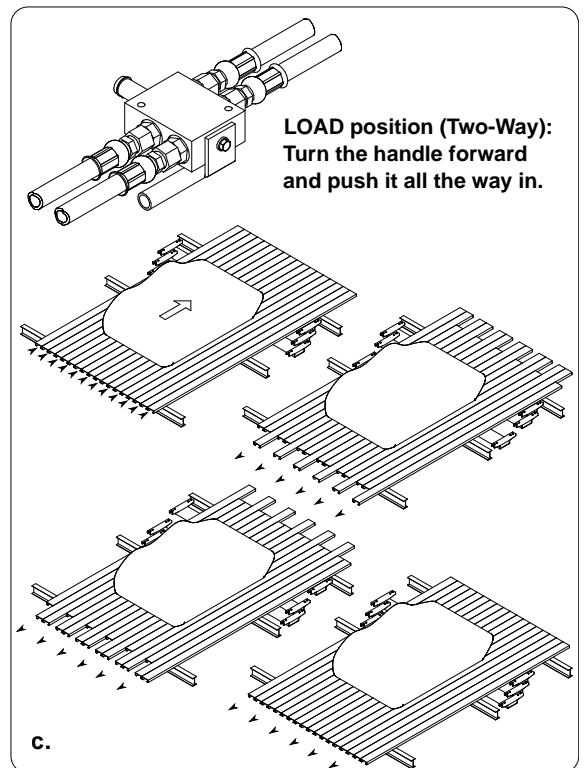
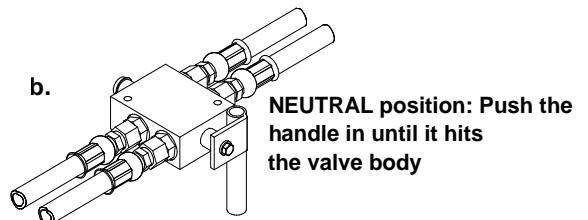
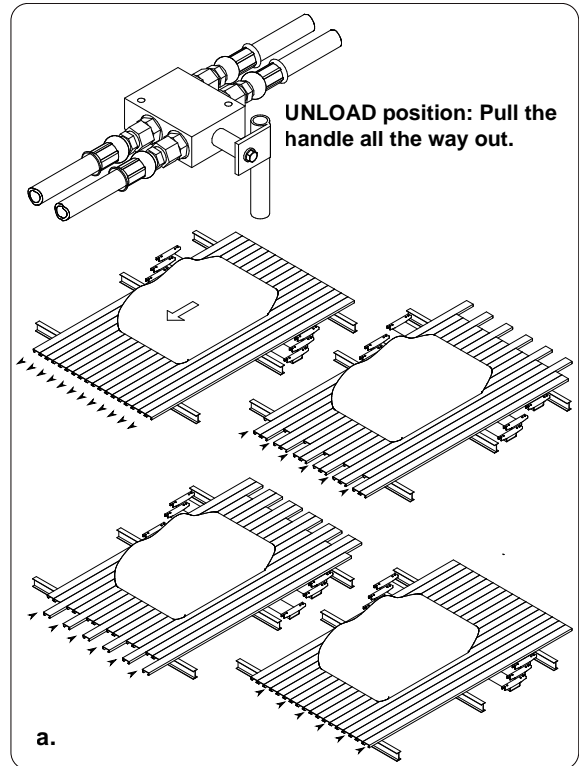
The space between shoe ends and the sub-deck ends.

The end of the slats and the front wall.



Damaged or cut hydraulic hoses, fittings or tubing. A small hole in a hose or fitting will produce a stream of fluid that can pierce the skin injecting oil into your blood.

- a. Turn the hydraulic power on and pull the control valve handle to the UNLOAD position (see sketch to the right). The floor will begin to move erratically at first while it is clearing out air pockets, but after a few minutes should begin to sequence properly. Look for the following indications that the floor is operating properly in UNLOAD MODE:
  1. Left side shaft and cross-drive move forward.
  2. Center shaft and cross-drive move forward.
  3. Right shaft and cross-drive move forward.
  4. All shafts and cross-drives move rearward together.
 Cycle repeats...
- b. Move the control handle to the NEUTRAL position. The floor should not move.
- c. Turn and push the control handle to the LOAD position (two-way models only). Look for the following indications that the floor is operating properly in LOAD MODE:
  1. Right side shaft and cross-drive move rearward.
  2. Center shaft and cross-drive move rearward.
  3. Left side shaft and cross-drive move rearward.
  4. All shafts and cross-drives move forward together.
 Cycle repeats...
- d. Operate the floor without a load for about 30 minutes to make sure it operates properly and the slats do not raise up.





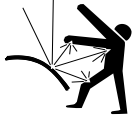
## 14. Hold Down Blocks:

**⚠ DANGER**

**Avoid these hazards:**



The space between cross-drive beams.



The space between shoe ends and the sub-deck ends.



The end of the slats and the front wall.

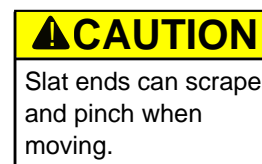
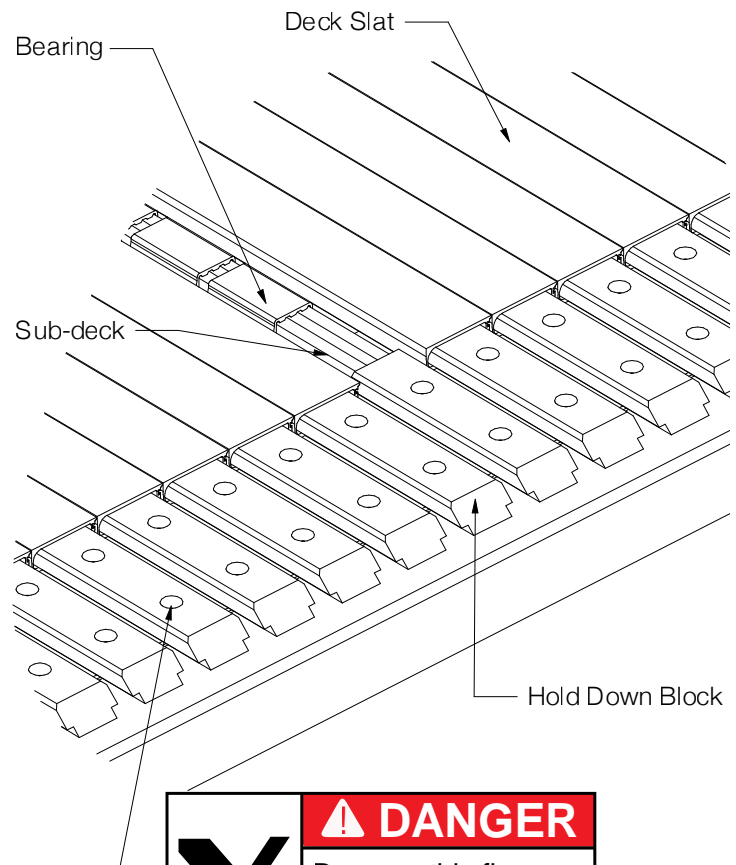
Damaged or cut hydraulic hoses, fittings or tubing. A small hole in a hose or fitting will produce a stream of fluid that can pierce the skin injecting oil into your blood.

The bolt hole in the hold down blocks.

- a. If the hold downs are installed after the slats have been bolted to the cross-drives, use the hydraulic power to move the slats so that the forward hold down block holes will be open when the hold down blocks are in position.

OR if the hold down blocks are installed before the slats are bolted to the cross-drives, manually slide each slat forward to allow access to the hold down bolt holes. Move the control handle to the NEUTRAL position. The floor should not move.

- b. In the correct position each hold down block is lined up with its slat and the square end of each is butted up to its sub-deck. In their forward position the slats should overlap the hold down blocks by 1-3/4" [44 mm]. Fasten the hold down blocks to the rear sill plate. Keep screw or bolt heads well below the top surface of the hold down blocks so that the deck slats will not contact them even as the hold down blocks wear.
- c. Fill the hole above each bolt head with epoxy or equivalent filler to eliminate the pinch point where the deck slats slide over the bolts.



## Troubleshooting

In the “Trouble” column below, find the description that best matches the trouble you are experiencing with the Live Floor™ system. The Item # columns refer to the pictures on the following page. A dark cell means that the item is a suspected cause of the trouble described in that row.

Check the performance of each suspected component. Verify that it meets the minimum requirements listed for it in this manual. Check it for visible damage and/or interference from other parts.

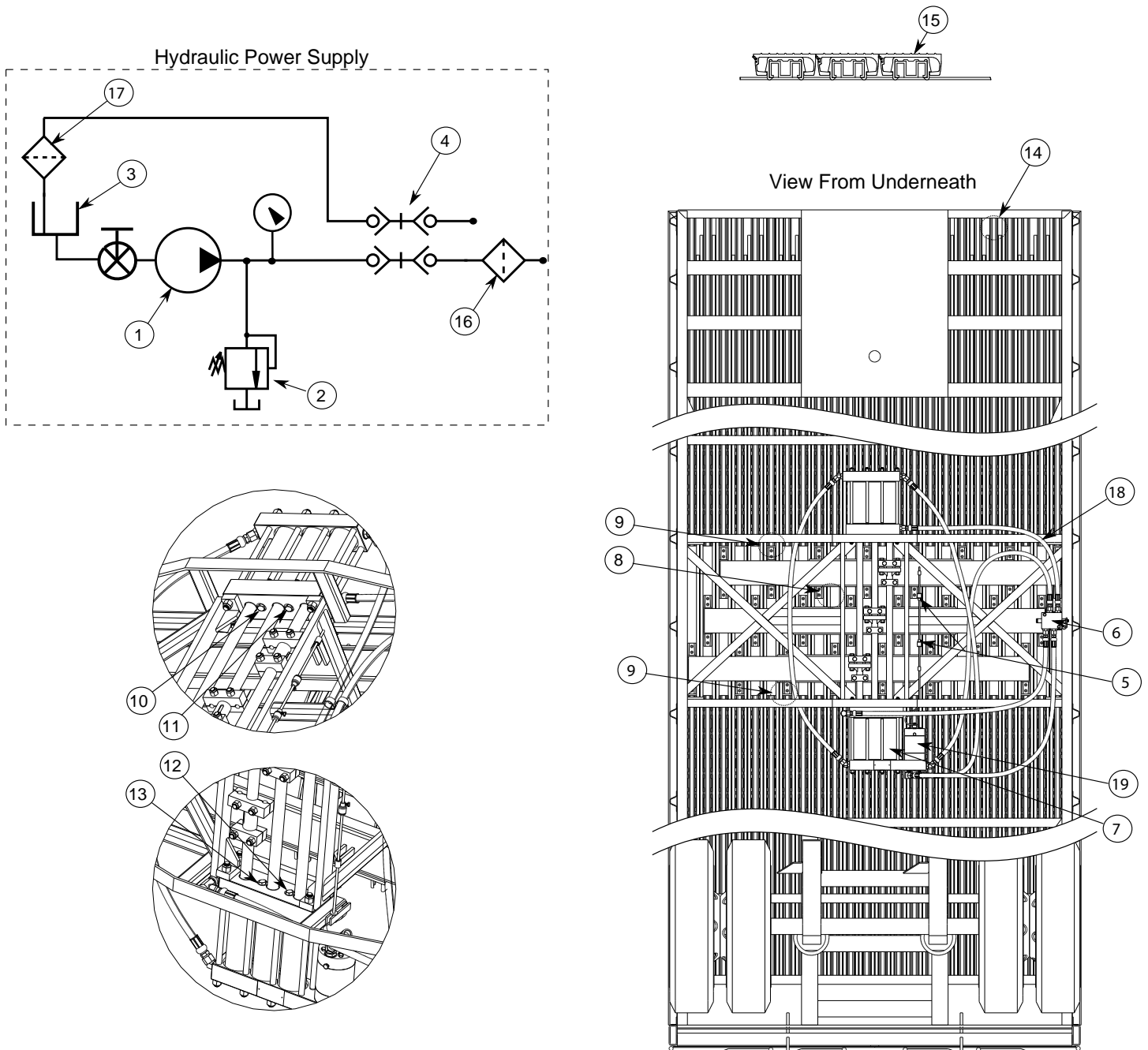
If the suspect is a hydraulic part, measure its temperature using an infrared thermometer or similar device while the system is running to see if it is warmer than the other hydraulic parts. A hydraulic component that is damaged and bypassing oil will heat up a lot faster than the other hydraulic parts in the system.

		<p>Is temperature using an infrared thermometer or similar device while the system is running to see if it is warmer than the other hydraulic parts. A hydraulic component that is damaged and bypassing oil will heat up a lot faster than the other hydraulic parts in the system.</p>																		
		<p>Hydraulic Pump Pressure Relief Valve Tank/Reservoir Quick Connect Couplers Switching Rod Bumpers Control Valve Pistons/Cylinders Cross-Drive Beams Drive Shoes and Sub-deck Front Poppet #1 Front Poppet #2 Rear Poppet #1 Rear Poppet #2 Slat ends at front wall. Slats Pressure Filter Return Filter Hose Routing (Plumbing) Switching Valve</p>																		
Trouble	Item #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
The slats won't move and the floor is loaded. I don't want to use a shovel!		✓	✓	✓	✓	✓		✓	✓	✓					✓				✓	
The slats move much slower than normal when the floor is loaded. The speed looks fine when there is no load.		✓	✓	✓	✓			✓												✓
The slats move seperately when they should travel together. *							✓									✓				
When the slats should be retracting separately, the first cross-drive retracts, the second retracts and <b>the third tries to move and can't</b> or moves very slowly. Everything works fine when the control valve is switched to move the load in the opposite direction.												✓		✓						
When the slats should be retracting separately, the first cross-drive retracts, then <b>the second cross-drive tries to move and can't</b> or moves very slowly. Everything works fine when the control valve is switched to move the load in the opposite direction.											✓		✓							
The hydraulic fluid is overheating within 15 minutes of operation.		✓	✓	✓	✓			✓												✓
The slats reach their end of stroke and nothing happens. When I shut the power to the system off and turn it back on, the floor may cycle or move once but it always gets stuck at one end even though the pump sounds like it is pumping fluid at the maximum pressure.						✓														
The slats move together all the time. It doesn't make a difference if I push the control valve handle all the way in or pull it all the way out.							✓												✓	

\* The load on the floor works to keep the slats all moving together. If there is no load on the floor it doesn't take much extra friction on one cross-drive to keep it from moving with the rest. Most of the time this trouble is fixed by loading the floor.

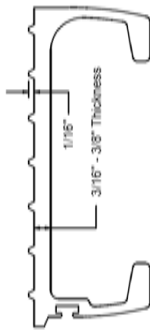
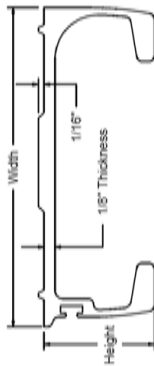


## Troubleshooting Pictures

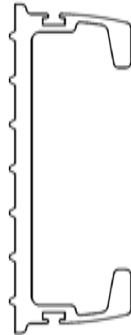
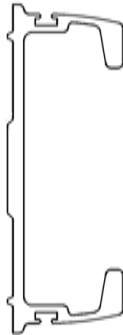


- |                            |                        |                              |
|----------------------------|------------------------|------------------------------|
| 1. Hydraulic Pump.         | 8. Cross-Drive Beams.  | 14. Slat ends at front wall. |
| 2. Pressure Relief Valve.  | 9. Shoes and Sub-deck. | 15. Slats.                   |
| 3. Tank/Reservoir.         | 10. Front Poppet #1.   | 16. Pressure Filter.         |
| 4. Quick Connect Couplers. | 11. Front Poppet #2.   | 17. Return Filter.           |
| 5. Switching Rod Bumpers.  | 12. Rear Poppet #1.    | 18. Hose Routing (Plumbing). |
| 6. Control Valve.          | 13. Rear Poppet #2.    | 19. Switching Valve.         |
| 7. Pistons/Cylinders.      |                        |                              |

**Standard Deck**



Wide Side Trim - No Seal  
P/N 41-166NS

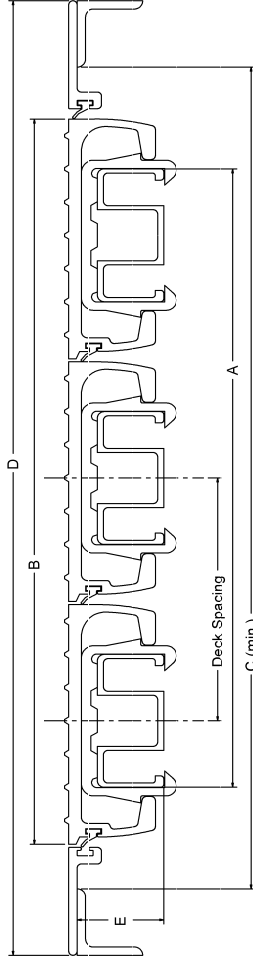


Narrow Side Trim - No Seal  
P/N 41-4876NS



"B" Seal  
P/N 39-4162

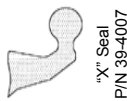
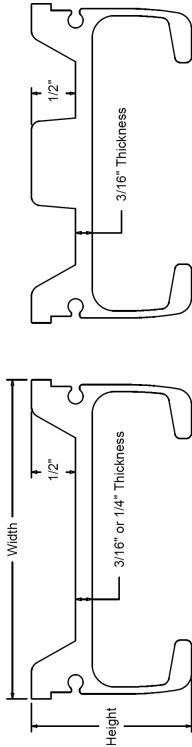
Deck Type	Thickness (in.)	Width (in.)	Height (in.)	Part No.	Deck Type	Thickness (in.)	Width (in.)	Height (in.)	Part No.	Dim. E (in.)
35-2	1/8	3-5/8	1-1/4	41-268	35-2 Double Seal	1/8	3-23/32	1-1/4	41-3046	1-1/4
35-3	3/16	3-5/8	1-5/16	41-275	35-3 Double Seal	3/16	3-23/32	1-5/16	41-2791	1-5/16
35-4	1/4	3-5/8	1-3/8	41-270	35-4 Double Seal	1/4	3-23/32	1-3/8	41-2771	1-3/8
35-6	3/8	3-5/8	1-1/2	41-104	35-6 Double Seal	3/8	3-23/32	1-1/2	41-2769	1-1/2
37-2	1/8	3-7/8	1-1/4	41-271	37-2 Double Seal	1/8	3-31/32	1-1/4	41-3047	1-1/4
37-3	3/16	3-7/8	1-5/16	41-272	37-3 Double Seal	3/16	3-31/32	1-5/16	41-2780	1-5/16
37-4	1/4	3-7/8	1-3/8	41-273	37-4 Double Seal	1/4	3-31/32	1-3/8	41-289	1-3/8
37-6	3/8	3-7/8	1-1/2	41-283	37-6 Double Seal	3/8	3-31/32	1-1/2	41-288	1-1/2
40-3-5	7/32	3-31/32	1-11/32	41-2951	40-3-5 Double Seal	7/32	4-1/16	1-11/32	41-2952	1-11/32
40-5-5	11/32	3-31/32	1-15/32	41-3009	40-5-5 Double Seal	11/32	4-1/16	1-15/32	41-3010	1-15/32



Deck Slat Type	Deck Spacing (in., O.C.)	No. of Slat	Dim. A (in.)	Dim. B (in.)	Dim. C (in.)	Dim. D* (in.)
35	3-21/32	18	64-5/32	65-13/16	66-9/16	69-13/32
37	3-29/32	18	68-13/32	70-5/16	71-1/16	73-29/32
40	4	18	70	72	72-3/4	75-19/32
35	3-21/32	21	75-1/8	76-25/32	77-1/32	80-3/8
37	3-29/32	21	80-1/8	82-1/32	82-25/32	85-5/8
40	4	21	82	84	84-3/4	87-19/32
35	3-21/32	24	86-3/32	87-3/4	88-1/2	91-11/32
37	3-29/32	24	91-27/32	93-3/4	94-1/2	97-11/32
40	4	24	94	96	96-3/4	99-19/32

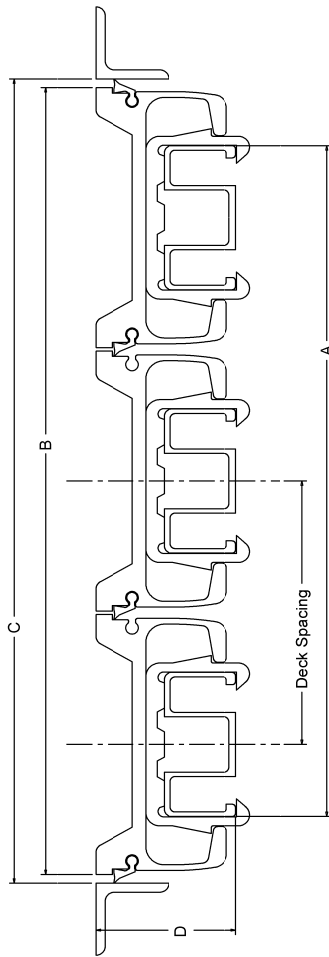
\*With 1-5/8" wide side trim, 41-166NS

**Double Ridge™ & Triple Ridge™ Deck**



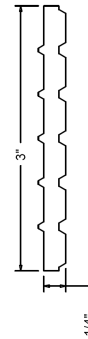
"X" Seal  
P/N 39-4007

Deck Type	Thickness (in.)	Width (in.)	Height (in.)	Part No.	Dim. D (in.)
35-3 Double Ridge	3/16	3-5/8	1-13/16	41-3462	1-15/16
35-4 Double Ridge	1/4	3-5/8	1-7/8	41-3958	2
37-3 Double Ridge	3/16	3-7/8	1-13/16	41-3482	1-15/16
37-4 Double Ridge	1/4	3-7/8	1-7/8	41-3979	2
40-3 Double Ridge	3/16	3-15/16	1-13/16	41-3486	1-15/16
40-4 Double Ridge	1/4	3-15/16	1-7/8	41-3795	2
35-3 Triple Ridge	3/16	3-5/8	1-13/16	41-4164	1-15/16
37-3 Triple Ridge	3/16	3-7/8	1-13/16	41-4167	1-15/16
40-3 Triple Ridge	3/16	3-15/16	1-13/16	41-4184	1-15/16

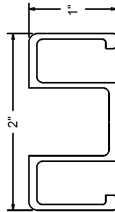


Deck Slat Type	Deck Spacing (in., O.C.)	No. of Slat	Dim. A (in.)	Dim. B (in.)	Dim. C (in.)
35	3-21/32	18	64-5/32	65-25/32	66-1/32
37	3-29/32	18	68-13/32	70-9/32	70-17/32
40	4	18	70	71-31/32	72-7/32
35	3-21/32	21	75-1/8	76-3/4	77
37	3-29/32	21	80-1/8	82	82-1/4
40	4	21	82	83-31/32	84-7/32
35	3-21/32	24	86-3/32	87-23/32	87-31/32
37	3-29/32	24	91-27/32	93-23/32	93-31/32
40	4	24	94	95-31/32	96-7/32

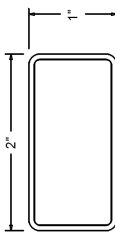
**Subdeck & Wearplate**



Aluminum Wearplate  
P/N 41-2768

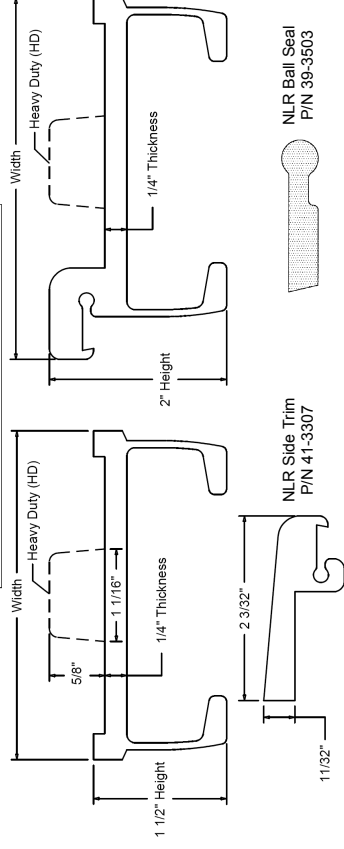


Aluminum Subdeck  
P/N 41-2460

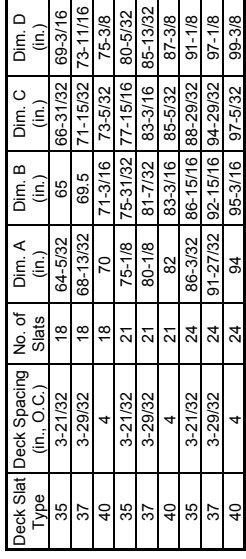


Steel Subdeck  
P/N 15-1314

## Narrow Leak Resistant Deck



NLR Side Trim  
P/N 41-3307



Technical drawing of a deck railing section. The drawing shows a cross-section of the railing with four vertical balusters. Dimension A indicates the height of the railing from the deck surface to the top rail. Dimension B indicates the total height of the railing assembly, including the base. Dimension C indicates the width of the railing section. Dimension D indicates the width of the base. A label 'Deck Spacing' with a double-headed arrow indicates the distance between the balusters.

\*With side trim "C", 41-4412

**Bearing**

Continuous Bearing  
(9 Ft Lengths)  
P/N 39-4093

Std Hold Down  
P/N 39-3043



## i-Series Limited Warranty

**HALLCO Industries, Inc.** (HALLCO) hereby warrants, only to the first owner of a new Hallco i-Series system from the factory or selling distributor, that the product shall be free from defects in material and workmanship for a period of **two years** after delivery to the first owner. **Hydraulic components** shall be warranted as free from defects in material and workmanship for a period of **three years** after delivery to the first owner with a HALLCO approved **high-pressure filter** installed by an authorized OEM or Dealer before the system goes into service. **This warranty does not cover normal wear and tear and maintenance and is not to be construed as a service contract.**

**Owner's Obligation:** To qualify for warranty coverage, **a Warranty Card must be completed and returned to Hallco Industries, Inc.** within ten (10) days of delivery. The equipment must be subject to normal use and service only.

**Definition of Normal Use and Service:** "Normal use and service" means the loading and/or unloading of uniformly distributed, **non-corrosive material, properly restrained, and secured** on properly maintained public roads, with gross vehicle weights not in excess of factory-rated capacity as stated in the owner's manual. For stationary installations, "normal use and service" means the conveying of uniformly distributed, non-corrosive, with weights not in excess of factory-rated capacity.

**Sole and Exclusive Remedy:** If the product covered hereby fails to conform to the above Warranty, **Hallco Industries, Inc.'s** sole liability under this Warranty and the owner's sole and exclusive remedy is limited to repair or replacement of the defective part(s) at a facility authorized by Hallco Industries Inc. Contact **Hallco Industries, Inc.** for the closest Authorized Dealer. This is the owner's sole and exclusive remedy for all contract claims, and all tort claims including those based on strict liability in tort and/or negligence. Any defective part(s) must be shipped freight prepaid to **Hallco Industries, Inc.**, Tillamook, Oregon.

**EXCEPT AS EXPRESSLY SET FORTH ABOVE, HALLCO INDUSTRIES, INC. MAKES NO WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, SPECIFICALLY: NO WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR WARRANTIES OF MERCHANTABILITY ARE MADE. FURTHER, HALLCO INDUSTRIES, INC. WILL NOT BE LIABLE FOR INCIDENTAL DAMAGES OR CONSEQUENTIAL DAMAGES SUCH AS, BUT NOT LIMITED TO, LOSS OF USE OF THE PRODUCT, DAMAGE TO THE PRODUCT, TOWING EXPENSES, ATTORNEY'S FEES AND THE LIABILITY YOU MAY HAVE IN RESPECT TO ANY OTHER CLAIM OR REASON.**

**Tort Disclaimer:** **Hallco Industries, Inc.** shall not have any liability in tort with respect to the products, including any liability based on strict liability in tort and/or negligence, or any other theory.



#### **Warranty conditions are as follows:**

- The warranty period is for the first equipment owner only.
- A warranty period is (2) two years for the entire HALLCO i-Series system from the date of delivery to the first purchaser.
- **A warranty period of (3) three years for the hydraulic components with an approved highpressure filter installed by an authorized OEM or Dealer prior to the system going into service from date of delivery to the first purchaser.**
- The i-Series system must be installed by the trailer manufacturer according to HALLCO installation procedures located in the Installation Manuals.
- Purchaser must follow recommended maintenance and control procedures.
- In the case of a malfunction, trailer manufacturer or HALLCO must be informed within 10 business days.

#### **The following components are not covered by the warranty:**

- Malfunction of equipment, or caused by equipment, which was not supplied by HALLCO.
- Malfunction caused by the use of dirty oil, or oil of the wrong type as stated in the owner's manual.
- Malfunction caused by overheated oil: maximum temperature 82 °C or 180°F.
- Malfunction caused by corrosive materials.
- Malfunction caused by overloading or improper use.
- Malfunction caused by repair work performed by an unauthorized third party. Contact HALLCO for the closest authorized dealer.
- Filter elements and components, which are subject to wear-and-tear.
- Defects in electrical components due to incorrect connection and/or incorrect voltage levels.

#### **The Warranty is void if:**

- The i-Series system is used for purposes which have not been recommended by HALLCO.
- The wet kit does not meet HALLCO system recommendations.
- The HALLCO i-Series system is not installed properly.
- Loads in excess of stated limits or legal limits are moved with the system without written permission from HALLCO.



## Warranty Registration Process.

Warranty Registration will be the responsibility of the selling party to the end user, (The Dealer or Manufacturer of the trailer or bin.).

A warranty registration form, shown on the following page, must be printed or copied and filled. Once it is completely filled out it must be mailed to Hallco Industries, Inc. corporate office or scanned and emailed to [info@hallcoindustries.com](mailto:info@hallcoindustries.com).

Hallco Industries, Inc. will enter the information into the database to activate the warranty.

## Warranty Claim Process.

When an issue with the product arises, the Customer must contact a Customer Service Representative (Representative) of Hallco Industries, Inc. (HALLCO) or one of its Authorized Dealers.

The Representative will review the issue with the Customer. If the Representative agrees that the issue is covered by the HALLCO Warranty a claim number will be generated. This claim number must be placed on all communication and documents related to the issue going forward.

After the **agreed upon repairs** are completed, the Customer will submit copies of receipts and invoices for the work to the Representative for review and reimbursement subject to approval.

HALLCO parts needed for the agreed upon repairs will be supplied by HALLCO.

Labor will be reimbursed at a quantity and rate that is set by HALLCO.

Any additional charges must be discussed with and agreed upon by Representative.





## Warranty Registration Form.

Please complete this form and send it to one of the following:

Mail:  
*Hallco Industries, Inc.*  
*PO Box 505*  
*Tillamook, Oregon, 97141*  
*United States of America*

E-Mail:  
*info@hallcoindustries.com*

Fax:  
*+1 503 842 4866*

A completed warranty registration form must be on file at Hallco Industries, Inc. in order for the warranty period to begin on the date of delivery (the date the customer actually takes delivery of the completed system). Without the completed warranty registration form, the date of manufacture will be the beginning of the warranty period.

All fields must be filled in with the proper information:

### Contact Information:

Purchaser Name	Email
Company Name	Phone
Street Address	State
Street Address 2	Postal Code
City	Country

### Purchase Information:

Dealer Name	Leased or Owned?
Dealer City	Date of Delivery
Dealer State	

### Product Information:

Trailer/Bin Make	Hallco Model #
Trailer/Bin ID (VIN)	Hallco Serial #
Hallco approved high pressure filter installed? (yes or no)	
Type of Material Conveyed	

**I have fully read the Hallco Industries, Inc. warranty information and I/we fully understand and agree to the terms of the warranty.**

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

NOTE: To validate the warranty, this registration card must be filled out completely and returned to HALLCO within ten (10) business days of delivery of product to the original end customer.