



Installation Manual

LIVE FLOOR™ CONVEYING SYSTEMS

6591 Floor System

With Manual Switching i-4000 Drive Assembly

West USA (Headquarters)	Central South USA	Central North USA	East USA
6605 Ammunition Road PO Box 505 Tillamook, OR 97141 Ph: 800-542-5526 Ph: 503-842-8746 F: 504-842-4866	8276 Hwy 16 North Poteet, TX 78065 Ph 877-425-5261 Ph 830-742-8441 F: 830-742-8682	102 Maple Ave. Austintown, OH. 44515 Ph: 704-490-7285	480 Millrun Rd. Salisbury, NC 28144 Ph. 800-230-0190 Ph. 704-636-4122 Fax: 704-636-1644

Table of Contents

Specifications and Theoretical Unload Times	3
Safety	4
Safety Decal Placement	6
What a Live Floor™ Conveyor is and How it Works	7
Before Turning the Live Floor™ Conveyor on	8
Live Floor™ Kit Parts	9
Hydraulic System Requirements	11
Perimeter Frame	12
i-4000 Drive Unit Installation	13
Easy Sub-Deck	15
Ag Floor Side Seal	17
Bearing Options	18
Ag Floor Deck Slats	21
Deck Mounting To Cross-Drive Assembly	22
Standard Hold Down Blocks	24
Slope Sheet & Wiper Installation	26
Standard Two-way Plumbing	27
Switching Rod Adjustment	29
Operation	30
Troubleshooting	31
Maintenance	33
Warranty	36

Hydraulic Module Specifications

	i-4000 Series
One Way	i-41xx
Two Way	i-42xx
Shaft Diameter	38.1 mm [1.5 inch]
Cylinder Diameter	76.2 mm [3 inch]
Stroke	235 mm [9.25 inch]
Maximum Pressure	207 Bar [3000 psi]
Maximum Flow Rate	114 l/min [30 gal/min]
Load Capacity	32 Ton [35 Ton USA]

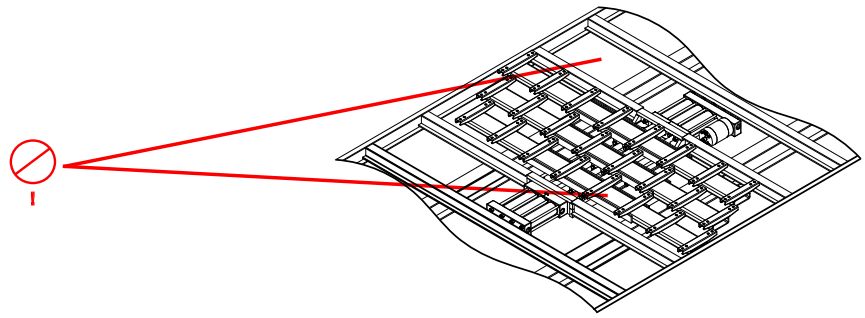
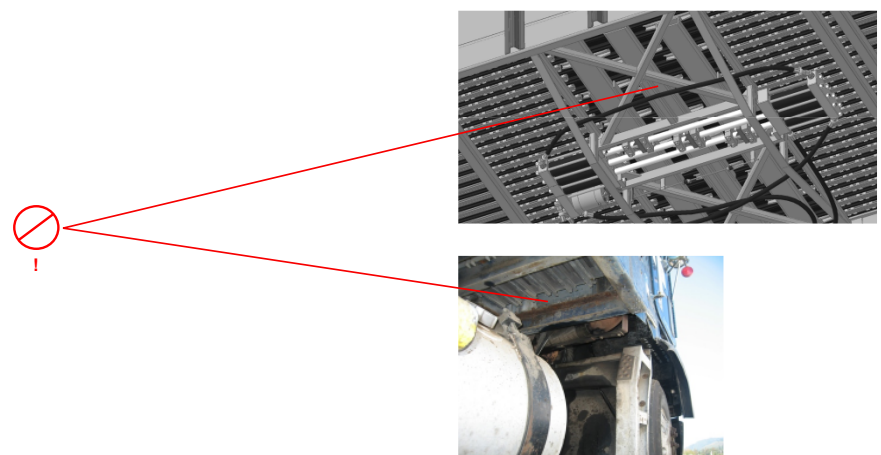
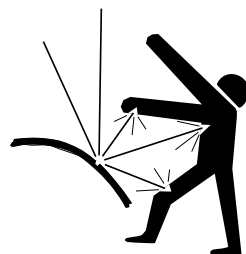
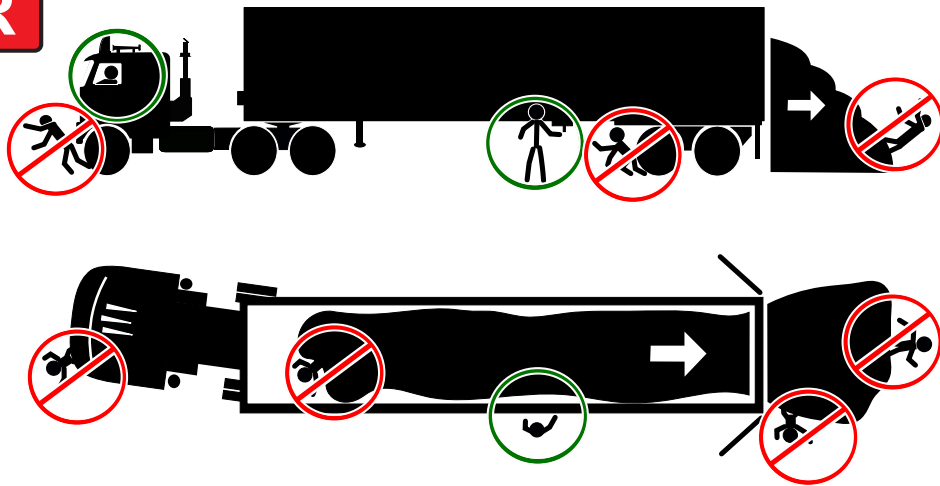
Theoretical Unload Times

Theoretical Minimum Unload Times—14 m [45 ft] Container			
Oil Flow (LPM [GPM])	Cycle Time (s)	Convey Speed (m/min [ft/min])*	Unloading Time* (min)
57 [15]	11.9	1.19 [3.9]	11.6
61 [16]	11.1	1.26 [4.1]	10.8
64 [17]	10.5	1.34 [4.4]	10.2
68 [18]	9.9	1.42 [4.7]	9.6
72 [19]	9.4	1.50 [4.9]	9.1
76 [20]	8.9	1.58 [5.2]	8.7
79 [21]	8.5	1.66 [5.4]	8.3
83 [22]	8.1	1.74 [5.7]	7.9
87 [23]	7.8	1.82 [6.0]	7.5
91 [24]	7.4	1.90 [6.2]	7.2
95 [25]	7.1	1.98 [6.5]	6.9
98 [26]	6.9	2.06 [6.7]	6.7
102 [27]	6.6	2.13 [7.0]	6.4
106 [28]	6.4	2.21 [7.3]	6.2
110 [29]	6.1	2.29 [7.5]	6.0
114 [30]	5.9	2.37 [7.8]	5.8

*Convey speeds and unload times shown are at 100% efficiency and do not account for such things as load slippage. Actual convey speeds and unload times vary by load type.

Safety

 **DANGER**



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 products (trailer, etc.).

Cover the chrome shafts before welding or painting in close proximity to them. Remove any covering before operating the system.

Support all hoses and protect them from any abrasion contact between them and the other components.

Install a high pressure filter in the pressurized return line as close to the tank as possible before operating the floor conveyor system.

Make sure the system pressure never exceeds the maximum pressure as specified in this manual.

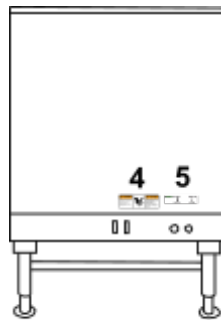
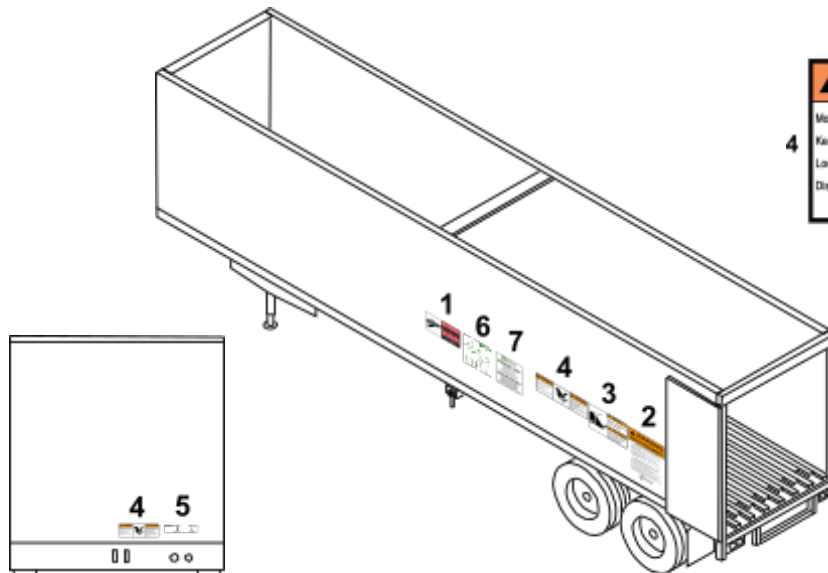
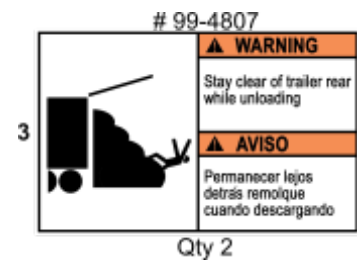
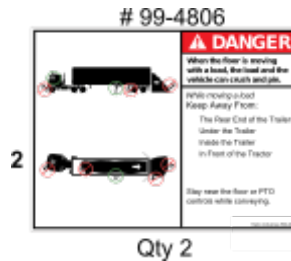
Monitor the oil temperature during operation in order to prevent it from exceeding 82 deg. C (180 deg. F).

Make sure the discharge doors are always open prior to operating the Live Floor Conveyor system in the unload mode.

Watch the space between the front wall/slopesheet and the load while operating the Live Floor Conveyor system. Stop the conveyor immediately if the load is touching the front wall/slopesheet during the load mode.

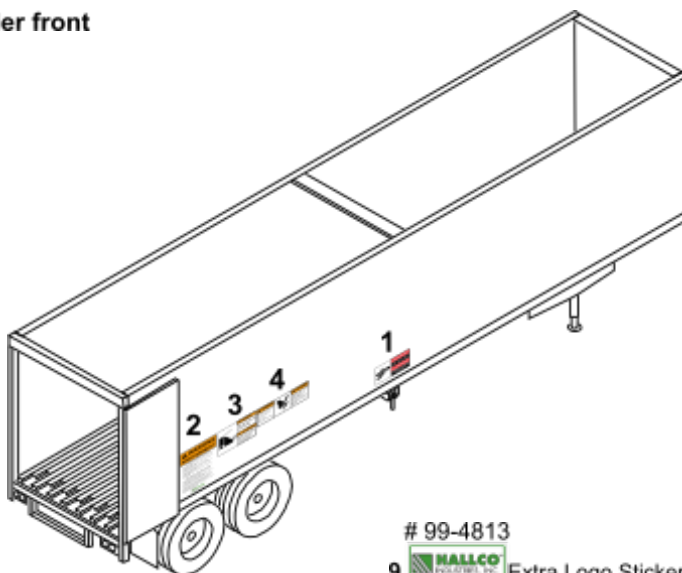
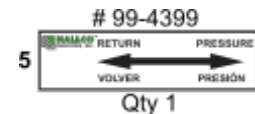
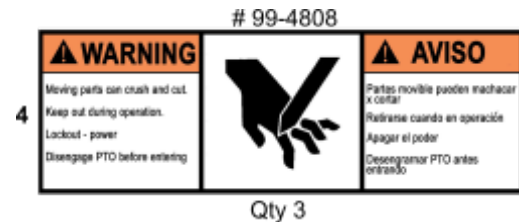
Deck bolts must be re-torqued after the first 5-10 load cycles. Failure to do this will result in damage to the slats and drive unit!!!

SAFETY AND OPERATION DECAL PLACEMENT GUIDE



Trailer front

Rear decals should be applied so they are completely visible with the doors open.



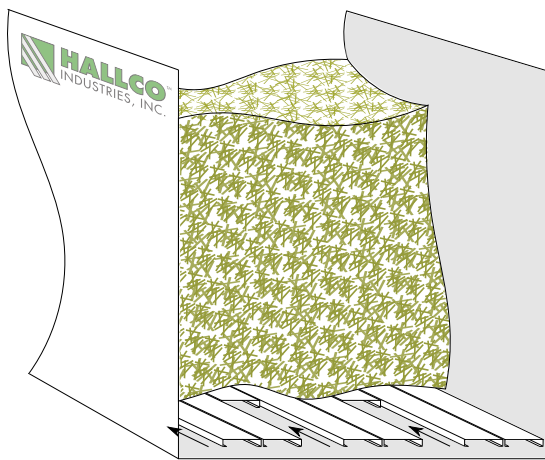
What a Live Floor™ Conveyor is and How it Works

A Live Floor conveyor is made of multiple slats or boards that are as long as the conveyor. The slats are arranged side by side and all at the same level so they cover the entire width of the floor. They don't move up and down or side to side, only back and forth.

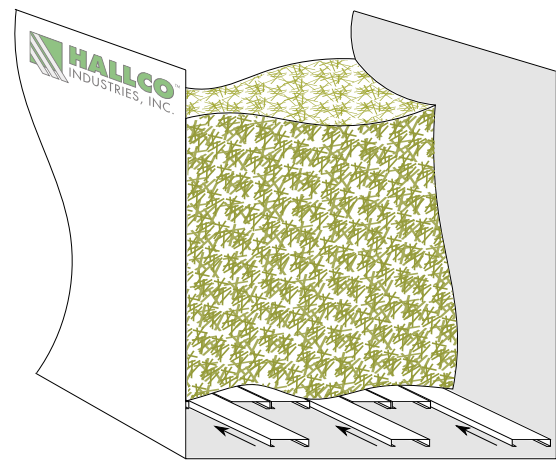
Entire trailer loads are unloaded at once by:
Conveying all of the slats together in one direction for a stroke; Keeping two thirds of the slats

stationary and retracting one third at a time under the load to their original position; Then conveying all of the slats together again.

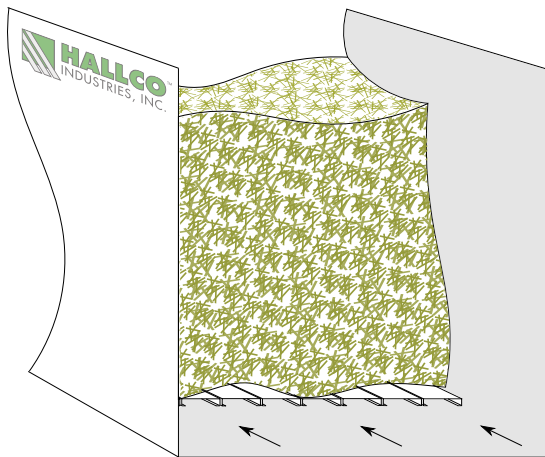
The slats are divided into three groups and each group is driven by a hydraulic cylinder. There are very few moving parts.



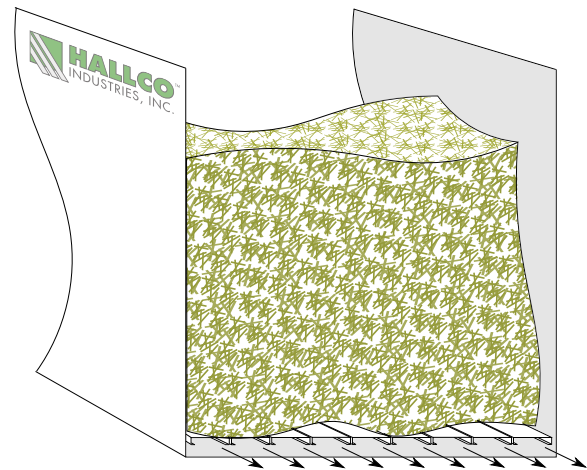
First Group Retract



Second Group Retract



Third Group Retract



All Groups Convey Together

Before Turning The Live Floor™ Conveyor ON

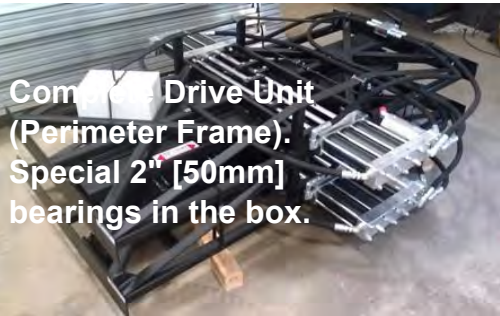
Complete the following checklist before sending hydraulic fluid to the Live Floor™ System:

- 1. Check the entire floor to make sure all the decking is properly snapped over the bearings.
- 2. Check the front and rear floor/trailer clearances.
- 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. Be sure that 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.

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 pictures.

Shipping dimensions given are for rough scale only. Actual sizes will vary considerably.



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

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



Bearing Stops

2" [50mm] x
1" [25mm] x
2" [50mm]



Hydraulic Hose and Fittings
(optional)

6' [1.8m]



Hydraulic Tube (Optional)

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



Flat Head Hex
Socket Cap
Screw Deck
Bolts

7" [180mm]



Hold Down Blocks

12" [300mm]



Deck Nuts

7" [180mm]



Subdeck
Spacers

8' [2.4m]

Live Floor Kit Parts (Continued)



96" [2.4m] x
2.5" [64mm] x
1.5" [38mm]



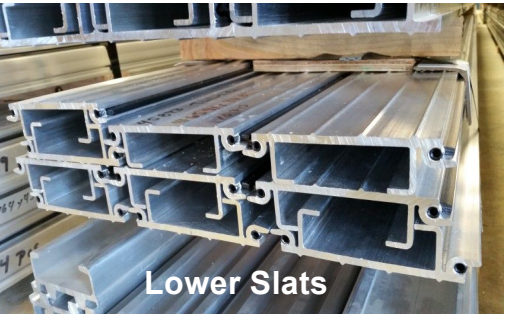
10" [254mm] x
1" [25mm] x
.8" [20mm]



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



9' [2.7m]



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



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

Hydraulic System Requirements

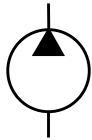


Anti-Wear (AW). Viscosity of ISO 46 or 68 Petroleum OR Mineral base.
Moisture content, H₂O < 1%



< 180°F [82°C]

Fluid Temperature:



Pump:

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

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

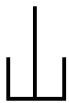
Summary:

Flow ≤ 30 gpm [114 Lpm]

Pressure ≥ 3000 psi [207 bar]

Power Source ≥ Enough for the Flow and Pressure

Speed: Motor or PTO ↔ Pump

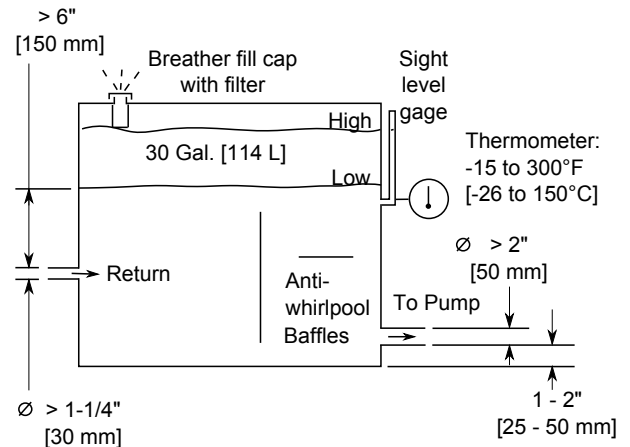


Tank/Reservoir:

Use a reservoir that has all of these features:

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

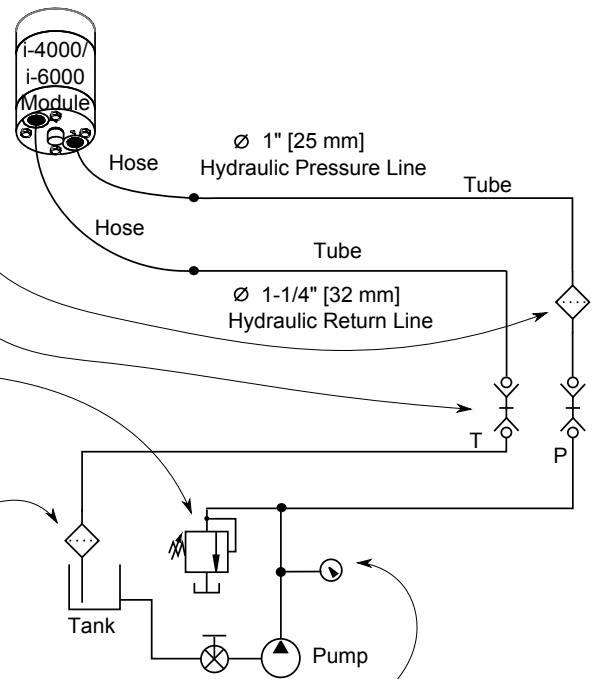
Location and specification information is shown in the sketch to the right.



Hydraulic Supply Circuit

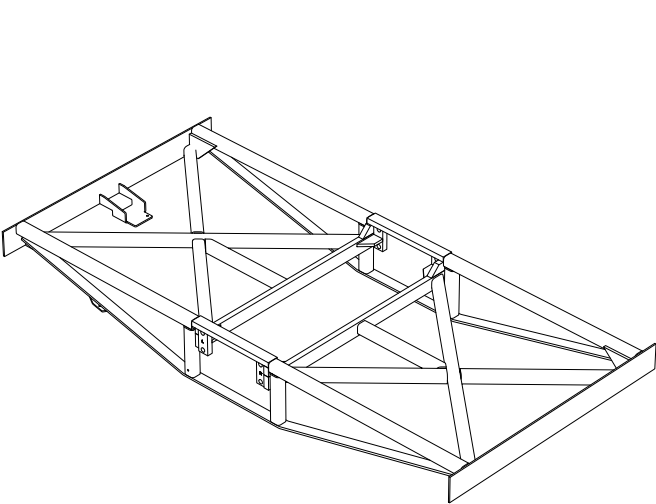
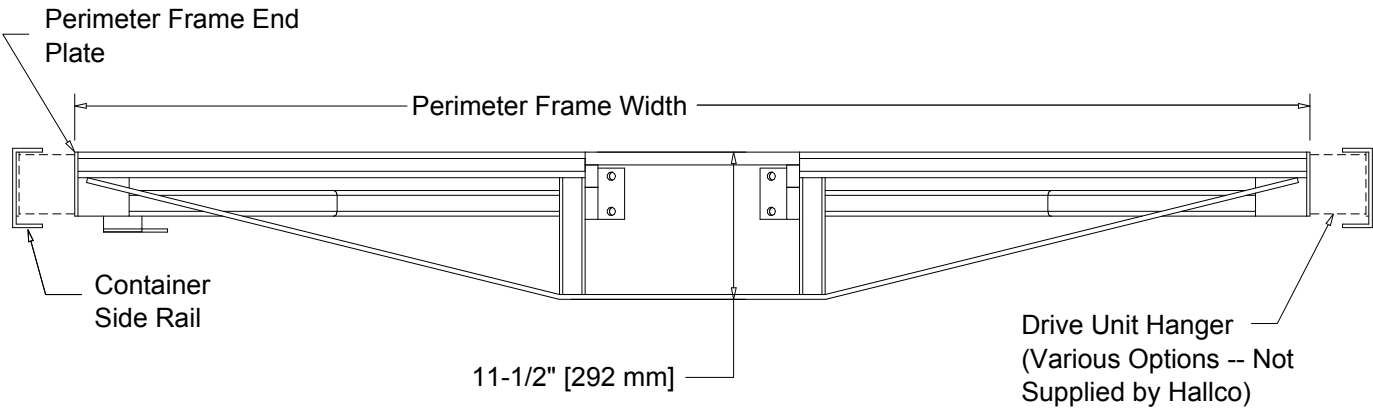
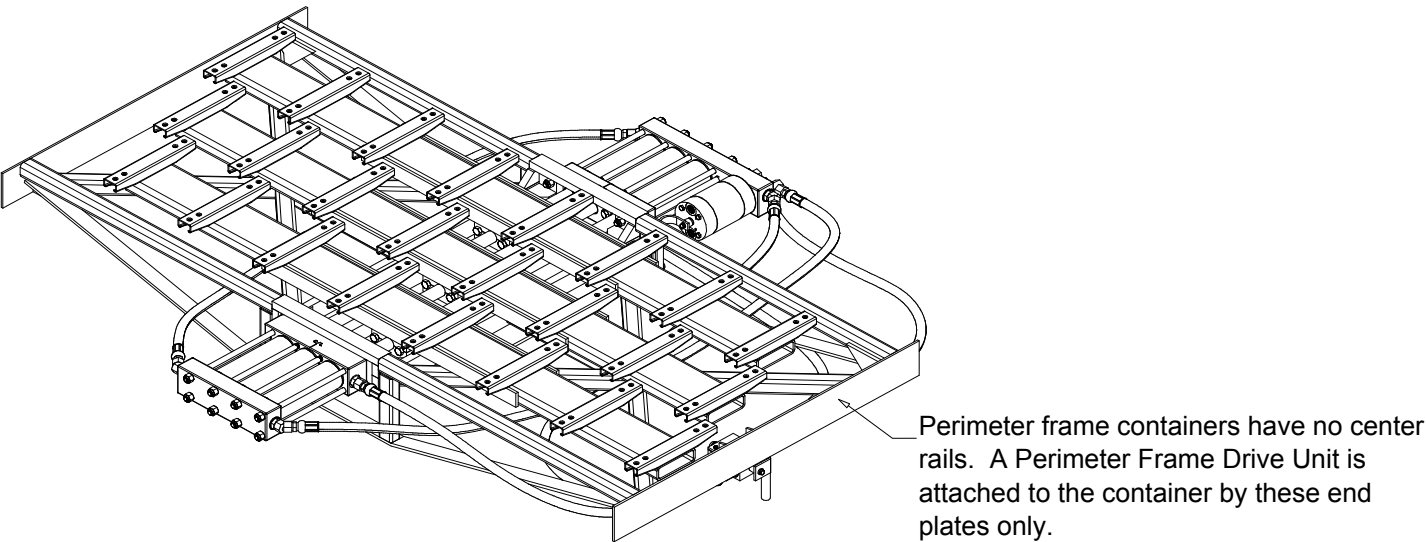
Use all of these features.

- (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] 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 Gage. 0 to 5000 psi [0 to 350 bar]. Glycerin filled.

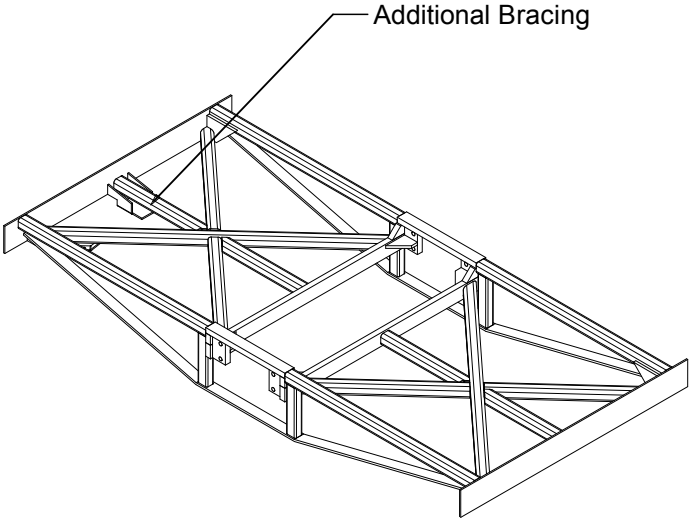


Hallco recommends consulting a hydraulic specialist to design the hydraulic supply system.

Perimeter Frame



Perimeter Frame Without Additional Bracing



Perimeter Frame with additional Bracing

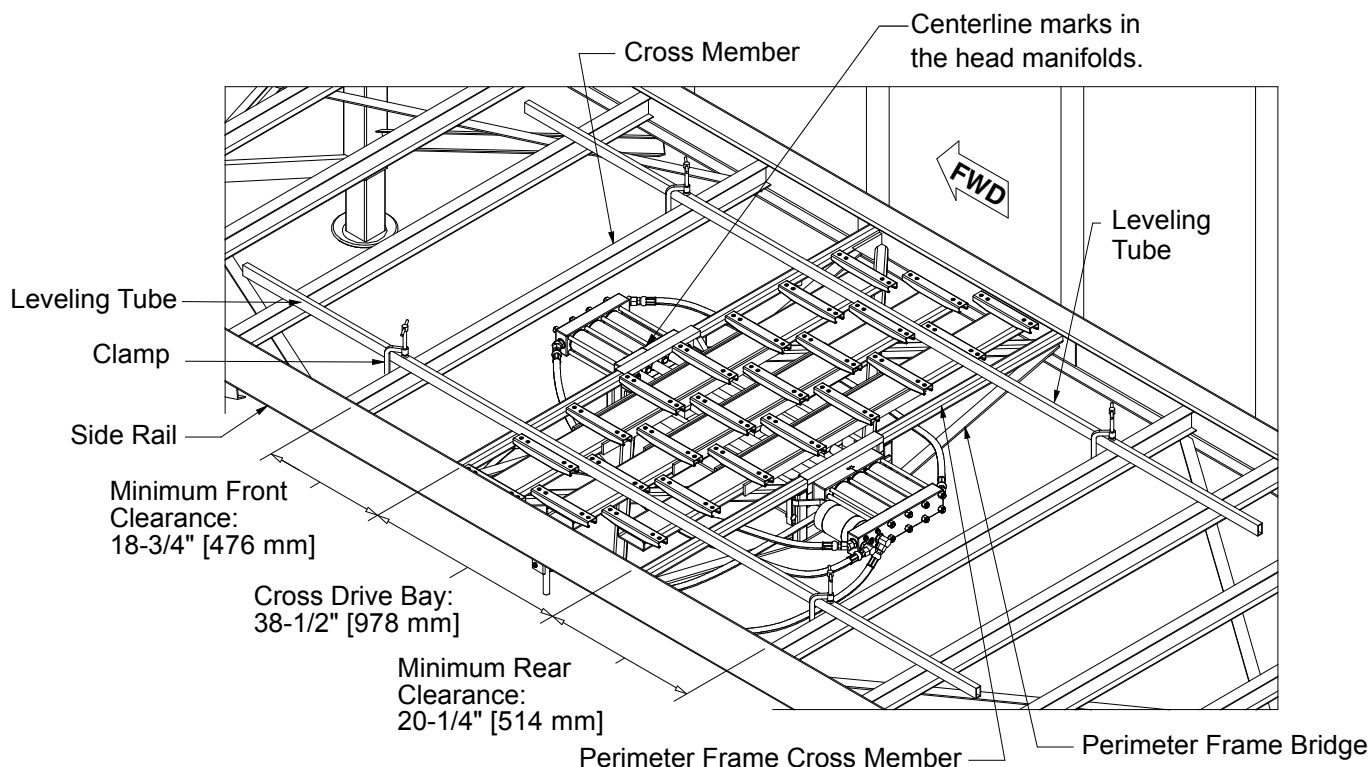
i-4000 Drive Unit Installation

- a. Position the drive unit in place as shown. Maintain the orientation and clearances as shown.
- b. IT IS CRITICAL that the centerline marks on the head manifolds are aligned with the container centerline string and that the top of the drive unit frame is level and flush with the top of the container cross-members.

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

NOTICE

When handling the drive unit, lift only by the perimeter frame cross members. Never lift by the perimeter frame bridge, shafts, cylinders or cross-drives.



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.

- c. Clamp or tack weld the drive unit frame in place and recheck the alignment, clearances, and position of the drive unit.

- d. 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.

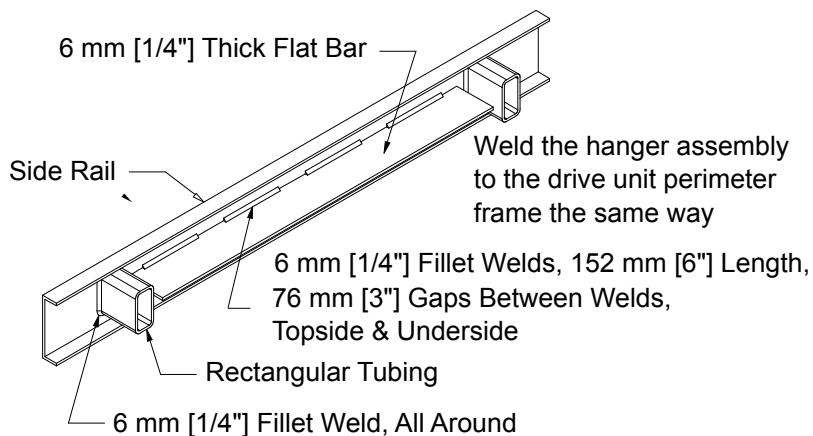
If there is a gap between the frame end plates and the side rails then a shim or "hanger" will need to be used. See the next page for some examples.

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

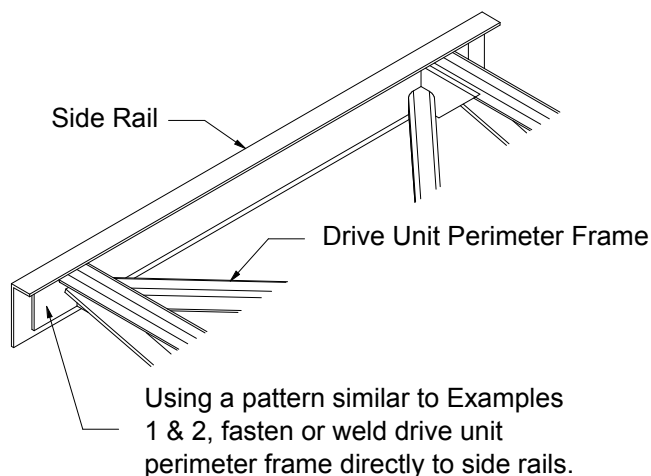
3/8" Diameter	1/2" Diameter	10 mm Diameter	12 mm Diameter
Qty 16	Qty 12	Qty 16	Qty 12

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

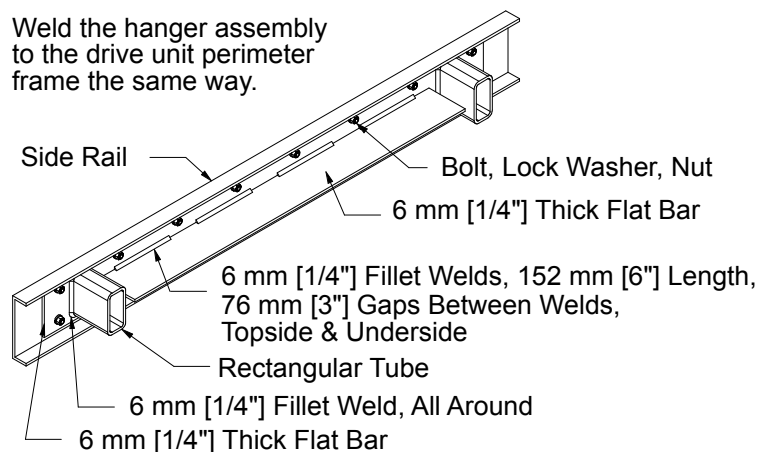
Example 1 -- Hanger Welded to Side Rail



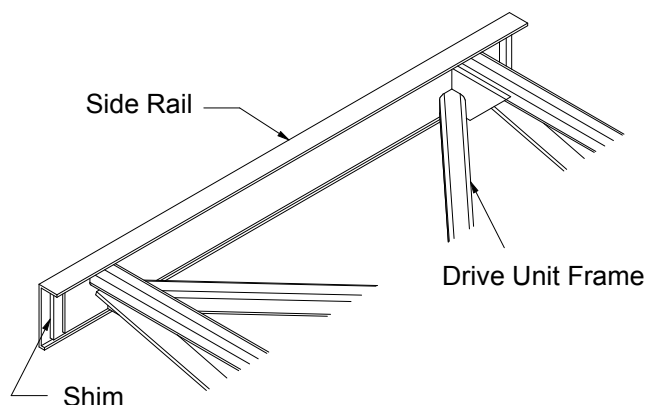
Example 3 -- Perimeter Frame Attached Directly to Side Rail



Example 2 -- Hanger Bolted to Side Rail



Example 4 -- Shim Between Perimeter Frame & Side Rail



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

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 6 mm [1/4"] fillet welds, 152 mm [6"] length, 76 mm [3"] 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.).

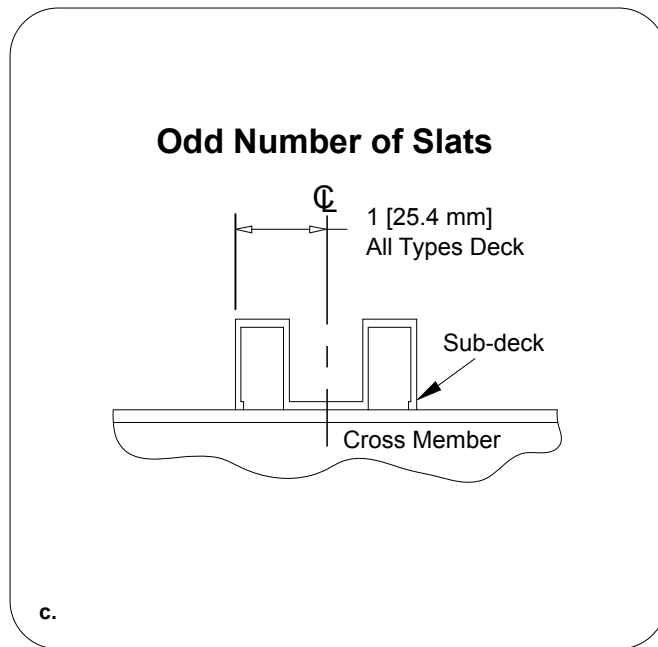
NOTICE Hangers must not extend above the tops of the cross members, otherwise they may interfere with the deck slats.

Sub-Deck

a. 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.

b. Cut the sub-deck to the 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.

c. Carefully align one row of subdeck. 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.



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

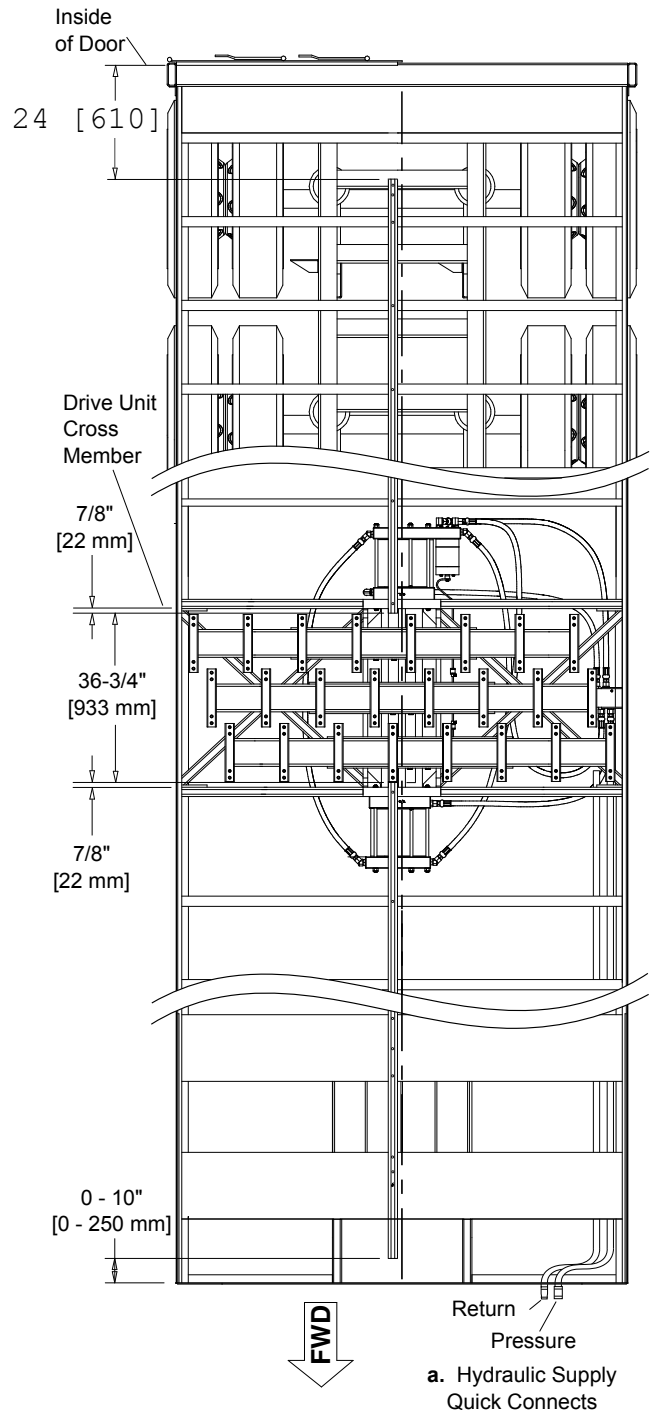


If not secured, the cross-drive beams will tip side to side if stepped on.



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

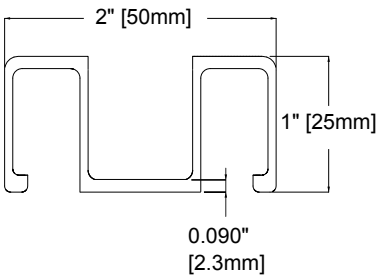
NOTICE Large spaces between the slats can be prevented by accurately installing the first row of subdeck!



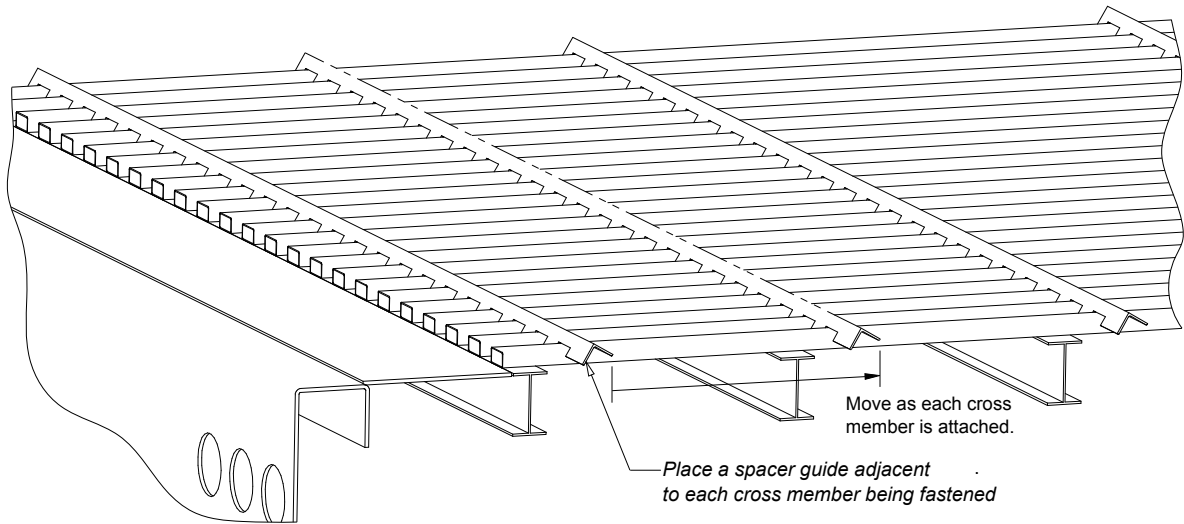
TIP Place the Return quick connect to the left of the Pressure in order to match the decal we provide.

Sub-Deck (Continued)

e. Install the rest of the sub-deck pieces relative to this first row using spacing guides. Place the spacing guides near where the subdeck 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.

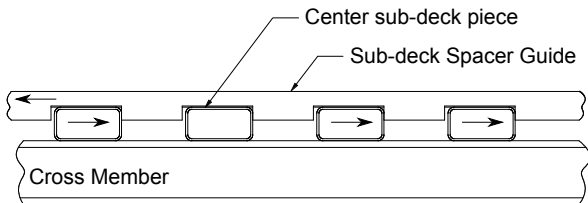


Standard 1" [25.4] x 2" [50.8]
Aluminum Sub-deck P/N 41-2460

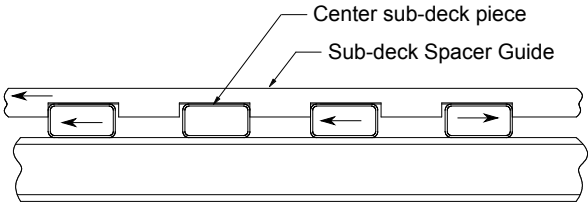


Move as each cross member is attached.

Place a spacer guide adjacent to each cross member being fastened

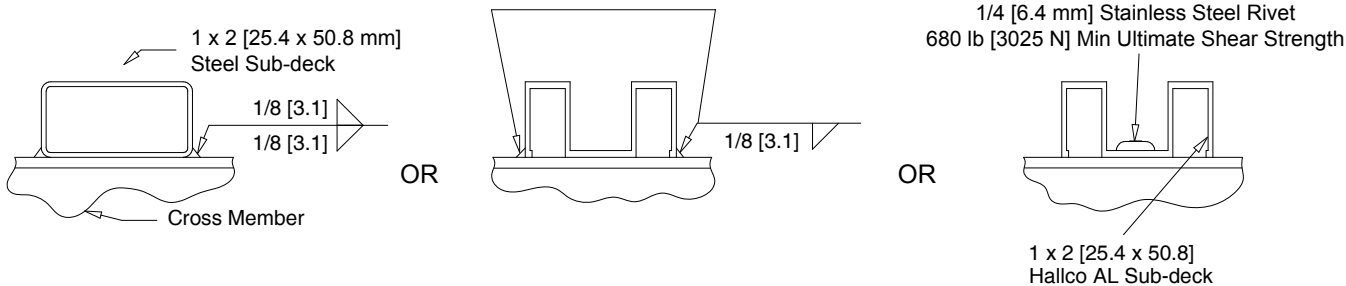


e. Proper use of sub-deck Guides -- CORRECT



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

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

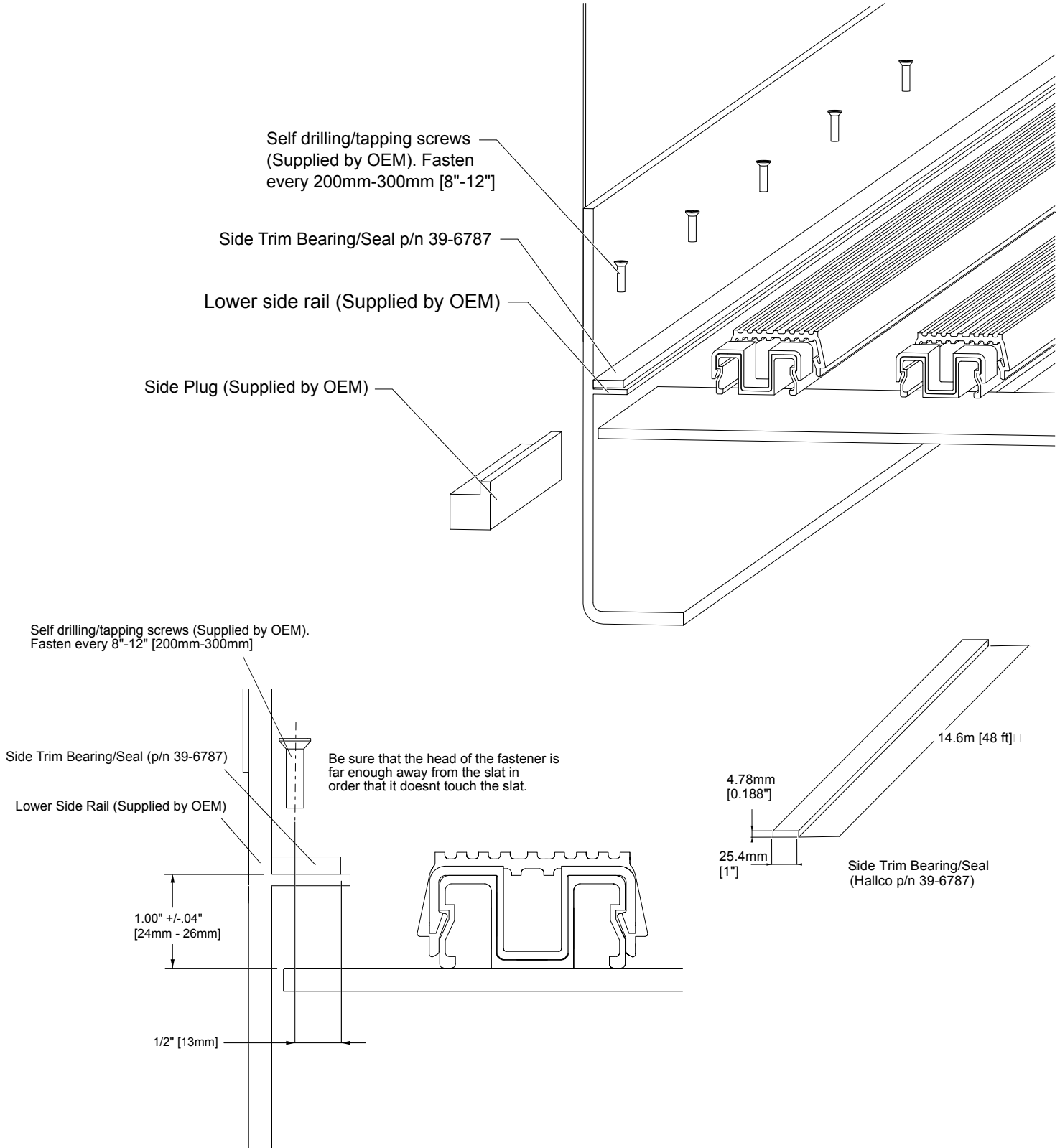


d. Sub-deck Fastening Methods

Ag Floor Side Seal

1. Install the Container Side Trim components
Before installing the top and bottom slats.

TIP Side trim comes in standard lengths of 48 feet [14.6 meters].
Place them end-to-end to achieve the correct length.

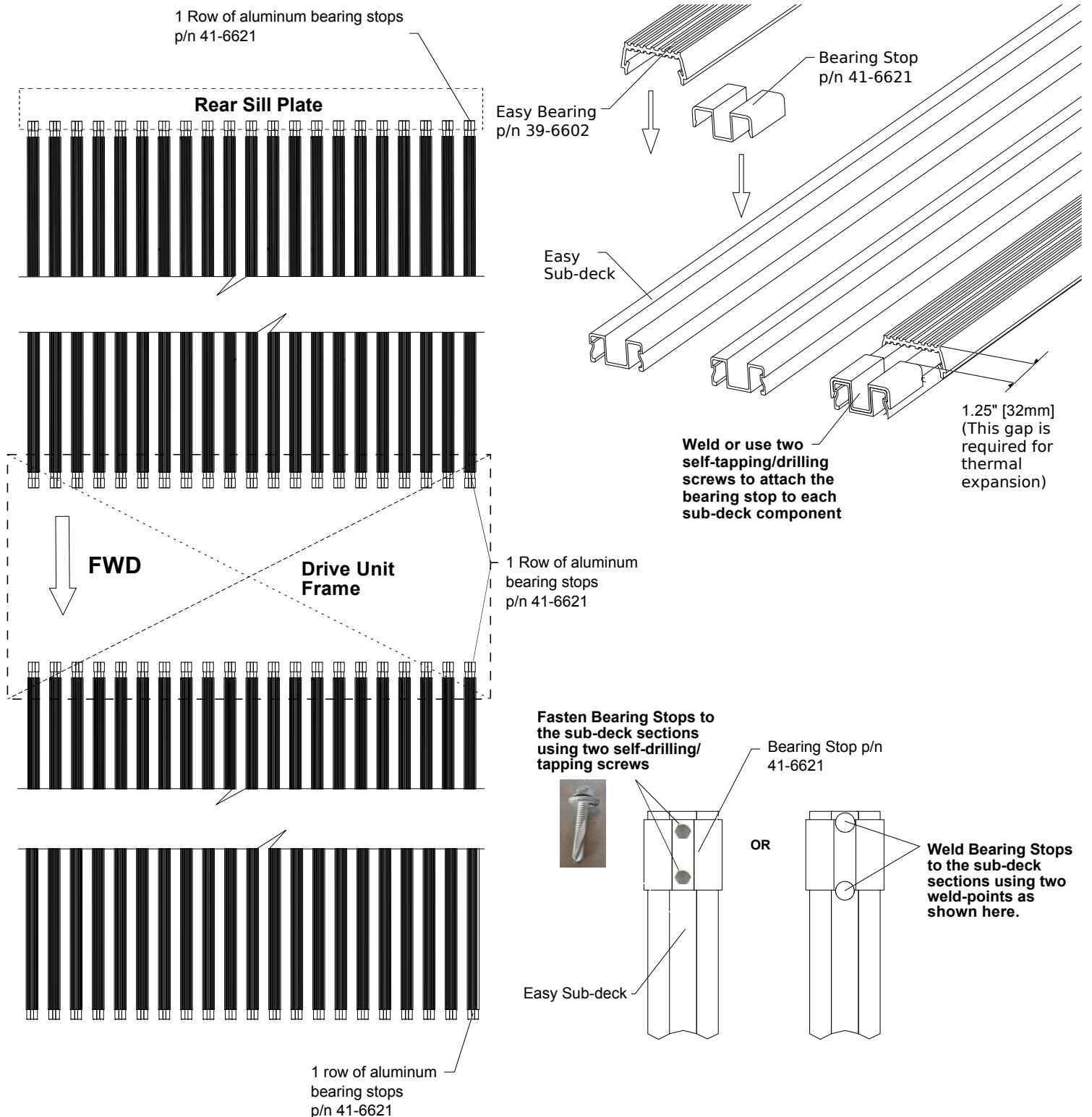


Bearing Options

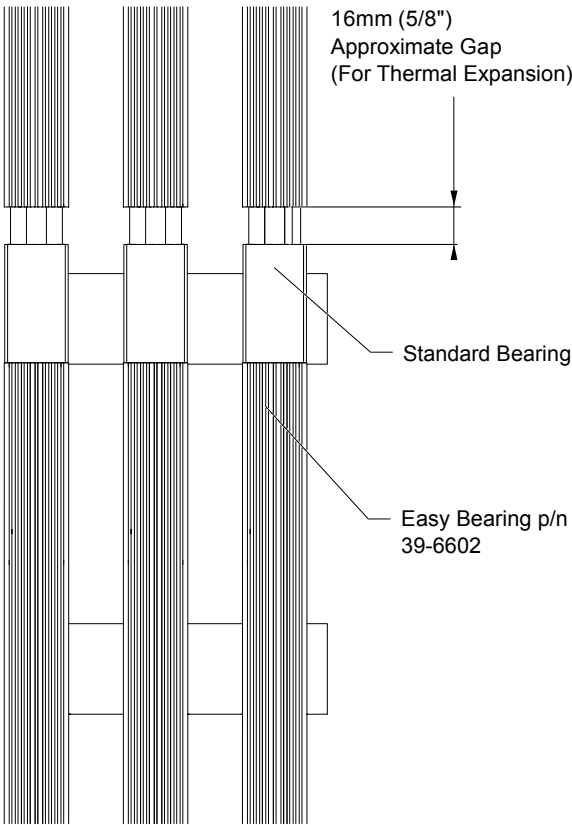
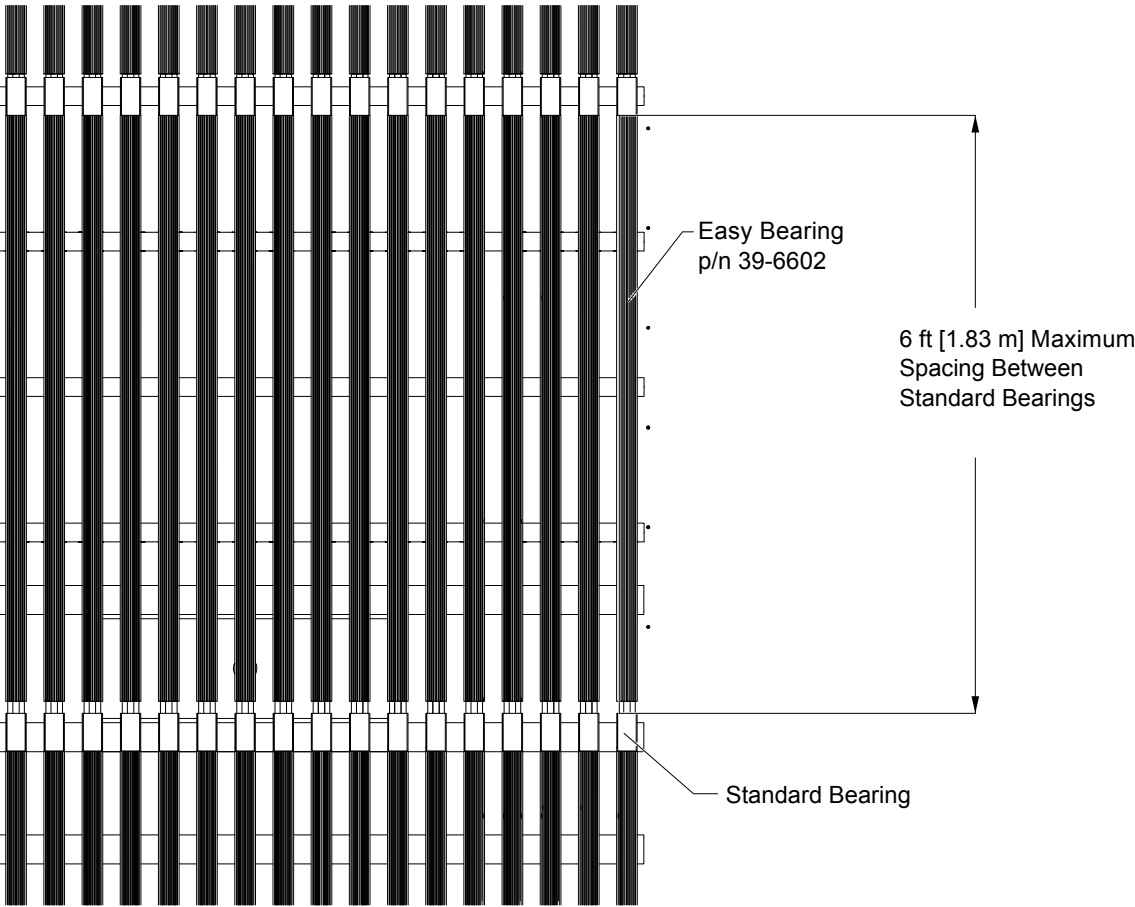
There are three bearing options available:

1. Easy Bearings with aluminum bearing stops.
2. Easy Bearings with standard bearings as stops.
3. Standard bearings only.

Easy Bearings With Aluminum Bearing Stops



Continuous Easy Bearing With Standard Bearings

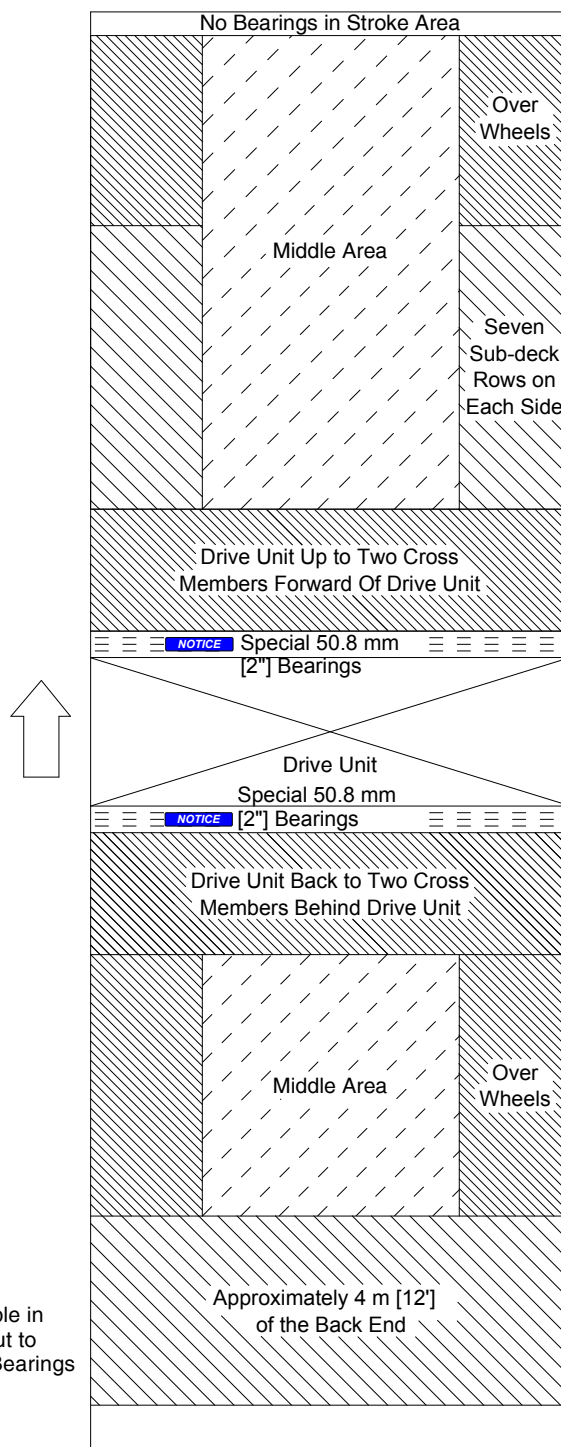
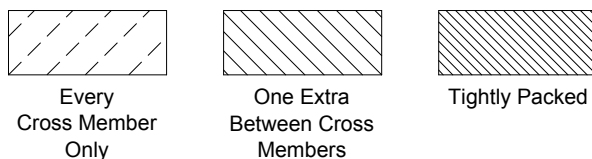
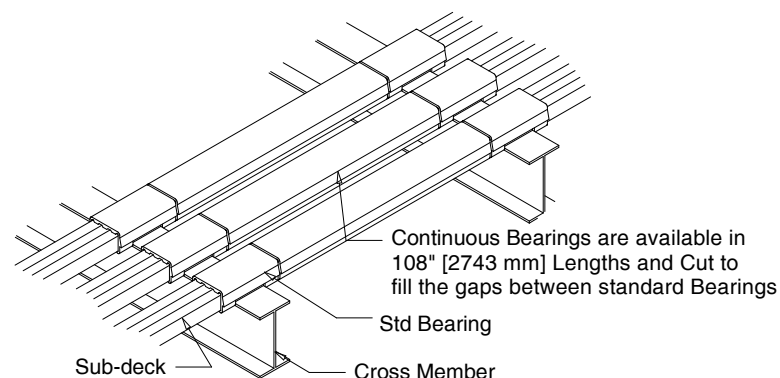
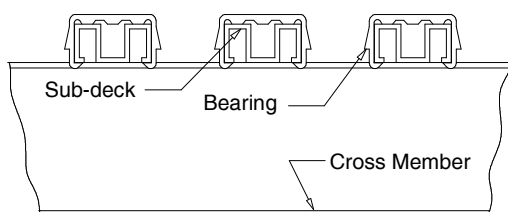
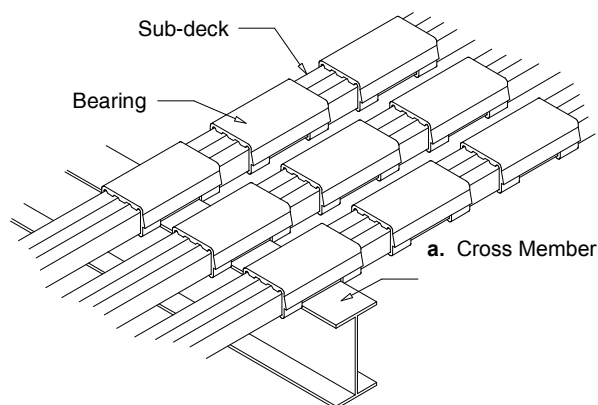


Standard Bearings

a. 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 cutouts on the bottoms of the bearings must fit the cross member closely.

b. 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 50.8 mm [2"] bearings to fit it. These bearings are packaged separately from the rest of the bearings.



AG Floor Deck Slat

1. Be sure that the side trim seals/bearings have already been installed.
2. Install the seal/bearings onto the lower slats as shown in Figure 1 prior to installing them onto the sub-deck.
3. If the plastic end plugs are to be installed onto the lower slats then install them now as shown in Figure 2. If not then install these plugs when the hold down blocks are installed.
4. See the next page for installing the slats onto the sub-deck. Note: The lower slats must be installed before installation of the upper slats (see Figure 2).

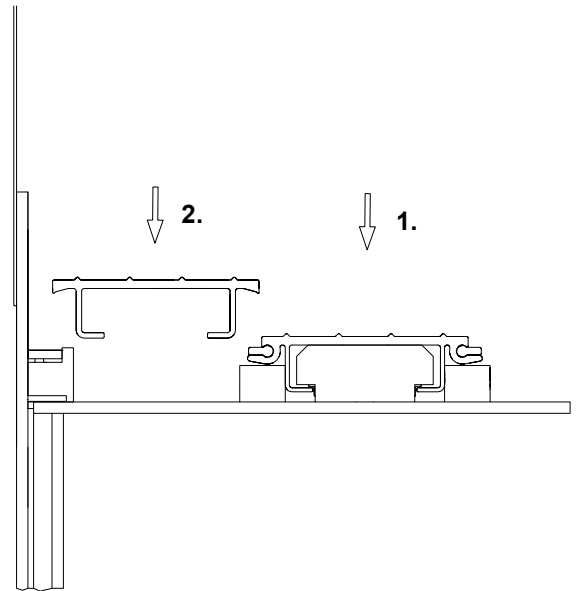


Figure 2

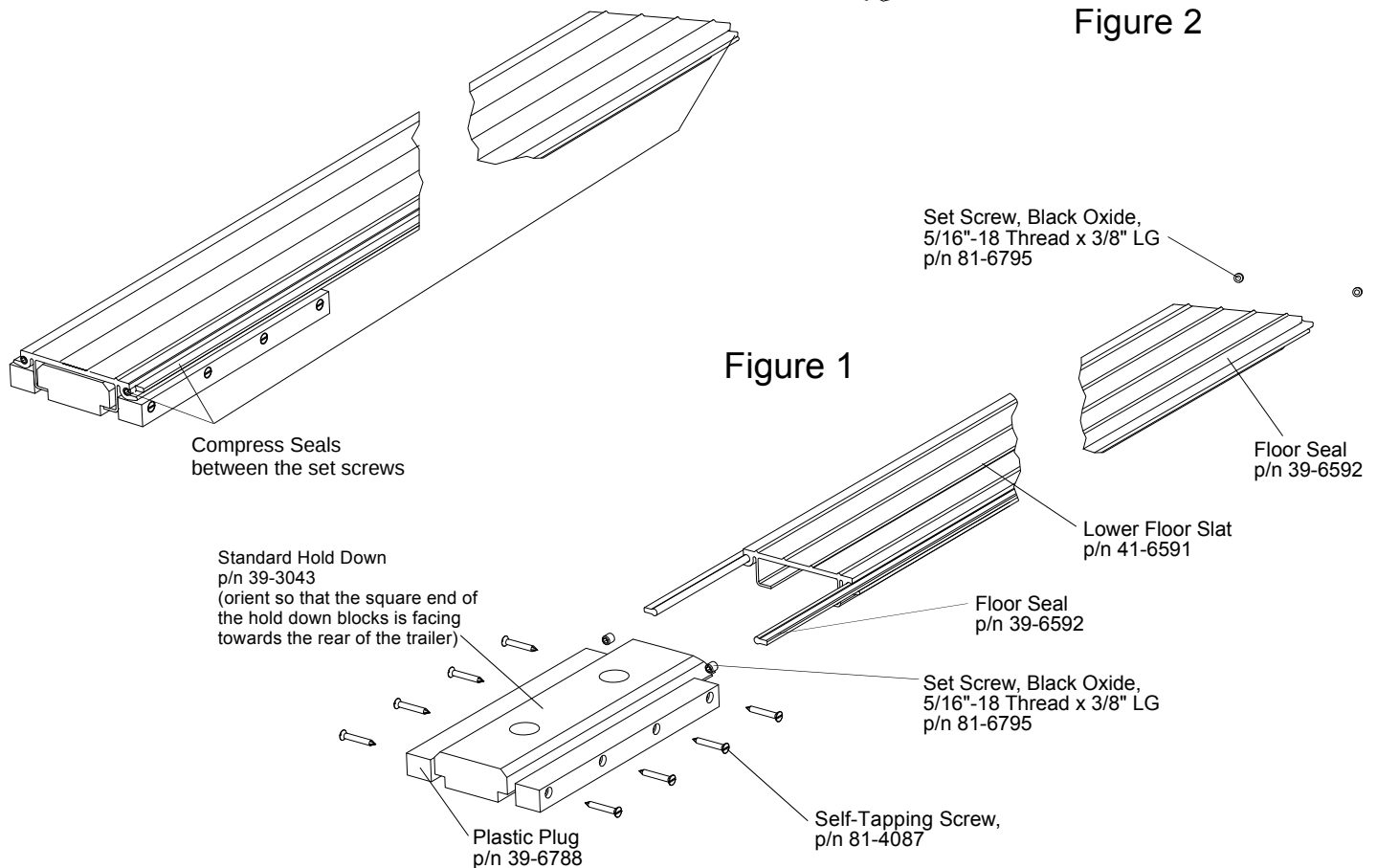
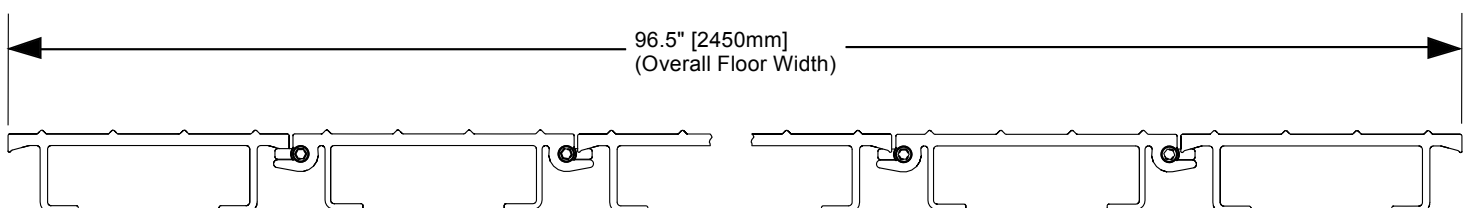


Figure 1



Deck Mounting To Cross-drive Assembly

a. Position the cross drives:

Front 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 preassembled by Hallco may be delivered with the cross drives spread out and with blocks keeping them separated.

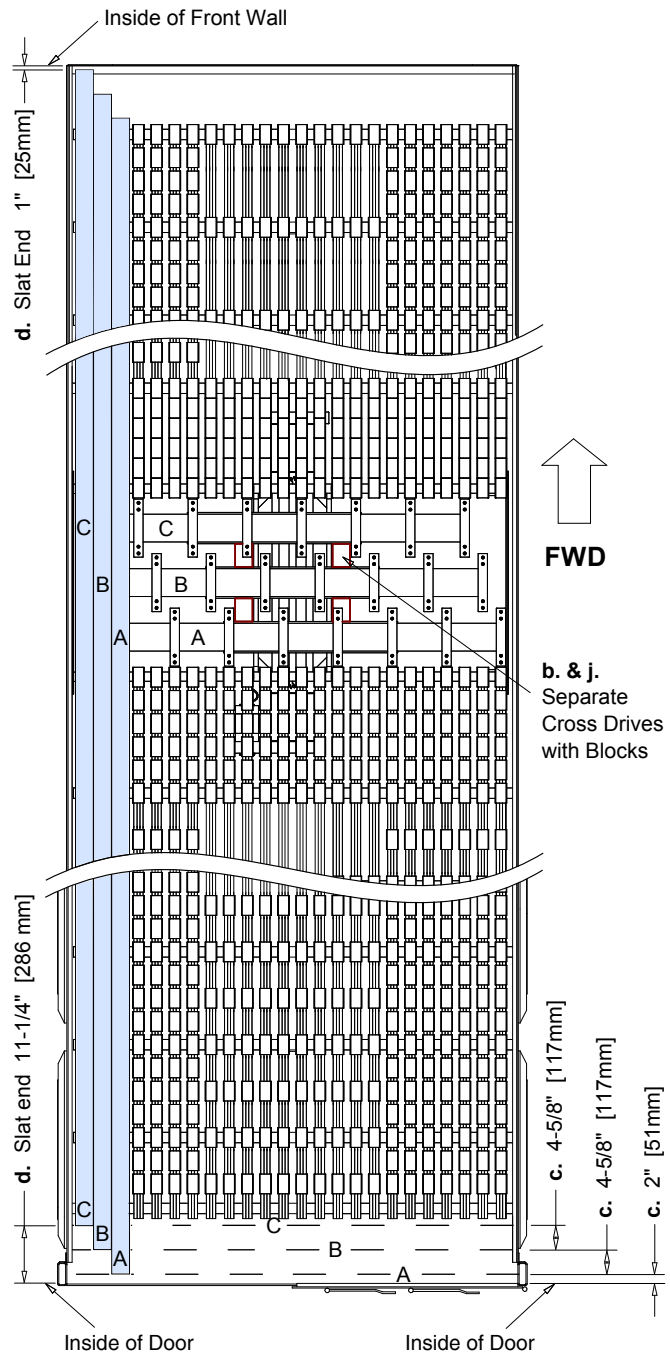
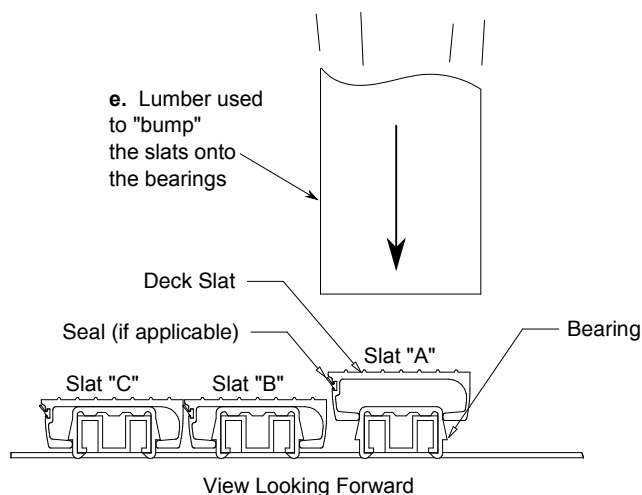
c. Close the rear door and mark three reference lines on the rear sill plate, labeling them A, B and C:

"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.



Deck Mounting to Cross-drive Assembly (Continued)

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.

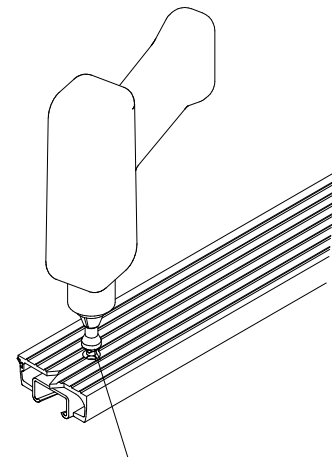
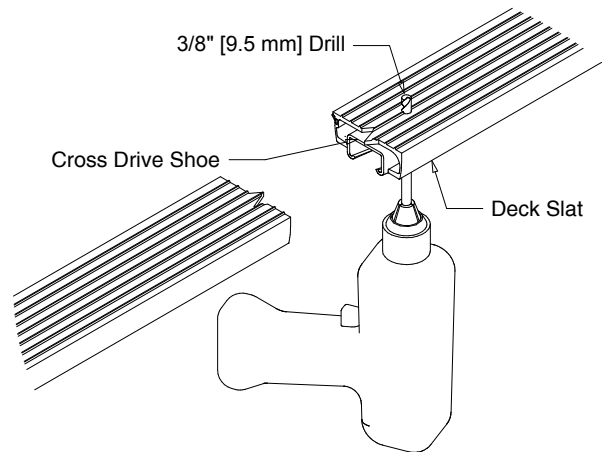
g. Set the vertical location of the cross-drives by bolting one hole in each of the outside shoes of each drive. Drill from underneath through the holes in the shoes using a 3/8" [9.5mm] drill bit. Countersink the holes in the slats from the top. Countersink just enough for the screw heads to be flush 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" [9.5 mm] bolts to 35 ft-lb [47 N-m].

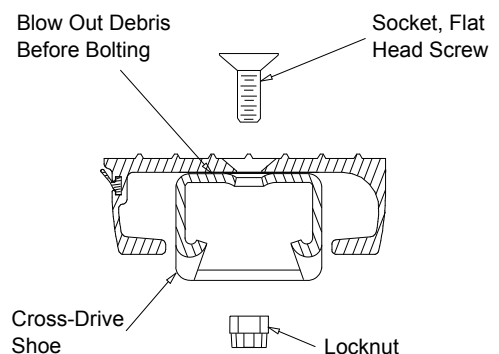
i. Drill and countersink the remaining holes in all of the shoes/slats. Holes that can't be drilled from underneath may be measured, marked, and drilled from the top. Install the remaining bolts and nuts. Torque each to the specified amount above.

j. Remove the blocking from between the cross drives.

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



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



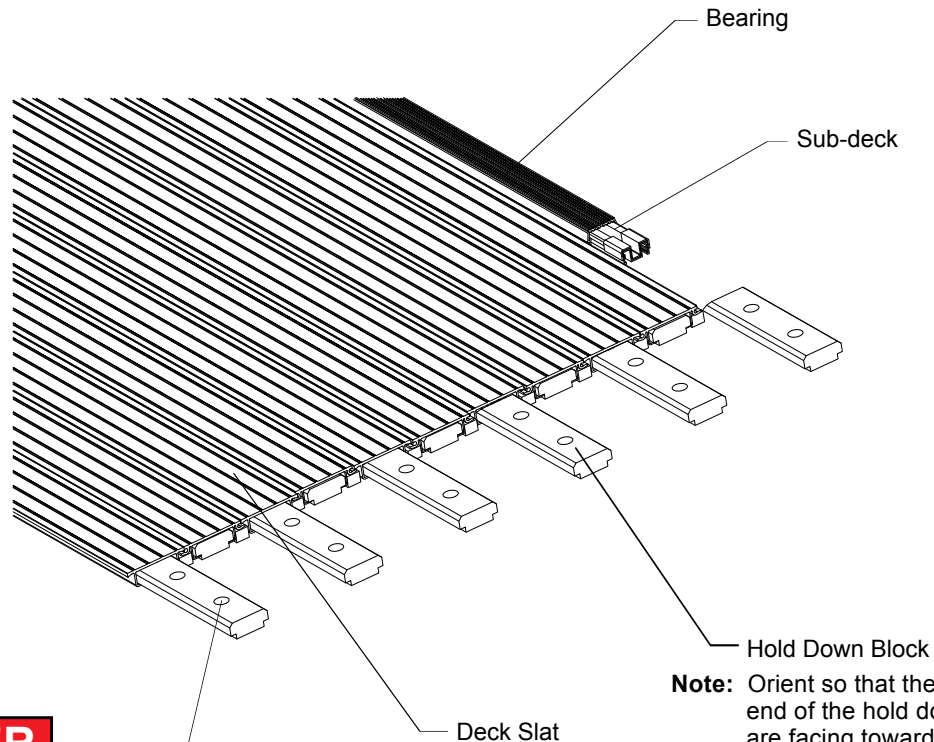
Hold Down Blocks

1. 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.

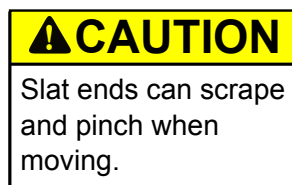
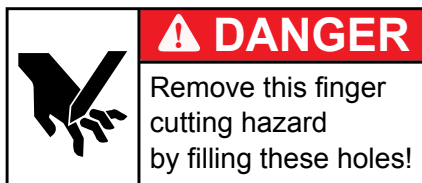
OR

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.

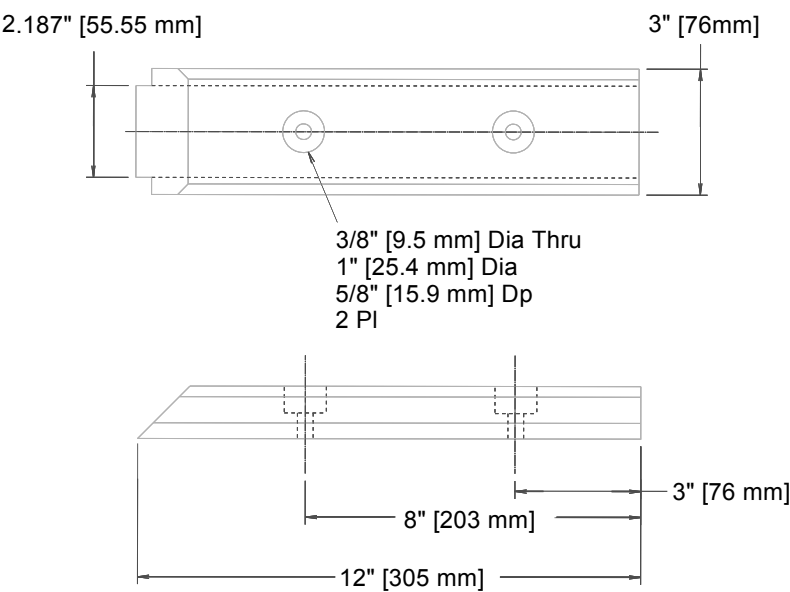
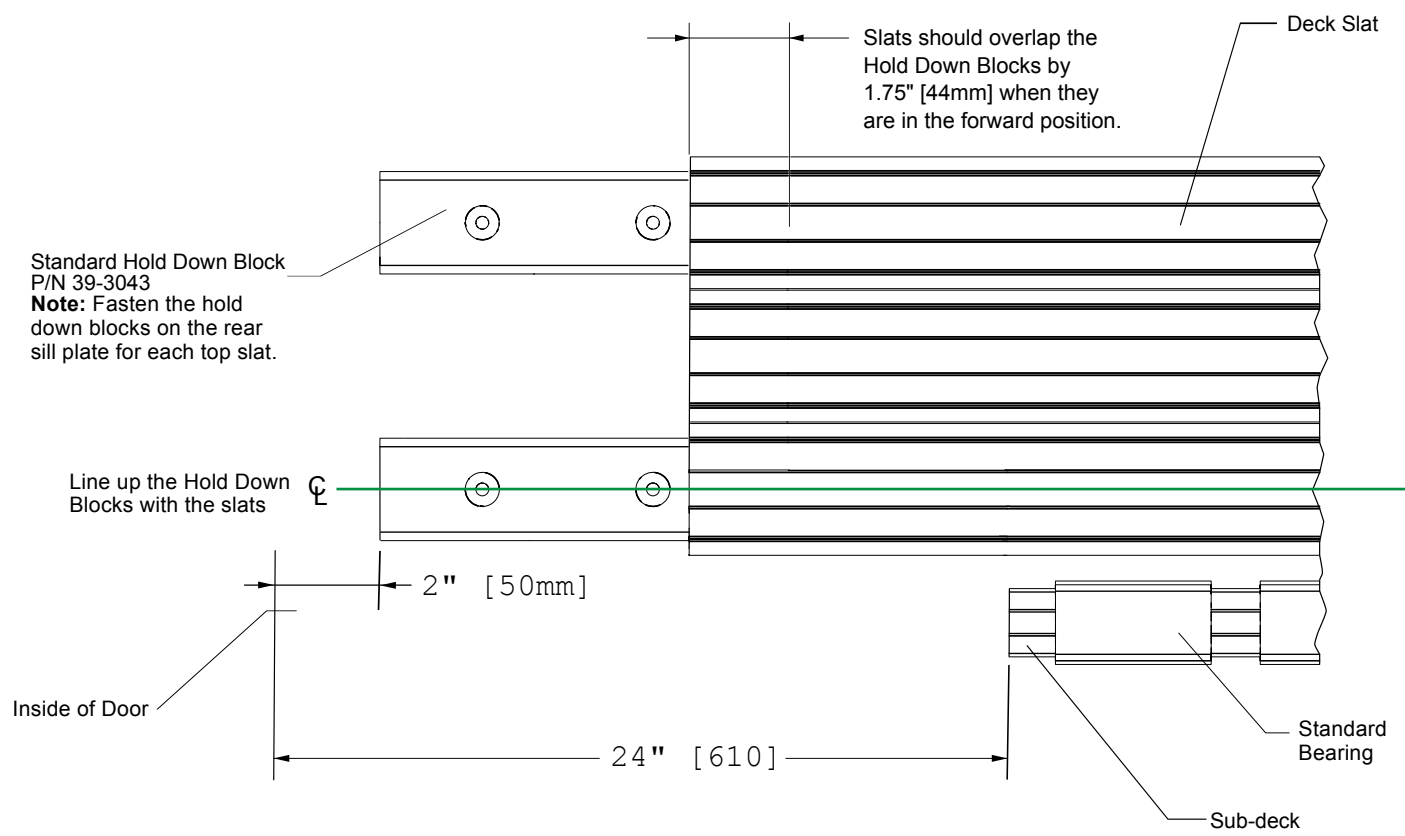
2. When in the correct position, the hold down block will be aligned with the slat.
3. The slats should overlap the hold down blocks by 1-3/4" [44 mm] when they are in their forward most position.
4. Fasten the hold down blocks to the rear sill plate. The tops of the screws or bolts should be well below the tops of the hold down blocks in order that the deck slats will not contact them even as the hold down blocks wear over time.
5. Fill the holes in each hold down block with epoxy or an equivalent filler in order to eliminate any potential pinch points.



Note: Orient so that the square end of the hold down blocks are facing towards the rear of the trailer.



Hold Down Blocks (Continued)

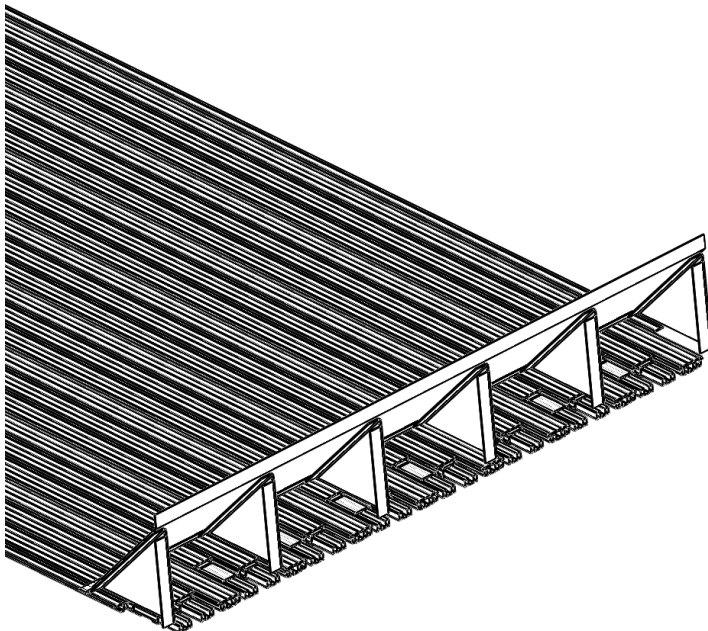
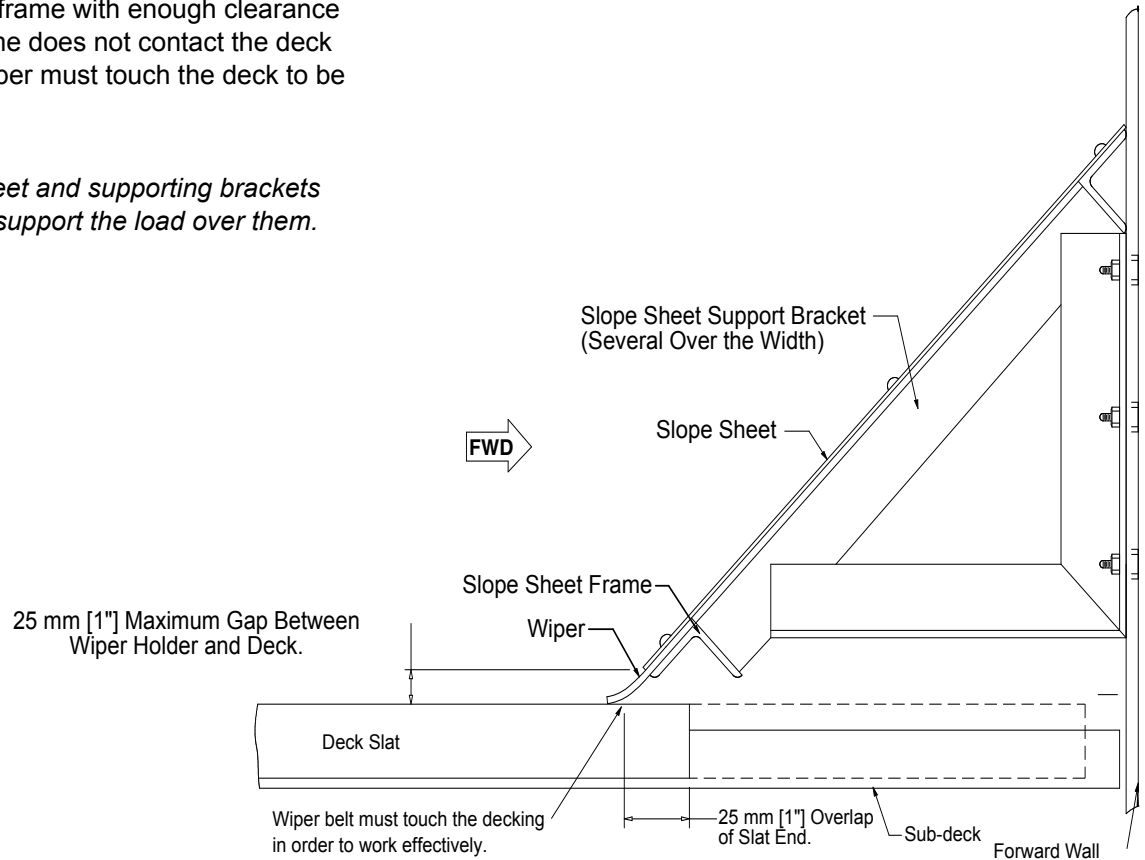


Slope Sheet & Wiper Installation

a. 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.

b. 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.

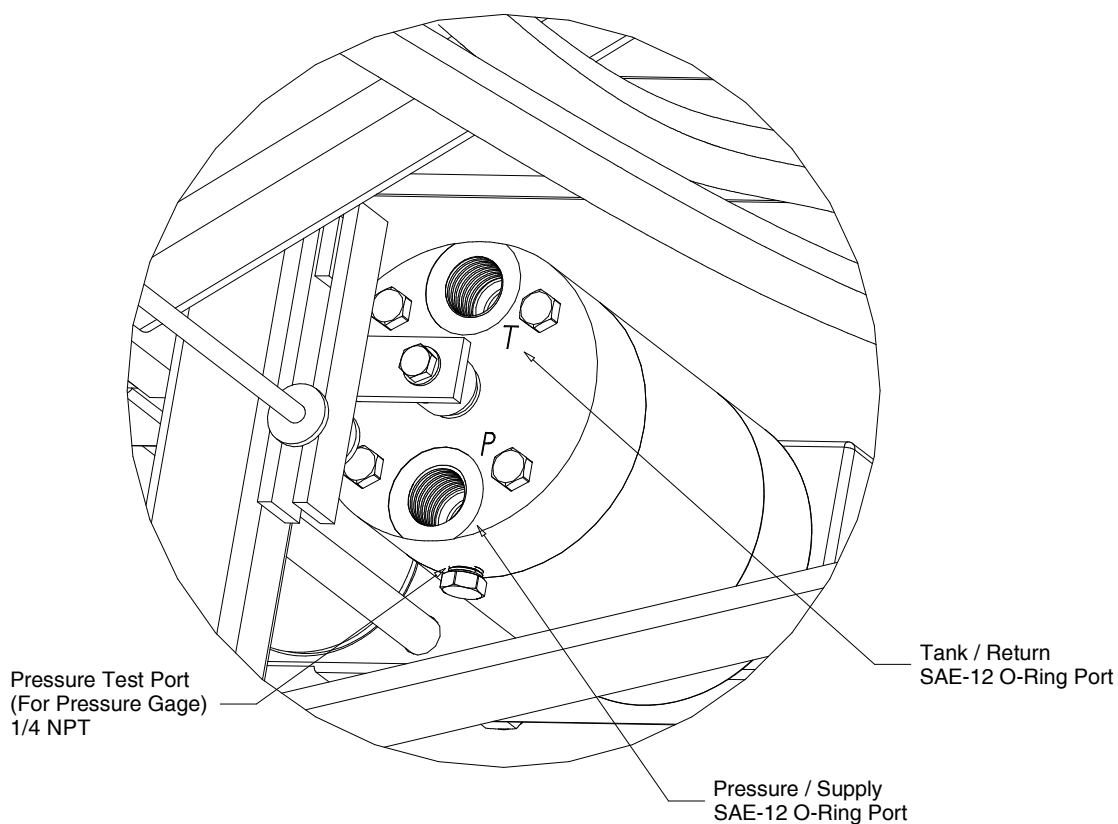
NOTICE The slope sheet and supporting brackets must be strong enough to support the load over them.



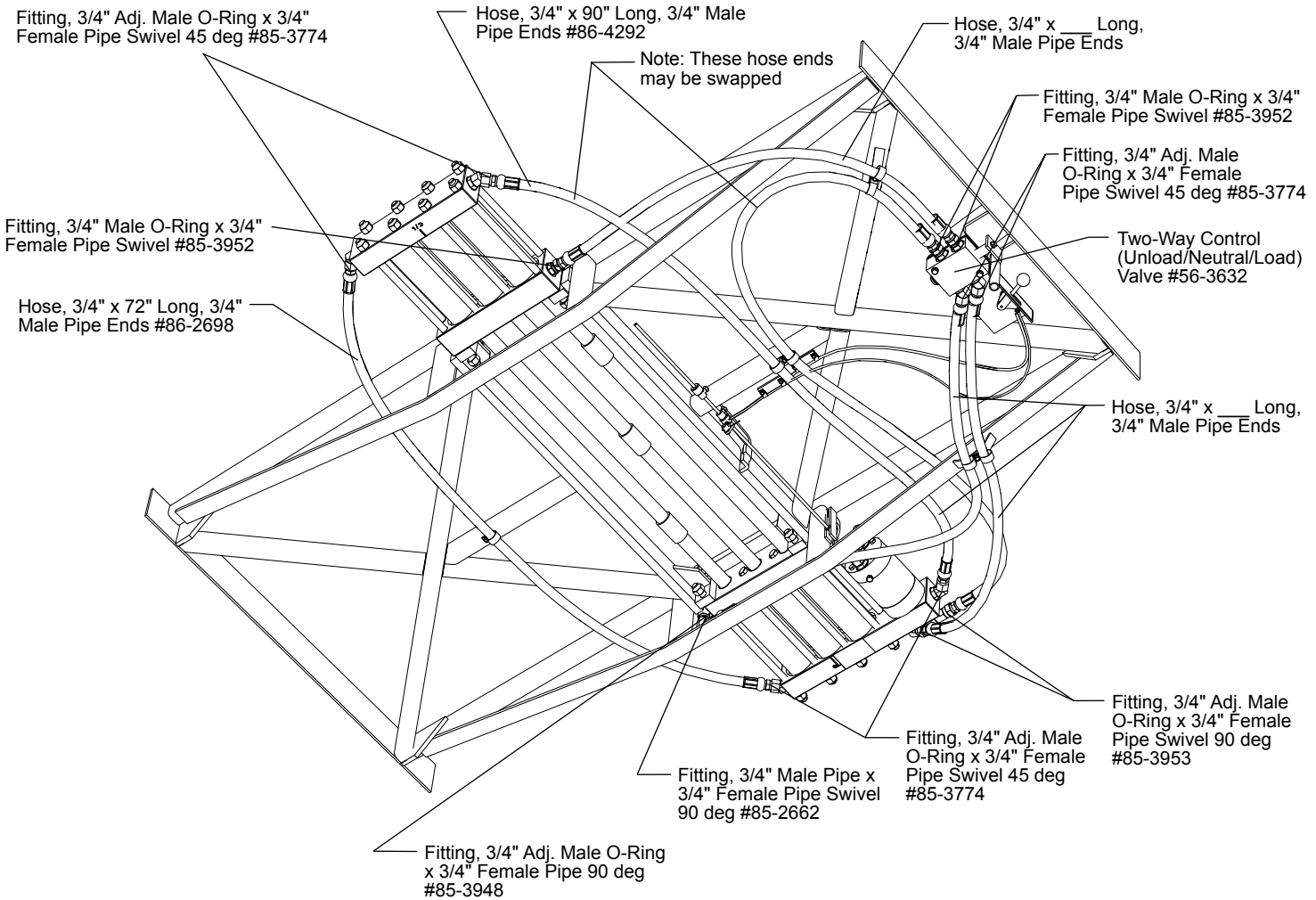
Standard Two-way Plumbing

- a. In many cases drive units are supplied already plumbed. If not, refer to the next page for standard two-way plumbing.
- b. Attach the hydraulic system pressure/supply line hose to the port on the switching valve labeled “P”. Attach the tank/return line hose to the port labeled “T”. These ports on the switching valve are SAE-12 o-rings.

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



Standard Two-way Plumbing (Continued)



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.

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

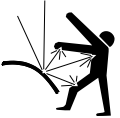
⚠ DANGER Avoid these hazards:



The space between cross-drive beams.

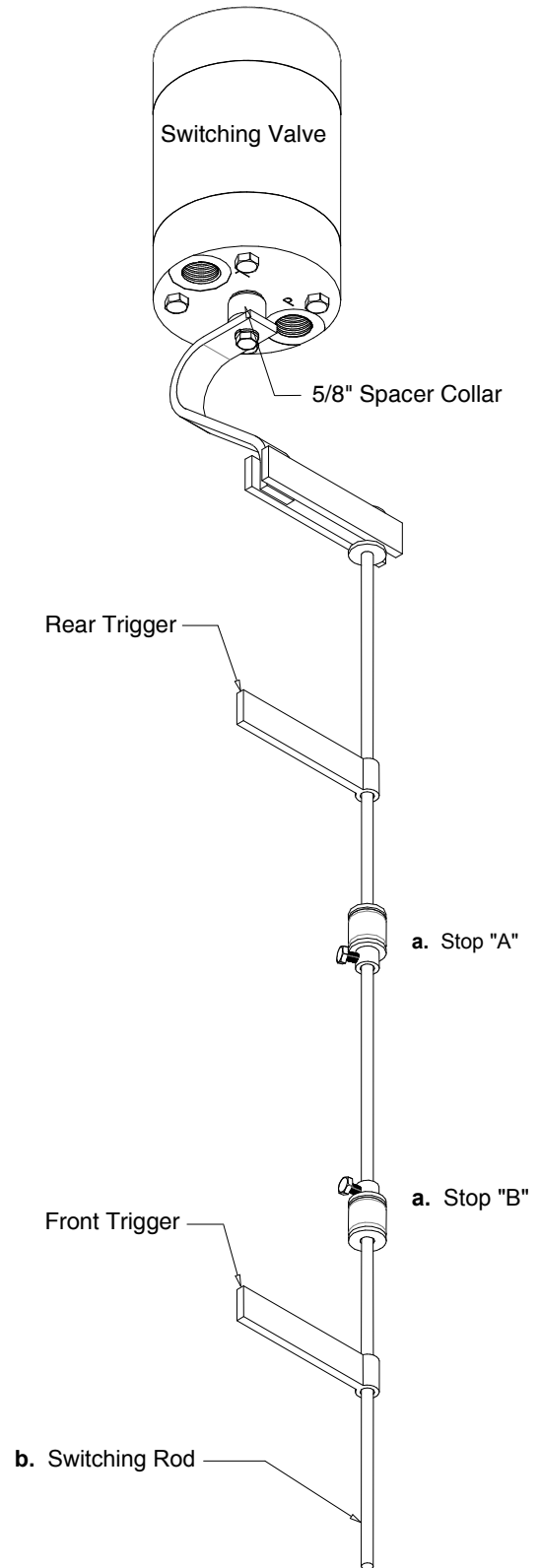
The space between shoe ends and the subdeck ends.

The end of the slats and the front wall.



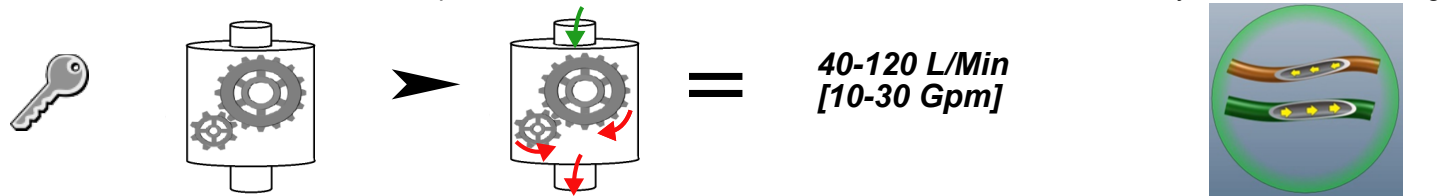
Damaged or cut hydraulic hoses, fittings or tubing. A small hole in a hose or fitting will produce a stream of fluid that can pierce the skin injecting oil into your blood.

- c. Apply hydraulic pressure (load or unload mode) until the shafts are fully extended forward away from the switching valve, then shut off pressure.
- d. Move the switching rod away from the switching valve until it stops. Move and set stop "A" firmly against the rear trigger.
- e. Apply hydraulic pressure until the shafts are fully retracted rearward towards the switching valve, then shut off pressure.
- f. Move the switching rod rearward toward the switching valve until it stops. Move and set stop "B" firmly against the front trigger.
- g. Mark the positions of stops "A" and "B" on the switching rod.
- h. 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.

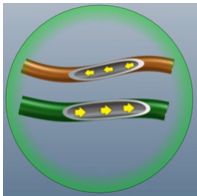


Operation

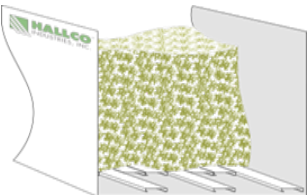
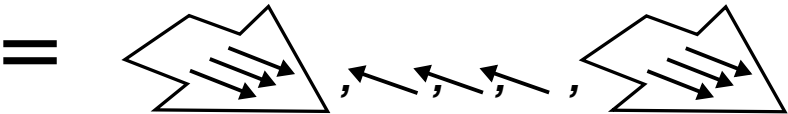
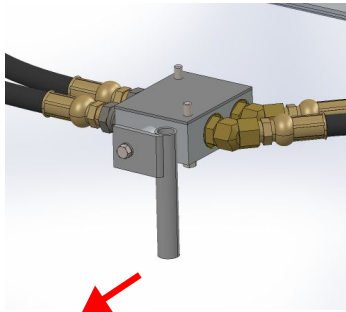
Turn the PTO and Pump on.



Hydraulic fluid is flowing

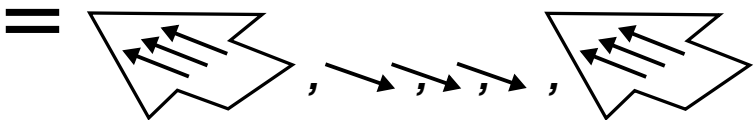
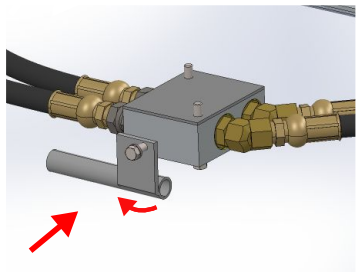


Pulling the Control Handle all of the way out will cause the floor to move in the Unload direction.



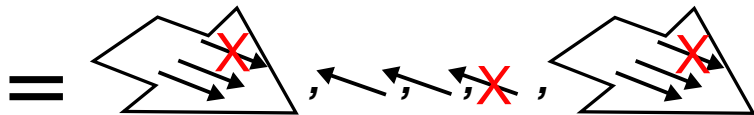
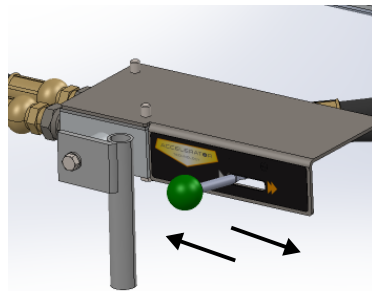
...

Rotating the handle forward and pushing it all the way in will cause the floor to move in the Load direction (Two-Way).



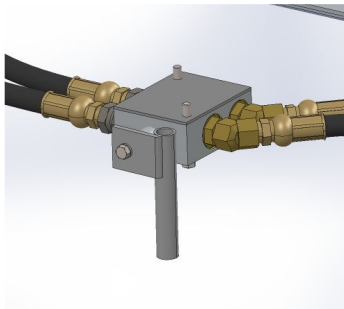
...

Moving the green handled accelerator lever rearward will cause the floor to run in accelerator mode. Accelerator mode works in the unload direction. Moving the accelerator lever forward will return the floor operation to normal mode.



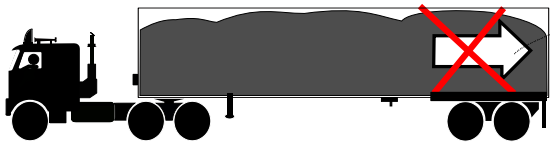
...

Pushing the Control Handle in until the handle tube contacts the valve body will set the floor to neutral.

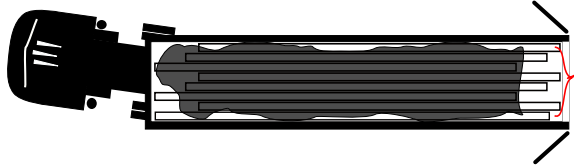


...

Troubleshooting



Load is not moving.



The slats are moving.

Which of these patterns are the slats moving in?

Check A, B or C shown to the right as the likely cause.



A B

The three sets of slats move independently.



B C

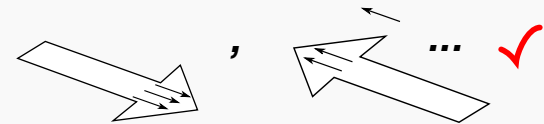
All slats move together in both directions.



C



C



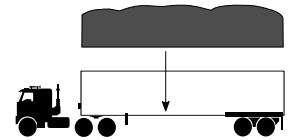
C



C

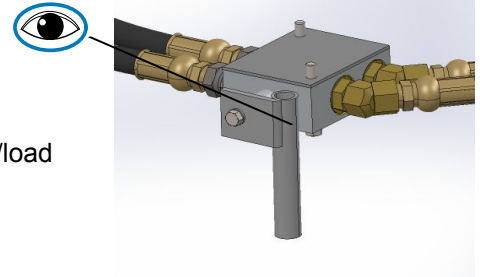
A

The trailer is empty. Put a load in and the slats will move properly.



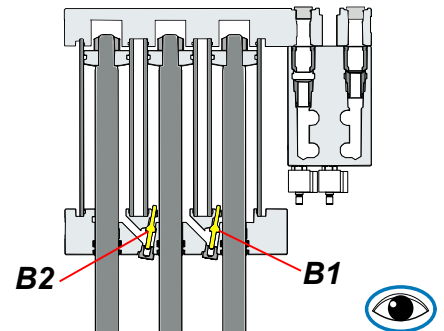
B

The unload/load valve is not working.

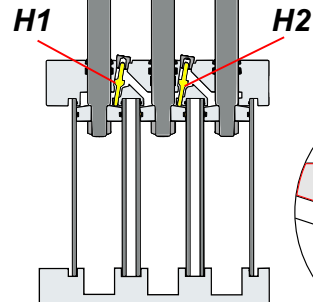


Control Valve

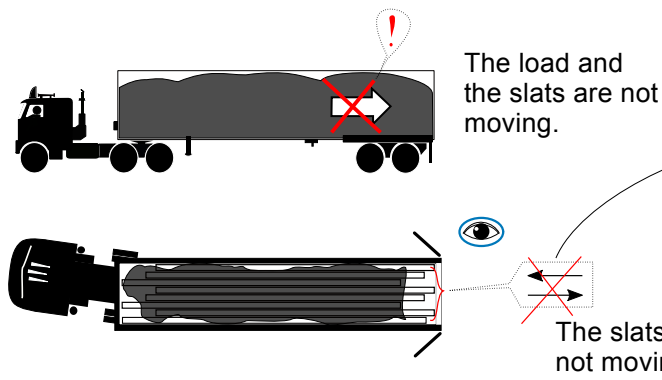
C



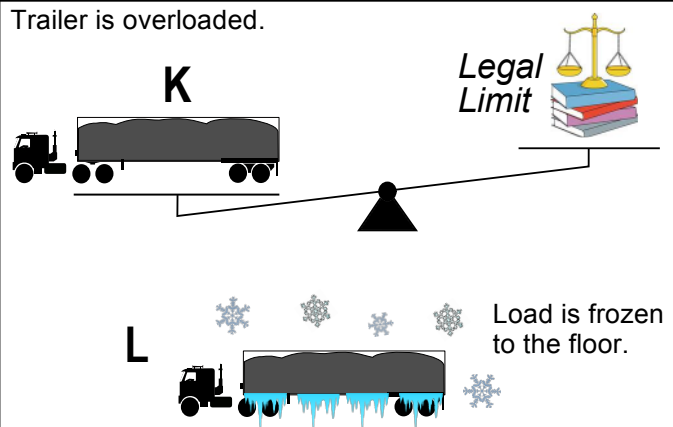
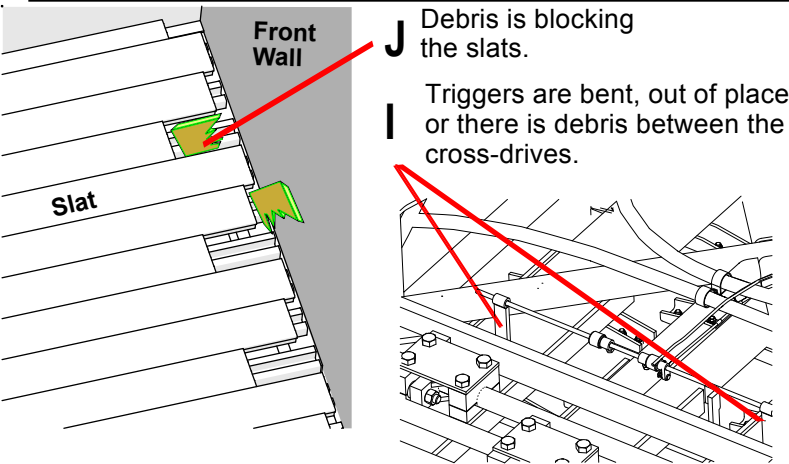
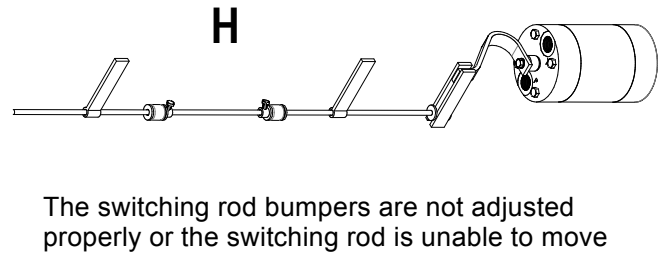
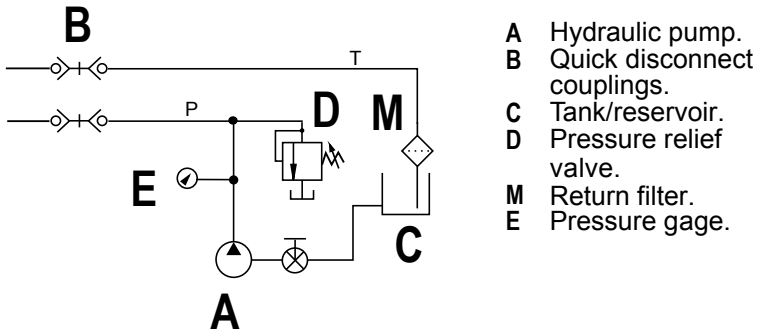
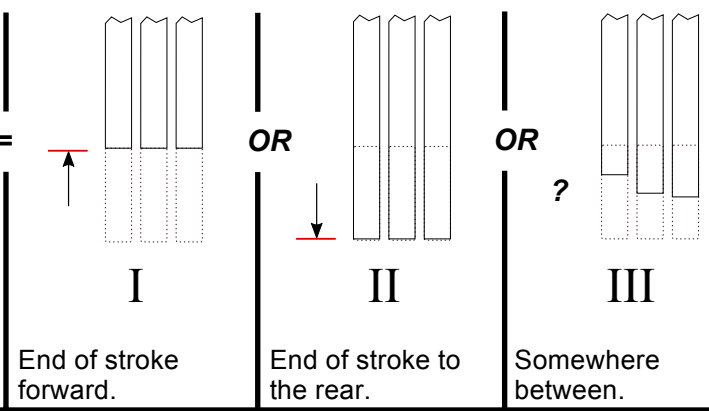
The poppet check valves are not sealing.



Troubleshooting (Continued)

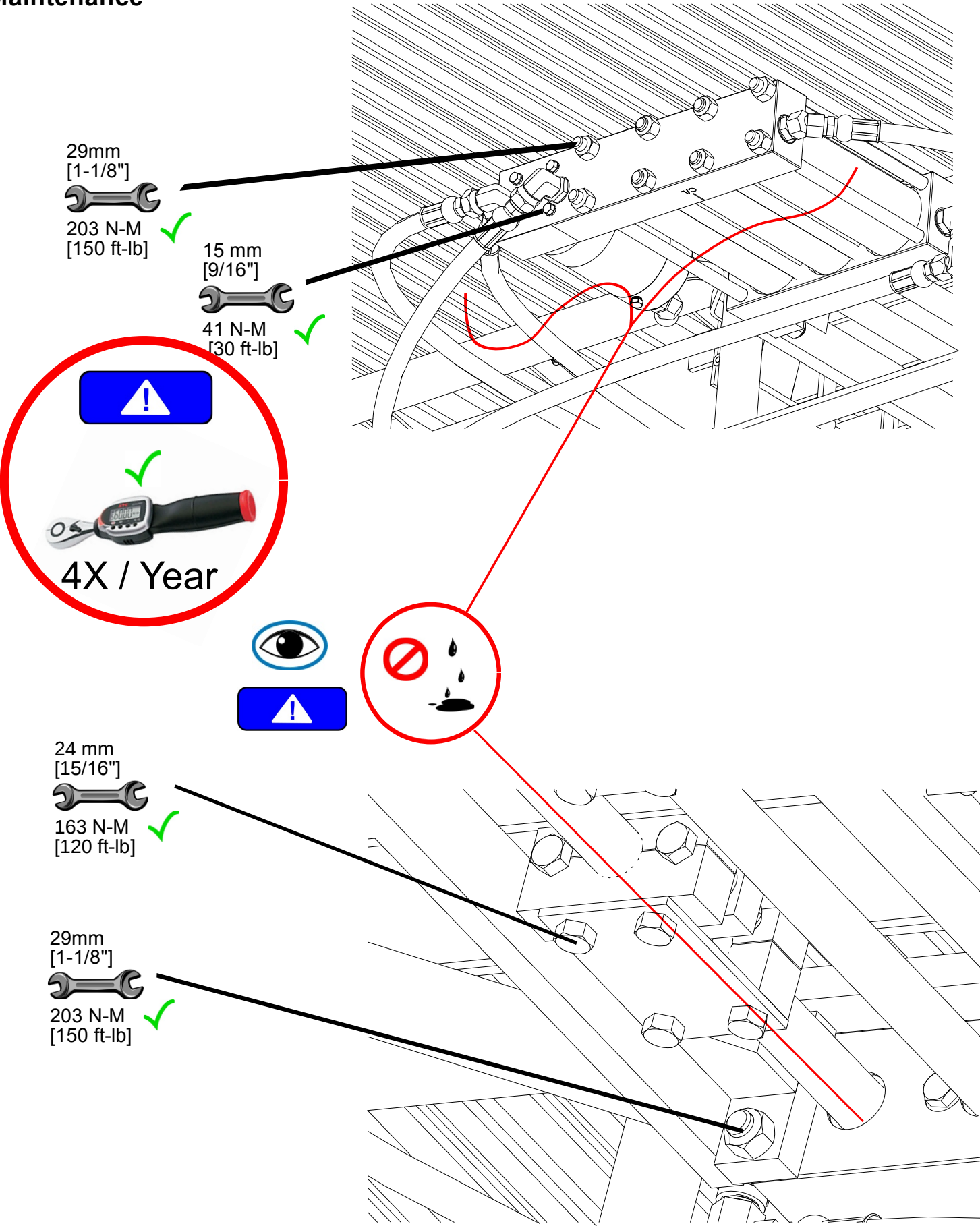


Which of these three states are the slat ends in?



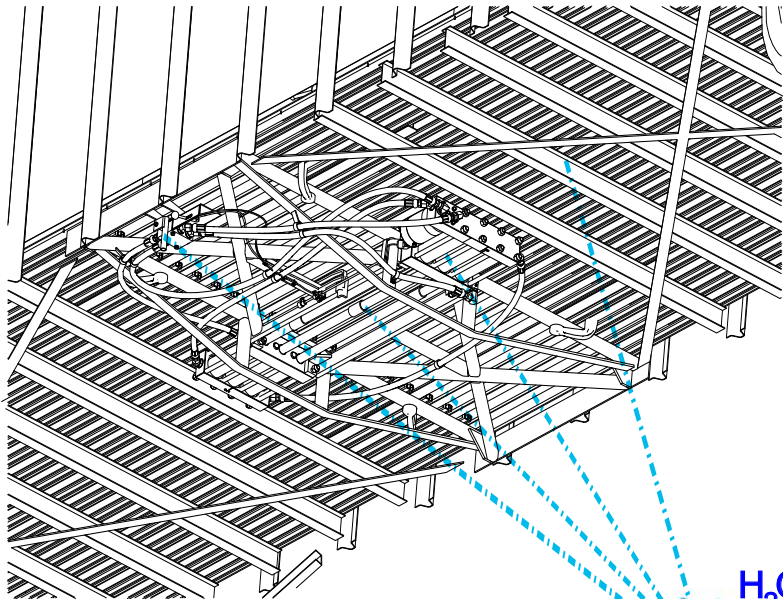
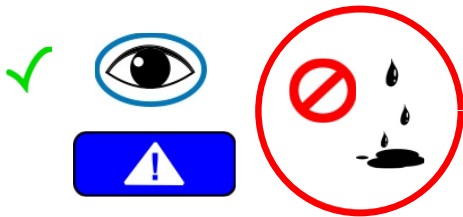
If the slats are in this state:	And each of these components are OK and the system pressure is high:	THEN	One of these is at fault.
I II	A, C, D, M = OK E ≈ 207 bar [3000 psi]	⇒	✓ B, H, I, J, K, L
III	A, C = OK E ≈ 207 bar [3000 psi]	⇒	✓ B, J, K, L
I II III	E < 48 bar [700 psi]	⇒	✓ A, B, C, D, M

Maintenance

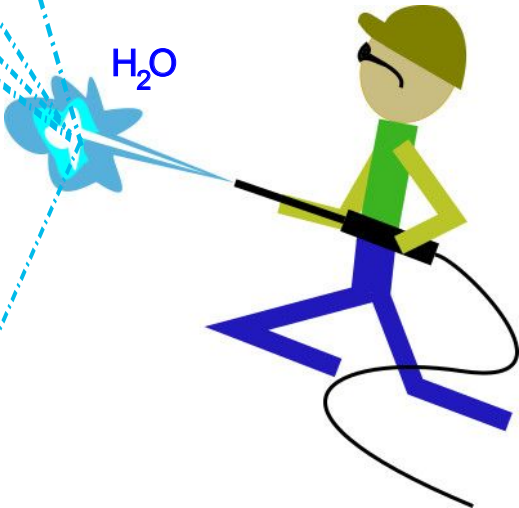
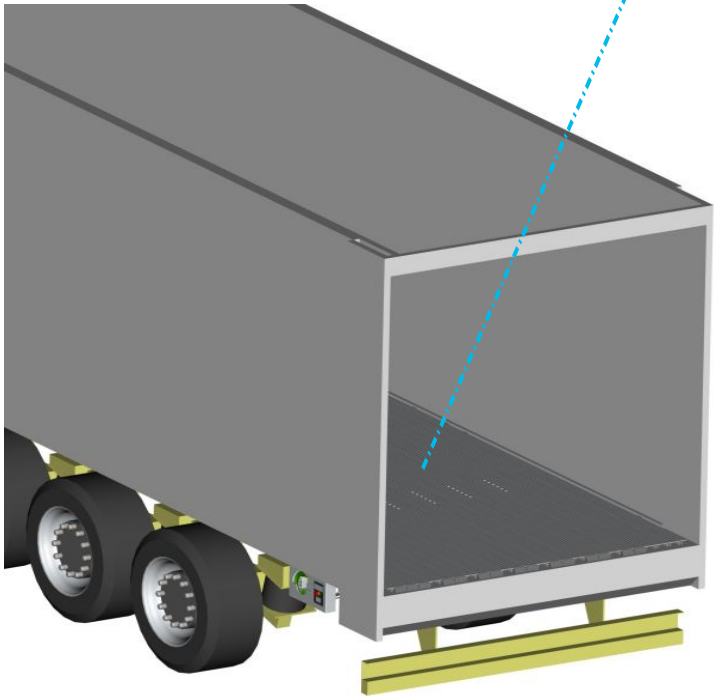


Maintenance (Continued)

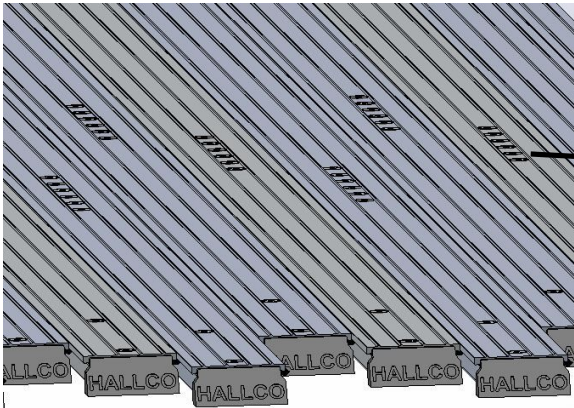
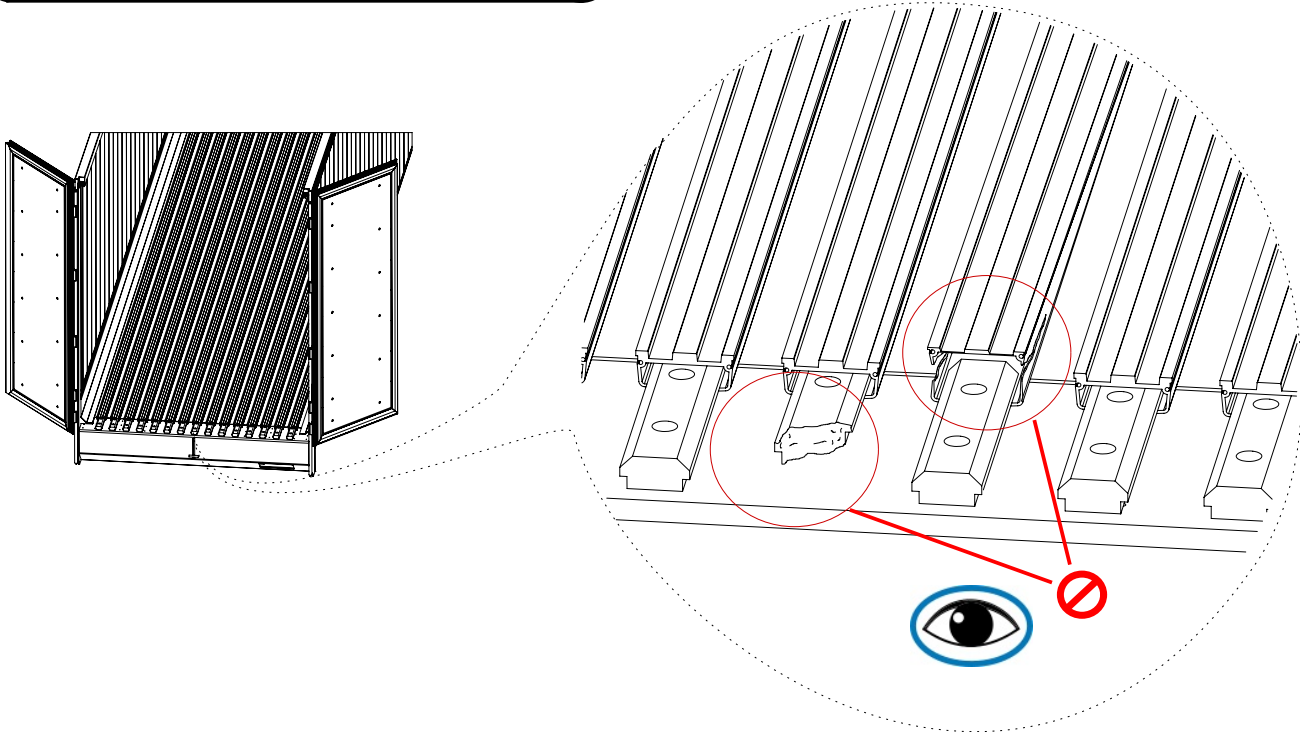
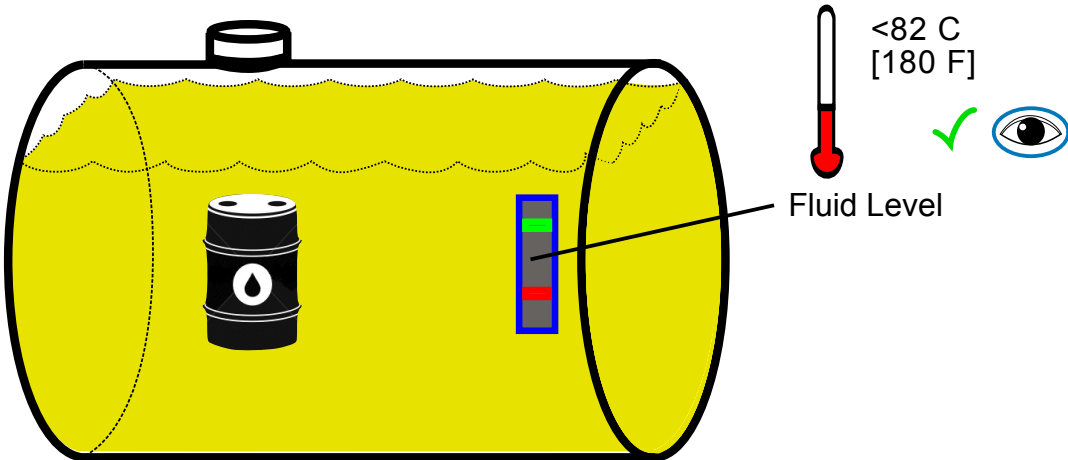
Check for visible signs of component damage and/or hydraulic fluid leakage before power washing.



Check slats and seals for damage. Repair or replace as necessary.



Maintenance (Continued)



Hex key #10
100 N-M
[74 ft-lb]

Check the torque of the deck bolts often during first few weeks of use.

NOTICE

Deck bolts and drive unit tie and mounting 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!!!



i-4000 / i-6000 Series Limited Warranty

HALLCO Industries, Inc. hereby warrants, only to the first owner of a new Hallco i-4000 or i-6000 Series system from the factory or selling distributor, that the product shall be free from defects in material and workmanship for a period of one year 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 (1) one year for the entire HALLCO i-Series 4000 or 6000 from the date of delivery to the first purchaser.
- A warranty period is (1) one year for any electrical component of the HALLCO system.
- A warranty period of (3) three years for the hydraulic components from date of delivery to the first purchaser.
- The i-4000 or i-6000 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 Industries, Inc.
 - 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 Industries 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-4000 or i-6000 Series system is used for purposes which have not been recommended by HALLCO Industries, Inc.
- The wet kit does not meet HALLCO system recommendations.
- The HALLCO i-4000 or i-6000 Series system is not installed properly.
- Loads in excess of legal limits are moved with the system without written permission from HALLCO Industries, Inc.



Warranty Registration Process.

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

A warranty registration form will be available online on our Web-Site (www.hallcoindustries.com) for easy access. It can be printed or downloaded. Once it is completely filled out they can mail it to Hallco Industries, Inc. corporate office or e-mailed it to info@hallcoindustries.com .

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



PLEASE FILL OUT AND RETURN IMMEDIATELY TO HALLCO INDUSTRIES, INC.

OR SUBMIT COMPLETED FORM ON OUR WEB-SITE.

The warranty registration card must be completed and on file at Hallco Industries, Inc. in order for the warranty period to begin on the date of delivery. (Date purchaser actually takes delivery of Trailer). The beginning of the warranty will be the date of manufacture if the warranty card is not completed and sent to Hallco Industries, INC.

Please make sure the serial number listed on the card coincides with the serial number plate on the drive unit.

Please print or Type

HALLCO INDUSTRIES, INC. Warranty Registration Card

Purchaser:	E-Mail:
Company:	Phone:
Address:	State:
City:	Postal Code:
Country:	
Date of delivery:	Trailer Manufacturer:
Hallco Model Number:	Trailer VIN # :
Hallco Serial Number:	Dealer Name:
Type of Material Unloaded:	Dealer Location:
Hallco approved high pressure filter installed. (yes or no):	Trailer Leased or Owned:

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 Industries, Inc. within ten (10) business days of [delivery to original end customer](#).

For your convenience this form is available on line at www.hallcoindustries.com.

Please fax, mail, or email this warranty registration information to Hallco Industries, Inc. at:

Hallco Industries, Inc.

Phone: 503-842-8746

PO Box 505

Fax: 503-842-4866

Tillamook, Or 97141

Email: info@hallcoindustries.com