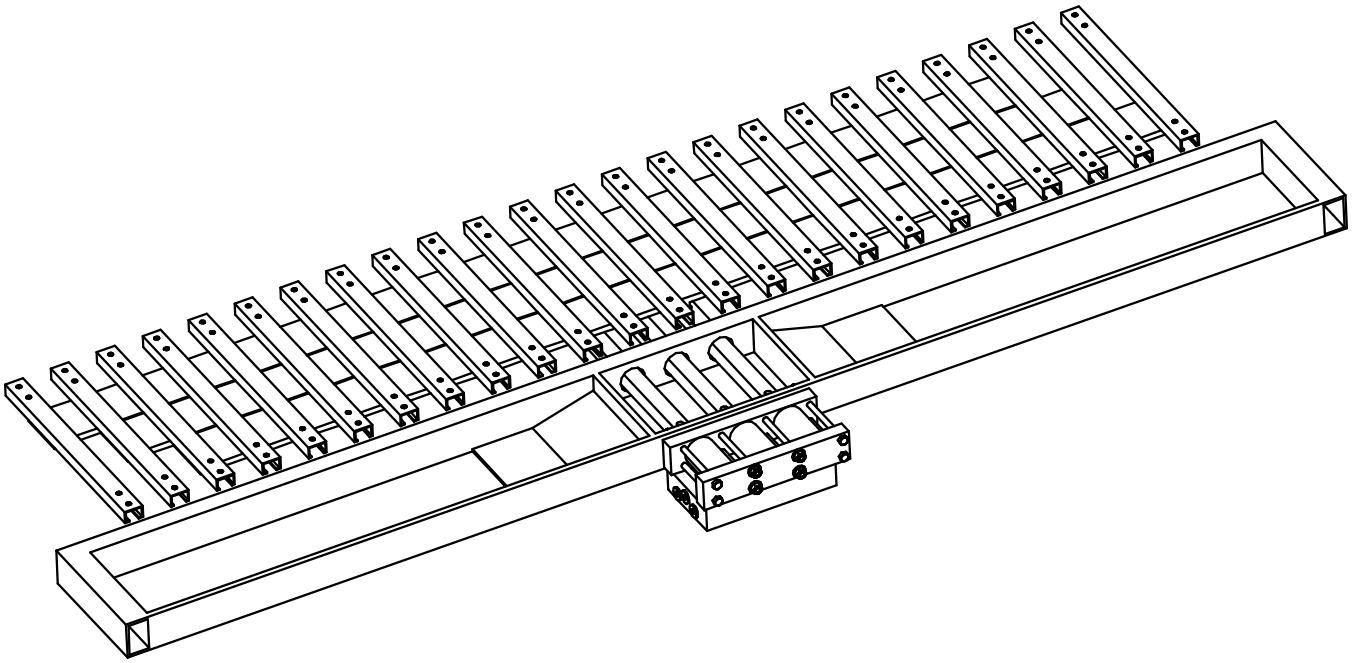
Owner's Manual:

Live Floor With Compact Drive
For Chassis-Mounted Boxes
15,000 lb Load Capacity



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Doc # 99-5281-A

-FOR YOUR SAFETY-
Read Carefully Before Operating Floor

This floor contains moving components and carries large loads which are capable of causing injury or death, if the following precautions are not followed carefully:

- Lock out or isolate the power source from floor while performing installation, inspections, cleaning, or maintenance.
- Keep all body parts clear of the floor mechanisms while the floor is operating.
- DO NOT operate floor while a person is on the floor.
- DO NOT stand at the opening of the container while the floor is unloading or in the way of the unloading doors which may be pushed by the moving load.
- Use caution when opening container doors even when floor is not operating. The load may have shifted against the door in transit causing the door to open rapidly when unlatched.
- DO NOT operate the floor in the unloading direction with the unloading door(s) closed. DO NOT shift the load material against the forward wall with the floor. The installing activity must provide a means for the operator to visually monitor the load when shifting it forward. This floor is capable of causing serious damage to the vehicle and may pose a safety hazard, if the load is shifted against the rear or forward box structure.
- DO NOT operate floor above the maximum operating pressure specified in this manual.
- Observe Hallco safety sticker instructions.

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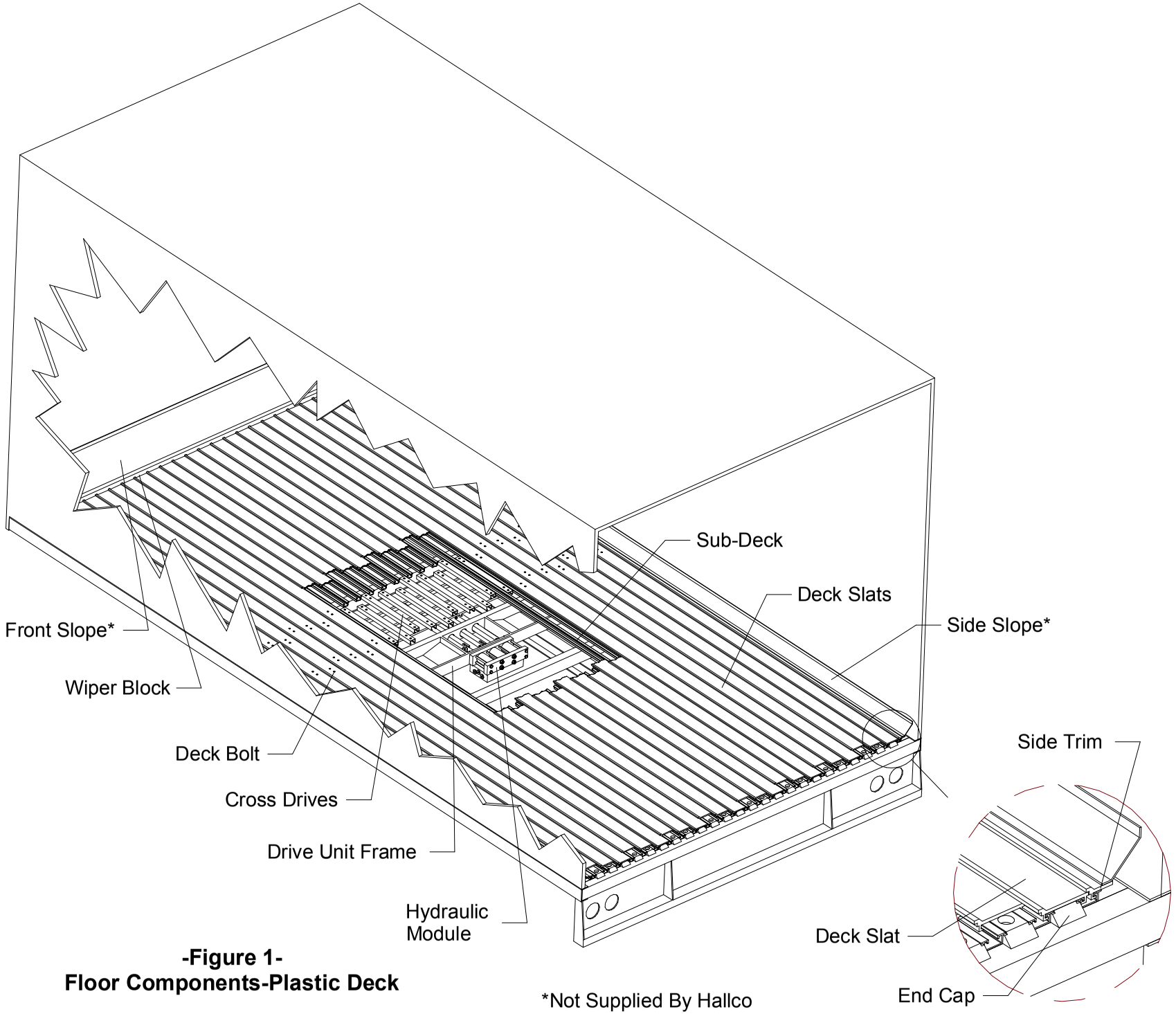
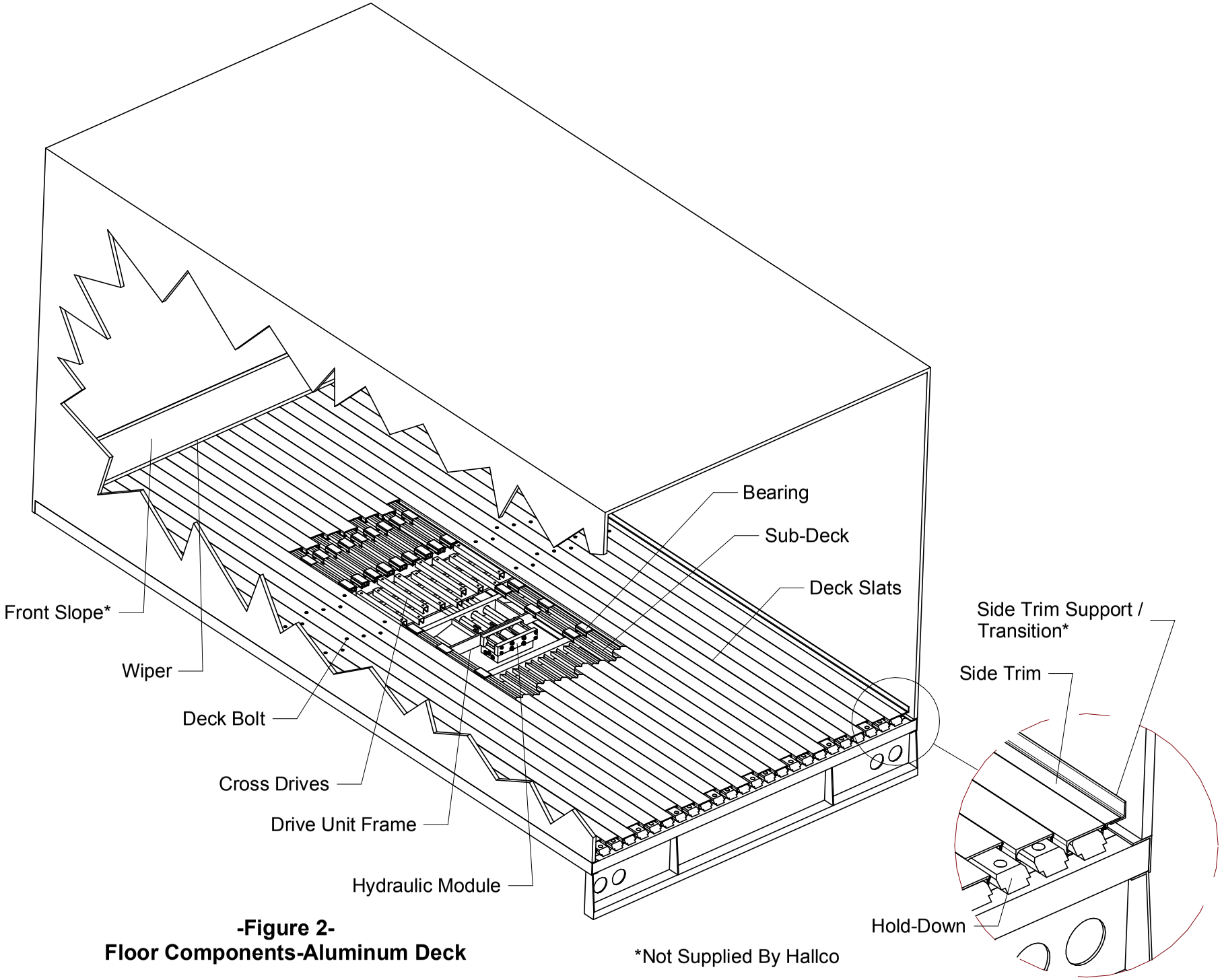


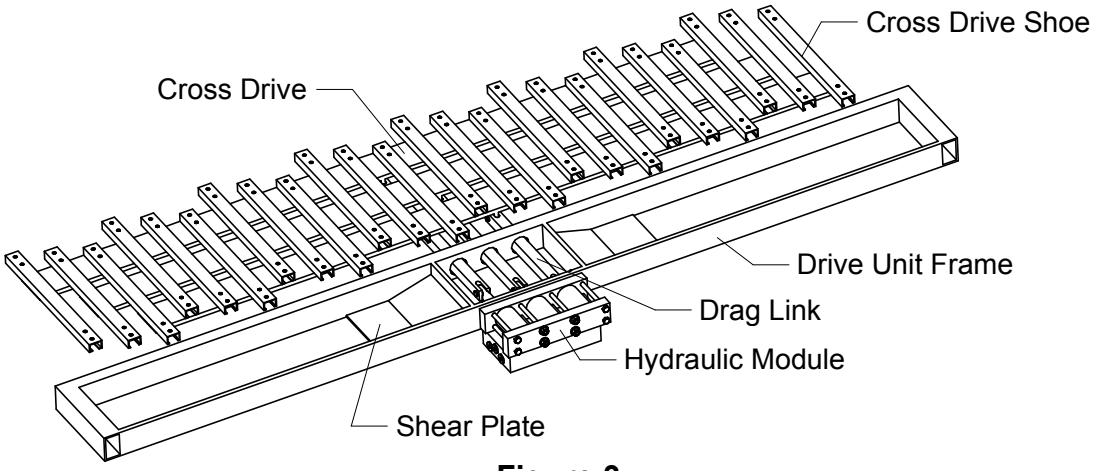
-Figure 1-
Floor Components-Plastic Deck

*Not Supplied By Hallco

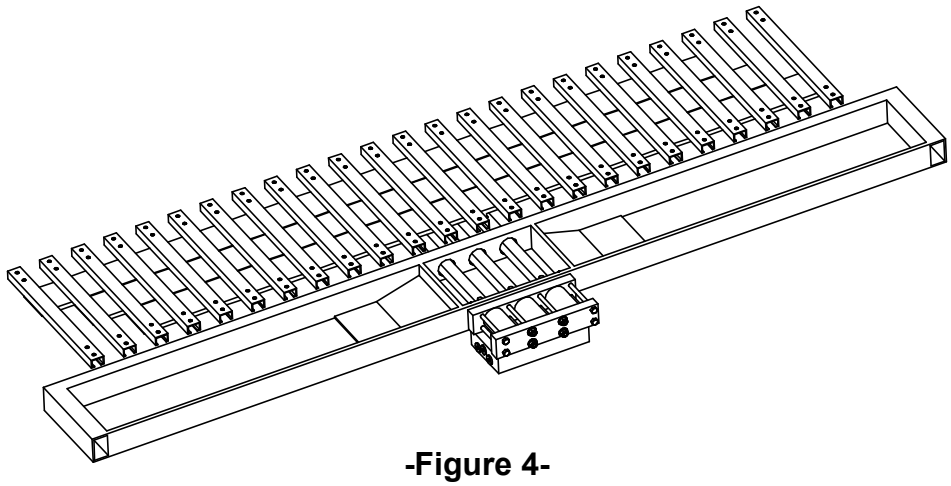


-Figure 2-
Floor Components-Aluminum Deck

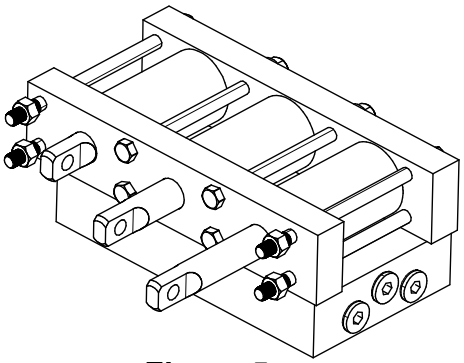
*Not Supplied By Hallco



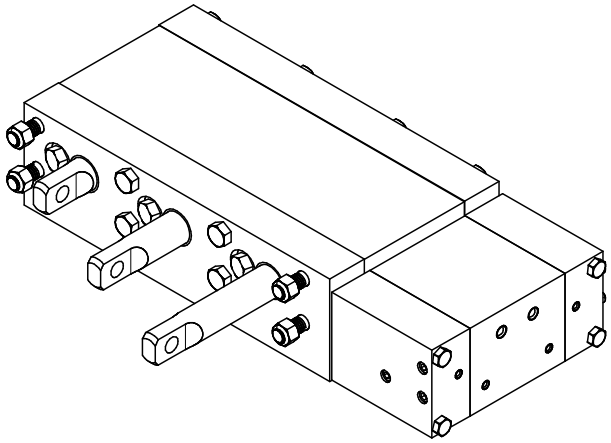
-Figure 3-
Compact Drive Unit—Center Frame Style—Cross Drives Spread Out



-Figure 4-
Compact Drive Unit—Center Frame Style—All Cross Drives Retracted



-Figure 5-
D2WS Hydraulic Module



-Figure 6-
1500 Hydraulic Module

SPECIFICATIONS

Hydraulic Module: D2WS (One-way), D2W (Two-Way), or 1500 (One-Way)
Maximum Hydraulic Pressure: 3000 psi [207 Bar]
Maximum Hydraulic Flow Rate: 6 gal/min [23 l/min]
Floor Stroke: 3 inches [76 mm]
Hydraulic Module Shaft Diameter: 1 inch [25.4 mm]
Hydraulic Module Cylinder Diameter: 2 inches [50.8 mm]
Load Capacity: 15,000 lb [6804 kg]

Hydraulic Supply System Requirements

Hydraulic Pump: This floor is rated to 3000 psi [207 Bar] operating pressure. However, low-friction plastic slat floors require a pump capable of only 2000 psi [138 Bar]. Aluminum slat floors require a pump capable of 3000 psi [207 Bar]. (Installing a pump which provides lower output pressure may result in poor operation). Maximum flow rate is 6 gallons [23 liters] per minute.

Hydraulic Reservoir: 5 gallons [19 liters] minimum capacity. The hydraulic reservoir must have facilities to mount the relief valve and a return line filter. Both of these items must dump the oil into the reservoir below the low level line. Hallco suggests a down draft be installed in the reservoir on the return line to limit the turbulence. The pump supply oil should be taken from 1" to 2" [25 to 51 mm] above the bottom of the reservoir. This outlet should be screened or baffled to prevent whirlpool. The whirlpool could introduce air into the system. A sight gauge or other means of visually checking oil level should be installed.

Hydraulic Oil: Select a petroleum or mineral base anti-wear (AW) hydraulic fluid in ISO viscosity grade 46 or 68. Most synthetic and vegetable based biodegradable hydraulic fluids are also compatible provided the moisture content in the fluid is kept below 1%. Hydraulic fluid temperatures must always be kept below 200° F (93° C).

Relief Valve: The relief valve must be external, relieved directly to tank, and set at 3000 psi [207 Bar] maximum. For the maximum life of your floor, set the relief valve at the minimum pressure required for unloading. The relief valve must be able to handle the maximum system flow rate.

Hydraulic Plumbing: The D2WS, D2W, and 1500 hydraulic modules are designed to operate with 1/2" to 5/8" diameter hydraulic lines and fittings. Hallco recommends swept angled fittings, where required, to minimize line-losses. Connect the pressure and return lines to the ports labeled "P" for pressure and "T" for tank/return. SAE-10 male (7/8-14 straight thread) o-ring boss fittings are required for connecting hydraulic plumbing to the power unit.

Filter: A 25 micron filter rated to the maximum flow rate of the system must be installed on the return line. A good filter is essential to assure clean oil for a long system life. For units where quick connects are frequently connected and disconnected (where contaminants may be introduced) a pressure line filter is recommended between the quick connect and the hydraulic module.

OPERATING THE FLOOR

The hydraulic module which drives the deck slats is produced in two types, one-way and two-way. The one-way module is designed to move the load material in the unload direction only. The one-way module is controlled by switching the hydraulic fluid flow to the module on or off. The two-way module can move material in loading or the unloading directions. The hydraulic supply system for the two-way modules must have on/off capability. A means of switching the floor direction is provided with standard kits.

When unloading material, or when shifting the load material in the unloading direction, make sure the exit door is fully open. When shifting the material in the load direction, be sure you have a visual means of monitoring the position of the load. The load must not be shifted against the forward wall. If the load is pressed against the box structure by the floor, it will more than likely cause structural damage to the box and put the operator and/or bystanders at a safety risk.

NORMAL OPERATION IN UNLOAD MODE:

1. All deck slats move together towards the exit door.
2. First slat set moves away from the exit door.
3. Second slat set moves away from the exit door.
4. Third slat set moves away from the exit door.
5. Cycle repeats.

NORMAL OPERATION IN LOAD MODE (if applicable):

1. All deck slats move together away from the exit door.
2. Third slat set moves towards the exit door.
3. Second slat set moves towards the exit door.
4. First slat set moves towards the exit door.
5. Cycle repeats.

TROUBLESHOOTING

Experience has shown that most problems originate with the hydraulic supply system. If your floor is not functioning properly, first check for visible interference/damage of the floor structure or mechanisms, then check the hydraulic supply system.

Problem: Floor does not operate or operates slowly

First Check: (A) PTO, is it fully engaged?
(B) OIL, is the oil reservoir full?
(C) QUICK CONNECTS, are they fully connected? Are they a matched set?
(D) PUMP, is the pump operating? Does it deliver the specified flow rate and pressure?
(E) RELIEF VALVE, is it set high enough (within specified limit)?
(F) PLUMBING, is the entire system plumbed correctly?

If the problem persists…

Disconnect the pressure line from the hydraulic module. Attach a hydraulic pressure gage to the pressure line. Engage the PTO and activate pressure to the pressure line. If the pressure gage

shows sufficient pressure being supplied to the hydraulic module, then the hydraulic supply system is OK. If there is insufficient pressure being supplied to the hydraulic module, then the hydraulic supply system needs servicing.

Common hydraulic supply system problems are defective pump and defective relief valve. If the pump ONLY becomes hot, that is a clue to a bad pump. Another clue to a bad pump is having to rev up the engine to get enough pressure to operate the floor. If the relief valve ONLY becomes hot, that is a clue that the relief valve is defective or has debris holding it partially open.

If the hydraulic supply system checks out OK, but the floor still does not operate…

The floor hydraulic module may need servicing. Contact Hallco to talk with a technical representative and to make service arrangements.

CLEANING

The floor must be cleaned regularly to prevent buildup of material which could cause the floor to operate inefficiently or bind. Areas affected may include, but are not limited to, between the deck slats, between the deck slats and sub-deck, between the deck slats and bulkhead, and between the deck and the exit door. The operator/owner must establish a cleaning cycle appropriate to the type of loads which are carried. The life of the floor will be maximized by regular cleaning.

INSPECTIONS

Inspect your floor regularly in order to monitor wear of your floor and to prevent further damage, if damage has already occurred. The following are some highlighted areas to inspect:

Deck Bolts: The 3/8" diameter deck bolts connecting the decking to the cross drives must be kept tight at all times! Loose deck bolts will damage your deck. The deck bolts must be checked after the first 5 to 10 loads. Bolts must be torqued from underneath to 30 to 35 ft-lbs [41 to 47 N-m].

Decking: Inspect decking for wear or damage.

Bearings: (If Applicable) Inspect for wear or damage.

Hydraulic Plumbing: Inspect the hydraulic system for leaks and abrasion wear. Maintain reservoir minimum/maximum levels.

Floor Structure: Inspect floor structure including hydraulic module mount, drag links, pin connections, cross drives, and sub-deck for damage and wear.

Hydraulic Module: Inspect the hydraulic module for leaks, loose mounting bolts, loose manifold bolts, worn wipers and seals, and pitted/worn/damaged shafts.

Sloped Sheet: Make sure sloped sheet is keeping the gap between the forward wall and the end of the decking clear of material which could cause the floor to bind.

REPAIRS

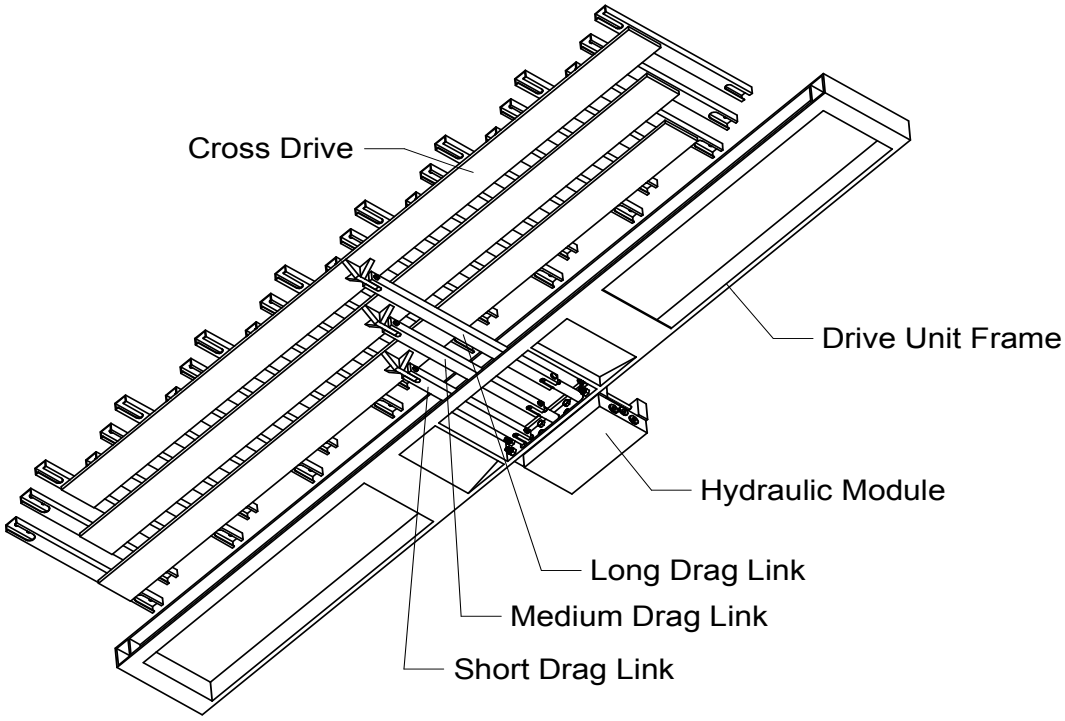
Accomplish all repairs in accordance with Hallco instructions. Do not re-install defective components into your floor system. Contact Hallco for replacement components.

Here are some basic assembly/disassembly instructions:

Power Unit Removal: Remove the pins which connect the drag links to the hydraulic module (refer to Figure 7). In some cases it may be necessary to first cycle the hydraulic module shafts out to access the pins. If the hydraulic module is not operable, then the pins which connect the drag links to the cross drives may need to be removed first. Disconnect the hydraulic lines. Remove the hydraulic module mount nuts and slide the hydraulic module away from its cross member. If the drag link pins were not accessible before, remove them now. The hydraulic module should now be clear of all connections and can be removed.

Hydraulic Module Installation: Reassembly of the hydraulic module is the reverse of disassembly (refer to Figure 7). Make sure the hydraulic module fasteners and the drag link pins are in good condition before reassembling. Torque the hydraulic module mount nuts to 50 ft-lbs [67 N-m] if the threads are dry, and 35 ft-lbs [47 N-m], if the threads are lubricated. Reconnect the hydraulic pressure line to the port on the hydraulic module labeled “P” and the return/ tank line to the port labeled “T”.

Drag Links Installation: For certain configurations the drag links may need to be installed in a specific order. The short drag link may need to be installed to the hydraulic module and the cross drive before the other drag links are connected to the hydraulic module and cross drives. Install the middle drag link second and the long drag link last. Install the pins which connect the short and long drag links to the hydraulic module with the heads of the pins on the outside and the drilled end towards the centerline. Install the pin for the middle drag link with its head on the side of the long drag link and the drilled end towards the short drag link. The hydraulic module pistons may be rotated to assist in installation of the pins.



-Figure 7-
Underside of Drive Unit

WARRANTY

Hallco Industries, Inc. ("Hallco" or "Company") warrants to the original product purchaser ("Customer") each of the Hallco LIVE FLOORS® or its other floor systems manufactured and sold by it or any of its authorized distributors, when properly assembled and installed, to be free from defects in material and workmanship. This warranty expressly excludes deck seal, when used. Company's obligation to Customer under this warranty is limited to repairing or replacing, as herein provided, and at its sole option, any part or parts of the system which within twelve (12) months after delivery to Customer shall be found, upon examination by Company, to be defective, provided that such part or parts shall be returned, with insurance and shipping costs at Customer's expense, to Company's factory at 6605 Ammunition Road, Tillamook, Oregon 97141. Company must be notified in writing of any claim under this warranty within 30 days of any claimed lack of conformity of the product.

WARRANTY SERVICE OPTIONS. For service under this warranty, Customer must notify Company in writing to obtain a Returned Material Authorization Number (RMAN). When requesting your written RMAN, specify in writing the part in question by part number & applicable purchase order number. Customers in countries other than the United States should contact Company's authorized representative in such country, when applicable.

WARRANTY EXCLUSIONS. Representatives of Company are not authorized to modify this warranty in any way. It is the Customer's responsibility to regularly examine the product to determine the need for normal service or replacement. This warranty does not cover the following:

- **Products that have been modified, altered, neglected or poorly maintained, misused, abused or involved in accidents or natural disasters, or repaired other than by Company in accordance with these warranty procedures;**
- **Damage occurring during shipment of the product. (Such claims must be presented directly to the freight company).**
- **Damage to the product resulting from improper maintenance or repair, the use or installation of parts and or accessories not manufactured by Company, or which are not compatible with the system, or failure to follow product warnings and usage instructions.**
- **Normal wear and tear.**
- **Any product for which Customer does not follow the warranty procedures stated above.**

WARRANTY LIMITATIONS. THIS WARRANTY IS MADE EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATION OR LIABILITY ON THE PART OF THE MANUFACTURER.

In no event shall Company be liable for any loss, inconvenience or damage, whether direct, incidental, consequential or otherwise, except for the repair or replacement obligation as set forth herein. Some states or countries do not allow limitation on how long an implied warranty lasts and some do not allow exclusions or limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty will be interpreted pursuant to the laws of the United States and the State of Oregon.

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