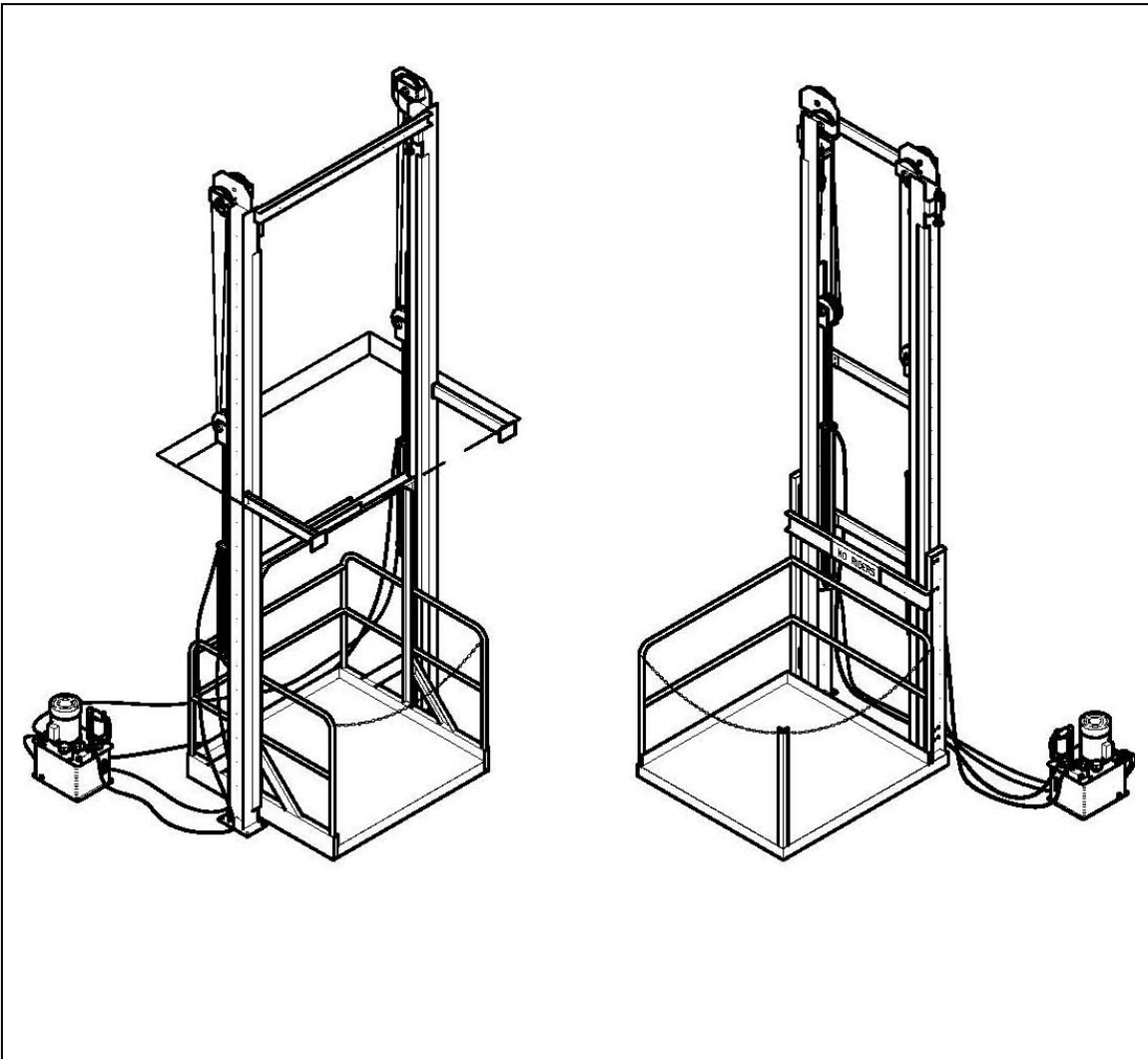




Hydraulic VRC (Straddle & Cantilever)

Installation, Operation, Maintenance & Parts Manual



Publication #

HLS01-rev2

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Thank you

We know that in today's competitive marketplace, customers have many choices when purchasing products. We appreciate your choosing Wildeck's high quality industrial product and know you have made a wise decision.

Our continued reputation as one of the top manufacturers of industrial products rests with the satisfaction of each and every customer. Wildeck products are *Crafted with Confidence* by employee owners in Waukesha, Wisconsin, USA. Should you have any questions or require installation assistance, please do not hesitate to contact your local Wildeck representative or Wildeck's customer service department at 1-800-325-6939.

Thank you for allowing Wildeck to serve your needs.

Section A: Installation

A-1

Tools and Equipment Required To Install Wildeck VRC Units

Equipment

Manual or motorized hand truck
Chain fall and/or come-a-long
Straps and chains with hooks, 1000 lb. to 2000 lb. capacity
"C" clamps
Extension cords
8 ft. Extension ladder

Hand Tools

Hammer drill with 3/8" to 1/2" bits, 6" to 10" long
1/2" chuck drill with 1/8" to 9/16" bits
1/2" and 3/8" socket sets with 7/16" to 1-1/4" sockets
Open end wrenches 7/16" to 1-1/4"
Allen wrenches 1/8" to 1/2"
Drift punch
Sledge hammer 3 lb. to 5 lb.
Grease gun
Hack saw

Measuring and Leveling Tools

25' tape measure
Chalk line
Plumb bob
4' level
Carpenter square

Optional Equipment

Welding machine
Cutting torch
Fork lift truck

Vertical Reciprocating Conveyor (VRC) Bracing and Supports

Wildeck® Inc., supplies support bracing at each level as indicated on the General Arrangement Drawing prepared for each application. Also, see Bracing Section of this manual for bracing options.

This bracing is especially designed to allow a specified gap between the platform carriage and floor at each level, with the provision that the bracing is properly anchored to structurally sound flooring and/or support members.

RECOMMENDATION: *Prior to installing your Wildeck® VRC, a qualified installation contractor should inspect the designated site to verify that the structural integrity and composition of walls and flooring are suitable for proper support and alignment.*

If you have any questions regarding the structural integrity of your proposed VRC location before proceeding with installation procedures, contact your authorized Wildeck® distributor or contact Wildeck® Inc. (Phone: 262/549-4000 or Fax 262/549-7703).

SUGGESTION: *If possible, the VRC installer should have available some lengths of angle iron (2 inches x 2 inches x 1/4 inch) and channel iron (4 inches x 5.4 lb./ft.) for those situations when on-site retro-fitting is unavoidable. Also, pieces of flat steel (1/8 inch to 1/4 inch thick) for shimming and (3/8 inch to 1/2 inch thick) for footings and supports.*

Installation Overview

There are two methods of installing your Wildeck® Inc. VRC. Both are recommended and equally efficient.

Please review the following outline of each method as related to the skill and preference of your installers, availability of necessary installation tools and equipment (See Page A-2 for complete list.), and working space available.

Method 1

1. Review General Arrangement Drawing and custom owners manual that includes detailed parts identification for specific application.
2. Make accurate positioning measurements at upper and ground levels.
3. Position carriage unit according to ground floor measurements.
4. Raise beams into position, bolt wheel blocks to carriage.
5. Bolt top cross member into position.
6. Measure beams for proper distance and plumb accuracy.
7. Secure to floor.
8. Re-check measurements and plumb accuracy, proceed with bracing, final welding, and final adjustments.

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Method 2

Method 2 does not require the carriage unit to be in position throughout the assembly process as indicated by Method 1, Step 3.

The VRC beams may be assembled without the carriage in position provided that your upper level and ground level measurements and plumb procedures are absolutely accurate.

You may consider positioning the carriage unit as per Method 1 to double-check your upper and lower level measurements, and to visually inspect for existing or potential obstructions within the travel path of the unit once installation is completed. The carriage unit may then be removed to provide more space for beam and bracing installation.

NOTE:

The carriage must be in place and attached to the wheel blocks before final welding and anchoring is started.

Fundamental Points Regarding the Installation of Your Wildeck VRC

The building structure must be strong enough for anchor and support the VRC.

NOTE: *Cantilever lifts have greater forces applied to the main beam because of the orientation of the carriage platform and main beam structure. Therefore, the flooring and building structure must be strong and sound enough to handle the bracing loads.*

REFER TO FIGURE 11 ON PAGE 33 AND 11B ON PAGE 35

➤ Recommended channel iron bracing (minimum 4 inches x 5.4 lb./ft. or stronger) must be included at each lift level.

➤ Bracing must be securely anchored to the building.

Anchoring into block, brick, or stud-type walls is unacceptable.

Anchoring into wood floors or wood supports should be avoided.

Through-bolting with steel plate backup plates is the only recommended procedure when anchoring into wood is unavoidable.

➤ All hardware must be installed as securely as possible.

Use plate steel backing plates whenever necessary to eliminate all potential pull-out conditions.

Perpendicular shear strength of concrete anchors, lags, or bolts attached to bracing should be utilized to avoid hardware from being pulled straight out of support structures.

**Wildeck VRC
Beam and Bracing Installation
Following Method 1 Outline**

1. Carefully uncrate your Wildeck VRC. Identify and match all of the beams, braces, hydraulic and electrical components, fasteners, etc. with the parts list provided.

Contact your Wildeck distributor or Wildeck, Inc., (Phone 262/549-4000 or Fax 262/549-7703) immediately if any part is missing, damaged, or not specified by the Parts List.

Do not proceed with installation procedure until your part count is complete and accurate, or authorization to proceed is granted.

2. Wildeck provides a General Arrangement Drawing that includes the specific dimensions to insure proper VRC installation and operation.

The measurements you make—upper level opening, floor-to-floor distance, pit depth, etc.—must be exactly as shown on the General Arrangement Drawing.

Accurate Measurements Are Essential

1. Second Level Opening

Refer to your General Arrangement Drawing and lay out the second level opening.

- A. Determine the location of the lift at upper level.
- B. Measure and mark each outside dimension per General Arrangement Drawing. (This is the overall carriage width dimension.)
- C. Measure and mark the center point of the upper level opening.

REFER TO FIGURE #1

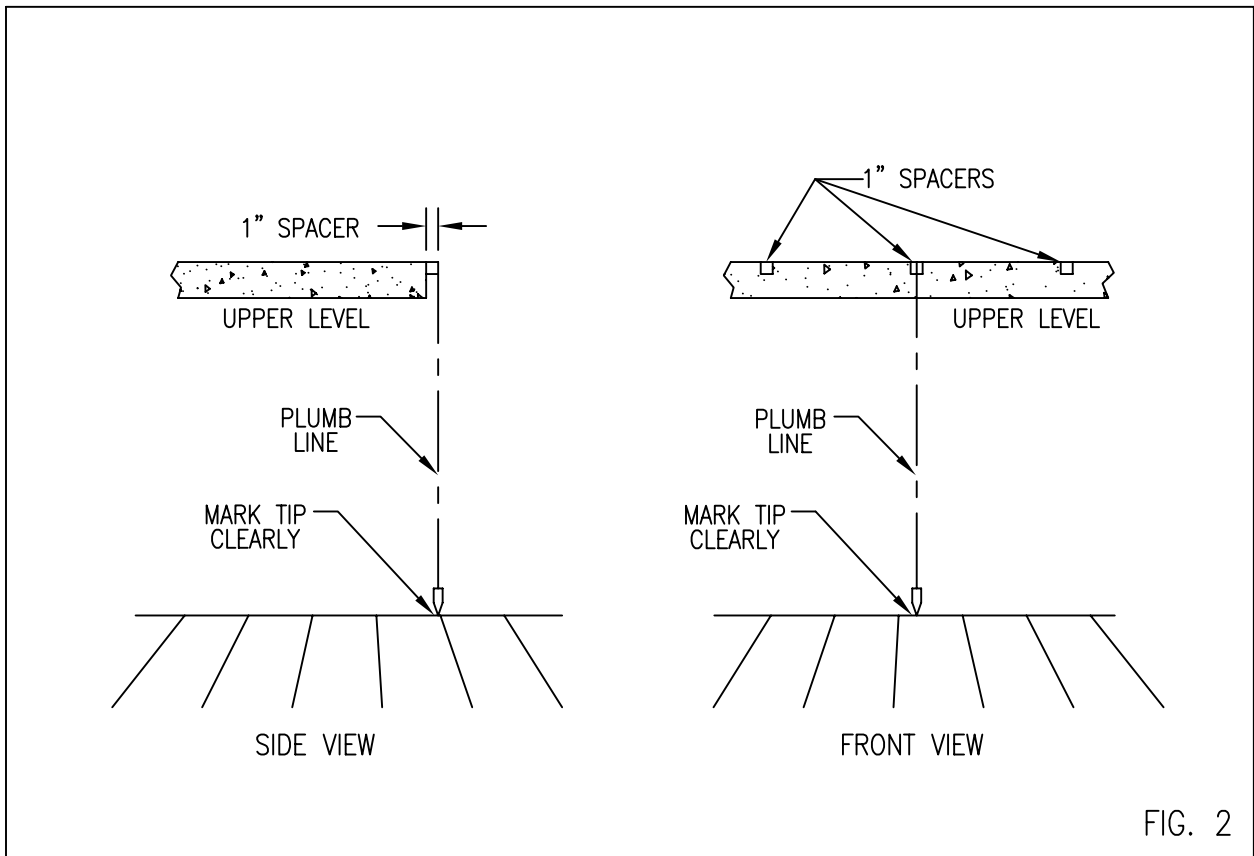
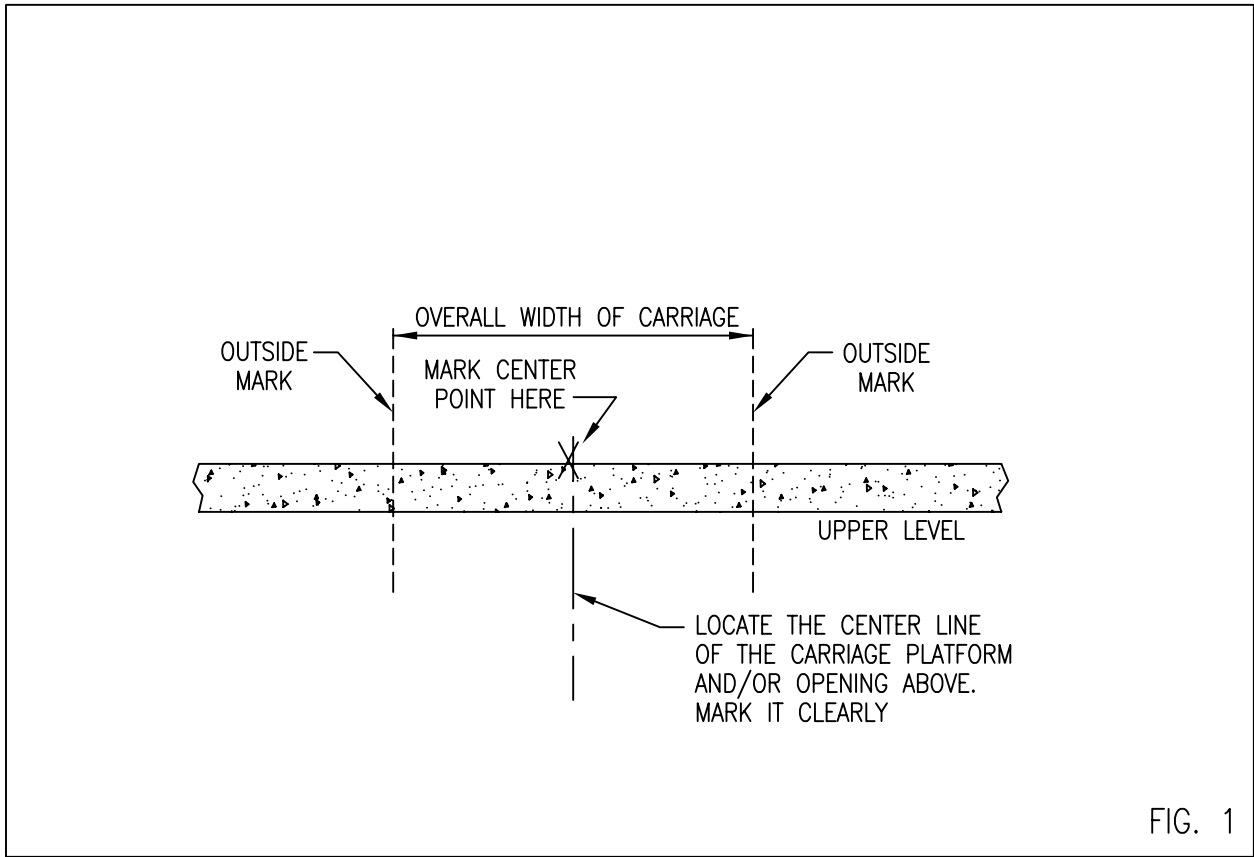
2. Drop a plumb line one (1) inch out from center point mark at upper level.

NOTE: *One (1) inch is a standard distance. Deviations may exist for specific installations. Check your General Arrangement Drawing for exact distance.*

REMINDER: *Plumb lines must clear all wall protrusions or any other interference that the carriage must clear after installation.*

3. Mark plumb bob tip contact point clearly on lower level floor.

REFER TO FIGURE #2



Accurate Measurements Are Essential, continued

4. Drop plumb lines one (1) inch out (or specified distance) from each upper level outside mark.
5. Mark each plumb bob tip contact point clearly on lower level floor.
6. Use a chalk line to snap a line through each outside dimension mark.

IMPORTANT: *The carriage will be aligned with this line. The center point mark must be on the line snapped between the outside dimension marks. Repeat Steps 2 - 6 if necessary until accurate three-point alignment is reached.*

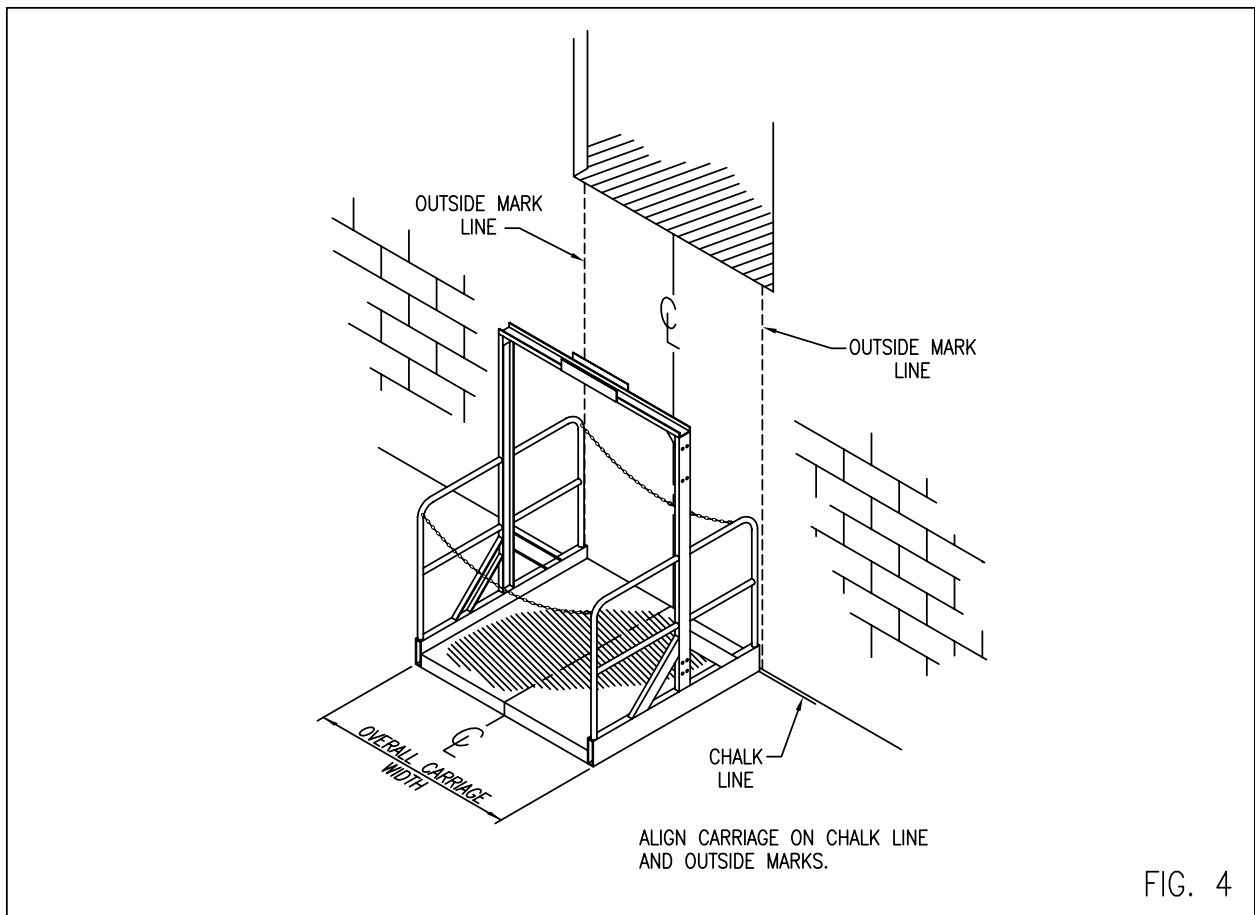
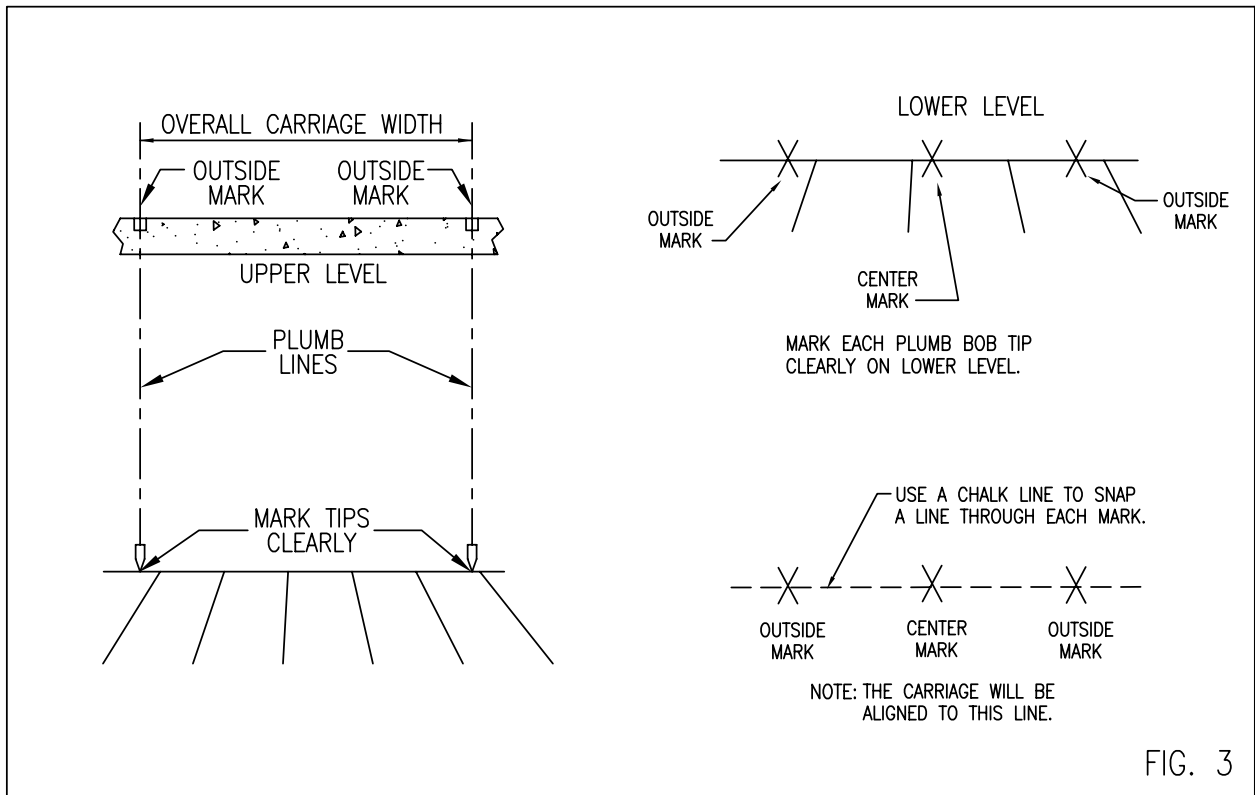
REFER TO FIGURE #3

7. Measure and mark the center point of the carriage platform.
8. Position the carriage as shown on the General Arrangement Drawing. The center point mark on the building floor (Step 3) must align with the center point of the carriage platform. The edge of the carriage platform must coincide with the line snapped on the floor to mark the overall carriage width.

REFER TO FIGURE #3

9. Note: If the lift penetrates a floor, or clearances are tight, the carriage may be positioned after the beams have been installed and raised in place. (As described in Method 2.)

REFER TO FIGURE #4



Main Beam Installation

1. Position lower wheel blocks into beams.
 - A. Tip the block so that one roller fits inside guide angle.
 - B. Insert wheel into opening at the bottom of the beams.

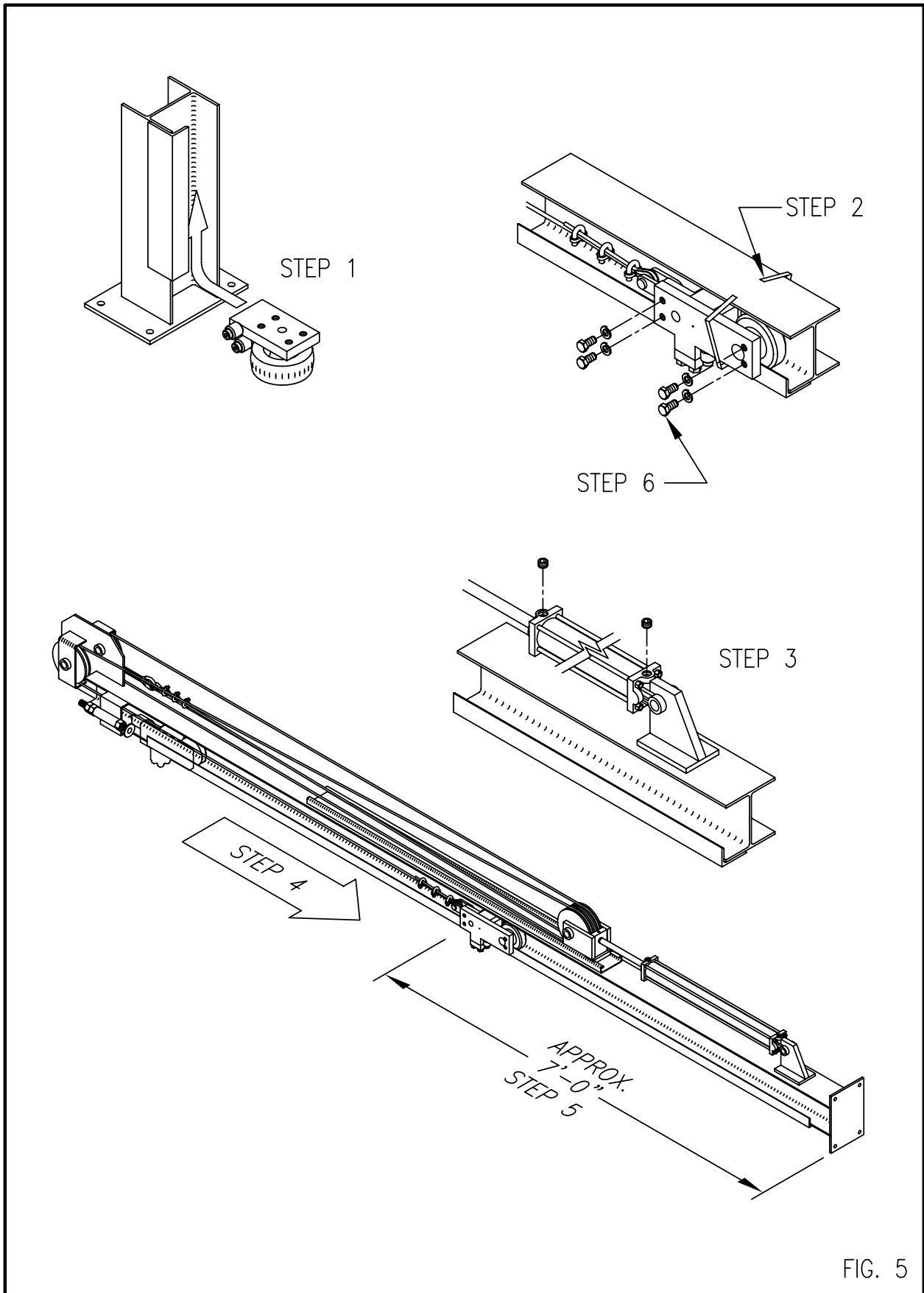
NOTE: *It is necessary to hold the lower wheel block in place while each beam is raised.*

2. Unband wheel blocks attached to each beam.
3. Remove dust plugs from cylinders.
4. Extend cylinders by pulling on the cable at the wheel block connection point.

NOTE: *Hold safety cams in to prevent engagement while performing Step 4 above.*

5. Slide the wheel block down the beam until it is approximately seven (7) feet from the bottom of the beam. (Seven [7] feet is a relative distance.) The upper wheel block should be positioned in alignment with the upper mounting holes of carriage.
6. Remove all 5/8 inch hex head bolts from the four (4) wheel blocks.
7. If possible, run a 5/8 - 11 tap through all threaded wheel block mounting holes for easier fastening. (Not necessary if threaded holes are clean.)

REFER TO FIGURE #5



8. Raise right-side beam into position.

WARNING: *It is the responsibility of the installer to properly lift and secure beams, bracing, and components in a safe manner. The illustrations used in this manual may not show all of the tools and auxiliary equipment recommended by Wildeck on Page 1 of this manual for proper and safe installation, or all of the techniques that may be required by installers to accomplish certain tasks.*

Contact your authorized Wildeck® distributor or Wildeck, Inc., (Phone 262/549-4000 or Fax 262/549-7703) should any problem or question arise during any phase of the installation process.

9. Slide beam alongside carriage and align wheel blocks with mounting holes.
10. Bolt carriage to the wheel blocks using the bolt previously removed (Step 6). Make sure bolts are secure.

WARNING: *Carriage alone will not support beams. Make sure beams in upright position are always supported and held in place throughout installation process.*

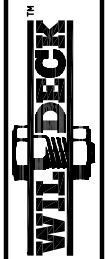
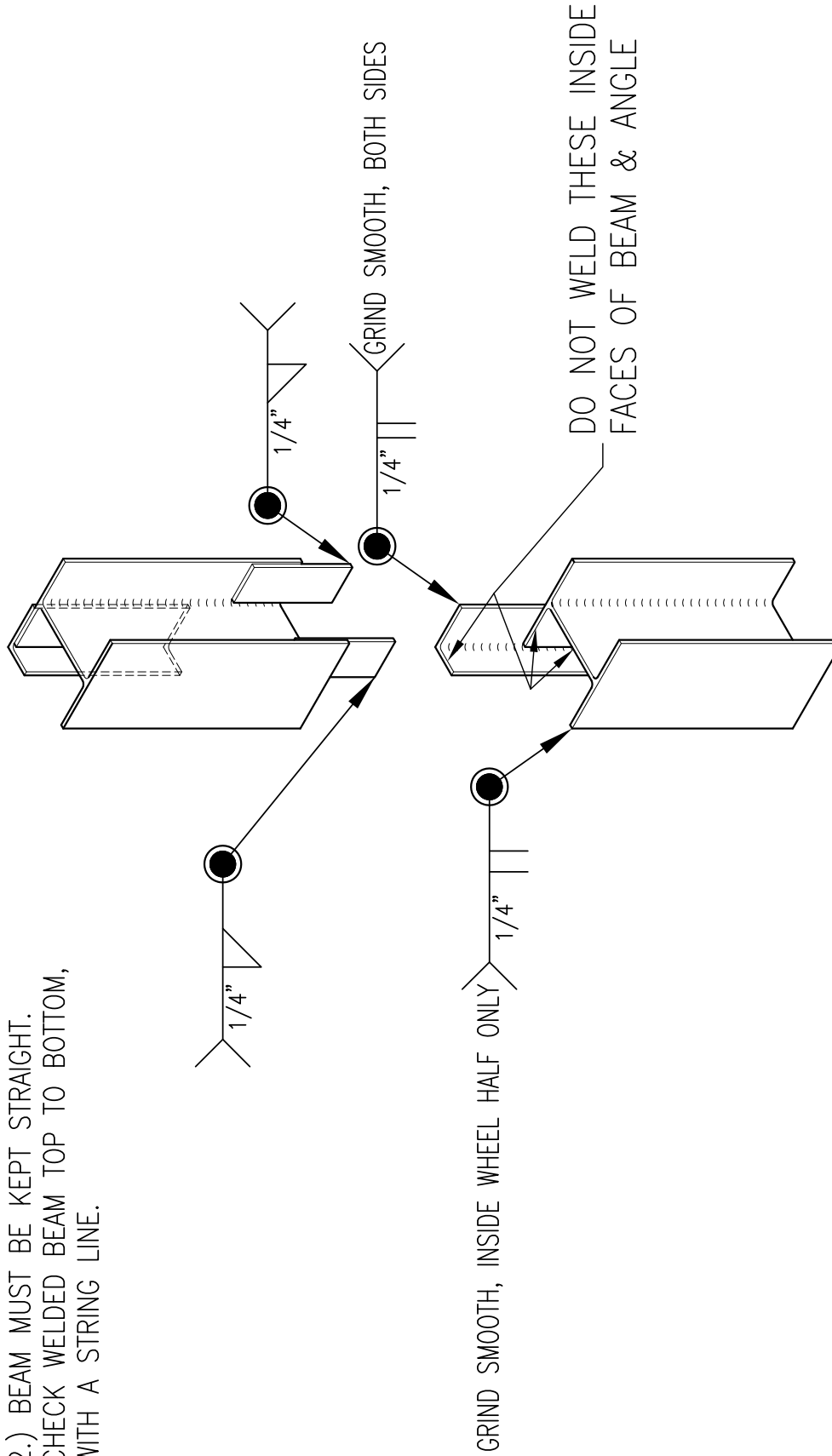
NOTE: *Carriage platform with a six (6) inch channel or larger vertical uprights requires 1/8 inch shims for proper spacing of wheel blocks.*

11. Make sure right-side beam is secured and adequately supported.
12. Repeat Steps 8 - 11 to raise and secure left-side beam. All warning messages and note information applicable to Steps 8 - 11 apply.
13. Install top cross member. Do not over-tighten bolts. Snug bolts down to allow for final adjustments.

REFER TO FIGURES #6, 6A, 6B, 6C

NOTES:

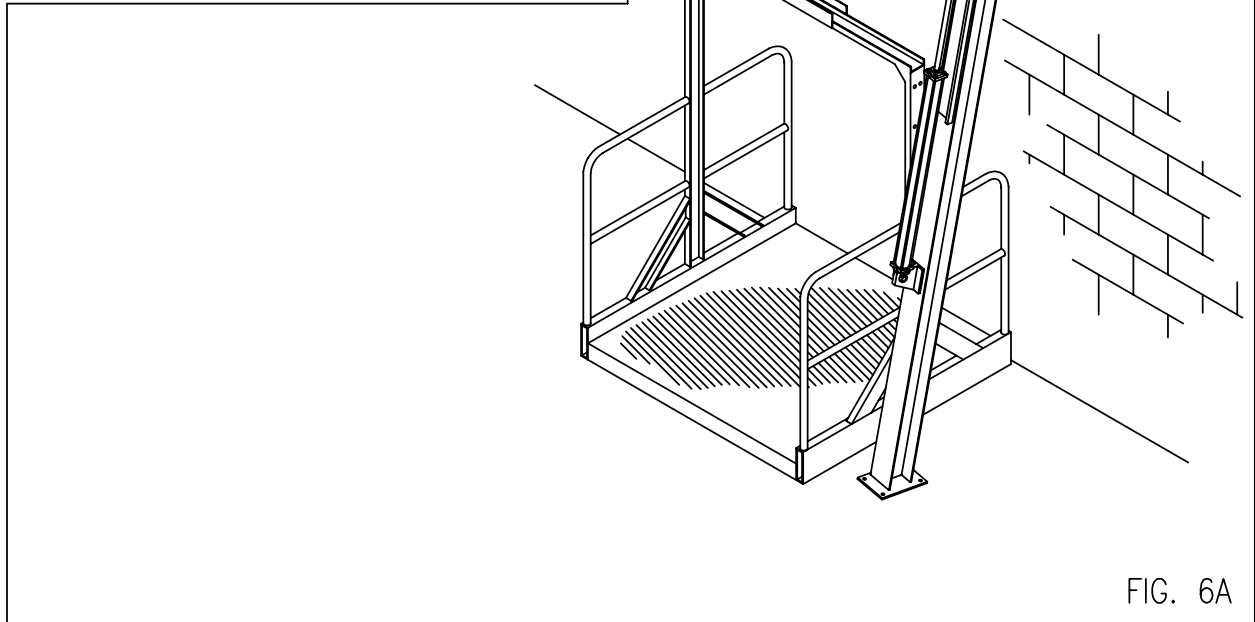
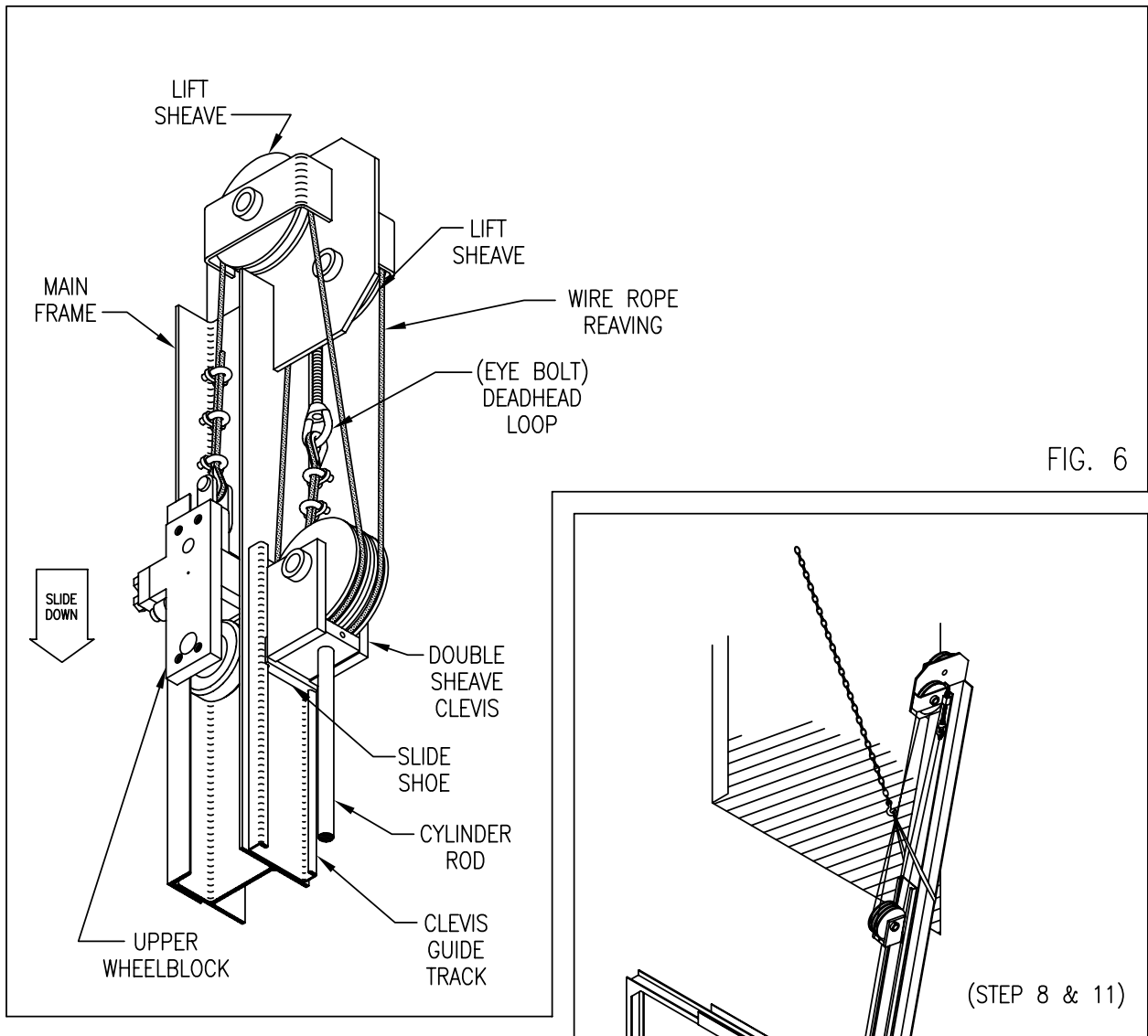
- 1.) ALL WELDS SHALL BE MADE BY AN A.W.S. CERTIFIED WELDER.
- 2.) BEAM MUST BE KEPT STRAIGHT. CHECK WELDED BEAM TOP TO BOTTOM, WITH A STRING LINE.

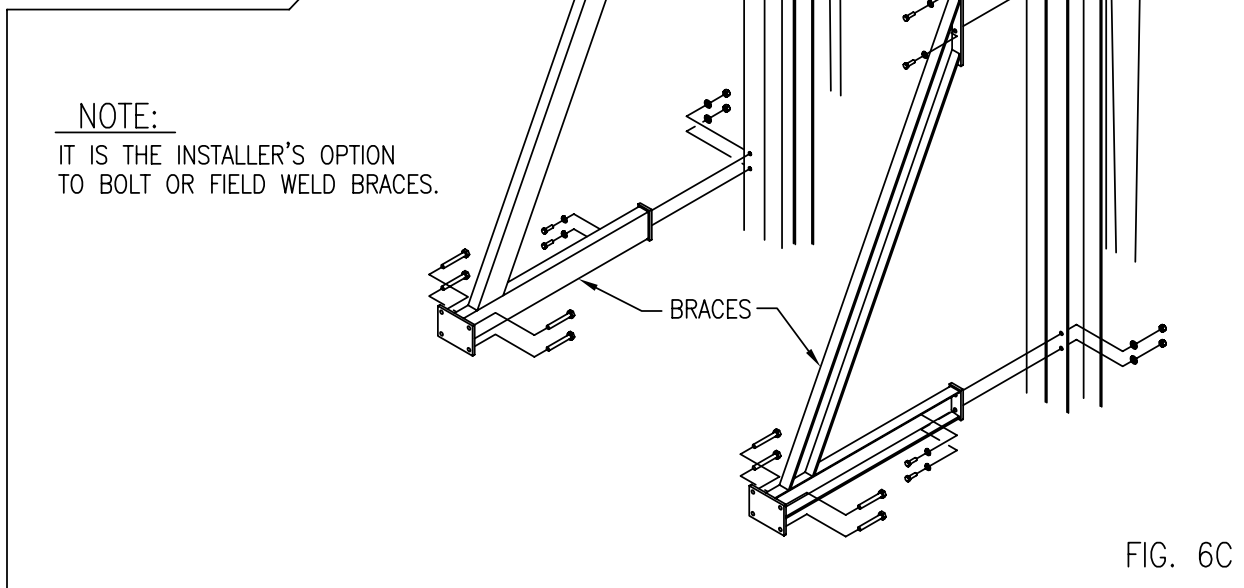
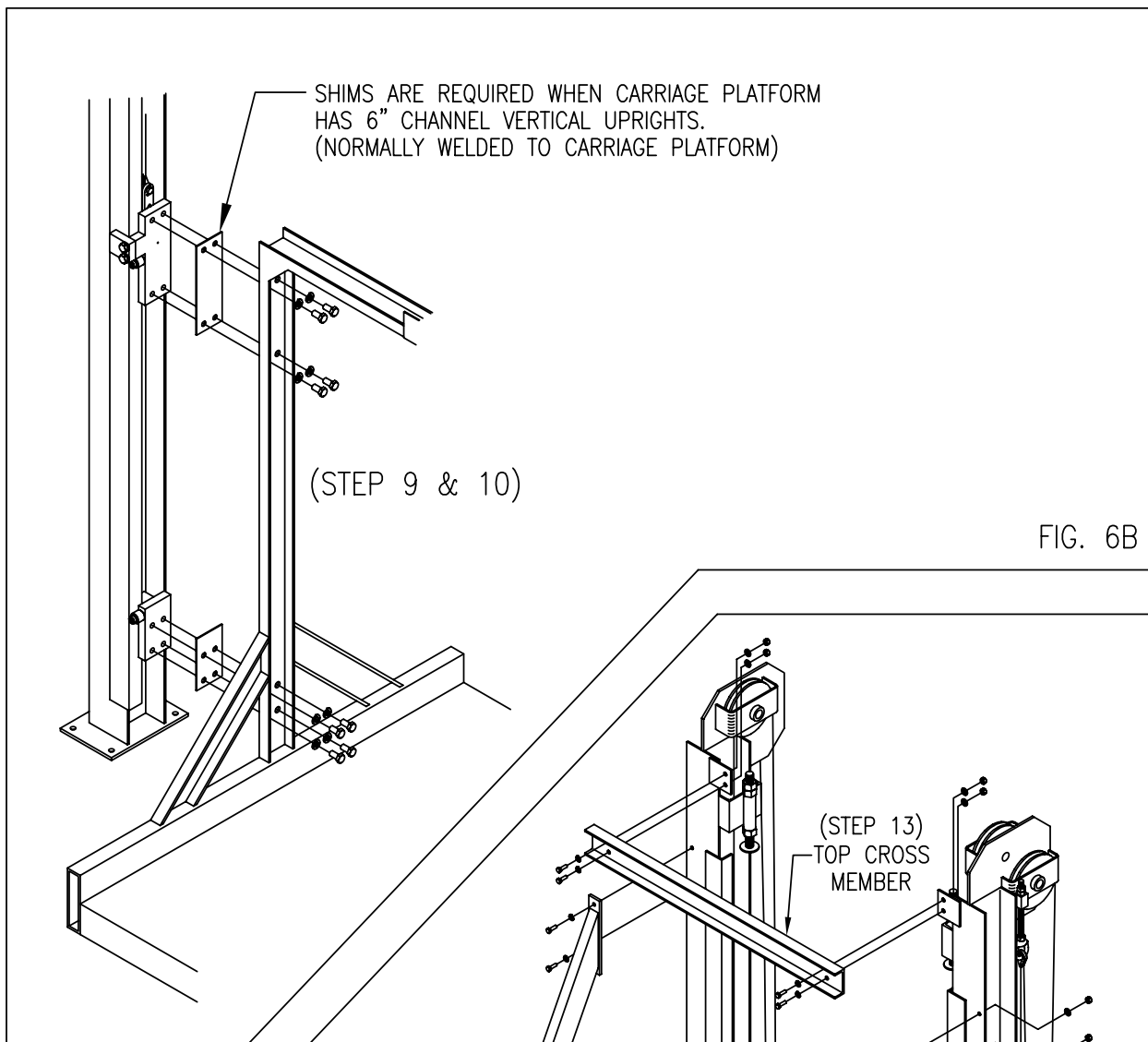


HYDRAULIC MAST WELDMENT
FIELD WELDING INSTRUCTIONS

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Alignment of Main Beams

1. Measure the distance between guide angles on main beams at lower level. This dimension should be 2-5/8 inches greater than the overall carriage width.

NOTE: *If 1/8 inch shims are supplied with carriage platform, include them in the overall width dimension.*

2. Move to upper level and set beams to the same distance.
3. Level the carriage and set the spacing between wheel block guide rollers and guide angle at 1/8 inch. Use shims if necessary.

NOTE: *Temporarily inserting a 1/8 inch shim between guide rollers and the guide angle will help to set and maintain proper spacing. Make sure these shims are removed before raising platform.*

4. Plumb right-side beam and recheck spacing.
5. Anchor or weld floor-to-beam brace into position. (For special applications, see Bracing Section of this manual for bracing options.)

NOTE: *Make sure the beam is not twisted or bent.*

6. Recheck beam with plumb line and/or level. Anchor to floor after beam is plumb.
7. Recheck beam with plumb line and/or level. Recheck spacing between beams.
8. Anchor or weld floor-to-beam brace to the right beam

NOTE: *Again, make sure the beam is not twisted or bent.*

9. Recheck beam with plumb line and/or level.
10. Anchor right-side beam to floor using eight (8) ½ inch anchors 3-1/2 inches (minimum) long. Use four (4) anchors for each beam.

NOTE: *Depth of holes for anchors should always be deeper than the length of the anchor bolt.*

11. Repeat Steps 1 - 10 to align and secure left-side beam.

REFER TO FIGURES #7, 7A, 7B

See page A-33 for
Cantilever Model VRC

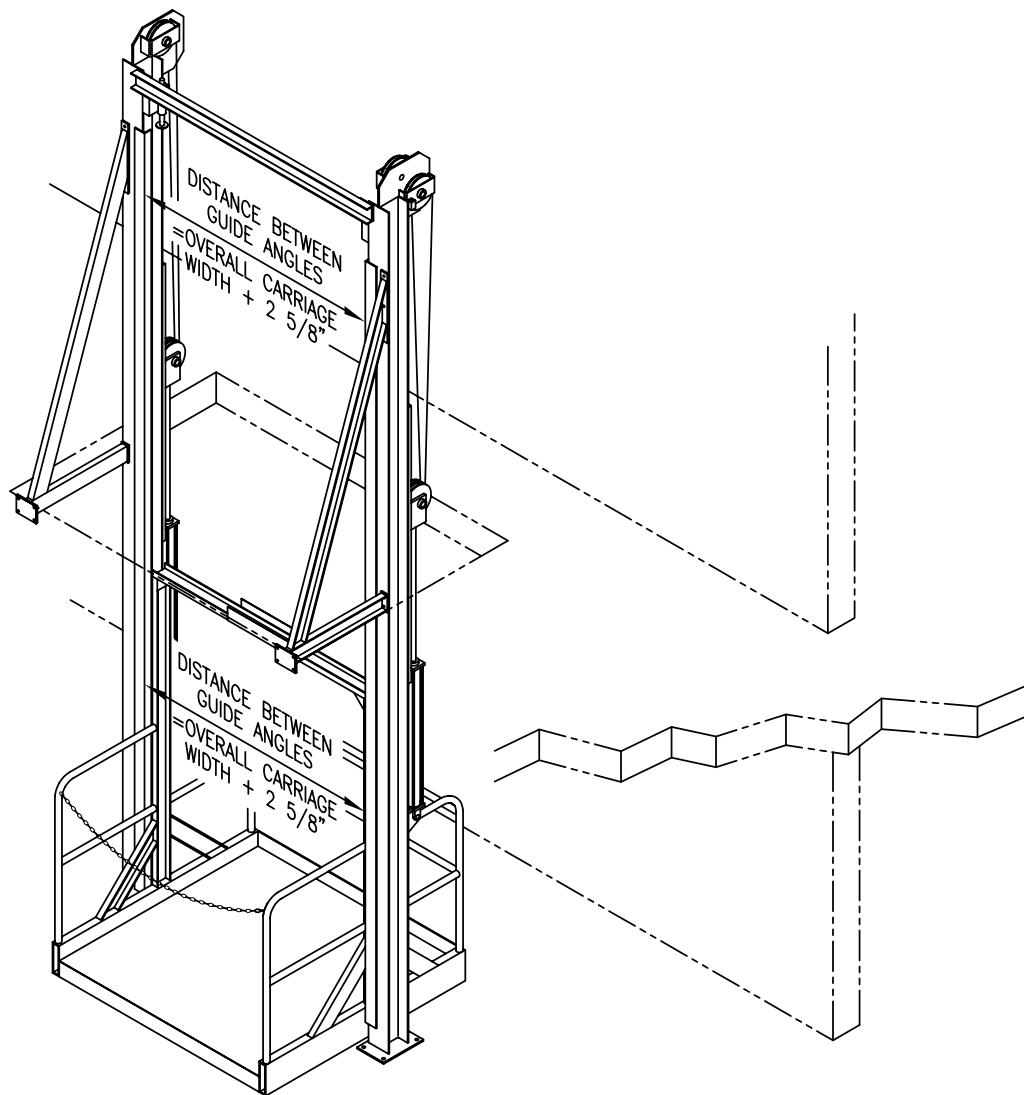


FIG. 7

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See page A-34
for Cantilever Model VRC

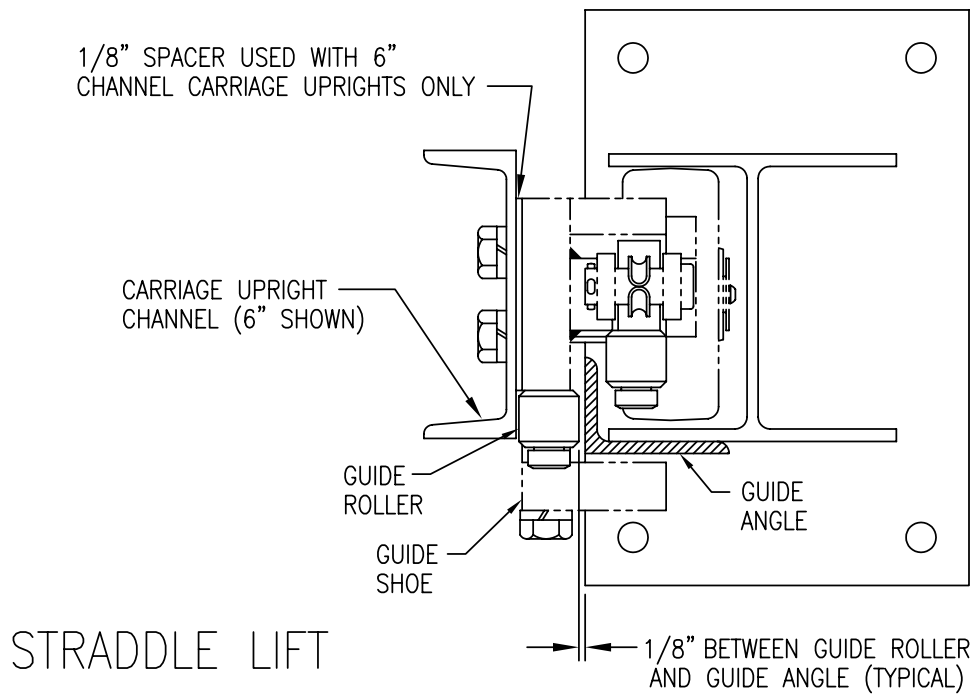


FIG. 7A

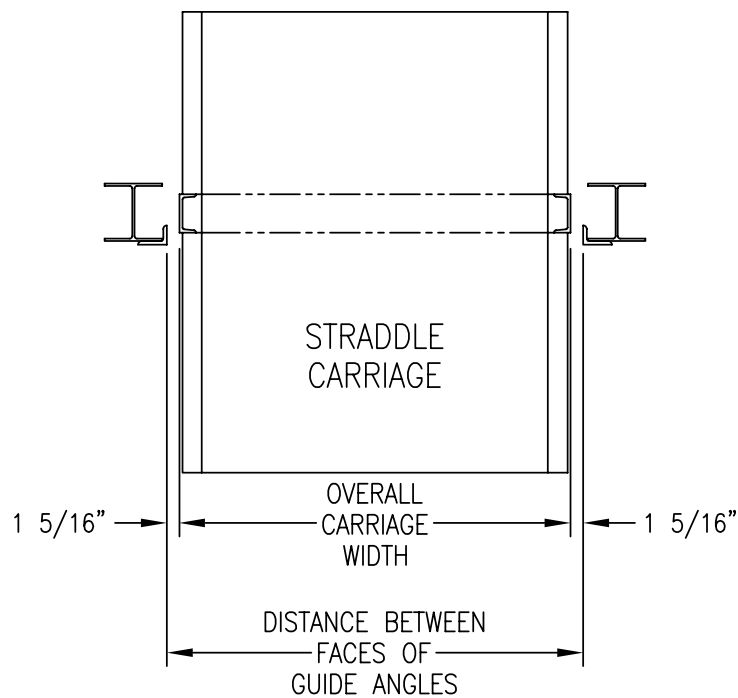


FIG. 7B

Hydraulic Unit Hose and Fitting Connections

UPPER CYLINDER PORT

1. Install ½ inch x ½ inch x ½ inch Tee with Bleeder Plug as required by cylinder port.
2. Install Velocity Fuses with arrow pointing (down) toward cylinder.
3. Install ½ inch x 3/8 inch Adapter.
4. Connect one end of 3/8 inch High Pressure Hose to Adapter.

LOWER CYLINDER PORT

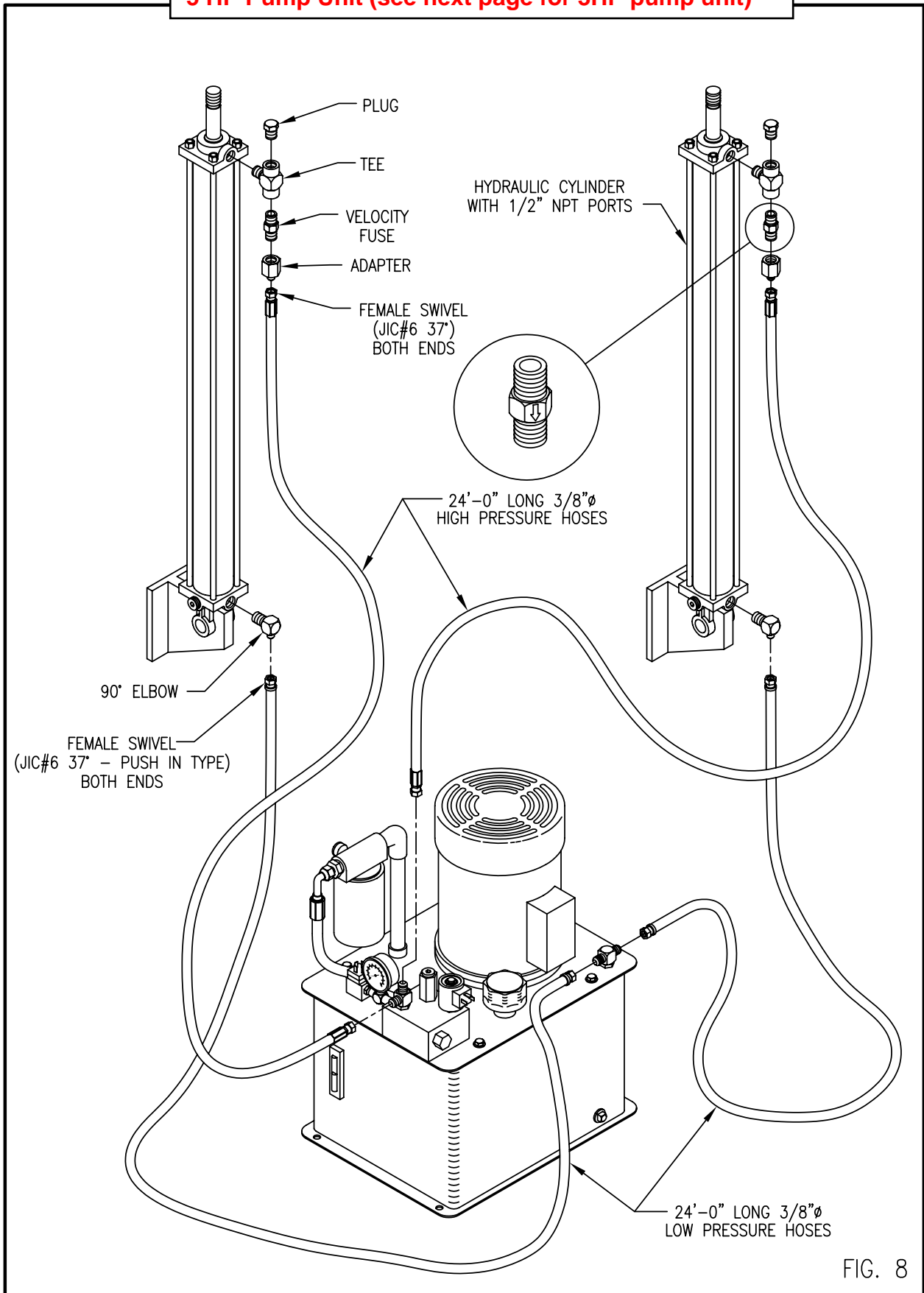
1. Install ½ inch x 3/8 inch 90° Elbow Fitting as required by cylinder port.
2. Connect one end of 3/8 inch Low Pressure Hose to 90° Elbow Fitting.

MOTOR/PUMP UNIT

1. Connect other end of 3/8 inch High Pressure Hose to 3/8 inch Tee Fitting on manifold block.
2. Connect other end of 3/8 inch Low Pressure Hose to 3/8 inch Tee Fitting on reservoir tank.

REFER TO FIGURE #8

5 HP Pump Unit (see next page for 3HP pump unit)



3 HP Pump Unit (see previous page for 5HP pump unit)

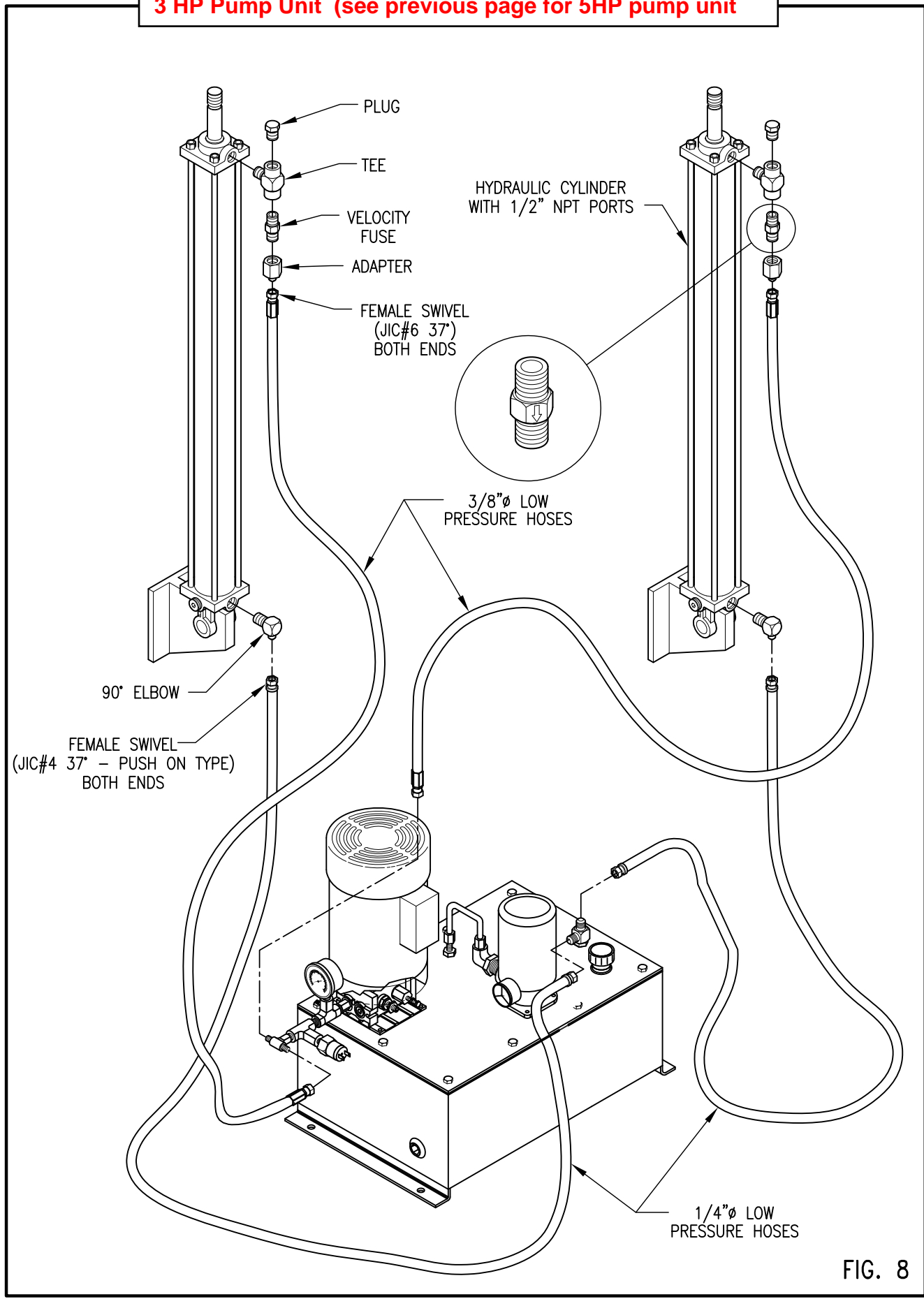


FIG. 8

Power Unit Installation

NOTE: *Be sure all hose and fittings are properly connected before proceeding with Power Unit Installation.*

1. Check oil in reservoir using gauge mounted on the side of the Power Unit Reservoir. (Add oil if needed.)

WARNING: *Electrical power to the pump/motor will be required temporarily to complete installation of the unit.*

WARNING: *All safety devices are bypassed when a temporary electrical power connection is used to move the lift.*

The use of a temporary electrical connection is not recommended for inexperienced installers. Use extreme caution.

2. Push the Up Button momentarily to check motor rotation against arrow on motor.
3. If rotation is incorrect, have an experienced electrical technician reverse leads. (Hydraulic pressure gauge will activate if pump is functioning correctly.)
4. Push the Up Button until both cylinders start to retract. Stop immediately.
5. Check cable on all sheaves and reaving to assure proper cable seating. Be sure cable is properly seated in sheave before proceeding.
6. Check for vertical obstructions above carriage and carriage interference at ground level. Be sure carriage is free to move.
7. Raise carriage approximately six (6) inches. Stop immediately.
8. Be sure carriage is level and cable tension is equal before proceeding.

NOTE: *The levelness of the carriage is dependent upon the correct carriage position within the main beams.*

Adjusting the cable length of either side will not affect the carriage level. However, it may be necessary to shorten cables to achieve full carriage travel.

Cables can be shortened at either end. Correct cable length leaves about two (2) inches of cylinder rod extended when carriage is in fully raised position.

Do not use eye bolt adjustment at time of installation. This may be needed to adjust for “cable stretch” after the unit is in operation.

NOTE: Make all adjustments when carriage is in fully lowered position. Tighten all twelve (12) cable clamps on safety cams and deadhead blocks.

9. Continue to raise carriage in six (6) inch increments checking for binding cables, out of level carriage, and interference.
10. Raise and lower unit six (6) feet, five (5) times, to bleed air out of cylinders and “seat” cables.
11. Raise carriage to position six (6) inches below upper level.
12. Carefully raise carriage unit to second level.
13. Adjust carriage stops.

NOTE: When empty, the carriage should contact both carriage stops at approximately the same time. Upper carriage stops are not to be used to compensate for floors that are out of level.

14. Raise and lower carriage unit several times to be sure tolerances are consistent. Check to make sure carriage is level.
15. Install enclosures, gates, and interlocks as shown on the General Arrangement Drawing. (Also see Gate Section in this manual.)
16. Touch up welds with paint supplied.
17. This is what the finished unit should look like.

REFER TO FIGURES #9, 9A, 9B

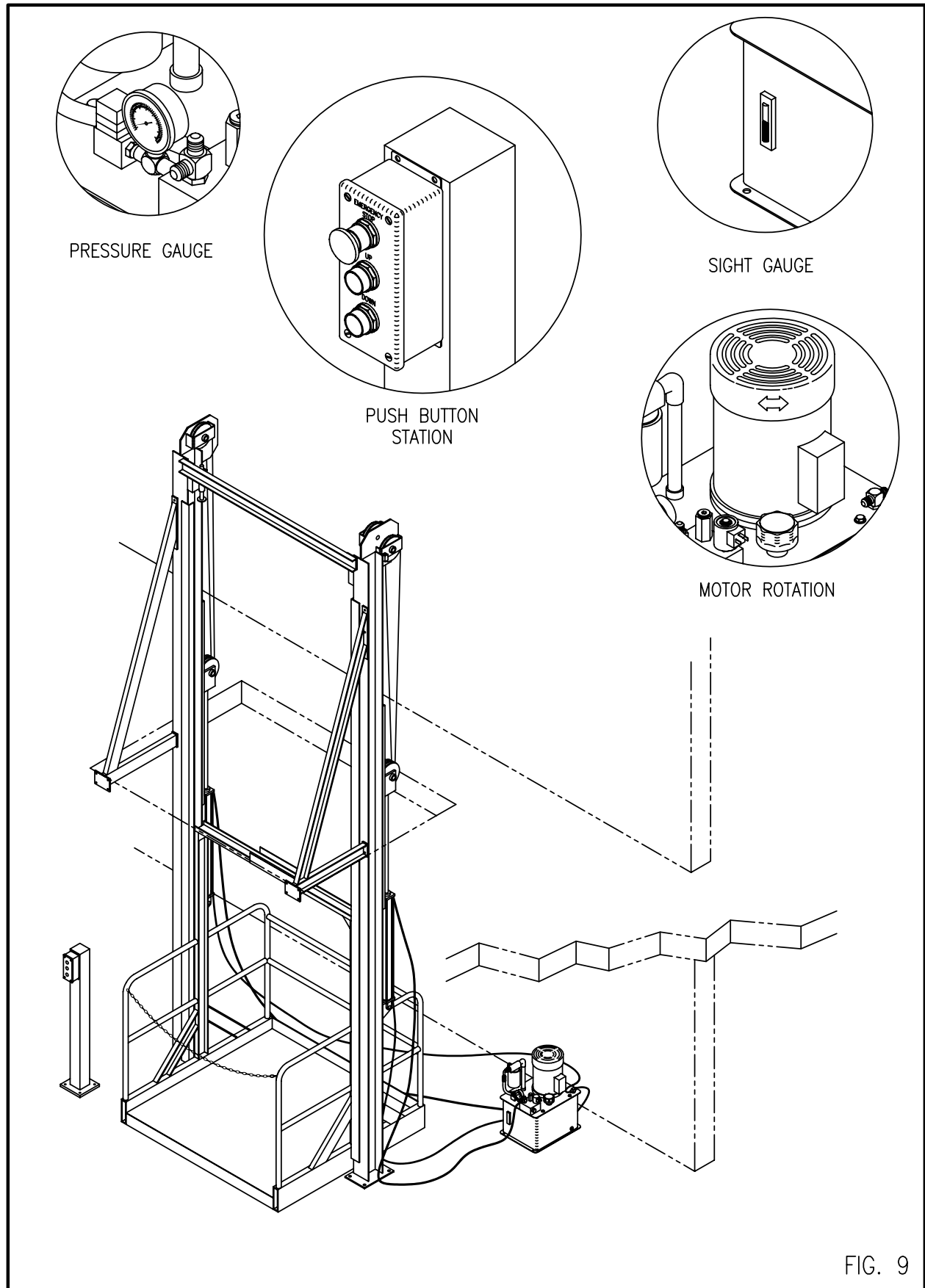


FIG. 9

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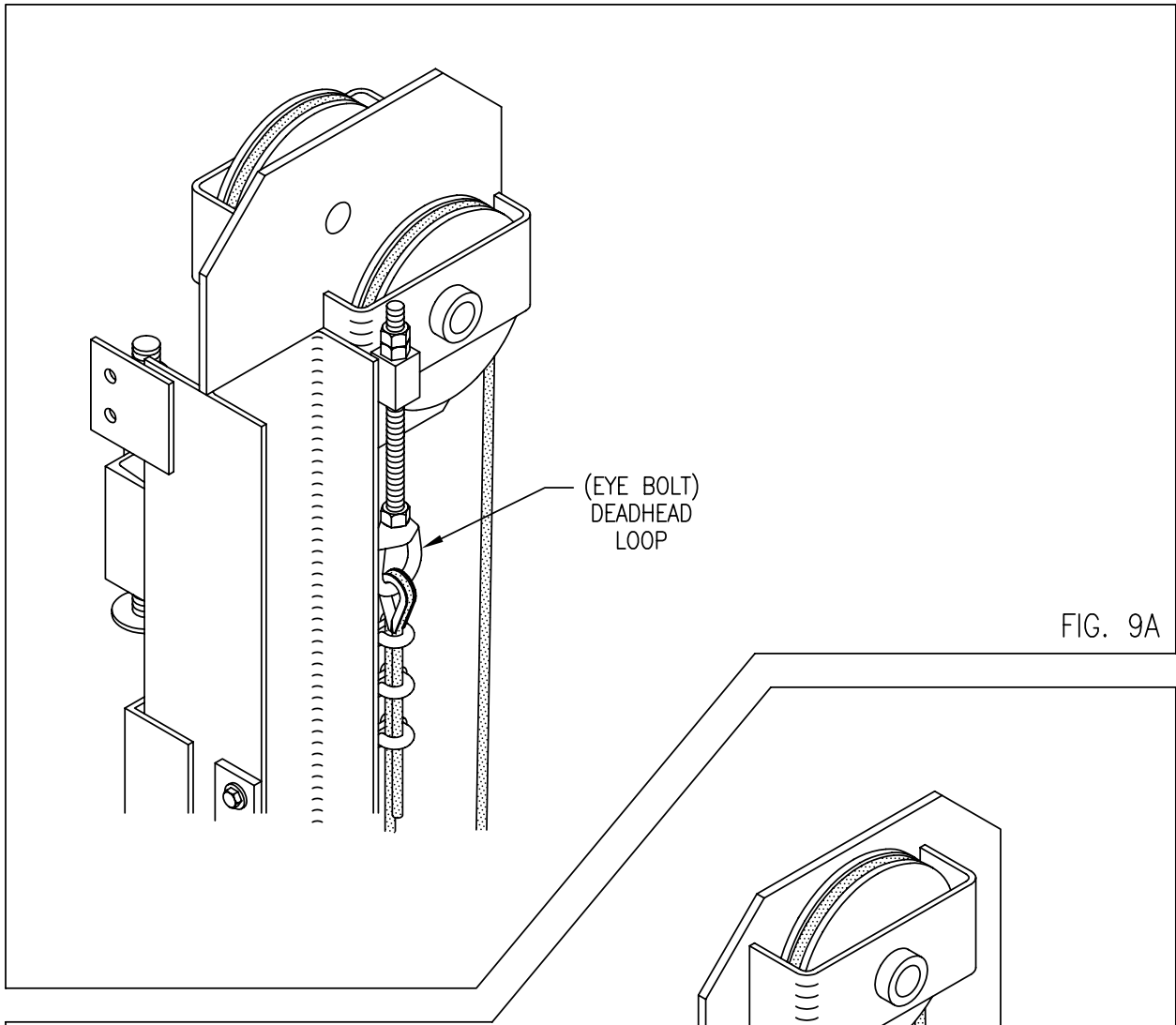


FIG. 9A

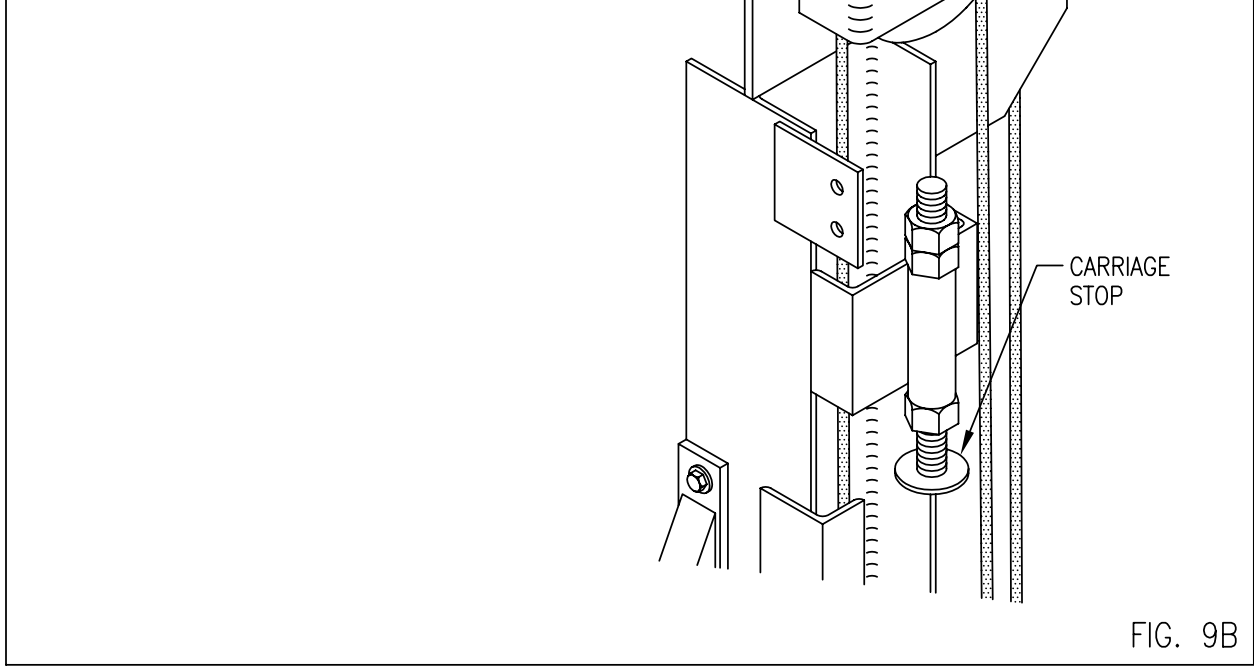


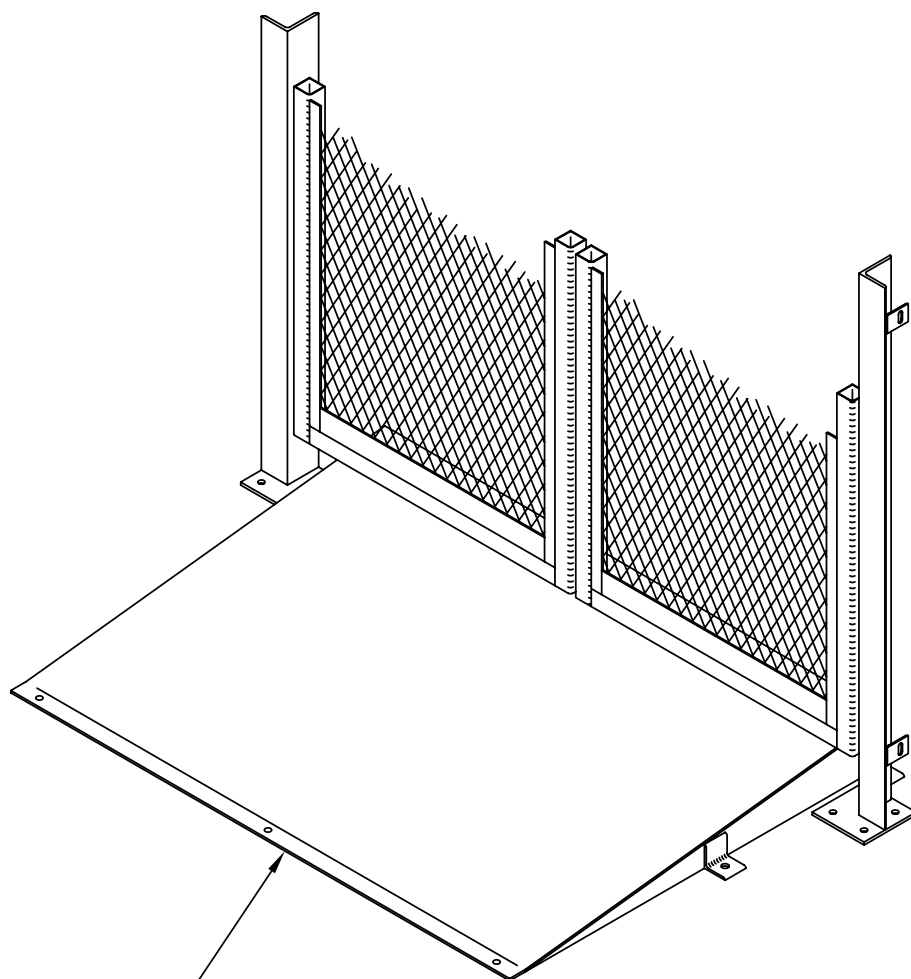
FIG. 9B

Ramp Option

1. When a ramp is provided, the gate over that ramp will need more clearance from the bottom of the gate panel to the floor than a standard gate. This additional space is required for the gate panels to clear the ramp.
2. Position the front edge of the ramp (highest edge) one (1) inch from the edge of the carriage platform.
3. Fasten the ramp to the floor using expansion bolts through the anchoring tabs at each corner of the ramp.

NOTE: *Lag screws should be used if mounting on a wood floor.*

REFER TO FIGURE #10



FOR UNEVEN FLOORS,
EDGE OF RAMP MAY
REQUIRE ADDITIONAL ANCHORING.

FIG. 10

Special Cantilever Lift Installation Instructions

1. Cantilevered units have the cylinders mounted inside the web of the main beam members. Cylinders are thus inboard, facing the center line of the carriage.
2. Guide angles on the beams should be toward the carriage side.

NOTE: *The guide shoes on the wheel blocks must be visible while standing on the carriage.*

3. Because the carriage is completely supported on one side of the main beams, the lateral loading imposed is much higher than on a standard straddle unit. Adequate bracing is a must.
4. Configurations on cantilevered lifts differ. Check your General Arrangement Drawing for bracing recommendations. Unit may be braced anywhere at the back or to the ceiling from the top of the main beams.

NOTE: *See Bracing Section of this manual for bracing options.*

CAUTION: *Cantilevered units must be securely braced and full welded before attempting to raise the carriage.*

5. Some units may have a free-standing back frame which is lagged to the floor to prevent the main beam from tipping. The free-standing back frame extends under the carriage and is attached to the inboard side of the main beam.
6. To position main support beams for cantilevered carriage configurations: Measure the distance between inside edges of vertical upright on carriage platform. This dimension less 2-5/8 inches equals the distance between the outside edge of the main beam guide angles.

REFER TO FIGURES #11, 11A, 11B

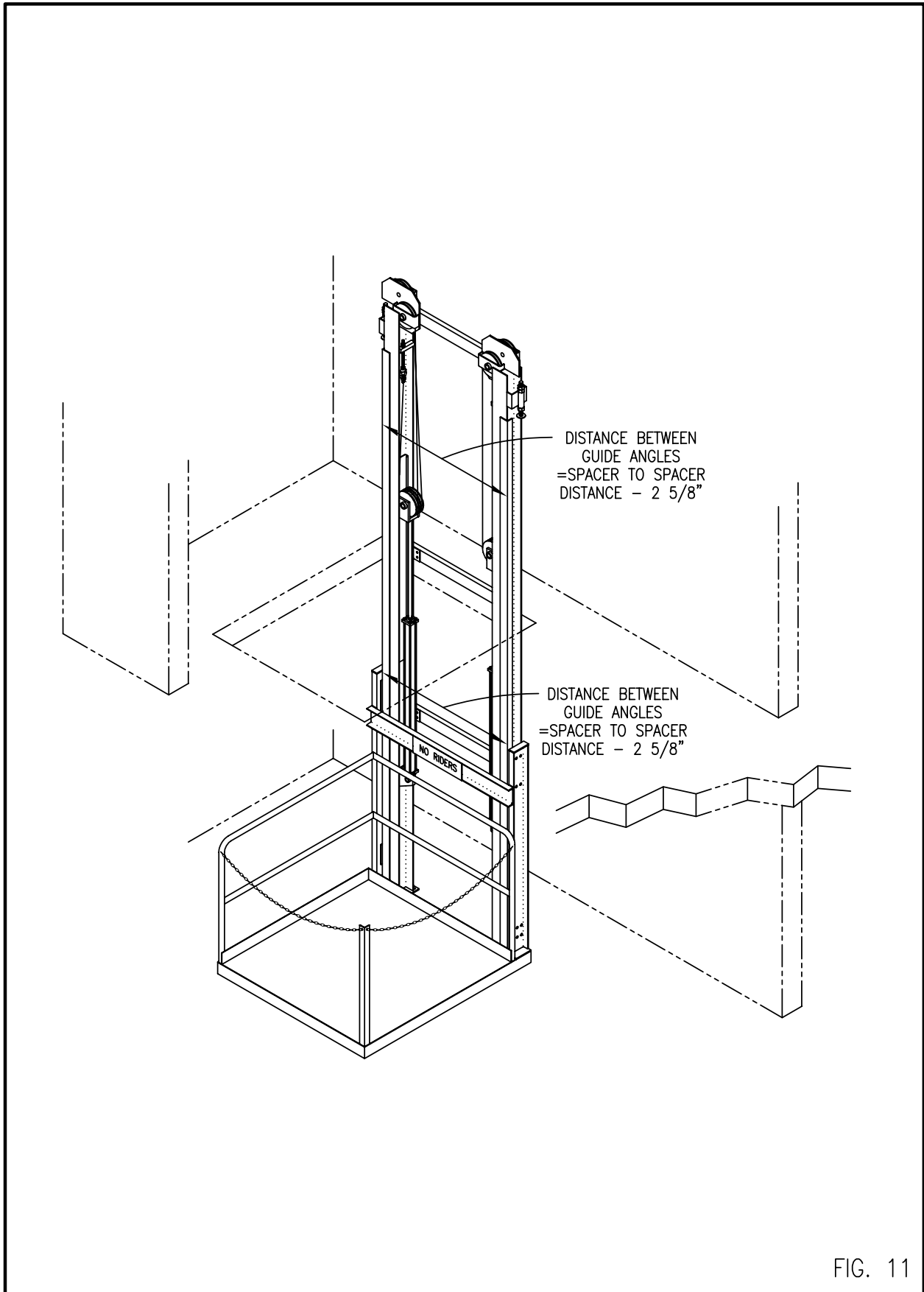


FIG. 11

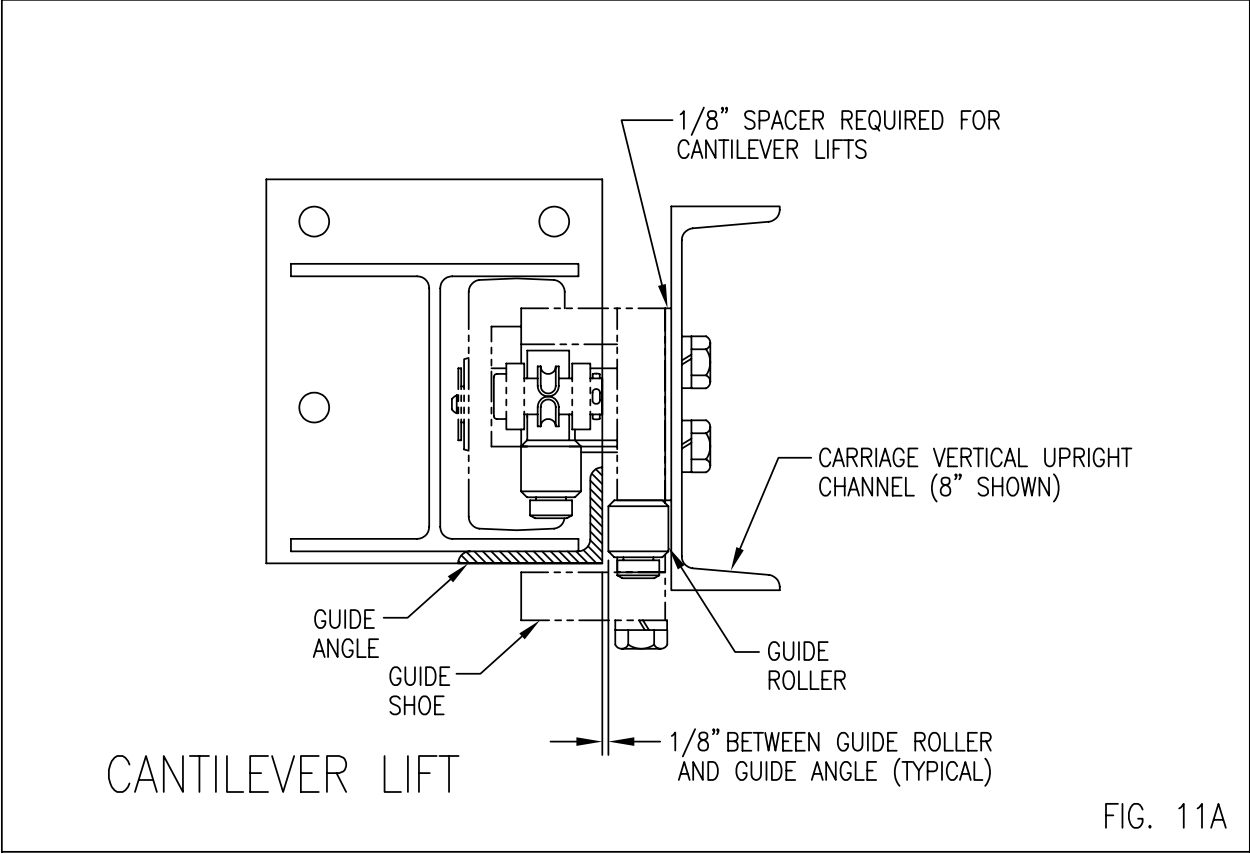


FIG. 11A

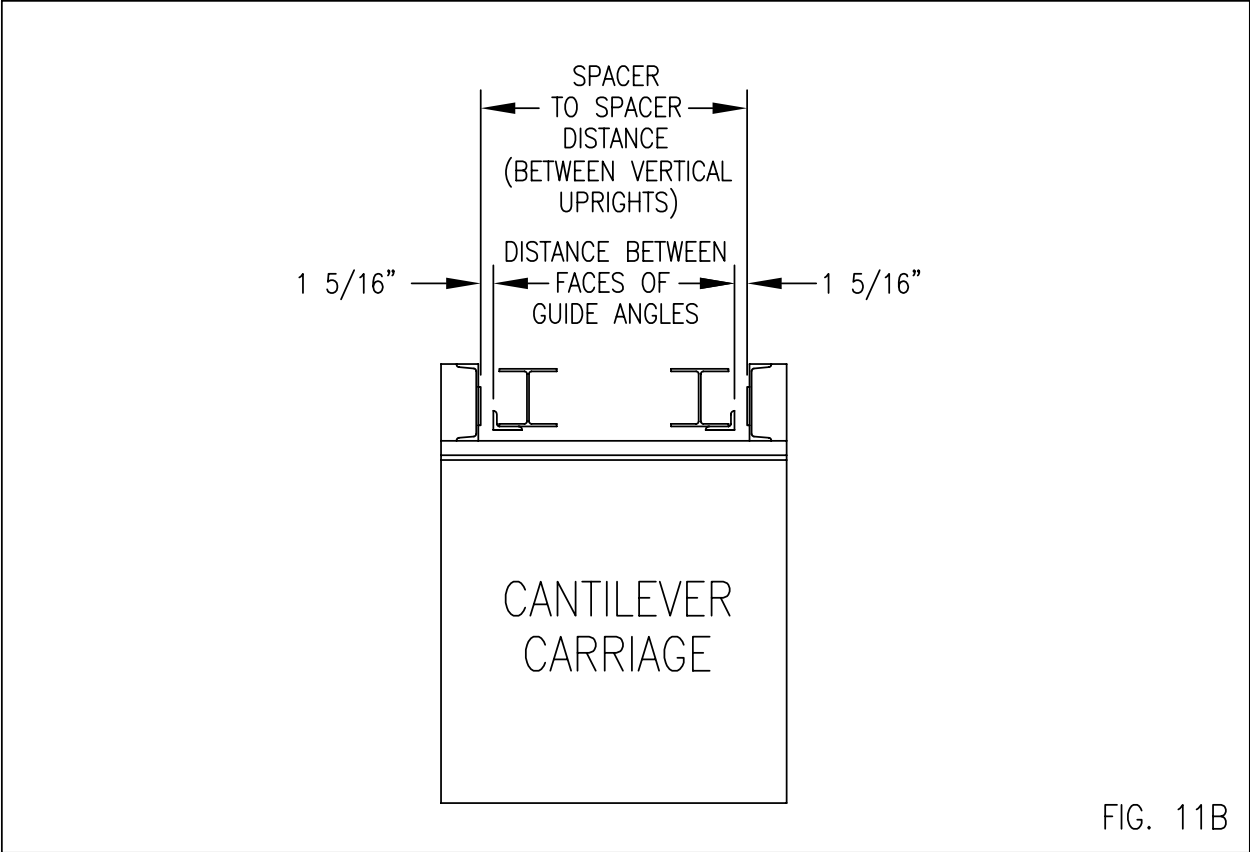
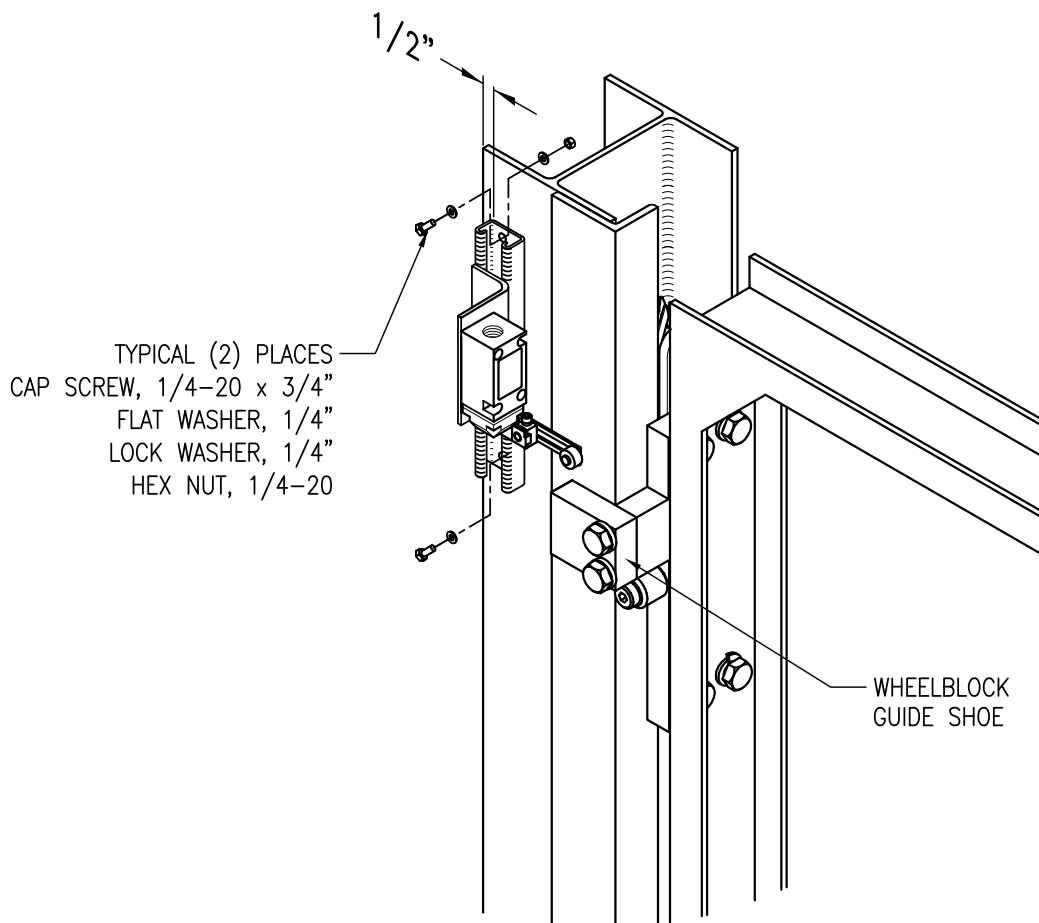
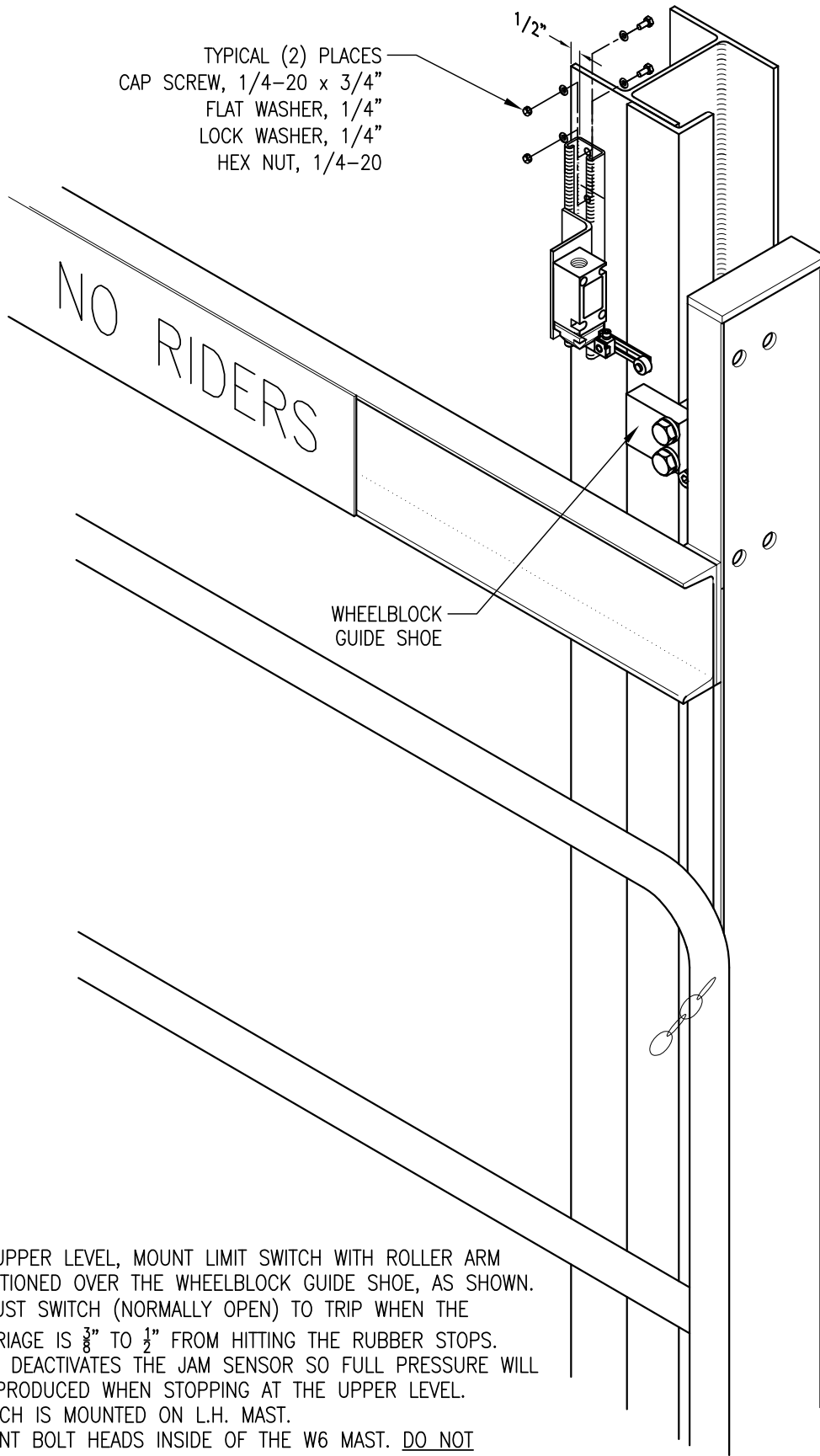


FIG. 11B

NOTE:

1. AT UPPER LEVEL, MOUNT LIMIT SWITCH WITH ROLLER ARM POSITIONED OVER THE WHEELBLOCK GUIDE SHOE, AS SHOWN.
2. ADJUST SWITCH (NORMALLY OPEN) TO TRIP WHEN THE CARRIAGE IS $\frac{3}{8}$ " TO $\frac{1}{2}$ " FROM HITTING THE RUBBER STOPS. THIS DEACTIVATES THE JAM SENSOR SO FULL PRESSURE WILL BE PRODUCED WHEN STOPPING AT THE UPPER LEVEL.
3. SWITCH IS MOUNTED ON L.H. MAST.





TYPICAL (2) PLACES
 CAP SCREW, 1/4-20 x 3/4"
 FLAT WASHER, 1/4"
 LOCK WASHER, 1/4"
 HEX NUT, 1/4-20

WHEELBLOCK
 GUIDE SHOE

NO RIDERS

1/2"

NOTE:

1. AT UPPER LEVEL, MOUNT LIMIT SWITCH WITH ROLLER ARM POSITIONED OVER THE WHEELBLOCK GUIDE SHOE, AS SHOWN.
2. ADJUST SWITCH (NORMALLY OPEN) TO TRIP WHEN THE CARRIAGE IS $\frac{3}{8}$ " TO $\frac{1}{2}$ " FROM HITTING THE RUBBER STOPS. THIS DEACTIVATES THE JAM SENSOR SO FULL PRESSURE WILL BE PRODUCED WHEN STOPPING AT THE UPPER LEVEL.
3. SWITCH IS MOUNTED ON L.H. MAST.
4. MOUNT BOLT HEADS INSIDE OF THE W6 MAST. DO NOT INSTALL THE NUTS ON THE INSIDE OF THE MAST.
5. MOUNT THE UNISTRUT ABOVE THE CARRIAGE CROSSMEMBER WHEN AT THE TOP LANDING.

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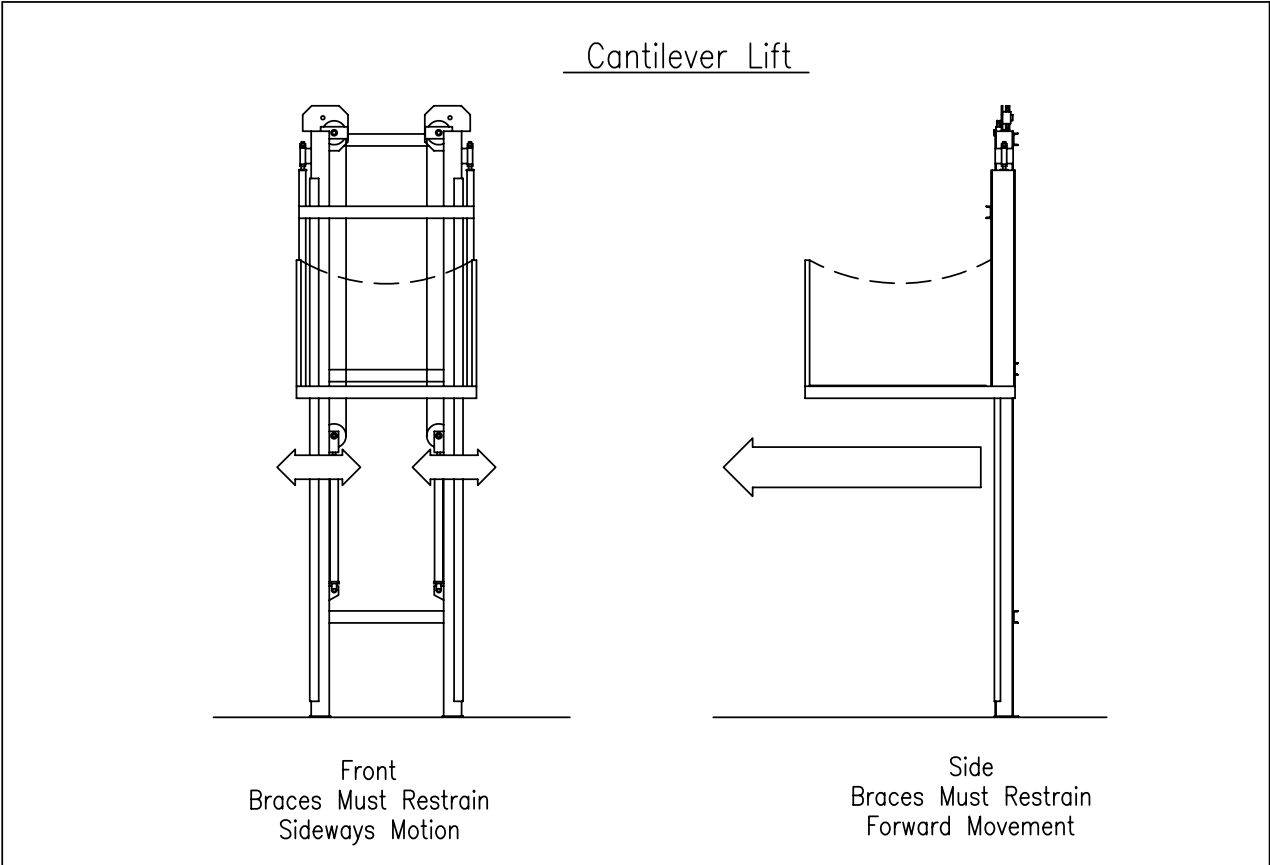
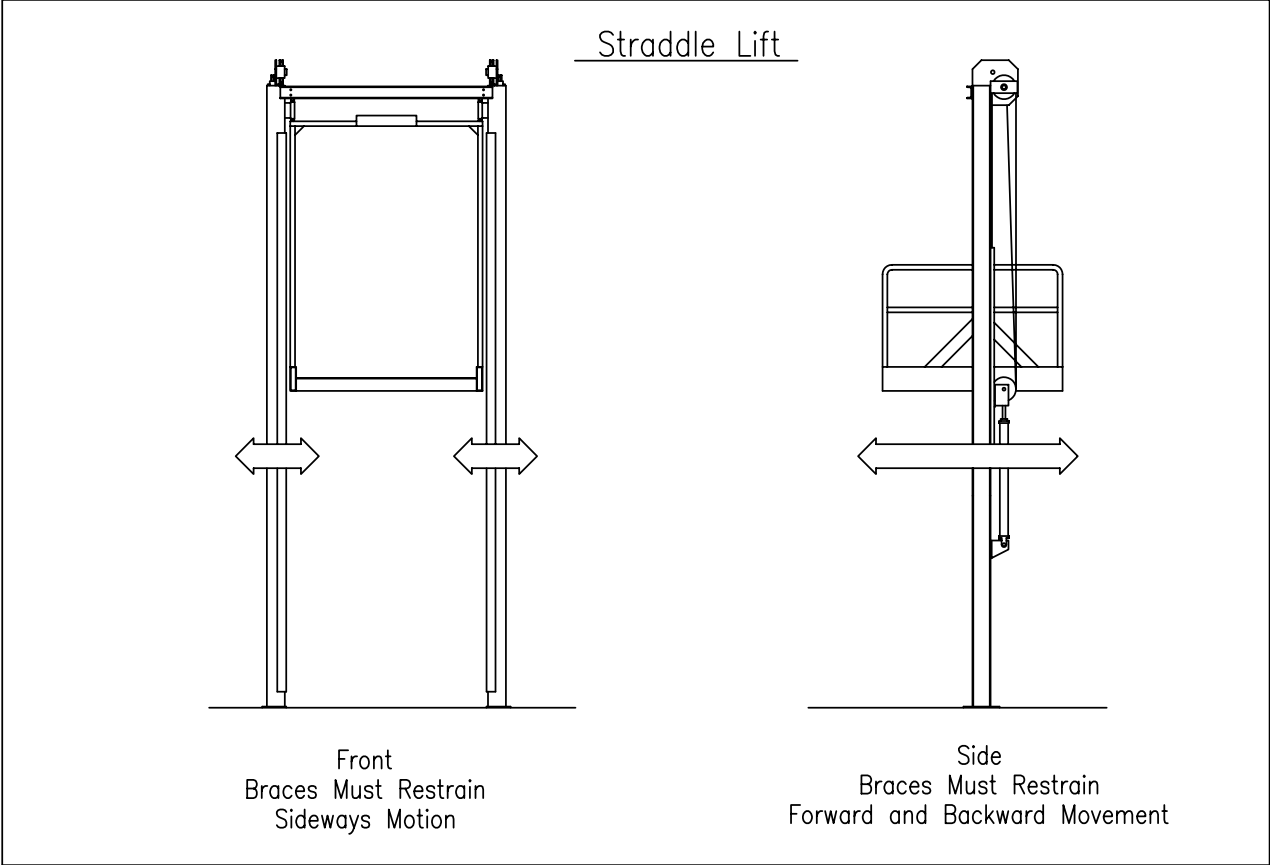
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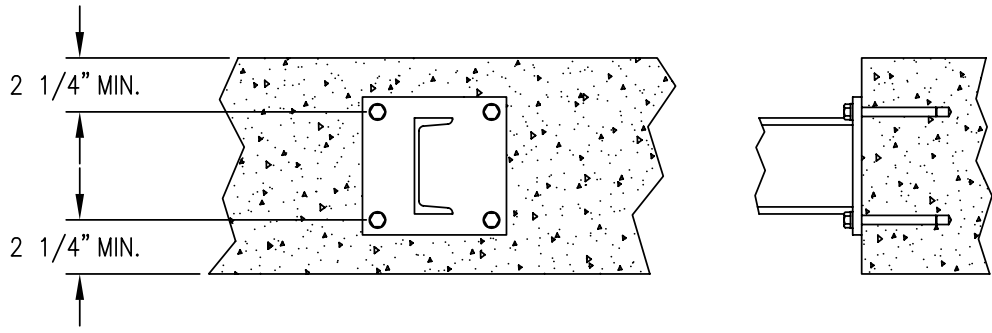
CARRIAGE TRIPPED LIMIT SWITCH
 FOR AUTOSEIZ HYDRAULIC, CANTILEVER



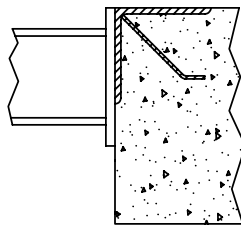
Section B: Bracing



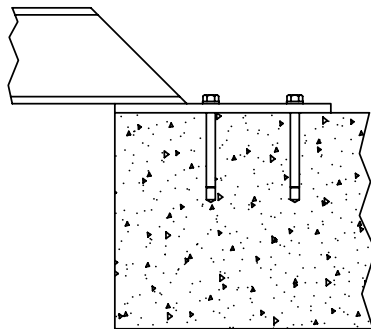
CONCRETE FLOORS



Anchored to Face of Floor

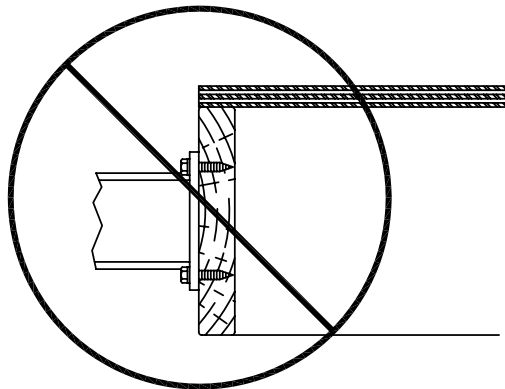


Welded to Embedded Angle

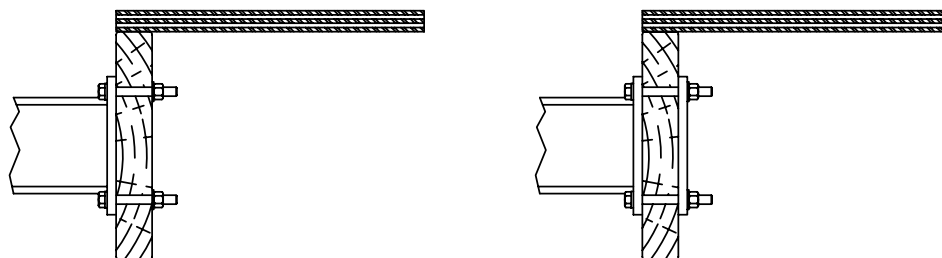


Anchored to Floor

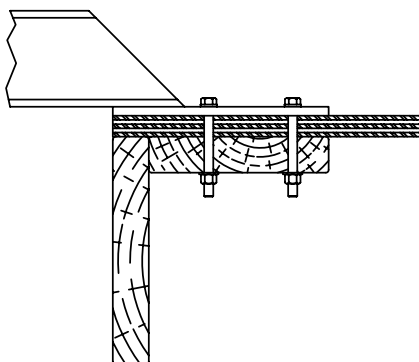
WOODEN FLOORS



Lag Bolted to Face of Floor – NOT PREFERRED

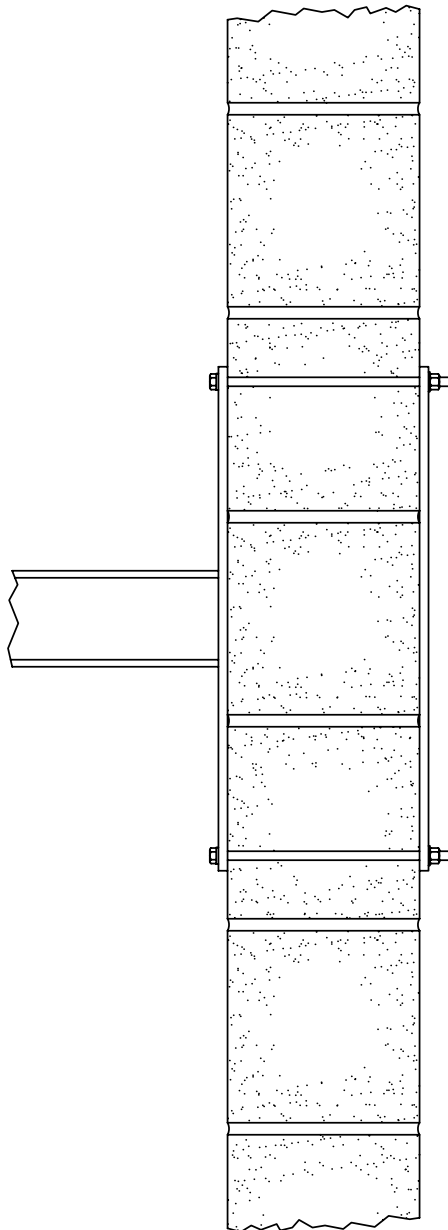


Through Bolted – Acceptable, but Recommend Using a Back Plate.



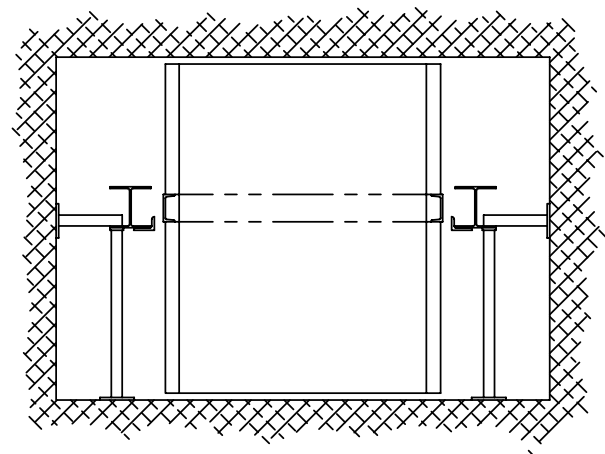
Bolted Thru Floor – Preferred

BLOCK WALLS

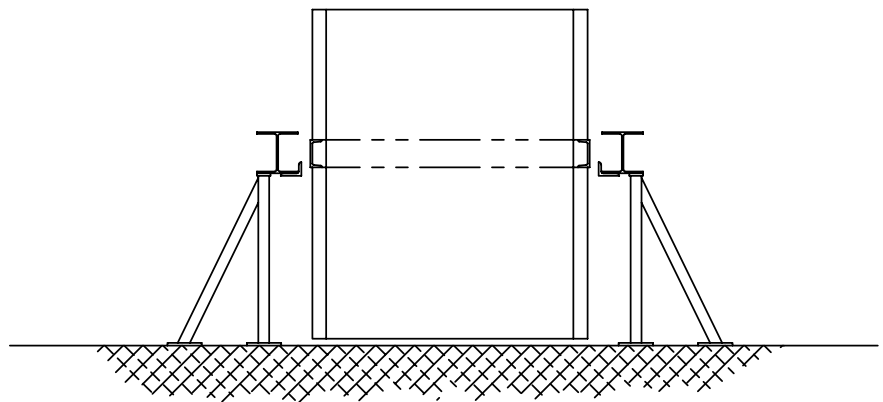


Through Bolted with a Back Plate
This is the PREFERRED WAY
to anchor to a block wall.

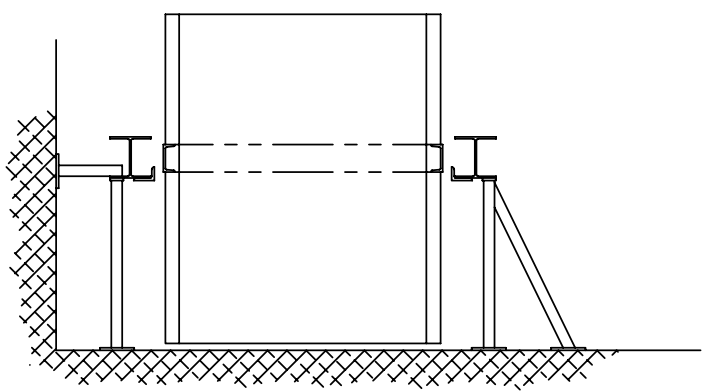
Straddle Lift Bracing Options



Thru Floor or Shaftway

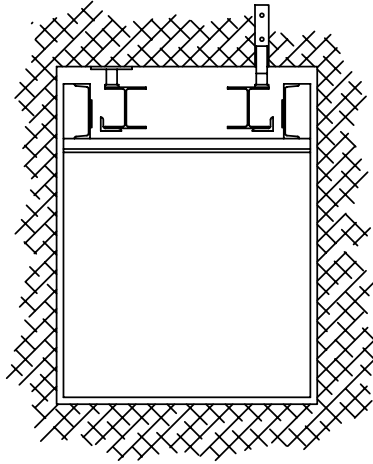


Against a Mezzanine

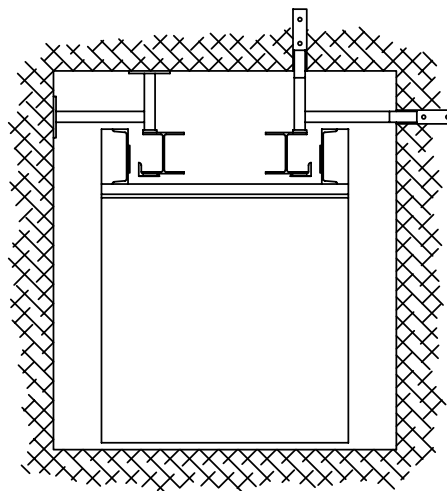


In a Corner

Cantilever Carriage Bracing Options

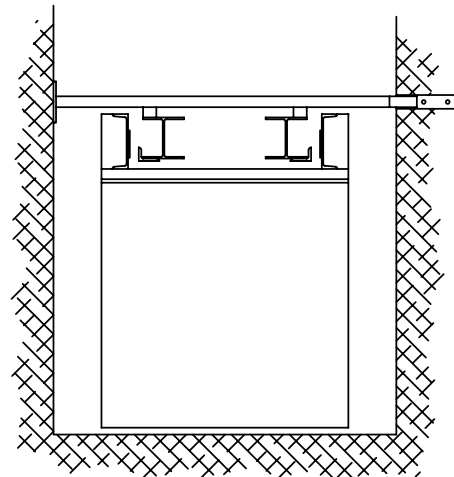


Standard Bracing



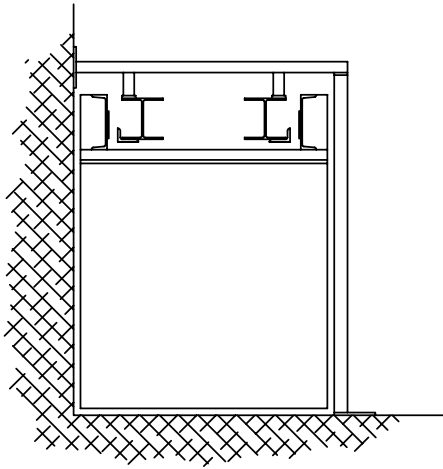
Oversized Cutout

Optional over the floor braces require 9" clear beyond the edge and/or opening.

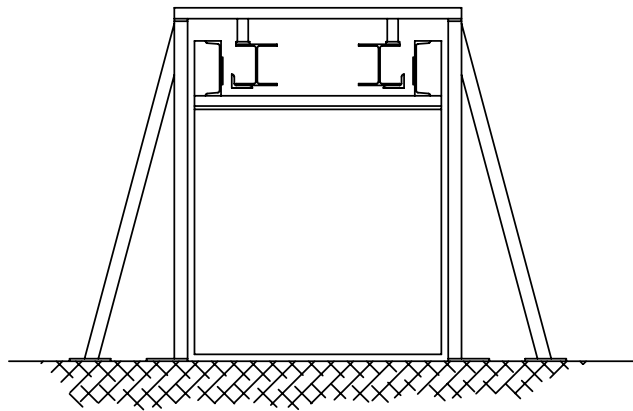


Bracing on 3 Sides

Cantilever Carriage Bracing Options

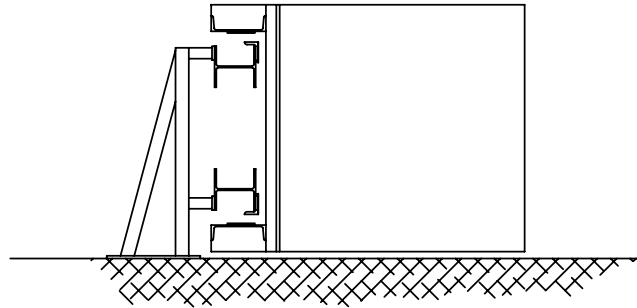


In a Corner

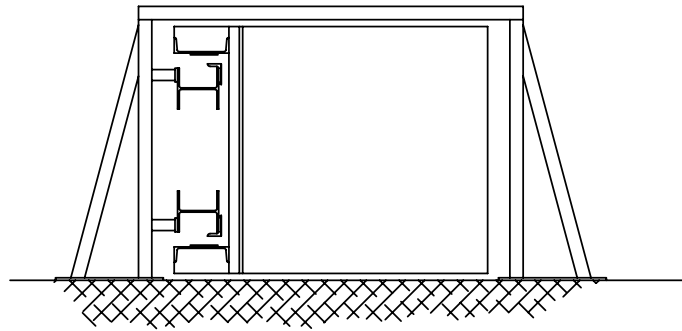


Against a Mezzanine

Cantilever Carriage Bracing Options

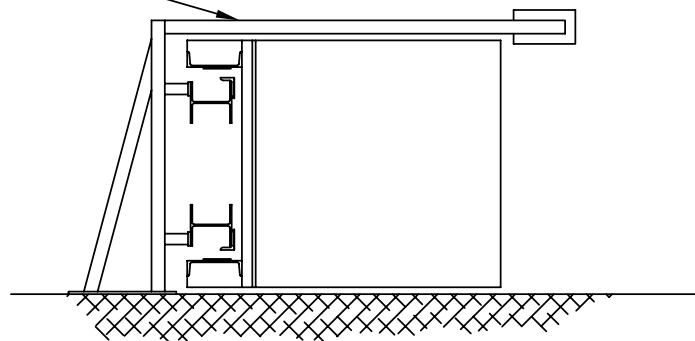


Against a Mezzanine – 1 Side Braced



Against a Mezzanine – Both Sides Braced

This brace slopes downward
from mezzanine level to
floor level



Against a Mezzanine – With Brace Anchored to Floor

Section C: Operations & Trouble-Shooting

C-1

Introduction

Wildeck® Inc. manufactures hydraulic vertical reciprocating conveyors to meet the highest product standards industrial users demand.

These specific features provide Wildeck Lift Product users with reliable performance and outstanding, long-life value:

- Ease of operation
- Adjustable mechanical stops
- Electrical protection
- Free-fall protection

WARNING: *YOUR WILDECK LIFT PRODUCT IS NOT DESIGNED OR AUTHORIZED FOR HUMAN CONVEYANCE.*

DO NOT ALLOW ANYONE ON THE CARRIAGE (LIFT PLATFORM) OR TO BE ENCLOSED WITHIN THE SAFETY GATE AND SCREENING PERIMETER WHILE OPERATING WILDECK LIFT PRODUCTS.

Be sure all employees designated to operate Wildeck Lift Products are thoroughly familiar with the contents of this manual before commencing operating procedures.

All Wildeck Lift Product operators should have immediate access to this manual.

Keep this manual clean and dry to maintain legibility of all information, drawings, and procedures.

Throughout Wildeck Service Manuals you will frequently find WARNINGS and CAUTIONS.

Please read all WARNINGS carefully and always obey all WARNING instructions to avoid the possibility of endangering yourself and others.

CAUTION information applies to possible equipment damage due to misuse and/or misapplication of Wildeck Lift Products.

REMEMBER: *The potential for personal injury can result from damaged and worn equipment even when Wildeck Lift Products are properly operated.*

Always keep Wildeck Lift Products properly maintained.

Never exceed lift capacity limits.

ALWAYS: *Maintain optimum weight distribution balance when lifting and lowering loads.*

CONTACT QUALIFIED SERVICE PERSONNEL IMMEDIATELY if damage is suspected or apparent prior to operating Wildeck Lift Products.

WARNING: *DO NOT TROUBLE-SHOOT OR SERVICE LIVE ELECTRICAL CIRCUITS.*

ALL ELECTRICAL MAINTENANCE AND REPAIR WORK MUST BE PERFORMED BY QUALIFIED CONTROLS ELECTRICIANS ONLY.

Wildeck, Inc. Also advises the presence of additional personnel qualified in first-aid training to be present while electrical work is performed.

Glossary

Each Hydraulic Lift consists of the following components and assemblies as described in the glossary.

Hydraulic Power Unit

Electric motor, gear-type hydraulic pump, fluid reservoir and associated lines, valves, wiring, switches, and filters.

Refer to Drawing Section, drawing #1353-IB

Carriage Platform

The movable platform upon which load material is located during lifting and lowering procedures.

Refer to Drawing Section, drawings #1004-IB Straddle
#1364-IB Cantilever

Main Frame

Two six (6) inch wide flange beam assemblies used for supporting and guiding carriage platform during operation.

Refer to Drawing Section, drawings #1078-IB Straddle
#1070-IB Straddle
#1083-IB Cantilever
#1084-IB Cantilever

Lower Wheel block Assembly

Two lower wheel blocks guide the carriage within main frame members during travel. Lower wheel blocks are bolted to upright channels on the carriage platform.

Refer to Drawing Section drawings #1075-IB Steel
#1074-IB Steel
#1071-IB Phenolic
#1041-IB Phenolic

Upper Wheel block Assembly

Two upper wheel blocks guide the carriage frame assembly within lift frame members. Upper wheel block assemblies also serve as a mounting point for wire rope cable, safety cam and are bolted to upright channel on the carriage platform.

Refer to Drawing Section drawings #1073-IB Steel
#1072-IB Steel
#1069-IB Phenolic
#1027-IB Phenolic

Lift Components

Matched set of hydraulic cylinders, sheave assemblies, and wire rope cable section.

Each hydraulic cylinder (drawing #1354-IB) is pin-mounted to a bracket welded to the main frame section.

➤ Sheave assemblies

Sheave assemblies mount to each cylinder piston rod and an upper main frame bracket creating a 4-to-1 lift ratio when reaved with wire rope cable.

Refer to Drawing Section, drawings #1086-IB Straddle
#1085-IB Straddle
#1120-IB Cantilever
#1119-IB Cantilever
#1077-IB All Units

➤ Slide shoes

Item 3, mount to the sheave assembly on piston rod end and guide the rod travel during operations.

Refer to Drawing Section, drawing #1077-IB

➤ Wire rope cable

Attached to the piston rod end and upper wheel blocks lift the carriage vertically when hydraulic cylinder rod retracts.

Refer to Drawing Section, drawings #1133-IB Straddle
#1134-IB Cantilever

Safety Gates And Enclosure

Safety gates and enclosures are located at each level and entrance to the carriage platform.

Electrical inter-connect switches on each gate prevent lift and lowering operations until each gate is closed and locked.

Gate doors remain closed and locked when the load is not at that level.

Refer to Drawing Section on Gates and Enclosures

Control Panel and Push Button Stations

Control panel mounted near the lift contains the transformer, programmed electronics, and componentry required for lift operation.

Push button stations at each level provide operation for **UP** (black), **DOWN** (green), and **EMERGENCY STOP** (red) operations.

Refer to Drawing Section, drawing #1111-IB Straddle (Also, see Interconnection Diagram section)

How It Works

Electrical Requirements

The motor on the Wildeck Lift Product power unit operates at plant voltage. The controls operate at 24-VAC. Standard plant voltage (usually 230/460V, three phase) is stepped-down to 24V by the control panel transformer.

Activating Push Button Stations

Spring release, momentary-contact type **UP** and **DOWN** buttons activate lift and lower functions, respectively, while appropriate button is fully depressed. Carriage movement will automatically stop when the desired level is reached.

The **EMERGENCY STOP** button is activated by pushing inward until a locking detent holds the button in position. The **EMERGENCY STOP** function is deactivated by pulling the button outward to its original position. The carriage platform will remain stationary until the **EMERGENCY STOP** button is deactivated and either the **UP** or **DOWN** button is pressed.

NOTE: *Safety gates must be closed and locked before the control circuit to the electric motor is completed.*

CAUTION: *Always be sure there are not obstructions or litter near any Wildeck Lift Product moving parts and components.*

WARNING: *NEVER EXCEED RATED LIFT CAPACITY.*

ALWAYS: *Maintain optimum weight distribution balance when lifting and lowering loads.*

Electric Motor Drives Hydraulic Pump

The power circuit to the electric motor is completed once the UP button is pressed, which magnetically closes high voltage contacts within the motor.

The rotating output shaft of the motor drives the meshed gears within the hydraulic pump housing which draw oil from the reservoir, force it past the line check valve through lines to the top of each hydraulic cylinder.

Hydraulic Cylinder Rod Movement Provides Height And Lift Capabilities

As the hydraulic cylinder rod retracts, the cable moves through the sheave configuration to produce carriage movement equal to approximately four times the amount of hydraulic piston travel.

The multiple-reduction provided by the sheave design provides the work force equal to the lift capacity rating of your Wildeck Lift Product.

Adjustable Mechanical Stops

When the carriage top frame contacts the stops at full height, the increased hydraulic pressure in the cylinders and feed lines is sensed by the pressure switch.

The actual pressure is indicated on the pressure gauge.

The pressure switch automatically activates, interrupting the electric control circuit to the motor starter, shutting off the pump unit.

The line check valve automatically closes once the pump stops and locks the hydraulic fluid in the lines and hydraulic cylinders.

Since there is no hydraulic fluid movement within the system, the carriage remains at the upper level. The pressure gauge reads zero because the fluid is static.

NOTE: *The same process occurs instantaneously when the **EMERGENCY STOP** button is activated.*

Refer to Drawing Section, drawing #1042-IB.

Down Button Activates Controlled-Gravity Lowering

The **DOWN** button energizes a solenoid on the dump valve enabling the valve to open. Hydraulic fluid in the cylinder and lines is forced back into the reservoir as the weight of the carriage causes the cylinder rod to extend.

The flow control valve restricts the rate of return oil flow to keep the descent speed of the carriage within allowable limits.

The return fluid flows through the oil filter before reaching the reservoir. Excess air escapes through the reservoir filler/breather cap.

Free-Fall Protection

Safety cams attached to upper wheel blocks will spring into “jam” position in the event of a cable break or an extremely slack cable condition.

Spring-activated, flow-monitoring velocity fuses installed in high-pressure hoses at the upper cylinder port will act as check valve in the event of a hydraulic hose rupture, severe crack, puncture, etc.

Operating Procedure

For safety and convenience:

POST COPIES OF OPERATING PROCEDURES AT EACH LEVEL OF OPERATION.

READ AND UNDERSTAND ALL WARNING AND CAUTION INFORMATION.

If at any time questions concerning operation or performance of Wildeck Lift Products, DO NOT OPERATE THE LIFT PRODUCT. Notify your supervisor and/or qualified maintenance personnel.

DO NOT HESITATE TO CALL WILDECK, INC. DIRECTLY WHENEVER QUESTIONS PERSIST OR CANNOT BE ANSWERED ON-SITE:

**Wildeck®Inc.
PO Box 89
405 Commerce Street, Waukesha, WI 53187
Telephone: 262/549/4000*Fax 262/549-7703**

Operating Instructions

- WARNING: *Do not ride on this equipment. Riding may result in death or serious injury.*
- WARNING: *Do not operate this lift if gate interlocks are damaged or not functioning properly.*
- CAUTION: *Do not exceed rated load capacity for the lift. Exceeding rated capacity can result in a dangerous operating condition.*
- ALWAYS: *Maintain optimum weight distribution balance when lifting and lowering loads.*
- NOTE: *Carriage will NOT raise or lower when safety gates are open.*
- NOTE: *Contact your supervisor if the carriage stops during travel or will not raise or lower when the gates are closed.*

Up Operation

Be sure all gates are closed. Press and release **UP** button to raise carriage. Carriage will stop at next upper level.

Down Operation

Be sure all gates are closed. Press and release **DOWN** button to lower carriage. Carriage will stop at next lower level.

Emergency Stop Operation

Press the **EMERGENCY STOP** button to stop the carriage between levels.

- NOTE: *The **EMERGENCY STOP** button will keep the lift inoperative until it is pulled back to its original position.*

Trouble-Shooting Procedures

A systematic trouble-shooting procedure will help reduce downtime should a problem occur.

A complete understanding of the How It Works section will help you make efficient trouble-shooting progress.

WARNING:

HIGH VOLTAGE! BE CAREFUL.

ONLY QUALIFIED CONTROLS ELECTRICIANS ARE TO INSPECT AND REPAIR WILDECK LIFT PRODUCTS' ELECTRICAL CIRCUITS.

ALL INSTRUCTIONS THAT APPLY TO ELECTRICAL PROCEDURES APPLY TO QUALIFIED ELECTRICIANS ONLY.

1. Faulty Dump Valve Performance

Listen carefully to the dump valve while the **DOWN** button is pressed. You should hear the dump valve “click” as it opens and closes. If the valve does not “click,” the valve may be defective.

➤ Procedure

- A. Use a voltmeter to determine if the dump valve solenoid is receiving current when the **DOWN** button is pressed. If not, check (A) operating condition of the timing relay switch, and/or (B) the motor starter contacts in the control circuit.
- B. If the solenoid is receiving current, it should be energized. Check the end of the pull solenoid with a screw driver for magnetic pull. Replace solenoid if no magnetic pull is evident.

2. Drifting Carriage

Normally the carriage may drift down from the raised position overnight, but should not drift during normal usage.

Trouble-Shooting Procedures, continued

- Procedure
 - A. Raise the carriage two (2) to four (4) feet. Lock out and tag main electrical disconnect.
 - B. Remove small return line hoses from reservoir Tee-Fitting.
 - 1. More than a few drops of oil from a hose indicates that it is bypassing piston seals.

If excessive bypass oil is found, restore power at the main disconnect and lower unit to floor.

Remove and disassemble the cylinder, clean all parts with recommended solvent, and, if necessary, install a Seal Repair Kit. See Recommend Spare Parts section.
 - 2. If it is not bypassing cylinder seals, reconnect hoses to Tee-Fitting and continue to Step 3.
 - C. Remove oil filter and check for bypass oil in the intake line.
 - 1. If oil is flowing from the intake line, then the dump valve should be checked for passing oil. Restore power at the main disconnect and lower unit to the floor. Remove solenoid coil and valve spool. Clean spool and seat with recommended solvent. Dry with lint-free cloth. Replace spool and coil and test. The dump valve must be replaced if problem continues.
 - 2. If oil is not leaking past dump valve, replace oil filter and proceed to Step 4.
 - D. Restore power at main disconnect and raise carriage two (2) to four (4) feet off the floor. Lock out and tag disconnect. Watch the top of the pump motor for movement of the fan blades. If movement is observed, oil is flowing through the pump, the line check valve is not seating. Follow these procedures:
 - 1. Remove and disassemble check valve. Look for broken spring and replace if required. Clean all parts with recommended solvent, re-assemble, and test.

Servicing Wildeck Lift Products

WE ADVISE: *Visual walk-around inspections prior to operation each day and./or at the beginning of each work shift to check for equipment damage and obstructions to moving parts.*

Visual inspection points:

1. *Electrical system—damaged control panel and buttons; frayed or loose wiring*
2. *Oil leaks—hydraulic cylinders, lines, fittings*
3. *Frayed or excessive wire rope wear*
4. *Be sure carriage deck is clean and dry*

Routine Maintenance Procedures

Wildeck Lift Products require scheduled maintenance such as lubrication, minor adjustments, and periodic inspection of key components.

We recommend that you establish a maintenance schedule system and keep a record of all maintenance activity. Refer to Schedule for suggested service intervals and to the Servicing Location Schematic Diagram.

Wire Rope Cables

Inspect for evidence of strand wear or breaking, kinking, and excessive corrosion. Be sure connections are tight and sheaves are not damaged.

Determine the degree of deterioration at the worst cable lay and at connections. This determines suitability for continued performance.

Hydraulic System Maintenance

Proper hydraulic fluid formulation and viscosity are extremely important for optimum performance. Use a premium quality, anti-wear type fluid for the best balance required by system components under operating conditions. (See enclosed Data Specifications sheets.)

A Saybolt viscosity of between 100 and 200 SSU at operating temperatures not exceeding 180° F is necessary.

Low prevailing ambient temperatures of below +20° F may increase the viscosity of hydraulic fluid and could adversely affect the system during starting and warm-up procedures.

Consult your oil supplier about the specific fluid to be used if persistent ambient extremes are unavoidable where your Wildeck Lift Product is located.

Hydraulic system cleanliness is vital to the life of hydraulic components. The filter element should be a high quality, 10-micron or finer rating. The filter should be changed as required to the Servicing Schedule.

Trouble-Shooting Procedures, continued

3. Activated controls do not start lift motor.

<u>SITUATION</u>	<u>RESPONSE</u>
A. Safety gates open:	Close gate(s).
B. Main electrical disconnect off:	Consult maintenance staff before turning on.
C. Thermal overload tripped:	Press reset button. Determine cause if it trips again. Motor is overheating.
D. Blown control fuse:	Determine cause. Replace fuse.
E. Power circuit between disconnect and starter is dead:	<u>WARNING:</u> Dangerous high voltage potential exists. Use extreme care when testing. Check voltage with voltmeter. Repair as needed.

4. Motor starts, carriage raises, but both stop before second level is reached.

<u>SITUATION</u>	<u>RESPONSE</u>
A. Safety gate(s) open:	Close gate(s).
B. Object encountered:	Remove, repair as required.
C. Piston interference:	Remove object, repair as required.
D. Thermal overload tripped:	Pump binding. Refer to Appendix for correction procedure.
E. Cable interference or cable off sheave:	Determine cause. Repair if cable is off sheave. Correct interference.

Trouble-Shooting Procedures, continued

- F. Pressure switch has activated: Pressure switch setting is too low. Lower lift and re-start, reading gauge for _____ PSI Maximum.
 (See Drawing #1353-IB for adjusting procedures.)

NOTE: *Pressure and relief settings are calibrated per specific loads and applications. Contact your local Wildeck Representative.*

Readjust if carriage stops at lower PSI setting. Turn nut on switch body clockwise.

- G. Unlevel carriage is jamming:
1. Faulty piston seals as indicated by excess oil bypass or at piston rod.
 2. Cable has slipped. Re-leave as needed and tighten clamps.

5. Motor and pump run, but carriage does not raise. No pressure indicated on gauge.

<u>SITUATION</u>	<u>RESPONSE</u>
A. Oil in reservoir is less than 3/4 full:	Add oil. Maintain at proper level.
B. Motor rotation is incorrect:	<u>WARNING:</u> <i>Dangerous high voltage potential exists. Use extreme care.</i> <i>Change two motor leads to correct problem.</i>

Trouble-Shooting Procedures, continued

- C. Relief valve setting is too low:
(See Drawing #1353-IB for adjusting procedures.)
- Turn valve clockwise to increase spring pressure.
- CAUTION:** *Do not over-tighten. Do not fully tighten as damage may result*
- D. Pump cavitating:
1. Oil supply too low. Fill reservoir.
 2. Oil too heavy. Change to proper viscosity.
 3. Clogged oil filter. Change filter.
 4. Plugged suction line. Clean.
- E. Relief valve stuck open:
- Contamination. Remove relief valve and clean or replace. Drain and flush system. Replace oil filter, re-evaluate oil filter replacement schedule.
- F. Dump valve energized or stuck open:
- WARNING:** *Harmful voltage potential exists. Use care.*
- Check wiring and pressure switch. Remove dump valve. Clean and replace if contaminated. Drain and flush system. Replace oil filter, re-evaluate oil filter replacement schedule.*

Trouble-Shooting Procedures, continued

6. Motor and pump run, but carriage does not raise. Erratic or low pressure shown on gauge.

<u>SITUATION</u>	<u>RESPONSE</u>
A. Oil is foaming:	<ol style="list-style-type: none"> 1. Loose fitting causing air to leak into suction line. Tighten fitting. 2. Low oil level. Add oil to proper level. 3. Water or incompatible oils causing foaming. Drain and replace with non-foaming oil.

7. Carriage raises but will not lower.

<u>SITUATION</u>	<u>RESPONSE</u>
A. Mechanical interference of cables or pistons:	Remove interference and or check for proper cable sheaving.
B. Safety cams actuated:	
C. Dump valve is not actuating:	See Faulty Dump Valve Performance, page 10 of Introduction Section of this manual.
D. Velocity fuse triggered:	Check for hose break or fitting leak. If none is found, attempt to increase cylinder pressure by pressing UP button.

8. Carriage drifts down from raised position (NOTE: Drift of a few inches overnight is normal.)

<u>SITUATION</u>	<u>RESPONSE</u>
A. Internal leak is causing slow pressure drop:	<ol style="list-style-type: none"> 1. Contamination is keeping check valve from seating. Refer to Faulty Dump Valve Performance on Page 10 for instructions.

Trouble-Shooting Procedures, continued

2. Contamination is keeping dump valve from seating. Refer to Faulty Dump Valve Performance on Page 10 for instructions.

3. If oil is flowing from return line when line is removed from Tee, then oil is bypassing piston seals.

Remove and clean with parts cleaner or solvent. Install Seal Repair Kit if necessary. See Recommended Spare Parts.

9. Carriage is spongy or bouncy.

SITUATION

A. Air in cylinders:

RESPONSE

Compressing air in system causes oil surge when dump valve opens.

CAUTION: *Do not raise carriage against stops until air is eliminated.*

Be careful not to allow lift to raise fully during this procedure.

10. Carriage lowers, but stops early.

SITUATION

A. Timing relay failures:

RESPONSE

Remove and replace.

B. Dump valve solenoid not de-energizing or dump valve is not closing:

Refer to Faulty Dump Valve Performance on Page 10 for complete instructions.

Trouble-Shooting Procedures, continued

11. Rough or noisy operation.

	<u>SITUATION</u>	<u>RESPONSE</u>
A.	Travel interference:	Remove obstructions or correct problem. Make repairs if required.
B.	Drive component interference:	Remove obstructions or correct problem. Make repairs if required.
C.	Worn wheel guide rollers:	Inspect, lubricate, and replace as needed. Determine cause and correct.
D.	Slide shoe rubbing against main beams:	Determine cause and correct.
E.	Carriage is not level:	Determine cause and correct.
F.	Interference between cables, sheaves, and beams:	Determine cause and correct.

12. Motor and pump keep running after pressure reaches the relief valve setting.

	<u>SITUATION</u>	<u>RESPONSE</u>
A.	Relief pressure set too low: (See Drawing 1353-IB for Adjusting Procedures.)	Re-adjust relief setting to ____ PSI. <i><u>NOTE:</u> Pressure and relief settings are calibrated per specific loads and applications. Consult your local Wildeck Representative.</i>
B.	Pressure switch setting too high:	Readjust pressure switch.
C.	Faulty pressure switch:	Replace switch.

Blank Page Provided For Your Notes

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Maintenance of Wire Rope

Rope Deterioration

Eventually, all wire ropes will deteriorate to a point where they are no longer serviceable. There are three (3) basic causes of wire rope deterioration. They are:

1. Abrasion or wear.
2. Corrosion.
3. Fatigue caused by the pulling, bending, crushing, or kinking forces applied to the rope during normal service.

None of the above causes of deterioration can be eliminated entirely. However, all three (3) can be minimized, thus ensuring the longest possible safe service life from the rope.

Wire Rope Inspection

The first step toward proper care of wire rope is an inspection schedule. All wire ropes used in critical service should be inspected on a regular periodic basis, preferably at least monthly. This inspection should be aimed at determining the degree of deterioration at the worst rope lay, since this will determine the suitability for continued service. By definition, a rope lay is the axial distance along the rope in which one (1) strand makes one (1) complete turn around the rope. The inspection should pay particular attention to the following:

1. Internal wear caused by grit penetrating between strands and wires.
2. Kinking.
3. Lubrication.
4. Corrosion.
5. Number of broken strands per lay.
6. The manner in which fittings are attached.
7. Condition of the sheaves over which the rope must pass.
8. The amount of wear on outer wires.

Wire Rope Replacement

Any evidence of serious rope deterioration from corrosion should cause consideration to be given to replacing the rope. More than one (1) broken wire in any one (1) strand should be cause for caution. Breaks occurring in the valley between adjacent strands are generally a warning of an abnormal condition, justifying action.

Any of the following conditions should cause the inspector to question the remaining strength of a rope and to give consideration to the possibility of replacing that rope.

1. If the core shows through more than one (1) pair of strands.
2. Kinking damage is severe.
3. Evidence of improper lubrication, combined with other defects.
4. Serious reduction in rope diameter.
5. Numerous broken wires or as many as three (3) adjacent broken wires in one (1) rope lay.

Wire Rope Maintenance

Wire rope is a machine. Each time a rope bends over a sheave or straightens from a slack position, many strands move or slide against each other. Lubrication is a necessity to prevent wear as a result of movement.

An equally important reason for correct lubrication is to prevent corrosion of wires and deterioration of the core.

CAUTION: *Rusty rope is dangerous, since there is no known method of inspecting such rope to determine the remaining strength.*

No set rule can be given concerning the frequency of lubrication. This will depend on the conditions to which the rope is subjected. The severity of the duty and the amount of corrosive elements to which the rope is subjected will have to serve as an index in determining the need for re-lubrication.

Summary

The subject of wire ropes is complex. It deals with questions to which there are not any definite answers. For example, how many operating hours (or production tons) can be expected from a set of hoist worn ropes? The answer to this question depends on many variables such as the condition of the blasted face, the material being excavated, the production techniques, etc.

More complete information on the care, inspection and maintenance of wire ropes can be obtained from any wire rope supplier or manufacturer.

Acceptable Hydraulic Fluids

Amoco	Rykon AW 32
Arco	Duro AW S-150
Benz	Petraulic 32
Chevron	EP 32
Citgo	AW 32
Exxon	Humble H32
Gulf	Harmony AW 32
Mobil	DTE 24
Shell	Tellus 32
Sun	Sunvis 616 WP
Texaco	Rando HD 32

Acceptable hydraulic fluids are not limited to the above list. Any hydraulic fluids meeting the following ISO viscosity grade (VG 32) are acceptable.

Properties	VG 32	
	VI (the 200 fluids are MEHF products)	100
KV at 100°C, cSt	5.36	7.16
KV at 40°C, cSt	32.0	32.0
Temperature for 860 cSt, °C	-7	-19
KV at 100 °C after 40 minutes Sonic, cSt, ASTM D 5621	-	6.26
KV at 80 °C after 40 minutes Sonic, cSt, ASTM D 5621	-	9.07
KV at 40 °C after 40 minutes Sonic, cSt, ASTM D 5621	-	28.0
VI after 40 minutes Sonic, cSt, ASTM D 5621	-	184
NFPA T2/13.13.2002 Grade	I,32-32	I,22-46

Definitions

ASTM	American Society for Testing and Materials
cSt	CentiStokes (mm ² /s)
ISO	International Organization for Standardization
KV	Kinematic Viscosity
MEHF	Maximum Efficiency Hydraulic Fluids
NFPA	National Fire Protection Association
VI	Viscosity

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Wildeck® Inc.
PO Box 89
405 Commerce Street Waukesha, WI 53187
Telephone: 262/549-4000 * Fax: 262/549-7703



MOOREFLO HYDRAULIC SDS

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product Name on Label: MOOREFLO HYDRAULIC OIL
 Other Identification: VISCOSITY GRADES 15, 22, 32, 46, 68, 100, 150 & 220
 Use of the substance/mixture: HYDRAULIC FLUID
 Company name : MOORE OIL COMPANY
 4033 WEST CUSTER AVE
 MILWAUKEE, WI 53209 (414) 462-3200
 Emergency number: (800) 424-9300 - CHEMTREC

SECTION 2: Hazards identification

Classification of the substance or mixture: Petroleum-Hydrocarbon-oil
 Label elements: N/A
 Other hazards: N/A
 Unknown acute toxicity (GHS-US): N/A

SECTION 3: Composition/information on ingredients

<u>OSHA PELL</u>		<u>ACGIH TLV</u>							
<u>WT%</u>	<u>NAME</u>	<u>CAS NO.</u>	<u>TWA</u>	<u>STEL</u>	<u>TWA</u>	<u>STEL</u>	<u>LDa</u>	<u>LCb</u>	
			mg/m ³		mg/m ³	mg/m ³			
25 to 99*	Lubricating oils Petroleum, hydrotreated spent	64742-58-1	5 ^c	N/A	5 ^c	10 ^{c,d}	N/A	N/A	(>2000mg/kg) ^d
0 to 75*	Residual oils Bright stock solvent-dewaxed	64742-62-7	5 ^c	N/A	5 ^c	10 ^{c,d}	>10000	N/A	(>2000) ^d
0 to 8*	Viscosity index Improver	N/A**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
0 to 1*	Zinc Dialkyldithiophosphates***	N/A**	N/A	N/A	N/A	N/A	N/A	N/A	N/A
< to 0.5	Methacrylate Copolymer	N/A**	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Even though the concentration range does not fall under the ranges prescribed by WHMIS, this is the actual range which varies with each batch of the product.

**Supplier advises that this is a trade secret. N/A= Not Available

^aOral-Rat LD 50 (mg/kg) ^bInhalation-Rat LC 50 ^cBased on Oil mist, mineral ^dSkin-Rabbit LD 50

SECTION 4: First aid measures

INHALATION Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Oxygen should only be administered by qualified personnel. Someone should stay with victim. Get medical attention if breathing difficulty persists.



MOOREFLO HYDRAULIC SDS

EYE CONTACT If irritation or redness from exposure to vapor develops, move away from exposure into fresh air. Upon contact, immediately flush eyes with plenty of lukewarm water, holding eyelids apart, for 15 minutes. Get medical attention.

SKIN CONTACT Remove affected clothing and shoes. Wash skin thoroughly with soap and water. Get medical attention if irritation or pain develops or persists. If product is injected under pressure into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, a physician should immediately evaluate the individual as a medical emergency.

SWALLOWING If spontaneous vomiting occurs, keep head below hips to avoid breathing the product into the lungs. Never give anything to an unconscious person by the mouth.

NOTE TO PHYSICIANS: Treat symptomatically and supportively. Treatment may vary with condition of victim and specifics of incident

SECTION 5: Fire-fighting measures

FLASH POINT (METHOD USED): 356oF (180oC) (minimum) Cleveland Open Cup

FLAMMABLE LIMITS IN AIR: Lower: Not Available Upper: Not Available

HAZARDOUS COMBUSTION PRODUCTS: Decomposition and combustion materials may be toxic. Burning may produce hydrogen sulfide, sulfides, alkyl mercaptans, aldehydes, nitrogen oxides, phosphorus oxides, sulfur oxides, nitrogen, carbon monoxide, and unidentified organic compounds.

AUTOIGNITION TEMPERATURE: Not Available.

CONDITIONS OF FLAMMABILITY: Heat, sparks or flame. Products may burn, but do not ignite readily.

FIRE FIGHTING INSTRUCTIONS: Keep storage containers cool with water spray. A positive-pressure, self-contained breathing apparatus (SCBA) and full-body protective equipment are required for fire emergencies.

FIRE AND EXPLOSION HAZARDS: Heated containers may rupture. "Empty" containers may retain residue and can be dangerous. Products are not sensitive to mechanical impact or static discharge.

HAZARD RATING	NFPA / HMIS CLASSIFICATION
0= LEAST	HEALTH HAZARD (BLUE) 1
1= SLIGHT	FIRE HAZARD (RED) 1
2= MODERATE	REACTIVITY (YELLOW) 0
3= HIGH	SPECIFIC HAZARD (WHITE) -
4= EXTREME	

SECTION 6: Accidental release measures

Remove all ignition sources. Do not touch or walk through spilled product. Stop leak if you can do it without risk. Wear protective equipment and provide engineering controls as specified in Section 9: Exposure Controls/Personal Protection. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area and avoid liquid for possible recovery, or sorb with compatible



MOOREFLO HYDRAULIC SDS

sorbent material and shovel with a clean tool into a sealable container for disposal. Additionally, for large spills: Dike far ahead of liquid spill for collection and later disposal.

SECTION 7: Handling and storage

Precautions for safe handling: Keep away from sparks or flame. Where flammable mixtures may be present, equipment safe for such locations should be used. Use clean tools and explosion-proof equipment. When transferring product, storage tanks, tanker trucks, and rail tank cars should be grounded and bonded. These products have a low vapor pressure and are not expected to present an inhalation hazard under normal temperatures and pressures. However, when aerosolizing, misting, or heating these products, do not breathe vapor or mist. Use in a well-ventilated area. Avoid contact with eyes, skin, clothing and shoes.

Conditions for safe storage, including any incompatibilities: Keep container tightly closed when not in use and during transport. Store containers in a cool, dry place. Do not pressurize, cut, weld, braze, solder, drill, or grind containers. Keep containers away from heat, flame, sparks, static electricity, or other sources of ignition. Empty product containers may retain residue and can be dangerous.

SECTION 8: Exposure controls/personal protection

Control parameters: Provide general ventilation needed to maintain concentration of vapor or mist below applicable exposure limits. Where adequate general ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below applicable exposure limits.

Exposure controls

RESPIRATORY PROTECTION: No respiratory protection is normally required. Use NIOSH-certified, air-purifying respirators with combination P- or R- series particulate filter and organic vapor cartridges when concentration of vapor or mist exceeds applicable exposure limits providing that the respirator's maximum use concentration is not exceeded. Consult an Industrial Hygienist for respirator selection guidance. Protection provided by air-purifying respirators is limited.

EYE PROTECTION: Wearing chemical goggles is recommended. Contact lens use is not recommended without eye protection.

SKIN PROTECTION: No skin protection is normally required. Where prolonged or repeated skin contact is likely, wear neoprene, nitrile (4 mil minimum) PVC (polyvinyl chloride) or equivalent protective gloves; use of natural rubber or equivalent gloves is not recommended. When products are heated and skin contact is likely, wear heat-insulating gloves, boots, and other protective clothing. To avoid prolonged or repeated contact where spills and splashes are likely, wear appropriate chemical-resistant face shield, boots, apron, coveralls, long sleeve shirts, or other protective clothing.

PERSONAL HYGIENE: Wash thoroughly with soap and water after handling product and before eating, drinking, or using tobacco products. Clean affected clothing, shoes, and protective equipment before reuse. Discard leather articles, such as shoes, saturated with these products.



MOOREFLO HYDRAULIC SDS

OTHER PROTECTIVE EQUIPMENT: Where spills and splashes are likely, facilities storing or using these products should be equipped with emergency eyewash equipped with clean water in the immediate work area.

SECTION 9: Physical and chemical properties

PHYSICAL STATE, APPEARANCE & ODOR:	Liquid, amber, petroleum odor
ODOR THRESHOLD:	Not available
MOLECULAR WEIGHT:	Not applicable
SPECIFIC GRAVITY: .	88(water=1) (approximately)
DENSITY:	7.3 LB/US gal (880 g/l) (approximately)
VAPOR DENSITY:	Not available
VAPOR PRESSURE:	less than 0.1 mm Hg at 68o F (20o C)
BOILING POINT:	475oF (246oC) (minimum)
FREEZING/MELTING POINT:	Not available [pour point 21oF (6oC)(max)]
pH:	Not applicable
EVAPORATION RATE:	Not available
SOLUBILITY IN WATER:	Insoluble
FLASH POINT:	356oF (180oC) (min) Cleveland Open Cup
FLAMMABLE LIMITS IN AIR:	
LOWER: Not available	UPPER: Not available
AUTOIGNITION TEMPERATURE: Not available.	

SECTION 10: Stability and reactivity

Reactivity: Polymerization is not known to occur under normal temperatures and pressures. Not reactive with water.

Chemical stability: Stable under normal temperatures and pressures.

Possibility of hazardous reactions: Avoid oxidizing agents, acids, or reactive halogens

Conditions to avoid (e.g., static discharge, shock, or vibration): Avoid heat, sparks, or flame.

Incompatible materials: Avoid oxidizing agents, acids, or reactive halogens

Hazardous decomposition products: None under normal temperatures and pressures.

SECTION 11: Toxicological information

SENSITIZATION: Based on best current information, there is no known human sensitization associated with these products.

MUTAGENICITY: Experimental evidence suggests that these products do not cause mutagenesis.

CARCINOGENICITY: Based on best current information, for the components listed in Section 2, there is no known carcinogenicity as regulated by OSHA; as categorized by ACGIH A1 or A2 substances; as categorized by IARC Group 1 Group 2A, or Group 2B agents; or as listed by NTP as either known carcinogens or substances for which there is limited evidence of carcinogenicity in humans or sufficient evidence of carcinogenicity in experimental animals.

REPRODUCTIVE TOXICITY: Based on best current information, there is no known reproductive toxicity associated with these products.

TERATOGENICITY: Based on best current information, there is no known reproductive toxicity associated with these products.



MOOREFLO HYDRAULIC SDS

TOXICOLOGICALLY SYNERGISTIC PRODUCT(S): Based on best current information, there is no known reproductive toxicity associated with these products.

SECTION 12: Ecological information

Eco-toxicity (aquatic and terrestrial, where available): N/A

Persistence and degradability: N/A

Bio-accumulative potential: N/A

Mobility in soil: N/A

Other adverse effects (such as hazardous to the ozone layer): N/A

SECTION 13: Disposal considerations

DISPOSAL: Dispose in accordance with federal, state, provincial, and local regulations. Regulations may also apply to empty containers. The responsibility for proper waste disposal lies with the owner of the waste. Contact Safety-Kleen regarding proper recycling or disposal.

USEPA WASTE CODES:

These products, if discarded, are not expected to be a characteristic or listed hazardous waste. If recycled in the USA, they must be managed in accordance with 40 CFR Part 279. Processing, use, or contamination by user may change the waste code(s) applicable to the disposal of these products.

SECTION 14: Transport information

UN number: NONE

UN proper shipping name: N/A

Transport hazard class(es): NONE

Packing group, if applicable: NONE

Environmental hazards (e.g., Marine pollutant (Yes/No)): NO

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): N/A

Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises: N/A

SECTION 15: Regulatory information

SARA SECTIONS 302, 304

BASED ON THE INGREDIENTS LISTED IN SECTION II, THESE PRODUCTS DO NOT CONTAIN ANY "EXTREMELY HAZARDOUS SUBSTANCES" LISTED PURSUANT TO III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) SECTION 302 OR SECTION 304 AS IDENTIFIED IN 40 CFR PART 355, APPENDIX A AND B.

SARA SECTIONS 311 AND 312

THESE PRODUCTS POSE THE FOLLOWING HEALTH HAZARDS AS DEFINED IN 40 CFR PART 370 AND ARE SUBJECT TO THE REQUIREMENTS OF SECTIONS 311 AND 312 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA)

IMMEDIATE (ACUTE) HEALTH HAZARD

DELAYED (CHRONIC) HEALTH HAZARD

SARA SECTION 313

THESE PRODUCTS CONTAIN A "TOXIC" CHEMICAL SUBJECT TO THE REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986(SARA)AND 40 CFR PART 372.



MOOREFLO HYDRAULIC SDS

MATERIAL

Zinc dialkylldithiophos

CAS NO.

N.Av.

CERCLA

BASED ON THE INGREDIENTS LISTED IN SECTION II, THESE PRODUCTS DO NOT CONTAIN ANY "HAZARDOUS SUBSTANCES" LISTED PURSUANT TO THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT OF 1980 (CERCLA) IN 40 CFR PART 302, TABLE 302

TSCA ALL THE COMPONENTS OF THESE PRODUCTS ARE LISTED ON, OR ARE EXEMPTED 75- UCTS) ANTHRACENE

CALIFORNIA

THESE PRODUCTS MAY CONTAIN DETECTABLE AMOUNTS OF ACETALDEHYDE CAS 7440-38-2, BENZENE CAS 71-43-2, 1, 3-BUTADIENE CAS 106-99-0, CADMIUM CAS 7440-43-9, AND LEAD CAS 7439-92-1 FROM ADDITIVES. THESE PROD MAY CONTAIN DETECTABLE AMOUNTS OF BENZO (A)ANTHRACENE CAS 56-55-3, BENZO(K)FLUORANTHENE CAS 207-08-9, BENZO(A)PYRENE CAS 50-32-8, BENZO(B)FLUORANTHENE CAS 205-99-2, CHRYSENE CAS 218-0 DIBENZ(A,HCAS 53-70- 3, AND INDENO(1,2,3-CD) PYRENE CAS 193-39-5.

WARNING: THESE CHEMICALS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER. OUR TESTING OF THESE PRODUCTS INDICATES THAT THESE CHEMICALS ARE NOT ALWAYS DETECTABLE. THESE PRODUCTS MAY CONTAIN DETECTABLE AMOUNTS OF ARSENIC CAS 7440-38-2, BENZENE CAS 71-43-2, CADMIUM CAS 7440-43-9, AND LEAD CAS 7439-92-1 FROM ADDITIVES.

WARNING: THESE CHEMICALS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

CANADIAN REGULATIONS

THESE PRODUCTS HAVE BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CONTROLLED PRODUCTS REGULATIONS (CPR) AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

WHIMS NOT REGULATED.

CANADIAN ENVIRONMENTAL PROTECTION ACT

ALL THE COMPONENTS OF THESE PRODUCTS ARE LISTED ON, OR ARE EXEMPTED FROM THE REQUIREMENT TO BE LISTED ON, THE CANADIAN DOMESTIC SUBSTANCES LIST (DSL).

SECTION 16: Other information

The information in this Safety Sheet was obtained from sources which we believe are reliable. HOWEVER, THE INFORMATION IS PROVIDED WITHOUT ANY WARRANTY, EXPRESS OR IMPLIED, REGARDING ITS CORRECTNESS. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. FOR THIS AND OTHER REASONS, WE DO NOT ASSUME RESPONSIBILITY AND EXPRESSLY DISCLAIM LIABILITY FOR LOSS, DAMAGE OR EXPENSE ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE HANDLING, STORAGE, USE OR DISPOSAL OF THE PRODUCT. This safety sheet was prepared and is to be used only for this product. If the product is used as a component in another product, this safety sheet information may not be applicable.

Section D: Straddle Servicing & Parts

1.) Observe cycle or days schedule based on whichever comes first.
 2.) Use Lithium axle grease.
 3.) Use non-detergent, petroleum base SAE 30 oil.
 4.) Anti-wear with 100-200 viscosity.
 (See Material Safety Data Sheet Bulletins)
 5.) 10 micron or less.

MAINTENANCE SCHEDULE						
	CYCLES/DAYS ¹	ADJUST	INSPECT	LUBRICATE	ITEM	DUTY
1	2000/90	/	/	/	MAIN BEAM SHEAVES	GREASE THROUGH FITTINGS. ² INSPECT FOR WEAR.
2	2000/90	/	/	/	PISTON SHEAVES	GREASE THROUGH FITTINGS. ² INSPECT FOR WEAR.
3	3000/90	/	/	/	WIRE ROPE	INSPECT FOR WEAR/DAMAGE COAT WITH OIL. ³
4	2000/90	/	/	/	CABLE CLAMPS/DEADHEAD	TIGHTEN NUTS.
5	2000/90	/	/	/	WHEELBLOCK WHEELS	GREASE THROUGH FITTINGS. ² INSPECT FOR WEAR.
6	2000/90	/	/	/	GUIDE ROLLERS	INSPECT FOR WEAR AND ROTATION INTERFERENCE.
7	2000/90	/	/	/	SAFETY CAMS	INSPECT FOR WEAR OR DAMAGE.
8	2000/90	/	/	/	CYLINDER FITTINGS/HOSES	INSPECT FOR WEAR/LEAKS. TIGHTEN FITTINGS.
9	1000/30 6000/180	/	/	/	MOTOR PUMP FILTER	CHANGE AFTER FIRST 1000/30 THEN 6000/180 THEREAFTER.
10	1 YR.	/	/	/	RESERVOIR	DRAIN AND CLEAN TANK CHANGE OIL ⁴ AND FILTER. ⁵

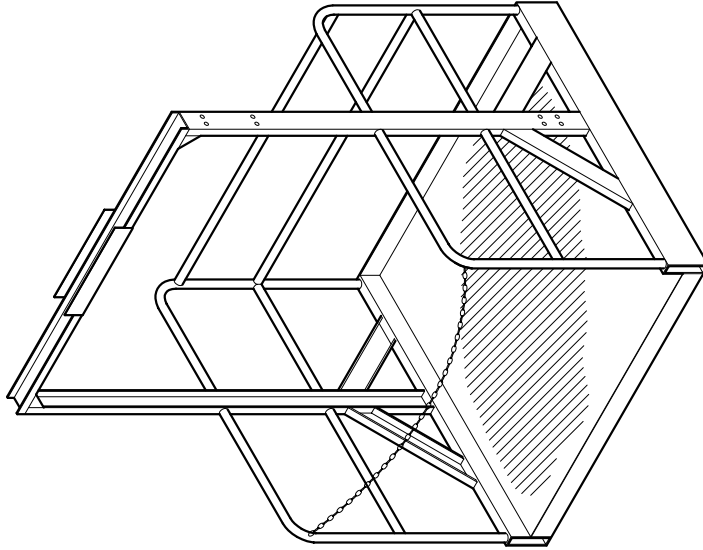
MAINTENANCE SCHEDULE & LOCATION
DIAGRAM FOR HYDRAULIC STRADDLE

DATE: 11-1-91
DRN BY: DFK

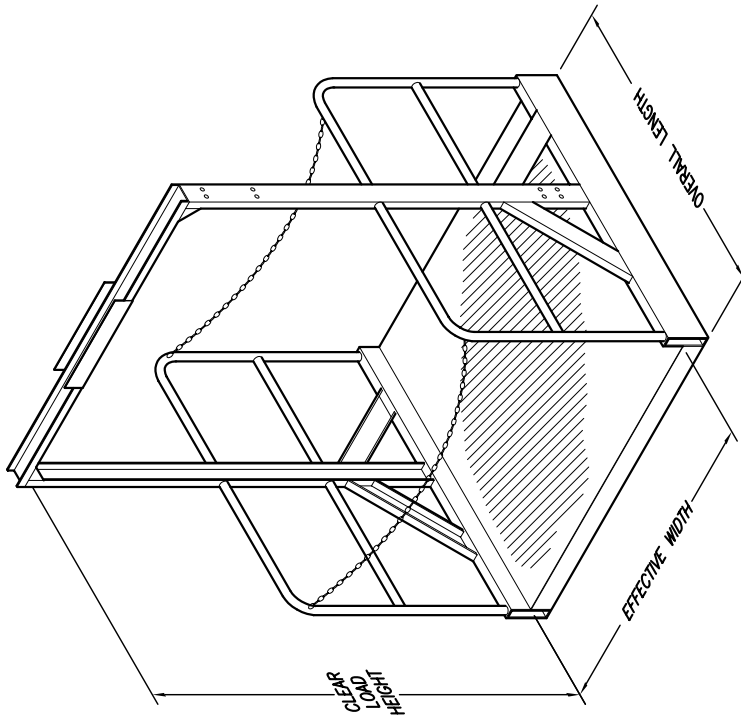
1100

REV 1





"C" LOAD CARRIAGE

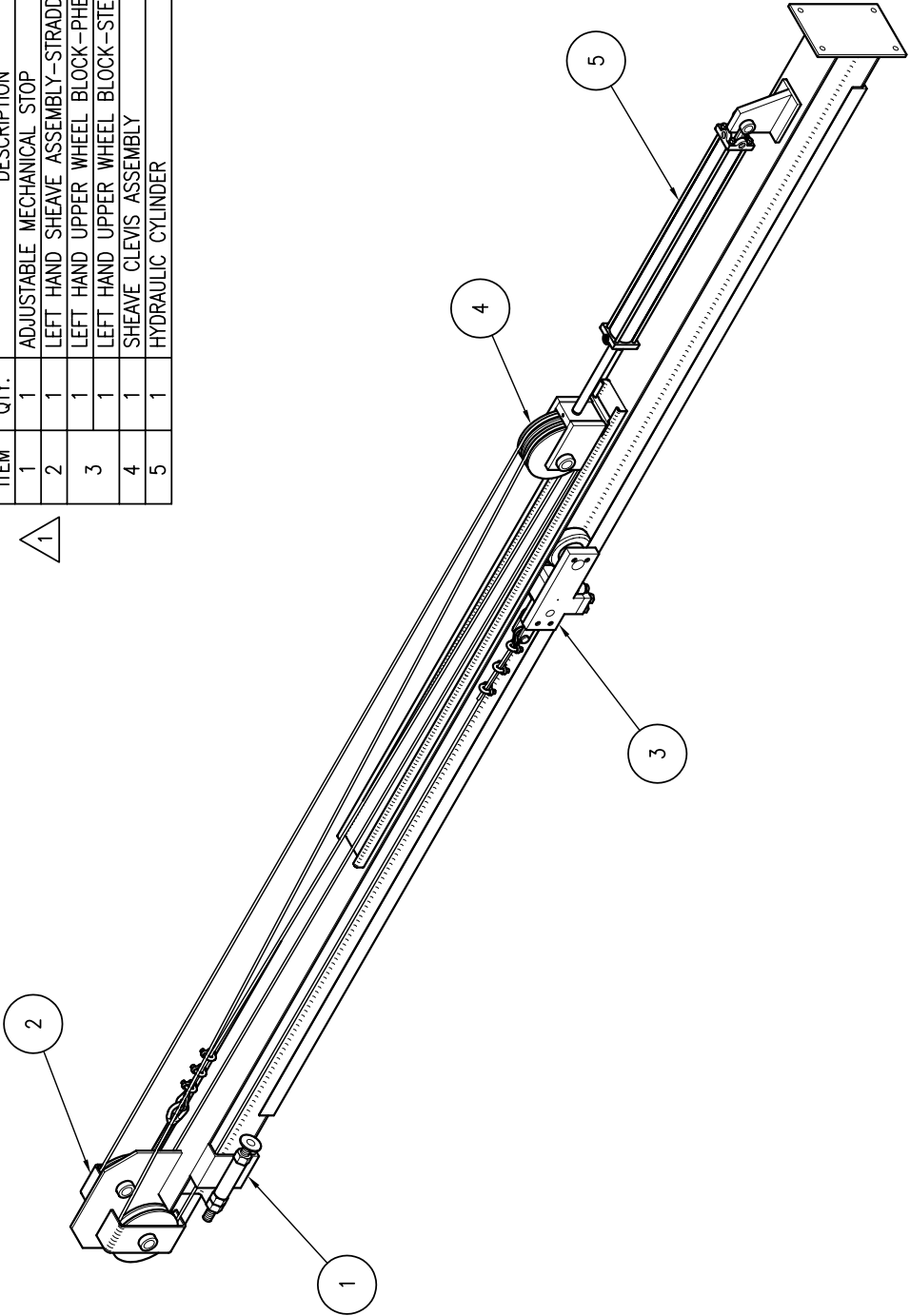


"Z" LOAD CARRIAGE

	DATE: 10-21-91	REV
	DRN BY: DFK	1004

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	ADJUSTABLE MECHANICAL STOP	1042-IB	
2	1	LEFT HAND SHEAVE ASSEMBLY-STRADDLE	1085-IB	
3	1	LEFT HAND UPPER WHEEL BLOCK-PHENOLIC	1069-IB	
4	1	LEFT HAND UPPER WHEEL BLOCK-STEEL	1073-IB	
5	1	SHEAVE CLEVIS ASSEMBLY	1077-IB	
	1	HYDRAULIC CYLINDER		



△ 1 REVISED 02/07/94 ADDED 10" SHEAVES.



LEFT HAND BEAM ASSEMBLY FOR STRADDLE LIFT

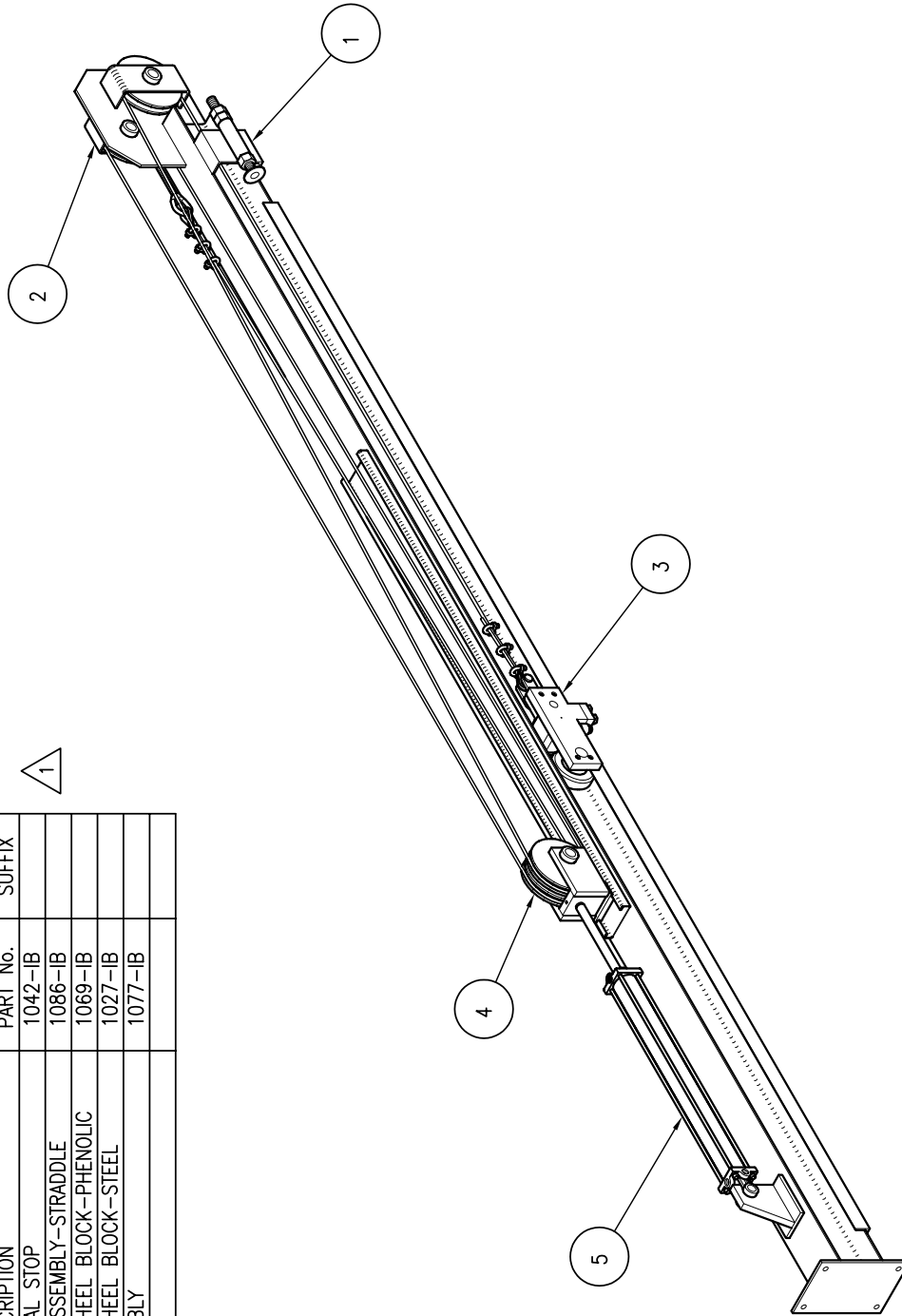
DATE: 10-30-91
DRN BY: DFK

1070

REV 1

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	ADJUSTABLE MECHANICAL STOP	1042-IB	
2	1	RIGHT HAND SHEAVE ASSEMBLY-STRADDLE	1086-IB	
3	1	RIGHT HAND UPPER WHEEL BLOCK-PHENOLIC	1069-IB	
	1	RIGHT HAND UPPER WHEEL BLOCK-STEEL	1027-IB	
4	1	SHEAVE CLEVIS ASSEMBLY	1077-IB	
5	1	HYDRAULIC CYLINDER		



△ 1. REVISED 02/07/94 ADDED 10" SHEAVES.



RIGHT HAND BEAM ASSEMBLY
FOR STRADDLE LIFT

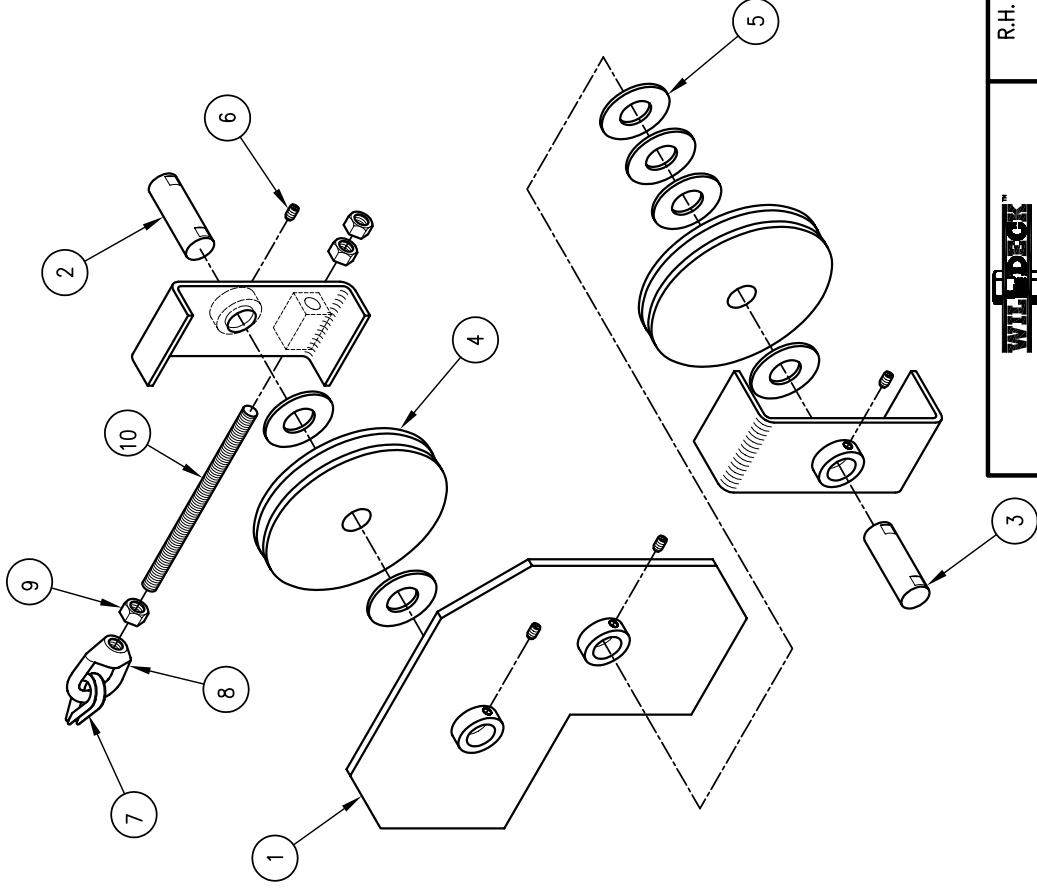
DATE: 10-30-91
DRN BY: DFK

1078

REV 1

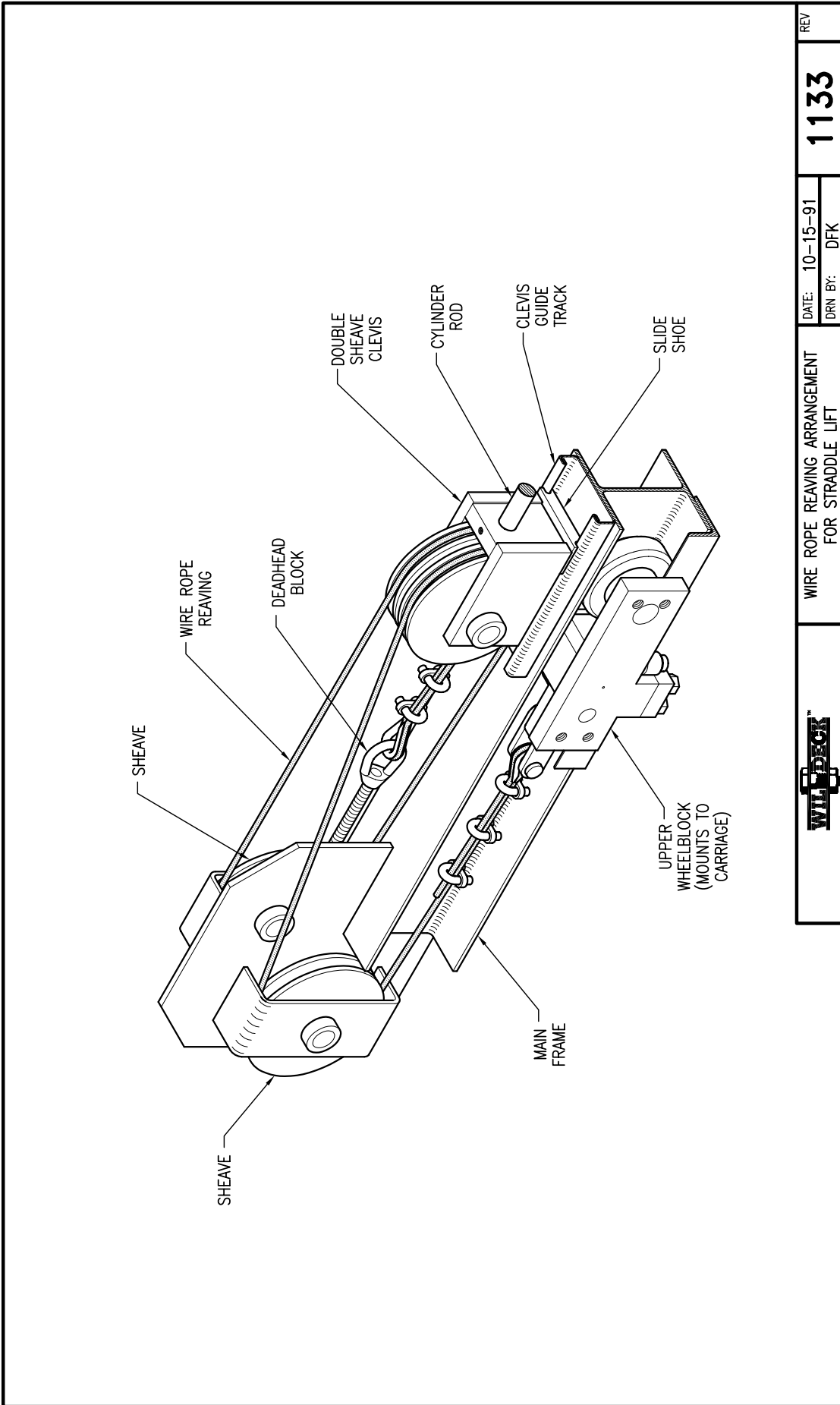
BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	8" SHEAVE BRACKET -R.H.	1010-A	
1	1	10" SHEAVE BRACKET -R.H.	1463-A	
1	1	PIN, 8" IDLER SHEAVE	1005-A	
2	1	PIN, 10" IDLER SHEAVE	1461-A	
3	1	PIN, 8" LIFT SHEAVE	1005-A	
3	1	PIN, 10" LIFT SHEAVE	1461-A	
4	2	8" SHEAVE ASSEMBLY W/BEARING	1044-A	
4	2	10" SHEAVE ASSEMBLY W/BEARING	1665-A	
5	6	SHEAVE THRUST WASHER	1035-A	
6	4	SHSS, 3/8-16 1/4" LG.		
7	1	3/8" WIRE ROPE THIMBLE	1034-A	
8	1	EYE NUT, 5/8-11 STANDARD DUTY - GALV.		
9	3	HEX NUT, 5/8-11		
10	1	THREADED ROD, 5/8-11 UNC x 10" LG.		



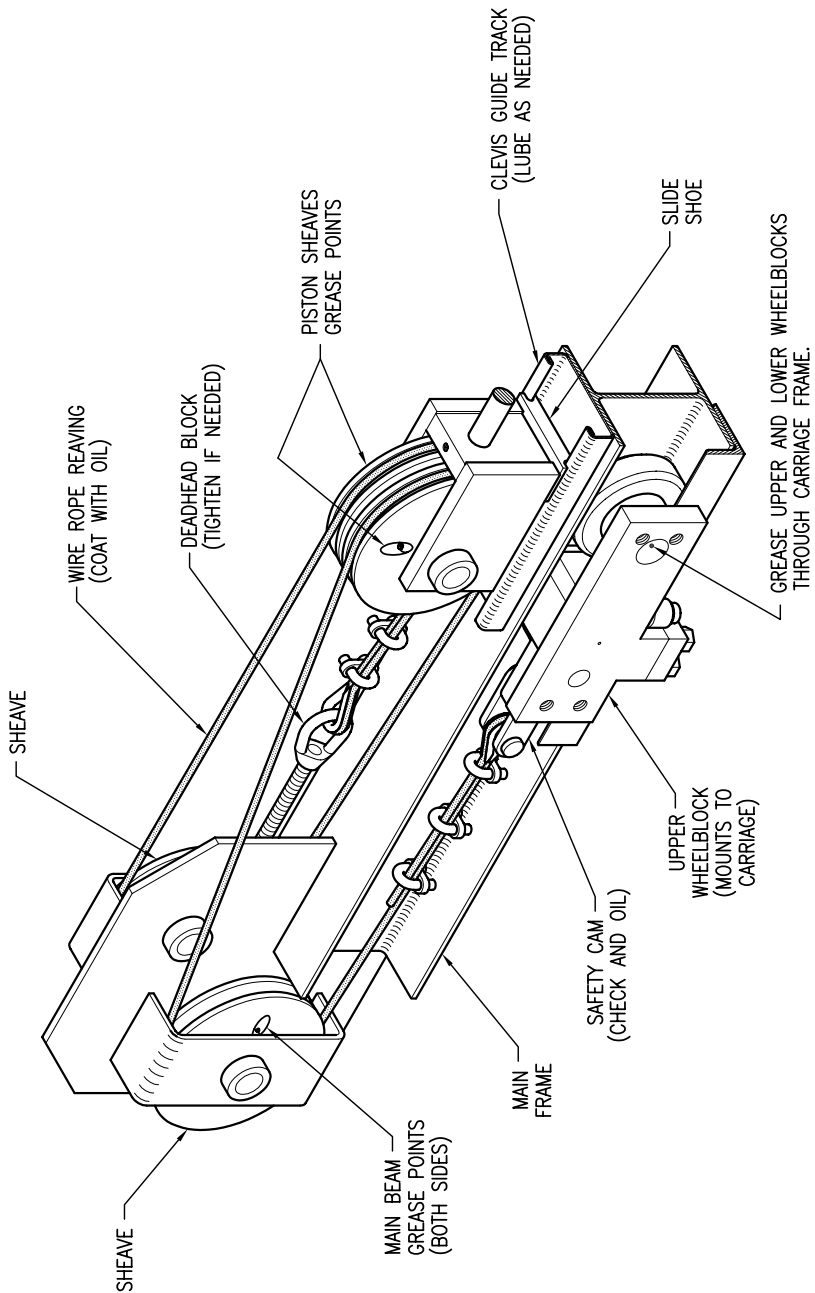
▲ REVISED 02/07/94 ADDED 10" SHEAVES

WILCOX	R.H. SHEAVE BRACKET ASSEMBLY FOR STRADDLE LIFT	DATE: 8-26-91 DRN BY: DFK	1086	REV 1
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	WIRE ROPE REAVING ARRANGEMENT FOR STRADDLE LIFT	DATE: 10-15-91	REV
		DRN BY: DFK	1133

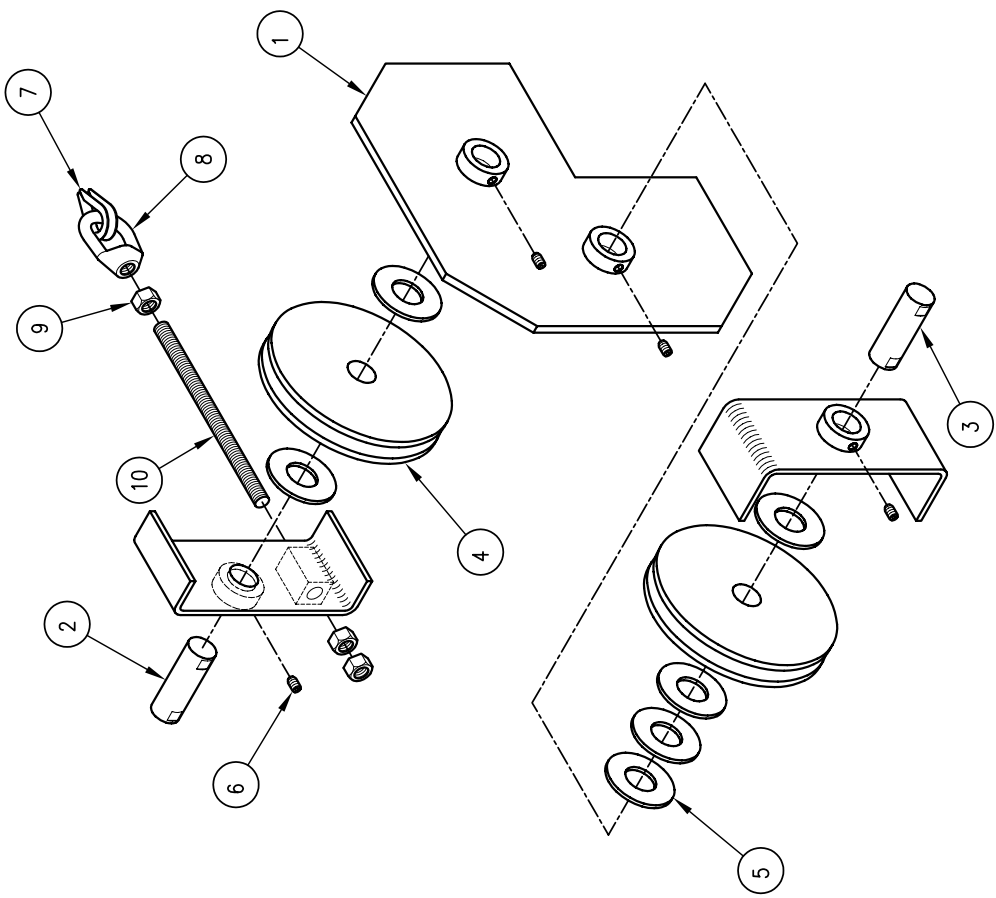
REFERENCE MAINTENANCE SCHEDULE



WILBROCK TM	LUBRICATION CHART FOR HYDRAULIC STRADDLE LIFT		DATE: 10-4-95	REV
			DRN BY: AJG	1932

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	8" Ø SHEAVE BRACKET L.H.	1011	
1	1	10" Ø SHEAVE BRACKET L.H.	1464	
2	1	PIN, 8" Ø IDLER SHEAVE	1005-1	
2	1	PIN, 10" Ø IDLER SHEAVE	1461-1	
3	1	PIN, 8" Ø LIFT SHEAVE	1005-2	
3	1	PIN, 10" Ø LIFT SHEAVE ASSEMBLY	1461-2	
4	2	8" Ø SHEAVE ASSEMBLY W/BEARING	1044	
4	2	10" Ø SHEAVE ASSEMBLY W/BEARING	1665	
5	6	SHEAVE THRUST WASHER	1035	
6	4	SHSS, 3/8-16 1/4" LG.		
7	1	3/8" Ø WIRE ROPE THIMBLE	1034	
8	1	EYE NUT, 5/8-11 STANDARD DUTY - GALV.		
9	3	HEX NUT, 5/8-11		
10	1	THREADED ROD, 5/8-11 UNC x 10" LG.		



△ 1 REVISED 02/07/94 ADDED 10" SHEAVES

	L.H. SHEAVE BRACKET ASSEMBLY FOR STRADDLE LIFT	DATE: 8-26-91 DRN BY: DFK	REV 1085 1
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Section E: Cantilever Servicing & Parts

MAINTENANCE SCHEDULE					
		NUMBER OF CYCLES/DAYS	ITEM	DUTY	
1		2000/90	MAIN BEAM SHEAVES	GREASE THROUGH FITTINGS. ² INSPECT FOR WEAR.	
2		2000/90	PISTON SHEAVES	GREASE THROUGH FITTINGS. ² INSPECT FOR WEAR.	
3		3000/90	WIRE ROPE	INSPECT FOR WEAR/DAMAGE COAT WITH OIL. ³	
4		2000/90	CABLE CLAMPS/DEADHEAD	TIGHTEN NUTS.	
5		2000/90	WHEELBLOCK WHEELS	GREASE THROUGH FITTINGS. ² INSPECT FOR WEAR.	
6		2000/90	GUIDE ROLLERS	INSPECT FOR WEAR AND ROTATION INTERFERENCE.	
7		2000/90	SAFETY CAMS	INSPECT FOR WEAR OR DAMAGE.	
8		2000/90	CYLINDER FITTINGS/HOSES	INSPECT FOR WEAR/LEAKS. TIGHTEN FITTINGS.	
9		1000/30 6000/180	MOTOR PUMP FILTER	CHANGE AFTER FIRST 1000/30 THEN 6000/180 THEREAFTER.	
10		1 YR.	RESERVOIR	DRAIN AND CLEAN TANK CHANGE OIL ⁴ AND FILTER. ⁵	

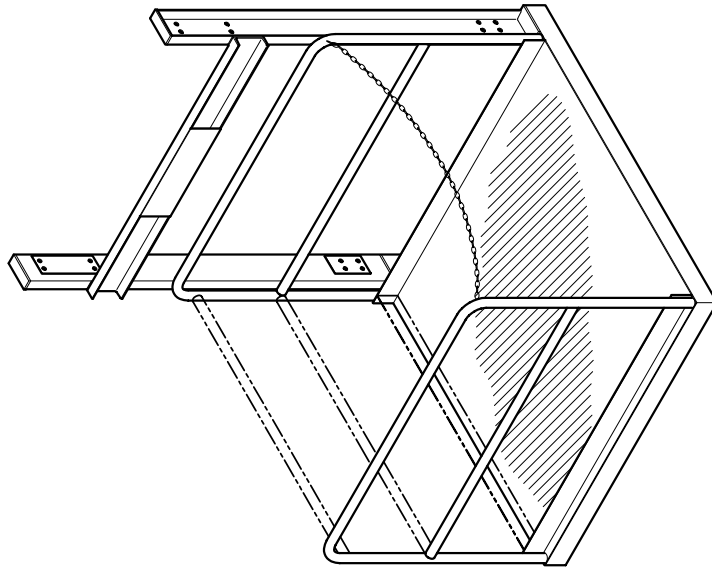
1.) Observe cycle or days schedule based on whichever comes first.
 2.) Use Lithium axle grease.
 3.) Use non-detergent, petroleum base ISO viscosity grade 32.
 (See Acceptable Hydraulic Fluids, page C-26)
 4.) Anti-wear with 100-200 viscosity.
 (See Material Safety Data Sheet Bulletins)
 5.) 10 micron or less.

MAINTENANCE SCHEDULE & LOCATION
DIAGRAM FOR HYDRAULIC CANTILEVER

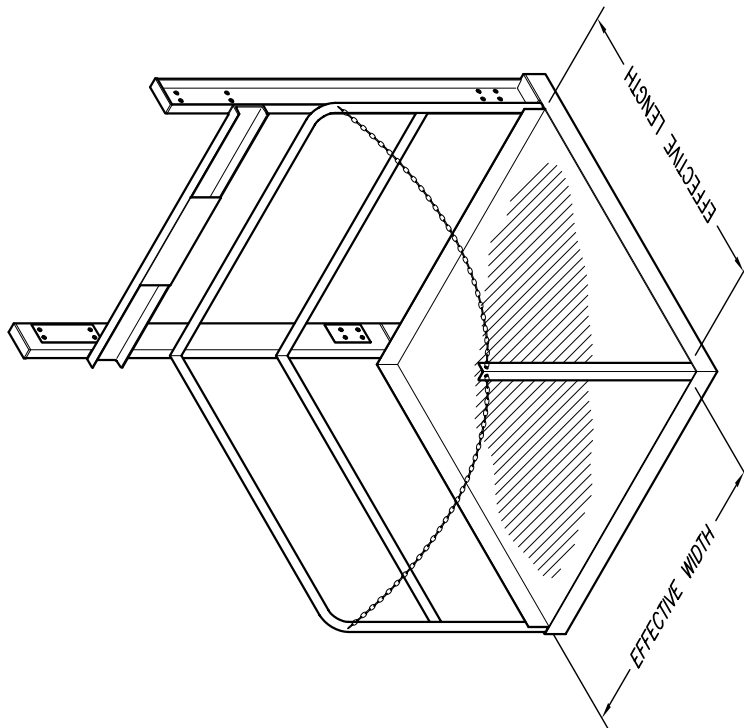
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1101

REV 1



"C" OR "Z" LOAD CARRIAGE

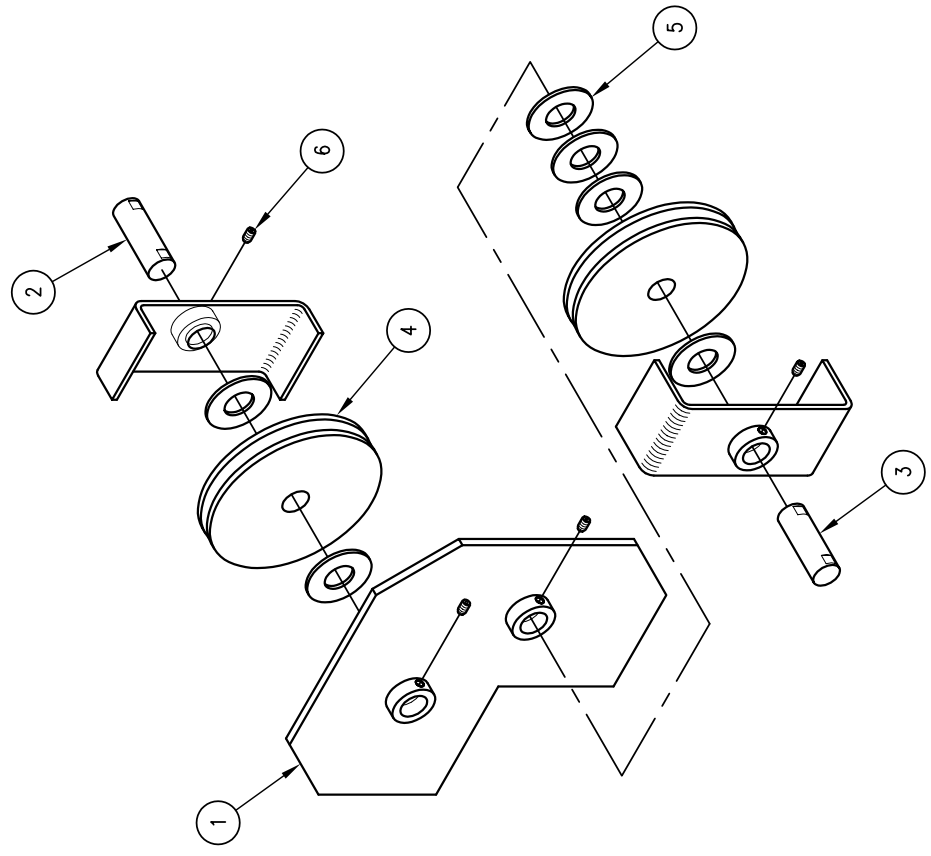


90° LOAD CARRIAGE

	DATE: 10-22-91	REV
	DRN BY: DFK	1364

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	8" ϕ SHEAVE BRACKET-R.H. CANTILEVER	1066-A	
1	1	10" ϕ SHEAVE BRACKET-R.H. CANTILEVER	1859-A	
2	1	PIN, 8" ϕ IDLER SHEAVE	1005-A	
1	1	PIN, 10" ϕ IDLER SHEAVE	1461-A	
3	1	PIN, 8" ϕ LIFT SHEAVE	1005-A	
1	1	PIN, 10" ϕ LIFT SHEAVE	1461-A	
4	2	8" ϕ SHEAVE ASSEMBLY W/BEARING	1044-A	
2	2	10" ϕ SHEAVE ASSEMBLY W/BEARING	1665-A	
5	6	SHEAVE THRUST WASHER	1035-A	
6	4	SHSS, 3/8-16 1/4" LG.		





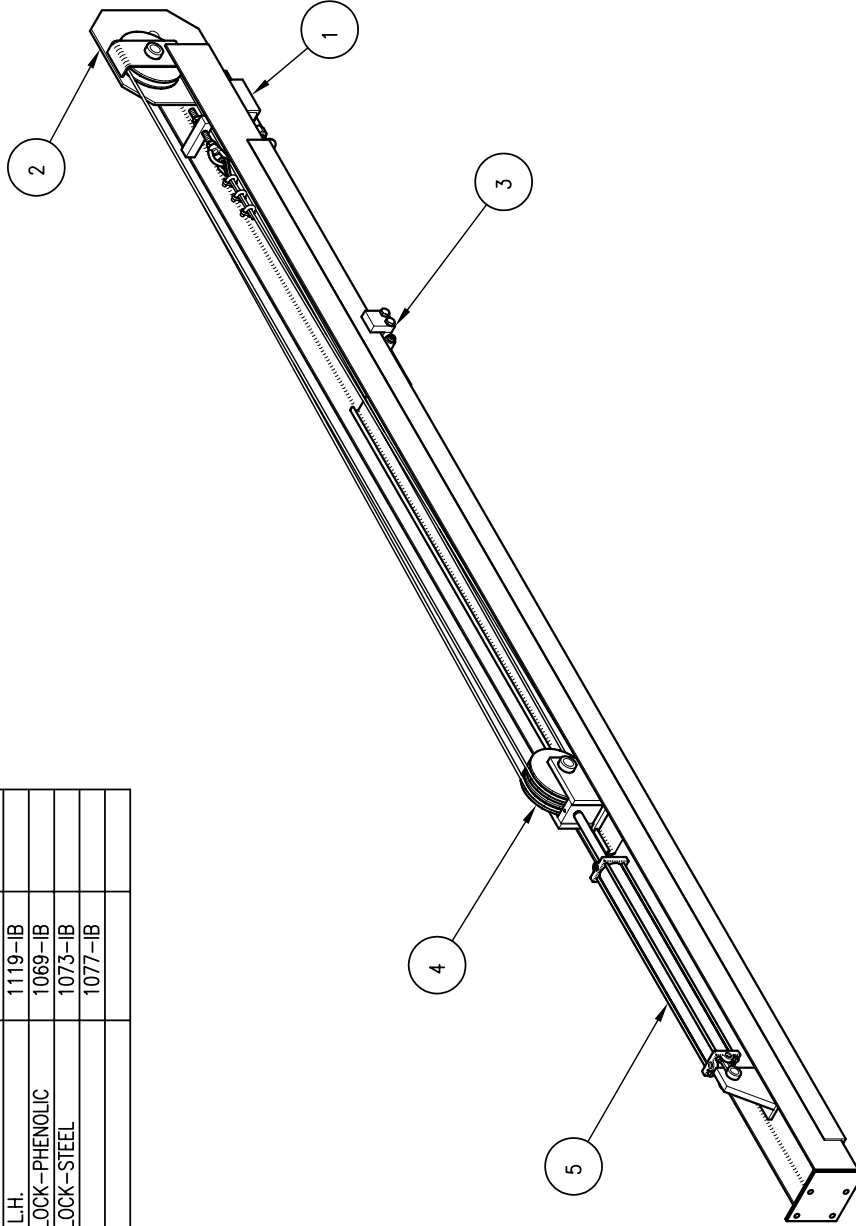
R.H. SHEAVE BRACKET ASSEMBLY
FOR CANTILEVER LIFT

DATE: 8-26-91
DRN BY: DFK

REV **1120**

BILL OF MATERIALS

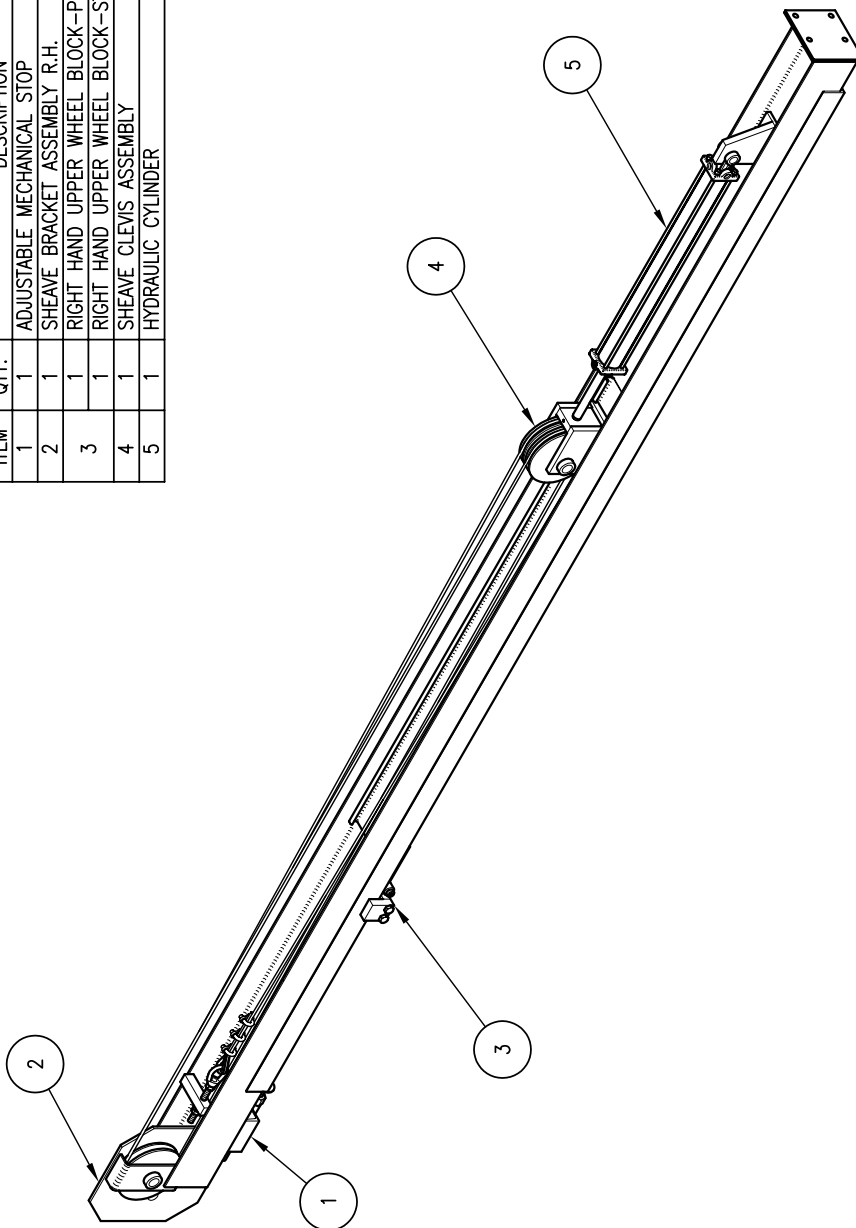
ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	ADJUSTABLE MECHANICAL STOP	1042-IB	
2	1	SHEAVE BRACKET ASSEMBLY L.H.	1119-IB	
3	1	LEFT HAND UPPER WHEEL BLOCK-PHENOLIC	1069-IB	
	1	LEFT HAND UPPER WHEEL BLOCK-STEEL	1073-IB	
4	1	SHEAVE CLEVIS ASSEMBLY	1077-IB	
5	1	HYDRAULIC CYLINDER		



WILCOCK	LEFT HAND BEAM ASSEMBLY FOR CANTILEVER LIFT	DATE: 10-31-91 DRN BY: DFK	REV 1083 1
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BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	ADJUSTABLE MECHANICAL STOP	1042-IB	
2	1	SHEAVE BRACKET ASSEMBLY R.H.	1120-IB	
3	1	RIGHT HAND UPPER WHEEL BLOCK-PHENOLIC	1027-IB	
4	1	RIGHT HAND UPPER WHEEL BLOCK-STEEL	1072-IB	
5	1	SHEAVE CLEVIS ASSEMBLY	1077-IB	
	1	HYDRAULIC CYLINDER		

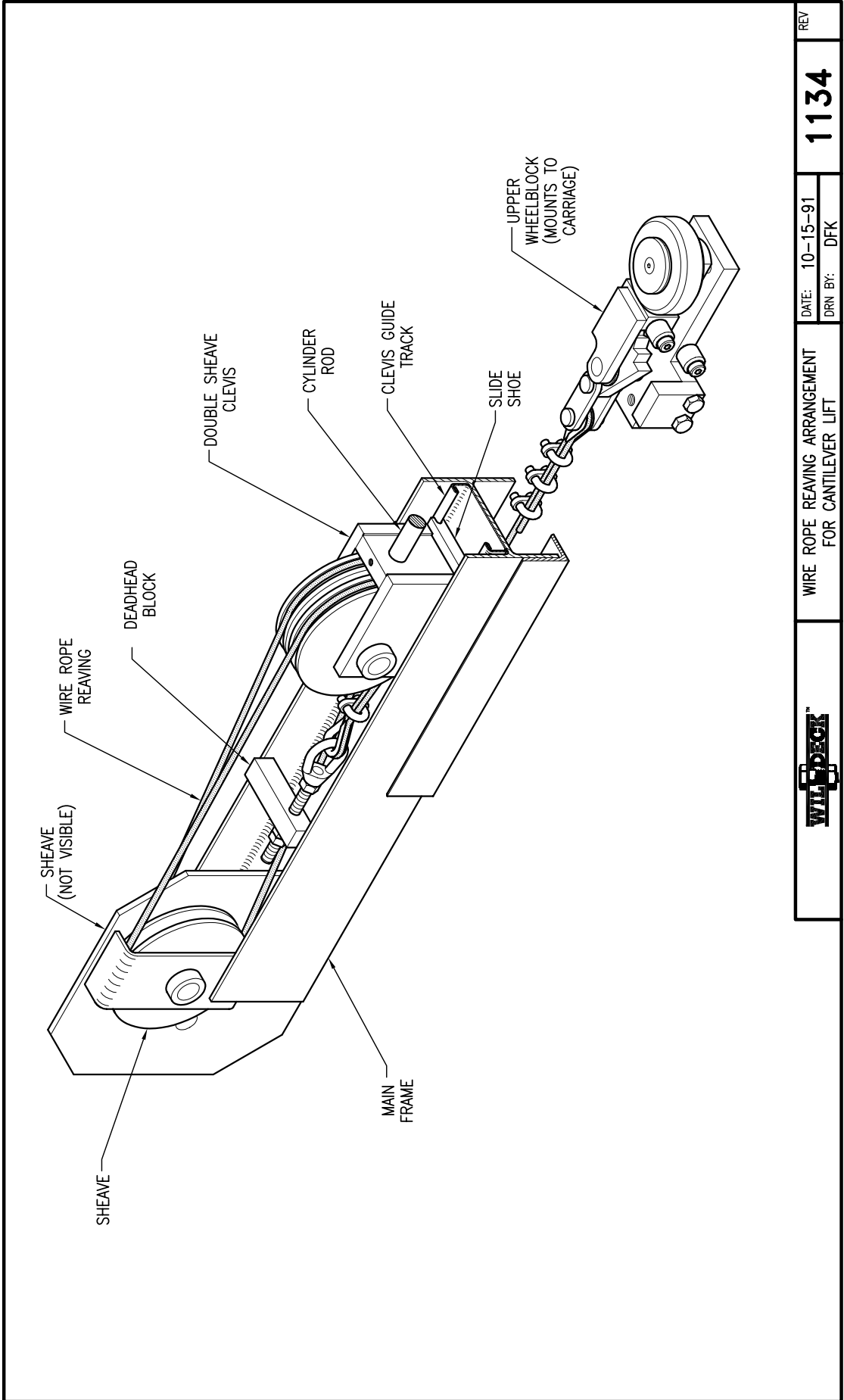


RIGHT HAND BEAM ASSEMBLY
FOR CANTILEVER LIFT

DATE: 10-31-91
DRN BY: DFK

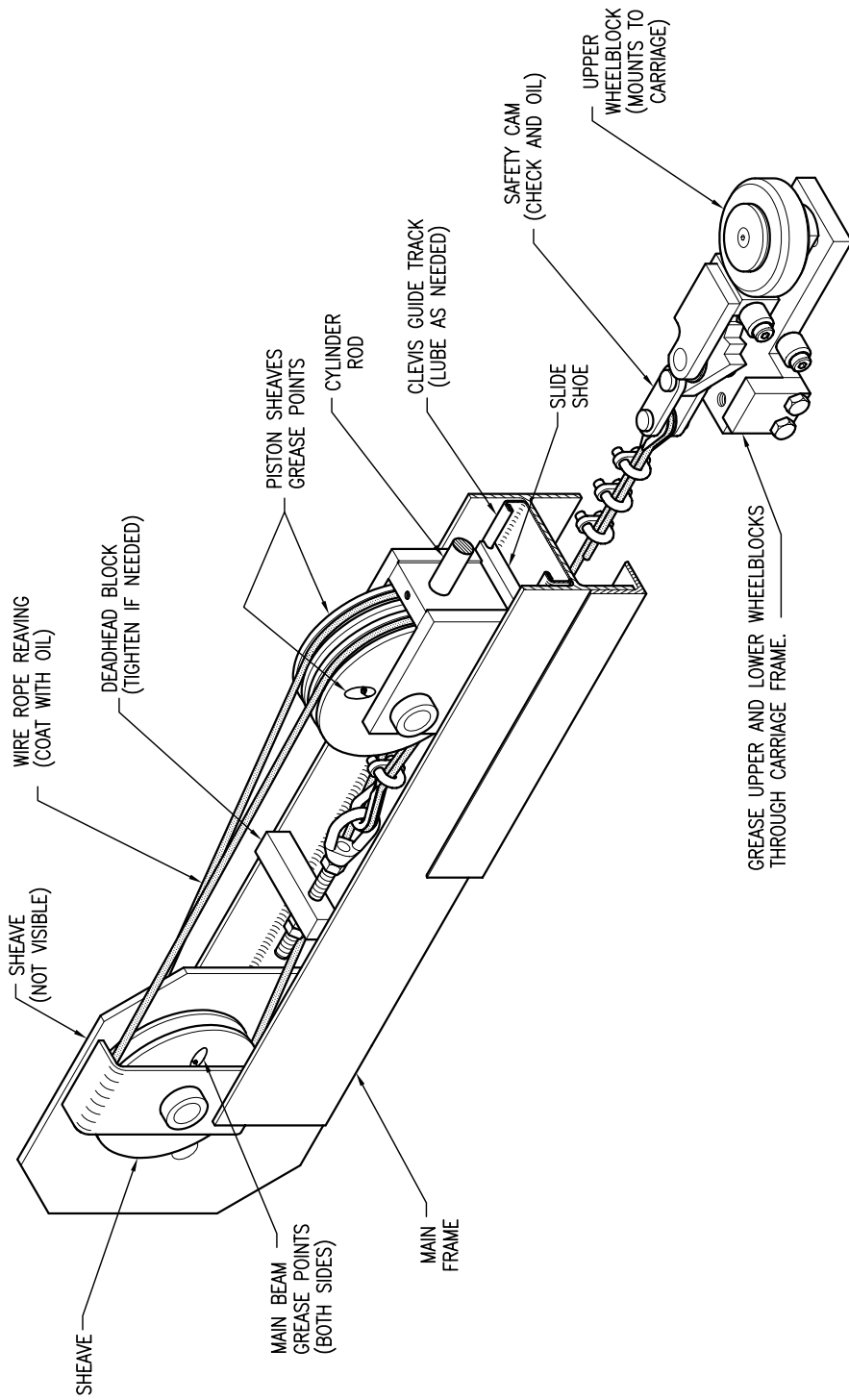
1084

REV **1**



	WIRE ROPE REAVING ARRANGEMENT FOR CANTILEVER LIFT	DATE: 10-15-91	REV
		DRN BY: DFK	1134

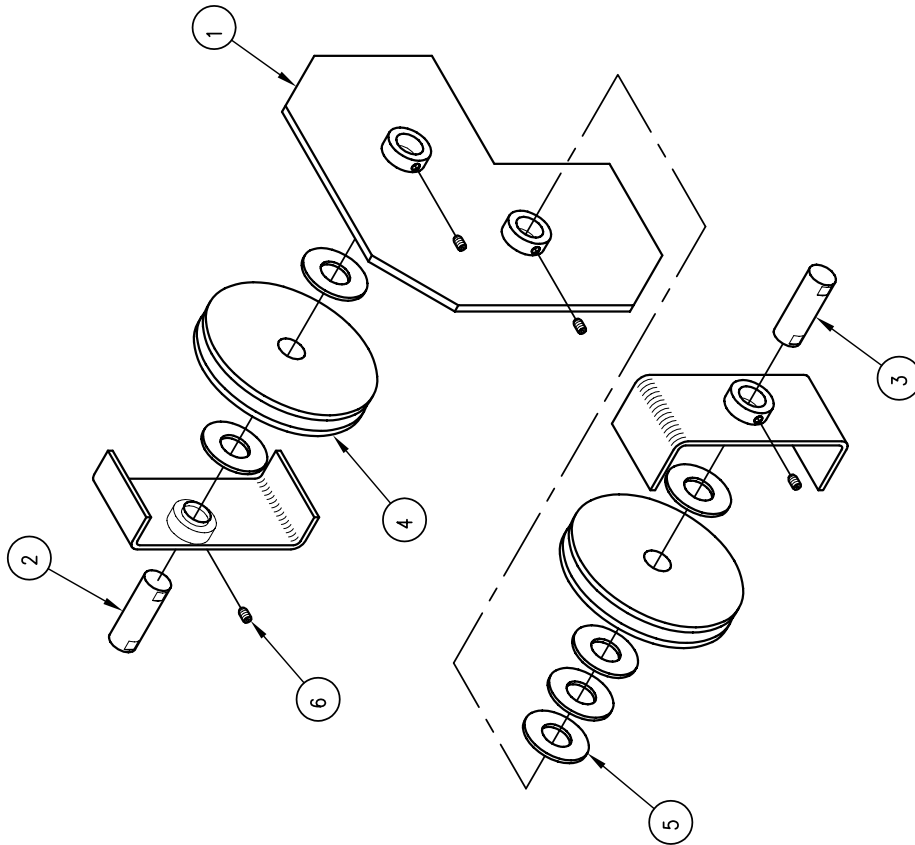
REFERENCE MAINTENANCE SCHEDULE



	LUBRICATION CHART FOR HYDRAULIC CANTILEVER LIFT		DATE: 12-21-95	REV
			DRN BY: AUG	1978

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	8" ϕ SHEAVE BRACKET-L.H. CANTILEVER	1067-A	
1	1	10" ϕ SHEAVE BRACKET-L.H. CANTILEVER	1860-A	
2	1	PIN, 8" ϕ IDLER SHEAVE	1005-A	
1	1	PIN, 10" ϕ IDLER SHEAVE	1461-A	
1	1	PIN, 8" ϕ LIFT SHEAVE	1005-A	
1	1	PIN, 10" ϕ LIFT SHEAVE	1461-A	
2	2	8" ϕ SHEAVE ASSEMBLY W/BEARING	1044-A	
2	2	10" ϕ SHEAVE ASSEMBLY W/BEARING	1665-A	
5	6	SHEAVE THRUST WASHER	1035-A	
6	4	SHSS, 3/8-16 1/4" LG.		





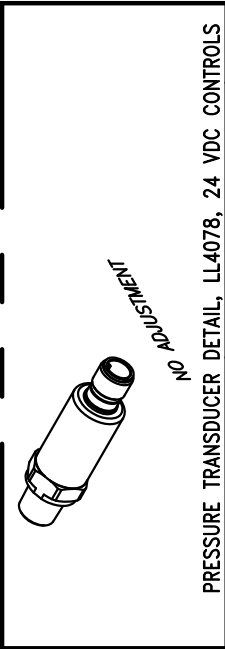
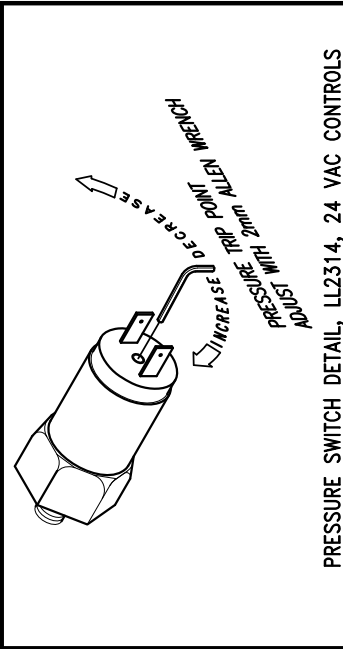
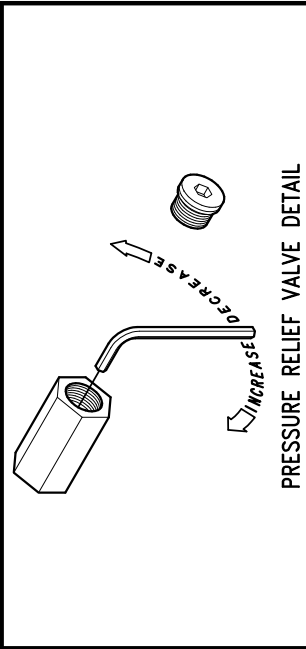
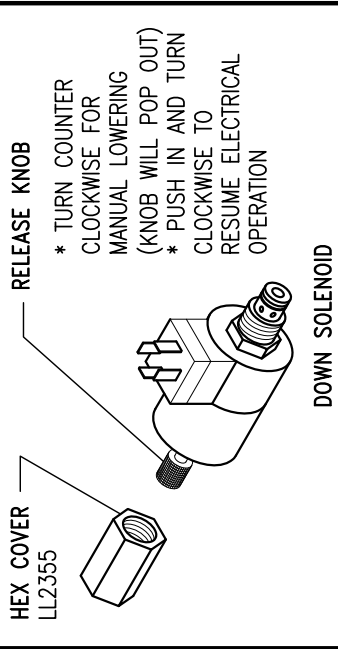
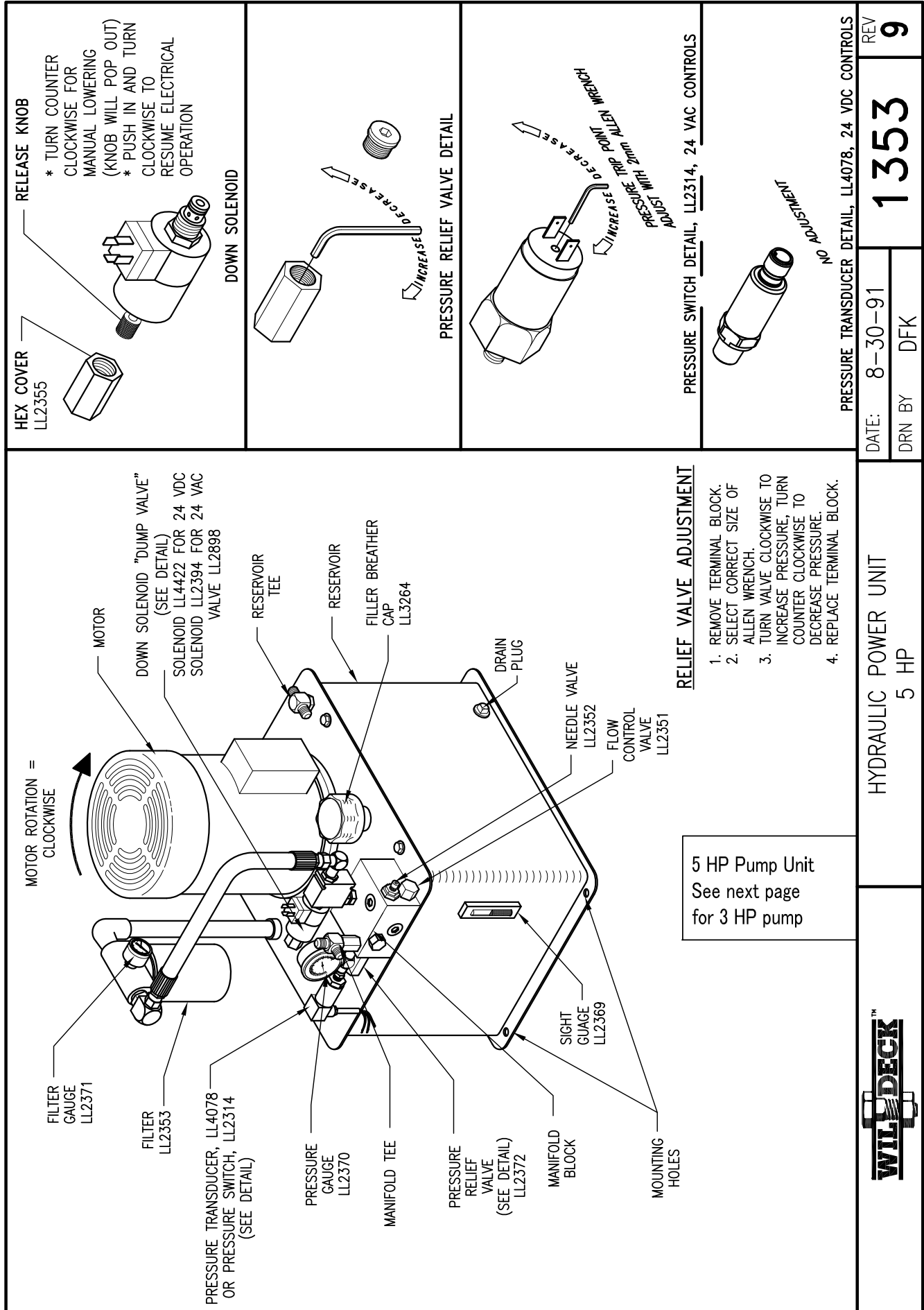
L.H. SHEAVE BRACKET ASSEMBLY
FOR CANTILEVER LIFT

DATE: 8-26-91
DRN BY: DFK

REV **1**

1119

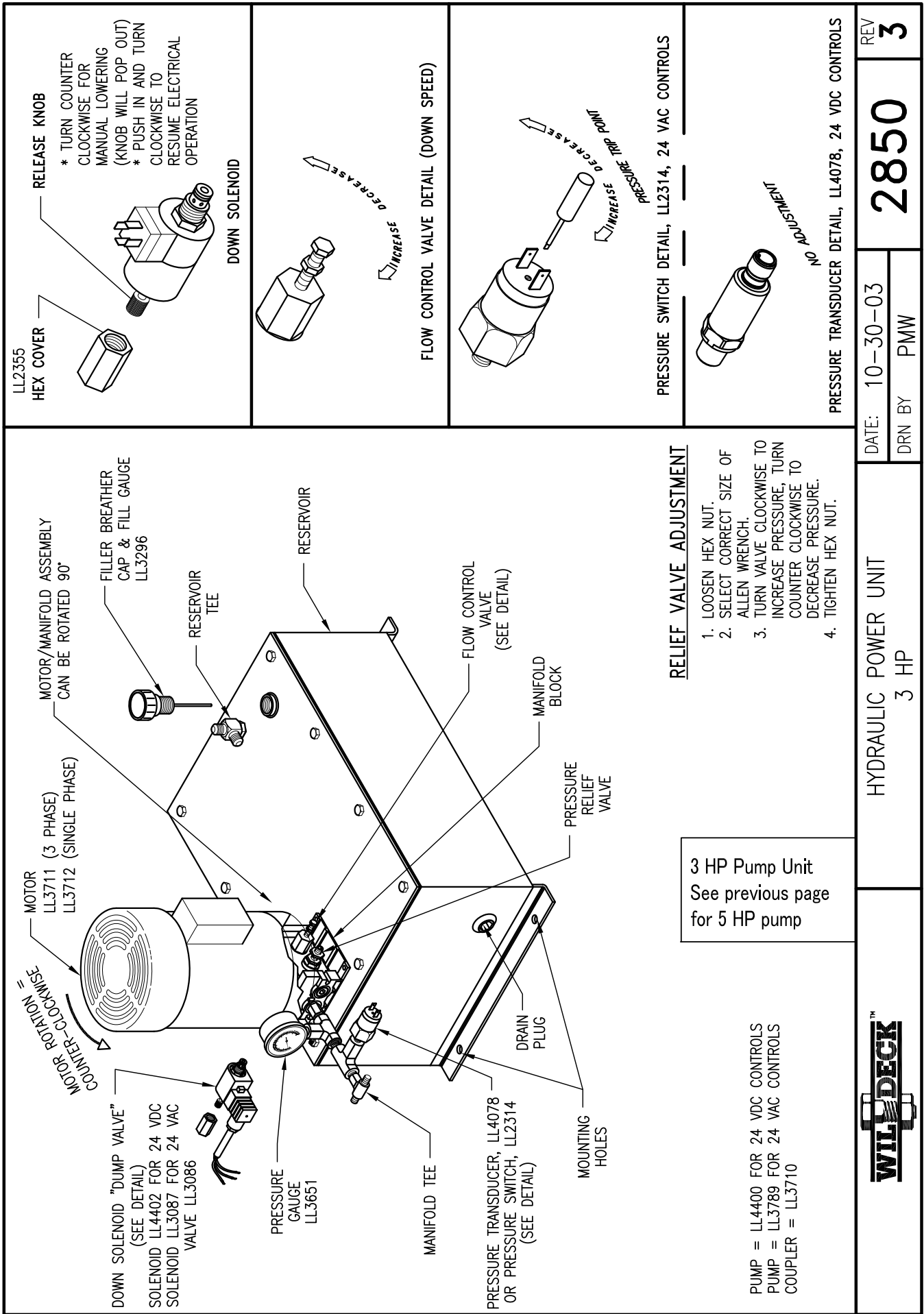
Section F: Common Parts (Str. & Cant.)



DATE: 8-30-91	REV 9
DRN BY DFK	1353

HYDRAULIC POWER UNIT
5 HP

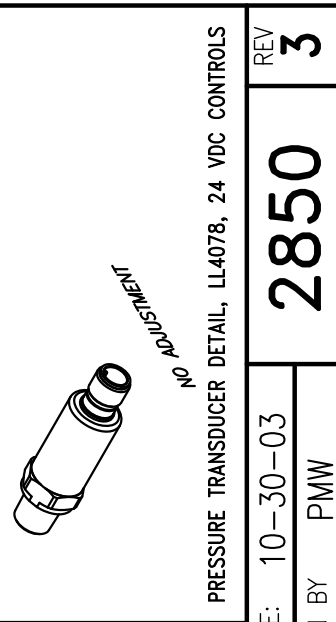
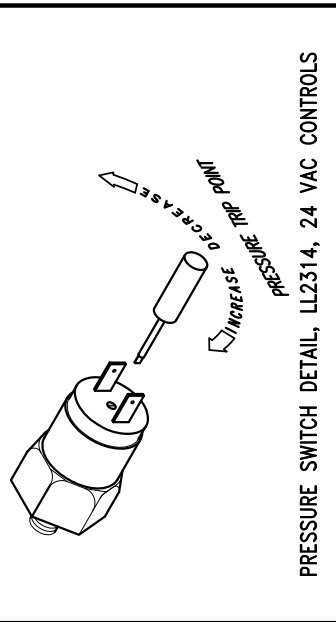
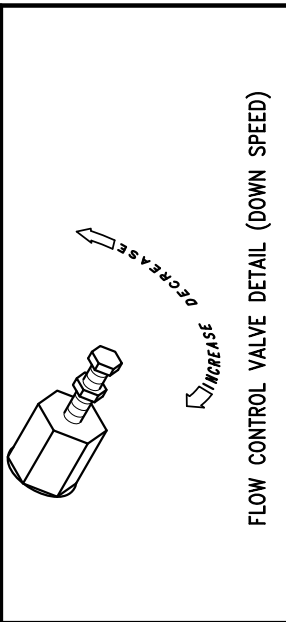
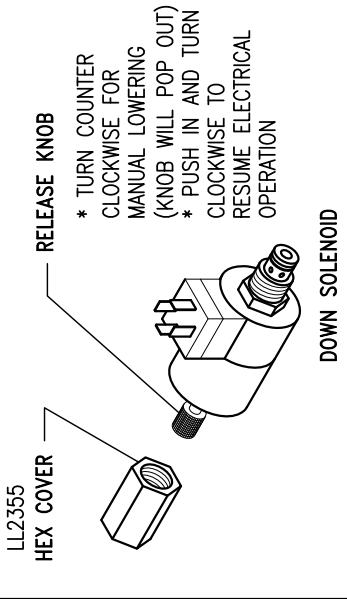




3 HP Pump Unit
See previous page
for 5 HP pump

RELIEF VALVE ADJUSTMENT

1. LOOSEN HEX NUT.
2. SELECT CORRECT SIZE OF ALLEN WRENCH.
3. TURN VALVE CLOCKWISE TO INCREASE PRESSURE. TURN COUNTER CLOCKWISE TO DECREASE PRESSURE.
4. TIGHTEN HEX NUT.



DATE: 10-30-03	REV 3
DRN BY: PMW	

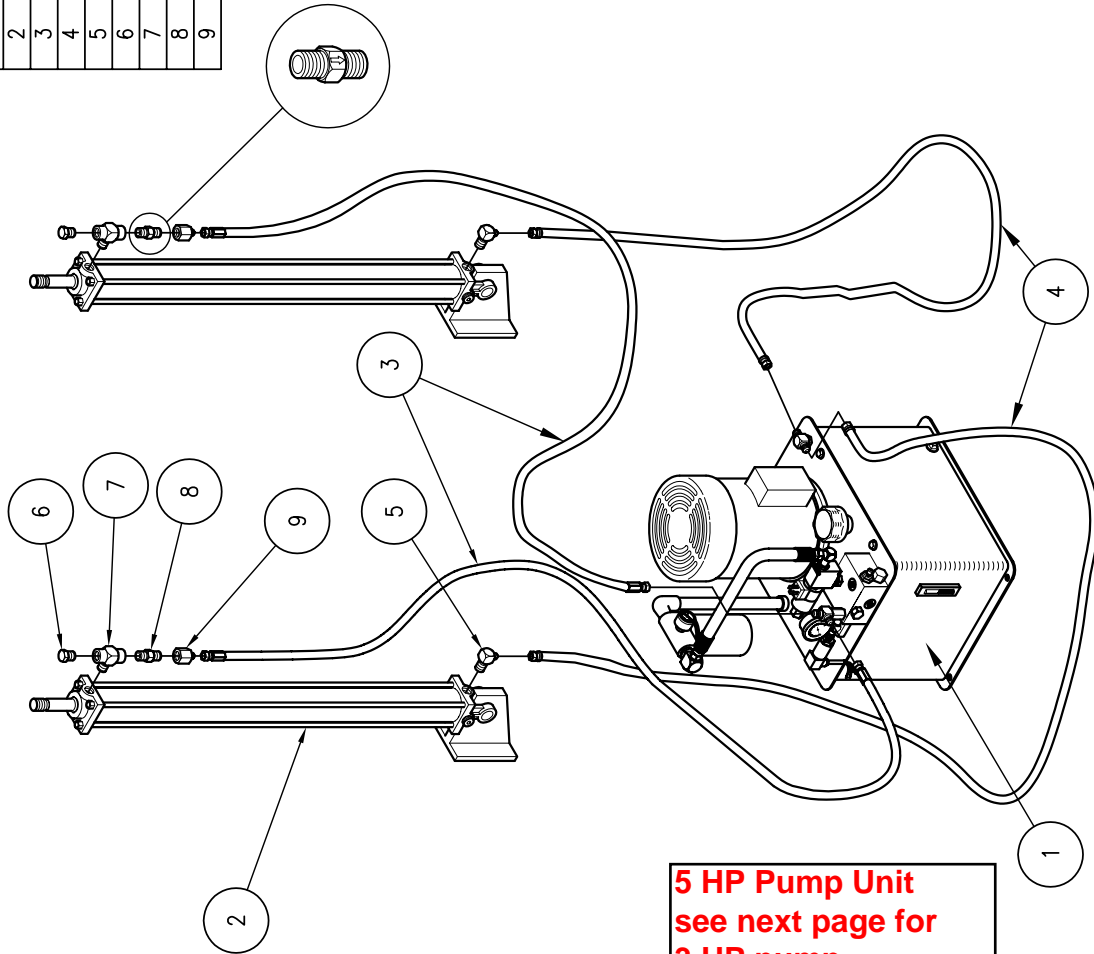
HYDRAULIC POWER UNIT
3 HP



PUMP = LL4400 FOR 24 VDC CONTROLS
PUMP = LL3789 FOR 24 VAC CONTROLS
COUPLER = LL3710

BILL OF MATERIALS

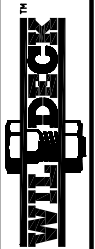
ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	HYDRAULIC POWER UNIT		
2	2	HYDRAULIC CYLINDER, 1/2" NPT PORTS		
3	2	HIGH PRESSURE HOSE ASSEMBLY (JIC #6)	1425-N	
4	2	LOW PRESSURE HOSE ASSEMBLY (JIC #4)		
5	2	ELBOW, 90°		
6	2	PLUG	1426-N	
7	2	TEE	1427-N	
8	2	VELOCITY FUSE		
9	2	ADAPTER	1428-N	



**5 HP Pump Unit
see next page for
3 HP pump**

NOTE:

THE LOW PRESSURE HOSES HAVE PUSH-ON STYLE FITTINGS, WHILE THE HIGH PRESSURE HOSES HAVE CRIMPED ON STYLE FITTINGS. PUTTING THE LOW PRESSURE HOSE ON THE HIGH PRESSURE SIDE OF THE CYLINDER MAY CAUSE A HOSE RUPTURE, LOCKING THE VELOCITY FUSES, AND RENDERING THE LIFT INOPERABLE.



HYDRAULIC POWER UNIT ASSEMBLY

DATE: 10-7-05

DRN BY: BRT

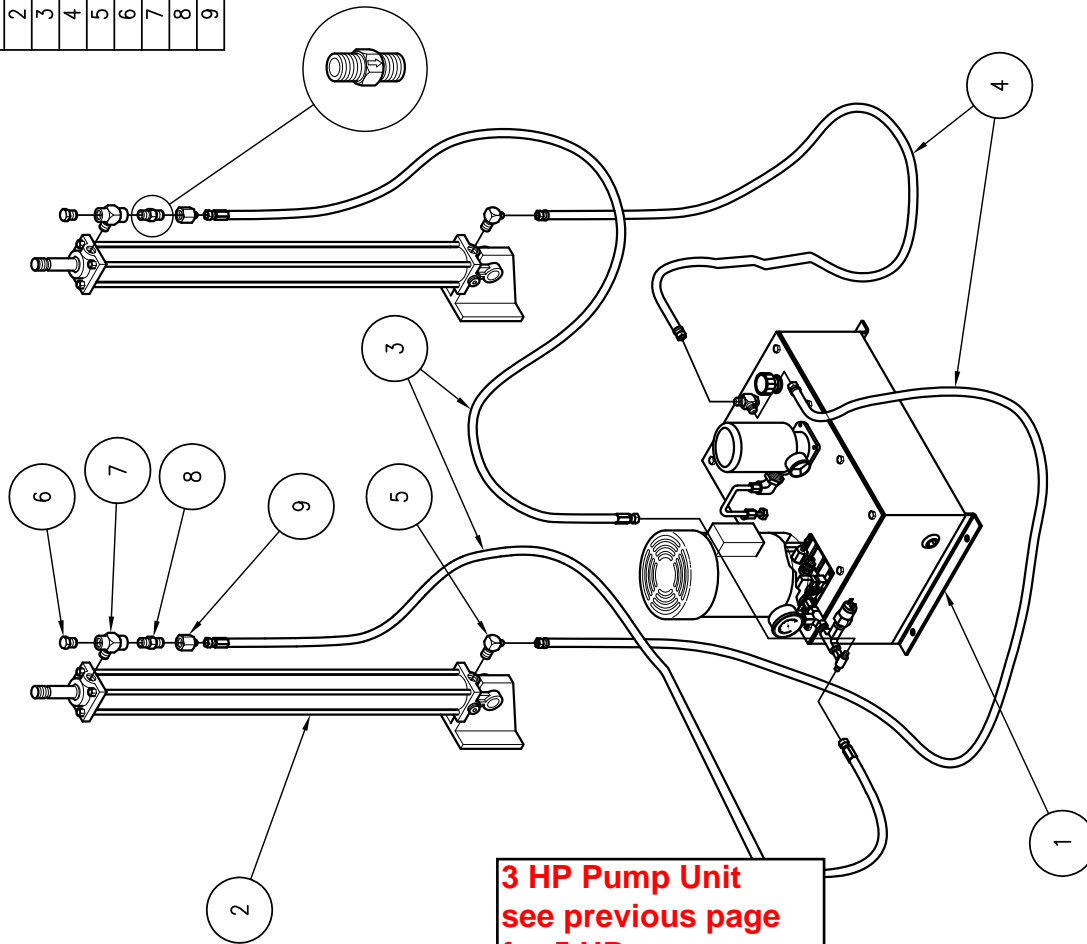
REV

1354

1

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	HYDRAULIC POWER UNIT		
2	2	HYDRAULIC CYLINDER, 1/2" NPT PORTS	1425-N	
3	2	HIGH PRESSURE HOSE ASSEMBLY (JIC #6)	1424-N	
4	2	LOW PRESSURE HOSE ASSEMBLY (JIC #6)	1429-N	
5	2	ELBOW, 90°	1426-N	
6	2	PLUG	1427-N	
7	2	TEE	1428-N	
8	2	VELOCITY FUSE		
9	2	ADAPTER		



NOTE:

THE LOW PRESSURE HOSES HAVE PUSH-ON STYLE FITTINGS, WHILE THE HIGH PRESSURE HOSES HAVE CRIMPED ON STYLE FITTINGS. PUTTING THE LOW PRESSURE HOSE ON THE HIGH PRESSURE SIDE OF THE CYLINDER MAY CAUSE A HOSE RUPTURE, LOCKING THE VELOCITY FUSES, AND RENDERING THE LIFT INOPERABLE.



HYDRAULIC POWER UNIT
ASSEMBLY

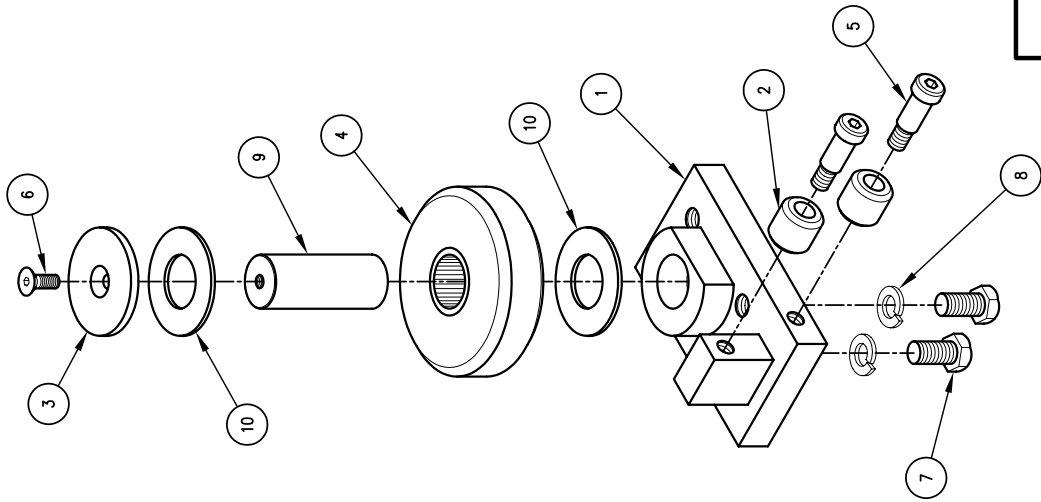
DATE: 10-7-05
DRN BY BRT

1354

REV 1

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	LOWER WHEEL BLOCK WELDMENT (R.H.)	1247	
2	2	ROLLER GUIDE	1017	
3	1	STEEL WHEEL RETAINER	1244	
4	1	5 1/4" STEEL WHEEL ASSEMBLY	1241	
5	2	SOC HD SHLD BOLT 5/8"Ø x 1 1/4" LG.	2340	
6	1	FHSHCS, 3/8-16 x 3/4" LG.	3084	
7	4	HHCS, 5/8-11 x 1 1/4" LG., GR. 8		
8	4	LOCK WASHER, 5/8" STD.		
9	1	STEEL WHEEL SHAFT	1242	
10	2	STEEL WHEEL SPACER WASHER	1243	



R.H. LOWER WHEEL BLOCK ASSEMBLY
STEEL WHEEL

DATE: 8-13-91
DRN BY: DFK

REV 1074 1

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	LOWER WHEEL BLOCK WELDMENT (L.H.)	1279	
2	2	ROLLER GUIDE	1017	
3	1	STEEL WHEEL RETAINER	1244	
4	1	5 1/4" STEEL WHEEL ASSEMBLY	1241	
5	2	SOC HD SHLD BOLT 5/8"Ø x 1 1/4" LG.	2340	
6	1	FHSHCS, 3/8-16 x 3/4" LG.	3084	
7	4	HHCS, 5/8-11 x 1 1/4" LG., GR. 8		
8	4	LOCK WASHER, 5/8" STD.		
9	1	STEEL WHEEL SHAFT	1242	
10	2	STEEL WHEEL SPACER WASHER	1243	

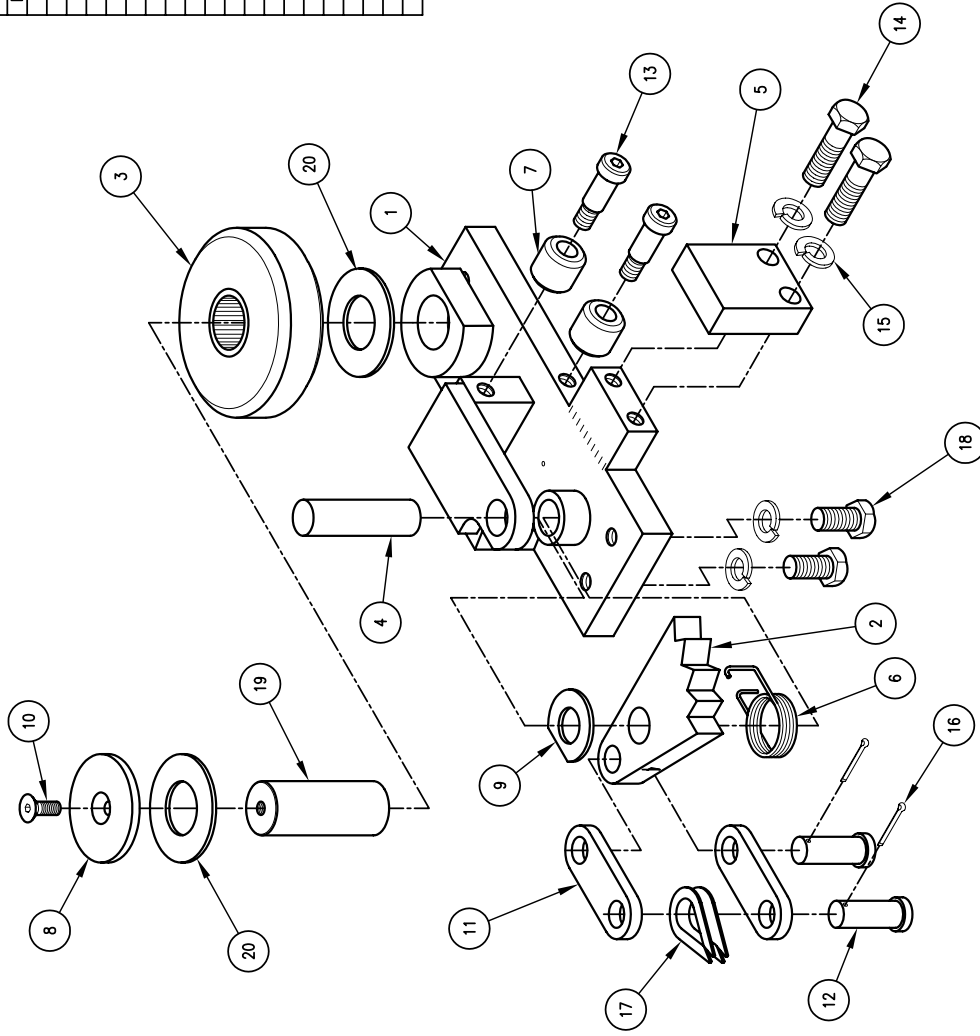
L.H. LOWER WHEEL BLOCK ASSEMBLY
STEEL WHEEL

DATE: 8-13-91
DRN BY: DFK

REV 1
1075

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	WHEEL BLOCK WELDMENT (RIGHT HAND)	1245	
2	1	SAFETY CAM	1014	
3	1	5-1/4" STEEL WHEEL ASSEMBLY	1241	
4	1	CAM PIN	1028	
5	1	GUIDE SHOE	1022	
6	1	CAM SPRING	1029	
7	2	ROLLER GUIDE	1017	
8	1	STEEL WHEEL RETAINER	1244	
9	1	CAM WASHER	1031	
10	1	FHSHCS 3/8-16 x 3/4" LG.	3084	
11	2	LINKAGE PLATE	1032	
12	2	LINK PINS	1033	
13	2	SHOULDER BOLT-SOC. HD. 5/8" x 1 1/4" LG.	2340	
14	2	HHCS 5/8-11 x 2 1/4" LG., GR. 8		
15	6	LOCKWASHER - STD 5/8		
16	2	COTTER PIN - 5/32" x 1 1/4" LG.		
17	1	WIRE ROPE THIMBLE 3/8" ROPE - GALV.	1034	
18	4	HHCS 5/8-11 x 1 1/4" LG.		
19	1	STEEL WHEEL SHAFT	1242	
20	2	STEEL WHEEL SPACER WASHER	1243	





UPPER WHEEL BLOCK/SAFETY ASSEMBLY
STEEL WHEEL

DATE: 8-13-91
DRN BY: DFK

REV 1
1072

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	WHEEL BLOCK WELDMENT (LEFT HAND)	1246	
2	1	SAFETY CAM	1014	
3	1	5 1/4" STEEL WHEEL ASSEMBLY	1241	
4	1	CAM PIN	1028	
5	1	GUIDE SHOE	1022	
6	1	CAM SPRING	1029	
7	2	ROLLER GUIDE	1017	
8	1	STEEL WHEEL RETAINER	1244	
9	1	CAM WASHER	1031	
10	1	FHSICS, 3/8-16 x 3/4" LG.	3084	
11	2	LINKAGE PLATE	1032	
12	2	LINK PINS	1033	
13	2	SHOULDER BOLT-SOC. HD. 5/8" x 1 1/4" LG.	2340	
14	2	HCS 5/8-11 x 2 1/4" LG., GR. 8		
15	6	LOCKWASHER - STD 5/8		
16	2	COTTER PIN - 5/32" x 1 1/4" LG.		
17	1	WIRE ROPE THIMBLE 3/8" ROPE - GALV.	1034	
18	4	HCS 5/8-11 x 1 1/4" LG.		
19	1	STEEL WHEEL SHAFT	1242	
20	2	STEEL WHEEL SPACER WASHER	1243	

WILCOCK

UPPER WHEEL BLOCK/SAFETY ASSEMBLY
STEEL WHEEL

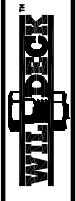
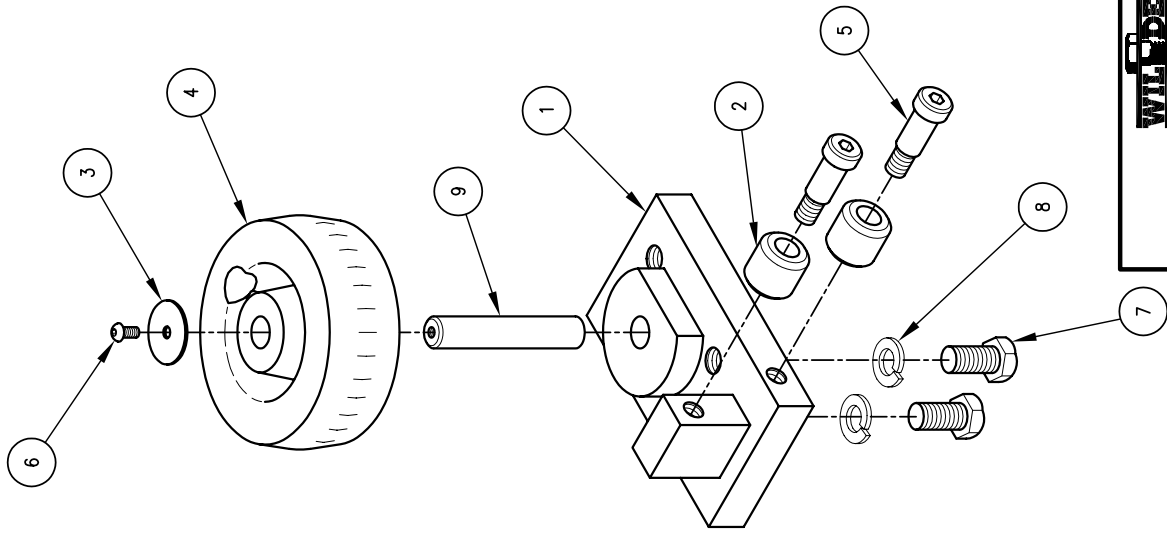
DATE: 8-13-91
DRN BY: DFK

1073

REV **1**

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	LOWER WHEEL BLOCK WELDMENT (R.H.)	1039	
2	2	ROLLER GUIDE	1017	
3	1	WHEEL RETAINER	1030	
4	1	5 1/4" PHENOLIC WHEEL	1036	
5	2	SOC HD SHOULDER BOLT 5/8ø x 1 1/4"	2340	
6	1	BUTTON HEAD SOCKET CAP SCR 1/4-20 x 1/2"	2583	
7	4	HHCS, 5/8-11 x 1 1/4", GRADE 8		
8	4	LOCK WASHER, 5/8"		
9	1	PHENOLIC WHEEL PIN	1058	



R.H. LOWER WHEEL BLOCK ASSEMBLY
PHENOLIC WHEEL

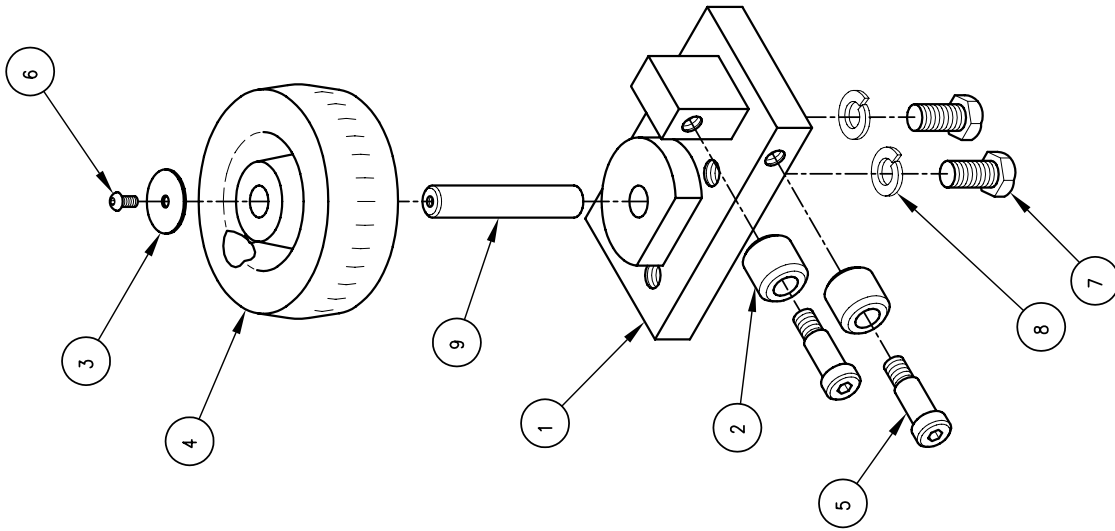
DATE: 2-19-91
DRN BY: DFK

1041

REV **1**

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	LOWER WHEEL BLOCK WELDMENT (L.H.)	1280	
2	2	ROLLER GUIDE	1017	
3	1	WHEEL RETAINER	1030	
4	1	5 1/4" PHENOLIC WHEEL	1036	
5	2	SOCKET HEAD SHOULDER BOLT 5/8 ϕ x 1 1/4"	2340	
6	1	BUTTON HEAD SOCKET CAP SCR 1/4-20 x 1/2"	2583	
7	4	HHCS, 5/8-11 x 1 1/4", GRADE 8		
8	4	LOCK WASHER, 5/8"		
9	1	PHENOLIC WHEEL PIN	1058	



	L.H. LOWER WHEEL BLOCK ASSEMBLY	DATE: 8-13-91	REV
	PHENOLIC WHEEL	DRN BY: DFK	1

1071

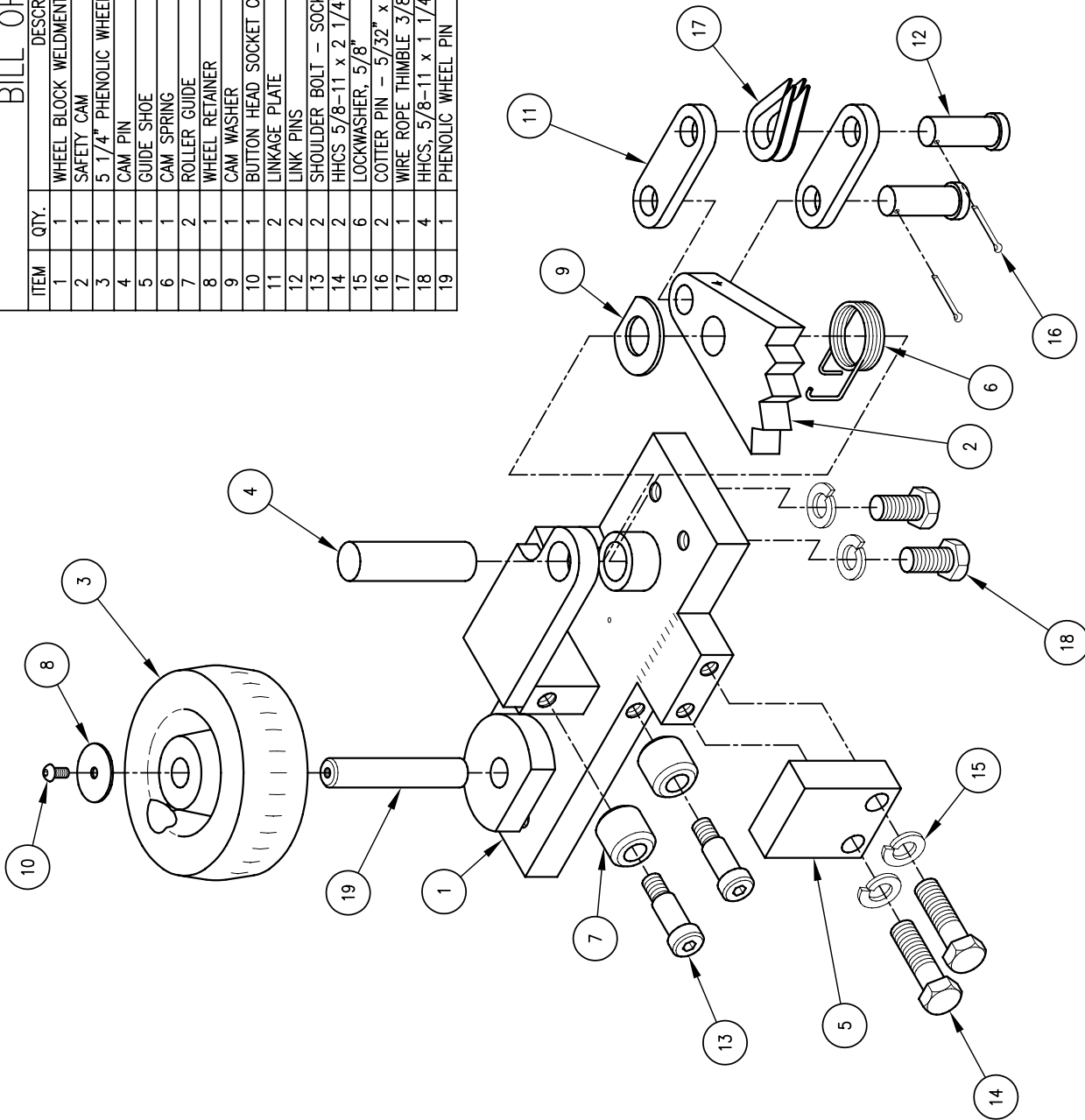
BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	WHEEL BLOCK WELDMENT (RIGHT HAND)	1026	
2	1	SAFETY CAM	1014	
3	1	5.1/4" PHENOLIC WHEEL	1036	
4	1	CAM PIN	1028	
5	1	GUIDE SHOE	1022	
6	1	CAM SPRING	1029	
7	2	ROLLER GUIDE	1017	
8	1	WHEEL RETAINER	1030	
9	1	CAM WASHER	1031	
10	1	BUTTON HEAD SOCKET CAP SCR 1/4-20 x 1/2"	2583	
11	2	LINKAGE PLATE	1032	
12	2	LINK PINS	1033	
13	2	SHOULDER BOLT - SOC. HEAD 5/8" ϕ x 1 1/4"	2340	
14	2	HHCS 5/8-11 x 2 1/4", GRADE 8		
15	6	LOCKWASHER - STD 5/8		
16	2	COTTER PIN - 5/32" x 1 1/4"		
17	1	WIRE ROPE THIMBLE 3/8" ϕ ROPE - GALV.	1034	
18	4	HHCS, 5/8-11 x 1 1/4"		
19	1	PHENOLIC WHEEL PIN	1058	

WILPECK	UPPER WHEEL BLOCK/SAFETY ASSEMBLY PHENOLIC WHEEL	DATE: 2-18-91 DRN BY: DFK	REV 1 1027
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BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	WHEEL BLOCK WELDMENT (LEFT HAND)	1068	
2	1	SAFETY CAM	1014	
3	1	5 1/4" PHENOLIC WHEEL	1036	
4	1	CAM PIN	1028	
5	1	GUIDE SHOE	1022	
6	1	CAM SPRING	1029	
7	2	ROLLER GUIDE	1017	
8	1	WHEEL RETAINER	1030	
9	1	CAM WASHER	1031	
10	1	BUTTON HEAD SOCKET CAP SCR 1/4-20 x 1/2"	2583	
11	2	LINKAGE PLATE	1032	
12	2	LINK PINS	1033	
13	2	SHOULDER BOLT - SOCKET HEAD 5/8"φ x 1 1/4"	2340	
14	2	HHCS 5/8-11 x 2 1/4", GRADE 8		
15	6	LOCKWASHER, 5/8"		
16	2	COITER PIN - 5/32" x 1 1/4"		
17	1	WIRE ROPE THIMBLE 3/8"φ ROPE - GALV.	1034	
18	4	HHCS, 5/8-11 x 1 1/4"		
19	1	PHENOLIC WHEEL PIN	1058	





UPPER WHEEL BLOCK/SAFETY ASSEMBLY

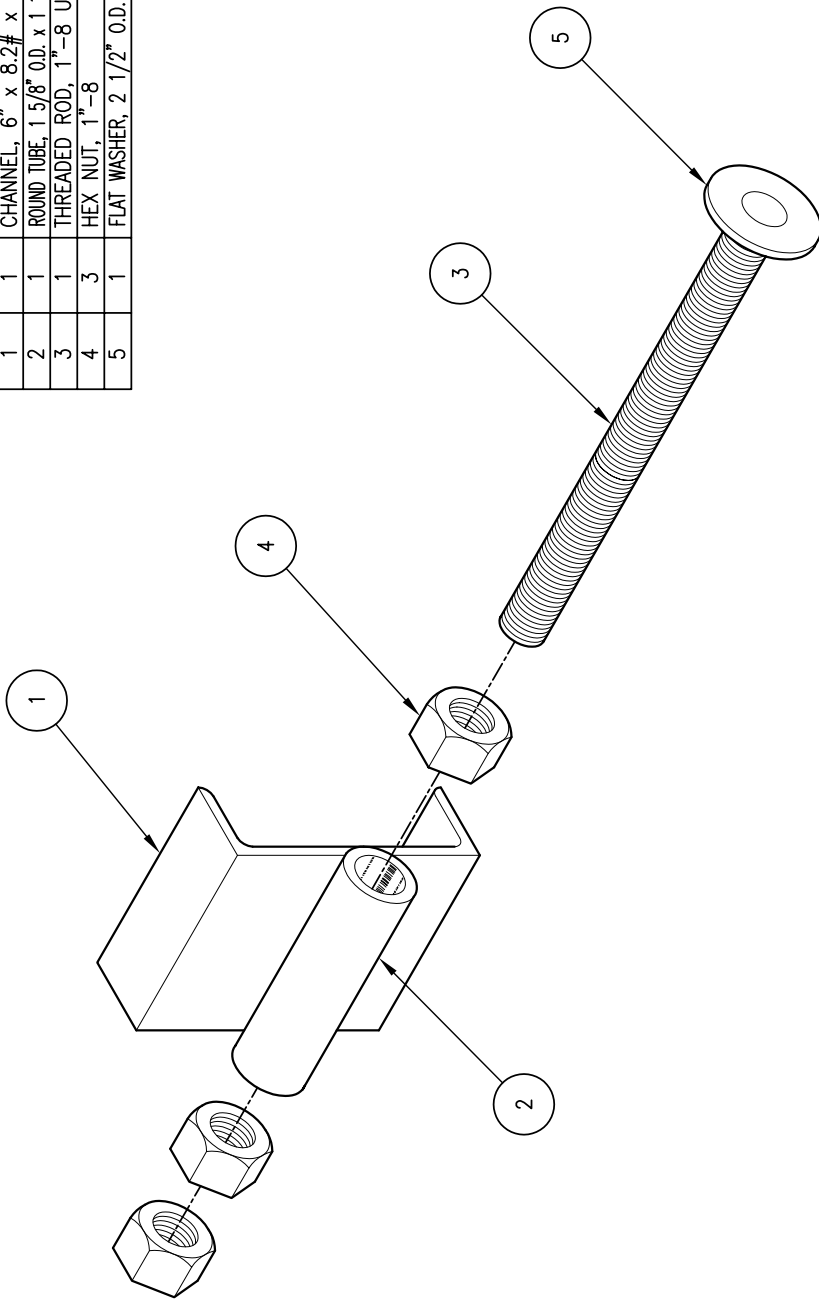
DATE: PHENOLIC WHEEL
DRN BY:

1069

REV 1

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	1	CHANNEL, 6" x 8.2# x 5" LG.		
2	1	ROUND TUBE, 1 5/8" O.D. x 1 1/8" I.D. x 1/4" WALL x 5 1/2" LG.		
3	1	THREADED ROD, 1"-8 UNC x 12" LG.		
4	3	HEX NUT, 1"-8		
5	1	FLAT WASHER, 2 1/2" O.D. x 1 1/16" I.D. x 3/16" THK.		



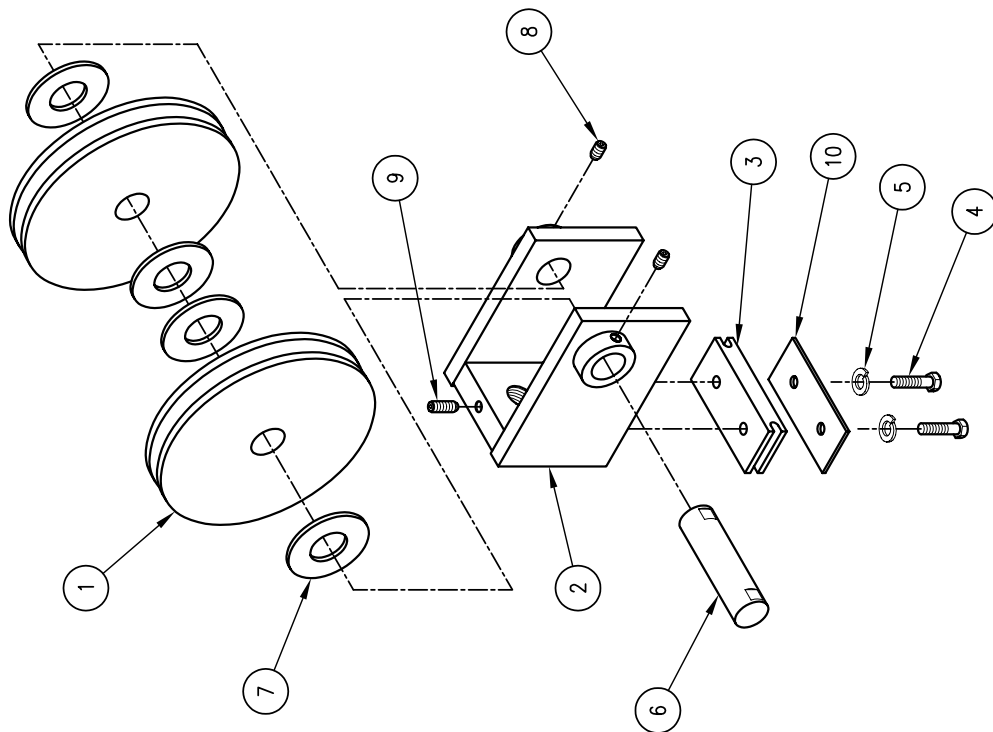
ADJUSTABLE MECHANICAL STOP

DATE: 10-17-91
DRN BY: DFK

REV
1042

BILL OF MATERIALS

ITEM	QTY.	DESCRIPTION	PART No.	SUFFIX
1	2	8" SHEAVE ASSEMBLY W/BEARING	1044	STK
	2	10" SHEAVE ASSEMBLY W/BEARING	1665	STK
2	1	8" CYLINDER SHEAVE BRACKET WELDMENT	1009	STK
3	1	10" CYLINDER SHEAVE BRACKET WELDMENT	1462	STK
4	2	CLEVIS GUIDE BLOCK (SLIDE SHOE)	1006	STK
5	2	HHCS, 3/8-16 UNC x 1 1/2"		STK
	2	3/8" LOCKWASHER		STK
6	1	PIN, 8" CYLINDER SHEAVE	1005-3	STK
7	1	PIN, 10" CYLINDER SHEAVE	1461-3	STK
8	4	SHEAVE THRUST WASHER	1035	STK
9	2	SHSS, 3/8-16 UNC x 1/2"		STK
10	1	SHSS, 3/8-16 x 1"		STK
	1	BACKING PLATE	1399	STK



SHEAVE CLEVIS ASSEMBLY

DATE: 2-20-91
DRN BY: DFK

1077

REV 2

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Wildeck® Inc.
PO Box 89
405 Commerce Street Waukesha, WI 53187
Telephone: 262/549-4000 * Fax: 262/549-7703



Lift Products: WARRANTY

Wildeck, Inc. warrants its manufactured VRC's to be free of defects. The warranty begins at completion of installation or thirty (30) days after shipment from Wildeck's factory, whichever comes first.

1. Structural Components – five (5) years parts and labor.
2. Non-Structural Components – one (1) year parts and ninety (90) days labor.

This warranty is valid only if the Wildeck Lift has been installed in complete accordance with Wildeck instructions and Wildeck must have a completed sign-off sheet in its possession.

Improprieties including but not limited to overloading, abuse, negligence, or failure to maintain or adjust the equipment properly, will void the equipment warranty.

The warranty is also voided if unauthorized parts or equipment are installed, or modifications are made to the Wildeck Lift without prior written authorization.

WILDECK SHALL NOT IN ANY EVENT BE LIABLE FOR ANY DAMAGES, WHETHER BASED ON CONTRACT, WARRANTY, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, INCLUDING WITHOUT LIMITATION ANY CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES, ARISING WITH RESPECT TO THE EQUIPMENT OR ITS FAILURE TO OPERATE, EVEN IF WILDECK HAS BEEN ADVISED OF THE POSSIBILITY THEREOF.

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