

# PFLOW VERTICAL LIFTS

The Nation's Largest Manufacturer of Vertical Lifts

# PFLOW

**Industries, Inc.**



## OWNER'S, INSTALLATION & MAINTENANCE MANUAL

## SERIES B



**READ THIS MANUAL IN ITS  
ENTIRETY AND VERIFY JOB SITE  
DIMENSIONS AGAINST GENERAL  
ARRANGEMENT DRAWING BEFORE  
STARTING THE INSTALLATION**

The illustrations in this manual are not to scale or detail and are for reference only.

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**Documentation**

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**System Modifications/Disclaimer**

Mechanical or electrical modifications performed on the VRC not approved by PFlow Industries, Inc. may also void any warranty and/or service agreements. Please contact the PFlow Sales or Service Department at one of the numbers listed above for assistance with service modifications.

Notes

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## INTRODUCTION

Thank you for purchasing a PFLOW INDUSTRIES, INC., Series B, Vertical Reciprocating Conveyor (VRC). We are confident that your unit will provide you with many years of reliable service.

**CODE REQUIREMENTS** - VRCs are NOT elevators. Your unit is designed for the movement of materials only, up to its rated capacity, from one level to the next. VRCs have their own national code (ANSI/ASME 820.1) and are specifically exempt from the National Elevator Code. All electrical designs and components are in accordance with National Electric Code (NEC) requirements. Local codes may require initial inspection of the installation and periodic inspection and testing of the unit.

Some states require special components and have specific guidelines regarding how the equipment must be installed, inspected, and tested. If we know in which state the equipment will be located, and if we are kept informed of state and local requirements, Pflow will incorporate the components into the order, as approved by the customer, and also provide any pertinent information, as called out on the general arrangement drawing, related to the installation of the equipment. We will not be on site for the testing, but we strongly advise that the installer be there.

If at any time you have questions about your state's requirements, please feel free to call.

## NOTE

*The information and illustrations in this manual are intended only as an aid to understanding the VRC's general installation. It does not cover every possible contingency or circumstance regarding non-standard options or site conditions.*

If you have a problem, call Pflow at (414) 352-9000, between 8:30 A.M. and 5:00 P.M., CST, Monday through Friday. Ask for the Product Support Department and have your serial number ready.

**Parts** - Pflow Industries maintains a complete stock of, or has access to, all replacement components. We keep detailed records of all equipment sold. If something is damaged in shipment, is defective or missing, contact us immediately.

**Service** - Our Product Support Department is available to assist your maintenance personnel with any questions or problems they may have regarding the equipment.

**Warranty** - Our warranty procedures can be found in this manual. Prior authorization must be obtained from Pflow before commencing work of any kind.

**Feedback** - Let us know how we are doing. Each Series B manual contains a questionnaire. Please fill it out and return it to us. We can't prevent a problem if we are not aware of it.

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# B Series

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## SAFETY

To ensure your safety and the safety of those around you, it is important that you read, understand, and follow ALL the safety precautions relative to a particular task. Safety precautions in this manual are labeled with the alert symbol followed by the word DANGER, WARNING, or CAUTION.

### **A** DANGER

When you see this symbol, it means that serious injury or death is likely if the instructions are not followed carefully.

### **&** WARNING

When you see this symbol, it means that the potential for personal injury is high if directions are not followed carefully.

### CAUTION

When you see this, it means that the potential for damage to the equipment is high if directions are not followed carefully.

### NOTE

*This term is used to provide additional information to help clarify instructions.*

### **A** DANGER

HIGHVOLTAGE. Failure to follow proper procedures when performing electrical installation or service may result in serious injury or death.

### **A** DANGER

DO NOT ride this equipment. Riding may result in injury or death. VRCs ARE NOT ELEVATORS.

### **A** DANGER

DO NOT walk or work under a raised platform.

### CAUTION

DO NOT exceed rated capacity.



# Equipment Arrival and Unpacking

## EQUIPMENT ARRIVAL AND UNPACKING

1. The Series B lift will arrive banded or lagged to a pallet. To ease handling and to prevent damage, leave lift on pallet until it is as near to the installation site as possible.
2. The carriage is braced in place to prevent it from moving during shipment.
3. One piece units will be banded to pallet.
4. Units ship knocked down will usually have three pieces bolted or banded to pallets.
5. Remove only bolts holding lift to skid.
6. DO NOT remove bolts holding lift sides to bottom lift frame. See Figure 1.

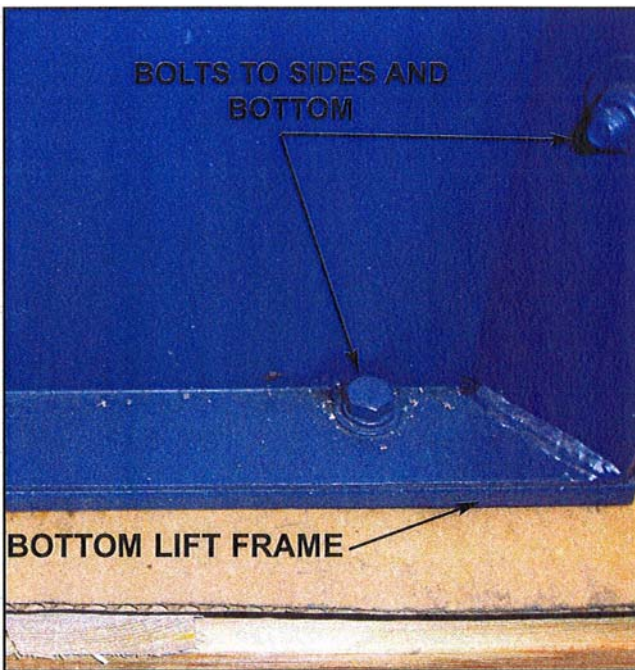


Figure 1

## BRACING TYPICAL

Your site conditions might require different configurations.

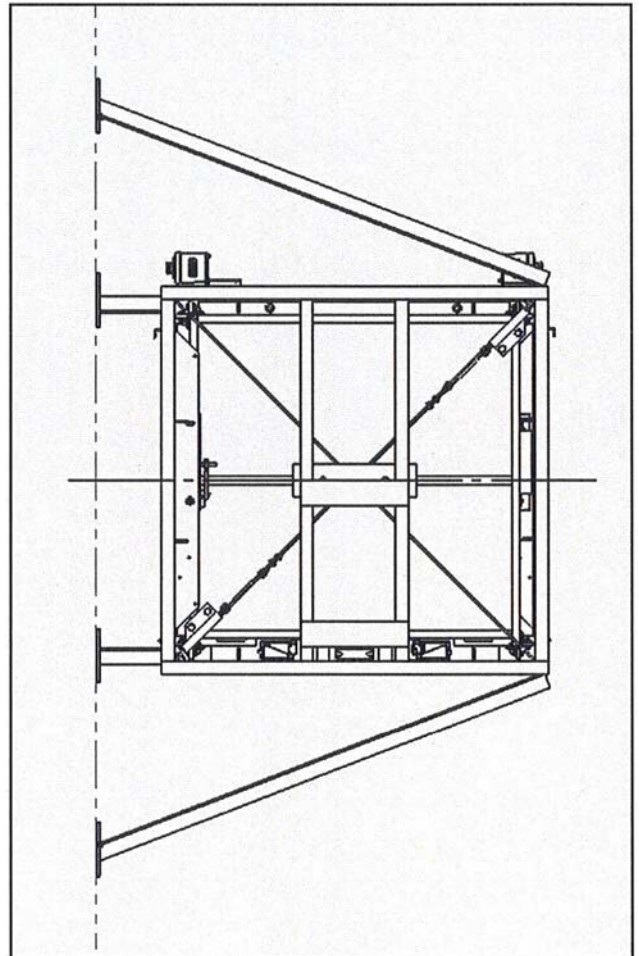


Figure 2

# 8 Series

## PRE-INSTALLATION CHECKLIST

Site conditions can mean the difference between an installation that is smooth and one that is difficult.

We have provided a general checklist to help set up your installation. We recommend that the installer, or someone with installation experience, discuss not only these items but all other concerns directly with the people on site.

A pre-installation visit is always recommended and considered to be included in the responsibilities of the mechanical installer.

### & WARNING

**Safety should always be first and foremost in your mind on this or any job. Besides following safe working procedures, items required by OSHA may include: a hard hat, safety shoes, safety glasses and belt, fire extinguisher, and other safety equipment.**

### Mechanical Installer Responsibilities

- Complete mechanical erection of the equipment as sold by Pflow, called out on the general arrangement (GA) drawing and in accordance with all instructions within this installation manual.
- Return trip upon completion of the electrical installation for final checkout, adjustments and training. (See Completion Checklist.)
- On non-union sites, mounting of all electrical devices.

### Customer Responsibilities

- Unloading and transportation of the equipment to the installation area.
- Storage (if applicable). If unit is stored indoors or long-term storage is required, consult Pflow Industries for storage procedures required to keep warranty in effect.
- All necessary site work to prepare for the installation such as pit, floor opening, adequate bracing locations, and shaftway openings.
- Any site/building modifications necessary to get the equipment to the installation area.

- Adequate pick point or lifting mechanism capable of lifting the heaviest load. If weight of load is in question, please call Pflow Industries.

If you have any questions or concerns, please contact our Product Support Department prior to start of work.

- \_\_\_ Can the equipment pass through all doorways, hallways, etc.?
- \_\_\_ Can you use the customer's fork truck? Is the truck's capacity sufficient?
- \_\_\_ Are safety meetings required?
- \_\_\_ Are there any work procedure/safety guidelines particular to the job site?
- \_\_\_ Is welding permitted? Is a "hot permit" required? Is a fire watch required?
- \_\_\_ Is there a pick point capable of lifting the necessary components?
- \_\_\_ What hours are you allowed to work on site?  
Who is the authorized site contact?  
Is this a union or non-union site?
- \_\_\_ Bracing requirements - Will additional materials be required?
- \_\_\_ Is temporary power available within 10 ft. of the unit?
- \_\_\_ Do you have a well-lit area to work in?
- \_\_\_ Is the installation area ready (pit complete, floor opening cut and/or finished, etc.)?
- \_\_\_ Are shaftway openings complete?
- \_\_\_ Are there any discrepancies between the site dimensions/application and the Pflow GA drawings? Has this information been provided to Pflow?
- \_\_\_ Will customer doors and/or shaftway openings be completed prior to your arrival?
- \_\_\_ Will other trades or in-plant production cause conflict with your proposed work schedule?

## SITE VS. GENERAL ARRANGEMENT

### Comparison Check

1. Check your shipment to make sure that nothing is damaged or missing. Damaged or missing components must be reported to Pflow Industries immediately per instructions in the introduction of this manual.
2. The shipping packet contains a copy of the general arrangement drawing.
3. Compare the dimensions as called out on the general arrangement drawing to actual site conditions. Report any discrepancies to Pflow immediately. The following are just a few of the dimensions that could be a problem if they do not match:

Overall Unit Width  
Overall Unit Length  
Load Height Clearance  
Overhead Clearance  
Elevation of Level 1  
Elevation of Level 2

Are there any protrusions from the floor level or wall that could interfere with either the installation or operation?

Floor-to-Floor Clearance - Upper Level

### **CAUTION**

**Discrepancies between the general arrangement drawing and site conditions must be addressed immediately. Contact the Product Support Department (414) 352-9000 for assistance.**

# B Series

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## TOOLS REQUIRED FOR VRC INSTALLATION

The following is a list of tools we feel are necessary to install a VRC in a professional and expedient manner. This is only a guideline. Individual sites and applications may require additional items as needed. If you have any questions regarding these items, contact Pflow Industries.

Forklift - 4,000# capacity or alternative	25' Measuring tape
Chain fall - 4,000# capacity minimum	Rags
Come-A-Long	Alignment pins
Cables or hook chains with 4,000# or greater capacity	
4' Level	
Socket set - 3/8" drive, sockets to 3/4"	
Hammer drill and bits for 3/8" or 1/2" anchors, 4" min.	
Drill and drill bits	
Extension cords	
Portable light	
Sledge hammer (plastic)	
Allen wrenches to 3/8"	
Open or box-end wrenches to 3/4"	

## INSTALLATION COMPLETION CHECKLIST

Please make sure all of the following steps are complete:

- The VRC is braced from front to back and from side to side.
- Touch up all welds, marks, scrapes, etc. with paint.
- Make sure that all electrical connections are properly made.
- Check that the unit stops level at each floor.
- Is there excessive noise during travel?
- Do a full load test
- Are there any unsafe conditions that exist?  
If so, please report them to Pflow Industries immediately.
- Post all operational signs.
- Remove all debris.
- Instruct the customer on the proper operation.
- Instruct the user on proper loading.
- Instruct the customer on procedures if there is a problem.
- Complete the Installation Questionnaire and Acceptance Certification. Return both to Pflow Industries.

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# Installation Instructions

**LIFTS SHIPPED KNOCKED DOWN (MULTIPLE SECTIONS)** Proceed to Page 15.

## LIFTS SHIPPED IN ONE PIECE

1. Unstrap from skid.
2. Place strap around center plate. (Do not place strap around sprocket shaft, only the plate). See Figures 1 and 2.



Figure 1



Figure 2

### NOTE

*Bottom section is approximately 1,100 lbs. Top section is approximately 700 lbs. Middle section is 90 lbs. per foot. (Combine weights to obtain the weight of one piece.)*

3. Lift slightly. Remove cables and eye bolts at bottom of lift holding carriage secure for shipping. See Figures 3 and 4.



Figure 3

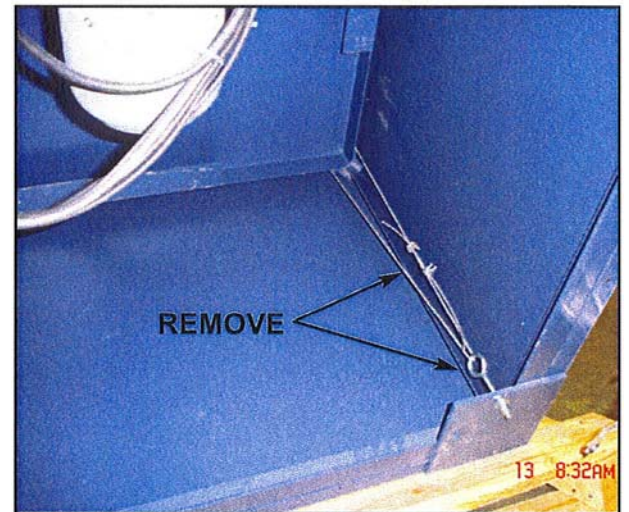


Figure 4

4. Raise lift vertically.
5. If you need to push unit, push only on edges or use a block of wood on the bottom frame to tap unit into place. Don't push on face of sheet metal panels. See Figure 5.

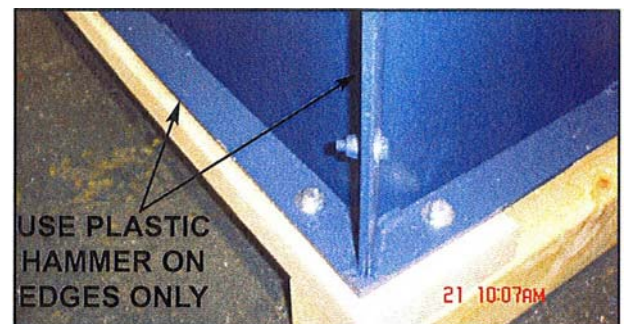


Figure 5

6. Move unit to location. Orientate according to general arrangement drawing.

# B Series

## Anchoring & Bracing - See Figures 6, 7, and page 5

1. Anchor four corners inside of lift. You may want to do this after carriage is raised to upper location. See Figure 6.

### CAUTION

Do not work under the carriage unless it is properly and safely supported and electrically tagged and locked out.

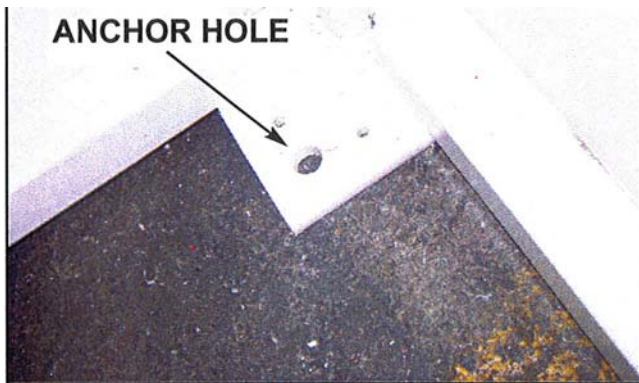


Figure 6

2. Use angle attachments to brace unit. Drill through unit flanges to attach to unit. Use shipping angles that are provided to attach to the customer's building, mezzanine, etc. See Figure 7.

### NOTE

You may use one existing flange bolt and then drill and bolt through other hole.

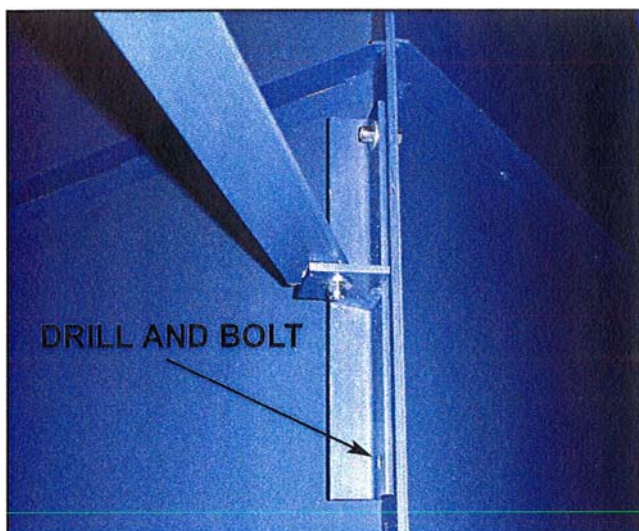


Figure 7

3. Mount push button stations if removed for shipping. See Figure 13, page 17, Figure 16, page 18, and Figure 17, page 19.
4. After carriage is hanging from lift chains, back safety pin retaining nuts all the way to the "eye" of eye bolt. Lock into place. The safety pins are now ready to actuate if chains break. See Figure 8. Pins should stick past housing approximately 3/8". Adjust turnbuckle, if needed. See Figure 9.

### NOTE

To adjust pins, carriage must be hanging free by the chains. You may have to wait until you raise the carriage slightly during start up to do this step.

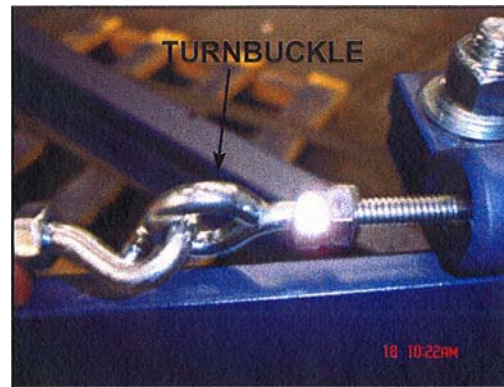


Figure 8

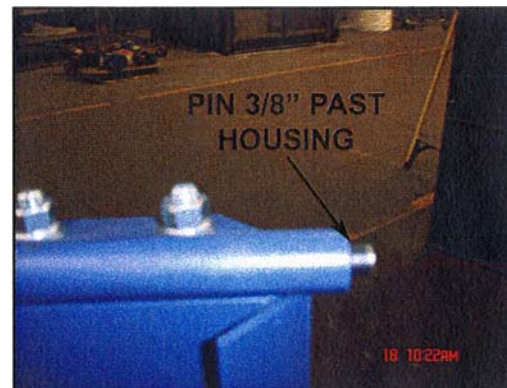


Figure 9



# Installation Instructions

5. Bring power (proper voltage) to 4" box mounted on lower section of lift. See Figure 10.

### CAUTION

Before wiring, check the voltage on the general arrangement drawing. Wrong voltage will destroy inverter.

Before running lift, make sure cables and chains are clear of moving carriage.



Figure 10

### ADJUSTMENTS I F NEEDED

1. Adjust plate up and down or interlock keeper left or right to align into interlock. Adjust magnet to hold gate shut. See Figure 11.

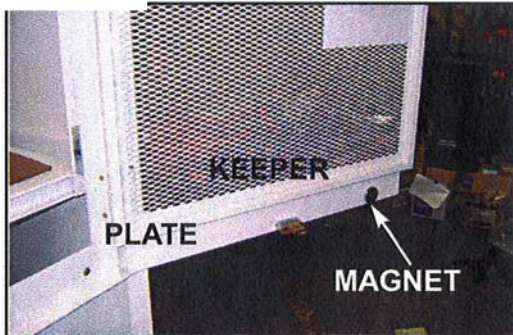


Figure 11

2. Adjust overtravel switch so carriage won't run into interlock or top lift components. See Figure 12.



Figure 12

3. Make sure chain break block does not hit reducer before actuating. See Figure 13.

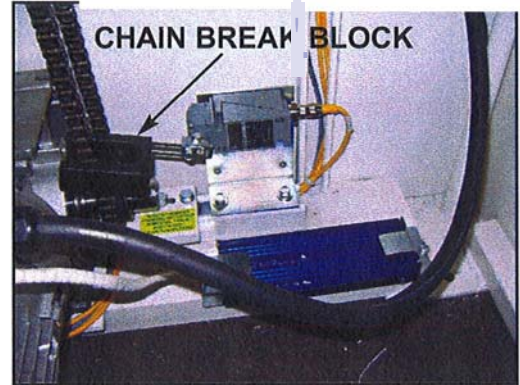


Figure 13

4. If arm adjustment is needed, loosen nut by eyebolt and set screw in end of bar. Do not go much past vertical with white rub block. It must be able to pivot down past end of bar. If it pivots the wrong direction, it will jam device. See Figure 14.

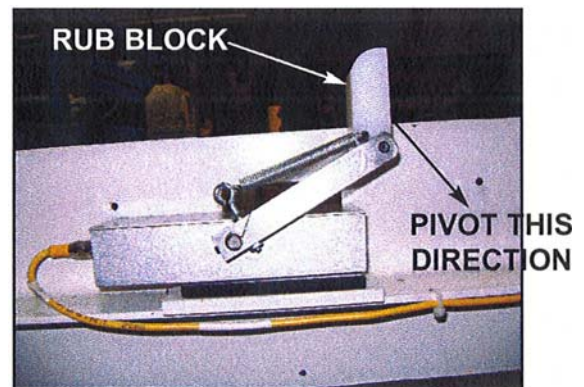


Figure 14

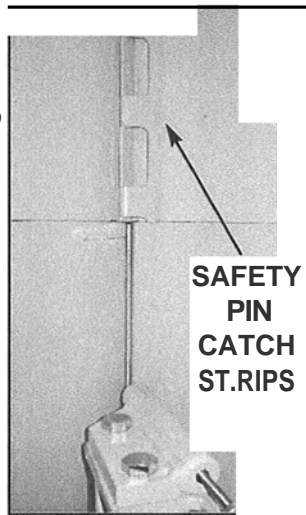
# B Series

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## START UP

1. Make sure all wood blocks are removed from chain and top of carriage chain mount.
2. Close gates and pull out e-stops.

3. Run unit up approximately one foot and push red e-stop on push button station to confirm it works. Look at safety pins on top of carriage to ensure they will clear catch strips and are centered in slots in strip. If side-to-side adjustment is needed, loosen bolts and tap pin housing. Also, make sure pins are approximately 3/8" out of housing. See Figure 15.



**Figure 15**

4. With someone at upper level near e-stop, run carriage up to second level. It should stop via the interlock / stop switch. If it stops on the overtravel, you will have to re-adjust interlock / stop switch arm to engage carriage sooner or adjust overtravel switch to engage later. Also, carriage should not "bottom out" or "top out" against any physical stops.

# Installation Instructions

## LIFTS SHIPPED IN PIECES

1. Do not remove any of the wood shipping blocks that are attached to any of the chain until the lift is completely standing and chains are all connected. See Figure 1.

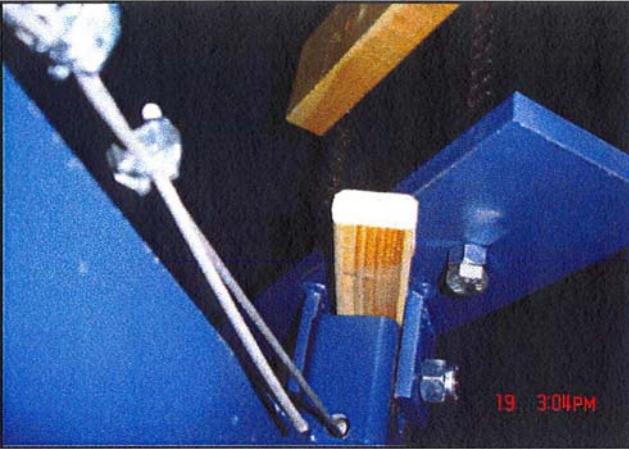


Figure 1

2. Lift top section by middle plate (make sure straps go around plate only, not sprocket shaft) or around channels. See Figures 2 and 3.

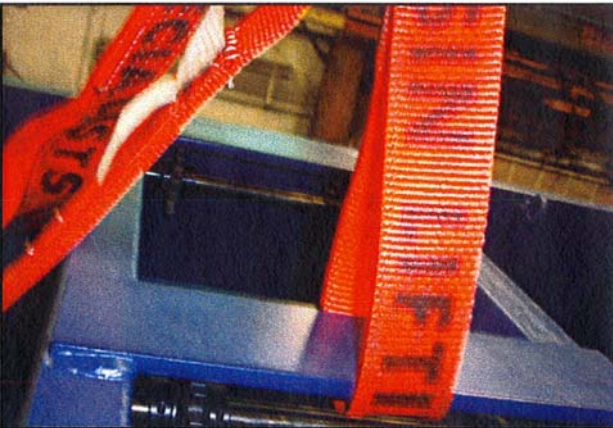


Figure 2



Figure 3

Check orientation of lift to GA drawings. Unbolt from skid.

3. Move middle section under top section. You will see strut channel on inside of one of the panels. This channel will be on the same side of the lift on all sections. (Channel is for running wires to top of lift later.) See Figure 4.

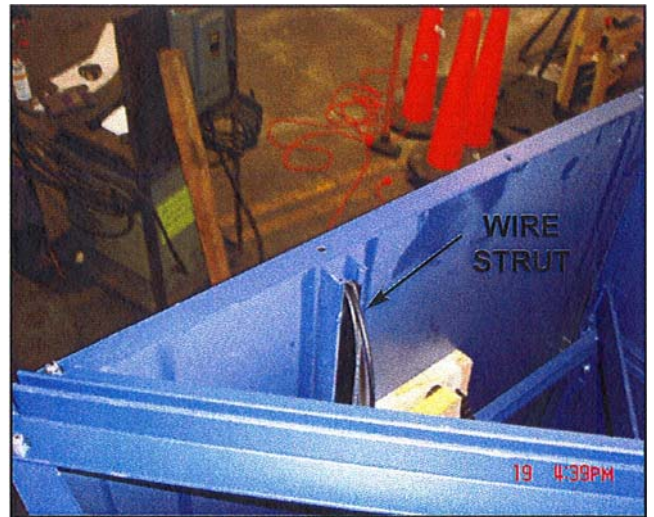


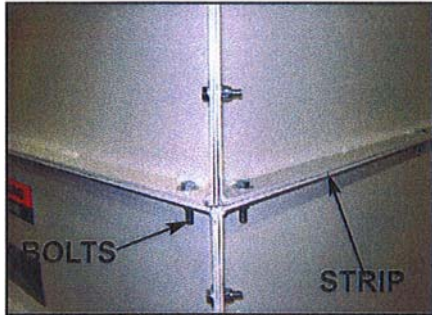
Figure 4

4. Bolt middle section under top section using 5/16" hex bolt, two flat washers and lock nuts. Move with skid or use angles mounted to bottom section. See Figure 5.



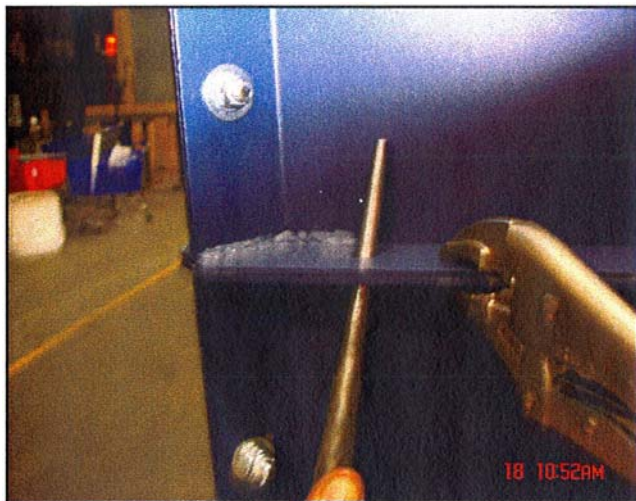
Figure 5

## 8 Series



**Figure 6**

To align sections (Figure 6), use alignment pin to get edges on bolt strip even. Hold with vice grip pliers and remove alignment pin and bolt with above-mentioned hardware. In some circumstances, you may have to loosen bolts above or below strip to get them to align (Figure 7). This is okay. After the section is all bolted together, go back and retighten those bolts again.



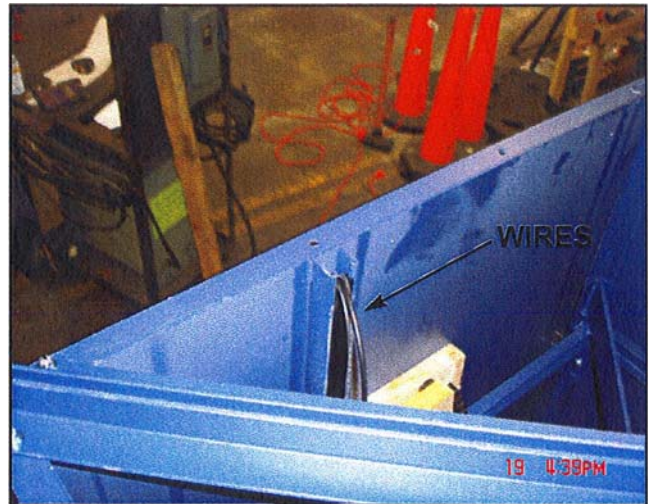
**Figure 7**

If you must move the entire section to get close to alignment, use a plastic sledgehammer on the edges only of the sections and not on flat sides of panels. See Figure 8.



**Figure 8**

5. Repeat placing bottom section under middle section and bolt the same way. Be careful not to pinch wires in strut channel. See Figure 9.



**Figure 9**

### NOTE

*Remove the two angles prior to this (Figure 10).*

### NOTE

*The angles can be used to lift section off skid and move section if needed.*



**Figure 10**

# Installation Instructions

## Anchoring & Bracing - See Figures 11, 12, and page 5.

- Anchor four corners inside of lift using minimum or 3/8" diameter anchors in all four corners (inside lift under carriage). You may want to do this after carriage is raised to upper location. See Figure 11.

### CAUTION

Do not work under the carriage unless it is properly and safely supported and electrically tagged and locked out.

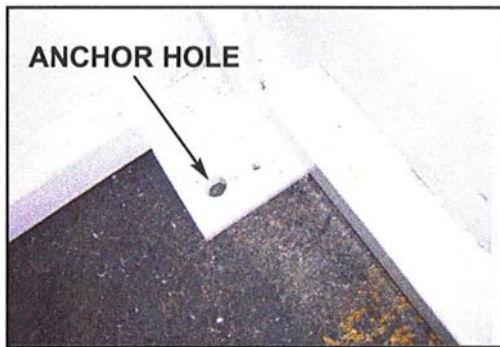


Figure 11

- Use angle attachments to brace unit. Drill through unit flanges to attach to unit. Use shipping angles that are provided to attach to the customer's building, mezzanine, etc. See Figure 12.

### NOTE

You may use one existing flange bolt and then drill and bolt through other hole.

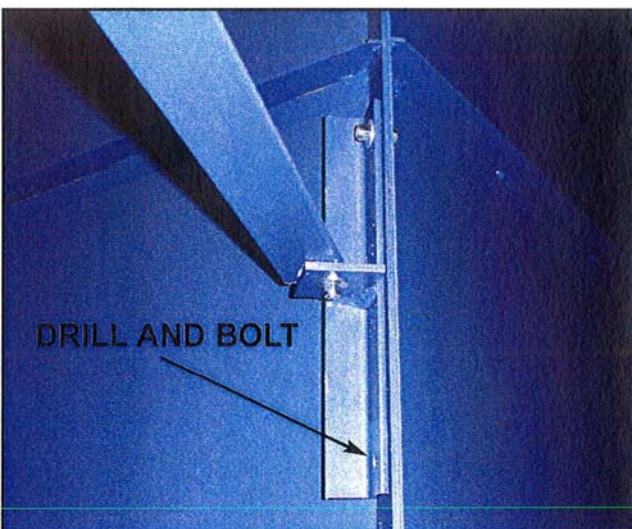


Figure 12

Use lifting angles to brace unit if needed. Bolt through a flange and to mezzanine or building.

- Remove access cover below lower level gate to gain access to control panel cables. Feed cable (PB1) through hole with grommet in lower panel and to where you have mounted push button station near lower level gate. Secure cables inside and outside of lift so they don't interfere with moving parts of lift. Match wire tag to device. See Figure 13.

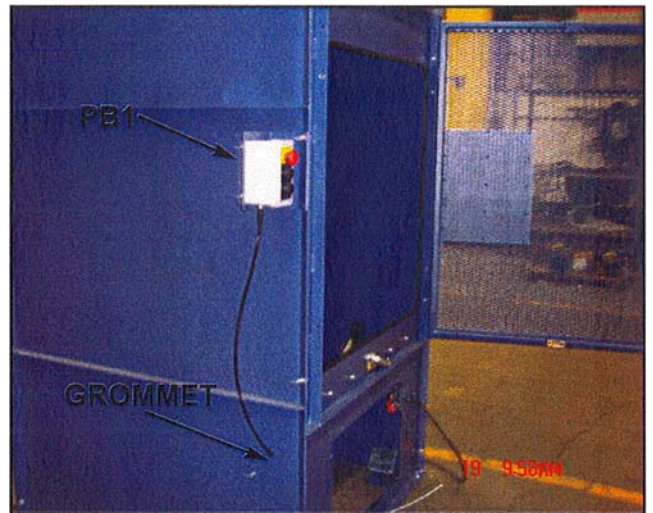


Figure 13

- Run upper electrical component cables up back panel in unistrut and secure with covers. Route wires to appropriate components (wire markers) securing around top of lift out of way of any moving parts. Run push button cable over top of lift and down along edges to push button station mounted near gate handle. Secure cable out of way. See Figures 14, 15 and 16.

## B Series

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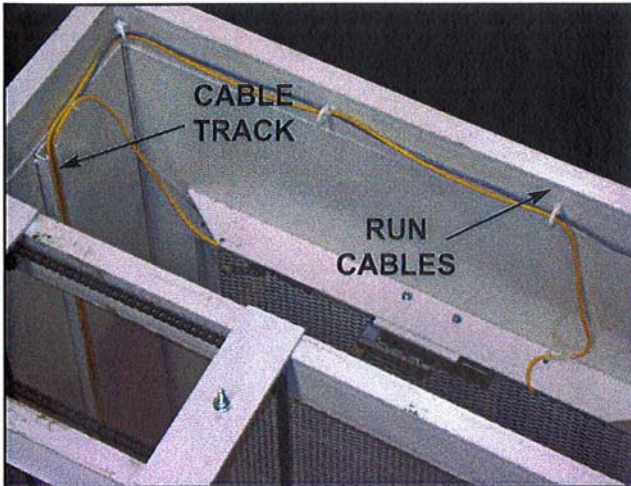


Figure 14

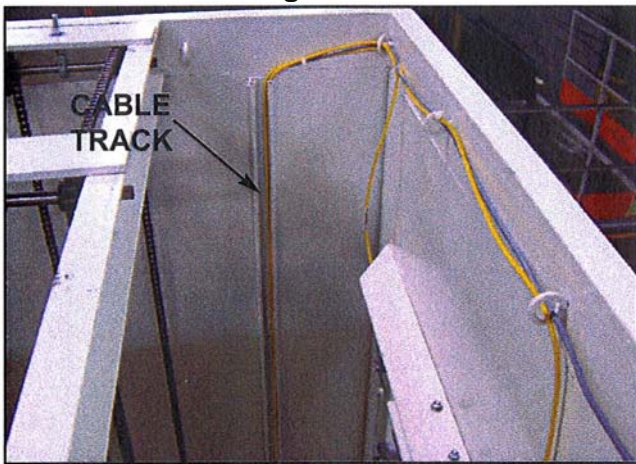


Figure 15

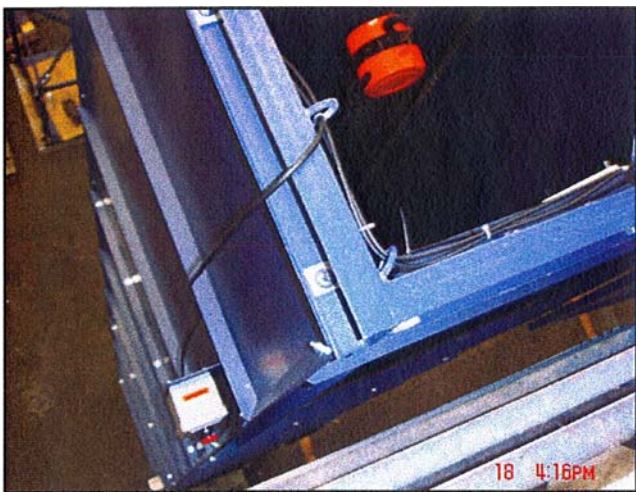


Figure 16

### NOTE

*Cables might be run through different rings than shown in picture. Cables were pre-mounted and wire tied, so run through the obvious route.*

# Installation Instructions

10. Attach push button brackets to one of the bolts holding horizontal edge of lift sides together. See Figure 17.

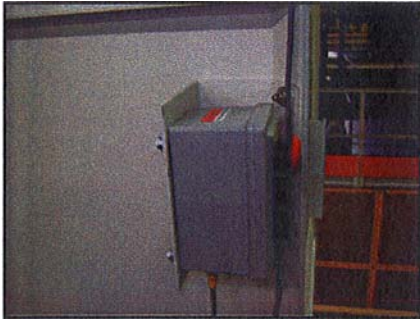


Figure 17

11. Uncoil lift chains which are in the top section of the lift. The chains are temporarily held from rolling over sprockets by bolts through the chain and into a wood block on top of the lift. After you connect chains to top of carriage and to loose ends of chain behind carriage, you can remove blocks from chains. See Figures 18, 19, 20 and 21.

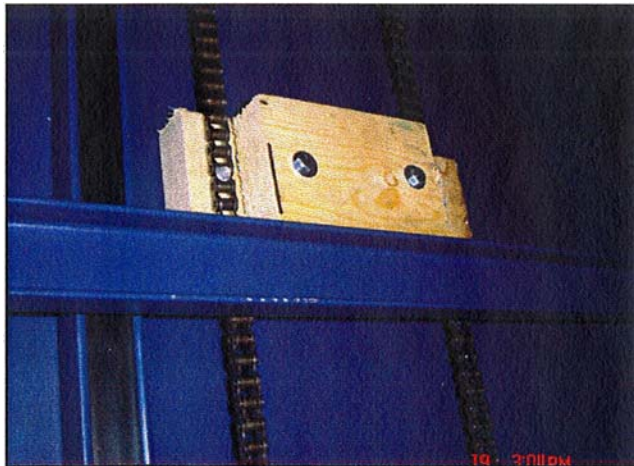


Figure 18

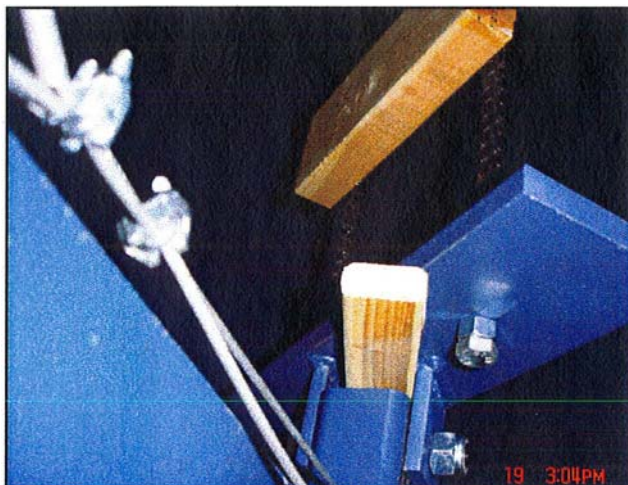


Figure 19

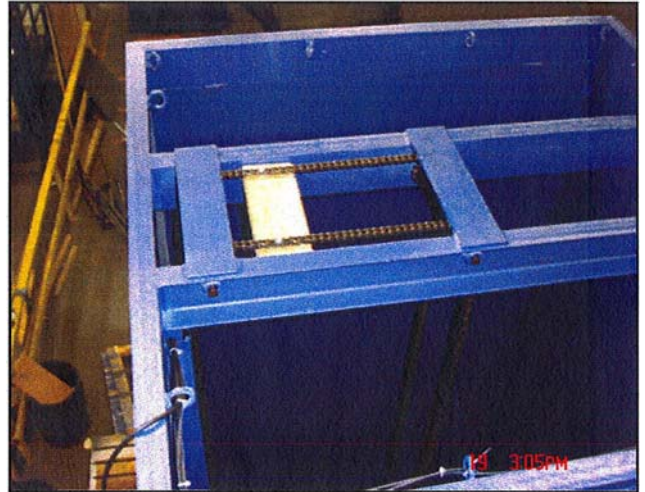


Figure 20



Figure 21

You may have to lift carriage slightly to attach chains. Use come-along, if needed. After all ends of chains are connected, you must remove all wood blocks.

## CAUTION

If you need to lift carriage up, you must move wood block up higher on chain. See Figure 18. Be careful not to lift carriage too much, or you will stretch springs under carriage.

## B Series

If chains seem short, check bottom sprockets and make sure chain is not bunched up by sprockets and jump guide. See Figure 22.

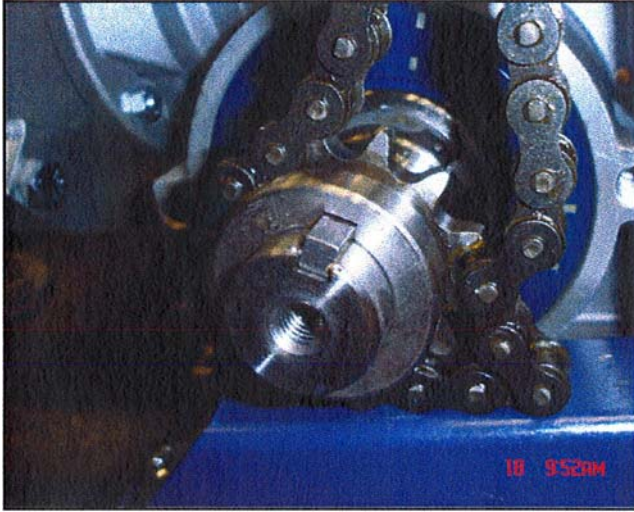


Figure 22

12. The return end of chain should already be attached to bottom of carriage via springs. There should be enough tension on springs to keep chain tight around sprockets on motor when lift is at upper level. If more tension is needed, adjust with bolts. See Figure 23. (Springs should extend approximately 4".)

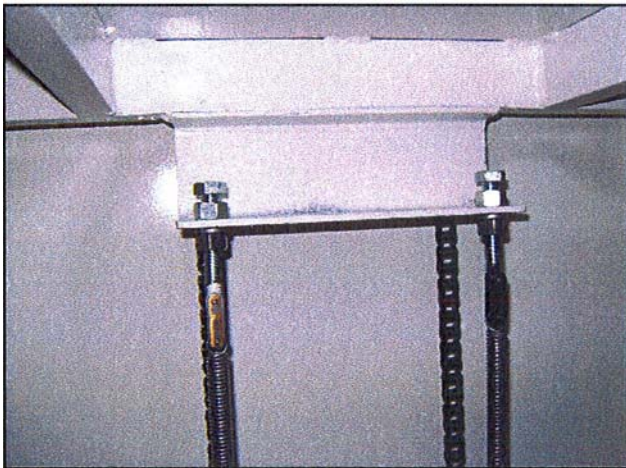


Figure 23

13. After carriage is hanging from lift chains, back safety pin retaining nuts all the way to the "eye" of eye bolt. Lock into place. The safety pins are now ready to actuate if chains break. See Figure 24. Pins should stick past housing approximately 3/8". Adjust turnbuckle, if needed. See Figures 24 and 25.

### NOTE

To adjust pins, carriage must be hanging free by the chains. You may have to wait until you raise the carriage slightly during start up to do this step.

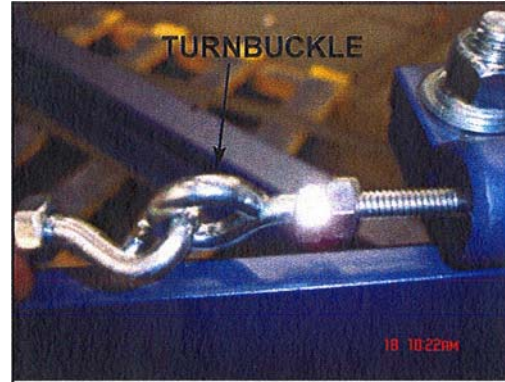


Figure 24

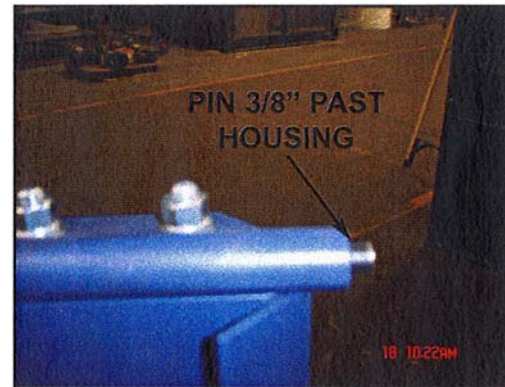


Figure 25

14. Bring power (proper voltage) to 4" box mounted on lower section of lift. See Figure 26.

### CAUTION

Before wiring, check the voltage on the general arrangement drawing. Wrong voltage will destroy inverter.

Before running lift, make sure cables and chains are clear of moving carriage.

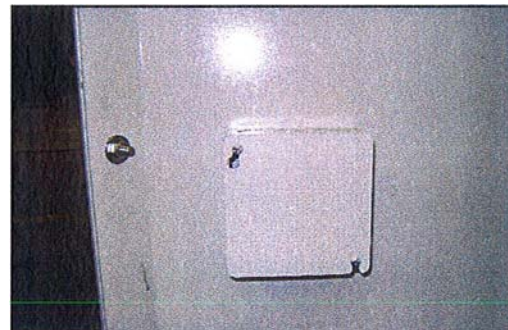


Figure 26



# Installation Instructions

## ADJUSTMENTS IF NEEDED

1. Adjust plate up and down or interlock keeper left or right to align into interlock. Adjust magnet to hold gate shut. See Figure 27.

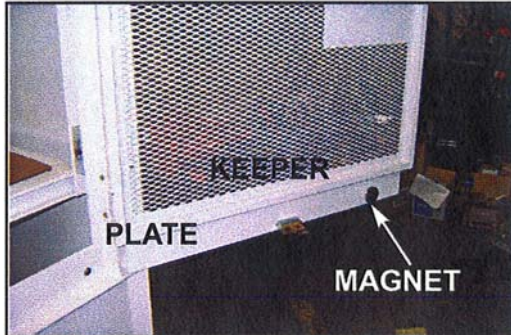


Figure 27

2. Adjust overtravel switch so carriage won't run into interlock or top lift components. See Figure 28.



Figure 28

3. Make sure chain break block does not hit reducer before actuating. See Figure 29.

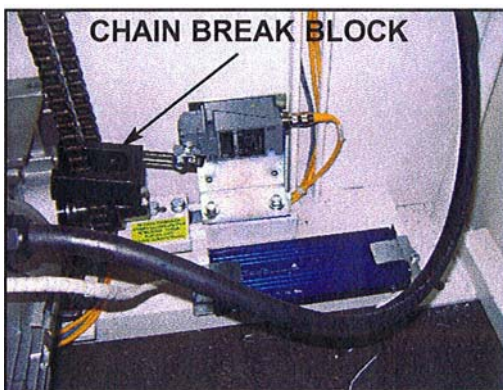


Figure 29

4. If arm adjustment is needed, loosen nut by eyebolt and set screw in end of bar. Do not go much past vertical with white rub rub block. It must be able to pivot down past end of bar. If it pivots the wrong direction, it will jam device. See Figure 30.

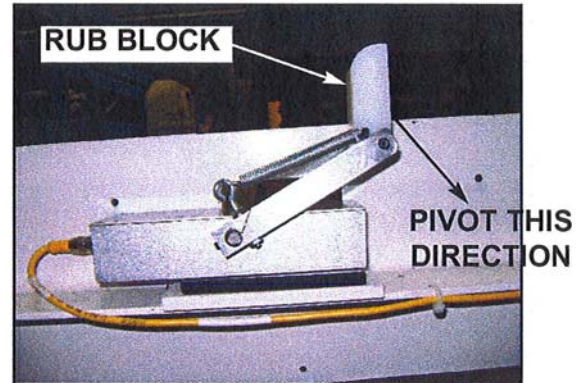


Figure 30

## START UP

1. Make sure all wood blocks are removed from chain and top of carriage chain mount.
2. Close gates and pull out e-stops.

3. Run unit up approximately one foot and push red e-stop on push button station to confirm it works. Look at safety pins on top of carriage to ensure they will clear catch strips and are centered in slots in strip. If side-to-side adjustment is needed, loosen bolts and tap pin housing. Also, make sure pins are approximately 3/8" out of housing. See Figure 31.

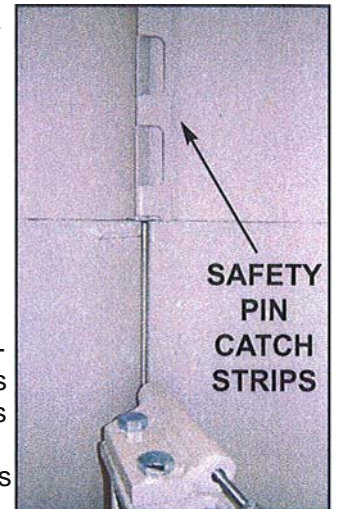


Figure 31

4. With someone at upper level near e-stop, run carriage up to second level. It should stop via the interlock / stop switch. If it stops on the overtravel, you will have to re-adjust interlock / stop switch arm to engage carriage sooner or adjust overtravel switch to engage later. Also, carriage should not "bottom out" or "top out" against any physical stops.

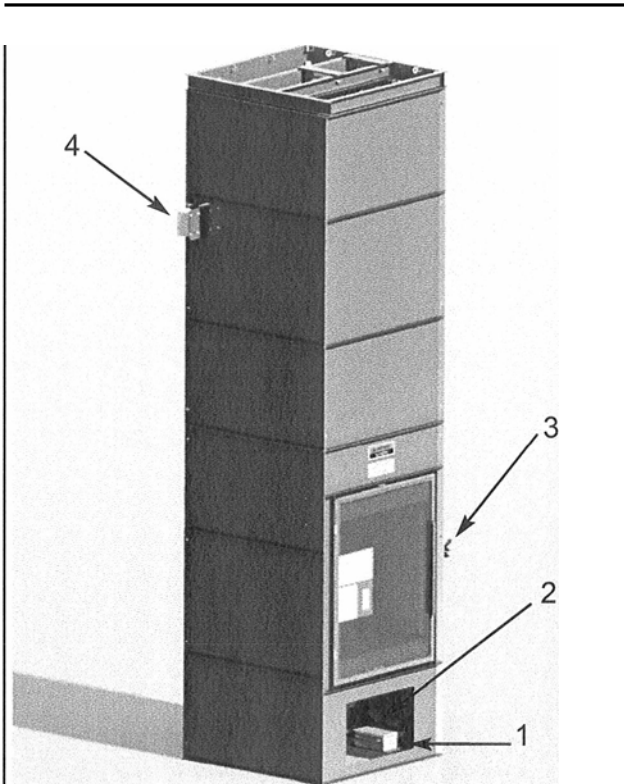
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## ELECTRICAL OVERVIEW

### NOTE

*The following is a standard description of the electrical wiring of the VRC ONLY. It DOES NOT include specifics on options available or ordered. A copy of the schematic can be found in a manila envelope in the parts crate.*

All electrical devices are tied into the **MAIN CONTROL PANEL**.



1. Main Control Panel (inside lower portion of unit)
2. Gear/Motor Unit (inside lower portion of unit)
3. First Level Push Button Station
4. Second Level Push Button Station

**PUSH BUTTON STATIONS.** One station is normally supplied for each level. ANSI/AME B20.1 code requires that they be remotely located so they cannot be activated by someone standing on the carriage. Each station has an UP, DOWN, and EMERGENCY STOP button.

The UP and DOWN switches are momentary contact. This allows the operator to depress the button and let go. The EMERGENCY STOP button is pushed to activate but will stay in and must be pulled back out for the unit to operate.

Required by NEC code, the **MAIN DISCONNECT** should be fused, lockable, and located within line of sight of the control panel. (Not supplied by Pflow.)

### & WARNING

**All gates or doors accessing the lift area must be electro-mechanically INTERLOCKED. This requires electrical contacts to prevent the lift from operating if a gate is open when the carriage is at that level and mechanical locks to lock the gate until the carriage is at that landing.**

Different types and styles of interlocks are supplied depending upon the type of gate and on-site conditions. Standard styles incorporate from one to four electrical components per gate.

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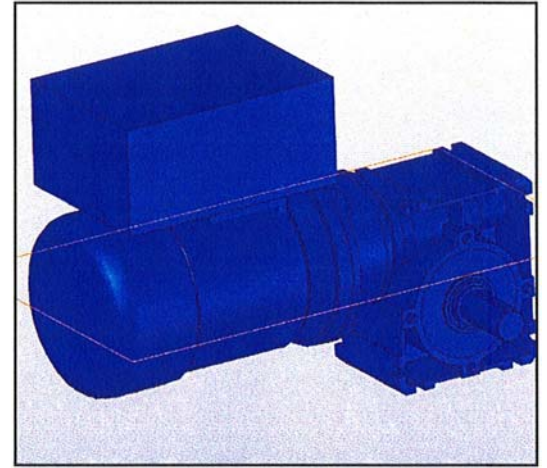
# Quick-Connect Cabling for Series B Mechanical Units

Connectors are factory installed in the control panel. Pflow Industries provides quick-connect cables that have a screw-on connector at one end that attaches to the push button stations, gate interlocks, limit switches and a screw-on connector at the other end that plugs into the connector in the control panel.

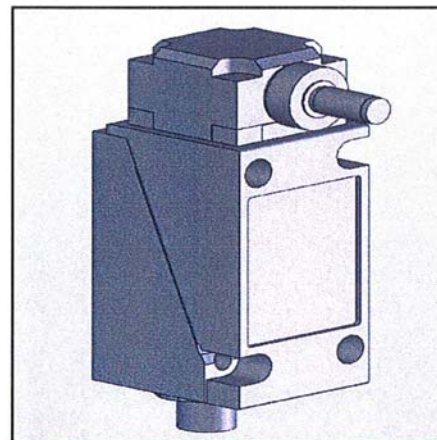
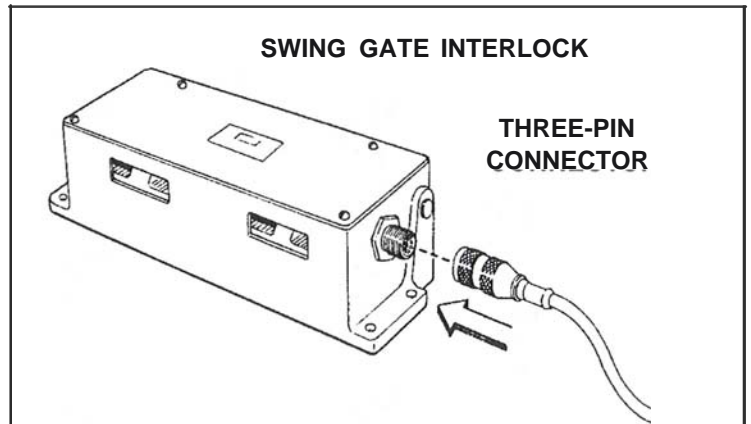
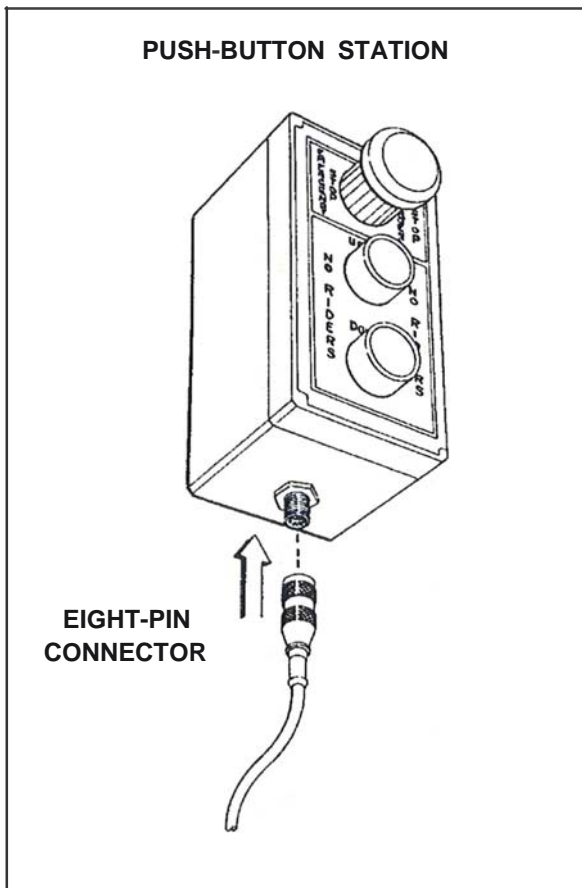
1. Install interlocks, push-button stations and limit switches;
2. Route cable to push-button station(s), interlock(s), limit switches and control panel.

Cables should be installed inside the column or in an area where they will not hang loose. Use tie wraps to loop and secure excess cable.

If additional cabling is required, Pflow stocks extension cables that may be installed between the existing cable, the interlocks, push-button stations and limit switches. Call if these are needed. Standard cables are three-pin for interlocks, five-pin for limit switches and eight-pin for push-button stations.



**SERIES  
B**



**LIMIT SWITCH  
FIVE-PIN  
CONNECTOR**

**PFLOW INDUSTRIES, INC.**, 6720 North Teutonia Avenue, Milwaukee, WI 53209  
(414)352-9000; FAX (414) 352-9002; 043002/013012

# Quick-Connect Cabling for Series B Mechanical Units

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Your Pflow Industries Series 8 vertical conveyor is supplied with pre-installed electrical quick-connect connectors for the interlocks, push-button stations and limit switches. These connectors are factory installed in the control panel. Pflow Industries provides quick-connect cables that have a screw-on connector at one end that attaches to the push button stations, gate interlocks, limit switches and a screw-on connector at the other end that plugs into the connector in the control panel.

This factory-supplied cabling system is well accepted by industry and is rapidly becoming a standard at major automotive companies such as GM, Ford, and Chrysler.

Pflow is offering this system with the hope of reducing field installation costs by allowing the mechanical installers to both mount and hook up the interlocks, push-button stations and limit switches without the services of an electrical contractor. This would also allow the installation to be completed in one trip.

Pflow does not currently provide any wireway or protective covers to aid in routing these cables.

The quick-connect cables are not covered by a specific local, state, or federal code nor by any code guarantee from Pflow. It is important for the customer to understand that local inspectors may not be familiar with this type of cabling system and may want the unit hooked up with EMT or rigid conduit.

Resellers should include a disclaimer that hookup of devices is included as long as the customer and local authorities accept the factory quick-connect cabling system. Costs associated with rework on the job to add EMT or conduit will not be covered by the reseller or Pflow Industries.

As Pflow gathers more field data on these quick-connect cables, we will share that information with you.

## WARRANTY

### PARTS

Structure .....Lifetime  
Manufactured Components .....One Year  
Purchased Components .....One Year

### LABOR

Structure .....Lifetime  
Manufactured Components .....One Year  
Purchased Components .....90 Days

### The Small Print

The warranty period begins 30 days after shipment. All warranty work must be pre-authorized by Pflow Industries' Product Support Department prior to starting work. All billing must be in accordance with our Warranty Procedures. Replacement of defective parts will be handled in accordance with Pflow's Return Goods Authorization policy. If Pflow Industries determines that equipment failures were caused by abuse, improper installation, or lack of maintenance, they will not be covered. Pflow Industries will not accept consequential losses (missed production, etc.), premium time labor, or air freight charges. Manufactured items are defined as those components manufactured and/or assembled by Pflow. Structure is defined as columns and carriage (excluding carriage side guards). Purchased items are those components that are used as supplied by vendors. Gates and enclosures are excluded and covered for 90 days parts and labor. This warranty applies to all models and may not be modified or extended except by written authorization from Pflow Industries, Inc.

We, the manufacturer, sincerely hope that you do not experience problems with the equipment. If you do, the following procedures should be followed:

### Pre-Authorization

Pflow Industries must be notified of the problem before we can authorize the repair. We need to determine the cause of the problem, who should be doing the work, and what is involved. If it is our decision to have your organization or your subcontractor do the work, you will be given an authorization number which must be referenced on all subsequent paperwork. During our non-working hours, we ask that you notify us by phone or FAX during the next business day.

Issuance of an authorization number does not guarantee approval and/or payment.

### Invoices

1. You have 30 days from the date the work was completed to submit an invoice for approval. If approved, payment is made 30 days from the date of approval.
2. A deduction from outstanding payments to Pflow for warranty is NEVER authorized and will result in a 10% processing fee.
3. Invoices received without sufficient information will be returned. They will be reconsidered for approval when complete documentation is received. All invoices must include, in detail, the following:
  - Description of problem;
  - Pflow serial number;
  - Labor hours per problem;
  - Rate per hour;
  - Travel time incurred;
  - Date work was performed;
  - Copies of receipts for materials purchased locally or labor subcontracted.

### Comments

Pflow Industries is not responsible for payment made on claims prior to our approval.

Local purchase of components must be pre-authorized.

Where distance and/or experience may be more cost-effective, Pflow Industries reserves the right to use alternate organizations.

Labor is defined as a maximum of two hours travel per call, plus reasonable on-site repair time as determined by Pflow Industries.

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## **B LIFT MAINTENANCE**

1. Oil chains as needed. (Don't over oil chain. Chain is above the load and may drip. Use no-drip lube if deemed necessary.)
2. Inspect safety pins for free movement. (Loosen turnbuckles to check for engagement. Retighten turnbuckles before running.) See page 15, #11.
3. For switch adjustment, see page 16.

# Maintenance Instructions

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RECOMMENDED SPARE PARTS LISTING

This recommended spare parts list is a guide to assist you in establishing an emergency inventory for your Pflow Vertical Reciprocating Conveyor. Convenience and minimal down time are two good reasons to maintain an inventory of spare parts. This list does not imply that any part is subject to failure. However, should any of these parts fail, they could place the unit out of service. Establishing a routine inspection and preventive maintenance program will add life and decrease the probability of down time.

Quantity	Part Number	Description
<u>Lift Components</u>		
1	13197-0000	Sprocket, 40 A18
1	13225-4016-22	Sprocket, 40 A16
1	JXXXX-XXXX	Gearmotor
1	2690-1000	Interlock. GAL
<u>Electrical Components</u>		
1	2891-0000	Arm, Limit Switch
1	13692-0014	Operator, M.H.P.B., Red Push-Pull
1	13690-0003	Operator, P.B., Flush, Black
1	13969-0052	Contact Block, 1NC
1	13969-0051	Contact Block, 1NO
1	EN708-0322	Relay, 2PDT, 12VDC
1	13675-1002	P. B. Station, Quick Connect
1	2893-1000	Limit Switch
1	15235-2006	Cable, M12 8-Pin, 6M
1	15235-2010	Cable, M12 8-Pin, 10M
1	15233-2002	Cable, M12 5-Pin, 2M
1	15233-2006	Cable, M12 8-Pin, 6M
1	15233-2010	Cable, M12 5-Pin, 10M

This is not a formal quote and is intended for reference and recommendation only. Prices and part numbers are subject to change or correction without notice. Minimum order charge \$35. FOB Milwaukee, WI. A \$50 Rush Fee may be charged for requested same day shipments. Components replaced under warranty will be charged for in accordance with our RGA procedures. Pflow Industries Product Support must issue an authorization in advance of any claim for warranty and/or warranty labor. This list is based on the above serial number as manufactured and shipped new from Pflow Industries. Any changes, updates, parts by others or modifications are unknown to Pflow Industries.

Pflow Industries, Inc., 6720 North Teutonia Ave, Milwaukee, WI 53209  
 Phone (414) 352-9000 Fax (414) 352-9002

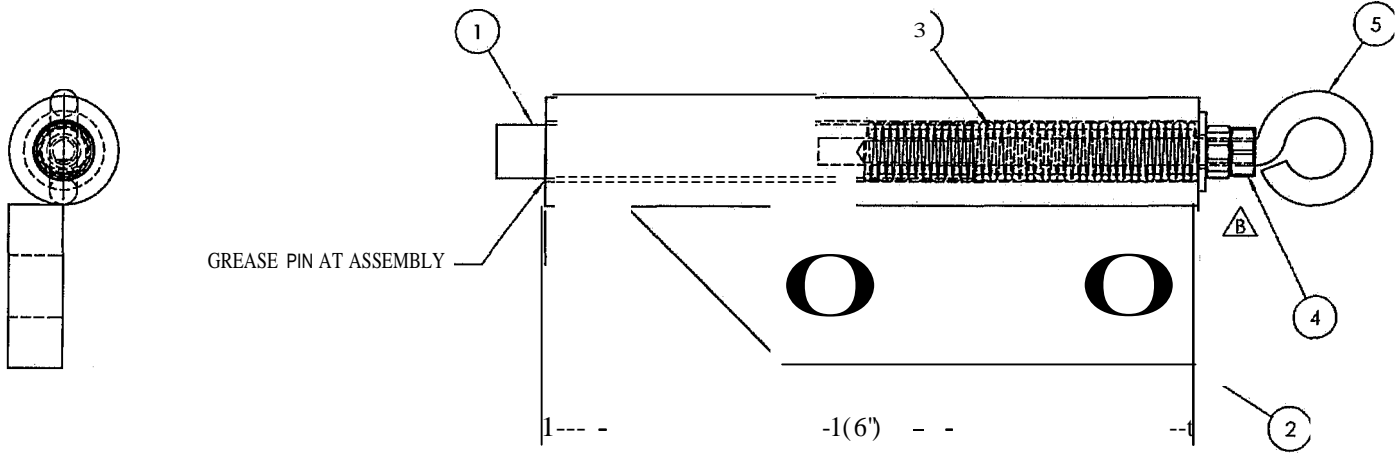
Establishing a routine inspection and preventive maintenance program will add life and decrease the probability of down time.

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Q

Item	Qty	Description	Length	Material	Part. Number	WGT./EA.
		PIN, SAFETY STOP			9645-0000	0
2	1	PIN, SAFETY STOP, WELDMEN			9646-0000	2
3	1	SPRING, COMPR, .480 OD			9521-0000	0
4	2	HNUT 1/4-20 GR 2			6358-0009	
5	1	EYEBOLT, 1/4-20 x 4, FULL			13834-00641	0

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**PFLOW**

PFLOW INDUSTRIES, INC. 414-350000

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B	9/10/2010	SJD	10.033
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REVISIONS

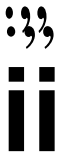
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MATERIAL REF. (NUMBER)

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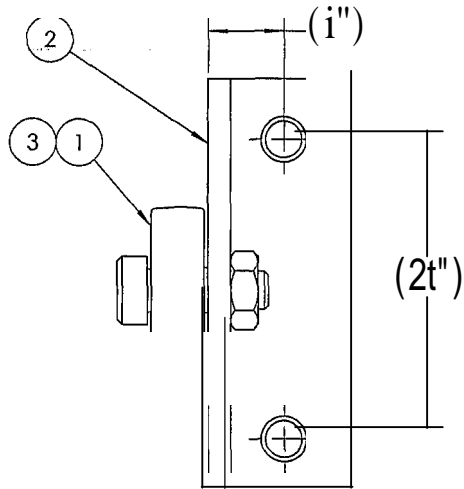
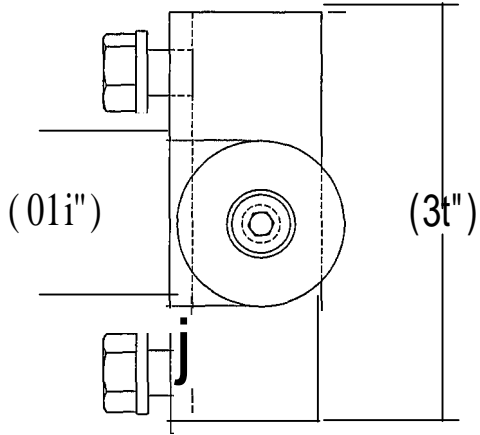
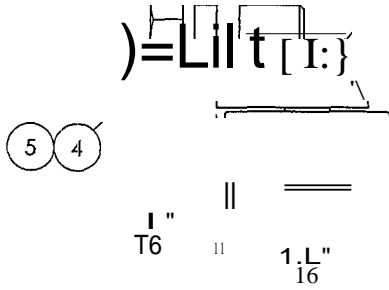


DATEPRINTED: 12/1/2010

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Item	Qty	Description	Length	Material	Part Number	WGT./EA.
1	1	ROLLER, CARRIAGE, UHMW		UHMW	13153-0000	0
2	1	ANGLE, MTG, CARR ROLLER		6061-T6 SSJ	13289-1000	0
3	1	BOLT, SHLDR, 3/8 X 1/2		Plain Carbon Steel	7018-0008	
4	2	SCREW, HHC, 3/8-16 X 1.0, GR2		Plain bon	5927-0016	
5	2	LOCKWASHER, 3/8		Plain bon	5858-0011	
6	1	NUT, HEX, JAM, 3/8-16		Plain <sup>5</sup> bon	8326-0011	

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UNLESS OTHERWISE INDICATED:  
ALL DIMENSIONS ARE IN INCHES.  
TOLERANCES: FRACTIONAL 1/16  
DECIMAL .0003  
ANGULAR: .00015  
DO NOT LIST: S.I.

**PFIOW**

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41'→c-s: 114  
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0:0:11 0-N c'

ROLLER RAY, CARRIAGE  
ALUMINUM ANGLE

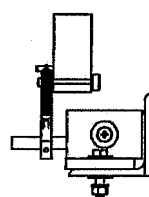
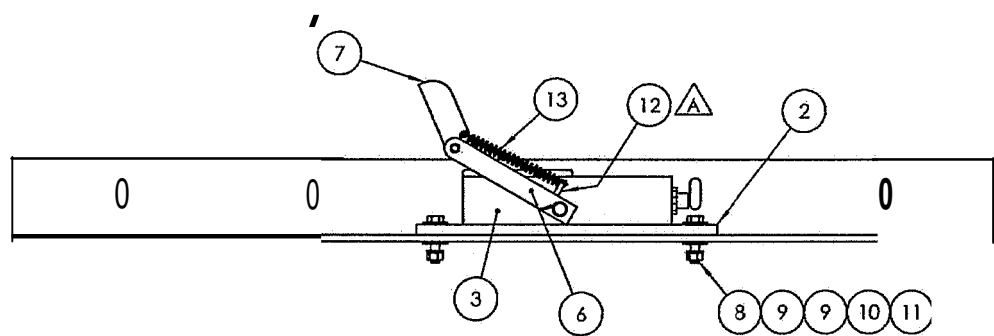
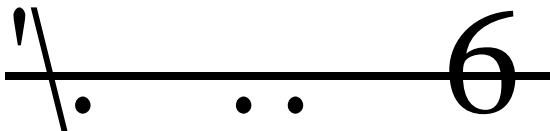
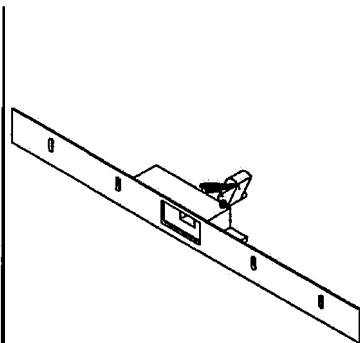
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Item	Qty	Description	Part Number	WGT./EA.
		SUPPORT, KEEPER-INTERLOCK	13190-0000	13
2	1	MTG PLATE, GAL	13294-0000	3
3	1	INTLK, GAL LH, TYPE N, QD	2691-1100	10
4	1	PIN, ROLL 3/16 x 2	5209-0032	
5	1	SHLDR 3/8 x 1 1/2	7018-0024	
6	1	ARM, LIMIT SWITCH	13226-0000	0
7	1	BLOCK, LIMIT SWITCH	13227-0000	0
8	2	HCS 5/16-18 x 1 1/2 GR 2	6846-0024	
9	4	FW USS 5/16	6296-0010	
10	2	LW 5/16	5858-0010	
11	2	HNUT 5/16-18 GR 2	6358-0010	
12	1	SCREW, BHSC 10-32x1-1/4	113690020	
13	1	SPRING, EXTENSION HK ENDS	13671-0000	0

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1	CHANGED 12			

JOB REVISIONS

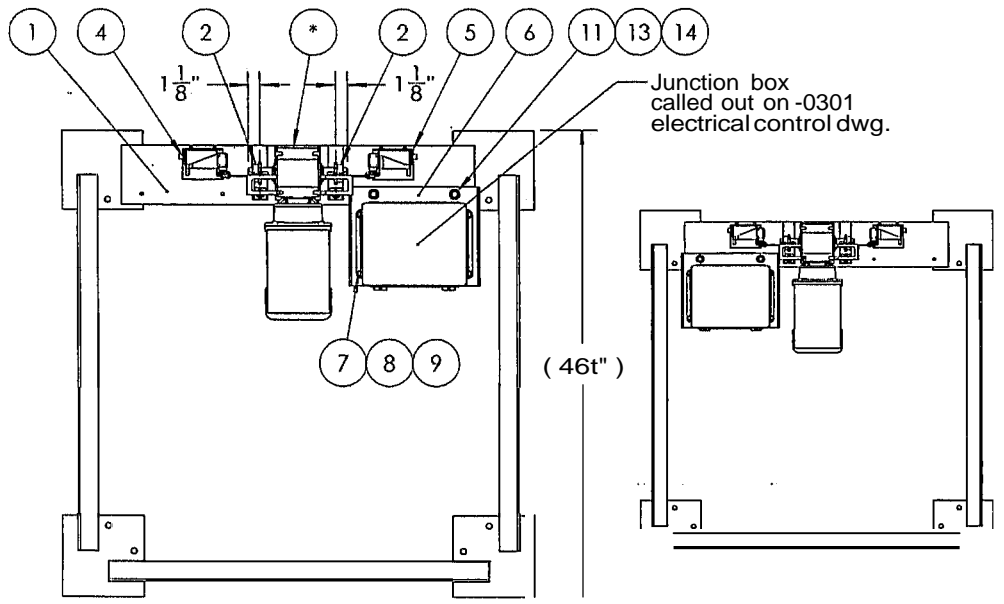
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**PFm** PFLOW INDUSTRIES, INC.  
6720 North Teutonia A.  
11th Street, WI 53209  
414-352-9000  
414-352-9002 FAX  
info@pflow.com

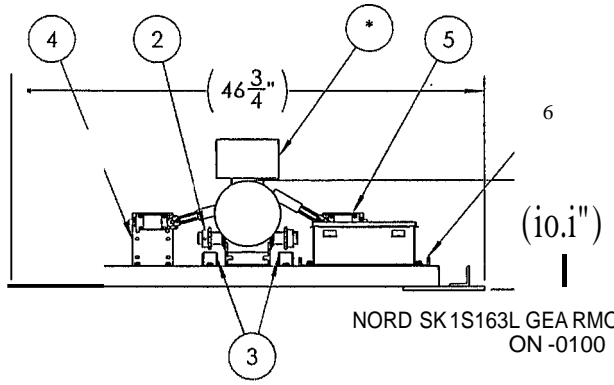
GAL ASSY, SERIES B

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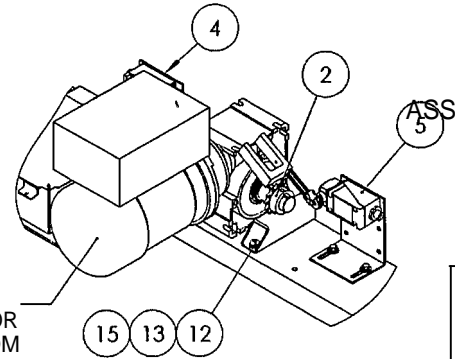


13827-3610 LOWER FRAME AY, RH  
Junction box on ngh side

13827-3611 LOWER FRAME AY, LH  
Junction box on left side



NORD SK1S163L GEA RMOTOR  
ON -0100 BOM



Item	QTY	Description	Part Number	WGT./EA.
		FRAME LOWER, WLDMT	13195-3600	80
2	2	SPROCKET, 40813, 1 1/8"	13225-4013-18	0
3	2	CHAIN JUMP GUIDE, TUBE	13285-1000	
4		CHAIN TENSIONER L/S AY RH	13662-1001	2
5		CHAIN TENSIONER L/S AY LH	13662-1000	2
6		BRKT, MTG, CONTROL PANEL	13831-0001	7
7	4	SCREW,HHC,1/4-20X.75,GR2	6029-0012	0
8	4	LOCKWASHER, STD, 1/4	5858-0009	0
9	4	WASHER, FLAT, STD 1/4	6296-0009	0
10	4	NUT, HEX, 1/4-20, GR2	6358-0009	0
11	2	SCREW,HHC,3/8-16X.75,GR2	5927-0012	0
12	2	SCREW, BHSC, 3/8-16 X 5/8	18399-0010	0
13	4	LOCKWASHER, 3/8	5858-0011	0
14	2	WASHER, FLAT, STD 3/8	6296-0011	0
15	2	WASHER, FLAT, 3/8, SAE	7768-0011	0

WGT: 147

ASSEMBLY USES CHAIN TENSION AY WITH CH LIMIT SWITCHES.

<p>DIFFERENCES: (KACUONAL .116 OECIML .XXX) XXX .015</p> <p>MACT SURFACE FINISH: .250 DO NOT SCALE DRAWING!</p>	<p><b>PFlow</b></p> <p>LOWER FRAME AY, RH</p>	<p>01-31-2013</p> <p>3827-3610-B</p>
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# Installation Questionnaire

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*We want to provide equipment that is built correctly and shipped complete. To achieve that, we need to know what errors are being made or what field problems you are experiencing. Please answer the following questions and return this form to the Product Support Department at Pflow Industries, Inc. If more space is required for comments, please use the reverse side.*

---

1. Was the unit received in good condition? Yes / No  
If not, please describe damage: \_\_\_\_\_

2. Was the unit received complete? Yes / No  
If not, what was missing? \_\_\_\_\_

3. Was the lift manufactured correctly? (Did it match the GA drawing?) Yes / No  
If not, please describe the errors: \_\_\_\_\_

4. Did the unit (i.e., lift, gates, enclosures) fit? Yes / No  
If not, please describe in detail the problem areas: \_\_\_\_\_

5. Did you return after the electrical was completed for final adjustments, testing, and training?  
Yes / No

If No, were you able to hook up temporary power to test the unit and make all final adjustments?  
Yes / No

If Yes, were there electrical problems that you were aware of?

Was there a problem with the components? Yes / No  
If yes, please describe: \_\_\_\_\_

Was there a problem with the field wiring? Yes / No  
If yes, please describe: \_\_\_\_\_

6. Did you test the unit to full capacity? Yes / No

7. Did you test all gates to make sure that the unit does NOT operate if they are open? Yes / No

8. At each level, when the carriage is NOT present, can you open the gate? Yes / No

Comments: \_\_\_\_\_

---

Pflow Job #: \_\_\_\_\_ Customer/User: \_\_\_\_\_

Questionnaire Completed By: \_\_\_\_\_ Date: \_\_\_\_\_

—

Company: \_\_\_\_\_ Phone: \_\_\_\_\_



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# Acceptance Certification

*We accept this equipment as being properly installed, tested, and performing to our satisfaction. This form covers both the mechanical and electrical installation of the equipment and is for the purpose of quality assurance by Pflow Industries, and in no way releases either Pflow Industries, Inc. or the installing contractor(s) of their warranty obligations. If there are any exceptions or unresolved items, please note.*

**JOB NO.:** \_\_\_\_\_ **JOB NAME:** \_\_\_\_\_

Site Mailing Address: \_\_\_\_\_

City, State, Zip Code: \_\_\_\_\_

On-Site Contact for future follow-up:

Name: \_\_\_\_\_ Title: \_\_\_\_\_

Phone: (     ) \_\_\_\_\_ Ext. \_\_\_\_\_

**Tests Successfully Performed:** \_\_\_\_\_ Load test at \_\_\_\_\_ % of capacity \_\_\_\_\_ Operation  
\_\_\_\_\_ Gate/Interlock Operation      Other: \_\_\_\_\_

## Personnel Instructed on the Operation:

Name: \_\_\_\_\_ Company: \_\_\_\_\_

Name: \_\_\_\_\_ Company: \_\_\_\_\_

## ACCEPTED BY:

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

**Date:** \_\_\_\_\_

**Name:** \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Company: \_\_\_\_\_

Company: \_\_\_\_\_

Phone: \_\_\_\_\_

Phone: \_\_\_\_\_

## PFLOW PERSONNEL / REPRESENTATIVE / INSTALLER PRESENT:

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

Name: \_\_\_\_\_ Company: \_\_\_\_\_

Please return a copy of this form to the Product Support Department.

PFLOW INDUSTRIES, INC., 6720 North Teutonia Avenue, Milwaukee, WI 53209  
Phone (414) 352-9000; Fax (414) 352-9002; 040199

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# MATERIAL SAFETY DATA SHEET

F78XXL13851-4357  
00 01

DATE OF PREPARATION  
Dec 21, 2013

## SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NUMBER

F78XXL13851-4357

### PRODUCT NAME

Fast Dry Acrylic Enamel, FDA PFlow Blue VOC

### MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY  
101 Prospect Avenue N.W.  
Cleveland, OH 44115

### Telephone Numbers and Websites

<b>Regulatory Information</b>	(216) 566-2902
<b>Medical Emergency</b>	(216) 566-2917
<b>Transportation Emergency*</b>	(800) 424-9300
<i>*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)</i>	

## SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
4	64742-89-8	<b>V. M. &amp; P. Naphtha</b>		
		ACGIH TLV	300 PPM	12 mm
		OSHA PEL	300 PPM	
		OSHA PEL	400 PPM STEL	
9	108-88-3	<b>Toluene</b>		
		ACGIH TLV	20 PPM	22 mm
		OSHA PEL	100 ppm (Skin)	
		OSHA PEL	150 ppm (Skin) STEL	
4	100-41-4	<b>Ethylbenzene</b>		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
22	1330-20-7	<b>Xylene</b>		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
24	67-64-1	<b>Acetone</b>		
		ACGIH TLV	500 PPM	180 mm
		ACGIH TLV	750 PPM STEL	
		OSHA PEL	1000 PPM	
4	110-19-0	<b>Isobutyl Acetate</b>		
		ACGIH TLV	150 PPM	12.5 mm
		OSHA PEL	150 PPM	
1	108-65-6	<b>1-Methoxy-2-Propanol Acetate</b>		
		ACGIH TLV	Not Available	1.8 mm
		OSHA PEL	Not Available	
3	112926-00-8	<b>Amorphous Precipitated Silica</b>		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	6 mg/m3 as Dust	
2	14807-96-6	<b>Talc</b>		
		ACGIH TLV	2 mg/m3 as Resp. Dust	
		OSHA PEL	2 mg/m3 as Resp. Dust	
4	13463-67-7	<b>Titanium Dioxide</b>		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
0.3	1333-86-4	<b>Carbon Black</b>		
		ACGIH TLV	3.5 MG/M3	
		OSHA PEL	3.5 MG/M3	

## SECTION 3 — HAZARDS IDENTIFICATION

### ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.

EYE or SKIN contact with the product, vapor or spray mist.

### EFFECTS OF OVEREXPOSURE

**EYES:** Irritation.

**SKIN:** Prolonged or repeated exposure may cause irritation.

**INHALATION:** Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the hematopoietic (blood-forming) system
- the cardiovascular system
- the reproductive system

### SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

### CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

### HMIS Codes

<b>Health</b>	2*
<b>Flammability</b>	3
<b>Reactivity</b>	0

## SECTION 4 — FIRST AID MEASURES

- EYES:** Flush eyes with large amounts of water for 15 minutes. Get medical attention.
- SKIN:** Wash affected area thoroughly with soap and water.  
Remove contaminated clothing and launder before re-use.
- INHALATION:** If affected, remove from exposure. Restore breathing. Keep warm and quiet.
- INGESTION:** Do not induce vomiting. Get medical attention immediately.

## SECTION 5 — FIRE FIGHTING MEASURES

<b>FLASH POINT</b> 1 °F TCC	<b>LEL</b> 0.9	<b>UEL</b> 13.1	<b>FLAMMABILITY CLASSIFICATION</b> RED LABEL -- Extremely Flammable, Flash below 21 °F (-6 °C)
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### EXTINGUISHING MEDIA

Carbon Dioxide, Dry Chemical, Foam

### UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode when exposed to extreme heat.  
Application to hot surfaces requires special precautions.  
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

### SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.  
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

## SECTION 6 — ACCIDENTAL RELEASE MEASURES

### STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.  
Remove with inert absorbent.

## SECTION 7 — HANDLING AND STORAGE

### STORAGE CATEGORY

DOL Storage Class IB

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.  
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.  
Consult NFPA Code. Use approved Bonding and Grounding procedures.  
Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally.  
Keep out of the reach of children.

## SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

### PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.  
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.  
Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m<sup>3</sup> (total dust), 3 mg/m<sup>3</sup> (respirable fraction), OSHA PEL 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction).

### VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

### RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.  
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

### PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

### EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

### OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

<b>PRODUCT WEIGHT</b>	7.84 lb/gal	939 g/l
<b>SPECIFIC GRAVITY</b>	0.94	
<b>BOILING POINT</b>	132 - 325 °F	55 - 162 °C
<b>MELTING POINT</b>	Not Available	
<b>VOLATILE VOLUME</b>	77%	
<b>EVAPORATION RATE</b>	Slower than ether	
<b>VAPOR DENSITY</b>	Heavier than air	
<b>SOLUBILITY IN WATER</b>	Not Available	
<b>VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)</b>		
4.90 lb/gal	588 g/l	Less Water and Federally Exempt Solvents
3.52 lb/gal	422 g/l	Emitted VOC

## SECTION 10 — STABILITY AND REACTIVITY

**STABILITY** — Stable

**CONDITIONS TO AVOID**

None known.

**INCOMPATIBILITY**

None known.

**HAZARDOUS DECOMPOSITION PRODUCTS**

By fire: Carbon Dioxide, Carbon Monoxide

**HAZARDOUS POLYMERIZATION**

Will not occur

## SECTION 11 — TOXICOLOGICAL INFORMATION

**CHRONIC HEALTH HAZARDS**

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

## TOXICOLOGY DATA

CAS No.	Ingredient Name			
64742-89-8	V. M. & P. Naphtha	LC50 RAT LD50 RAT	4HR	Not Available Not Available
108-88-3	Toluene	LC50 RAT LD50 RAT	4HR	4000 ppm 5000 mg/kg
100-41-4	Ethylbenzene	LC50 RAT LD50 RAT	4HR	Not Available 3500 mg/kg
1330-20-7	Xylene	LC50 RAT LD50 RAT	4HR	5000 ppm 4300 mg/kg
67-64-1	Acetone	LC50 RAT LD50 RAT	4HR	Not Available 5800 mg/kg
110-19-0	Isobutyl Acetate	LC50 RAT LD50 RAT	4HR	Not Available 13400 mg/kg
108-65-6	1-Methoxy-2-Propanol Acetate	LC50 RAT LD50 RAT	4HR	Not Available 8500 mg/kg
112926-00-8	Amorphous Precipitated Silica	LC50 RAT LD50 RAT	4HR	Not Available 4500 mg/kg
14807-96-6	Talc	LC50 RAT LD50 RAT	4HR	Not Available Not Available
13463-67-7	Titanium Dioxide	LC50 RAT LD50 RAT	4HR	Not Available Not Available
1333-86-4	Carbon Black	LC50 RAT LD50 RAT	4HR	Not Available Not Available

## SECTION 12 — ECOLOGICAL INFORMATION

## ECOTOXICOLOGICAL INFORMATION

No data available.

## SECTION 13 — DISPOSAL CONSIDERATIONS

## WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.

Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

## SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

## US Ground (DOT)

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. OR ORM-D

Larger Containers are Regulated as:

UN1263, PAINT, 3, PG II, (ERG#128)

## DOT (Dept of Transportation) Hazardous Substances &amp; Reportable Quantities

Acetone 5000 lb RQ

Ethylbenzene 1000 lb RQ

Toluene 1000 lb RQ

Xylenes (isomers and mixture) 100 lb RQ

## Bulk Containers may be Shipped as (check reportable quantities):

RQ, UN1263, PAINT, 3, PG II, (XYLENES (ISOMERS AND MIXTURE)), (ERG#128)

## Canada (TDG)

UN1263, PAINT, CLASS 3, PG II, (ERG#128)

**IMO**

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.  
UN1263, PAINT, CLASS 3, PG II, (-17 C c.c.), EmS F-E, S-E

**IATA/ICAO**

UN1263, PAINT, 3, PG II

<b>SECTION 15 — REGULATORY INFORMATION</b>
--

**SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION**

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
108-88-3	Toluene	9	
100-41-4	Ethylbenzene	4	
1330-20-7	Xylene	22	

**CALIFORNIA PROPOSITION 65**

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

**TSCA CERTIFICATION**

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

<b>SECTION 16 — OTHER INFORMATION</b>
---------------------------------------

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

# MATERIAL SAFETY DATA SHEET

B50XXW10463-4357  
00 01

DATE OF PREPARATION  
Dec 21, 2013

## SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NUMBER**

B50XXW10463-4357

**PRODUCT NAME**

UNIVERSAL PRIMER, White B50-WZ1

**MANUFACTURER'S NAME**

THE SHERWIN-WILLIAMS COMPANY  
101 Prospect Avenue N.W.  
Cleveland, OH 44115

**Telephone Numbers and Websites**

<b>Regulatory Information</b>	(216) 566-2902
<b>Medical Emergency</b>	(216) 566-2917
<b>Transportation Emergency*</b>	(800) 424-9300
<i>*for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)</i>	

## SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
2	108-88-3	<b>Toluene</b>		
		ACGIH TLV	20 PPM	22 mm
		OSHA PEL	100 ppm (Skin)	
		OSHA PEL	150 ppm (Skin) STEL	
1	100-41-4	<b>Ethylbenzene</b>		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
7	1330-20-7	<b>Xylene</b>		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
2	64742-95-6	<b>Light Aromatic Hydrocarbons</b>		
		ACGIH TLV	Not Available	3.8 mm
		OSHA PEL	Not Available	
2	95-63-6	<b>1,2,4-Trimethylbenzene</b>		
		ACGIH TLV	25 PPM	2.03 mm
		OSHA PEL	25 PPM	
35	67-64-1	<b>Acetone</b>		
		ACGIH TLV	500 PPM	180 mm
		ACGIH TLV	750 PPM STEL	
		OSHA PEL	1000 PPM	
3	14807-96-6	<b>Talc</b>		
		ACGIH TLV	2 mg/m3 as Resp. Dust	
		OSHA PEL	2 mg/m3 as Resp. Dust	
25	471-34-1	<b>Calcium Carbonate</b>		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	15 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
7	13463-67-7	<b>Titanium Dioxide</b>		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	

## SECTION 3 — HAZARDS IDENTIFICATION

**ROUTES OF EXPOSURE**

INHALATION of vapor or spray mist.  
EYE or SKIN contact with the product, vapor or spray mist.

**EFFECTS OF OVEREXPOSURE**

**EYES:** Irritation.

**SKIN:** Prolonged or repeated exposure may cause irritation.

**INHALATION:** Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.

Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the cardiovascular system
- the reproductive system

**SIGNS AND SYMPTOMS OF OVEREXPOSURE**

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.

Redness and itching or burning sensation may indicate eye or excessive skin exposure.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

None generally recognized.

**CANCER INFORMATION**

For complete discussion of toxicology data refer to Section 11.

**HMIS Codes**

<b>Health</b>	2*
<b>Flammability</b>	3
<b>Reactivity</b>	0

**SECTION 4 — FIRST AID MEASURES**

**EYES:** Flush eyes with large amounts of water for 15 minutes. Get medical attention.

**SKIN:** Wash affected area thoroughly with soap and water.

Remove contaminated clothing and launder before re-use.

**INHALATION:** If affected, remove from exposure. Restore breathing. Keep warm and quiet.

**INGESTION:** Do not induce vomiting. Get medical attention immediately.

**SECTION 5 — FIRE FIGHTING MEASURES****FLASH POINT**

-2 °F TCC

**LE**

L

**UEL**

12.8

**FLAMMABILITY CLASSIFICATION**

RED LABEL -- Extremely Flammable, Flash below 21 °F (-6 °C)

**EXTINGUISHING**

0.7

**MEDIA**

Carbon Dioxide, Dry Chemical, Foam

**UNUSUAL FIRE AND EXPLOSION HAZARDS**

Closed containers may explode when exposed to extreme heat.

Application to hot surfaces requires special precautions.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

**SPECIAL FIRE FIGHTING PROCEDURES**

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

**SECTION 6 — ACCIDENTAL RELEASE MEASURES****STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

**SECTION 7 — HANDLING AND STORAGE****STORAGE CATEGORY**

DOL Storage Class IB

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**

Contents are EXTREMELY FLAMMABLE. Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.

During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.

Consult NFPA Code. Use approved Bonding and Grounding procedures.

Keep container closed when not in use. Transfer only to approved containers with complete and appropriate labeling. Do not take internally.

Keep out of the reach of children.



## SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

### PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m<sup>3</sup> (total dust), 3 mg/m<sup>3</sup> (respirable fraction), OSHA PEL 15 mg/m<sup>3</sup> (total dust), 5 mg/m<sup>3</sup> (respirable fraction).

### VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

### RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

### PROTECTIVE GLOVES

Wear gloves which are recommended by glove supplier for protection against materials in Section 2.

### EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

### OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

## SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

<b>PRODUCT WEIGHT</b>	9.62 lb/gal	1153 g/l
<b>SPECIFIC GRAVITY</b>	1.16	
<b>BOILING POINT</b>	132 - 360 °F	55 - 182 °C
<b>MELTING POINT</b>	Not Available	
<b>VOLATILE VOLUME</b>	73%	
<b>EVAPORATION RATE</b>	Slower than ether	
<b>VAPOR DENSITY</b>	Heavier than air	
<b>SOLUBILITY IN WATER</b>	Not Available	
<b>VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)</b>		
3.28 lb/gal	394 g/l	Less Water and Federally Exempt Solvents
1.58 lb/gal	190 g/l	Emitted VOC

## SECTION 10 — STABILITY AND REACTIVITY

### STABILITY — Stable

### CONDITIONS TO AVOID

None known.

### INCOMPATIBILITY

None known.

### HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

### HAZARDOUS POLYMERIZATION

Will not occur

## SECTION 11 — TOXICOLOGICAL INFORMATION

### CHRONIC HEALTH HAZARDS

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

IARC's Monograph No. 93 reports there is sufficient evidence of carcinogenicity in experimental rats exposed to titanium dioxide but inadequate evidence for carcinogenicity in humans and has assigned a Group 2B rating. In addition, the IARC summary concludes, "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium is bound to other materials, such as paint."

**TOXICOLOGY DATA**

CAS No.	Ingredient Name			
108-88-3	Toluene	LC50 RAT LD50 RAT	4HR	4000 ppm 5000 mg/kg
100-41-4	Ethylbenzene	LC50 RAT LD50 RAT	4HR	Not Available 3500 mg/kg
1330-20-7	Xylene	LC50 RAT LD50 RAT	4HR	5000 ppm 4300 mg/kg
64742-95-6	Light Aromatic Hydrocarbons	LC50 RAT LD50 RAT	4HR	Not Available Not Available
95-63-6 Trimethylbenzene	1,2,4-	LC50 RAT LD50 RAT	4HR	Not Available Not Available
67-64-1	Acetone	LC50 RAT LD50 RAT	4HR	Not Available 5800 mg/kg
14807-96-6	Talc	LC50 RAT LD50 RAT	4HR	Not Available Not Available
471-34-1	Calcium Carbonate	LC50 RAT LD50 RAT	4HR	Not Available Not Available
13463-67-7	Titanium Dioxide	LC50 RAT LD50 RAT	4HR	Not Available Not Available

**SECTION 12 — ECOLOGICAL INFORMATION****ECOTOXICOLOGICAL INFORMATION**

No data available.

**SECTION 13 — DISPOSAL CONSIDERATIONS****WASTE DISPOSAL METHOD**

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers. Incinerate in approved facility. Do not incinerate closed container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

**SECTION 14 — TRANSPORT INFORMATION**

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

**US Ground (DOT)**

5 Liters (1.3 Gallons) and Less may be Classed as LTD. QTY. OR ORM-D

Larger Containers are Regulated as:

UN1263, PAINT, 3, PG II, (ERG#128)

**DOT (Dept of Transportation) Hazardous Substances & Reportable Quantities**

Acetone 5000 lb RQ

Xylenes (isomers and mixture) 100 lb RQ

**Bulk Containers may be Shipped as (check reportable quantities):**

RQ, UN1263, PAINT, 3, PG II, (XYLENES (ISOMERS AND MIXTURE)), (ERG#128)

**Canada (TDG)**

UN1263, PAINT, CLASS 3, PG II, (ERG#128)

**IMO**

5 Liters (1.3 Gallons) and Less may be Shipped as Limited Quantity.

UN1263, PAINT, CLASS 3, PG II, (-19 C c.c.), EmS F-E, S-E

**IATA/ICAO**

UN1263, PAINT, 3, PG II

**SECTION 15 — REGULATORY INFORMATION****SARA 313 (40 CFR 372.65C) SUPPLIER NOTIFICATION**

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
108-88-3	Toluene	2	
100-41-4	Ethylbenzene	1	
1330-20-7	Xylene	7	
95-63-6	1,2,4-Trimethylbenzene	2	
	Zinc Compound	1	0.7

**CALIFORNIA PROPOSITION 65**

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

**TSCA CERTIFICATION**

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

**SECTION 16 — OTHER INFORMATION**

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

# Material Safety Data Sheet

IDENTIFICATION Effective Date: January 1, 2013
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Manufactured By: Sherwin Williams  
 6125 W. Douglas Avenue  
 Milwaukee, WI 53218 1596 USA

24-Hour Emergency Telephone  
 Domestic US: 1-800-373-7542    International: 1-484-951-2432    Haz Mat Services

Trade Name:	<b>F78XXL13851-4357 2871-0003 PFLOW BLUE PAINT</b>
Mfg. Part Number:	<b>20016 00341 F78XXL13851-4357 2871-0003 PFLOW BLUE PAINT</b>

II. HAZARDOUS INGREDIENTS
---------------------------

CAS #67-64-1 Acetone		Weight %: 20 – 50    Footnote (1)
ACGIH TLV: 500 ppm TWA OSHA PEL: 1000 ppm TWA VAPOR PRESSURE: 185 MM Hg60F	ACGIH STEL: 1000 ppm OSHA CEILING: LEL: 2.6%	OSHA PEAK:
CAS #75-28-5 Isobutane		Weight %: 5 - 20
ACGIH TLV: NE OSHA PEL: NE VAPOR PRESSURE: 3.1 atm	ACGIH STEL: OSHA CEILING: LEL: 1.6%	OSHA PEAK:
CAS # 74-98-6 Propane		Weight %: 5 -20
ACGIH TLV: 2500 ppm TWA OSHA PEL: 1000 ppm TWA VAPOR PRESSURE: 7150mmHg@20c	ACGIH STEL: OSHA CEILING: LEL:	OSHA PEAK:
CAS # 1330-20-7 Xylene		Weight %: 5 – 20    Footnote (1)
ACGIH TLV: 100 ppm TWA OSHA PEL: 100 ppm TWA VAPOR PRESSURE: 6.6mmHg@20c	ACGIH STEL: 150 ppm OSHA CEILING: LEL: 1%	OSHA PEAK:
CAS # 100-41-4 Ethyl Benzene		Weight %: 1 - 5
ACGIH TLV: 100 ppm TWA OSHA PEL: 100 ppm TWA VAPOR PRESSURE:	ACGIH STEL: 125 ppm OSHA CEILING: LEL:	OSHA PEAK:
CAS # 123-42-2 Diacetone Alcohol		Weight %: 1 - 5    Footnote (1)
ACGIH TLV: 50 ppm TWA OSHA PEL: 50 ppm TWA VAPOR PRESSURE: 1 mm	ACGIH STEL: 75 ppm OSHA CEILING: LEL: 1.8%	OSHA PEAK:
CAS #64742-95-6 Aromatic 100		Weight %: 1 - 5    Footnote (1)
ACGIH TLV: OSHA PEL: VAPOR PRESSURE: 2.7 mmHg@20c	ACGIH STEL: OSHA CEILING: LEL: 0.9%	OSHA PEAK:

**Warning Messages:**

- (1) Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. Chronic exposure may cause damage to the central nervous system, respiratory system, lung, eye, skin, liver, gastro intestinal tract, spleen, kidneys and blood.
- (2) See Section IX for reportable Hazardous Air Pollutants.

### III. PHYSICAL DATA

BOILING RANGE: -43-356 degree Farenheight

EVAPORATION RATE: Propellant: Faster then ether      SOLVENT: Slower than ether

PERCENT VOLITILE BY VOLUME: 87.34%      WEIGHT PER GALLON: 6.64 LBS.

VAPOR DENSITY: Propellant is lighter than air      Solvent is heavier than air

ACTUAL VOC      (lb/gal): 3.59

EPA VOC      (lb/gal): 4.59

EPA VOC: (g/L): 550.07

### IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: -156 Degree Farenheight  
                  - 105 Degree Celsius

LEL: Refer to Section II

FLAMMABILITY CLASSIFICATION: CLASS 1A

HAZARD CLASSIFICATION: FLAMMABLE

CONSUMER COMMIDTY: ORM-D

EXTINGUISHING MEDIA: \*carbon dioxide, dry chemical, or fire foam”

UNUSUAL FIRE AND EXPLOSION HAZARDS: With excessive heat, can will rupture from internal pressure and discharge flammable contents. Vapors may ignite explosively. Keep away from heat, sparks and flame. Do not smoke. Extinguish all flames and pilot lights, turn off stoves, heaters, electric motors and other sources of ignition during use and until all vapors are gone. Prevent build up of vapors by opening all windows and doors to achieve cross-ventilation.

SPECIAL FIRE FIGHTING PROCEDURES: Full protective equipment including self-contained breathing apparatus should be used. Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible auto ignition or explosion when exposed to extreme heat.

### V. HEALTH HAZARD DATA

THRESHOLD LIMIT VALUE: See Section II.

EFFECTS OF OVEREXPOSURE:

Inhalation – Anesthetic

Irritation of the respiratory tract or acute nervous system. Depression caused by headache, dizziness, staggering gait, confusion, unconsciousness, dizziness

Acute – High vapor concentrations are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death. Product has a low order of acute oral and dermal toxicity, but minute amounts aspirated into the lungs during ingestion or vomiting may cause mild to severe pulmonary injury and possibly death.

Chronic- Xylene contains ethyl benzene which has been classified as a possible carcinogen to humans, group 2B, by the International Agency for the Research on Cancer (IARC), based on sufficient evidence in laboratory animals but inadequate evidence for cancer in humans. Prolonged or repeated overexposure to ethyl benzene may cause the following: kidney effects, liver effects, lung effects, thyroid effects, testicular effects, pituitary effects.

MEDICAL CONDITIONS PRONE TO AGGRAVATION BY EXPOSURE: consult physician

PRIMARY ROUTE (S) OF ENTRY: Eyes, Ingestion, Skin and Inhalation

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: Remove to fresh air.

EYES: Flush immediately with large amounts of water for at least 15 minutes. Talk to a physician for medical treatment.

SKIN: Wipe off with towel. Wash with soap and water. Remove contaminated clothing.

INGESTION: If swallowed, call a physician immediately. Remove stomach contents by gastric suction or induce vomiting only as directed by medical personnel. Never give anything by mouth to an unconscious person.

**HMIS Rating**

Health 3, Flammability 4, Physical Hazard 0, Personal Protection G

*Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks.*

VI. Reactivity Data

STABILITY: STABLE

Hazardous Polymerization: \*will not occur\*

INCOMPATIBILITY: oxidizing agents, halogens, strong reducing agents and strong bases.

HAZARDOUS DECOMPOSITION PRODUCTS: When heated to decomposition, toxic fumes are formed.

CONDITIONS TO AVOID: Fire, burning, and welding

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

Remove all sources of ignition (flames, hot surfaces and electrical, static or frictional sparks). Avoid breathing vapors. Ventilate area. Use non-sparking tools. Remove with inert absorbent.

WASTE DISPOSAL METHOD: Dispose of in accordance with local, state, and federal regulations.

VIII. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: For casual use none required. To avoid breathing vapors or spray mist, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches or dizziness, increase fresh air or wear respiratory protection (NIOSH/MSHA approved) or leave the area. Avoid contact with eyes, skin and clothing.

VENTILATION: Provide general dilution or local exhaust ventilation in volume and pattern to keep TLV and LEL of most hazardous ingredients in Section II, below acceptable limits.

PROTECTIVE GLOVES: Permeation resistant gloves (butyl rubber, nitrile rubber) should be used. Cover as much of the exposed skin area as possible with appropriate clothing.

EYE PROTECTION: Splash proof eye and goggles. In emergency situations, use eye goggles with a full-face shield.

OTHER PROTECTIVE EQUIPMENT: Protective clothing such as coveralls or lab coats must be worn

HYGENIC PRACTICES: See section V

IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:

Do not store above 120 degrees F. Store large quantities in buildings designed and protected for storage of NFPA Class 1A flammable liquids.

OTHER PRECAUTIONS: Do not spray in eyes. Do not puncture or incrate cans. Do not stick a pin or nay sharp objects into opening of can. Finger must not protrude over spray button.

LIST OF HAZARDOUS AIR POLLUTANTS SUBJECT TO THE PROVISIONS OF THE CLEAN AIR ACT, TITLE I SECTION 112 'National Emission Standards for Hazardous Air Pollutants':

Ingredient	CAS#	Wt% of HAPS In product	Pounds HAPS/ Gal product
Xylene	1330-20-7	15.0 %	1.0
Ethyl Benzene	100-41-4	3.4 %	0.2

X. STABILITY & REACTIVITY

Not available at this time

XI. TOXICOLOGICAL INFORMATION

No information available at this time

XII. ECOLOGICAL INFORMATION

No information available at this time.

XIII. DISPOSAL INFORMATION

Disposal should be made in accordance with local, state and federal regulations.

XIV. TRANSPORTATION INFORMATION

US Department of Transportation

Proper shipping name: Aerosols Flammable  
UN ID Number: UN1950

International Air Transport Association

Proper Shipping name: Aerosols, Flammable  
Hazardous Class: 2.1  
UN ID Number: UN1950

International Maritime Organization

Proper Shipping name: Aerosols, Flammable  
Hazardous Class: 2  
UN ID Number: UN1950

Please consult 49CFR to ensure that shipments comply with regulations. Exceptions may be applied and can be found in 49CFR subchapter C.

# MATERIAL SAFETY DATA SHEET

## SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT

**Product Name:** MOBIL SHC CIBUS 220  
**Product Description:** Synthetic Base Stocks and Additives  
**Product Code:** 201560409020, 627752-00, 97BJ07  
**Intended Use:** Gear oil

### COMPANY IDENTIFICATION

**Supplier:** EXXON MOBIL CORPORATION  
3225 GALLOWS RD.  
FAIRFAX, VA. 22037 USA

**24 Hour Health Emergency** 609-737-4411  
**Transportation Emergency Phone** 800-424-9300  
**ExxonMobil Transportation No.** 281-834-3296  
**Product Technical Information** 800-662-4525, 800-947-9147  
**MSDS Internet Address** <http://www.exxon.com>, <http://www.mobil.com>

## SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

## SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

### POTENTIAL HEALTH EFFECTS

Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

<b>NFPA Hazard ID:</b>	Health: 0	Flammability: 1	Reactivity: 0
<b>HMIS Hazard ID:</b>	Health: 0	Flammability: 1	Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

## SECTION 4 FIRST AID MEASURES

### INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use



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adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

#### SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

#### EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

#### INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

### SECTION 5 FIRE FIGHTING MEASURES

#### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

#### FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Hazardous Combustion Products:** Smoke, Fume, Aldehydes, Sulfur oxides, Incomplete combustion products, Oxides of carbon

#### FLAMMABILITY PROPERTIES

**Flash Point [Method]:** >226°C (439°F) [ASTM D-92]

**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0

**Autoignition Temperature:** N/D

### SECTION 6 ACCIDENTAL RELEASE MEASURES

#### NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

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## PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

## SPILL MANAGEMENT

**Land Spill:** Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

**Water Spill:** Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

## ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

## SECTION 7

## HANDLING AND STORAGE

### HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

**Static Accumulator:** This material is a static accumulator.

### STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers.

## SECTION 8

## EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure limits/standards for materials that can be formed when handling this product:** When mists/aerosols can occur the following are recommended: 5 mg/m<sup>3</sup> - ACGIH TLV (inhalable fraction), 5 mg/m<sup>3</sup> - OSHA PEL.

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NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

## ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

## PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

## ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

## SECTION 9

## PHYSICAL AND CHEMICAL PROPERTIES

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**Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.**

**GENERAL INFORMATION**

**Physical State:** Liquid  
**Color:** Pale Yellow  
**Odor:** Characteristic  
**Odor Threshold:** N/D

**IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION**

**Relative Density (at 15 °C):** 0.857  
**Flash Point [Method]:** >226°C (439°F) [ASTM D-92]  
**Flammable Limits (Approximate volume % in air):** LEL: 0.9 UEL: 7.0  
**Autoignition Temperature:** N/D  
**Boiling Point / Range:** > 316°C (601°F) [Estimated]  
**Vapor Density (Air = 1):** > 2 at 101 kPa [Estimated]  
**Vapor Pressure:** < 0.013 kPa (0.1 mm Hg) at 20 °C [Estimated]  
**Evaporation Rate (n-butyl acetate = 1):** N/D  
**pH:** N/A  
**Log Pow (n-Octanol/Water Partition Coefficient):** > 3.5 [Estimated]  
**Solubility in Water:** Negligible  
**Viscosity:** >220 cSt (220 mm<sup>2</sup>/sec) at 40 °C | 24.5 cSt (24.5 mm<sup>2</sup>/sec) at 100°C  
**Oxidizing Properties:** See Hazards Identification Section.

**OTHER INFORMATION**

**Freezing Point:** N/D  
**Melting Point:** N/A  
**Pour Point:** -18°C (0°F)  
**Decomposition Temperature:** N/D

<b>SECTION 10</b>	<b>STABILITY AND REACTIVITY</b>
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**STABILITY:** Material is stable under normal conditions.

**CONDITIONS TO AVOID:** Excessive heat. High energy sources of ignition.

**MATERIALS TO AVOID:** Strong oxidizers

**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.

**HAZARDOUS POLYMERIZATION:** Will not occur.

<b>SECTION 11</b>	<b>TOXICOLOGICAL INFORMATION</b>
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**ACUTE TOXICITY**

Route of Exposure	Conclusion / Remarks
<b>Inhalation</b>	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.

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<b>Ingestion</b>	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
<b>Skin</b>	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.
<b>Eye</b>	
Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

### CHRONIC/OTHER EFFECTS

**For the product itself:**

Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.

**Contains:**

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

2 = NTP SUS

3 = IARC 1

4 = IARC 2A

5 = IARC 2B

6 = OSHA CARC

<b>SECTION 12</b>	<b>ECOLOGICAL INFORMATION</b>
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The information given is based on data available for the material, the components of the material, and similar materials.

### ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

### MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

<b>SECTION 13</b>	<b>DISPOSAL CONSIDERATIONS</b>
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Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable

laws and regulations, and material characteristics at time of disposal.

**DISPOSAL RECOMMENDATIONS**

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

**REGULATORY DISPOSAL INFORMATION**

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrosivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.**

<b>SECTION 14</b>	<b>TRANSPORT INFORMATION</b>
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**LAND (DOT):** Not Regulated for Land Transport

**LAND (TDG):** Not Regulated for Land Transport

**SEA (IMDG):** Not Regulated for Sea Transport according to IMDG-Code

**AIR (IATA):** Not Regulated for Air Transport

<b>SECTION 15</b>	<b>REGULATORY INFORMATION</b>
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**OSHA HAZARD COMMUNICATION STANDARD:** When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

**Complies with the following national/regional chemical inventory requirements:** AICS, DSL, IECSC, KECI, PICCS, TSCA

**Special Cases:**

Inventory	Status
ENCS	Restrictions Apply

**EPCRA SECTION 302:** This material contains no extremely hazardous substances.

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**NSF:** H-1

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** None.

**SARA (313) TOXIC RELEASE INVENTORY:** This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

**The following ingredients are cited on the lists below:** None.

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**

Revision Changes:

Section 04: First Aid Inhalation - Header was modified.

Section 04: First Aid Ingestion - Header was modified.

Section 06: Notification Procedures - Header was modified.

Section 13: Disposal Considerations - Disposal Recommendations was modified.

Section 09: Phys/Chem Properties Note was modified.

Section 09: Color was modified.

Section 09: Boiling Point C(F) was modified.

Section 09: Pour Point C(F) was modified.

Section 09: Evaporation Rate - Header was modified.

Section 09: Flash Point C(F) was modified.

Section 09: n-Octanol/Water Partition Coefficient was modified.

Section 08: Personal Protection - Header was modified.

Section 08: Comply with applicable regulations phrase was modified.

Section 09: Vapor Pressure was modified.

Section 07: Handling and Storage - Handling was modified.

Section 07: Handling and Storage - Storage Phrases was modified.

Hazard Identification: Health Hazards was modified.

Section 11: Dermal Lethality Test Data was modified.

Section 11: Dermal Lethality Test Comment was modified.

Section 11: Oral Lethality Test Data was modified.

Section 11: Inhalation Lethality Test Data was modified.

Section 11: Dermal Irritation Test Data was modified.

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Section 11: Eye Irritation Test Data was modified.  
Section 11: Oral Lethality Test Comment was modified.  
Section 11: Inhalation Lethality Test Comment was modified.  
Section 11: Dermal Irritation Test Comment was modified.  
Section 11: Eye Irritation Test Comment was modified.  
Section 11: Inhalation Irritation Test Data was modified.  
Section 05: Hazardous Combustion Products was modified.  
Section 09: Relative Density - Header was modified.  
Section 09: Flash Point C(F) was modified.  
Section 09: Viscosity was modified.  
Section 09: Viscosity was modified.  
Section 14: LAND (TDG) - Header was modified.  
Section 15: List Citation Table - Header was modified.  
Section 15: National Chemical Inventory Listing - Header was modified.  
Section 15: National Chemical Inventory Listing was modified.  
Section 15: Community RTK - Header was modified.  
Section 11: Additional Health Information was modified.  
Section 08: Exposure limits/standards was modified.  
Section 01: Company Contact Methods Sorted by Priority was modified.  
Section 06: Protective Measures was added.  
Section 06: Accidental Release - Protective Measures - Header was added.  
Section 15: Special Cases - Header was added.  
Section 15: Special Cases Table was added.  
Section 15: Inventory - Header was added.  
Section 15: Status - Header was added.  
Section 09: Decomposition Temperature was added.  
Section 09: Decomposition Temp - Header was added.  
Section 09: Vapor Pressure was added.  
Section 15: Chemical Name - Header was deleted.  
Section 15: CAS Number - Header was deleted.  
Section 15: List Citations - Header was deleted.  
Section 15: List Citations Table was deleted.

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