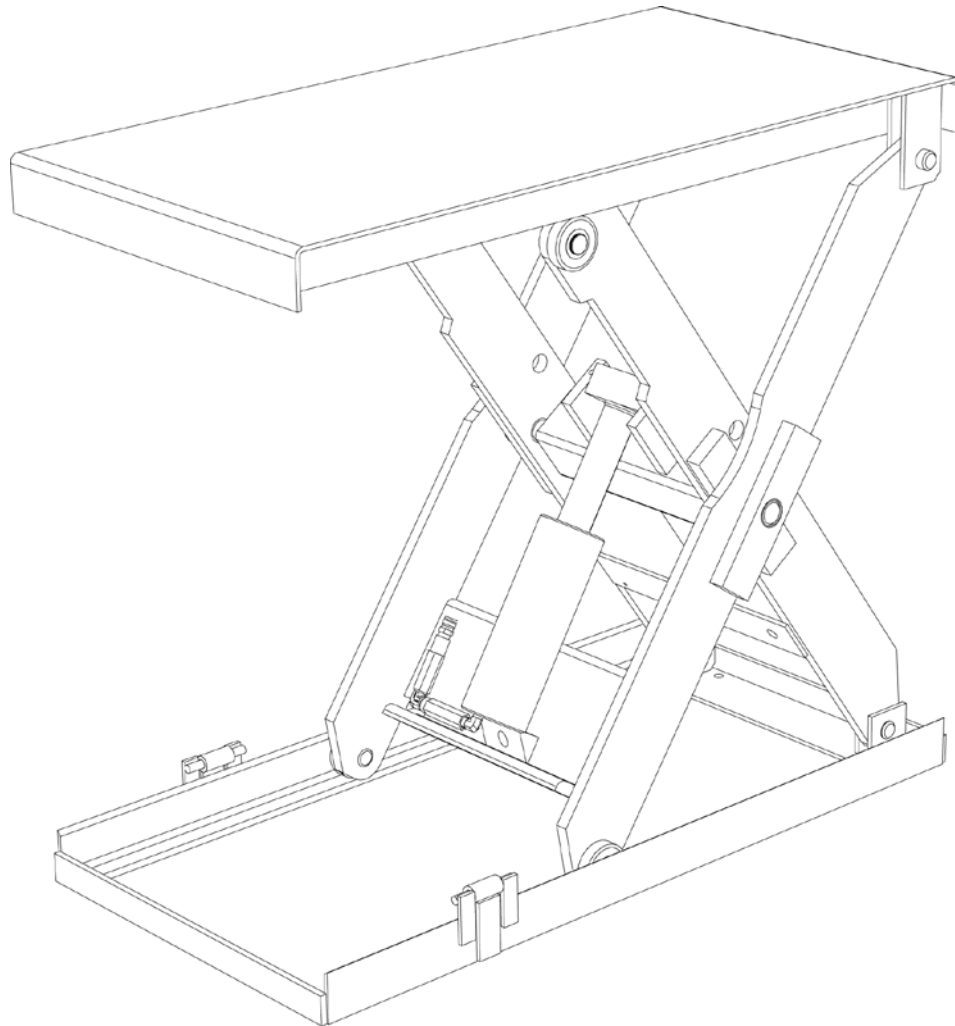


# INSTALLATION, OPERATION AND SERVICE MANUAL

## SERIES 35 SCISSORS LIFT



P.O. Box 1058 • 1058 West Industrial Avenue • Guthrie, OK 73044-1058 • 888-811-9876  
405-282-5200 • FAX: 405-282-3302 • [www.autoquip.com](http://www.autoquip.com)

Item #830S35

Version 4.0  
3/2013

<b>1.</b>	<b>Introduction And Warranty .....</b>	<b>4</b>
1.1	Introduction .....	4
1.1.1	Identification .....	4
1.1.2	Inspection .....	4
1.1.3	Planned Maintenance Program.....	4
1.2	Responsibility Of Owners/Users .....	4
1.2.1	Deflection .....	4
1.2.2	Inspection & Maintenance.....	5
1.2.3	Removal From Service .....	5
1.2.4	Repairs .....	5
1.2.5	Operators .....	5
1.2.6	Before Operation .....	5
1.2.7	During Operation .....	5
1.2.8	Modifications Or Alterations .....	5
1.3	Warranty .....	6
<b>2.</b>	<b>Specifications.....</b>	<b>7</b>
2.1	Model Specifications.....	7
2.2	Lift Specifications.....	7
2.3	Load Capacity.....	8
2.4	Unbalanced Loading.....	8
2.5	Pump Pressure.....	8
2.6	Lift Duty .....	8
<b>3.</b>	<b>Safety .....</b>	<b>9</b>
3.1	Safety Signal Words .....	9
3.2	Installation .....	9
3.3	Operation.....	10
3.4	Hydraulics.....	10
3.5	Maintenance .....	11
3.6	Modifications.....	12
3.7	Labels.....	12
<b>4.</b>	<b>Installation .....</b>	<b>15</b>
4.1	Remote Power Unit Installation.....	15
4.2	Power Unit Wiring.....	15
4.2.1	Intermittent Remote Power Unit.....	15
4.2.2	Heavy Duty Remote Power Unit .....	15
4.3	Pit Installation .....	16
4.4	Shimming And Anchoring Lift To Concrete .....	20
4.5	Accordion Skirt Installation.....	20
4.6	Toe Indicator Skirt.....	22
<b>5.</b>	<b>Operation .....</b>	<b>24</b>
5.1	Raise And Lower Lift.....	24
<b>6.</b>	<b>Maintenance .....</b>	<b>25</b>
6.1	Maintenance Device .....	25
6.2	Routine Maintenance.....	27
6.2.1	Every Day Or 10 Hours Of Operation.....	28
6.2.2	Every Month Or 100 Hours Of Operation .....	28
6.2.3	Every Year Or 1000 Hours Of Operation .....	28
6.2.4	Oil Requirements.....	29
6.2.5	Oil Capacity .....	29
6.3	General Maintenance .....	30
6.3.1	Hydraulic Cylinder Repair .....	30
6.3.2	Bleeding Air From System .....	31
6.3.3	Hydraulic Velocity Fuse (HVF) Replacement .....	32
6.3.4	Hose Orientation.....	32

6.3.5	Schematics and Field Wiring Details .....	33
6.3.6	Troubleshooting.....	43
<b>7.</b>	<b>Parts Lists .....</b>	<b>47</b>

# I. INTRODUCTION AND WARRANTY

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## I.1 Introduction

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Please read and understand this manual prior to installation or operation of this lift. Failure to do so could lead to property damage and/or serious personal injury. If you have any questions, call a local dealer or *Autoquip Corporation* at 1-888-811-9876 or 405-282-5200.

Please record the following information and refer to it when calling your dealer or Autoquip.

Model Number: \_\_\_\_\_ Serial Number: \_\_\_\_\_

Installation Date \_\_\_\_/\_\_\_\_/\_\_\_\_

### I.1.1 Identification

When ordering parts or requesting information or service on this lift, PLEASE REFER TO THE MODEL AND SERIAL NUMBER. This information is on a nameplate attached to the leg assembly. Replacement parts are available from a local *Autoquip* distributor.

### I.1.2 Inspection

Upon receipt of lift, perform a visual inspection to determine whether the lift has been damaged in transit. Any damage found must be noted on delivery receipt. In addition to this preliminary inspection, carefully inspect lift for concealed damage. Any concealed damage found that was not noted on delivery receipt must be reported in writing to the delivering carrier within 48 hours.

Use the following checklist for inspection of lift:

1. Examine entire unit for any signs of mishandling. Carefully check power unit and controls.
2. Thoroughly examine all connections, making sure they have not vibrated loose during transit, and inspect wiring for any signs of damage.
3. After installation, raise lift and inspect base frame, platform, scissors assembly, and cylinder plumbing connections.

### I.1.3 Planned Maintenance Program

A local *Autoquip* representative provides a Planned Maintenance Program (PMP) for this equipment using factory-trained personnel. Call a local representative or *Autoquip Corporation* at 1-888-811-9876 or 405-282-5200 for more information.

## I.2 Responsibility Of Owners/Users

---

### I.2.1 Deflection

It is the responsibility of user/purchaser to advise manufacturer where deflection may be critical to the application.

## **I.2.2 Inspection & Maintenance**

Lift must be inspected and maintained in accordance with Autoquip's operating/maintenance (O&M) manual and with other applicable safe operating practices.

## **I.2.3 Removal From Service**

Any lift not in safe operating condition such as, but not limited to, excessive leakage, missing parts or fasteners, any bent or cracked structural members, cut or frayed electric, hydraulic, or pneumatic lines, damaged or malfunctioning controls or safety devices, etc. shall be removed from service until it is repaired to the original manufacturer's standards.

## **I.2.4 Repairs**

All repairs must be made by a qualified technician in conformance with Autoquip's instructions.

## **I.2.5 Operators**

Only trained personnel and authorized personnel shall be permitted to operate lift.

## **I.2.6 Before Operation**

Before using lift, operator must:

- Read and/or had explained, and understood, manufacturer's operating instructions and safety rules.
- Inspect lift for proper operation and condition. Any suspect item must be carefully examined and a determination made by a qualified person as to whether it constitutes a hazard. All items not in conformance with Autoquip's specification must be corrected before operating lift.

## **I.2.7 During Operation**

Use lift in accordance with Autoquip's O&M manual.

- Do not overload lift.
- Verify all safety devices are operational and in place.
- Autoquip warrants this lift for 60,000 cycles each warranty year. This number of cycles represents normal, single shift duty. Exceeding this number of cycles shortens life of lift and length of your warranty.

## **I.2.8 Modifications Or Alterations**

Modifications or alterations to this equipment may be made only with written permission of Autoquip. Unauthorized modification or alteration will void warranty.

## 1.3 Warranty

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The user is solely responsible for using this equipment in a safe manner and observing all of the safety guidelines provided in the Owner's Manual and on the warning labels provided with the lift. If you are unable to locate either the manual or the warning labels, please contact Autoquip or access [www.autoquip.com](http://www.autoquip.com) for replacement downloads or information.

Autoquip Corporation expressly warrants that this product will be free from defects in material and workmanship under normal, intended use for a period of Two (2) Years for Labor and all electrical, mechanical, and hydraulic components, parts or devices, and warrants the structure of the lift against breakage or failure for a period of Five (5) years. The warranty period begins from the date of shipment. When making a claim, immediately send your dealer or Autoquip notice of your claim. All claims must be received by Autoquip within the warranty time period. The maximum liability of Autoquip, under this Limited Warranty, is limited to the replacement of the equipment.

This warranty shall not apply to any Autoquip lift or parts of Autoquip lift that have been damaged or broken in transit/shipping, or due directly or indirectly to misuse, abuse, vehicle impact, negligence, faulty installation, fire, floods, acts of God, accidents, or that have been used in a manner contrary to the manufacturer's limitations or recommendations as stated in the manual, or that have been repaired, altered or modified in any manner outside of Autoquip Corp's manufacturing facility or which have not been expressly authorized by Autoquip.

Autoquip Corporation makes no warranty or representation with respect to the compliance of any equipment with state or local safety or product standard codes, and any failure to comply with such codes shall not be considered a defect of material or workmanship under this warranty. Autoquip Corporation shall not be liable for any direct or consequential damages resulting from such noncompliance.

Autoquip Corporation's obligation under this warranty is limited to the replacement or repair of defective components at its factory or another location at Autoquip Corp's discretion at no cost to the owner. This is owner's sole remedy. Replacement parts (with exception of electrical components) will be warranted for a period of ninety (90) days. Except as stated herein, Autoquip Corporation will not be liable for any loss, injury, or damage to persons or property, nor for direct, indirect, or consequential damage of any kind, resulting from failure or defective operation of said equipment. All parts used to replace defective material must be genuine Autoquip parts in order to be covered by this Limited Warranty.



AUTOQUIP CORP  
P.O. Box 1058, Guthrie, OK 73044-1058  
Telephone: (888) 811-9876 · (405) 282-5200  
Fax: (405) 282-3302  
[www.autoquip.com](http://www.autoquip.com)

## 2. SPECIFICATIONS

### 2.1 Model Specifications

Model Number	Travel (inches)	Lifting Capacity (lbs)	Max. End Load Capacity (lbs)	Max. Side Load Capacity (lbs)	Base and Min. Platform Size (in)	Lowered Height (in)	Raise Time (sec)	Lower Time - Fully Loaded (sec.)	App. Ship Wt. (lbs.)
24S25	24	2500	2500	2500	24 x 36	6.5	8	4	500
24S40	24	4000	4000	4000	24 x 36	6.5	11	5.5	510
24S60	24	6000	4500	4500	24 x 36	6.5	16	8	530
24S80	24	8000	4500	4500	24 x 36	7	22	11	650
36S15	36	1500	1000	750	24 x 48	6.5	28	28	580
36S25	36	2500	2500	2500	24 x 48	6.5	12	6	610
36S40	36	4000	3500	3500	24 x 48	6.5	17	8.5	620
36S60	36	6000	3500	3500	24 x 48	6.5	25	12.5	650
36S80	36	8000	3500	3500	24 x 48	7	34	17	750
48S25	48	2500	2500	2500	24 x 64	7	16	8	820
48S40	48	4000	3500	3500	24 x 64	7	22	11	830
48S60	48	6000	3500	3500	24 x 64	7	33	16.5	860
48S80	48	8000	3500	3500	24 x 64	7.5	44	22	960
60S25	60	2500	2500	2500	32 x 87	8	22	11	1750
60S40	60	4000	3500	3500	32 x 87	8	44	22	1800
60S60	60	6000	3500	3500	32 x 87	8	44	22	1850
60S80	60	8000	8000	8000	32 x 90	12	36	36	4400
60S100	60	10000	10000	9000	32 x 90	12	36	36	4500
60S120	58	12000	12000	10000	32 x 90	12.5	60	60	4600
60S150	58	15000	14000	12000	32 x 90	12.5	60	60	4700

### 2.2 Lift Specifications

There are many custom designs whose specifications may vary from those published for standard models. Please consult the specific General Arrangement (GA) Drawing to obtain the specifications for application-specific designs.

## **2.3 Load Capacity**

---

Load capacity rating is stamped on a metal nameplate attached to lift. This figure is a net capacity rating for a lift furnished with a standard platform. If optional items are installed on lift after leaving manufacturer, deduct weight of these from load rating to obtain net capacity.

Do not exceed rated capacity of lift. Loading lift beyond its rated capacity is unsafe, will shorten operational life of lift, and will void warranty.

## **2.4 Unbalanced Loading**

---

The stabilization provided is basically for balanced loads. If special attachments extend beyond the length and/or width dimensions of platform, end and/or side load capacity is reduced 2% for each one-inch extension from edge of platform. If load is rolling onto platform (in any but fully-lowered position) end and/or side load capacity is reduced by dividing the rated end/side load by 1.50 to establish an available "axle" load.

## **2.5 Pump Pressure**

---

This lift incorporates a unique, positive displacement pump. Therefore, standard factory models of same manufacture cannot replace it.

Pump can operate efficiently at intermittent pressures up to 3200 PSI and continuous duty to 2500 PSI. The factory installed safety relief valve is factory-set to stay within parameters of pump and lift requirements.

## **2.6 Lift Duty**

---

It is the responsibility of the user to notify Autoquip whenever a specific application is likely to demand "above normal" duty from lift. Above normal duty typically requires supplemental design features to enhance serviceable life of lift and to avoid loss of warranty.




## 3. SAFETY

---

### 3.1 Safety Signal Words

---

This Owner's Manual covers Series 35 Lift models produced by Autoquip. Before installing, operating or servicing lift, you must read, understand and follow the instructions and safety warnings in this manual. Your lift may not be equipped with some optional equipment shown in this manual.

The safety information in this manual is denoted by the safety alert symbol: 

The level of risk is indicated by the following signal words.

#### **DANGER**

**DANGER** – Indicates a hazardous situation, which, if not avoided, will result in death or serious injury.

#### **WARNING**

**WARNING** – Indicates a hazardous situation, which, if not avoided, could result in death or serious injury.

#### **CAUTION**

**CAUTION** – Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury.

#### **NOTICE**

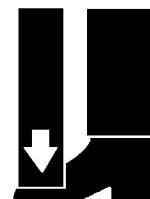
**NOTICE** – Indicates a situation that could result in damage to the lift or other property.

### 3.2 Installation

---

#### **WARNING**

Do not install lift in a pit unless pit has a bevel toe guard or other approved toe protection. A shear point can exist which can cause severe foot injury.



Lift platforms traveling below floor levels may create a toe hazard as load passes top edge of pit. This may require guarding in accordance with Federal Regulations. Guarding must be installed prior to operating lift.

**⚠ WARNING**

Prevent serious injury or death.

Depending on model, standard weight of lift ranges from 500 – 4700 lbs.

Use a properly rated lifting device to move and install lift.

### 3.3 Operation

---

**⚠ WARNING**

Prevent serious injury or death.

Scissor lifts are designed for a specific load and application. Do not change load or application from original design.

Overloading, or uneven loading, could result in load instability and cause serious personal injury.

Stay clear of lift while lift is in motion.

Never stand, sit or ride on lift unless equipped with OSHA-compliant personnel guarding on the platform.

**⚠ WARNING**

Prevent serious injury or death.

Lifts which travel to an elevation above floor level where distance between floor and the underside of lift platform exceeds 60" must have the scissors mechanism guarded per ANSI MH29.1.

### 3.4 Hydraulics

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Fluids can be hazardous. Before servicing lift, check Material Safety Data Sheet (MSDS) to understand the product, safe handling procedures, and first aid measures relating to product. Follow this information when servicing or repairing lift.

Do not drain or pour any fluids or lubricants into ground. Check with local environmental agencies, recycling centers, or your Autoquip dealer for correct disposal information.

**⚠ CAUTION**

Any time velocity fuses have been tripped, investigate cause of trip and verify necessary corrective actions have been taken prior to operation of lift.

**⚠ WARNING**

Prevent serious injury or death.

Do not attempt to remove Hydraulic Velocity Fuse (HVF) until maintenance device securely supports lift and all hydraulic pressure has been relieved.

HVF is attached to elbow fitting in pressure port of cylinder. Do not use a swivel fitting between HVF and cylinder. If HVF is installed improperly, it will not lock up in event of a hydraulic line failure.

**⚠ WARNING**

Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail from age, damage and exposure.

Do not search for hydraulic leaks without body and face protection. A tiny, almost invisible leak can penetrate the skin, thereby requiring immediate medical attention.

Use wood or cardboard to detect hydraulic leaks, never your hands.

**⚠ WARNING**

Spilled fluids and lubricants may be slippery and may also present a fire hazard.

Clean up spilled fluids and lubricants.



## 3.5 Maintenance

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**⚠ WARNING**

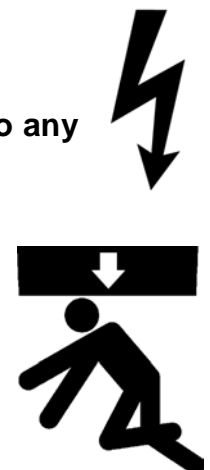
Prevent serious injury or death.

Disconnect and/or lock out electrical supply to power unit prior to any maintenance being performed.

**⚠ WARNING**

Prevent serious injury or death.

Never go under lift platform until load is removed and scissors mechanism is securely blocked in raised position with maintenance devices.



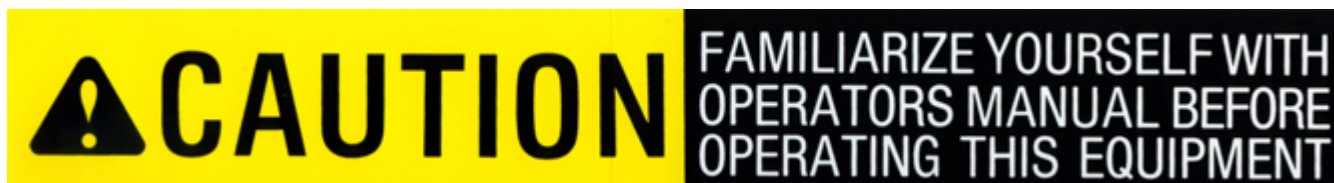
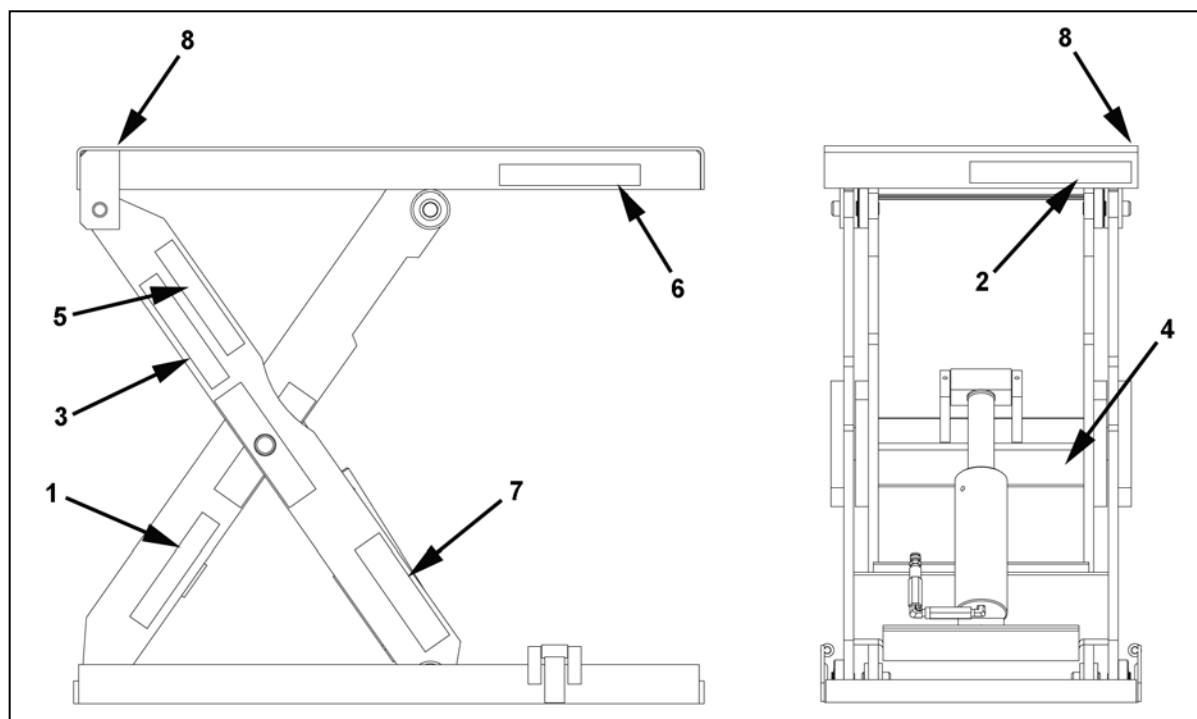
## 3.6 Modifications

### **⚠ WARNING**

Prevent serious injury or death.

Do not modify lift. Autoquip cannot foresee and is not responsible for injury or damage which results from unauthorized modifications or misuse of lift.

## 3.7 Labels



1 – 36401487



2 – 36430050

# SERIES 35

TM

Autoquip Corp., 1058 W. Industrial, Guthrie, OK 73044-1058 • 1-888-811-9876 www.autoquip.com

3 – 36402980

*Contains SAE 5W30 oil  
for the following temperature range:  
-10°F to 130°F  
Other temperatures, please  
consult factory.  
See MSDS sheet included  
with shipment.*

36400661

4 – 36400661

**Autoquip** A SUBSIDIARY OF **MINER** ENTERPRISES INC.  
CORPORATION

P.O. Box 1058  
1058 W. INDUSTRIAL  
GUTHRIE, OK 73044-1058  
888-811-9876  
WWW.AUTOQUIP.COM.

MAXIMUM LOAD   
MODEL NUMBER   
SERIAL NO.

MAXIMUM AXLE LOAD OVER EDGES

36401560

5 – 36401560

**Autoquip**  
LIFTING SOLUTIONS.

1058 W. INDUSTRIAL AVE.  
GUTHRIE, OK 73044-1058  
1-888-811-8876  
www.autoquip.com

**,000 LBS.  
CAPACITY**

36401586

6 – 36401586



7 – 36403220

JOB NO.		MODEL NO.	
MOTOR	VOLTS	CYCLE	PHASE
CONTROL	VOLTS		
WIRE CODE			
BLACK –			
WHITE –			
RED –			
ORANGE –			
BLUE –			
GREEN –			

TO OBTAIN PROPER ROTATION ON 3 PHASE UNITS-RUN PUMP  
MOTOR 5 TO 10 SECONDS ONLY- IF LIFT DOES NOT RISE CHANGE  
ROTATION. PN 364-0334-3

8 – 36403343

### WARNING

To protect against death or serious injury, all labels must be on lift and must be legible.

If any of these labels are missing or cannot be read, call Autoquip for replacement labels.

## 4. INSTALLATION

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### 4.1 Remote Power Unit Installation

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1. The remote power unit is to be located in an area protected from the elements and should be installed prior to the lift to facilitate lift operation during installation into the pit.
2. The remote contractor power unit is equipped with power unit mounting brackets and can be wall or floor mounted using these brackets. If equipped with a vertical power unit, optional power unit mounting brackets must be used for wall mounting.
3. The electrical work is to be done in accordance with local codes by a qualified electrician. See the "Maintenance" section for the standard wiring diagram.
4. If permanent electrical work is not complete, some means of temporary power with an on/off device for the motor will be required.
5. Fill the reservoir with oil per instructions in the "Maintenance" section.

### 4.2 Power Unit Wiring

---

#### 4.2.1 Intermittent Remote Power Unit

1. The Intermittent Power Units utilize a 1-½ or 5 HP / 208-230-460 Volt / 60 hertz / 3 phase "Super-Torque" intermittent duty motor with (one full lift cycle per 2 minute period) driving a high pressure positive displacement pump assembly with an internal relief valve, check valve and down solenoid valve.
2. Because an Autoquip "Super-Torque" motor actually delivers substantially more horsepower than the nameplate rating, it must always be wired for heavier current-draw than standard motors of the same nameplate rating. However, because of the "Super-Torque" motor's starting efficiency and superior running characteristics, circuit components do not have to be as large as for standard motors of equal delivered horsepower.

#### 4.2.2 Heavy Duty Remote Power Unit

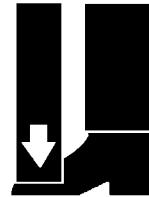
1. The Vertical 'HD' Power unit utilizes a 5 HP/ 208-230-460 Volt / 60 hertz / 3 phase Heavy Duty motor, (with a 30 minute continuous duty rating). The power unit is coupled with a high-pressure positive displacement gear pump, and Autoquip Corporation's patented Deltatrol valve assembly.
2. The motor connection diagram should be referenced in connecting the motors to a power source. Remember that heavy wire must be used all the way to the power source.

## 4.3 Pit Installation

---

### WARNING

Do not install lift in a pit unless pit has a bevel toe guard or other approved toe protection. A shear point may exist which can cause severe foot injury.



Lift platforms traveling below floor levels may create a toe hazard as load passes top edge of pit. This may require guarding in accordance with ANSI MH29.1. Guarding must be installed prior to operating lift.

1. Check pit dimensions. Pit must be 2" longer and 2" wider than lift platform to allow a 1" gap between platform and pit. Pit depth should allow ½" for shims or grout.
2. Conduit diameter must be a minimum of 3" with long radius sweeps for necessary hydraulic hosing and field wiring.
3. Verify installation area is clean before starting. Check mounting surface of pit floor with a level or straight edge. If floor is not level, add shims or grout under entire perimeter of base to achieve a level and flat base installation. A level base is essential for proper wheel tracking and smooth lift operation.





# **⚠ WARNING**

**Prevent serious injury or death.**

**Depending on model, standard weight of lift ranges from 500 – 4700 lbs.**

**Use a properly rated lifting device to move and install lift.**

4. Lower lift into pit and check for proper height. Lift must be solid and flush with pit curb angle framing (D). If needed, shim to desired height. DO NOT “spot” shim. Shim along full length of frame. This will prevent frame from sagging under load.

5. Remove the shipping bolt and eye bolts from the lift and hydraulically raise the platform. Failing to remove the shipping bolts before operation will cause permanent damage to the lift.

# **⚠ WARNING**

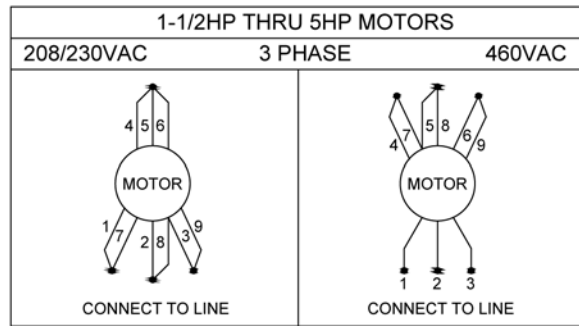
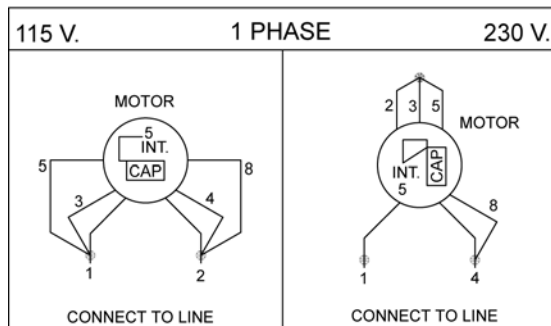
**Prevent serious injury or death.**

**Electrical service installation must be performed by a licensed electrician and conform to all local and national electrical codes.**



**NOTE:** For larger horsepower motors, consult factory.

Motor Details					Full Load Amps			
HP	HZ	PH	RPM	Time Rating	115V	208V	230V	460V
1/2	60	1	1725	2 Min.	15.0	7.7	7.7	-
3/4	60	1	1725	2 Min.	16.6	8.3	8.3	-
1-1/2	60	1	3450	2 Min.	-	5.3	5.3	2.65
5	60	1	3600	2 Min.	-	15.8	14.8	7.4
5	60	1	1760	Continuous	-	13.6	12.6	6.3

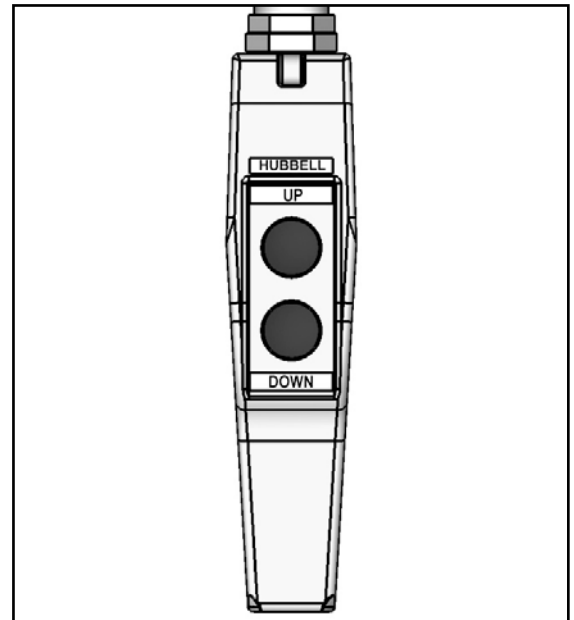


6. Temporarily connect electrical service and hydraulic hoses. The hose connection on the end of the base frame is 1/2" female NPT.

#### Hydraulic Piping/Hose Size

Up to 25 feet	½" ID
26 feet to 50 feet	¾" ID
Over 50 feet	1" ID

7. Check the routing of the temporary hydraulic lines to assure that the hose is clear of legs, base frame, and platform when lift is in the lowered position.
8. Fill hydraulic reservoir with proper type and volume of fluid.
9. Press "UP" button and raise lift one foot.
10. Press "DOWN" button to fully lower lift. Continue to hold down button for 60 seconds. Repeat procedure five to seven times to bleed air out of hydraulic system.
11. Raise and lower lift as needed to make positioning adjustments.
12. Adjust platform to a clearance of 1" minimum around perimeter between platform and pit angle.



#### **⚠ WARNING**

**NEVER go under a raised lift platform until load is removed and lift is securely blocked in raised position with maintenance devices.**

**See "Maintenance Device" section of this manual.**

**Lock-out/tag-out power source.**

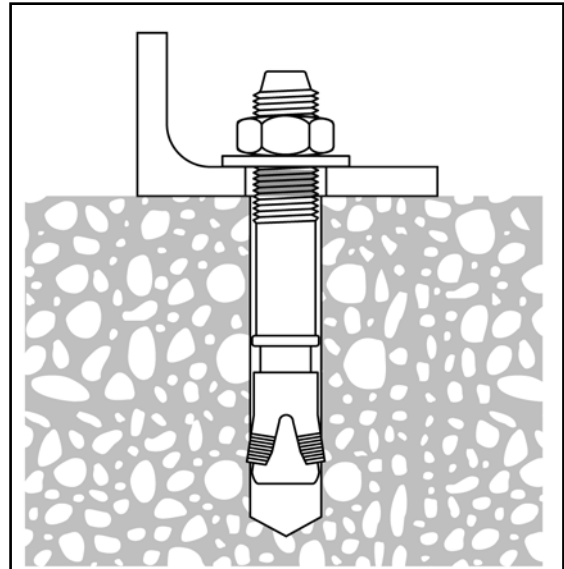


13. Base frame of lift has pre-drilled holes for anchoring to the floor. Anchor lift to floor. Lifts with oversize platforms have minimum pull out requirements of 2,000 lbs. for each anchor. See "Shimming And Anchoring Lift To Concrete".
14. Make permanent electrical and hydraulic connections and operate lift through a few cycles.
15. Clean up debris and spilled oil from area. Dispose of oil in an environmentally safe manner.
16. Touch-up paint is available from *Autoquip* for repair of damaged paint surfaces.
17. Train personnel on lift operation, all safety features and procedures.

## 4.4 Shimming And Anchoring Lift To Concrete

**Recommended concrete anchor bolts are: HILTI “Kwik-Bolt”, Molly Parabolt or similar.**

1. Verify lift is positioned correctly.
2. Drill holes in concrete as specified by anchor bolt manufacturer.
3. Install and tighten anchors as specified by anchor bolt manufacturer.
4. After lift has been aligned, leveled and shimmed, and anchors have been installed, pour grout under entire base frame.
5. When grout has set and cured, tighten nuts on anchor bolts.
6. Route hydraulic hose or electrical cord through conduit in pit wall.



## 4.5 Accordion Skirt Installation

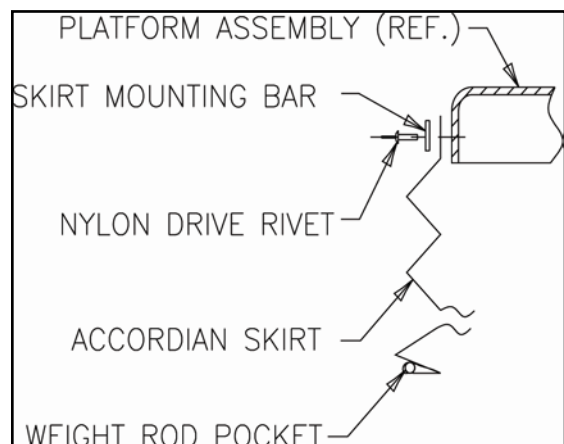
1. Position platform in raised position. Engage maintenance locks (see “Lift Blocking Instructions” section). Position accordion with weight rod pocket at bottom and mounting collar at top. The breathable material when provided must be positioned at top of skirt with mounting collar.
2. Slip skirt over end of platform. Turn skirt as required to slide over other end of platform and leg assembly. The skirt should be in position under platform while enveloping base assembly.
3. Select from the following mounting configurations.

### Mounting Accordion Skirt On Platform Side

Raise one side of skirt along with a skirt-mounting bar (1/8" x 1") to (1) side of platform. When possible, center skirt-mounting collar and skirt-mounting bar (1/8" x 1") on platform side.

Align pre-drilled holes in side of platform with skirt-mounting bar holes and punch holes in skirt-mounting collar.

Push a nylon drive rivet through each hole in skirt-mounting bar. Hammer aluminum pin into rivet until flush with rivet head. Repeat mounting process for remaining sides of accordion skirt.

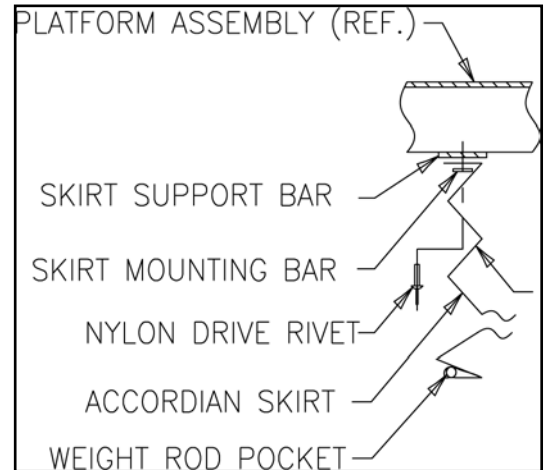


### Mounting Accordion Skirt Under Platform

Raise one side of skirt along with a skirt-mounting bar (1/8" x 1") to underside of platform skirt support bar. When possible, center skirt-mounting collar and skirt-mounting bar (1/8" x 1") on platform support bar.

Align pre-drilled holes in skirt support bar with skirt-mounting bar holes and punch holes in skirt-mounting collar.

Push a nylon drive rivet through each hole in skirt-mounting bar. Hammer aluminum pin into rivet until flush with rivet head. Repeat mounting process for remaining sides of accordion skirt.

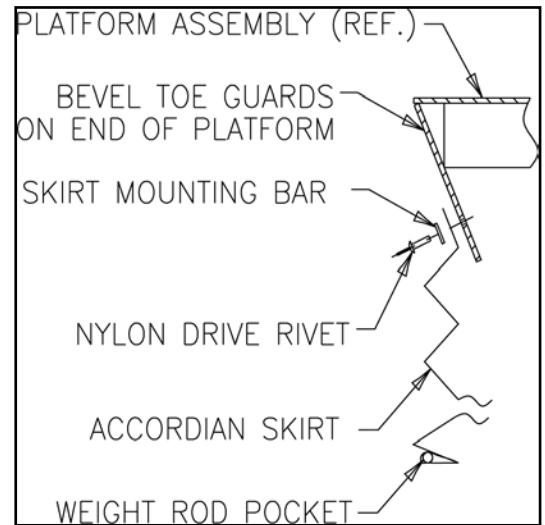


### Mounting Accordion Skirt On Bevel Toe Guard

Raise one side of skirt along with a skirt-mounting bar (1/8" x 1") to side of bevel toe guard. When possible, center skirt-mounting collar and skirt-mounting bar (1/8" x 1") on platform bevel toe guard.

Align pre-drilled holes in bevel toe guard with skirt-mounting bar holes and punch holes in skirt-mounting collar.

Push a nylon drive rivet through each hole in skirt-mounting bar. Hammer aluminum pin into rivet until flush with rivet head. Repeat mounting process for remaining sides of accordion skirt.

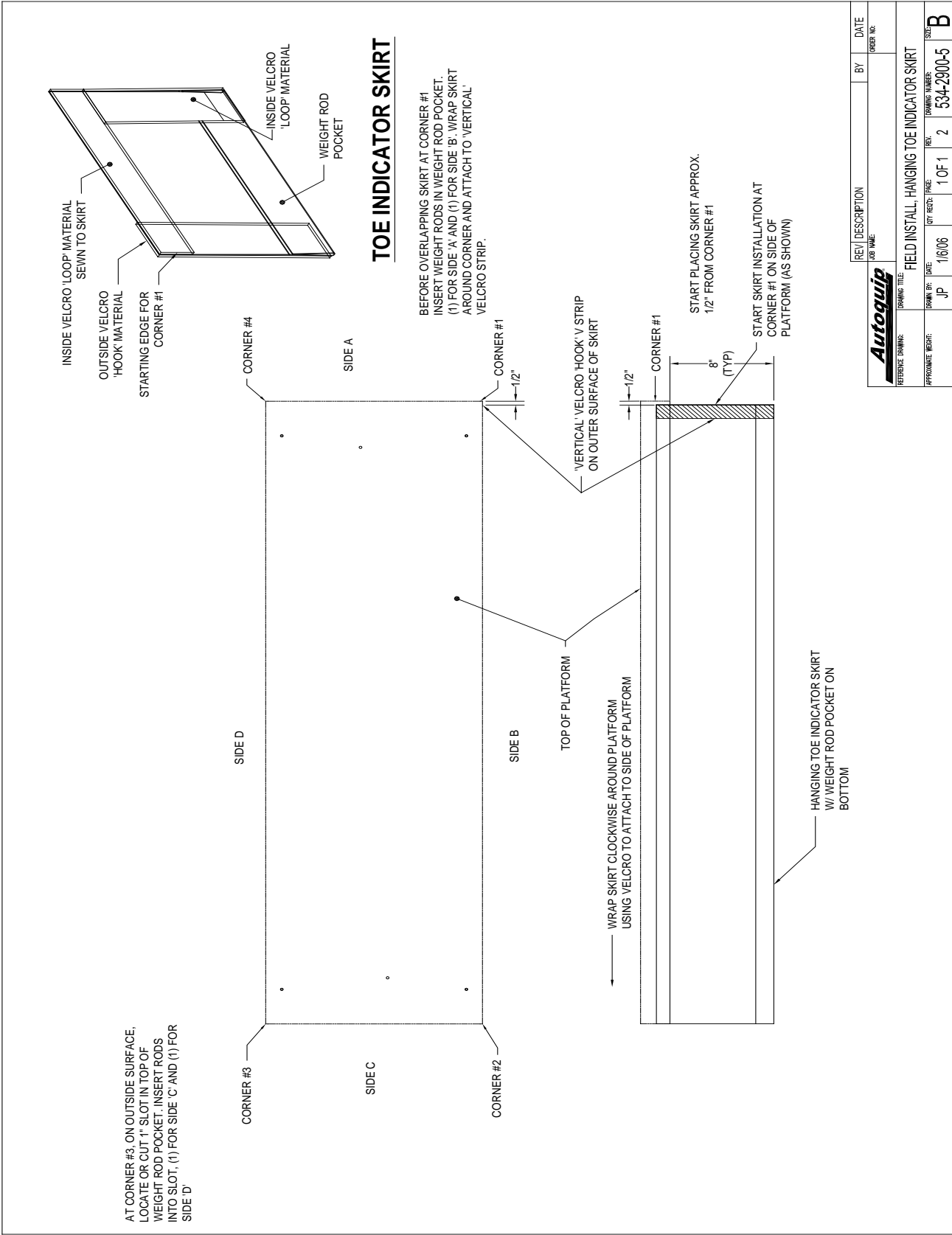


4. Install weight rods into weight rod pockets at bottom of accordion skirt. Install spring tempered wire rods into pocket of black convolutions.

## 4.6 Toe Indicator Skirt

---

1. Position the platform in the raised position. Install the maintenance locks (see “Lift Blocking Instructions”). Position the Toe Indicator skirt with the weight rod pocket at the bottom and the Internal Horizontal Velcro strip at the top. See Toe Indicator Drawing.
2. The skirt should be mounted to the platform sides to allow the skirt to extend approximately 8” below the bottom of the platform, see Toe Indicator Drawing. At the Skirt starting point, the skirt should have a Vertical Exterior Velcro strip and an Internal Horizontal Velcro strip. Use the Horizontal Velcro strip with adhesive back to attach the skirt to the platform sides, typical for all (4) platform sides. Start the skirt 1/2” from Corner #1 and wrap the Toe Indicator Skirt ‘Clockwise’ around the side of the platform. Keep the skirt smooth and tight during the clockwise installation.
3. Before overlapping the skirt at Corner #1, insert the Weight Rods into the weight rod pockets. (1) Weight Rod into Side ‘A’ pocket and (1) Weight Rod into Side ‘B’ pocket. Check the opposite ends of each weight rod to insure the weight rod is fully inserted into each weight rod pocket. Wrap the skirt around Corner #1 and attach the Vertical Interior Velcro strip on Side ‘A’ to the Vertical Exterior strip on Side ‘B’.
4. After installing the Weight Rods in Side A & Side B, we need to install Weight Rods into Side ‘C’ and ‘D’. At Corner #3, on the OUTSIDE surface cut a 1” (max.) Vertical slot in the TOP of the weight rod pocket. Insert weight rods in this slot, (1) for Side ‘C’ and (1) for Side ‘D’. The un-cut portion of the weight rod pocket will retain the weight rods.



**Toe Indicator Skirt Installation**

REV/DESCRIPTION	BY	DATE
JOB NAME		ORDER NO.
<b>Autoquip</b>		
REFERENCE DRAWING	DRAWING TITLE	
	FIELD INSTALL, HANGING TOE INDICATOR SKIRT	
APPROXIMATE WEIGHT	DRAWN BY	DATE
	JP	1/6/06
REV.	QTY	REV. DATE
1	1 OF 1	2
534-2900-5		
B		

## 5. OPERATION

---

### 5.1 Raise And Lower Lift

---

#### **⚠ WARNING**

**Prevent serious injury or death.**

**Before operating lift, all personnel interacting with lift must read, understand and follow instructions and safety warnings in this manual.**

#### **NOTICE**

**Adjusting safety relief valve may result in premature motor failure.**

**Do not adjust safety relief valve.**

Raising loads exceeding rated capacity of lift may result in excessive wear and damage to lift.

#### **⚠ WARNING**

**Prevent serious injury or death.**

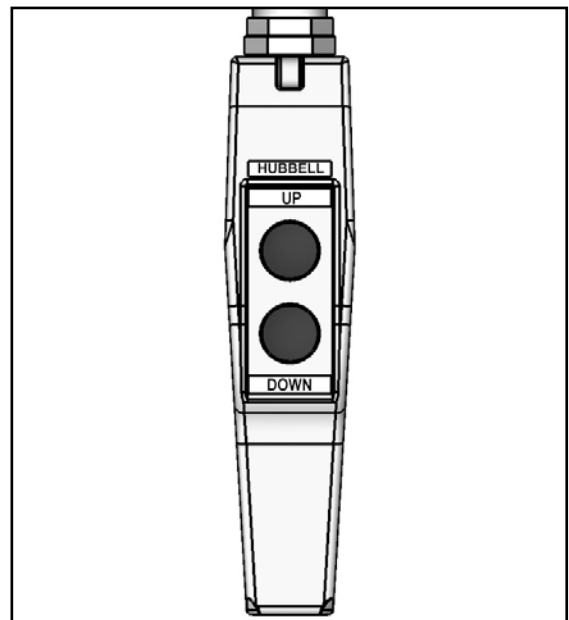
**Personnel must maintain a safe operating distance of at least 36" any time lift is operated.**

1. Verify all personnel are away from lift.
2. Press "UP" button to raise lift. Release button when lift reaches desired position.

#### **NOTICE**

**Do not operate lift on relief for more than a few seconds. When on relief, valve will make a squealing sound.**

3. Press "DOWN" button to lower lift. Release button when lift reaches desired position.
4. For lifts supplied with throw-over bridges, make sure bridges are in the stored (raised) position prior to raising or lowering the lift, and when backing up trucks for loading/unloading - to ensure that the bridges will clear all possible obstructions and contact with a moving truck.



Note: Bridges that hang below 45 degrees are in violation of ANSI Standard MH29.1-2012 paragraph 4.12.2 which states "When a hinged bridge is in its fully lowered position and not resting on a truck bed or landing, it should hang down at an angle not to exceed approximately 45 degrees from horizontal..." Autoquip's standard is to allow 20° of drop below horizontal.



## 6. MAINTENANCE

---

### 6.1 Maintenance Device

---

#### **WARNING**

**NEVER** go under a raised lift platform until load is removed and lift is securely blocked in raised position with maintenance device.

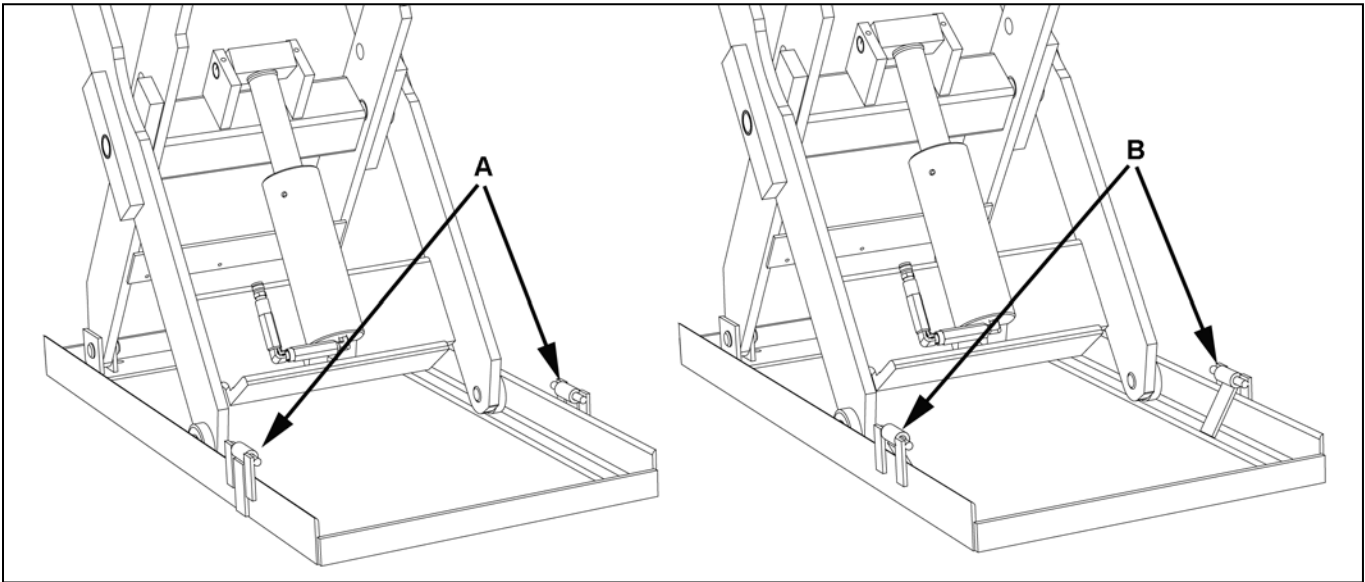
**Lock-out/tag-out power source.**



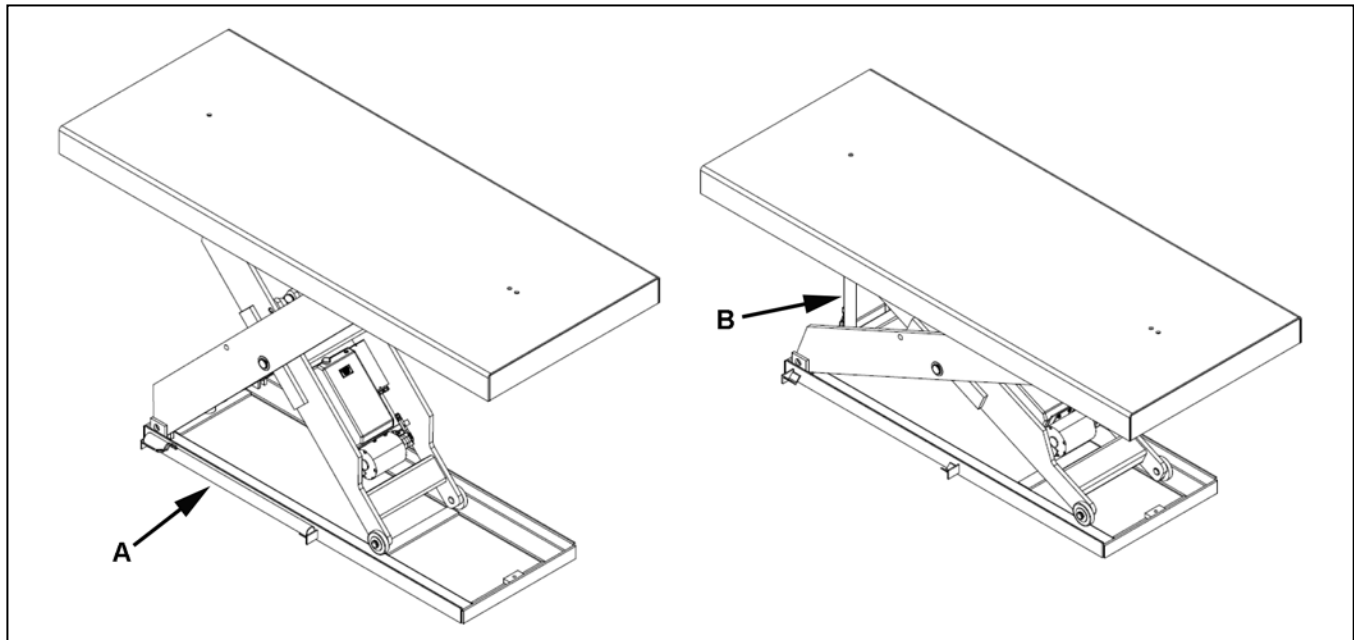
This procedure describes the only factory-approved method of working under a lift. Follow these instructions EVERY time you plan to reach or crawl beneath the lift to perform service or maintenance – no matter how momentary that might be.

If the factory-provided maintenance device is damaged or missing, stop immediately and consult the factory for assistance. The manufacturer is not liable for your failure to use the approved maintenance leg and procedures that have been provided.

1. All loads must be removed from the lift prior to engaging the maintenance devices. These devices are designed to support an unloaded lift only. Failure to remove the load from the lift prior to blocking could cause the failure of the maintenance devices and allow the lift to fall unexpectedly. This can result in personal injury or death.
2. Raise the lift to its fully raised position. If you do not, the maintenance devices may not be able to be placed properly in their designed blocking position.
3. The lift will be provided with two (2) maintenance devices stored on the outside of the base frame. The devices must be securely placed inside the base frame (B) and thus in the roller path of the lift **(See Figure 6.1 or 6.2)**.  
  
A - Maintenance Devices Disengaged  
B - Maintenance Devices Engaged
4. Lower the lift platform until the leg rollers or platform make contact with both maintenance device(s). Re-check to ensure that both device(s) are fully and properly engaged. If the maintenance device(s) is/are not fully engaged the lift could fall unexpectedly.



**Figure 6.1**



**Figure 6.2**

**⚠ DANGER**

**If for any reason you are unable to lower the lift completely onto the maintenance devices, stop immediately and consult the factory. Failure to properly use the factory approved maintenance devices could result in severe injury or death.**

5. Once the maintenance devices are properly and securely engaged, continue to press the down button, valve or switch for an additional 5-10 seconds to relieve all pressure in the hydraulic system (it could take longer in a pneumatic system).

**⚠ WARNING**

Failure to relieve operating system pressure could result in the sudden and unexpected release of high-pressure fluids (or air) during maintenance and/or repair of the lift, resulting in severe injury or death.

6. Follow OSHA electrical lock-out/tag-out procedures. Disconnect and tag all electrical and/or other power sources to prevent an unplanned or unexpected actuation of the lift.
7. Once inspection or work is complete, reverse the performance of the steps above to raise the lift off the maintenance locks and place the locks back into the designated storage position.

**⚠ DANGER**

**HIGH VOLTAGE!!** – Disconnect and/or lock out the electrical supply to the power unit per OSHA regulations prior to any installation or maintenance being performed.

## 6.2 Routine Maintenance

---

**⚠ WARNING**

Prevent serious injury or death.

Lock-out/tag-out power source prior to any maintenance being performed.

**⚠ WARNING**

Prevent serious injury or death.

Never go under lift platform until load is removed and scissors mechanism is securely blocked in raised position with maintenance devices.

See Maintenance Devices section.

**⚠ WARNING**

Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail from age, damage and exposure.

Do not search for hydraulic leaks without body and face protection. A tiny, almost invisible leak can penetrate the skin, requiring immediate medical attention.

Use wood or cardboard to detect hydraulic leaks, never your hands.



**⚠ WARNING**

**Spilled hydraulic fluid is slippery and may also present a fire hazard.**

**Clean up spilled hydraulic fluid.**



Normally, scissor lifts will require very little maintenance. However, a routine maintenance program could prevent costly replacement of parts and/or downtime.

### **6.2.1 Every Day Or 10 Hours Of Operation**

- Check reservoir fluid level.
- Check for fluid leaks.
- Check all hoses and electrical cords for cracks, abrasions, twisting, etc. Small leaks at connections can be remedied by tightening connections or replacing faulty component.
- Check that oil pressure does not exceed 3,000 psi.
- Check all pivot joints & roller bearings for noise and wear.
- Check overall condition of unit (i.e. bends, breaks, loose or missing screws, etc.).

### **6.2.2 Every Month Or 100 Hours Of Operation**

- Check quality of oil. Replace if discolored (oxidized), cloudy, or otherwise contaminated. Do not overfill reservoir. Always use clean fluid.
- Inspect lift cylinder rods for scoring and leaking, wipe away any foreign material.
- Inspect all structural and mechanical components for cracked, or broken welds and any distortion caused by collision, overloading, or other misuse.
- Inspect snap rings/bolts at rollers & pivot points for proper retention & tightness.
- Inspect cylinder trunion pin for proper retention.

When all checks have been completed, start unit and operate through all functions. Inspect all components for signs of noise, vibration, erratic movement, and any other abnormal behavior.

### **6.2.3 Every Year Or 1000 Hours Of Operation**

- Change oil and clean reservoir. Always use clean fluid. Never return fluid from drip pans, pit, etc. back to reservoir. Dispose of and handle used fluid as a hazardous material.
- If noise or vibration has been noticed, remove lift cylinder pins, pivot pins, and roller bearings. Inspect for wear and replace as necessary.
- Inspect all hydraulic hoses, replace any that show signs of wear or leaking.
- Replace all filters.
- Check for permanent mechanical deformation.

## 6.2.4 Oil Requirements

Follow recommendations below that apply to your application.

Environment (Ambient Temperature)	Recommended Oil
Indoor locations with variable temperatures: 30 - 100 degrees F.	5W 30 or 5W 40 Multiviscosity Motor Oil
Indoor locations with constant temperatures: 60 - 80 degrees F.	SAE 20 Motor Oil
Outdoor locations: 30 - 120 degrees F.	5W 30 or 5W 40 Multiviscosity Motor Oil
Outdoor locations: 10 degrees F below 0 to 100 degrees F.	5W 20 or 5W 30 Multiviscosity Motor Oil
Cold Storage Warehouse: 10 - 40 degrees F.	Contact local <i>Autoquip</i> Service Rep.

Note: All oils are detergent type.

Note: Oil level should be 1" to 1-1/2" below the top of the reservoir.

## 6.2.5 Oil Capacity

Standard Series 35 Polyethylene Tank: Approximately 1.25 gal.

Series 35: 48S80 & 60Sxx Tube Tank: Approximately 2 gal.

Contractor polyethylene Tank: Approximately: 5.5 gal.

Vertical Steel Tank: Approximately: 10 gal.

### **NOTICE**

**Use approved fluids only. Use of unauthorized fluids may cause damage to seals and hosing.**

Do Not Use:

- Automatic Transmission Fluid (ATF)
- Hydraulic Jack Oil
- Brake Fluids

## **6.3 General Maintenance**

---

### **6.3.1 Hydraulic Cylinder Repair**

#### **6.3.1.1. Cylinder Plunger Removal**

1. Raise lift to its full height and engage maintenance devices. See “Maintenance Devices”.
2. Disconnect electrical power to lift. Follow lock out-tag out procedure.
3. Disconnect cylinder hose at power unit end and insert into reservoir oil-fill hole.
4. Loosen the setscrew or hex bolt in the cylinder upper leg clevis (otherwise known as the Trunnion clevis).
5. Remove the cylinder pin from the upper leg clevis.
6. Lift the cylinder out of the leg assembly.
7. Push the piston rod into the cylinder to eject as much oil as possible into a container.

#### **6.3.1.2. Replace Cylinder Seals**

1. Insert spanner wrench and turn upper bearing assembly clockwise until tip of retainer appears in slot. Place a small screwdriver under retainer and turn retainer to remove.
2. Be sure hose port is open to allow air into cylinder. Pull piston rod out to remove upper bearing.
3. After all internal components have been removed, inspect inner walls of barrel. Use a cylinder hone to remove any apparent nicks or scratches. Clean and flush barrel after honing.
4. Remove piston head nut from rod. Upper clevis and pin may be used to prevent rotation of rod while loosening. Remove old piston.
5. Inspect groove for nicks or scratches that could affect seal or barrel walls; remove as necessary.
6. Install new piston, seals, and rod wiper.
7. Install and tighten piston head nut to 600-650 ft•lb of torque on 3½ inch bore cylinders or 850-950 ft•lb on 4 inch bore cylinders. Upper clevis and pin may be used to prevent rotation of rod while tightening.
8. Liberally lubricate piston and seal with clean grease or oil.
9. Insert piston into barrel, taking care not to damage seal.
10. Slip bearing assembly into place and align retainer hole with slot in barrel.
11. Turn bearing with spanner wrench until retainer is reinserted completely.

### 6.3.1.3. Placing Cylinder Back Into Service

Loctite PST #567 pipe thread sealant or equivalent is recommended.

#### **NOTICE**

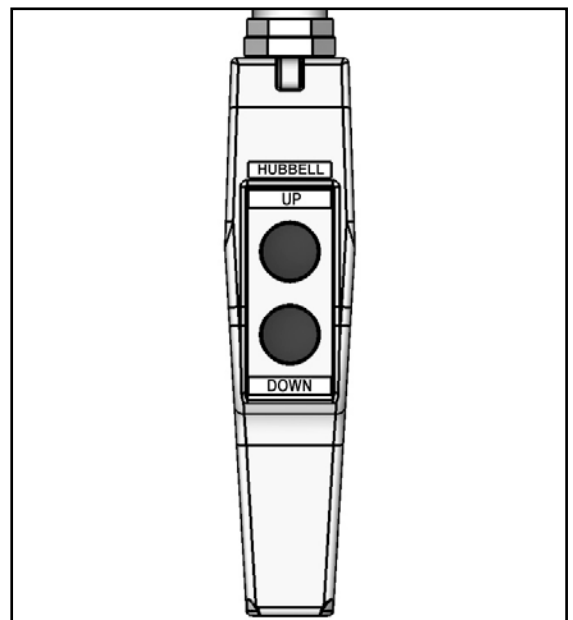
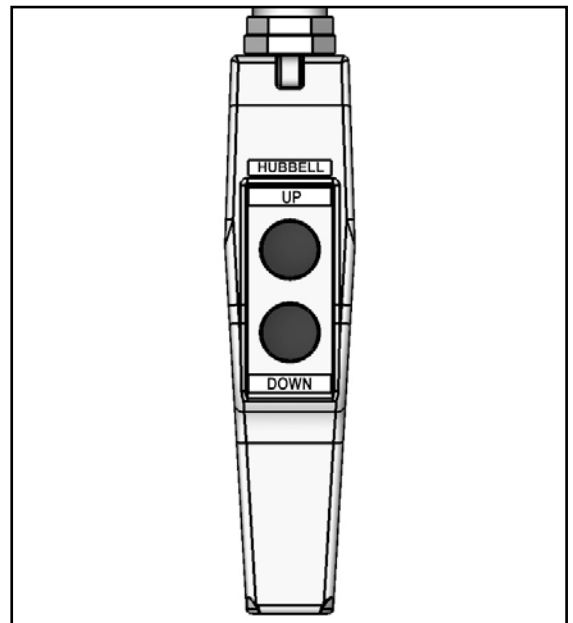
**Do not use Teflon tape on hydraulic threaded connections. Tape fragments may damage hydraulic system.**

Autoquip recommends replacing any NPT fittings that have been disassembled due to their inherent design for sealing.

1. Check that lift anchors are tight (when used). Check all pins and other mechanical and hydraulic connections.
2. Restore oil level. See oil recommendations in “Oil Requirements” section.
3. Turn on electrical power and press “UP” button. Loosen bleeder plug at the top end of ram casing and operate pump to remove trapped air from ram. When clear oil appears, tighten plug and raise lift slightly to disengage maintenance locks.
4. Lower lift completely and hold “DOWN” button for 60 seconds to allow air in cylinders to bleed back into reservoir.
5. Raise lift to 25 – 50% of full travel, then lower and hold “DOWN” button for an additional 60 seconds. Repeat procedure 8 – 10 times.
6. Clean oil fill breather cap.

### 6.3.2 Bleeding Air From System

1. Bleed air from system by raising lift to 25-50% of full travel, then lower completely.
2. Hold “DOWN” button for 60 seconds.
3. Repeat procedure 8-10 times. If this does not bleed all air from system, contact Autoquip.
4. Clean up any spilled oil. Dispose of spilled oil in an environmentally safe manner.



### 6.3.3 Hydraulic Velocity Fuse (HVF) Replacement

#### **⚠ WARNING**

**Prevent serious injury or death.**

**Never go under lift platform until load is removed and scissors mechanism is securely blocked in raised position with maintenance devices and hydraulic pressure is relieved.**

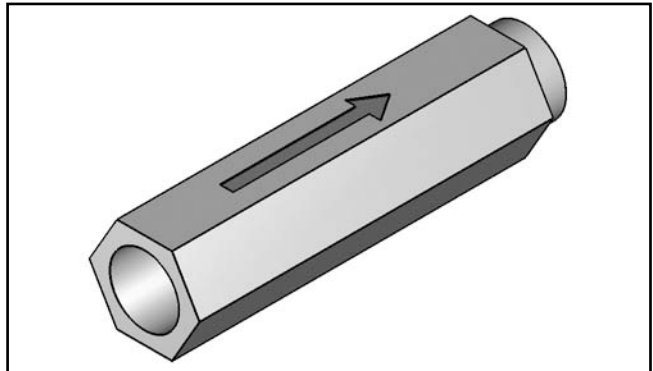
**The HVF is attached to elbow fitting in rod port of cylinder. Do not use a swivel fitting between HVF and cylinder. If HVF is installed improperly, it will not lock up in the event of a hydraulic line failure.**

Velocity fuse is not repairable. Replace velocity fuse if defective.

1. Arrow on hydraulic velocity fuse indicates direction of oil flow restriction. Hydraulic velocity fuse must be installed with arrow pointing away from cylinder.

#### **NOTICE**

**Do not use Teflon tape on hydraulic threaded connections. Tape fragments may damage hydraulic system.**



2. Apply Loctite PST #567 pipe thread sealant or equivalent to threads and install fuse to cylinder with arrow pointing away from cylinder. Tighten fuse.

Autoquip recommends replacing any NPT fittings that have been disassembled due to their inherent design for sealing.

3. Fill reservoir to full mark if necessary with proper oil.
4. Check all fitting connections for hydraulic leaks and tighten as necessary.
5. Bleed air from system. See “Bleeding Air From System” in this section.

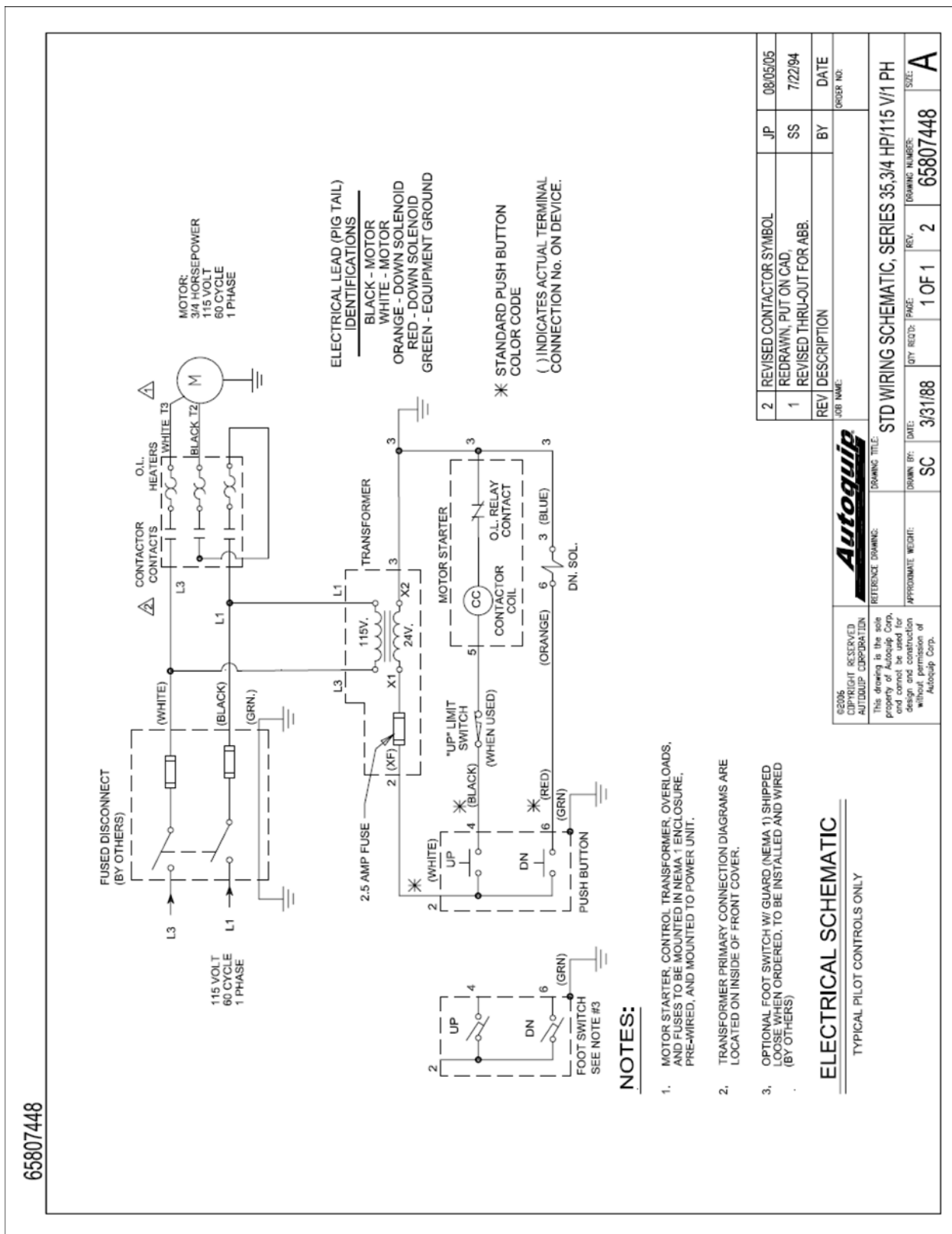
### 6.3.4 Hose Orientation

To prevent damage to cylinder hoses, it is necessary to establish a correct hose shape and pattern of movement as follows:

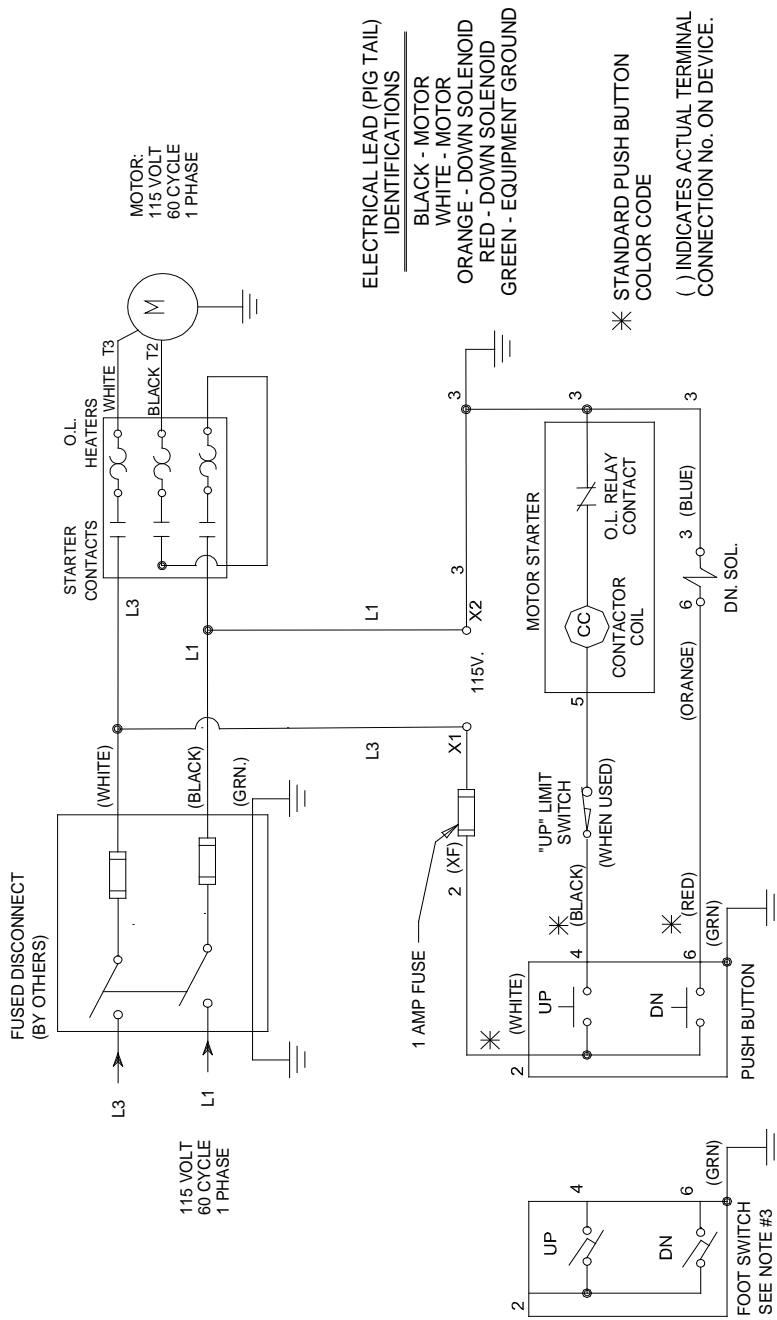
1. Raise lift to its full height and block securely. See “Maintenance Devices”.
2. Install one end of new hose to cylinder fitting.
3. Since hose is fixed at both ends, it is possible to put a twist in hose that will allow it to follow the same pattern each time lift is operated. This twist will allow hose to travel about half way between cylinder on right side and inner leg on right side.
4. Lower lift carefully and verify hose is free and clear of cylinder and inner leg assembly. If not, twist hose in direction necessary to clear any obstruction and tighten swivel fitting.



### 6.3.5 Schematics and Field Wiring Details



***Electric Schematic; 115V / 1 Phase /24V Control***



### NOTES:

1. MOTOR STARTER, OVERLOADS AND FUSES TO BE MOUNTED IN NEMA 1 ENCLOSURE, AND INTERNALLY PRE-WIRED.
2. WIRING DIAGRAM IS LOCATED ON INSIDE OF FRONT COVER.
3. OPTIONAL FOOT SWITCH W/ GUARD (NEMA 1) SHIPPED LOOSE WHEN ORDERED. TO BE INSTALLED AND WIRED (BY OTHERS)

### ELECTRICAL SCHEMATIC

TYPICAL PILOT CONTROLS ONLY

©2006 COPYRIGHT RESERVED AUTODIAP CORPORATION  This drawing is the sole property of Autodiap Corp. and cannot be used for design and construction without permission of Autodiap Corp.	<b>Autoquip</b> REFERENCE DRAWING: 65807448 APPROXIMATE WEIGHT: ME		DRAWING TITLE: ELECT SCH, SERIES 35; 115V/ 1PH/ 115CV		REV	DESCRIPTION	BY	DATE
	JOB NAME:		ORDER NO:		QTY	REV	DRAWING NUMBER:	SIZE:
		DATE:	1/4/05	1 OF 1	65750500	A		

Electric Schematic; 115V / 1 Phase / 115V Control

**FUSED DISCONNECT**  
(BY OTHERS)

230 VOLT  
60 CYCLE  
1 PHASE

L3 (WHITE)  
L1 (BLACK)  
(GRN.)

2.5 AMP FUSE

TRANSFORMER

230V.  
24V.

MOTOR STARTER

"UP" LIMIT SWITCH  
(WHEN USED)

PUSHBUTTON

FOOT SWITCH  
SEE NOTE #3

MOTOR:  
3/4 HORSEPOWER  
230 VOLT  
60 CYCLE  
1 PHASE

ELECTRICAL LEAD (PIG TAIL)  
IDENTIFICATIONS

- BLACK - MOTOR
- WHITE - MOTOR
- ORANGE - DOWN SOLENOID
- RED - DOWN SOLENOID
- GREEN - EQUIPMENT GROUND

\* STANDARD PUSHBUTTON COLOR CODE

CONNECTION No. ON DEVICE.

1. MOTOR STARTER, CONTROL TRANSFORMER, OVERLOADS, AND FUSES TO BE MOUNTED IN NEMA 1 ENCLOSURE, PRE-WIRED, AND MOUNTED TO POWER UNIT.
2. TRANSFORMER PRIMARY CONNECTION DIAGRAMS ARE LOCATED ON INSIDE OF FRONT COVER.


3. OPTIONAL FOOTSWITCH W/ GUARD (NEMA 1) SHIPPED LOOSE WHEN ORDERED. TO BE INSTALLED AND WIRED (BY OTHERS)

ELECTRICAL SCHEMATIC

TYPICAL PILOT CONTROLS ONLY

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REV

DESCRIPTION

BY

DATE

JOB NAME:

ORDER NO:

DRAWING TITLE:

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APPROXIMATE WEIGHT:

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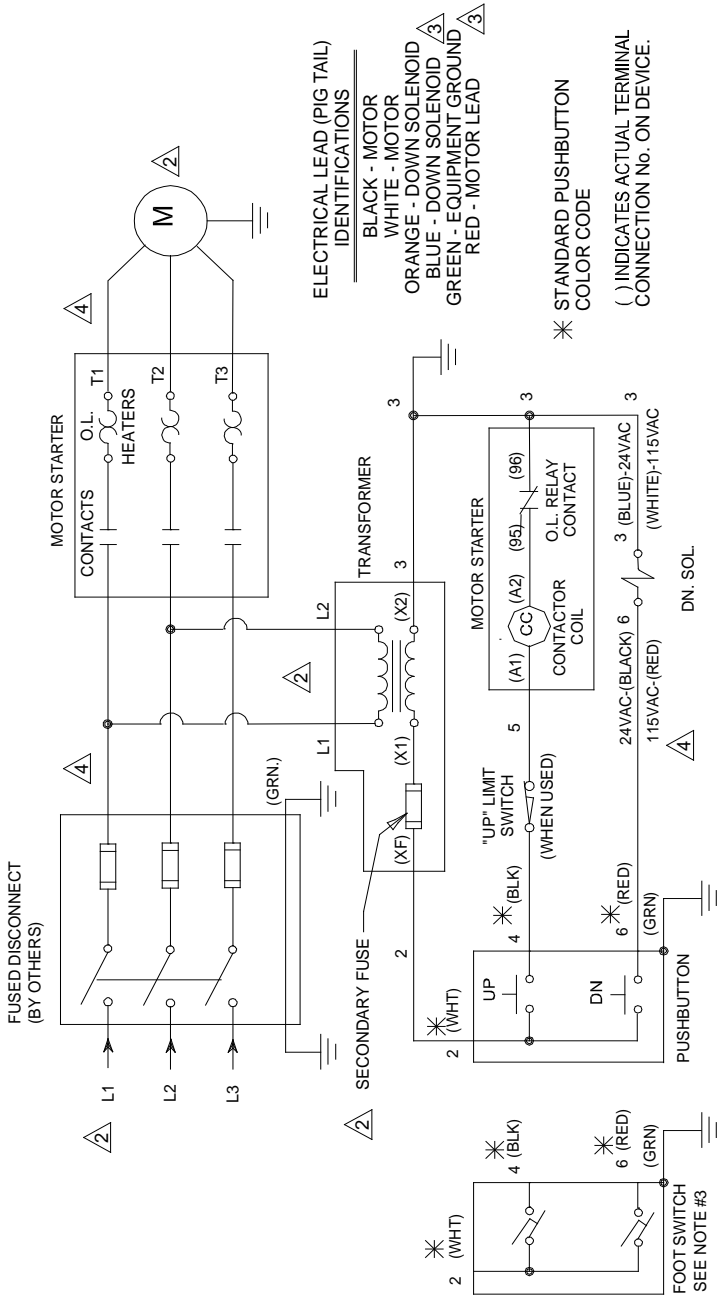
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## TYPICAL PILOT CONTROLS ONLY

35



NOTES:

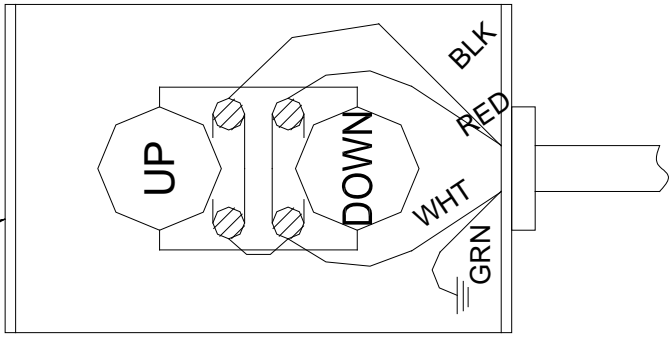
1. MOTOR STARTER, CONTROL TRANSFORMER, HEATERS, AND FUSES TO BE MOUNTED IN NEMA 1 ENCLOSURE, AND PRE-WIRED TO POWER UNIT.
2. TRANSFORMER PRIMARY CONNECTION DIAGRAMS ARE LOCATED ON INSIDE OF FRONT COVER.
3. FOOTSWITCH IS SHIPPED LOOSE FOR INSTALLATION BY OTHERS (WHEN ORDERED).

ELECTRICAL SCHEMATIC

TYPICAL PILOT CONTROLS ONLY

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STANDARD WALL MOUNT PUSHBUTTON SWITCH  
(FRONT VIEW, COVER REMOVED)

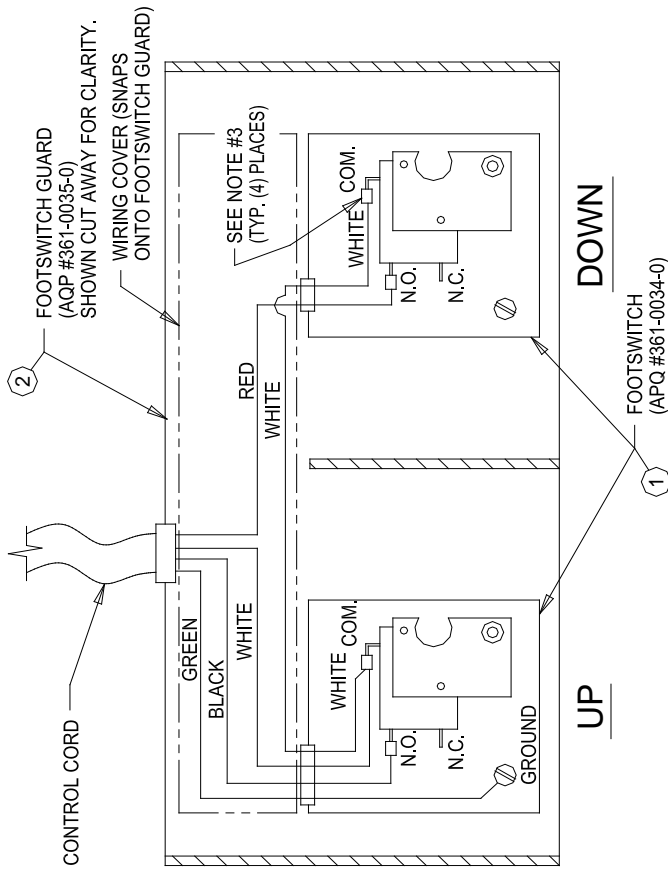


NOTES:

1. WARNING: ELECTRICAL HAZARD  
DISCONNECT POWER BEFORE  
WIRING THIS ACCESSORY.
2. COLOR CODING SHOWN CORRESPONDS TO  
EXISTING 16/4 SO CONTROL CORD ON  
LIFT.
3. USE APPROPRIATE WIRE, CONDUIT, ETC.  
TO SATISFY LOCAL CODES. (BY OTHERS.)

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			JOB NAME:			
This drawing is the sole property of Autoquip Corp. and cannot be used for design and construction without the permission of Autoquip Corp.	REFERENCE DRAWING:	DRAWING TITLE: STD WALL MOUNT PUSHBUTTON WIRING DIAGRAM				
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		<2T	DRAWN BY:	SC	REV.	2
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Optional Wall Mount Push Button Wiring Diagram



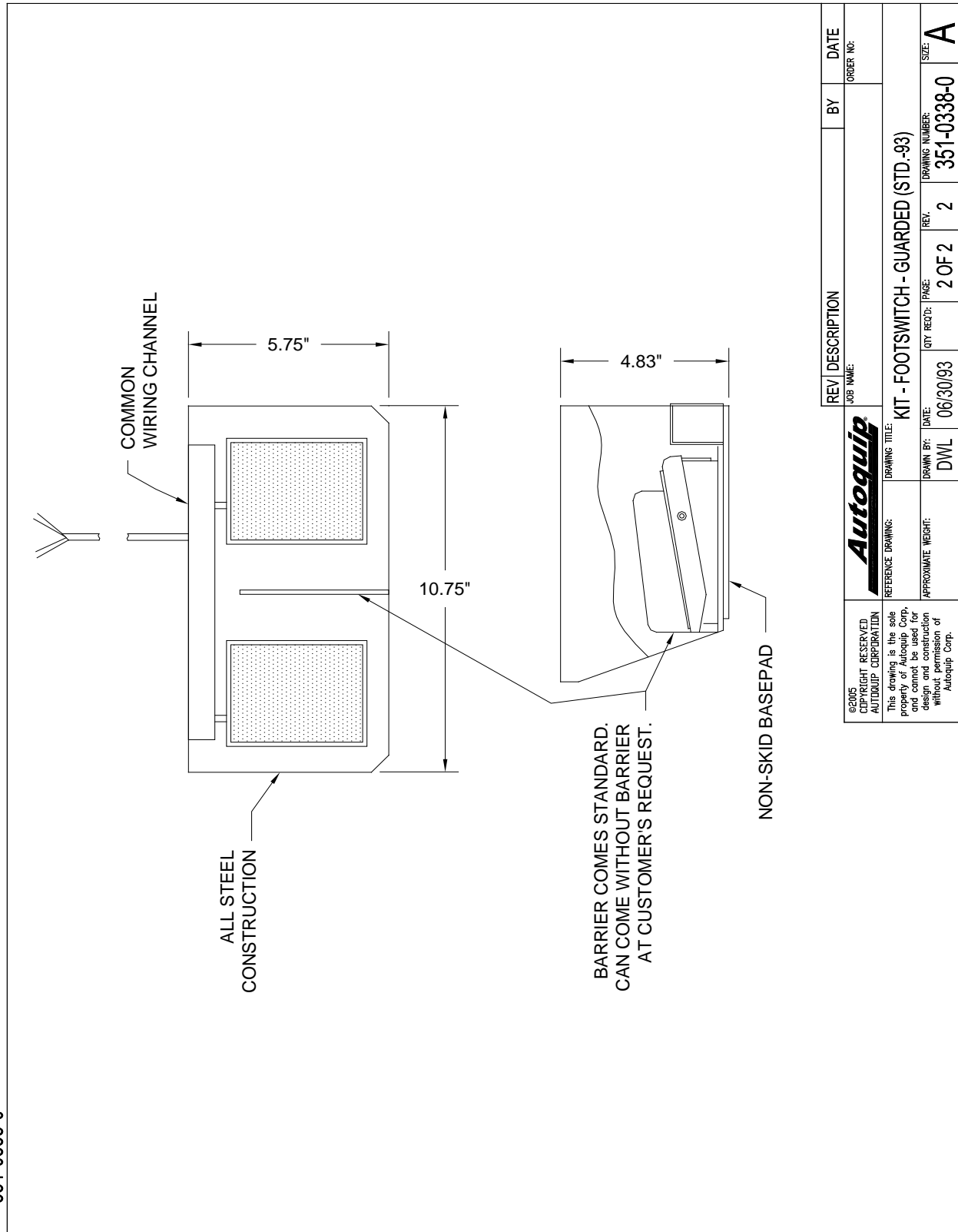
STANDARD FOOTSWITCH ASSEMBLY  
(TOP VIEW WITH TOP COVERS OF FOOTSWITCHES REMOVED)

## NOTES:

1. **WARNING: ELECTRICAL HAZARD.**  
DISCONNECT POWER BEFORE WIRING THIS ACCESSORY.
2. COLOR CODING SHOWN CORRESPONDS TO EXISTING 16/4 SO CONTROL CORD ON LIFT.
3. USE 3/16" WIRE TABS FOR WIRING FOOTSWITCH.
4. EXCHANGE BLACK AND RED WIRES IF DESIRED TO SWITCH "UP" AND "DOWN" FUNCTIONS.
5. USE APPROPRIATE WIRE, CONDUIT, ETC. TO SATISFY LOCAL CODES (BY OTHERS).
6. INSTALL FOOTSWITCH GUARD PER MANUFACTURER'S INSTRUCTIONS.
7. INSTALLER TO APPLY "UP" AND "DOWN" LABELS TO TOP OF COVER AS REQUIRED.
8. ELECTRICAL RATING WITHOUT CORD 15 AMP, 115/230VAC
9. FOOT GUARD PAINTED YELLOW

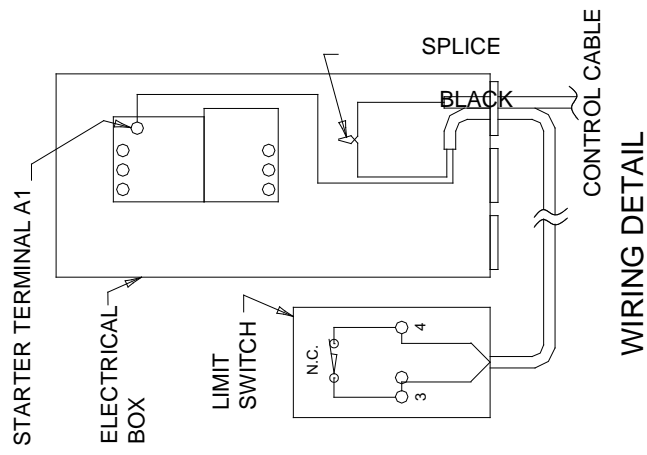
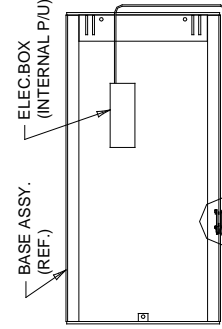
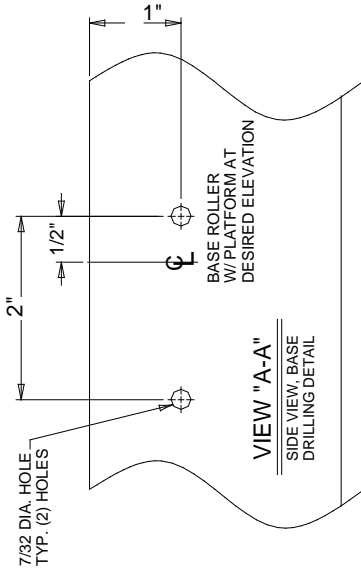
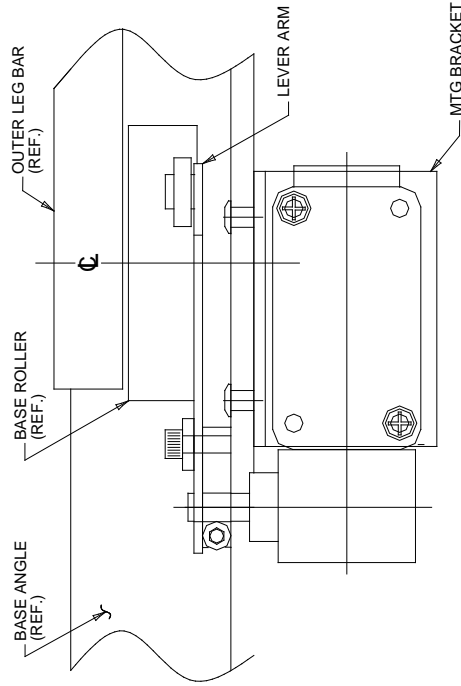
<small>©2005 COPYRIGHT RESERVED AUTOQUIP CORPORATION</small> <small>This drawing is the sole property of Autoquip Corp. and cannot be used for design and construction without permission of Autoquip Corp.</small>	<b>Autoquip</b>		REV	DESCRIPTION	BY	DATE
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<small>APPROXIMATE WEIGHT:</small> DWL	<small>DRAWN BY:</small> DWL	<small>DATE:</small> 06/30/93	<small>QTY REQ'D:</small> 1 OF 2	<small>REV.</small> 2	<small>DRAWING NUMBER:</small> 351-0338-0	<small>SIZE:</small> A

351-0338-0



**Guarded Foot Switch Assembly**

©2005 COPYRIGHT RESERVED AUTODUP CORPORATION	<b><i>Autodup</i></b>		REV DESCRIPTION		BY	DATE
	JOB NAME:					ORDER NO:
REFERENCE DRAWING: This drawing is the sole property of Autodup Corp. and cannot be used for design and construction without permission of Autodup Corp.		DRAWING TITLE: <b>KIT - FOOTSWITCH - GUARDED (STD.-83)</b>				
APPROXIMATE WEIGHT:	DRAWN BY: DWL	DATE: 06/30/93	QTY REQD:	2 OF 2	REV. 2	DRAWING NUMBER: 351-0338-0
						SIZE: <b>A</b>



- NOTES:**
- WIRING:**
1. WARNING: ELECTRICAL HAZARD. DISCONNECT POWER BEFORE WIRING THIS ACCESSORY.
  2. USE APPROPRIATE WIRE, CONDUIT, ETC. TO SATISFY LOCAL CODES. (BY OTHERS.)
  3. DISCONNECT EXISTING BLACK CONTROL CABLE WIRE FROM TERMINAL "A1" OF THE MAGNETIC STARTER IN THE ELECTRICAL BOX. SPLICE TO THIS WIRE AND CONNECT TO TERMINAL "3" OF THE LIMIT SWITCH. WIRE TERMINAL "4" OF THE LIMIT SWITCH BACK TO TERMINAL "A1" OF THE MAGNETIC STARTER.
  4. ROUTE WIRING FROM LIMIT SWITCH TO ELEC. BOX AROUND OUTSIDE OF BASE FRAME AND THRU GROMMETED HOLE IN BASE NED BAR.
- INSTALLATION:**
1. RAISE LIFT TO DESIRED ELEVATION AND MARK BASE ANGLE AT CL OF ROLLER.
  2. FOLLOW INSTRUCTION MANUAL AND BLOCK LIFT OPEN AT A POSITION THAT ALLOWS ACCESS TO MARKED AREA.

**STANDARD END MOUNT**

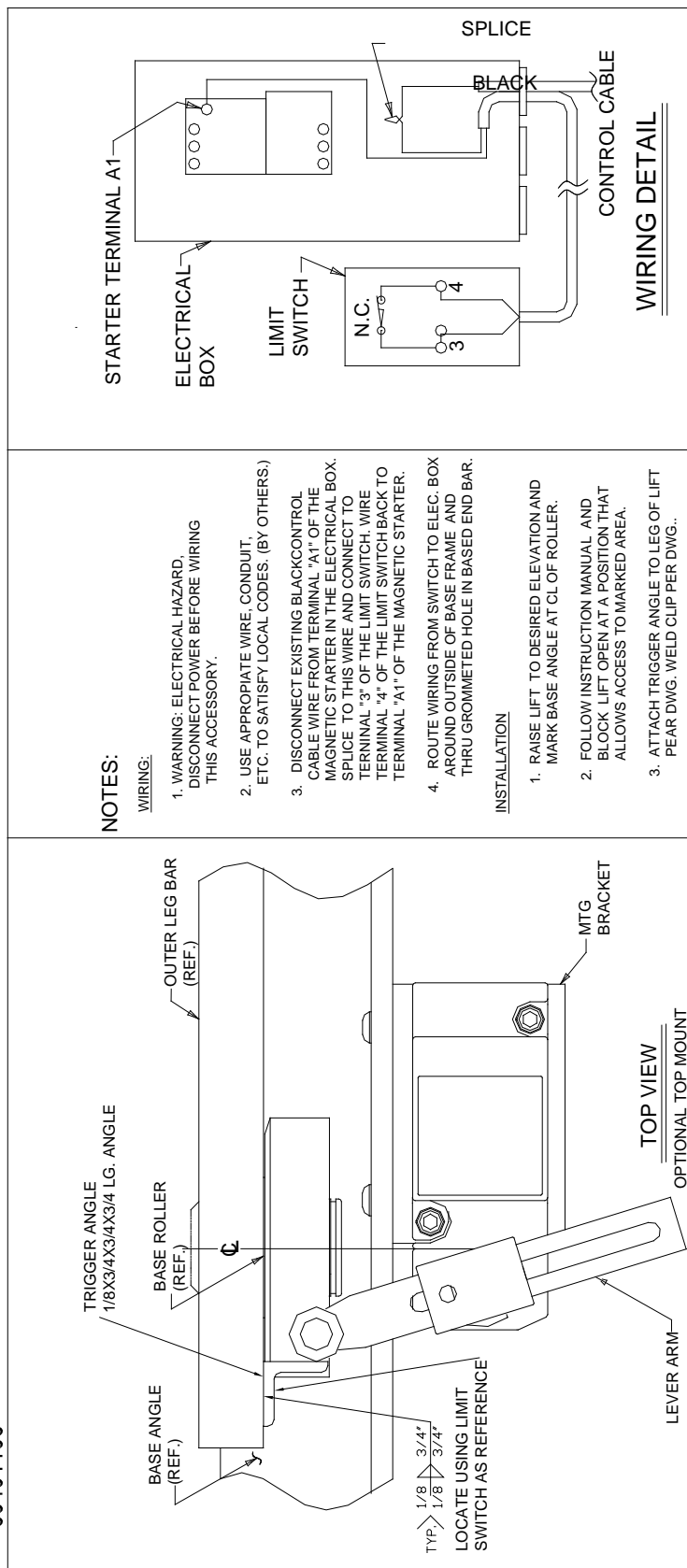
TO BE USED IN MOST CASES UNLESS INTERFERENCE BETWEEN LEG STIFFENER BAR AND LIMIT SWITCH ROLLER WHICH OCCURS IN THE COLLAPSED POSITION. TEMPORARILY HOLD LIMIT SWITCH ON THE OUTSIDE OF THE BASE FRAME AS SHOWN WITH THE LIFT AT THE DESIRED RAISED HEIGHT. THEN FULLY LOWER THE LIFT AND CHECK FOR CLEARANCE WITH THE STIFFENER BAR. IF INTERFERENCE OCCURS MOUNT LIMIT SWITCH PER PAGE 2. (OPTIONAL TOP MOUNT)

REV	DESCRIPTION	BY	DATE
	JOB NAME:		ORDER NO:
	DRAWING TITLE:		
	DRAWN BY:		
	DATE:		
	QTY REQD:		
	PAGE:		
	DRAWING NUMBER:		SIZE:
	SC	3	60401106
	1 OF 2		A

Optional Limit Switch Wiring Diagram



60401106



**OPTIONAL TOP MOUNT**

USED ONLY WHEN INTERFERENCE OCCURS ON STANDARD END MOUNT STYLE, EXPLAINED ON PAGE 1.

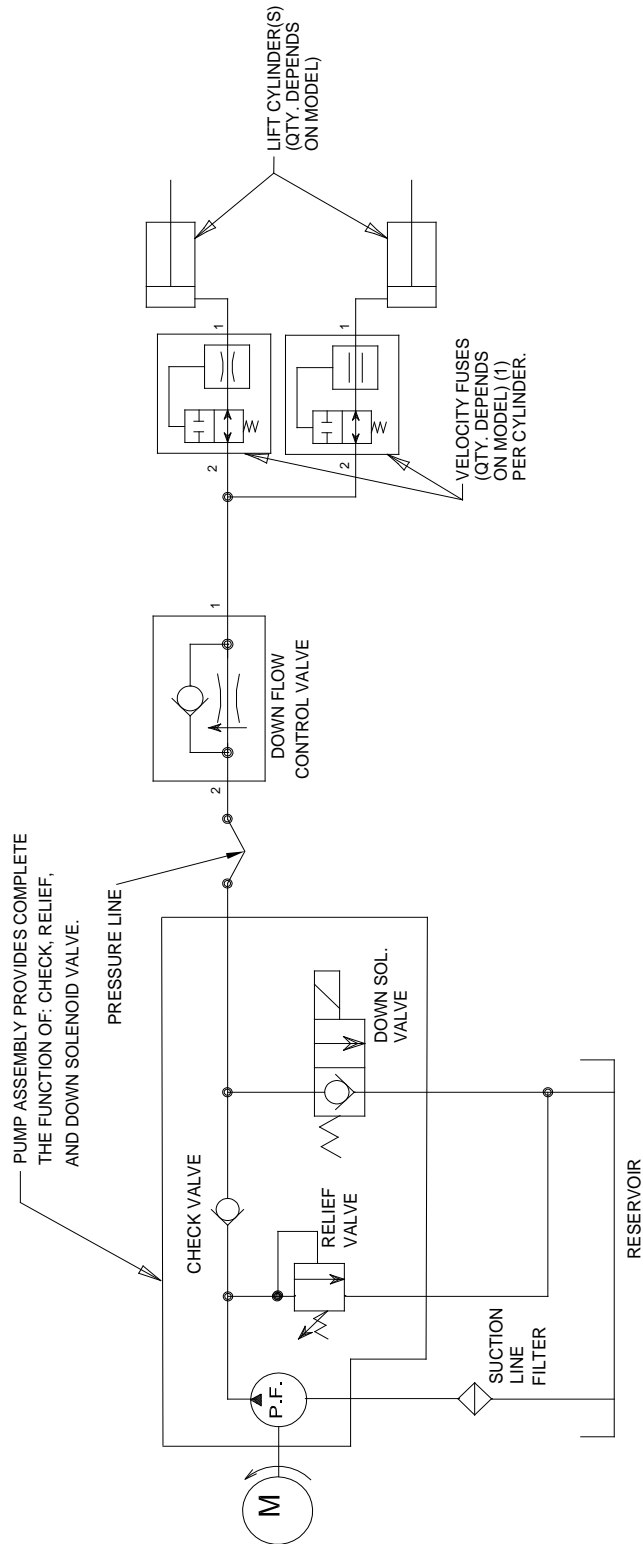
**ORIENTATION**

REV/ DESCRIPTION	BY	DATE
JOB NAME:		
ORDER NO.:		

DRAWING TITLE: LIMIT SWITCH INSTALLATION & WIRING			
REFERENCE DRAWING:	DRAWN BY: SC	DATE: 3/23/88	QTY REQD: PAGE: 2 OF 2
APPROXIMATE WEIGHT: <1k		DRAWING NUMBER: 60401106	
		SIZE: A	

Optional Limit Switch Wiring Diagram, Continued



Hydraulic Schematic (Standard & Contractor PU)

## HYDRAULIC SCHEMATIC

REV	DESCRIPTION	BY	DATE
	JOB NAME:		ORDER NO:
	<b>Autoquip</b>		
	DRAWING TITLE:		
	REFERENCE DRAWING:		
	658-0732-3		
	APPROXIMATE WEIGHT:		
	N/A		
	DRAWN BY:		
	DWL		
	DATE:		
	9/11/95		
	QTY REQD:		
	1 OF 1		
	REV:		
	2		
	DRAWING NUMBER:		
	657-5004-0		
	SIZE:		
	A		

### 6.3.6 Troubleshooting

#### **WARNING**

Prevent serious injury or death.

Disconnect and/or lock out electrical supply to power unit prior to any maintenance being performed.



#### **⚠ WARNING**

Prevent serious injury or death.

Never go under lift platform until load is removed and scissors mechanism is securely blocked in open position.  
Follow OSHA lock-out/tag-out procedure.



See "Maintenance Devices" section.

#### **⚠ WARNING**

Pressurized fluids can penetrate the skin.

Hydraulic hoses can fail from age, damage and exposure.



Do not search for hydraulic leaks without body and face protection. A tiny, almost invisible leak can penetrate the skin, thereby requiring immediate medical attention.

Use wood or cardboard to detect hydraulic leaks, never your hands.

#### **⚠ WARNING**

Spilled hydraulic fluid is slippery and may also present a fire hazard.

Clean up spilled hydraulic fluid.



PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift Raises, Then Lowers Slowly.	<p>Down solenoid may not be seating. Remove solenoid coil and check. If lift does not hold with solenoid coil removed, remove and clean down valve cartridge or replaced as necessary.</p> <p>Oil line, hose, or fitting may be leaking. Check and repair if necessary.</p> <p>Check valve in pump assembly may not be seating. This is indicated by pump shaft and motor turning backward on their own with no power applied. Generally, this condition can be heard. Replace pump assembly.</p>
Lift Lowers Slowly.	<p>Down solenoid is not operating properly due to debris or damage.</p> <p>Check for pinched tubing or hose. Where pipe is used, check for obstruction in line.</p> <p>Thick oil due to low ambient temperatures. Add or replace with lower weight oil that stays thin in cold conditions (5W-15, etc.)</p> <p>If foam is visible in tank oil, check for loose connection in suction line between pump and tank. Tighten connections.</p>
Lift Does Not Raise.	<p>Motor rotation for a 3-phase motor may be reversed. Reverse two motor electrical leads.</p> <p>Check for line or hose leak.</p> <p>Check for low oil in reservoir. Add specified oil as necessary.</p> <p>Load may exceed rating. See the Specifications section. Remove excess load.</p> <p>Suction screen may be clogged, starving pump. Remove and clean screen. Drain and replace oil.</p> <p>Suction line may be leaking air due to a loose fitting. Tighten as needed.</p>

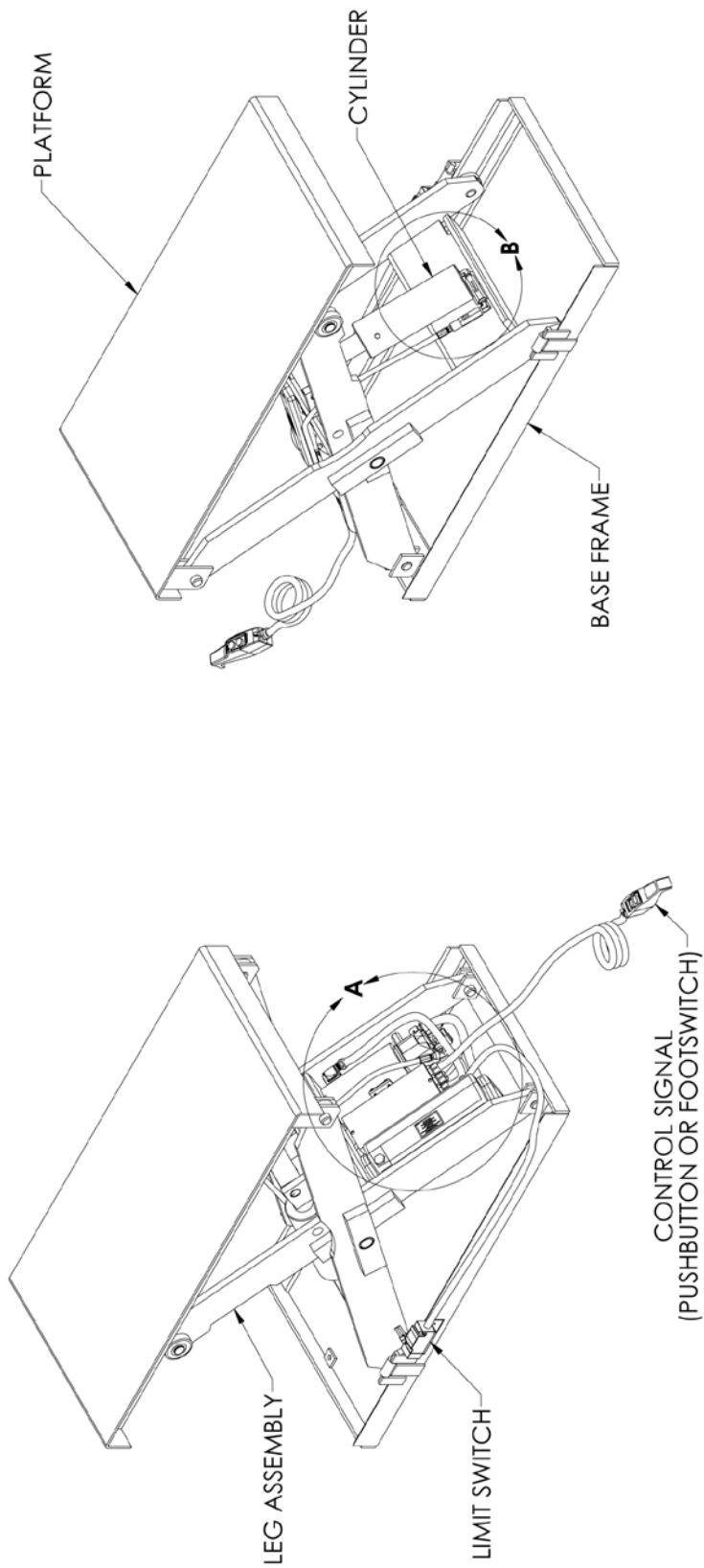
PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift Does Not Raise, Continued.	<p>Breather holes in reservoir fill plug may be clogged. Remove and clean.</p> <p>Voltage may be too low to run pump with existing load. Check by measuring voltage at motor terminals, or as near as possible, <u>while pump is running under load</u>. Inadequate or incorrect wiring can starve motor when source voltage is ample. Correct as necessary.</p> <p>Down valve may be energized by faulty wiring or stuck open. Remove solenoid and check.</p> <p>Motor may be single phasing. Check wiring, fuses, etc.</p> <p>Pump may be seized if motor is humming or blowing fuses on overload protection devices. Remove pump. Pump can be rotated by hand unless seized. Check for cracks in housing.</p> <p>Down solenoid valve stem may be bent, causing valve to stick open. Replace down solenoid valve.</p>

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift Won't Lower.	<p>Solenoid coil may be incorrectly wired, burned out, not rated for the voltage, or line voltage may be excessively low. Check voltage near coil.</p> <p>Velocity fuse may be locked. <b>Do not attempt to remove the velocity fuse.</b> The following steps should be followed:</p> <ol style="list-style-type: none"> <li>1. Remove load from lift. Inspect all fittings, hoses, and other hydraulic components for leaks or damage.</li> <li>2. If no leak or damage is noticed, attempt to pressurize lifting cylinder by pressing "UP" button on controller for a few seconds. Immediately release "UP" button and press "DOWN" button. If lift starts to lower, continue pressing "DOWN" button until lift is fully lowered.</li> <li>3. If lift does not lower after trying Step 2, wait approximately 10 – 15 minutes for pressure in hydraulic system to equalize. Then, press "DOWN" button until lift is fully lowered.</li> <li>4. Once lift is fully lowered, hold "DOWN" button for approximately 60 seconds to bleed air from system. This step may need to be repeated several times to fully remove air in system by raising the lift to 50% of its travel and lowering.</li> </ol> <p>If above steps do not correct problem, contact <i>Autoquip</i> to obtain instruction for further action.</p>

PROBLEM	POSSIBLE CAUSE AND SOLUTION
Lift Seems Bouncy During Operation.	<p>Lower lift to closed position and continue to hold "DOWN" button an additional 10-30 seconds to bleed air from cylinder. Do not confuse spongy or jerky operation with small surges that may occur when operating on rough or uneven floors.</p> <p>Check for oil starvation.</p>
Motor Labors Or Heats Excessively.	<p>Voltage may be low. Check voltage at motor terminals while pump is <u>running under load</u>, not at line source or while pump is idling. Inadequate wiring can starve motor even when source voltage is ample.</p> <p>Most of <i>Autoquip</i>'s standard motors are rated for intermittent duty. If a single-phase motor is being run more than 15 – 20 motor starts per hour, or a 3-phase motor more than 200 starts per hour, the problem may be motor over-heating.</p> <p>Running against relief pressure unnecessarily due to over loaded lift or hitting physical stops.</p> <p>Failure to observe wiring diagram on nameplate for proper voltage connections.</p> <p>Pump may be binding from oil starvation, which develops high internal heat. Check for low oil level or clogged breather holes in reservoir fill plug. Pump can be damaged by oil starvation.</p>

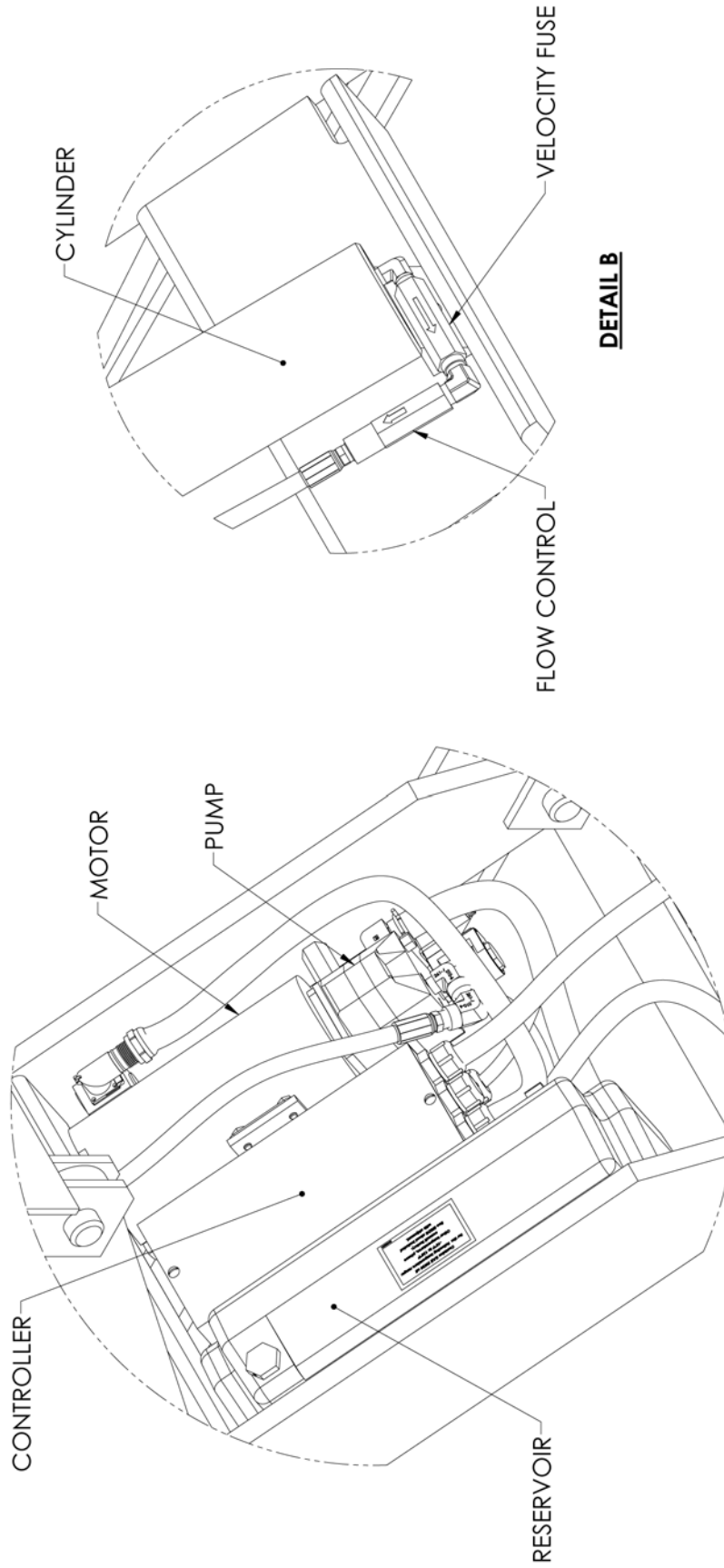
7. PARTS LISTS

ASSEMBLY 1 OF 8



Standard Lift

NO.	DESCRIPTION	BY	CHKD	DATE
	ASSEMBLY			
TOLERANCES				
UNLESS OTHERWISE SPECIFIED:				
DECIMALS				
FRACTIONS				
ANGLES (FOR MACHINED PARTS)				
BREAK ALL SHARP EDGES, 0.01" MAX				
45° CHAMFER				
2013 COPYRIGHT RESERVED				
Autolique Corporation				
This drawing is the sole property of Autolique Corporation.				
All rights reserved. No part of this drawing may be reproduced without the written permission of Autolique Corp.				
REFERENCE (DRAWING)				
GENERIC S35 COMPONENTS				
DRAWN BY: J.C.J. CHECKED BY: T.B. DATE: 02/25/13				
APPROXIMATE WEIGHT: 1 OF 8				
PAGE: 1 OF 8				
DRAWING NUMBER: B				
REV: ASSEMBLY				



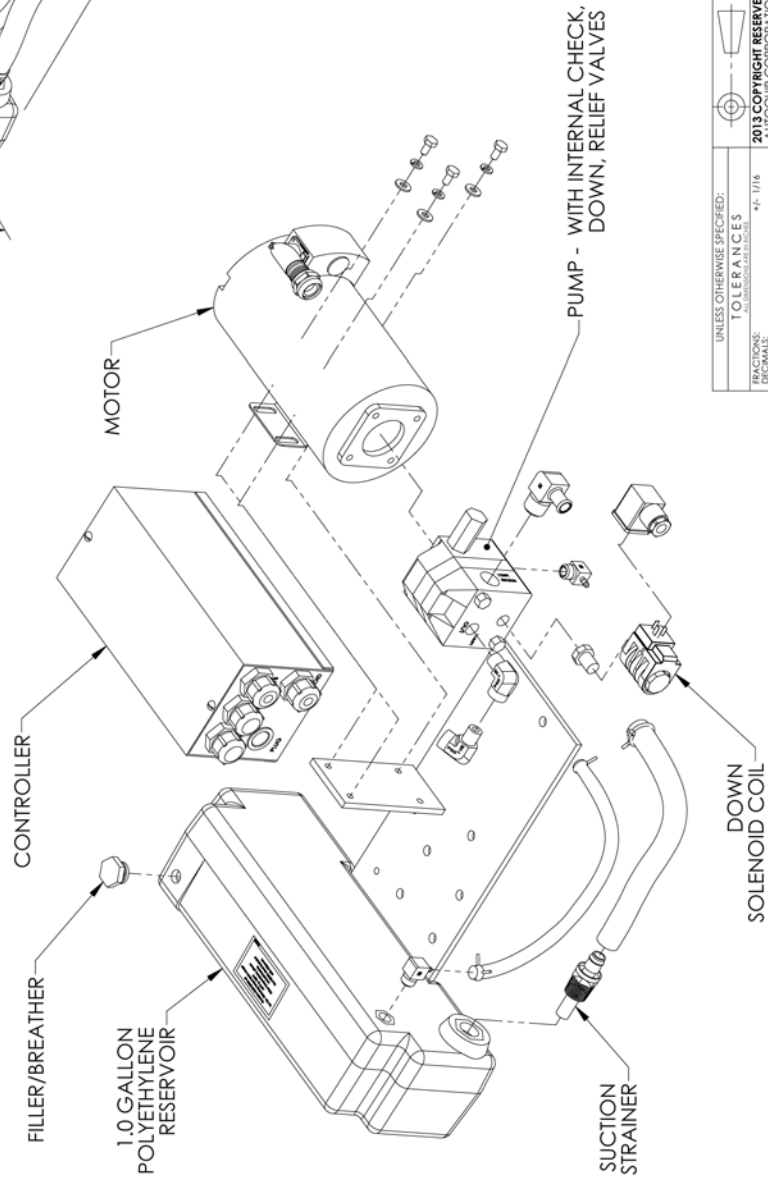
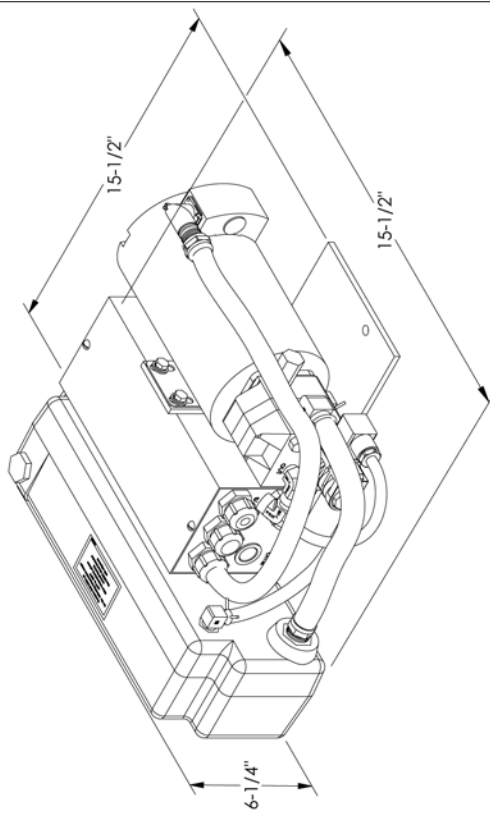
**DETAIL B**

**DETAIL A**

UNLESS OTHERWISE SPECIFIED:		TOLERANCES		APPROXIMATE WEIGHT		DATE		PAGE		REV	
FRACTIONS:		+/- 1/16		-		J.C.J.		02/25/13		B	
DECIMALS:		+/- .010		-		T.B.		2 OF 8		ASSEMBLY	
ANGLES (FOR MACHINED PARTS):		+/- .010		-		J.C.J.		02/25/13		B	
ANGLES (FOR CASTING PARTS):		+/- .010		-		T.B.		2 OF 8		ASSEMBLY	
RADIUS (FOR MACHINED PARTS):		+/- .010		-		J.C.J.		02/25/13		B	
RADIUS (FOR CASTING PARTS):		+/- .010		-		T.B.		2 OF 8		ASSEMBLY	
BRAX ALL SHARP EDGES .010" MAX		45° CHAMFER		-		J.C.J.		02/25/13		B	

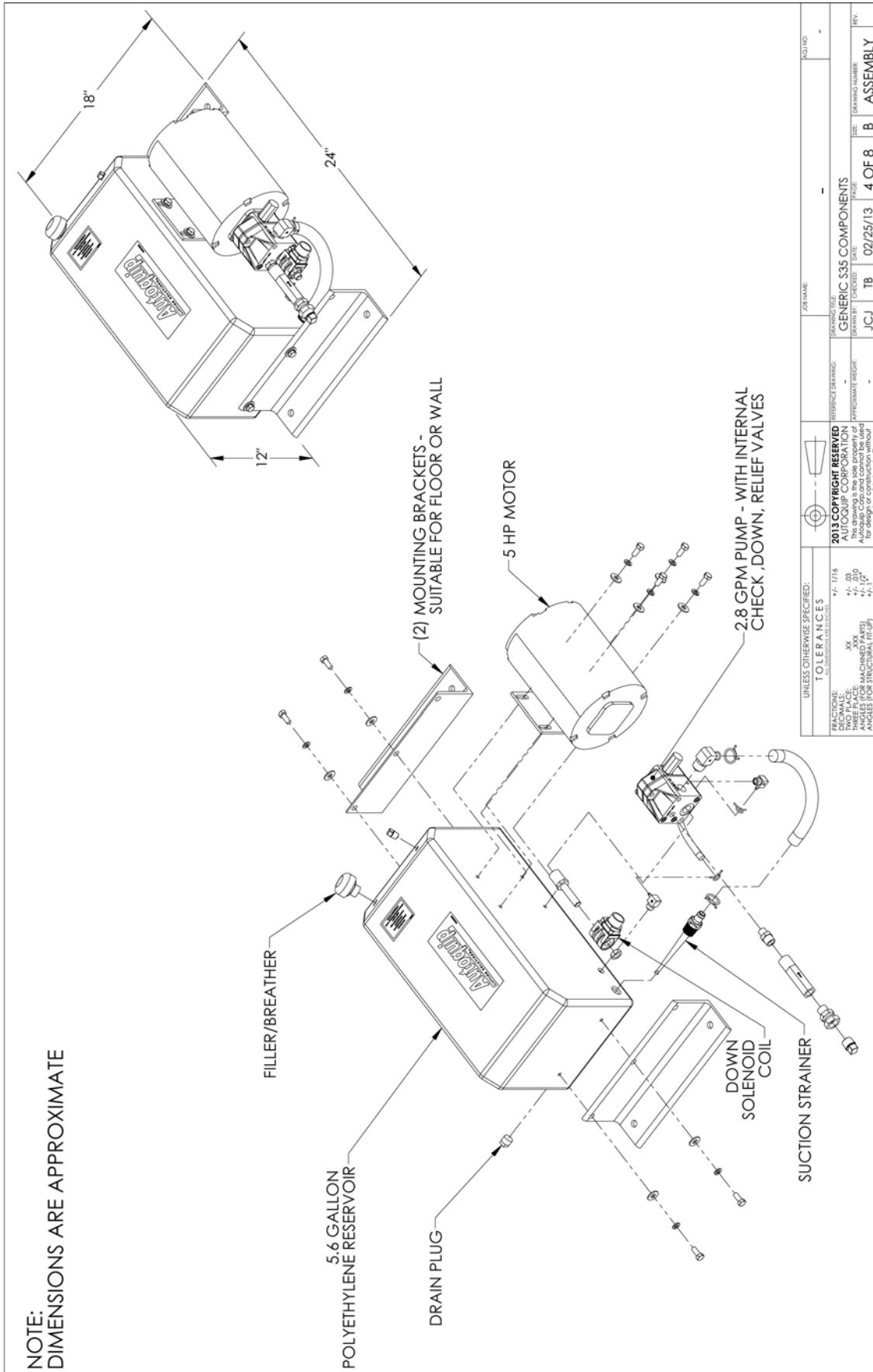



NOTE:  
DIMENSIONS ARE APPROXIMATE



UNLESS OTHERWISE SPECIFIED:		TOLERANCES		FRACTIONS		DECIMALS		THREE PLACE		ANGLES (FOR STRUCTURAL RELIEF)		BREAK ALL SHARP EDGES: 0.07" MAX		45° CHAMFER	
ALL DIMENSIONS ARE IN INCHES		± 1/16		± 1/16		± 0.03		± 0.03		± 1/2°		± 1/2°		± 1/2°	
2013 COPYRIGHT RESERVED		AUTOCQUIP CORPORATION		THIS DRAWING IS THE SOLE PROPERTY OF AUTOCQUIP CORPORATION AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, FOR DESIGN OR CONSTRUCTION WITHOUT THE WRITTEN PERMISSION OF AUTOCQUIP CORP.		DRAWING TITLE		GENERIC S35 COMPONENTS		DATE		02/25/13		3 OF 8	
DRAWING NO.		JCI		TB		PAGE		B		REV.		ASSEMBLY			

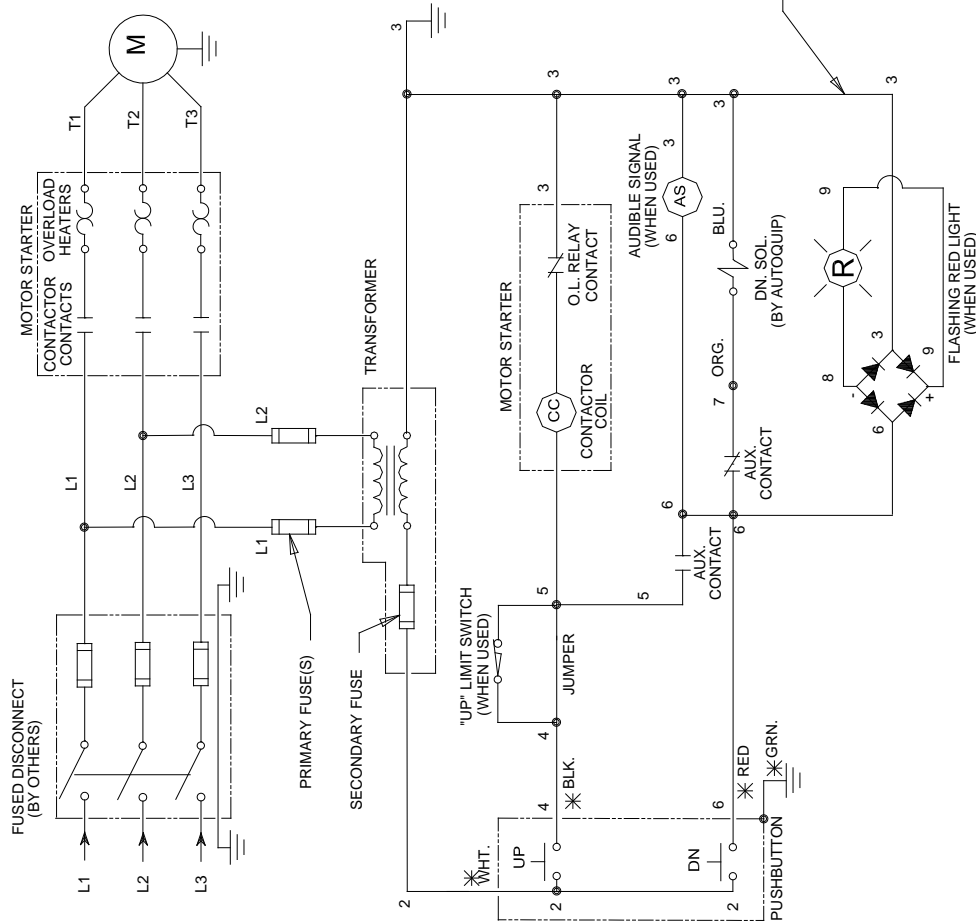
NOTE:  
DIMENSIONS ARE APPROXIMATE



UNLESS OTHERWISE SPECIFIED:				JOB NAME		DRAWING TITLE		APPROXIMATE WEIGHT		DRAWING NUMBER		PAGE		REV.	
FRACTIONS:		XX		GENERIC S35 COMPONENTS		GENERIC S35 COMPONENTS		DRAWN BY		CHECKED		DATE		DATE	
TOLERANCES		XX		J.C.J.		T.B.		02/25/13		4 OF 8		B		ASSEMBLY	
ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED:		XX		J.C.J.		T.B.		02/25/13		4 OF 8		B		ASSEMBLY	

### Contractor Power Unit

60/00030



**NOTES:**

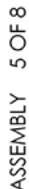
1. "UP" LIMIT SWITCH (OPTIONAL). WHEN USED, REMOVE JUMPER BETWEEN #4 AND #5.
2. "R"-RED FLASHING LIGHT (OPTIONAL).
3. "AS"- AUDIBLE SIGNAL (OPTIONAL).
4. SEE ASSEMBLY AND/OR SPEC. SHEET FOR SPECIFIC VOLTAGES, OR CONTROLS SUPPLIED AND CONFIGURATION.
5. PUSHBUTTON SHOWN AS TYPICAL PILOT DEVICE.
6. TRANSFORMER PRIMARY CONNECTION DIAGRAMS ARE LOCATED ON INSIDE FRONT COVER OR ON DEVICE.

\* COLOR CODE OF STANDARD PENDENT PUSHBUTTON WHEN SUPPLIED

REV		DESCRIPTION	BY	DATE
JOB NAME:		ORDER NO:		
DRAWING TITLE:		DRAWING NUMBER:		
REFERENCE DRAWING:		SIZE:		
APPROXIMATE WEIGHT:		DRAWING NUMBER:		
DRAWN BY:		REV.		
DATE:		PAGE:		
CG/WB		1 OF 1		
7/21/95		3		
QTY REQ'D:		65700030		
ELEC SCH FOR VERT & CONTR PU		A		

5HP / 208-230-460V / 3 Phase Contractor PU

Air Requirement: 90 PSI & 110 CFM



NOTE:  
DIMENSIONS ARE APPROXIMATE

FILLER/BREATH-

1.0 GALLON  
POLYETHYLENE  
RESERVOIR


DOWN  
SOLENOID  
CARTRIDGE-

AIR MOTOR

—MUFFLER

PUMP

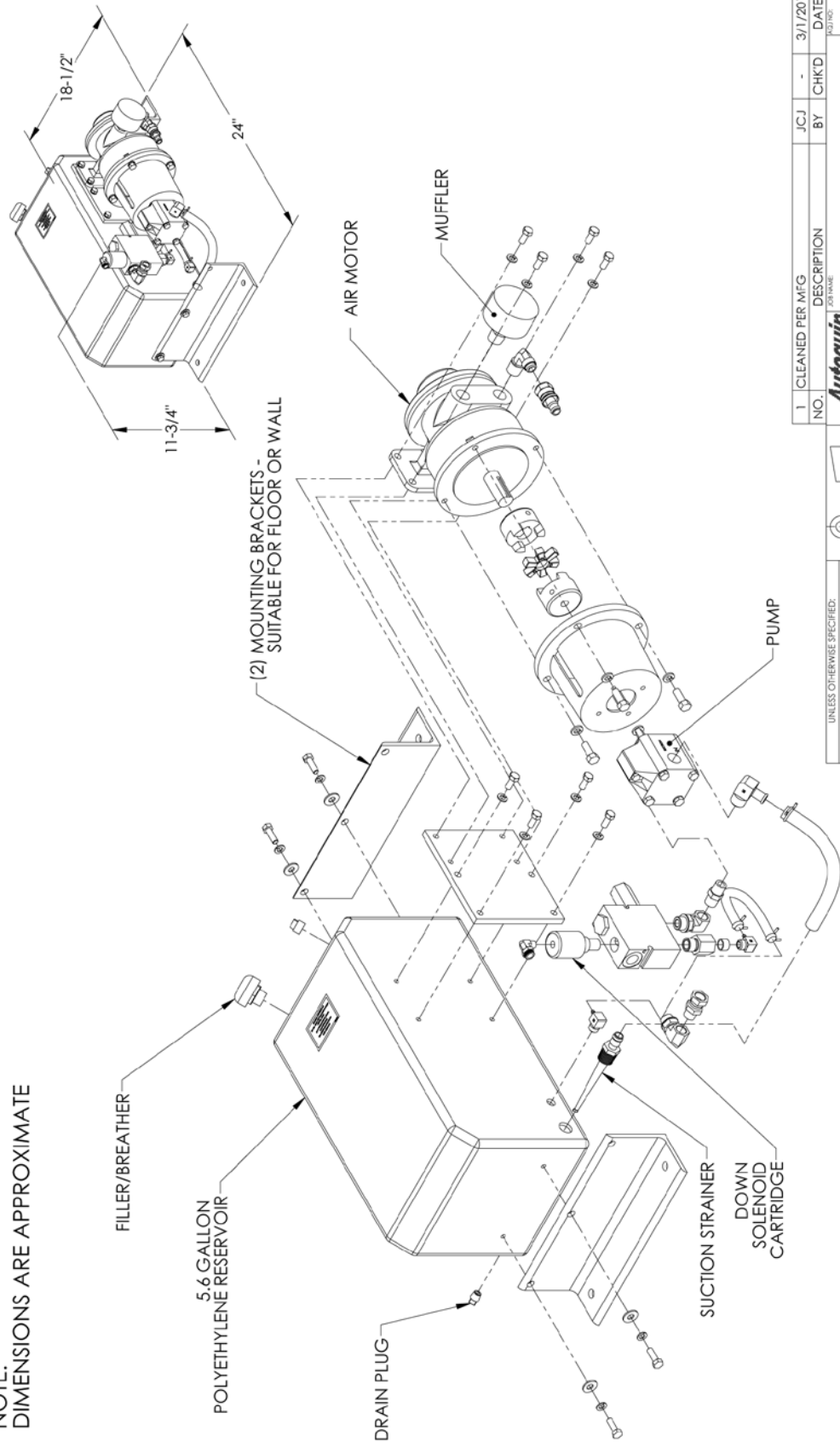
SUCTION-  
STRAINER-

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TOLERANCES							
FRACTIONS: $\pm$ / . 1/16				DRAWING TITLE: _____			
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THREE PLACE: .XXX				REFERENCE DRAWING: _____			
FOUR PLACE: .XXXX				-			
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**Series 35 Air Power Unit (P/N 64306710)**

ASSEMBLY 6 OF 8

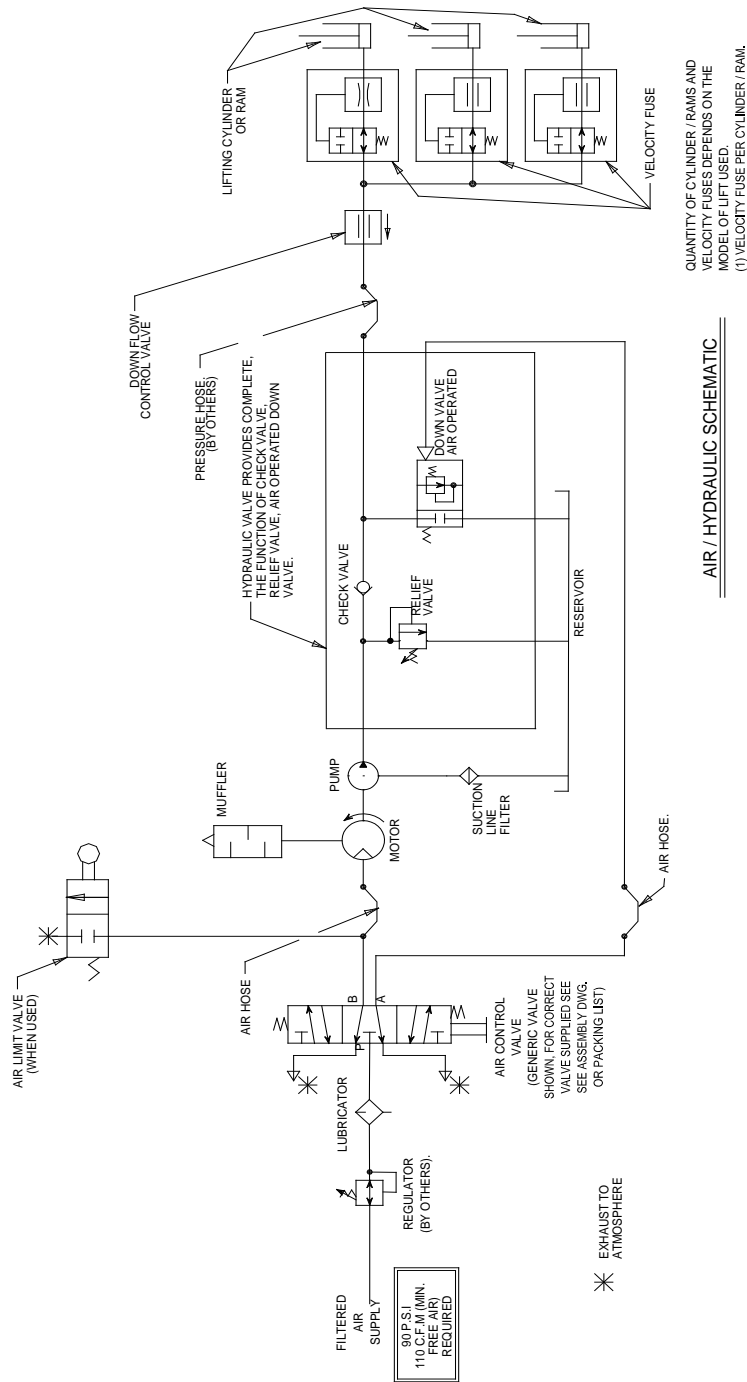
NOTE:  
DIMENSIONS ARE APPROXIMATE



1	CLEANED PER MFG	JCJ	-	3/1/2013
NO.	DESCRIPTION	BY	CHK'D	DATE
Autoquip				
2013 COPYRIGHT RESERVED				
AUTOQUIP CORPORATION				
ALL RIGHTS RESERVED. NO PARTS MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION OF AUTOQUIP CORP.				
APPROXIMATE WEIGHT	APPROXIMATE PRICE	DATE	DATE	REV.
JCJ	TB	02/25/13	6 OF 8	B
ASSEMBLY				

Contractor Air Power Unit (P/N 64306700)

65825000



# AIR / HYDRAULIC SCHEMATIC

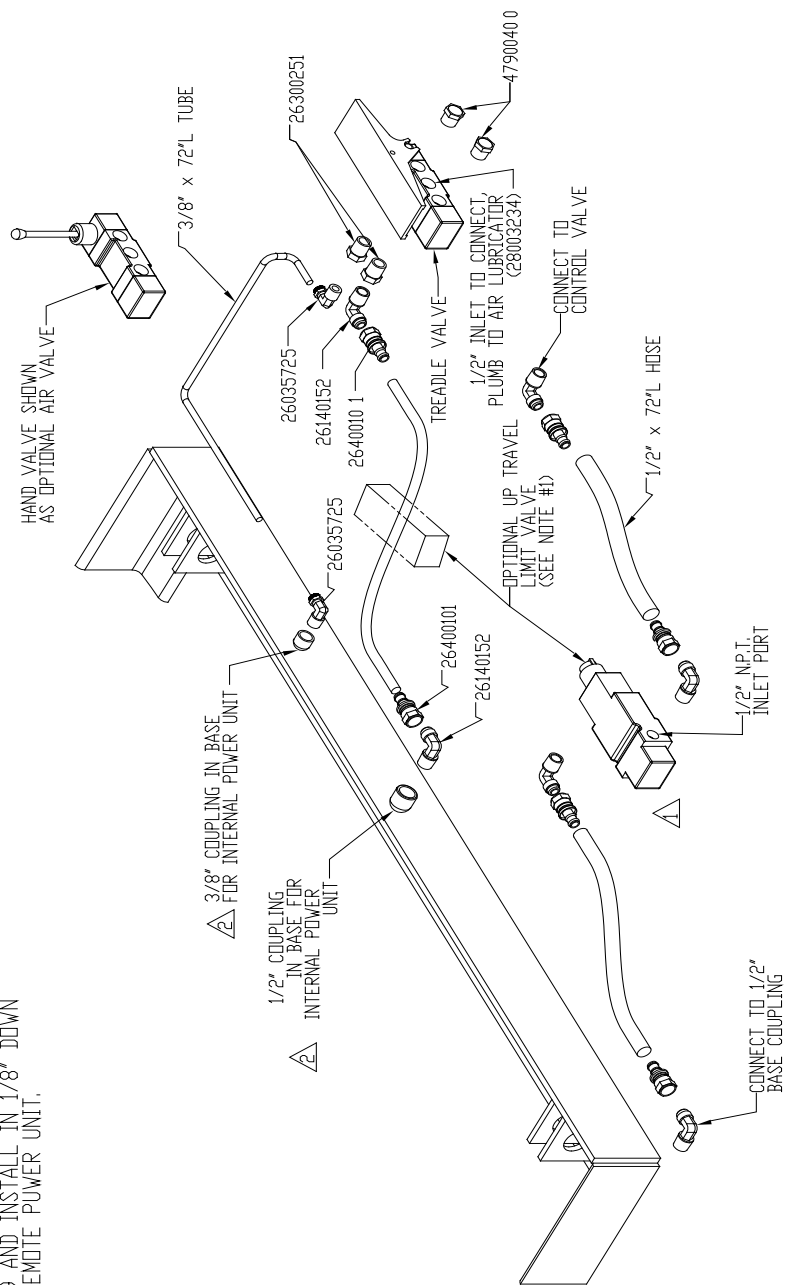
©2005 COPYRIGHT RESERVED AUTOQUIP CORPORATION	<b><i>Autoquip</i></b>		JOB NAME:		ORDER NO:	
This drawing is the sole property of Autoquip Corp. and cannot be used for design and construction without permission of Autoquip Corp.	REFERENCE DRAWING:	DRAWING TITLE:				
	65808750	AIR/HYD. SCHEM FOR AIR MOTOR P.U. - DELTA				
	APPROXIMATE WEIGHT:	DRAWN BY:	DATE:	QTY REQ'D:	PAGE:	REV.
		TB	8/22/00	1	OF 1	
				DRAWING NUMBER:	SIZE:	
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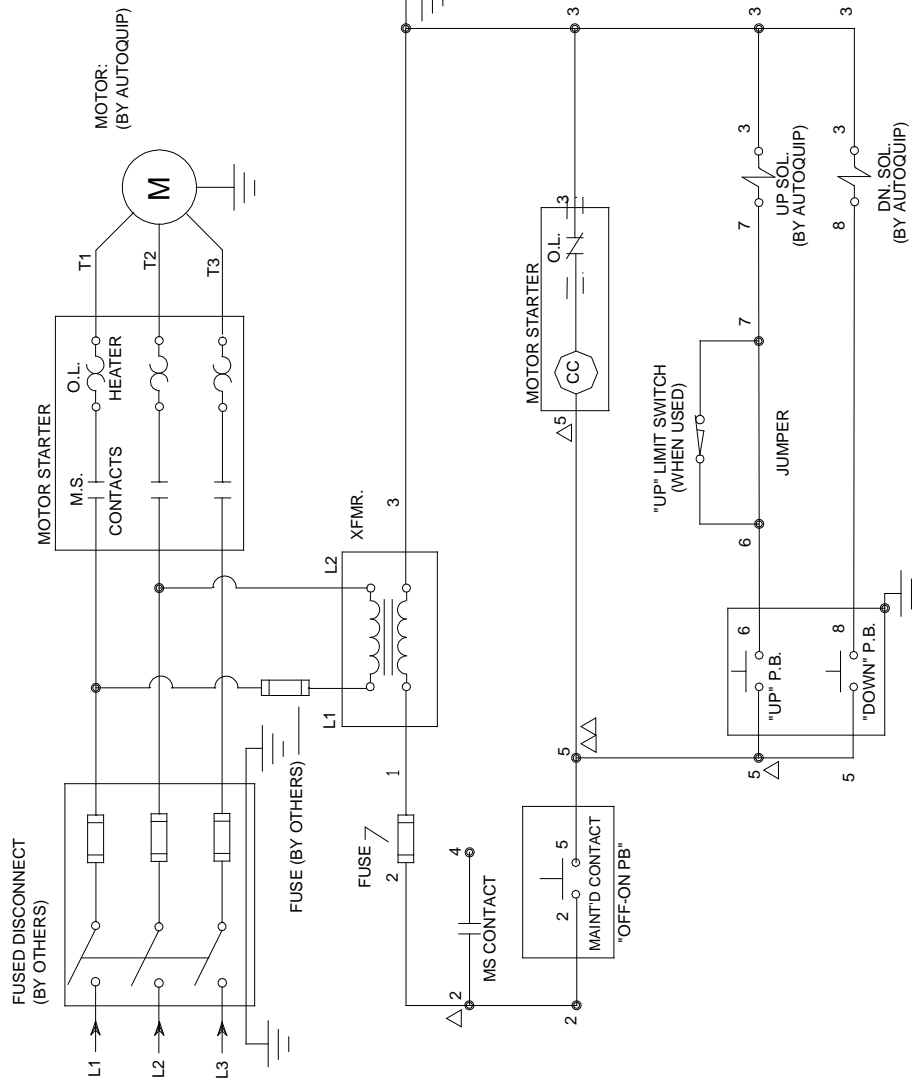
Standard & Contractor Air Power Units

NOTE

2. FOR REMOTE POWER UNIT

### ***Air Valve Hose Diagram for Air Power Unit***

[illegible]



NOTES:

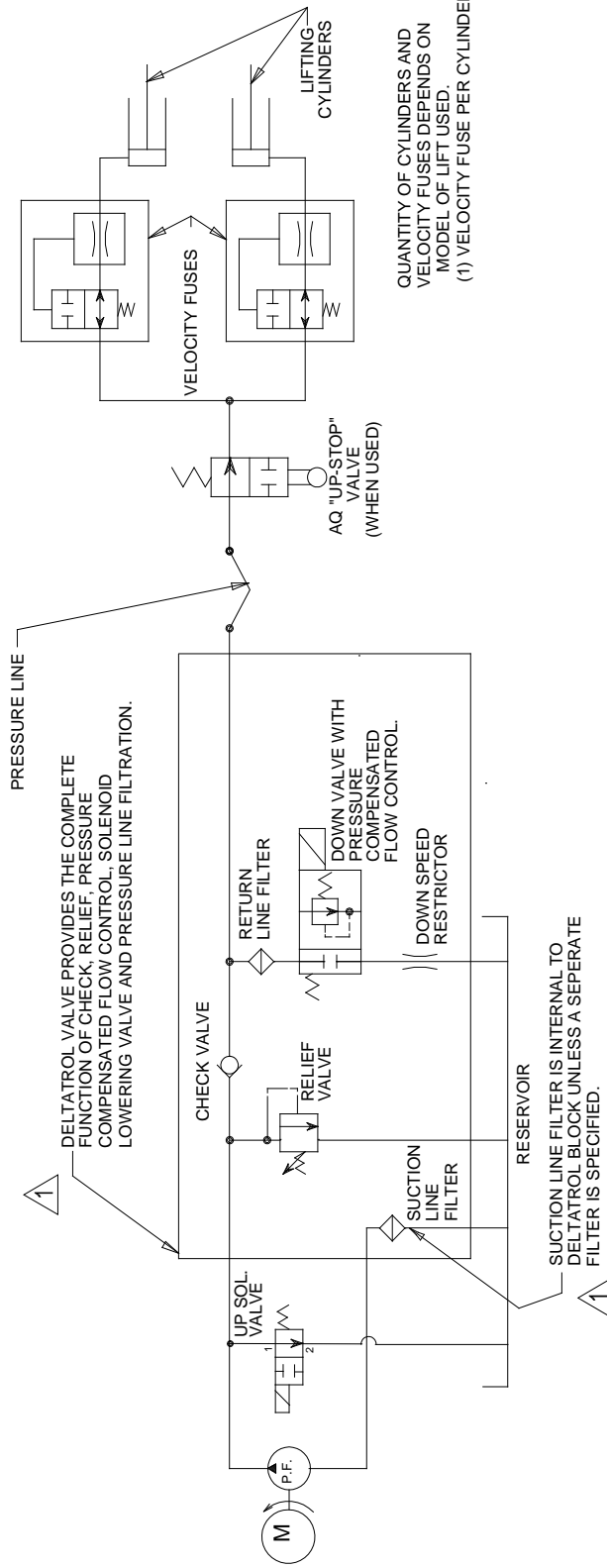
1. FOR USE WITH PUSHBUTTON CONTROLS.
2. SEE ASSEMBLY AND/OR SPEC. SHEET FOR SPECIFIC VOLTAGES, OR CONTROLS SUPPLIED AND CONFIGURATION.
3. MS = MOTOR STARTER
4. XFMR = TRANSFORMER
5. P.B. = PUSHBUTTON
6. SOL = SOLENOID COIL
7. ALL INTERCONNECTING WIRING (BY OTHERS).
8. "UP" LIMIT SWITCH (OPTIONAL). WHEN USED, REMOVE JUMPER BETWEEN #6 AND #7.

©2005 COPYRIGHT RESERVED AUTOQUIP CORPORATION		JOB NAME:		ORDER NO:	
REFERENCE DRAWING:		DRAWING TITLE:		ELECT SCH, CONT. RUN POWER UNIT, W/ OFF-ON PB	
This drawing is the sole property of Autoquip Corp. and cannot be used for design and construction without permission of Autoquip Corp.		DATE:		DRAWING NUMBER:	
APPROXIMATE WEIGHT:		DRAWN BY:		REV.	
		TB		1 OF 1	
		9/16/99		3	
				657-0050-0	
				A	

Continuous Running Vertical Power Unit



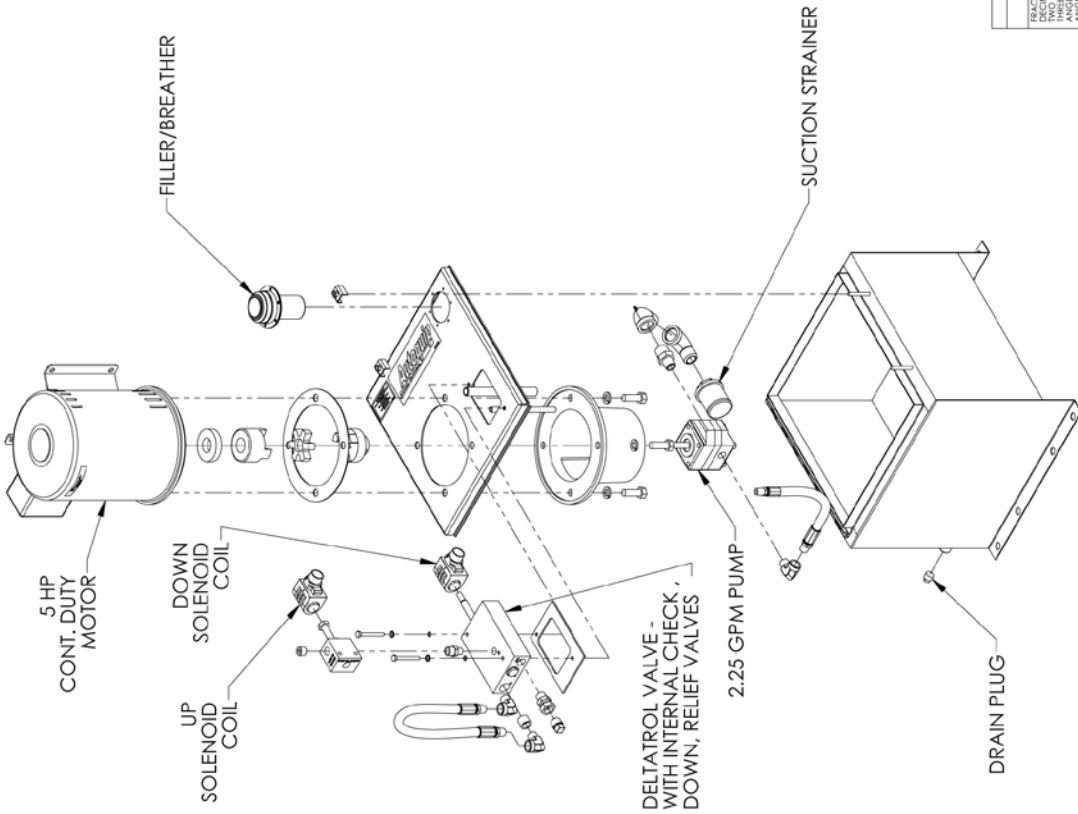
657-5007-0



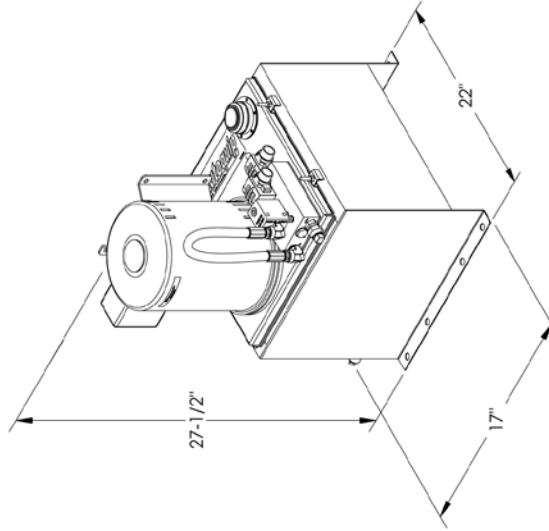
**Continuous Running Vertical Unit**

<b>Autoquip</b>		JOB NAME:	ORDER NO:
REFERENCE DRAWING:	DRAWING TITLE:	HYD SCH FOR SCISSORS LIFT WIDELATROL, CONT RUNNING	
APPROXIMATE WEIGHT:	DRAWN BY:	DATE:	REV:
<2T	CG/MA	6/4/96	1
	QTY REQD:	PAGE:	SIZE:
	1 OF 1	1	A
		DRAWING NUMBER:	657-5007-0

ASSEMBLY 7 OF 8



NOTE:  
DIMENSIONS ARE APPROXIMATE



UNLESS OTHERWISE SPECIFIED:		TOLERANCES		Autoquip		FORM NAME		P.O. NO.	
FRACTIONS:	1/16	ALL DIMENSIONS ARE TO CENTER		2013 COPYRIGHT RESERVED		SERVICES TITLE		-	
DECIMALS:	.001			AUTOQUIP CORPORATION		GENERIC S35 COMPONENTS			
ANGLES:	30°			This drawing is the sole property of		DRAWN BY: JCJ		DATE: 02/25/13	
WELDING:	XX			Autoquip Corporation		CHECKED BY: TB		SIZE: 7 OF 8	
THREADS:	UNC-2B			PART NUMBER		APPROXIMATE PRICE		B	
ANGLES (FOR STRUCTURAL STEEL):	45°			PERMISSION OF AUTOQUIP CORP.		DRAWING NUMBER		ASSEMBLY	
BREAK ALL SHARP EDGES .007" MAX.									

**Continuous Running Vertical Power Unit**