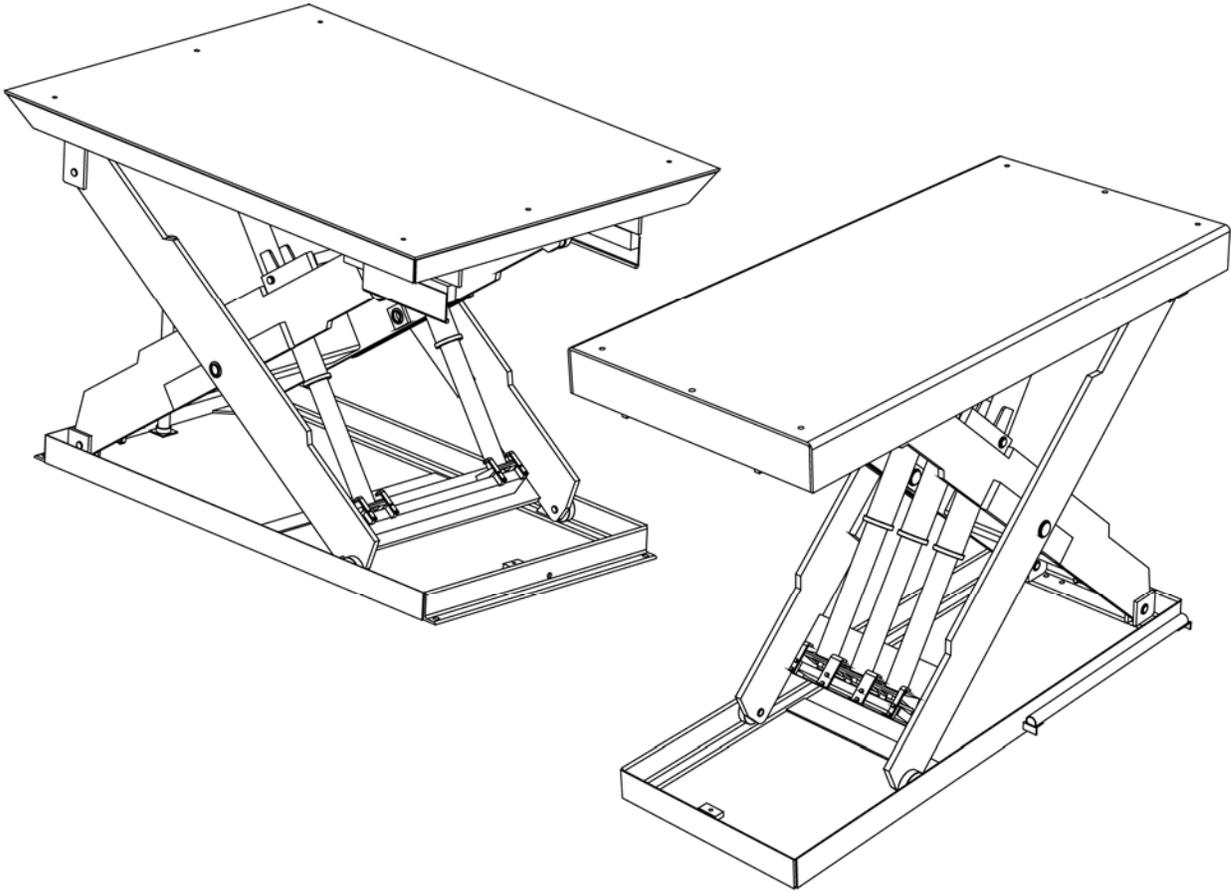


INSTALLATION, OPERATION AND SERVICE MANUAL

SUPERTITAN / TSL 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

Item #830STN-TSL

Version 2.0
3/2012

| | | |
|-----------|---|-----------|
| 1. | Introduction And Warranty | 4 |
| 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 |
| 2. | Specifications | 7 |
| 2.1 | Model Specifications..... | 7 |
| 2.1.1 | Supertitan..... | 7 |
| 2.1.2 | TSL..... | 8 |
| 2.2 | Lift Specifications..... | 8 |
| 2.3 | Load Capacity..... | 8 |
| 2.4 | Unbalanced Loading..... | 8 |
| 2.5 | Pump Pressure..... | 8 |
| 2.6 | Lift Duty..... | 9 |
| 3. | Safety | 10 |
| 3.1 | Safety Signal Words..... | 10 |
| 3.2 | Installation..... | 10 |
| 3.3 | Operation..... | 11 |
| 3.4 | Hydraulics..... | 11 |
| 3.5 | Maintenance..... | 12 |
| 3.6 | Modifications..... | 13 |
| 3.7 | Labels..... | 13 |
| 3.7.1 | Supertitan Label Locations..... | 13 |
| 3.7.2 | TSL Label Locations..... | 14 |
| 3.7.3 | Safety Labels..... | 14 |
| 4. | Installation | 17 |
| 4.1 | Pit Installation..... | 17 |
| 4.2 | Shimming And Anchoring Lift To Concrete..... | 22 |
| 4.3 | Remote Power Unit Installation..... | 22 |
| 4.4 | Power Unit Wiring..... | 23 |
| 4.4.1 | Heavy Duty Remote Power Unit..... | 23 |
| 4.5 | Accordion Skirt Installation..... | 23 |
| 4.6 | Throw-Over Bridge Installation and Wheel Chock Details..... | 25 |
| 5. | Operation | 30 |
| 5.1 | Raise And Lower Lift..... | 30 |
| 6. | Maintenance | 31 |
| 6.1 | Maintenance Device..... | 31 |
| 6.2 | Routine Maintenance..... | 33 |
| 6.2.1 | Every Day Or 10 Hours Of Operation..... | 34 |
| 6.2.2 | Every Month Or 100 Hours Of Operation..... | 34 |
| 6.2.3 | Every Year Or 1000 Hours Of Operation..... | 34 |
| 6.2.4 | Oil Requirements..... | 34 |
| 6.2.5 | Oil Capacity..... | 35 |
| 6.3 | General Maintenance..... | 35 |

| | | |
|-----------|--|-----------|
| 6.3.1 | Hydraulic Cylinder Repair | 35 |
| 6.3.2 | Bleeding Air From System | 37 |
| 6.3.3 | Hydraulic Velocity Fuse (HVF) Replacement..... | 37 |
| 6.3.4 | Hose Orientation | 38 |
| 6.3.5 | Up Stop Valve Adjustment | 38 |
| 6.3.6 | Schematics and Field Wiring Details..... | 40 |
| 7. | Troubleshooting..... | 45 |
| 8. | Parts Lists..... | 49 |

I. INTRODUCTION AND WARRANTY

I.1 Introduction

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.

I.3 Warranty

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 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

2. SPECIFICATIONS

2.1 Model Specifications

2.1.1 Supertitan

| Model Number | Travel (in) | Lifting Capacity | Max. End Load Capacity (lbs) | Max. Side Load Capacity (lbs) | Base and Min. Platform Size (in) | Minimum Lowered Height (in) | Maximum Platform Size (in) | Std Speed (sec.) | App. Ship Wt. (lbs.) |
|--------------|-------------|------------------|------------------------------|-------------------------------|----------------------------------|-----------------------------|----------------------------|------------------|----------------------|
| 24K18 | 24 | 18,000 | 18,000 | 18,000 | 42 x 60 | 12 1/2 | 72 x 96 | 12 | 3,000 |
| 24L20 | 24 | 20,000 | 20,000 | 20,000 | 42 x 60 | 15 1/2 | 72 x 96 | 15 | 3,150 |
| 24K27 | 24 | 27,000 | 18,000 | 18,000 | 42 x 60 | 12 5/8 | 72 x 96 | 18 | 3,200 |
| 24L31 | 24 | 31,000 | 23,000 | 23,000 | 42 x 60 | 15 5/8 | 72 x 96 | 22 | 3,350 |
| 36KK15 | 36 | 15,000 | 12,000 | 12,000 | 42 x 84 | 12 1/2 | 72 x 120 | 21 | 3,750 |
| 36LL21 | 36 | 21,000 | 16,000 | 16,000 | 42 x 84 | 16 1/8 | 72 x 120 | 23 | 4,000 |
| 36KK24 | 36 | 24,000 | 12,000 | 12,000 | 42 x 84 | 12 1/2 | 72 x 120 | 32 | 4,050 |
| 36LL32 | 36 | 32,000 | 16,000 | 16,000 | 42 x 84 | 16 1/8 | 72 x 120 | 37 | 4,300 |
| 36MM40 | 36 | 40,000 | 22,000 | 22,000 | 42 x 84 | 19 3/8 | 72 x 120 | 41 | 4,450 |
| 48KK15 | 48 | 15,000 | 12,000 | 12,000 | 42 x 84 | 12 1/2 | 72 x 96 | 29 | 3,750 |
| 48LL21 | 48 | 21,000 | 16,000 | 16,000 | 42 x 84 | 16 1/8 | 72 x 96 | 33 | 4,000 |
| 48KK24 | 48 | 24,000 | 12,000 | 12,000 | 42 x 84 | 12 1/2 | 72 x 96 | 44 | 4,050 |
| 48LL32 | 48 | 32,000 | 16,000 | 16,000 | 42 x 84 | 16 1/8 | 72 x 96 | 49 | 4,300 |
| 48MM40 | 48 | 40,000 | 22,000 | 22,000 | 42 x 84 | 19 3/8 | 72 x 96 | 44 | 4,450 |
| 60KK14 | 60 | 14,000 | 12,000 | 12,000 | 42 x 84 | 12 1/2 | 60 x 96 | 36 | 3,750 |
| 60KK24 | 60 | 24,000 | 12,000 | 12,000 | 42 x 84 | 12 1/2 | 60 x 96 | 55 | 4,050 |
| 60R28 | 60 | 28,000 | 16,000 | 16,000 | 42 x 112 | 18 3/4 | 72 x 144 | 57 | 5,450 |
| 72O10 | 72 | 10,000 | 8,000 | 8,000 | 42 x 112 | 12 1/2 | 72 x 144 | 38 | 4,600 |
| 72LL15 | 72 | 15,000 | 11,000 | 11,000 | 42 x 112 | 15 1/2 | 72 x 144 | 39 | 4,900 |
| 72LL24 | 72 | 24,000 | 11,000 | 11,000 | 42 x 112 | 15 1/2 | 72 x 144 | 56 | 5,200 |
| 84LL12 | 84 | 12,000 | 9,000 | 9,000 | 42 x 132 | 15 1/2 | 72 x 168 | 37 | 5,600 |
| 84LL20 | 84 | 20,000 | 9,000 | 9,000 | 42 x 132 | 15 1/2 | 72 x 168 | 55 | 5,900 |
| 96LL11 | 96 | 11,000 | 8,000 | 8,000 | 42 x 150 | 15 1/2 | 72 x 180 | 42 | 6,200 |
| 96LL18 | 96 | 18,000 | 8,000 | 8,000 | 42 x 150 | 15 1/2 | 72 x 180 | 58 | 6,500 |
| 120LL6 | 120 | 6,000 | 6,000 | 6,000 | 42 x 186 | 15 1/2 | 72 x 222 | 40 | 7,500 |
| 120LL11 | 120 | 11,000 | 6,000 | 6,500 | 42 x 186 | 15 1/2 | 72 x 222 | 58 | 7,800 |

2.1.2 TSL

| Model Number | Lift Capacity (lbs) | Axle Load Capacity Over Bridge End (lbs) | Axle Load Capacity Opposite Bridge End (lbs) | Axle Load Capacity Over Sides (lbs) | Platform Size (in) | Base Frame Size (in) | Min. Lowered Height (in) | Stand. Speed (fpm) | App Ship Wt. (lbs) |
|--------------|---------------------|--|--|-------------------------------------|--------------------|----------------------|--------------------------|--------------------|--------------------|
| TSL- 2 | 14,000 | 10,500 | 9,400 | 8,700 | 72 x 120 | 62 x 118 | 15.5 | 9 | 7,500 |
| TSL- 4 | 20,000 | 16,700 | 15,600 | 14,200 | 72 x 120 | 62 x 118 | 21.5 | 8 | 8,650 |
| TSL- 10 | 13,000 | 10,200 | 9,500 | 8,000 | 96 x 120 | 74 x 118 | 15.5 | 9 | 8,250 |
| TSL- 12 | 20,000 | 16,500 | 15,000 | 13,200 | 96 x 120 | 74 x 118 | 21.5 | 8 | 9,150 |
| TSL- 26 | 13,000 | 9,500 | 8,600 | 8,600 | 72 x 144 | 62 x 118 | 15.5 | 9 | 7,800 |
| TSL- 28 | 20,000 | 15,500 | 14,200 | 14,300 | 72 x 144 | 62 x 118 | 21.5 | 8 | 8,650 |
| TSL- 34 | 12,500 | 9,000 | 8,300 | 8,000 | 96 x 144 | 74 x 118 | 15.5 | 9 | 8,800 |
| TSL- 36 | 20,000 | 15,000 | 13,800 | 13,100 | 96 x 144 | 74 x 118 | 21.5 | 8 | 9,700 |

NOTE: All TSL models have a travel of 60", have 2 rams, and have a standard remote 5 HP (230/60/3) motor.

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 center. 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 Titan 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.

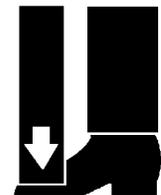
NOTICE

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, weight of lift ranges from 7,000 – 10,000 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

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

⚠ WARNING

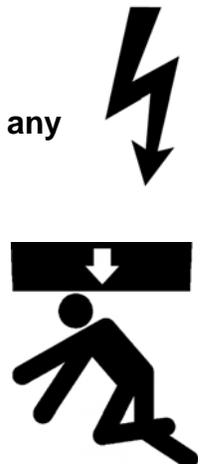
Prevent serious injury or death.

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

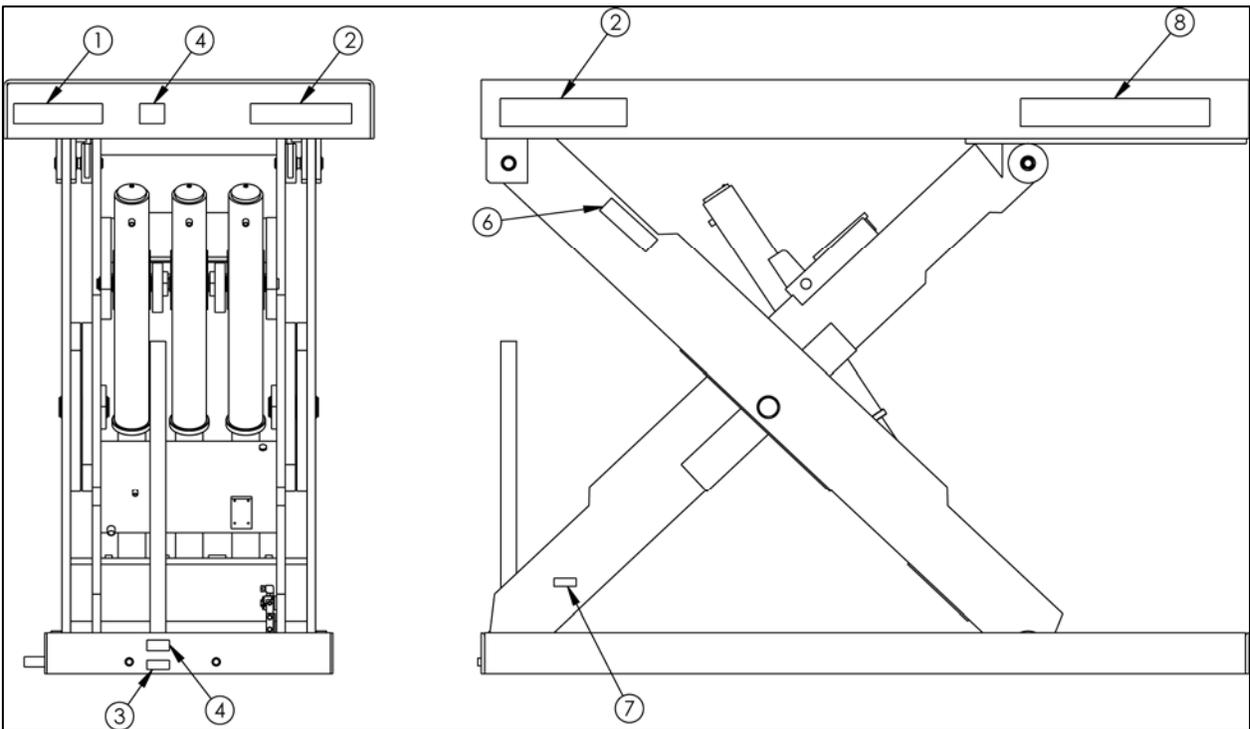
⚠ WARNING

Prevent serious injury or death.

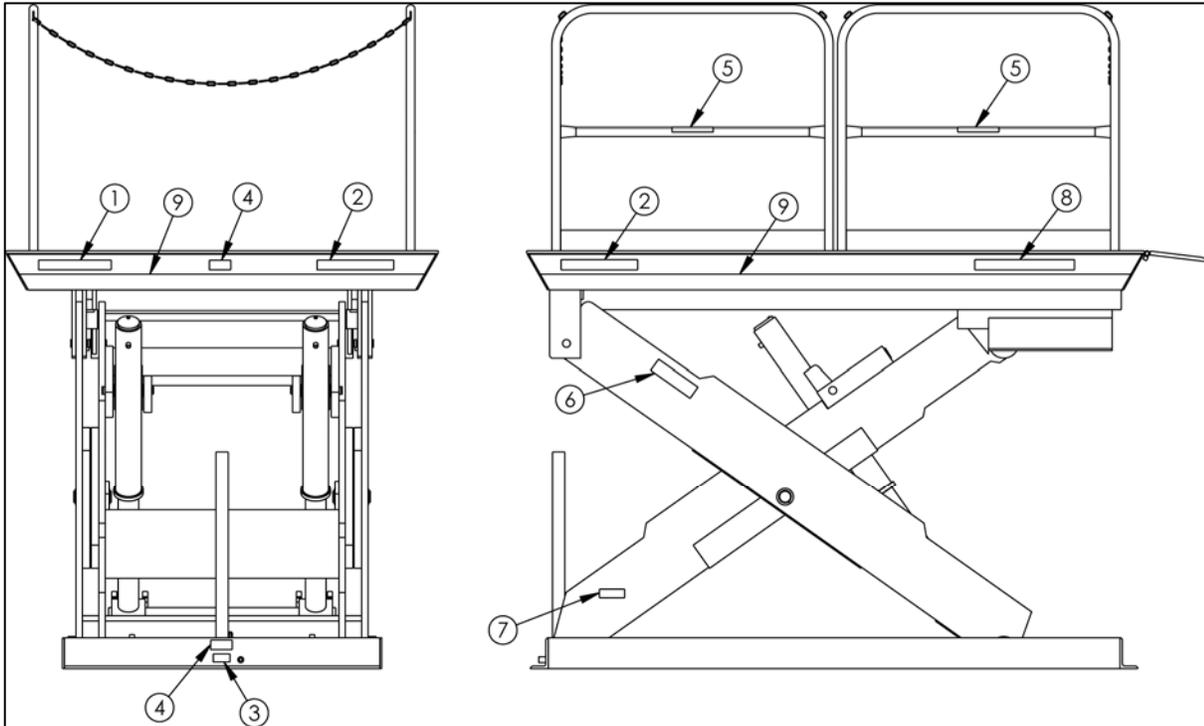
Do not modify lift. Autoquip cannot foresee and is not responsible for injury or damage which results from unauthorized modifications or misuse of lift.

3.7 Labels

3.7.1 Supertitan Label Locations



3.7.2 TSL Label Locations



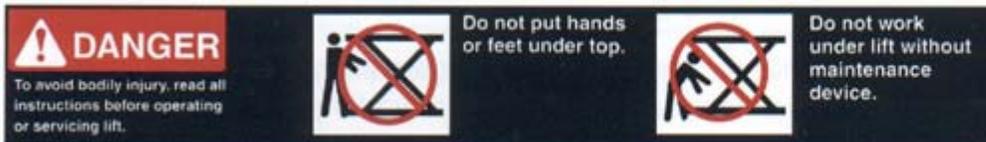
3.7.3 Safety Labels



1 – 36401487



2 – 36430050 If Not Equipped With Handrails



2 – 36430050M If Equipped With Handrails, Cut As Shown

MAINT. DEVICE

For use only in maintenance of AUTOQUIP LIFT.
Not to be used to support the lift platform
when loaded. See instruction manual or proper
usage.

364-0025-7

3 – 36400257

LEG SOCKET

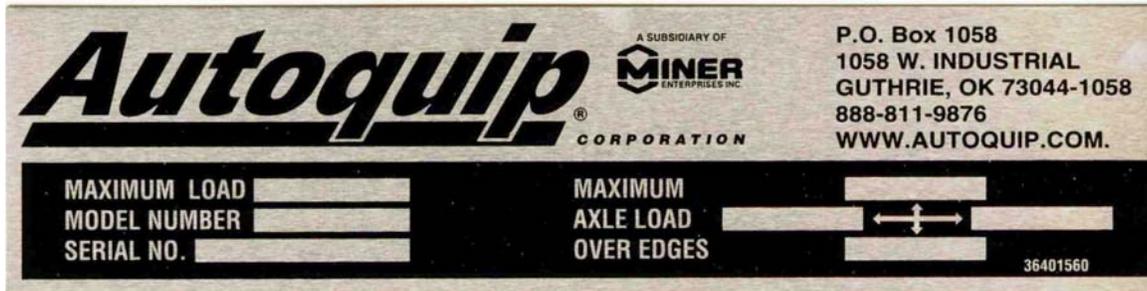
364-0026-5

4 – 36400265



WARNING
DO NOT OPERATE
THIS EQUIPMENT
WITHOUT HANDRAILS
AND SNAP CHAINS.

5 – 36403715 *If Equipped With Handrails*



Autoquip
CORPORATION

A SUBSIDIARY OF
MINER
ENTERPRISES INC.

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

6 – 36401560



WARNING
Do NOT tamper or
interfere with this device.
Serious injury can result.

36405695

7 – 36405695 *For Lifts Equipped With Up-Stop Valves.*

Autoquip
THE ANNEK LIFT GROUP
CORPORATION

1058 W. INDUSTRIAL AVE.
GUTHRIE, OK 73044-1058
405/282-5200
WWW.AUTOQUIP.COM

**,000 LBS.
CAPACITY**

8 – 36401594

MAINT. DEVICE

For use only in maintenance of AUTOQUIP LIFT.
Not to be used to support the lift platform
when loaded. See instruction manual or proper
usage.

364-0025-7

9 – 36400257

| | | | |
|------------------|------------------|--------------|--------------|
| <u>JOB NO.</u> | <u>MODEL NO.</u> | | |
| <u>MOTOR</u> | <u>VOLTS</u> | <u>CYCLE</u> | <u>PHASE</u> |
| <u>CONTROL</u> | <u>VOLTS</u> | | |
| 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

N/S – 36403343

⚠ WARNING

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

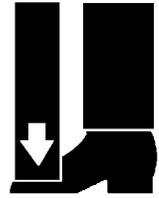
If any of these labels are missing or cannot be read, call Autoquip for replacement labels.

4. INSTALLATION

4.1 Pit Installation

⚠ WARNING

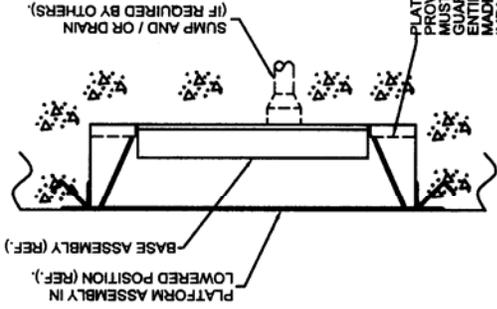
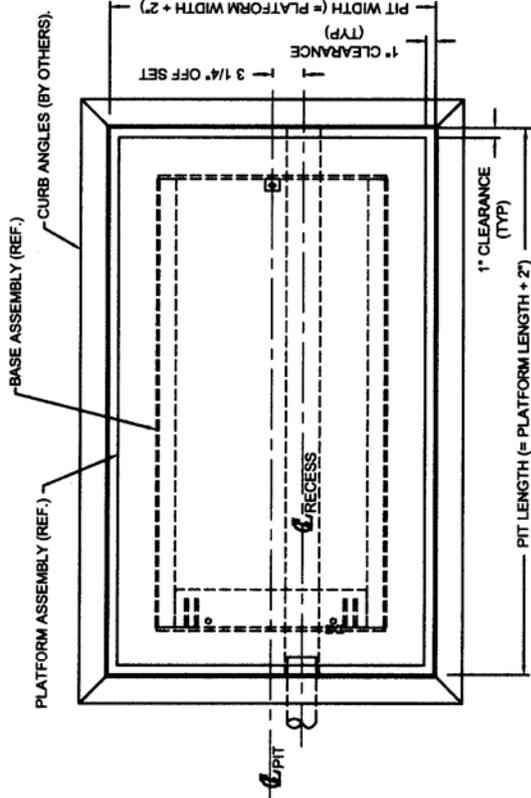
Do not install lift in a pit unless pit has a bevel toe guard or other approved toe protection. A shear point may exist which can cause severe foot injury.



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.

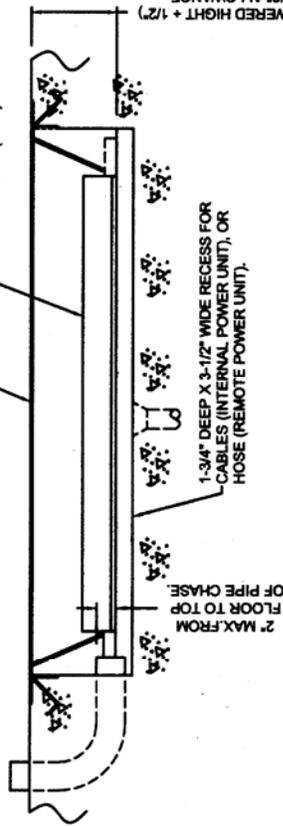
1. Check pit dimensions. Pit must be 2" longer and 2" wider than lift platform to allow a 1" gap between platform and pit. Pit depth should allow ½" for shims or grout.
2. Conduit diameter must be a minimum of 3" for necessary hydraulic hosing and field wiring.
3. Verify installation area is clean before 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.

80119140



PLATFORM SUPPORT SHELF, PROVIDED BY OTHERS, MUST BE LOCATED UNDER BEVEL TOE GUARDS ON SIDE OF PLATFORM (ALONG ENTIRE LENGTH OF PLATFORM). CAN BE IMPACT RESISTANT STEEL OR OTHER MATERIAL (NOT WOOD). MUST WITHSTAND IMPACT LOADS OF 9000 LBS. DISTRIBUTED OVER THE ENTIRE LENGTH, ALONG THE LINE OF TOE GUARD CONTACT.

PLATFORM ASSEMBLY IN LOWERED POSITION (REF.)

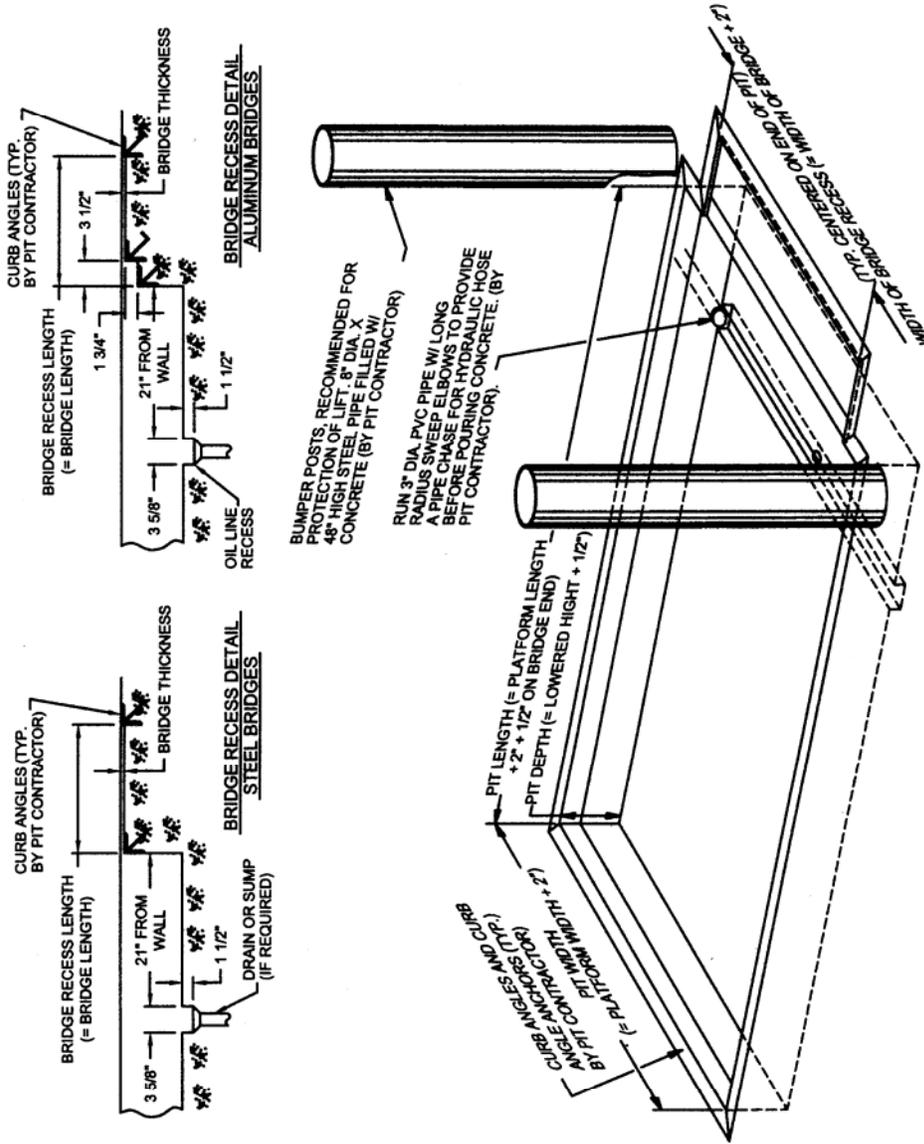


NOTES:

1. ALL PIT WORK, CONDUIT, PIPING, CURB ANGLES, ETC. BY OTHERS.
2. RUN 3" DIA. PVC PIPE WITH LONG RADIUS SWEEP ELBOWS TO PROVIDE PIPE CHASE FOR HOSE OR CABLES. RUN FROM PIT TO POWER UNIT OR CONTROL LOCATION.
3. ADD PLATFORM SUPPORT SHELF TO PIT AS SHOWN ABOVE.

| | | |
|--|--|----------------------------|
| Autoquip REFERENCE DRAWING APPROXIMATE WEIGHT | JOB NAME STANDARD PIT DETAIL - WITH OUT BRIDGE | ORDER NO. 80119140 |
| | DRAWING TITLE STANDARD PIT DETAIL - WITH OUT BRIDGE | DRAWING NUMBER 80119140 |
| COMPANY RESERVED AUTOSHIP CORPORATION This drawing is the property of Autoquip Corp. and cannot be used for design and construction without permission of Autoquip Corp. | SHEET NO. 1 OF 1 | SIZE A |
| APPROXIMATE WEIGHT WA 4/16/01 | SHEET NO. 1 OF 1 | ORDER NO. 80119140 |

80119150



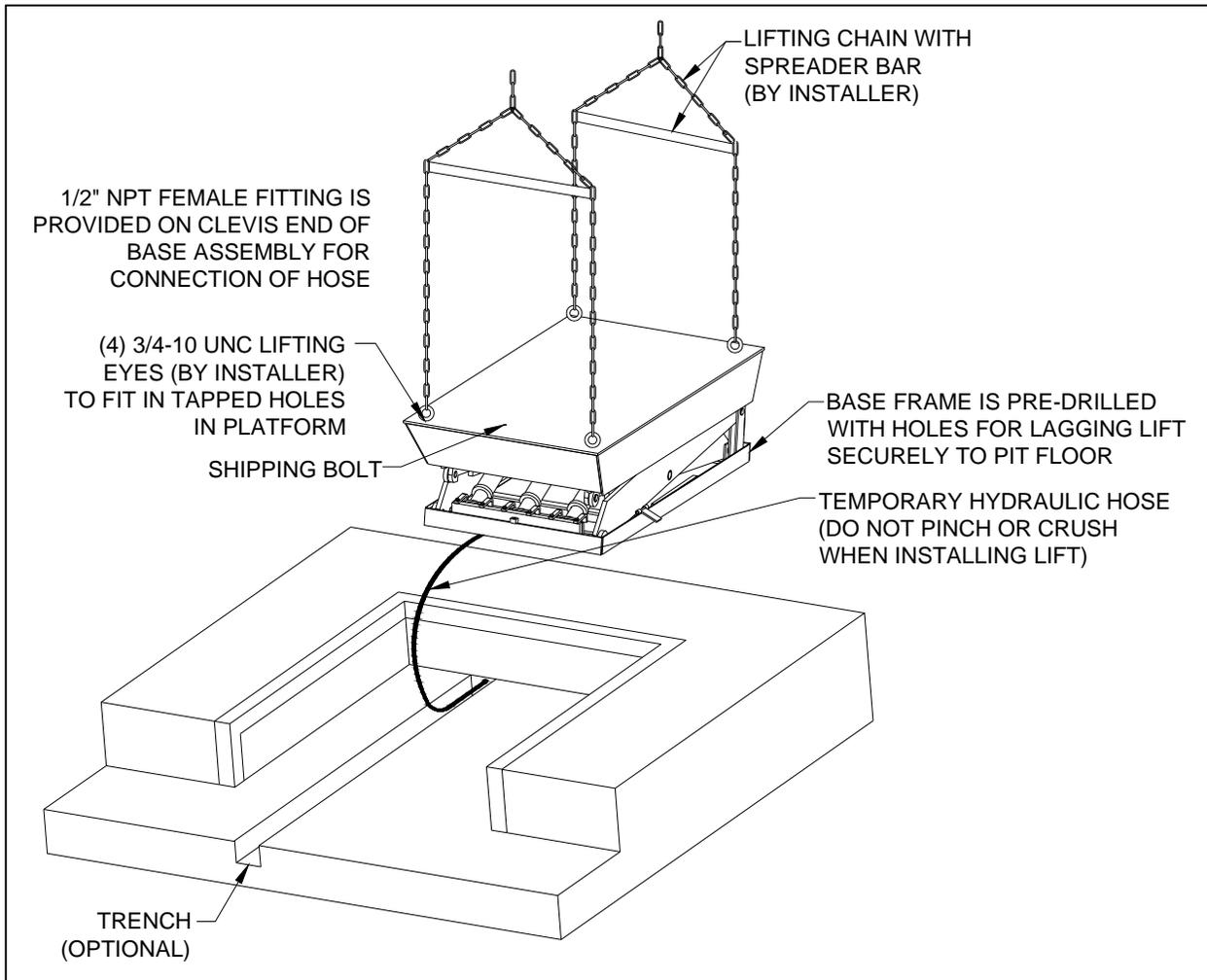
| | | | |
|--|---------------------------------------|------------|--------------|
| ©2001 COPYRIGHT RESERVED AUTOQUIP CORPORATION This drawing is the sole property of Autoquip Corp. and is loaned to you for design and construction of a specific piece of equipment. Autoquip Corp. | Autoquip EQUIPMENT DIVISION | PART NAME: | DRAWING NO.: |
| | STANDARD PIT DETAIL - WITH TOB | DATE: | SHEET NO.: |
| APPROVED: | WA | 4/16/01 | 1 OF 1 |
| PROJECT NO.: | 80119150 | SHEET NO.: | A |

⚠ WARNING

Prevent serious injury or death.

Depending on model, weight of lift ranges from 7,000 – 10,000 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

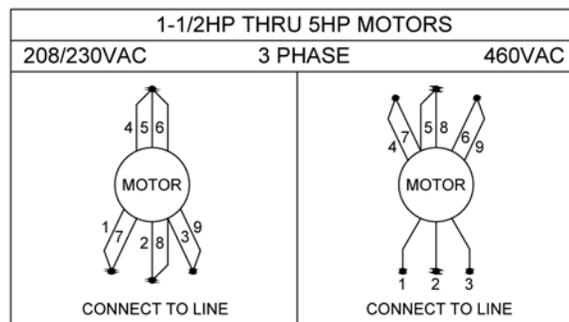
Prevent serious injury or death.

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.

| HP and Voltage | Full Load Amperages |
|---|---------------------|
| 5 HP: 208 / 230 V /60 CY/3 PH Heavy Duty Motor | 208 V=16 Amps |
| 5 HP: 460 V /60 CY/3 PH Heavy Duty Motor | 460 V=7.6 Amps |



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 | 1/2" ID |
| 26 feet to 50 feet | 3/4" ID |
| Over 50 feet | 1" ID |

7. Check the routing of the temporary hydraulic lines to assure that the hose is clear of legs, bas frame, and platform when lift is in the lowered position.

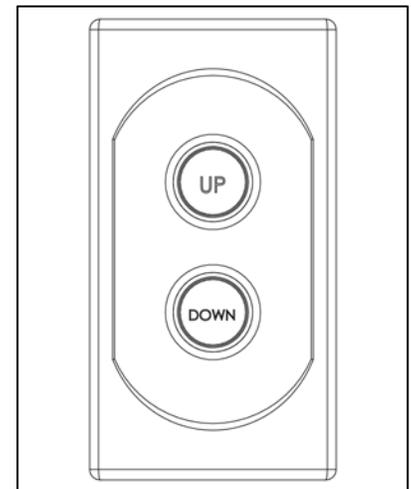
8. Fill hydraulic reservoir with proper type and volume of fluid. Oil level should be 1" to 1-1/2" below the top of the reservoir tank.

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.

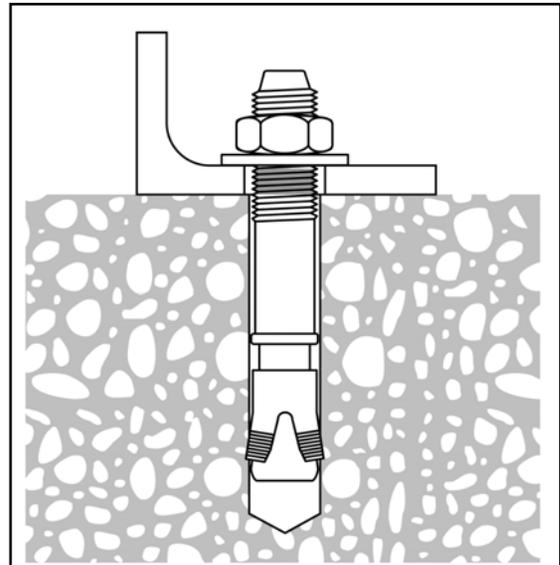
Lock-out/tag-out power source.

13. Base frame of lift has pre-drilled holes for anchoring 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.

4.2 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.



4.3 Remote Power Unit Installation

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.

4.4 Power Unit Wiring

4.4.1 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.

4.5 Accordion Skirt Installation

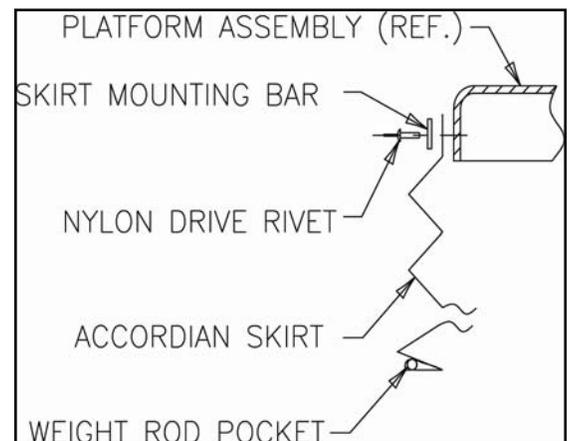
1. Position platform in raised position. Engage maintenance locks (see "Lift Blocking Instructions" section). Position accordion with weight rod pocket at bottom and mounting collar at top. The breathable material when provided must be positioned at top of skirt with mounting collar.
2. Slip skirt over 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.

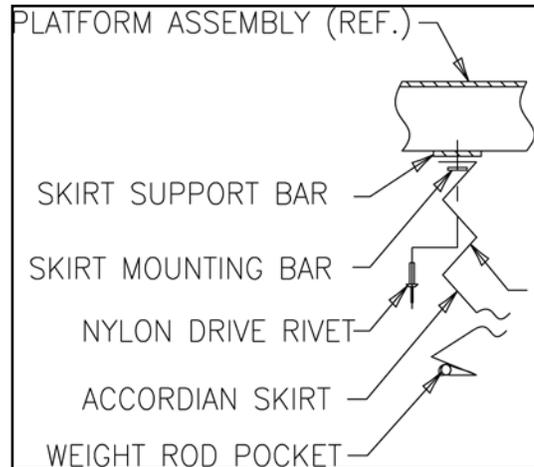


Mounting Accordion Skirt Under Platform

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.

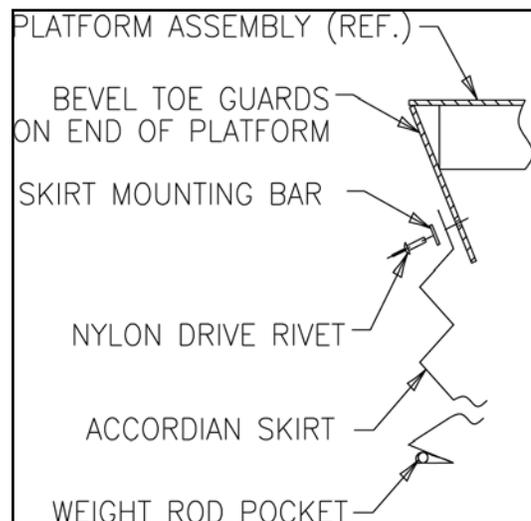


Mounting Accordion Skirt On Bevel Toe Guard

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.

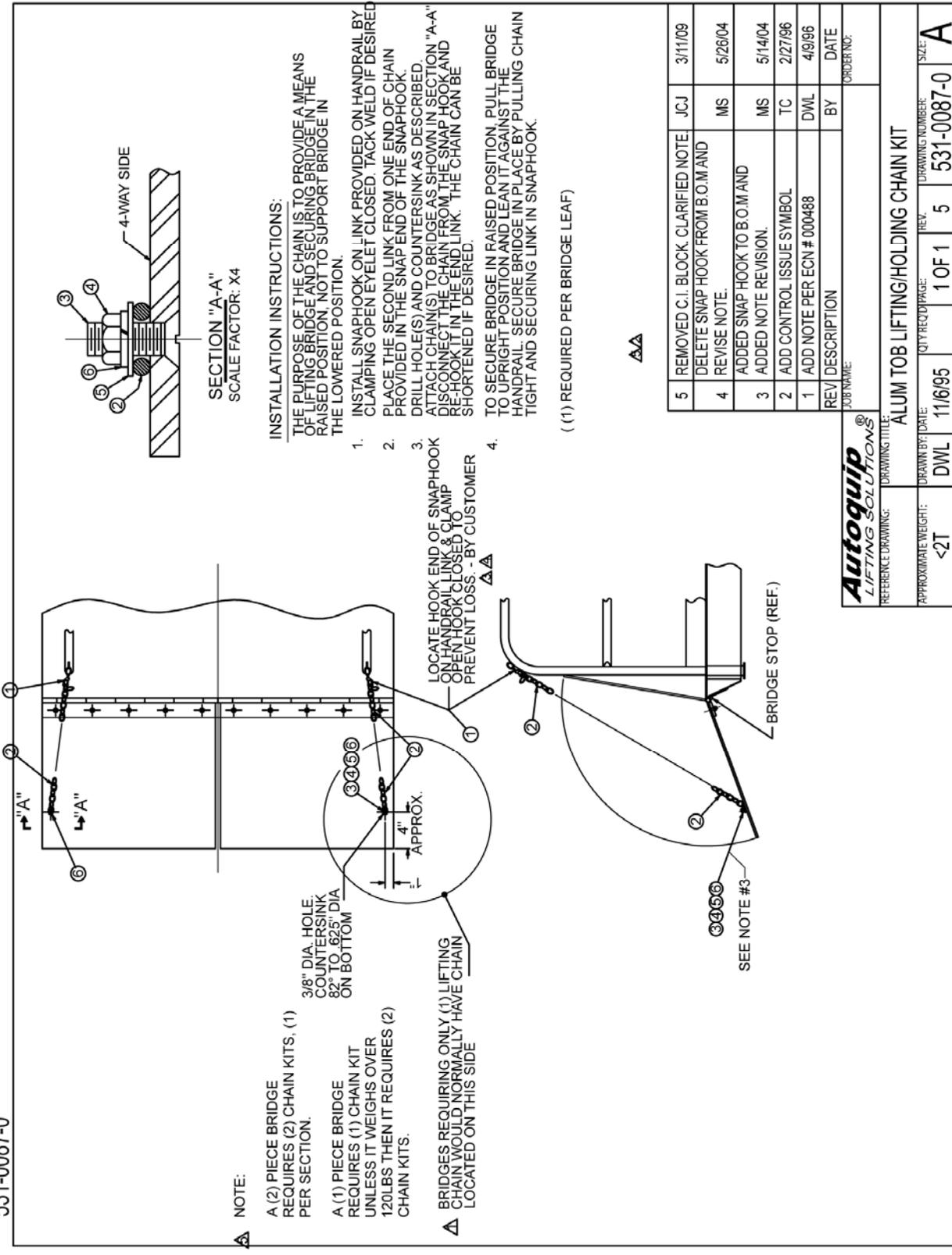
Push a nylon drive rivet through each hole in skirt-mounting bar. Hammer aluminum pin into rivet until flush with rivet head. Repeat mounting process for remaining sides of accordion skirt.



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 Throw-Over Bridge Installation and Wheel Chock Details

531-0087-0



NOTE:
 A (2) PIECE BRIDGE REQUIRES (2) CHAIN KITS, (1) PER SECTION.
 A (1) PIECE BRIDGE REQUIRES (1) CHAIN KIT UNLESS IT WEIGHS OVER 120 LBS THEN IT REQUIRES (2) CHAIN KITS.
 BRIDGES REQUIRING ONLY (1) LIFTING CHAIN WOULD NORMALLY HAVE CHAIN LOCATED ON THIS SIDE

SECTION "A-A"
 SCALE FACTOR: X4

INSTALLATION INSTRUCTIONS:
 THE PURPOSE OF THE CHAIN IS TO PROVIDE A MEANS OF LIFTING BRIDGE AND SECURING BRIDGE IN THE RAISED POSITION, NOT TO SUPPORT BRIDGE IN THE LOWERED POSITION.

1. INSTALL SNAPHOOK ON LINK PROVIDED ON HANDRAIL BY CLAMPING OPEN EYELET CLOSED. TACK WELD IF DESIRED.
2. PLACE THE SECOND LINK FROM ONE END OF CHAIN PROVIDED IN THE SNAP END OF THE SNAPHOOK. DRILL HOLE(S) AND COUNTERSINK AS DESCRIBED.
3. ATTACH CHAIN(S) TO BRIDGE AS SHOWN IN SECTION "A-A" DISCONNECT THE CHAIN FROM THE SNAP HOOK AND RE-HOOK IT IN THE END LINK. THE CHAIN CAN BE SHORTENED IF DESIRED.
4. TO SECURE BRIDGE IN RAISED POSITION, PULL BRIDGE TO UPRIGHT POSITION AND LEAN IT AGAINST THE HANDRAIL. SECURE BRIDGE IN PLACE BY PULLING CHAIN TIGHT AND SECURING LINK IN SNAPHOOK.

((1) REQUIRED PER BRIDGE LEAF)

AA

| | | | |
|-----------------|---|-----------|---------|
| 5 | REMOVED C.I. BLOCK, CLARIFIED NOTE | JCJ | 3/11/09 |
| 4 | DELETE SNAP HOOK FROM B.O.M AND REVISE NOTE. | MS | 5/26/04 |
| 3 | ADDED SNAP HOOK TO B.O.M AND ADDED NOTE REVISION. | MS | 5/14/04 |
| 2 | ADD CONTROL ISSUE SYMBOL | TC | 2/27/96 |
| 1 | ADD NOTE PER ECN # 000488 | DWL | 4/9/96 |
| REV DESCRIPTION | | BY | DATE |
| JOB NAME: | | ORDER NO: | |

Autoquip
 LIFTING SOLUTIONS®

REFERENCE DRAWING: DRAWING TITLE: ALUM TOB LIFTING/HOLDING CHAIN KIT
 APPROXIMATE WEIGHT: <2T DWL 11/6/95
 CITY/STATE: 1 OF 1 5 531-0087-0
 DRAWING NUMBER: 531-0087-0
 SIZE: A

TOLERANCES UNLESS OTHERWISE SPECIFIED:
 FRACTIONS: +/- 1/32
 DECIMALS: X +/- .1
 TWO PLACE .XX +/- .03
 THREE PLACE .XXX +/- .010
 ANGLES: +/- 1/2°
 BREAK ALL SHARP EDGES: .010 MAX. x 45°-CHAMFER

NOTE:
 SPLIT THROW OVER BRIDGE W/ (2) CHAIN KITS SHOWN. A (1) PIECE BRIDGE WOULD NORMALLY REQUIRE ONLY (1) CHAIN KIT. (HEAVY BRIDGES (120LB & MORE) REQUIRE (2) CHAIN KITS)

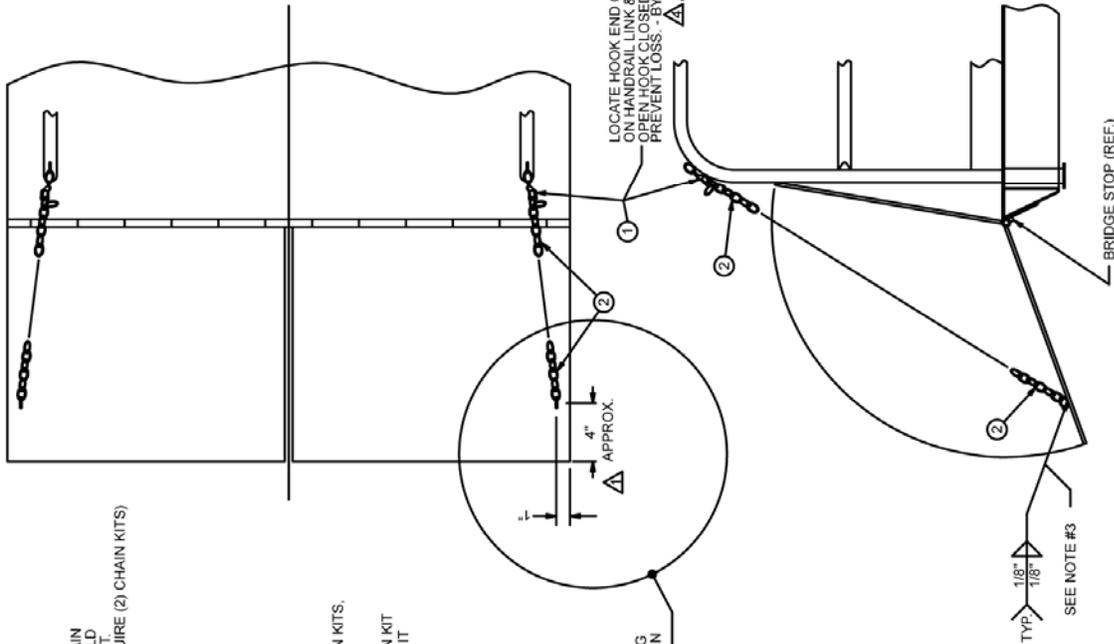
NOTE:
 A (2) PIECE BRIDGE REQUIRES (2) CHAIN KITS, (1) PER SECTION.

A (1) PIECE BRIDGE REQUIRES (1) CHAIN KIT UNLESS IT WEIGHS OVER 120LBS THEN IT REQUIRES (2) CHAIN KITS.



BRIDGES REQUIRING ONLY (1) LIFTING CHAIN WOULD NORMALLY HAVE CHAIN LOCATED ON THIS SIDE

180° (FOLD FLAT) BRIDGES. LOCATE THE CHAIN(S) ON THE EDGE OF THE BRIDGE NOT THE TOP.



INSTALLATION INSTRUCTIONS:

THE PURPOSE OF THE CHAIN IS TO PROVIDE A MEANS OF LIFTING BRIDGE AND SECURING BRIDGE IN THE RAISED POSITION, NOT TO SUPPORT BRIDGE IN THE LOWERED POSITION.

1. INSTALL SNAPHOOK ON LINK PROVIDED ON HANDRAIL BY CLAMPING OPEN EYELET CLOSED. TACK WELD IF DESIRED.
2. PLACE THE SECOND LINK FROM ONE END OF CHAIN PROVIDED IN THE SNAP END OF THE SNAPHOOK.
3. WITH LIFT RAISED ABOVE FLOOR LEVEL AND THE BRIDGE LOWERED TO REST ON ITS STOPS; PULL THE FREE END OF THE CHAIN TIGHT TO A POINT ON TOP OF THE BRIDGE, ONE INCH FROM ITS EDGE AS SHOWN. WELD THE END LINK TO THE BRIDGE. DISCONNECT THE CHAIN FROM THE SNAP HOOK AND RE-HOOK IT IN THE END LINK. THE CHAIN CAN BE SHORTENED IF DESIRED.
4. TO SECURE BRIDGE IN RAISED POSITION, PULL BRIDGE TO UPRIGHT POSITION AND LEAN IT AGAINST THE HANDRAIL. SECURE BRIDGE IN PLACE BY PULLING CHAIN TIGHT AND SECURING LINK IN SNAPHOOK.

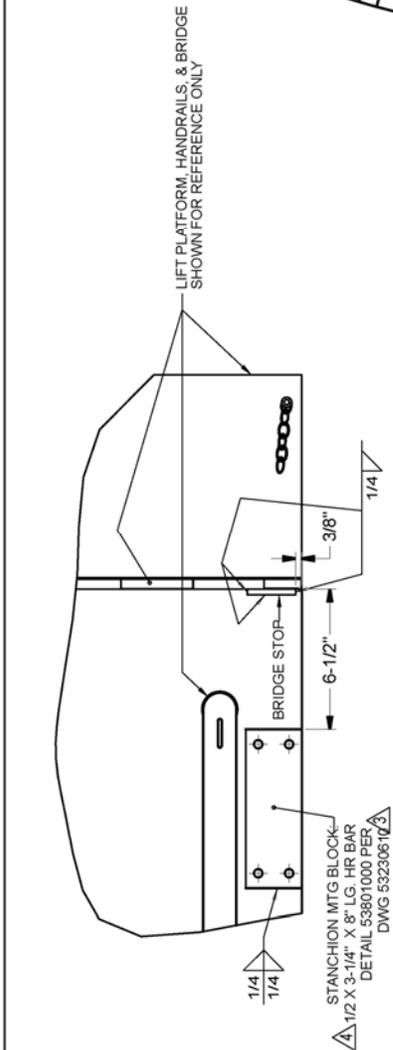
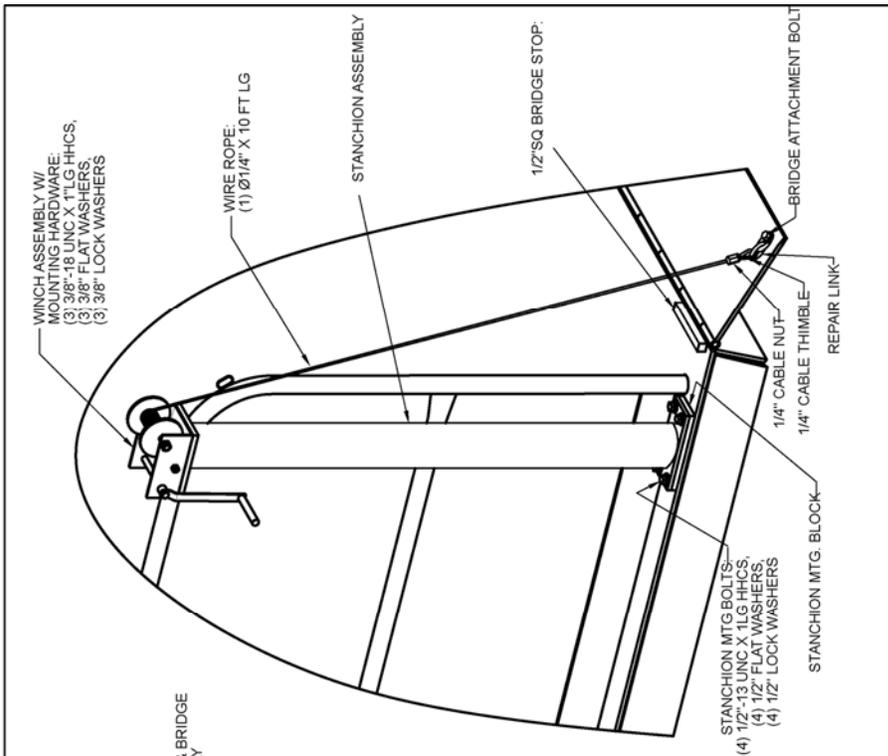
(NOTE #3 APPLIES TO FIELD INSTALLED CHAINS; CHAINS THAT ARE INSTALLED AT AUTOQUIP SHOULD BE LOCATED TO DIMENSION SHOWN)



| | | | |
|----|---------------------------|-------|----------|
| 7 | CLARIFIED HEAVY BRIDGE | JCJ | 3-11-09 |
| 6 | ADDED 180° BRIDGE VIEW | SAA | 10/04/06 |
| 5 | DELETE SNAP-HOOK FROM BOM | MS | 5/26/04 |
| 4 | ADDED SNAP HOOK TO BOM | TB | 5/14/04 |
| 3 | ADDED NOTE REVISION | C.W.G | 2/27/97 |
| 2 | ADD NOTE PER ECN #000488 | DWL | 4/9/96 |
| 1 | ADDED DIMENSION & NOTE | WJB | 7/18/95 |
| NO | REVISIONS | BY | DATE |

| | | | |
|--------------------------------|--|---------------|------------|
| AUTOQUIP | | BOX 1025 | 105 STATE |
| REFERENCE CODE | | DATE 03/20/14 | |
| APPROXIMATE WEIGHT | | 1 of 1 | 7 |
| DWN | | 5/1/95 | |
| BRIDGE LIFTING / HOLDING CHAIN | | | |
| PART NUMBER | | | 531-0085-0 |
| REV | | | C |

(1) REQUIRED PER BRIDGE LEAF



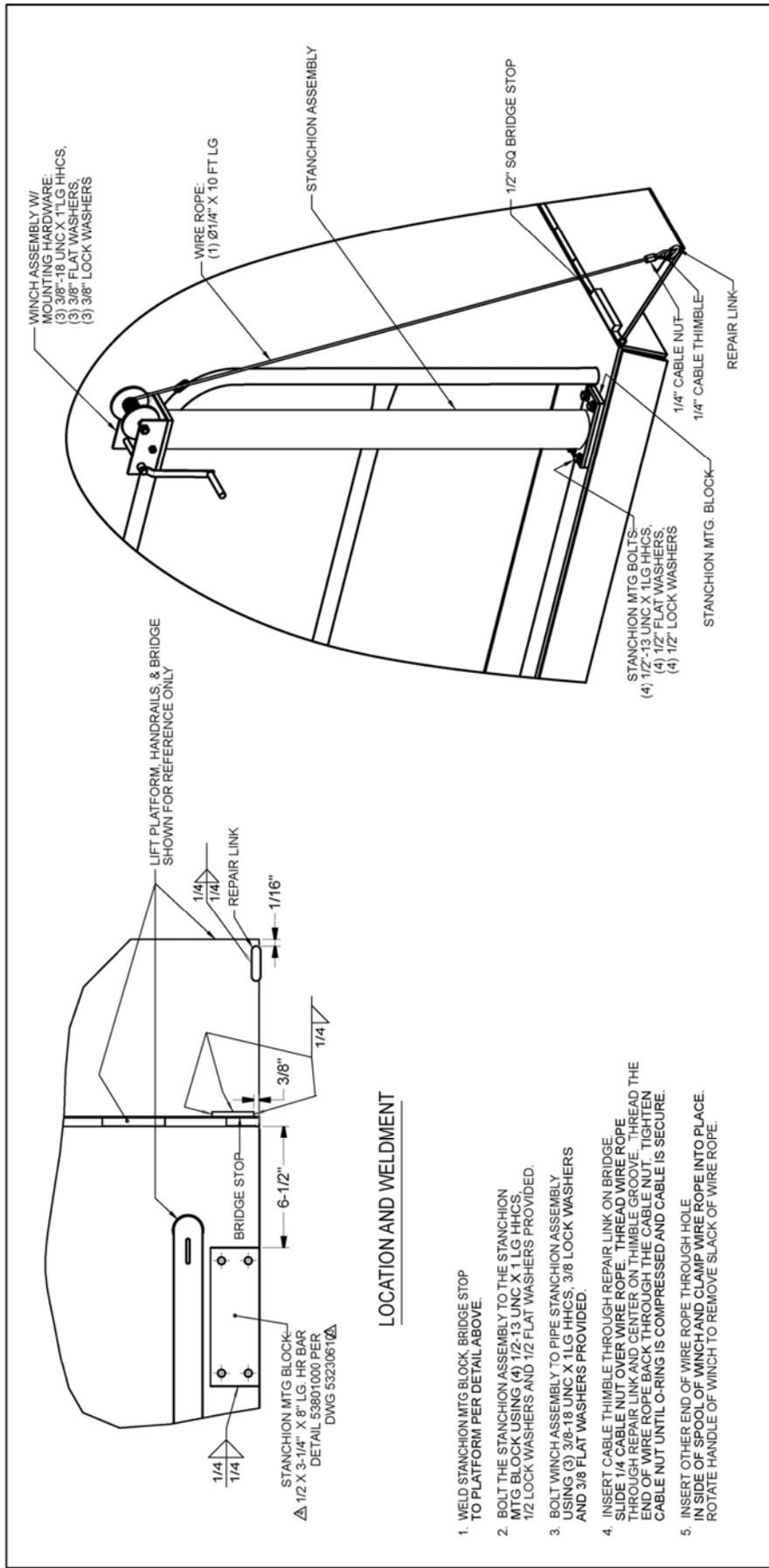
LOCATION AND WELDMENT

WINCH INSTALLATION NOTES ALUMINUM BRIDGE

1. WELD STANCHION MTG. BLOCK AND BRIDGE STOP TO PLATFORM PER DETAIL ABOVE.
2. BOLT THE STANCHION ASSEMBLY TO THE STANCHION MTG. BLOCK USING (4) 1/2-13 UNC X 1" LG HHCS, 1/2" LOCK WASHERS, & 1/2" FLAT WASHERS PROVIDED.
3. BOLT WINCH ASSEMBLY TO STANCHION ASSEMBLY USING (3) 3/8-18 UNC X 1" LG HHCS, 3/8" LOCK WASHERS, & 3/8" FLAT WASHERS PROVIDED.
4. BOLT CHAIN REPAIR LINK TO ALUMINUM BRIDGE USING (1) 5/16-18UNC x 1-1/2" LG HHCS, (1) 5/16" FLAT WASHER, (1) 5/16" LOCK WASHER, AND (1) 5/16-18UNC HEX NUT.
5. INSERT CABLE THIMBLE THROUGH REPAIR LINK ON BRIDGE. SLIDE 1/4" CABLE NUT OVER WIRE ROPE. THREAD WIRE ROPE THROUGH REPAIR LINK & CENTER ON THIMBLE GROOVE. TIGHTEN CABLE NUT UNTIL O-RING IS COMPRESSED & CABLE IS SECURE.
6. INSERT OTHER END OF WIRE ROPE THROUGH HOLE IN THE SIDE OF SPOOL ON WINCH & CLAMP WIRE ROPE INTO PLACE. ROTATE HANDLE OF WINCH TO REMOVE SLACK OF WIRE ROPE.

| REV | DESCRIPTION | DATE | BY | CHKD | APP'D |
|-----|--|------------|-------|------|-------|
| 5 | ADDED NOTE #5 TO ALUMINUM BRIDGE NOTES | 06/11/09 | JPTB | | |
| 4 | REVISED #53801000 STNCH. MTG. PLATE TO FIT THE 3.58" WIDTH BETWEEN THE PLT SIDE & HRAIL PER ECN #000744. | 12/13/05 | JS/ME | | |
| 3 | REVISED STN MTG BLOCK NOTE | 10/3/05 | ME | | |
| 2 | ADDED SHEET #2 | 1/19/05 | JP | | |
| 1 | MADE CONTROL ISSUE DRAWING | WA 6/10/04 | WA | | |

Autoquip
 AUTOMATIC LIFTING
 REFERENCED DRAWING: STANCHION LOG FOR WINCH, ALUM. BRIDGE
 DRAWING TITLE: STANCHION LOG FOR WINCH, ALUM. BRIDGE
 APPROXIMATE WEIGHT: SMS 01/05/04
 QUANTITY: 5
 PART NUMBER: 53230611
 SIZE: B



LOCATION AND WELDMENT

1. WELD STANCHION MTG BLOCK, BRIDGE STOP TO PLATFORM PER DETAIL ABOVE.
2. BOLT THE STANCHION ASSEMBLY TO THE STANCHION MTG BLOCK USING (4) 1/2-13 UNC X 1 LG HHCS, 1/2 LOCK WASHERS AND 1/2 FLAT WASHERS PROVIDED.
3. BOLT WINCH ASSEMBLY TO PIPE STANCHION ASSEMBLY USING (3) 3/8-18 UNC X 1 LG HHCS, 3/8 LOCK WASHERS AND 3/8 FLAT WASHERS PROVIDED.
4. INSERT CABLE THIMBLE THROUGH REPAIR LINK ON BRIDGE. SLIDE 1/4 CABLE NUT OVER WIRE ROPE. THREAD WIRE ROPE THROUGH REPAIR LINK AND CENTER ON THIMBLE GROOVE. THREAD THE END OF WIRE ROPE BACK THROUGH THE CABLE NUT. TIGHTEN CABLE NUT UNTIL O-RING IS COMPRESSED AND CABLE IS SECURE.
5. INSERT OTHER END OF WIRE ROPE THROUGH HOLE IN SIDE OF SPOOL OF WINCH AND CLAMP WIRE ROPE INTO PLACE. ROTATE HANDLE OF WINCH TO REMOVE SLACK OF WIRE ROPE.

STEEL BRIDGE INSTALLATION NOTES

1. WELD STANCHION MTG. BLOCK, BRIDGE STOP AND REPAIR LINK (OPEN END DOWN) TO PLATFORM PER DETAIL ABOVE.
2. BOLT THE STANCHION ASSEMBLY TO THE STANCHION MTG. BLOCK USING (4) 1/2-13 UNC X 1 LG HHCS, 1/2 LOCK WASHERS, & 1/2 FLAT WASHERS PROVIDED.
3. BOLT WINCH ASSEMBLY TO PIPE STANCHION ASSEMBLY USING (3) 3/8-18 UNC X 1 LG HHCS, 3/8 LOCK WASHERS, & 3/8 FLAT WASHERS PROVIDED.
4. INSERT CABLE THIMBLE THROUGH REPAIR LINK ON BRIDGE. SLIDE 1/4 CABLE NUT OVER WIRE ROPE. THREAD WIRE ROPE THROUGH REPAIR LINK & CENTER ON THIMBLE GROOVE. TIGHTEN CABLE NUT UNTIL O-RING IS COMPRESSED & CABLE IS SECURE.
5. INSERT OTHER END OF WIRE ROPE THROUGH HOLE IN THE SIDE OF SPOOL ON WINCH & CLAMP WIRE ROPE INTO PLACE. ROTATE HANDLE OF WINCH TO REMOVE SLACK OF WIRE ROPE.

| REV | DESCRIPTION | DATE | BY | APP'D |
|-----|---|----------|-------|-------|
| 5 | ADDED NOTE #5 TO ALUMINUM BRIDGE NOTES | 06/11/09 | JPTB | |
| 4 | REVISED #53801000, STNCH. MTG. PLATE, TO FIT THE 3-5/8" WIDTH BETWEEN THE PLTF SIDE & HRAIL KICKPLATE; DIM 3-1/2" WAS 4"; BY JS; PER ECN #000744. | 12/13/05 | JS/ME | |
| 3 | REVISED STN MTG BLOCK NOTE | 10/3/05 | ME | |
| 2 | ADDED SHEET #2 | 1/19/05 | JP | |
| 1 | MADE CONTROL ISSUE DRAWING | 6/10/04 | WA | |
| | REV DESCRIPTION | | | |

Autoquip
LIFTING SOLUTIONS®

REFERENCE DRAWING: STANCHION LOC FOR WINCH, ALUM. BRIDGE

DRAWING TITLE: STANCHION LOC FOR WINCH, ALUM. BRIDGE

APPROXIMATE WEIGHT: SMS 01/05/04

DRAWN BY DATE: SMS 01/05/04

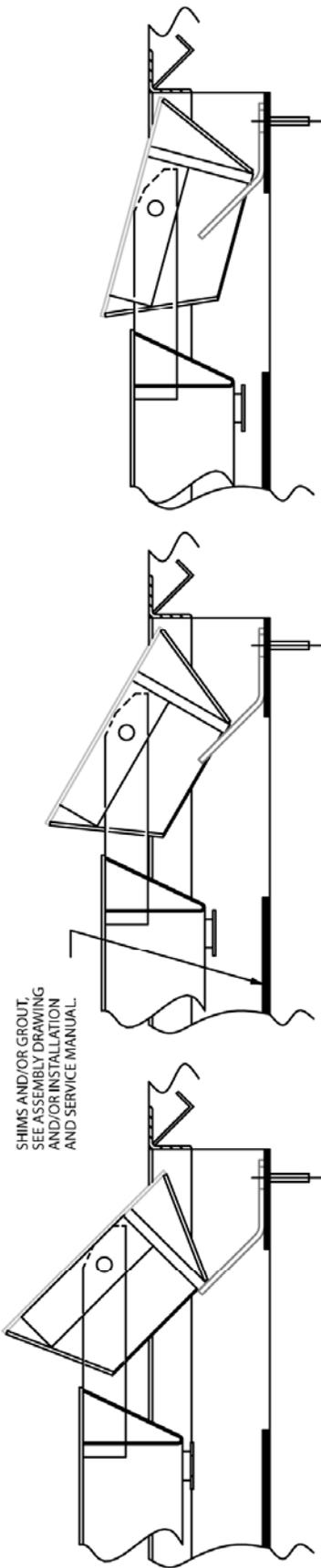
REV: 5

DWG NUMBER: 53230611

SIZE: B

53230611

SHIMS AND/OR GROUT, SEE ASSEMBLY DRAWING AND/OR INSTALLATION AND SERVICE MANUAL.



OPERATIONAL VIEWS OF AUTOMATIC MECHANICAL WHEEL CHOCK, (REF.)

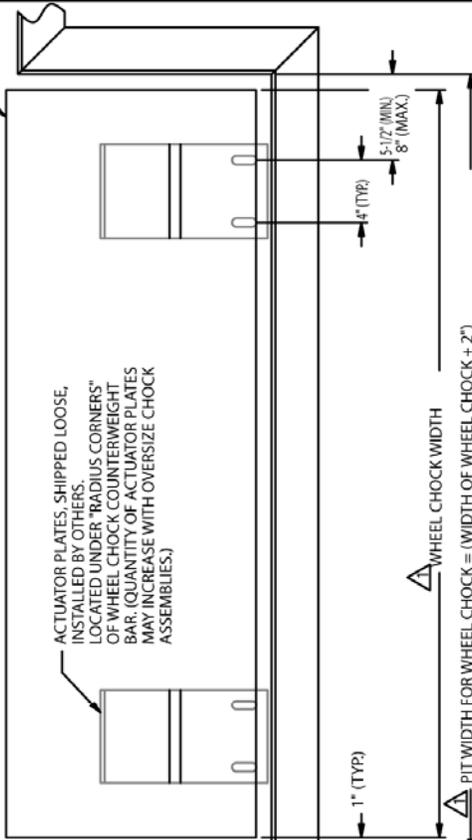
STANDARD PIT WALL. THIS IS WHERE A STANDARD PIT WALL WOULD BE IF AN AUTOMATIC WHEEL CHOCK WAS NOT REQUIRED.

LIFT PLATFORM IN LOWERED POSITION SHOWN IN PHANTOM FOR CLARITY.

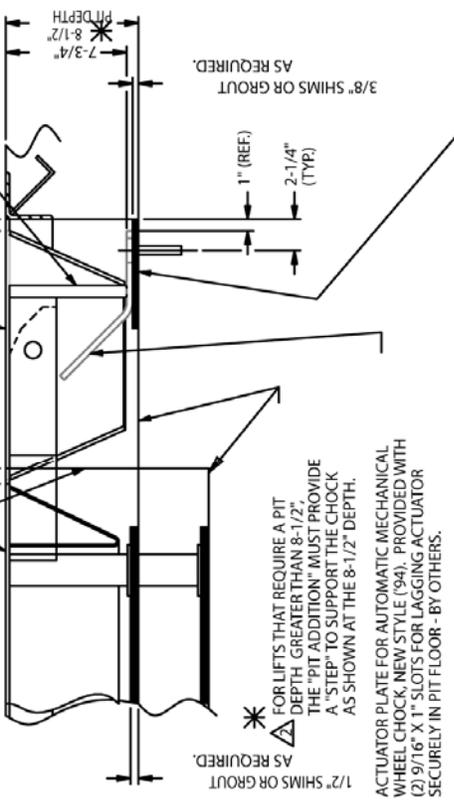
AUTOMATIC MECHANICAL WHEEL CHOCK IN LOWERED POSITION.

WHEEL CHOCK COUNTERWEIGHT BAR WITH "RADIUS CORNERS" ON BOTTOM OF BAR FOR ACTUATOR PLATES.

WHEEL CHOCK ASSEMBLY, SHOWN IN PHANTOM FOR REF.



PLAN VIEW OF WHEEL CHOCK AND PIT ADDITION



1/2" SHIMS OR GROUT AS REQUIRED.

FOR LIFTS THAT REQUIRE A PIT DEPTH GREATER THAN 8-1/2", THE "PIT ADDITION" MUST PROVIDE A "STEP" TO SUPPORT THE CHOCK AS SHOWN AT THE 8-1/2" DEPTH.

ACTUATOR PLATE FOR AUTOMATIC MECHANICAL WHEEL CHOCK, NEW STYLE (94), PROVIDED WITH (2) 9/16" X 1" SLOTS FOR LAGGING ACTUATOR SECURELY IN PIT FLOOR - BY OTHERS.

THE WHEEL CHOCK TOP SHOULD BE SOLID AND FLUSH WITH TOP OF PIT CURB ANGLES. SHIMS AND/OR GROUT MUST BE PLACED UNDER ENTIRE ACTUATOR PLATE TO SUPPORT WHEEL CHOCK AT GRADE LEVEL. SHIMS AND/OR GROUT MUST BE ABLE TO SUPPORT WHEEL CHOCK WHILE LOADED AT FULL RATED ROLLER CAPACITY.

VIEW OF WHEEL CHOCK IN LOWERED POSITION

- THIS DRAWING JUST COVERS A PIT ADDITION FOR A AUTOMATIC WHEEL CHOCK ADDED TO STANDARD PIT. FOR CORRECT LIFT ASSEMBLY PIT DRAWINGS, SEE LIFT ASSEMBLY DRAWING AND/OR INSTALLATION AND SERVICE MANUAL.

| | | | | | | | |
|---|--|-----|----------|--------|---|------------|---|
| 1 | CHANGED WHEEL CHOCK LENGTH & PIT LENGTH TO WHEEL CHOCK WIDTH & PIT WIDTH. | SS | 10/14 | 1 of 1 | 3 | 810-0786-0 | C |
| 2 | ADDED NOTE FOR LIFT THAT REQUIRE PIT ADDITION FOR AUTOMATIC WHEEL CHOCK AND QUALITY COMMITTEE ACC-04-04. | SS | 10/24/95 | | | | |
| 3 | UPDATED TITLE BLOCK, REMOVED AS-AS SIZE. | DWL | 10/26/96 | | | | |

| | | | | | |
|-----|----------|-----|----------|-------|--|
| REV | DATE | BY | CHKD | APP'D | DESCRIPTION |
| 1 | 10/14/94 | SS | 10/14/94 | | PIT ADDITION FOR AUTOMATIC MECHANICAL WHEEL CHOCK (NEW STYLE) |
| 2 | 10/24/95 | SS | 10/24/95 | | ADDED NOTE FOR LIFT THAT REQUIRE PIT ADDITION FOR AUTOMATIC WHEEL CHOCK AND QUALITY COMMITTEE ACC-04-04. |
| 3 | 10/26/96 | DWL | 10/26/96 | | UPDATED TITLE BLOCK, REMOVED AS-AS SIZE. |

| | |
|-------------|---|
| PROJECT NO. | 810-0786-0 |
| DATE | 10/14/94 |
| REV | 1 |
| APP'D | SS |
| CHKD | 10/14/94 |
| BY | SS |
| DESCRIPTION | PIT ADDITION FOR AUTOMATIC MECHANICAL WHEEL CHOCK (NEW STYLE) |
| PROJECT | AUTOQUIP |
| REV | 1 |
| DATE | 10/14/94 |
| BY | SS |
| CHKD | 10/14/94 |
| APP'D | SS |
| DESCRIPTION | PIT ADDITION FOR AUTOMATIC MECHANICAL WHEEL CHOCK (NEW STYLE) |

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.

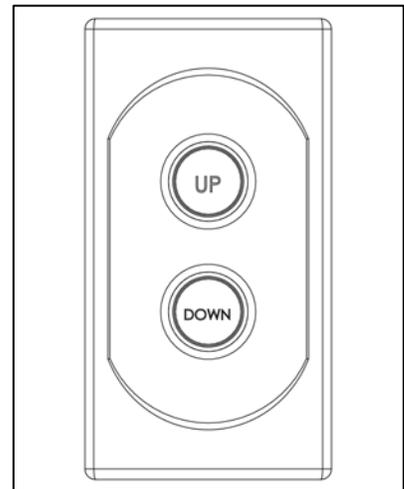
Personnel must maintain a safe operating distance of at least 36" any time lift is operated.

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.



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 leg 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 leg. The maintenance leg is 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 leg 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 leg may not be able to be placed properly in the designed blocking position.
3. The lift will be provided with one (1) maintenance leg, stored on the outside of the base frame. The leg must be securely inserted into the leg sockets on top frame and bottom frame of lift (**See Figure 6.1**).
4. Lower the lift platform until the leg is fully seated in both sockets. Re-check to ensure leg is fully and properly engaged in both sockets. If leg is not fully engaged, the lift could fall unexpectedly.

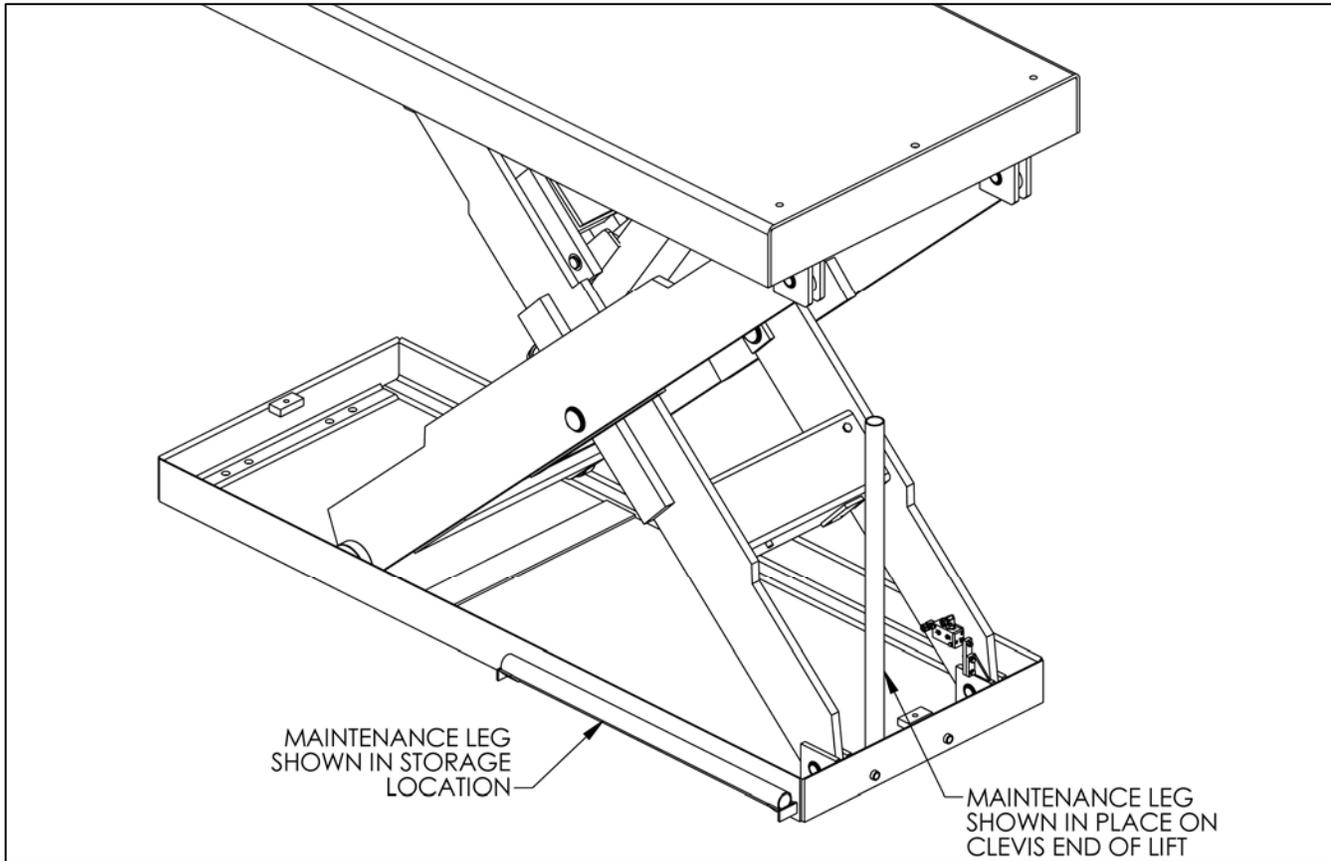


Figure 6.1

⚠ 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 leg is 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 leg and place the leg 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

Oil capacity varies between models. Capacity is a minimum 10 gallons.

NOTICE

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

Do Not Use:

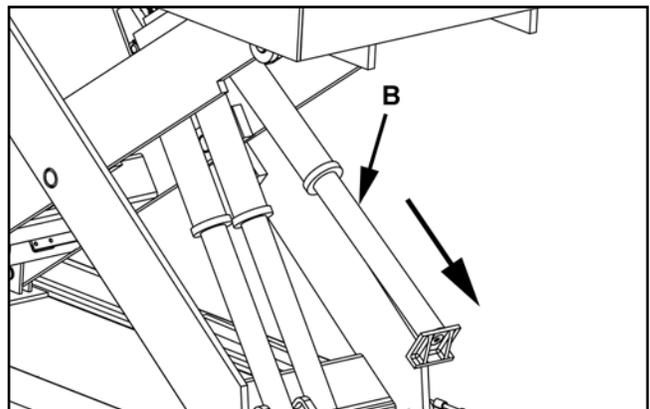
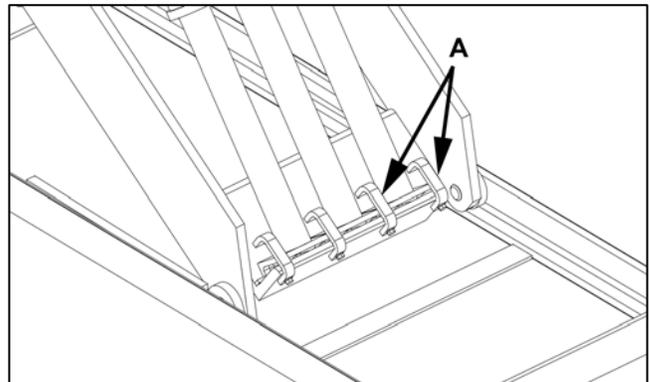
- Automatic Transmission Fluid (ATF)
- Hydraulic Jack Oil
- Hydraulic Fluids
- Brake Fluids

6.3 General Maintenance

6.3.1 Hydraulic Cylinder Repair

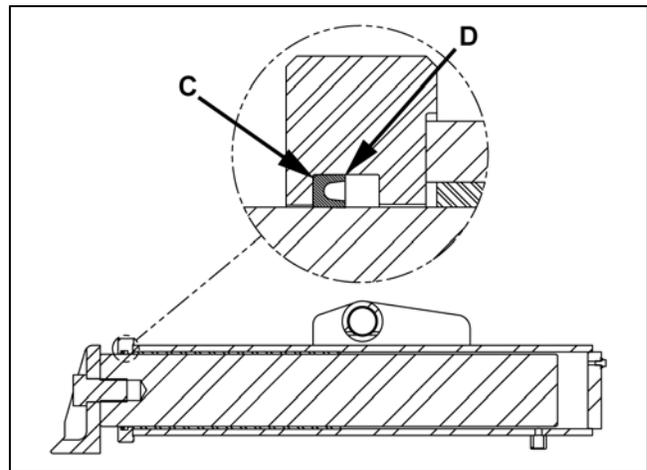
6.3.1.1. Cylinder Plunger Removal

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. Remove thrust angle clips (A) from ram end of cylinder and force ram slowly back to its fully closed position to push oil back into reservoir.
5. Remove cylinder hose from reservoir fill hole and pull ram (B) all of the way out of cylinder. Support it carefully so that it does not drop when it clears cylinder end. Lay it down in a safe, clean place. Some oil may drip from the end of cylinder so have waste cloth or paper beneath lift to protect floor.



6.3.1.2. Replace Cylinder Seals

1. Remove sealing ring (C).
2. Use a bright light to inspect inner walls of barrel. Use a cylinder hone to remove any apparent nicks or scratches. Clean and flush the barrel after honing.
3. Inspect ram and seal groove (D) for nicks or scratches that could affect seal or barrel walls; remove as necessary.
4. Clean seal groove (D) thoroughly and install new seal and backup ring. Make sure backup ring is toward open end of cylinder.



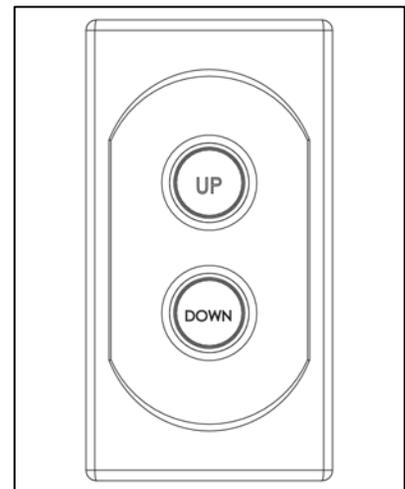
6.3.1.3. Cylinder Ram Replacement

1. Clean ram of all foreign materials
2. Liberally lubricate the ram and seal with CLEAN grease or oil.
3. Insert ram carefully back into cylinder taking precaution against pinching or tearing seal ring.
4. Position cylinder foot and reinstall thrust angle clips (A).
5. Reconnect cylinder hose.

6.3.1.4. Placing Cylinder Back Into Service

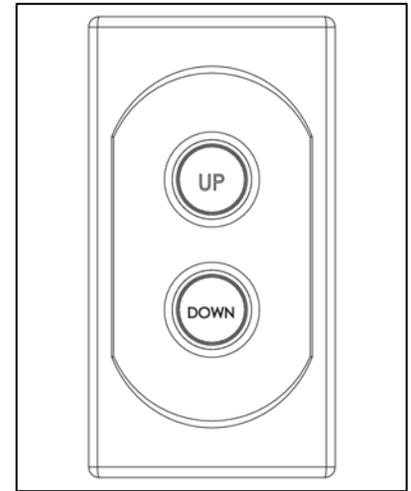
Loctite PST #567 pipe thread sealant or equivalent is recommended. **Do not use Teflon tape.** Tape fragments may cause hydraulic system to malfunction.

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 the bleeder plug at the top end of the ram casing and operate the pump to remove trapped air from the ram. When clear oil appears, tighten the plug and raise the lift slightly to remove the 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 50% of full travel, then lower completely.
2. Hold "DOWN" button for 60 seconds.
3. Repeat procedure 5-6 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

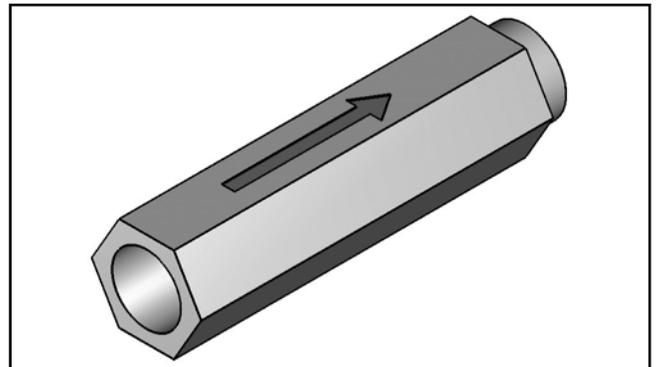
Prevent serious injury or death.

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.
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 Up Stop Valve Adjustment

The up-stop valve is bolted to a mounting plate assembly that is permanently welded near the end of the scissors leg on the clevis end of the lift. A mechanical plunger is located on the end of the valve which, when depressed, blocks the flow of oil until physically released. An adjustable striker bolt is mounted to a plate that is welded to the base frame, which is also at the clevis end of the lift. As the lift travels upward, the scissors leg and up-stop valve assembly swings into the adjustable striker bolt until the up-stop plunger is depressed and thereby blocking the flow of oil to the lifting rams. Once blocked, any further oil pumped from the power unit will pass over the relief valve back to the tank.

NOTICE

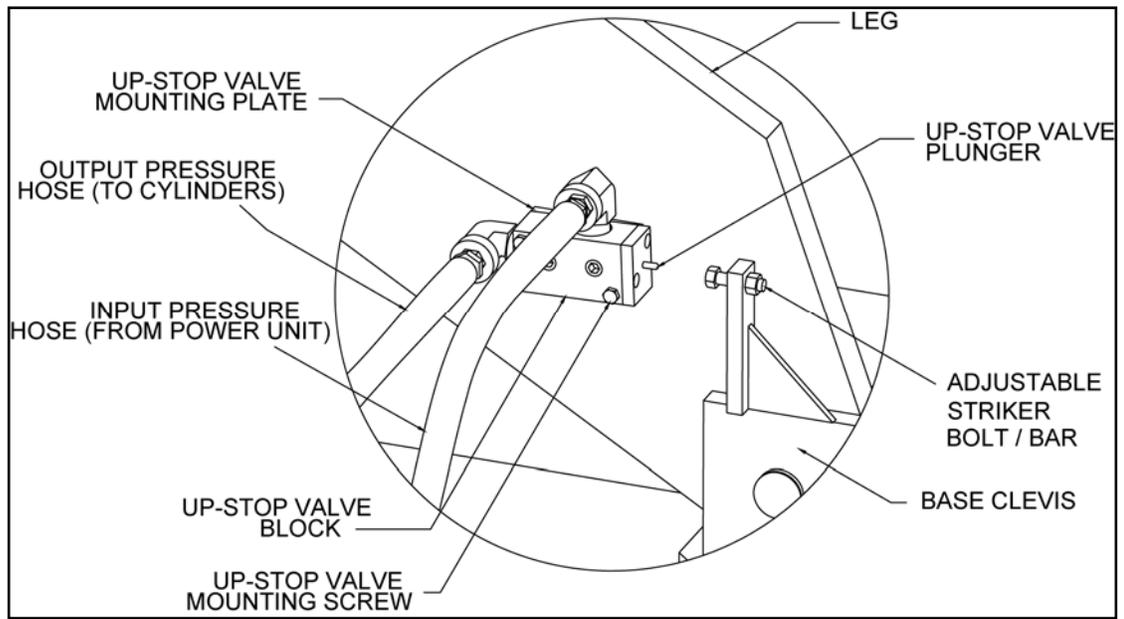
Do not operate the power unit on relief for more than a few seconds. When on relief, the valve will make an audible squealing sound.

The up-stop system can be adjusted to modify vertical travel by:

1. Loosen holding nuts on either side of adjustable striker bolt.
2. Screw adjustable striker bolt in towards plunger (to raise travel) or out (to shorten travel).
3. Retighten the holding nuts.

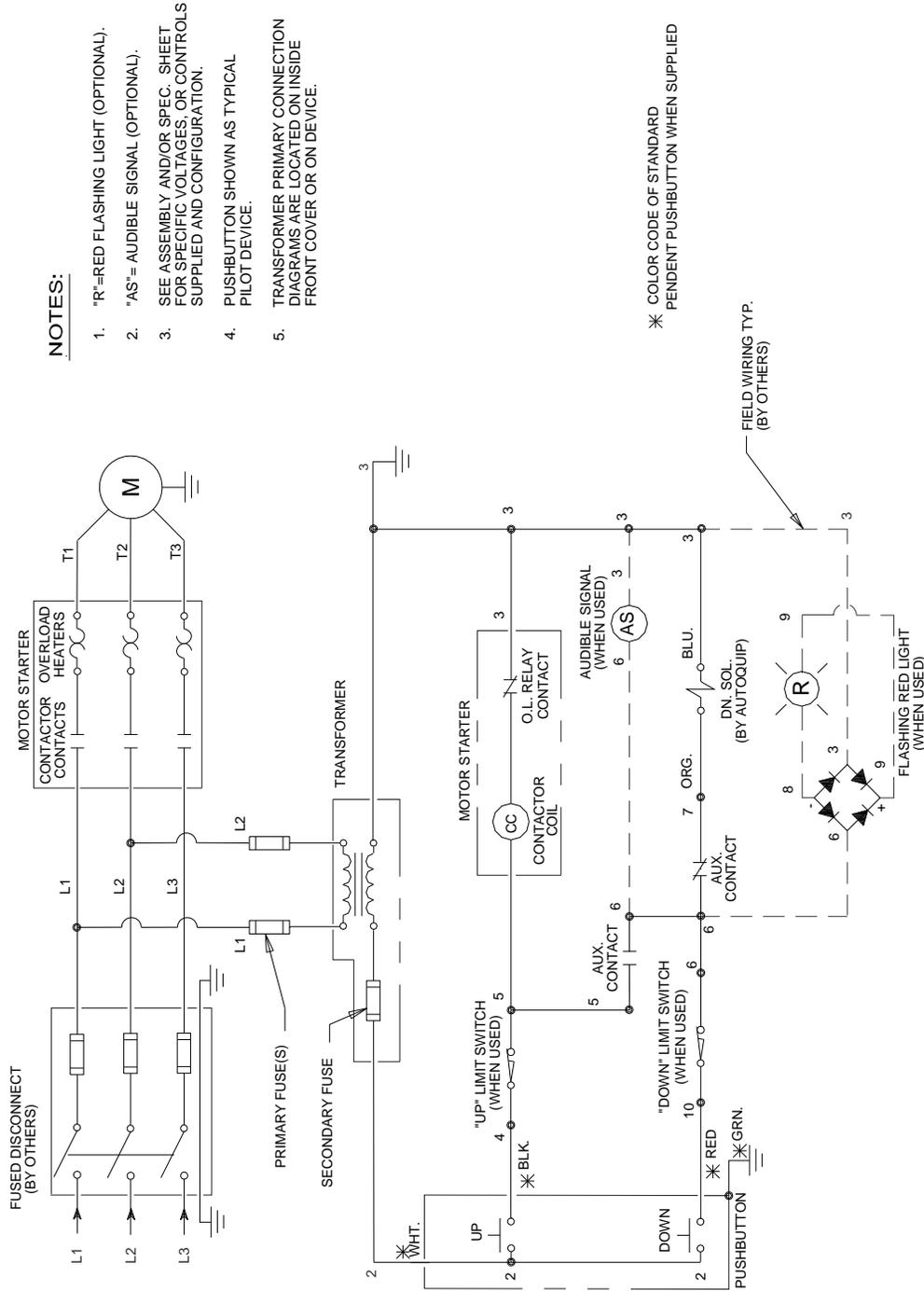
NOTICE

Setting the up-stop valve for travel beyond catalog limits will cause the lift to fully raise against physical stops and, if the pump is allowed to continue to run, cause irreversible damage to the lift structure.



6.3.6 Schematics and Field Wiring Details

65700810



NOTES:

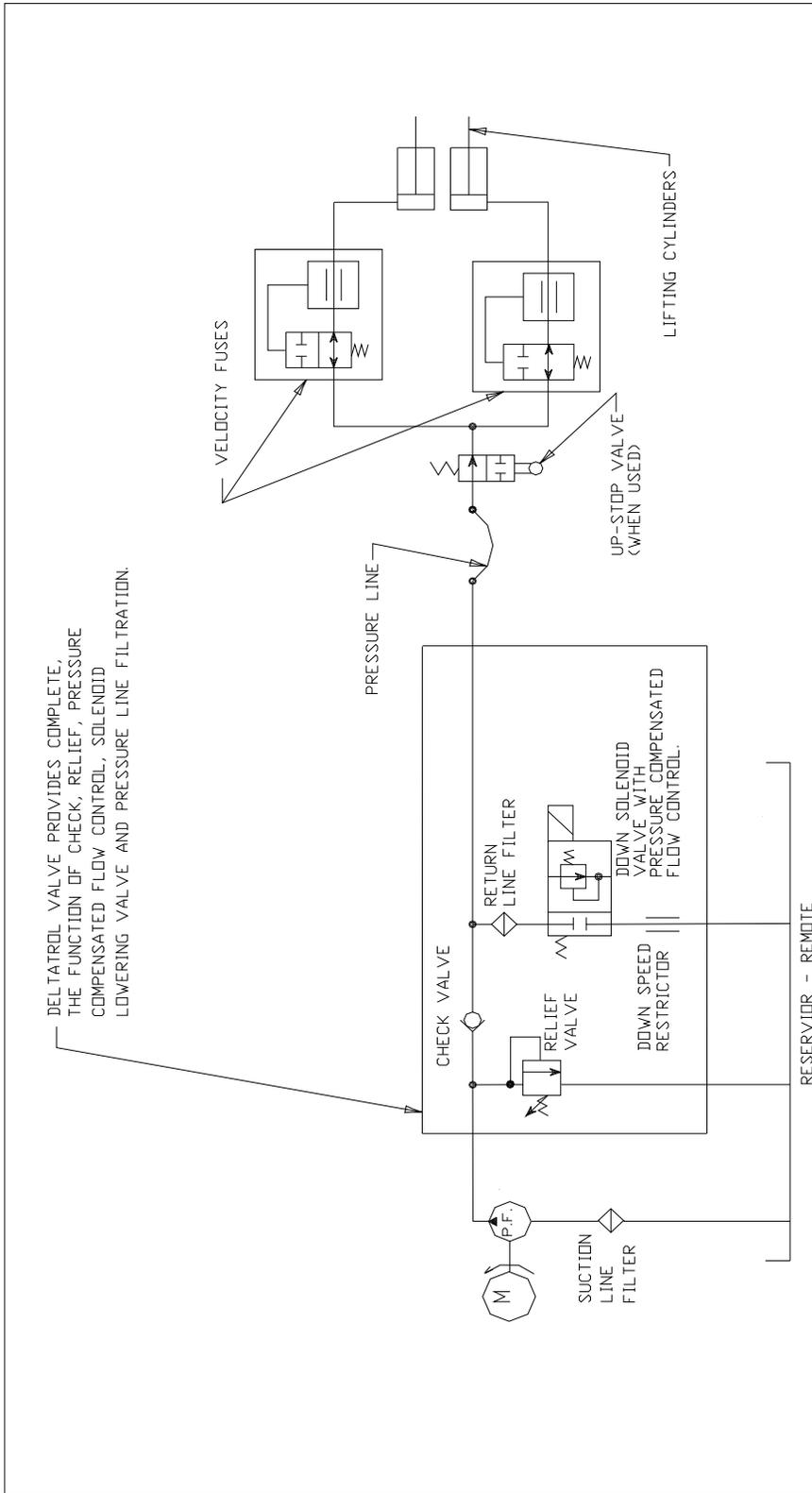
1. "R"=RED FLASHING LIGHT (OPTIONAL).
2. "AS"= AUDIBLE SIGNAL (OPTIONAL).
3. SEE ASSEMBLY AND/OR SPEC. SHEET FOR SPECIFIC VOLTAGES, OR CONTROLS SUPPLIED AND CONFIGURATION.
4. PUSHBUTTON SHOWN AS TYPICAL PILOT DEVICE.
5. TRANSFORMER PRIMARY CONNECTION DIAGRAMS ARE LOCATED ON INSIDE FRONT COVER OR ON DEVICE.

* COLOR CODE OF STANDARD PENDENT PUSHBUTTON WHEN SUPPLIED

FIELD WIRING TYP. (BY OTHERS)

| | | |
|---|--------------------|----------------|
| Autoquip 2010 COPYRIGHT RESERVED AUTOQUIP CORPORATION This drawing is the sole property of Autoquip Corp. and cannot be used for design and construction without permission of Autoquip Corp. | JOB NAME: | ORDER NO: |
| | REFERENCE DRAWING: | DRAWING TITLE: |
| APPROXIMATE WEIGHT: | DRAWN BY: | DATE: |
| QTY REQ'D: | PAGE: | REV: |
| ML | 3/6/02 | 1 OF 1 |
| DRAWING NUMBER: | 65700810 | SIZE: |
| A | 1 | A |

Electric Schematic; 5 HP / 208-230-460V / 3Ph

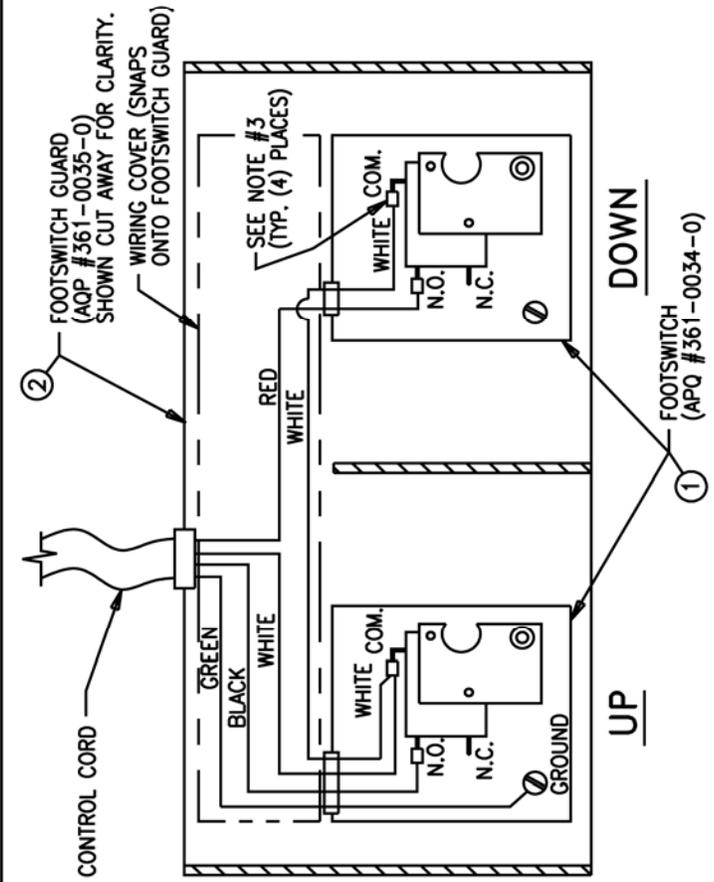


QUANTITY OF CYLINDERS AND VELOCITY FUSES DEPENDS ON MODEL OF LIFT.
 (1) VELOCITY FUSE PER CYLINDER.

HYDRAULIC SCHEMATIC

| | | | |
|--|---|---|--|
| © 2001 COPYRIGHT RESERVED AUTOQUIP CORPORATION | BOX 1058 AUTOQUIP GUTHRIE, OK 73044 | NO. _____ JOB NAME: _____ REVISIONS BY _____ DATE _____ AQJ NO. _____ | DRAWING TITLE HYD SCH W/UP STOP VLV |
| REFERENCE DWG. 658-2064-0C APPROXIMATE WEIGHT: _____ | | DRAWN BY: DATE: L0 6/11/97 QTY. REQUIRED: PAGE: 1 of 1 REV. DRAWING NUMBER: 657-5014-0 SIZE: A | |

Hydraulic Schematic; Heavy Duty Power Unit



NOTES:

- WARNING: ELECTRICAL HAZARD.** DISCONNECT POWER BEFORE WIRING THIS ACCESSORY.
- COLOR CODING SHOWN CORRESPONDS TO EXISTING 16/4 SO CONTROL CORD ON LIFT.
- USE 3/16" WIRE TABS FOR WIRING FOOTSWITCH.
- EXCHANGE BLACK AND RED WIRES IF DESIRED TO SWITCH "UP" AND "DOWN" FUNCTIONS.
- USE APPROPRIATE WIRE, CONDUIT, ETC. TO SATISFY LOCAL CODES (BY OTHERS).
- INSTALL FOOTSWITCH GUARD PER MANUFACTURER'S INSTRUCTIONS.
- INSTALLER TO APPLY "UP" AND "DOWN" LABELS TO TOP OF COVER AS REQUIRED.

STANDARD FOOTSWITCH ASSEMBLY - 93
(TOP VIEW WITH TOP COVERS OF FOOTSWITCHES REMOVED)

CONTROLLED ISSUE DRAWING:
LOG AND NOTIFY PRODUCTION SERVICES
IMMEDIATELY IF REVISED OR IF ISSUED
WITHOUT A JOB NUMBER.

| | | |
|---------------------------|------|-----------|
| NO. | REV. | DATE |
| 1 | | PW 1/4/96 |
| ADDED NEW CAD TITLE BLOCK | | BY |
| MADE CONTROL ISSUE DWG. | | DATE |

| | | | | | | |
|---------------------|--|--------------------------------------|------|------|------|------------|
| JOB NAME: | | REV. | REV. | REV. | REV. | REV. |
| AUTOQUIP BOX 1058 | | 1 | 1 | 1 | 1 | 1 |
| CIRCUIT, 0X 120V | | KIT - FOOTSWITCH - GUARDED (STD.-93) | | | | SIZE |
| DRAWING TITLE | | DRAWING NUMBER: | | | | 351-0338-0 |
| DRAWN BY: DWL | | DATE: 6/30/93 | | | | REV. |
| APPROXIMATE WEIGHT: | | PAGE: | | | | 1 of 1 |
| (2T) | | FRONT VIEW | | | | REV. |

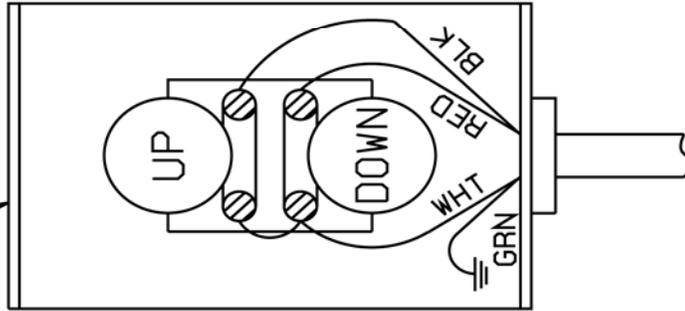
AUTOQUIP BOX 1058
CIRCUIT, 0X 120V
DRAWING TITLE
DRAWN BY: DWL
DATE: 6/30/93
APPROXIMATE WEIGHT:
(2T)

© COPYRIGHT RESERVED
AUTOQUIP CORPORATION
1996
This drawing is the sole property of Autoquip Corp. and cannot be used for design & construction without permission of Autoquip Corp.

TOLERANCES UNLESS OTHERWISE SPECIFIED:
FRACTIONS: +/- 1/32
DECIMALS: .X +/- .1
ONE PLACE .XX +/- .05
TWO PLACE .XXX +/- .010
THREE PLACE .XXXX +/- .010
ANGLES: +/- 1/2°
BREAK ALL SHARP EDGES:
.010 MAX. x 45° CHAMFER

Guarded Footswitch Assembly

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



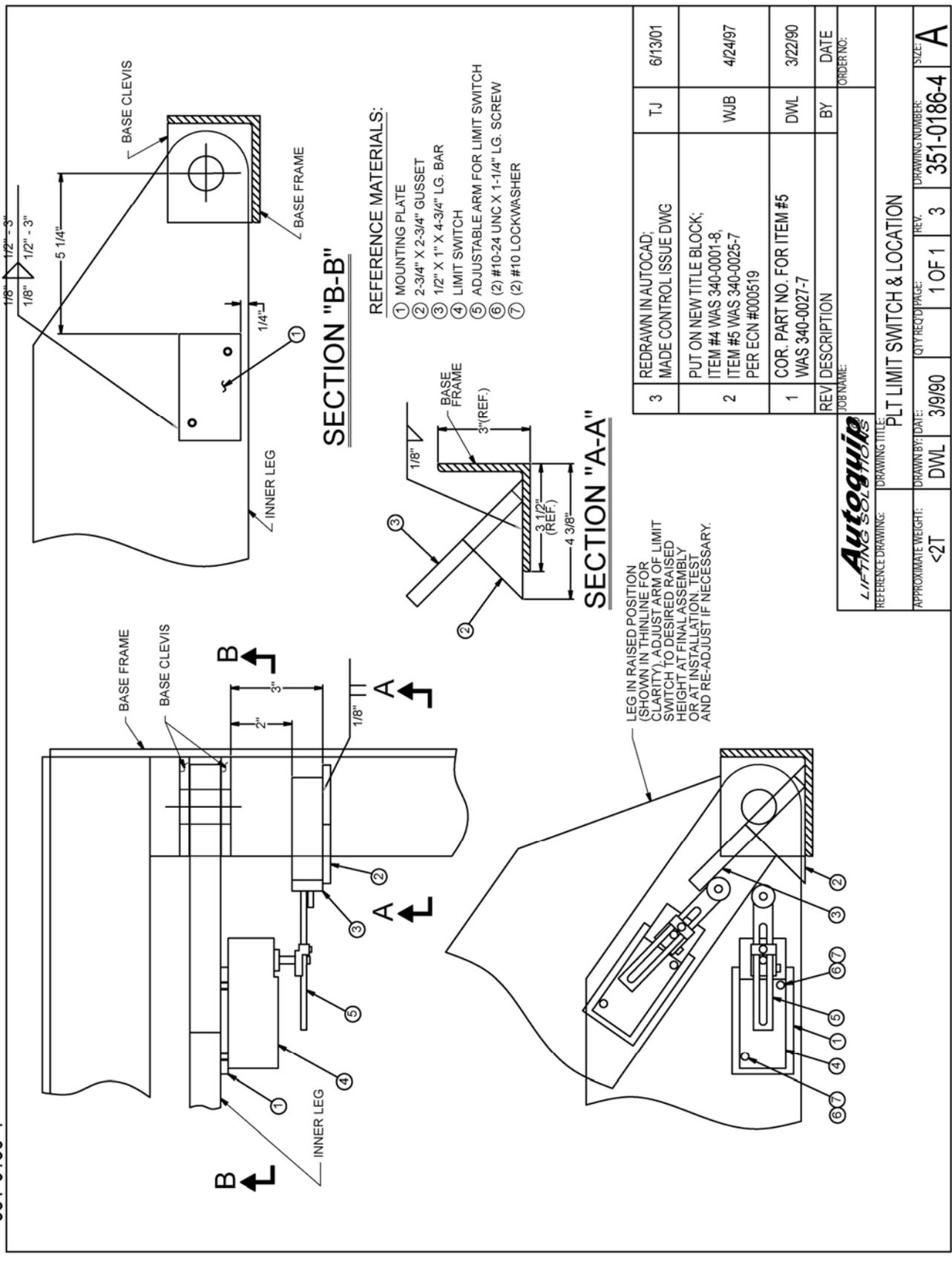
NOTES:

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.)

| | | | | | |
|--|--|---|----------------------------|--|----------|
| © 2000 COPYRIGHT RESERVED AUTOQUIP CORPORATION | | REV. 1008 CORRECTED OR REPLACED BY 889-3111-9078 | NO. 1 | | DATE |
| REFERENCE DWG. | | DRAWING TITLE | REV. 1 | | DATE |
| APPROXIMATE WEIGHT: (2T) | | DRAWN BY: SC | JOB NAME: | | BY |
| | | DATE: 3/23/88 | QTY. REQUIRED: 1 | | ACQ. NO. |
| | | | PAGE: 1 of 1 | | |
| | | | DRAWING NUMBER: 658-0734-9 | | |
| | | | SIZE: A | | |
| 1 REDRAWN IN CAD. CWG 8/21/00 | | | | | |

Pushbutton Assembly

351-0186-4



REFERENCE MATERIALS:

- ① MOUNTING PLATE
- ② 2-3/4" X 2-3/4" GUSSET
- ③ 1/2" X 1" X 4-3/4" LG. BAR
- ④ LIMIT SWITCH
- ⑤ ADJUSTABLE ARM FOR LIMIT SWITCH
- ⑥ (2) #10-24 UNC X 1-1/4" LG. SCREW
- ⑦ (2) #10 LOCKWASHER

LEG IN RAISED POSITION
(SHOWN IN THINLINE FOR
CLARITY). ADJUST ARM OF LIMIT
SWITCH TO DESIRED RAISED
HEIGHT AT FINAL ASSEMBLY
OR AT INSTALLATION, TEST
AND RE-ADJUST IF NECESSARY.

| | | | |
|---|---|-----|------------|
| 3 | REDRAWN IN AUTOCAD; MADE CONTROL ISSUE DWG | TJ | 6/13/01 |
| 2 | PUT ON NEW TITLE BLOCK; ITEM #4 WAS 340-0001-8, ITEM #5 WAS 340-0025-7 PER ECN #000519 | WJB | 4/24/97 |
| 1 | COR. PART NO. FOR ITEM #5 WAS 340-0027-7 | DWL | 3/22/90 |
| | REVISION DESCRIPTION | BY | DATE |
| | JOB NAME: | | ORDER NO.: |

Autoquip
LIFE-TIME SOLUTIONS

REFERENCE DRAWING: PLT LIMIT SWITCH & LOCATION
DRAWING TITLE: PLT LIMIT SWITCH & LOCATION

APPROXIMATE WEIGHT: <2T
DRAWN BY: DWL
DATE: 3/9/90

QTY REC'D/PAGE: 1 OF 1
DRAWING NUMBER: 351-0186-4
REV: 3
SIZE: A

Limit Switch Wiring Diagram

7. 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.



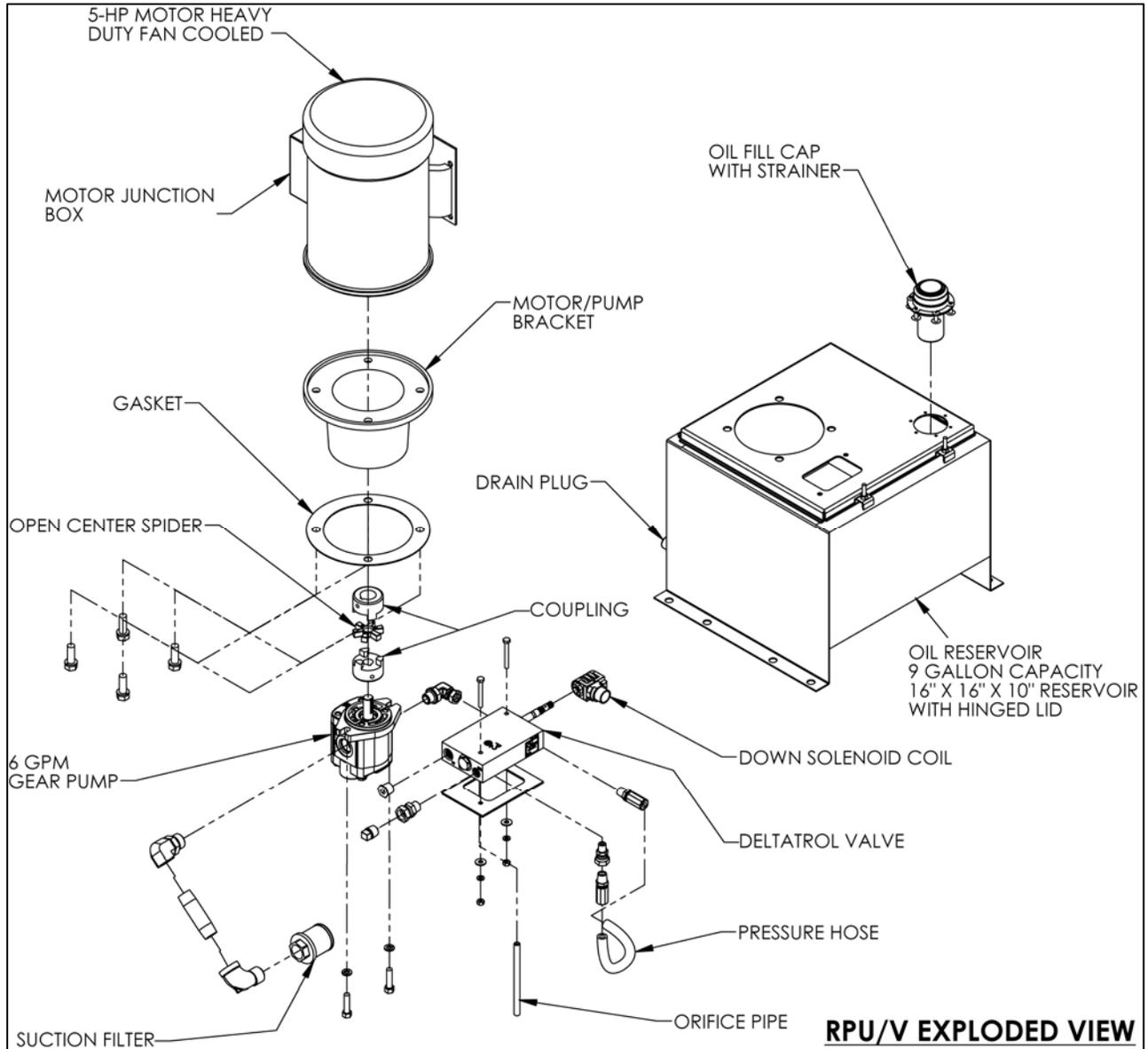
| PROBLEM | POSSIBLE CAUSE AND SOLUTION |
|----------------------------------|---|
| Lift Raises, Then Lowers Slowly. | <p>Down solenoid may not be seating. Remove solenoid coil and check. If lift does not hold with solenoid coil removed, remove and clean down valve cartridge or replaced as necessary.</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> |

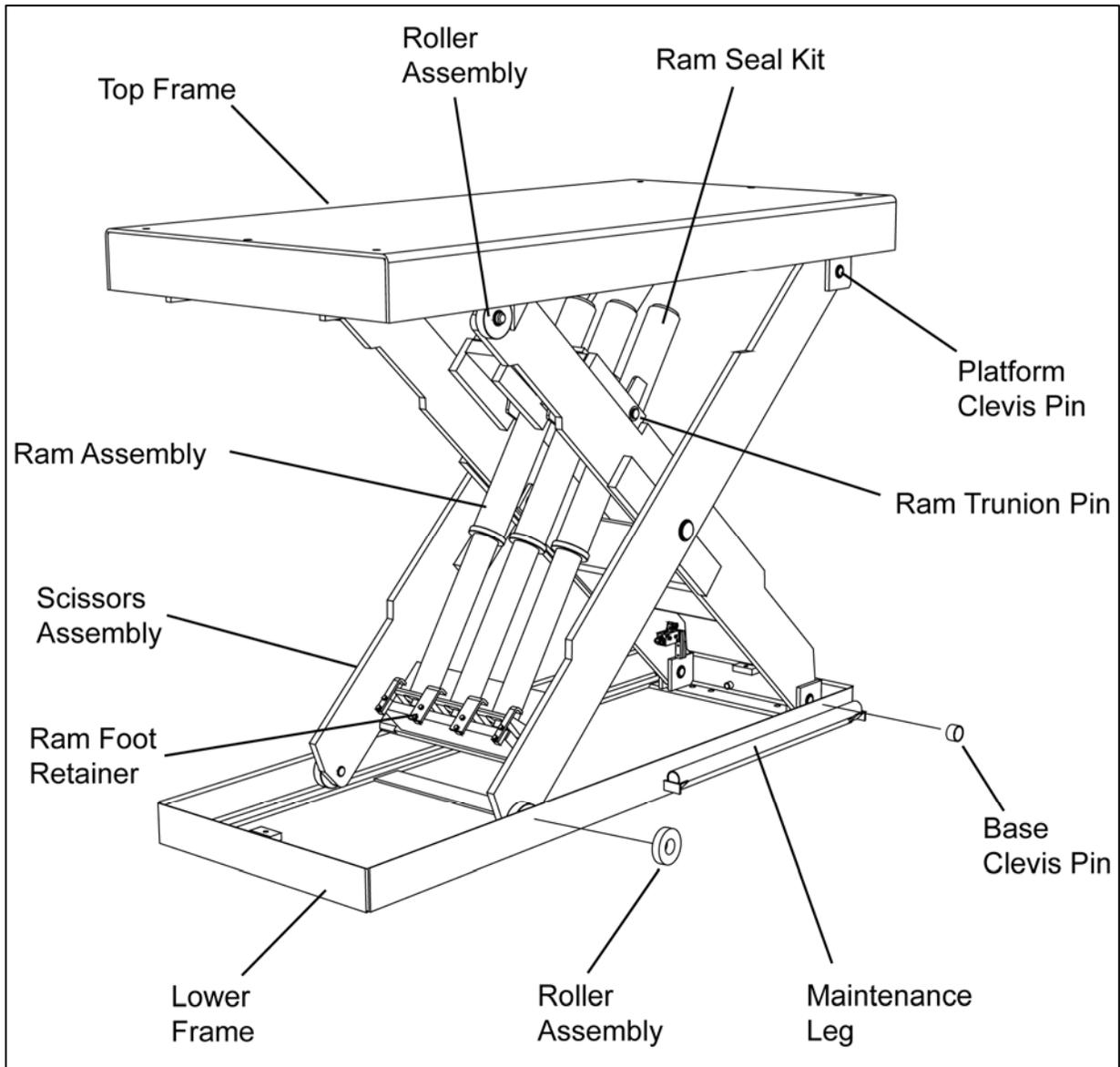
| PROBLEM | POSSIBLE CAUSE AND SOLUTION |
|-------------------|---|
| Lift Won't Lower. | <p>Solenoid coil may be incorrectly wired, burned out, not rated for the voltage, or line voltage may be excessively low. Check voltage near coil.</p> <p>Velocity fuse may be locked. Do not attempt to remove the velocity fuse. The following steps should be followed:</p> <ol style="list-style-type: none"> 1. Remove load from lift. Inspect all fittings, hoses, and other hydraulic components for leaks or damage. 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. 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. 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. <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 data-bbox="506 197 1425 331">Lower lift to collapsed 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 data-bbox="506 363 815 394">Check for oil starvation.</p> |
| Motor Labors Or Heats Excessively. | <p data-bbox="506 401 1442 499">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 data-bbox="506 531 1409 665">Most of <i>Autoquip's</i> 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 data-bbox="506 697 1425 766">Running against relief pressure unnecessarily due to over loaded lift or hitting physical stops.</p> <p data-bbox="506 798 1365 867">Failure to observe wiring diagram on nameplate for proper voltage connections.</p> <p data-bbox="506 898 1417 997">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> |

8. PARTS LISTS



5HP Heavy Duty Power Unit



Lift Parts Diagram

| Part # | Description |
|---------------|--|
| 52500162 | Pin, Ø1-1/2" x 3-5/16"L, (2) Ring Groove (Base/Platf Clevis) |
| 52500212 | Pin, Ø1-1/2" x 3-3/8"L, (1) Ring Groove (Roller) |
| 52500238 | Pin, Ø1-1/2" x 10"L, (2) Ring Groove (Trunnion) |
| 52500410 | Pin, Ø1-1/2" x "26-1/2L, (2) Ring Groove (Trunnion) |
| 52500808 | Pin, Ø2-3/4" x 7-1/4"L, (2) Ring Groove (Leg Axle) |
| 52600020 | Roller Assembly, Ø5-3/4" x 1-1/2" Thick, With Bushing |
| 20023966 | Bushing, 24DU24, Pressed into Ram Case for Ø1-1/2" Pin |
| 20023941 | Bushing, 24DU20, in Legs at Platform/Base Clevis |
| 24004509 | Washer, 1/64" Thick for Ø1-1/2" Pin |
| 24012502 | Washer, 1/16" Thick for Ø1-1/2" Pin |
| 24026008 | Washer, 1/8" Thick for Ø1-3/4" Pin |
| 24051015 | Washer, 1/32" Thick for Ø2-1/4" Pin |
| 24016510 | Washer, 3/32" Thick for Ø2-1/4" Pin |
| 24010001 | Washer, 1/32" Thick for Ø2-3/4" Pin |
| 24017006 | Washer, 3/32" Thick for Ø2-3/4" Pin |
| 45400249 | Retaining Ring for Ø1-1/2" Pin |
| 45400546 | Retaining Ring for Ø1-3/4" Pin |
| 45400173 | Retaining Ring for Ø2-1/4" Pin |
| 45400322 | Retaining Ring for Ø2-3/4" Pin |
| 42800052 | Cylinder assembly, 4" diameter bore x 12½" stroke |
| 42800029 | Cylinder assembly, 4" diameter bore x 19½" stroke |
| 42800037 | Cylinder assembly, 4" diameter bore x 21½" stroke |
| 42800045 | Cylinder assembly, 4" diameter bore x 24½" stroke |
| 42800003 | Cylinder assembly, 4" diameter bore x 26½" stroke |
| 48300837 | Foot for 4" Bore Ram |
| 22013503 | HHCS, 1-1/4-7 x 2-1/2", Nylok, For Ram Foot |
| 45501015 | Seal, U-Cup for 4" Bore Ram |
| 22300313 | Bleeder Screw for Ram |
| 45901014 | Bleeder Screw Seal for Ram |
| 44810182 | Ram Retainer Bar, Formed, 1" Wide |
| 44810174 | Ram Retainer Bar, Formed, 2-1/2" Wide |
| 46100012 | Hose, 3/8" x 12" with fittings |
| 46100020 | Hose, 3/8" x 18" with fittings |
| 46100038 | Hose, 3/8" x 24" with fittings |
| 46100046 | Hose, 3/8" x 30" with fittings |
| 46100053 | Hose, 3/8" x 36" with fittings |
| 46100061 | Hose, 3/8" x 48" with fittings |
| 49100079 | Hose, 3/8" x 60" with fittings |
| 46100087 | Hose, 3/8" x 72" with fittings |
| 46100095 | Hose, 3/8" x 84" with fittings |
| 46100103 | Hose, 3/8" x 96" with fittings |
| 46200101 | Hose, 1/2" x 60" with fittings |
| 46200127 | Hose, 1/2" x 72" with fittings |
| 46200135 | Hose, 1/2" x 84" with fittings |
| 46200200 | Hose, 1/2" x 96" with fittings |
| 46200143 | Hose, 1/2" x 120" with fittings |
| 16200325 | Hose, 1/2" x 144" with fittings |
| 46200176 | Hose, 1/2" x 240" with fittings |
| 46200382 | Hose, 1/2" x 360" with fittings |
| 41001040 | Up-Stop Valve |

| Part # | Description |
|---------------|---|
| 34100388 | Limit Switch, (1)NO & (1)NC |
| 34100470 | Lever Arm for Limit Switch |
| 41502840 | Hydraulic Flow Control Valve, 3 GPM, 3/8 FNPT |
| 41500133 | Hydraulic Flow Control Valve, 4-1/2 GPM, 3/8 FNPT |
| 41800749 | Hydraulic Velocity Fuse, 2-1/2 GPM, 3/8 FNPT |
| 41800681 | Hydraulic Velocity Fuse, 3 GPM, 3/8 FNPT |
| 41800574 | Hydraulic Velocity Fuse, 3-1/2 GPM, 3/8 FNPT |
| 41800930 | Hydraulic Velocity Fuse, 5 GPM, 3/8 FNPT |
| 41800591 | Hydraulic Velocity Fuse, 6-1/2 GPM, 3/8 FNPT |

| Part # | Remote 5hp Heavy Duty Power Unit |
|---------------|--|
| 30600449 | Motor, 5 HP, 208-460V, 60Hz, 3 PH, 3600 RPM |
| 40300162 | Pump, 2.25 GPM@1800 RPM |
| 47302905 | Mounting Bracket, Motor/Pump |
| 45975497 | Gasket, 8-5/8"OD x 6-1/4" ID x 1/16" Thick, With (4) Holes |
| 64000813 | Reservoir, Steel, 16" x 16" x 10" |
| 47700208 | Filler/Breather Cap |
| 22890164 | Rivet for Filler/Breather Cap |
| 20000030 | Jaw Coupling, 7/16" Bore |
| 20000154 | Jaw Coupling, 1-1/8" Bore |
| 20000162 | Coupling Spider, Buna N |
| 41050960 | Deltatrol II Valve Block, Includes Down Valve & 4-1/2 GPM Flow Control |
| 41050048 | Gasket for Deltatrol Block, 4" x 6" x 1/8" Thick, Large Hole |
| 46100900 | Hose, 3/8 x 14", 1/4 MNPTS X 3/8 MNPTS |
| 47700075 | Suction Strainer, 3/4 FNPT |

| Part # | Universal Power Unit Components |
|---------------|---|
| 46000410 | 1/4" ID x 1/2" OD Push-On Hose (Specify Length) |
| 46200267 | 1/2" ID x 3/4" OD Push-On Hose (Specify Length) |
| 28080700 | Spring Clamp for 1/2" OD Hose |
| 28080695 | Spring Clamp for 3/4" OD Hose |
| 36202161 | Pendant UP/DN Pushbutton on 20' Cord |
| 35194090 | Wall Mount UP/DN Pushbutton on 20' Cord |
| 35194091 | Wall Mount UP/DN Pushbutton (With Magnet) on 20' Cord |
| 35103380 | Foot Switch and Guard |
| 32701290 | Down Solenoid Coil, 24 VAC (Down Valve on Pump) |
| 32701300 | Down Solenoid Coil, 115 VAC (Down Valve on Pump) |
| 32701350 | Down Solenoid Coil, 24 VDC (Down Valve on Pump) |
| 32701370 | Down Solenoid Coil, 120 VAC (Down Valve on Deltatrol Block) |
| 32701380 | Down Solenoid Coil, 24 VAC (Down Valve on Deltatrol Block) |
| 32701391 | Down Solenoid Coil, 24 VDC (Down Valve on Deltatrol Block) (w/ Din Connector) |
| 35150145 | Control Panel, 5 HP, 208/230V, 3PH, 115VAC Controls |
| 35150140 | Control Panel, 5 HP, 208/230V, 3PH, 24VAC Controls |
| 35150155 | Control Panel, 5 HP, 460V, 3PH, 115VAC Controls |
| 35150150 | Control Panel, 5 HP, 460V, 3PH, 24VAC Controls |
| 35152720 | Control Panel, 5 HP, 460V, 3PH, 24VDC Controls |