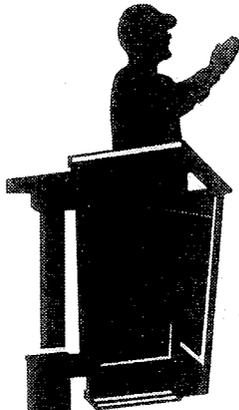


# UpRight

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**UL-24/31/33/38/40**

**PORTABLE PERSONNEL LIFTS**

A black silhouette of the base of the portable personnel lift, showing four legs and a central platform. The lift is positioned on a dark, textured ground surface.

**Service &  
Parts Manual**

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## Introduction

### HOW TO USE THIS MANUAL

This manual is divided into 7 sections. The first page of each section is marked with a black tab that lines up with one of the thumb index tabs on the right side of this page. You can quickly find the first page of each section without looking through the table of contents which follows this page. The section number printed at the top corner of each page can also be used as a quick reference guide.

### SPECIAL INFORMATION

<b>⚠ DANGER ⚠</b>
Indicates the hazard or unsafe practice <i>will</i> result in severe injury or death.

<b>⚠ WARNING ⚠</b>
Indicates the hazard or unsafe practice <i>could</i> result in severe injury or death.

<b>⚠ CAUTION ⚠</b>
Indicates the hazard or unsafe practice could result in <i>minor</i> injury or property damage.

NOTES: Give helpful information.

### WORKSHOP PROCEDURES

**CAUTION:** Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. Please note that this manual does contain warnings and cautions against some specific service methods which could cause personal injury, or could damage a machine or make it unsafe. Please understand that these warnings cannot cover all conceivable ways in which service, whether or not recommended by UpRight, Inc., might be done, or of the possible hazardous consequences of each conceivable way, nor could UpRight Inc. investigate all such ways. Anyone using service procedures or tools, whether or not recommended by UpRight Inc., must satisfy themselves thoroughly that neither personal safety nor machine safety will be jeopardized.

All information contained in this manual is based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice. No part of this publication may be reproduced, stored in retrieval system, or transmitted, in any form by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. This includes text, figures and tables.

<b>Introduction &amp; Specifications</b>	<b>1.0</b>
General description and machine specifications.	

<b>Machine Preparation</b>	<b>2.0</b>
Information on preparation for use & shipment, forklifting, transporting and storage.	

<b>Operation</b>	<b>3.0</b>
Operating instructions and safety rules.	

<b>Maintenance</b>	<b>4.0</b>
Preventative maintenance and service information.	

<b>Troubleshooting</b>	<b>5.0</b>
Causes and solutions to typical problems.	

<b>Schematics</b>	<b>6.0</b>
Schematics and valve block diagram with description and location of components.	

<b>Illustrated Parts Breakdown</b>	<b>7.0</b>
Complete parts lists with illustrations.	

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## NOTES

## 1.0 Introduction

### PURPOSE OF EQUIPMENT

The UpRight Personnel Lift is a portable lift designed to elevate personnel and light equipment to work above the ground.

### GENERAL DESCRIPTION

There are three basic UpRight Personnel Lift models: the UL-24/30, UL-31/37 and the UL-38/44. Besides these basic models, two additional models, UL-33/39 and UL-40/46, are available when the UL-31/37 and UL-38/44 are equipped with an Additional Height Kit.

The UL-24 is the only machine covered in this manual that was offered as Fourth and Fifth Generation models. To determine which generation machine you have, refer to the following serial number ranges:

4th Generation - 8359 to 9286

5th Generation - 9300 to current

All models consist of a Platform, Mast and Chassis.

### Platform

The cage is an aluminum structure supported by a steel cage support attached to the mast. It has 42-inch high railings with midrail, six (6) inch toeboards and a midrail entrance bar at the front of the cage. **DO NOT** operate the UpRight Lift without the midrail arm properly hooked over the entrance.

### Mast

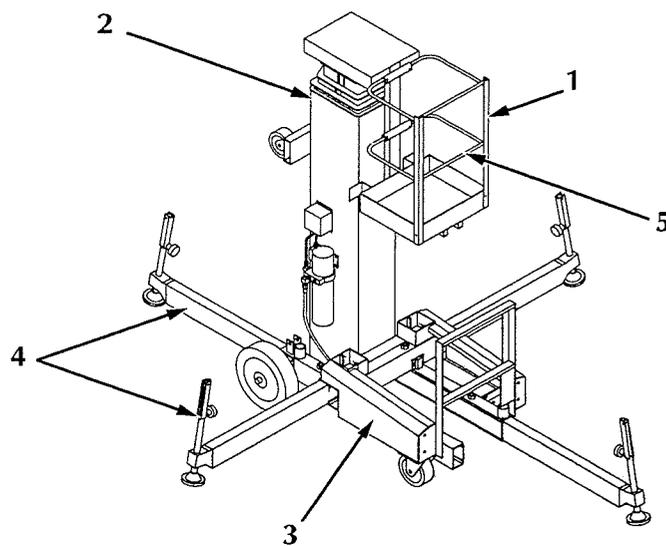
The Platform is raised and lowered by a six stage Mast Assembly that is raised and lowered by a single stage lift cylinder. An AC or DC electric motor powers a hydraulic pump which in turn energizes the cylinder. Solenoid operated valves control the raising and lowering of the Platform.

### Chassis

The Chassis is a steel structure that consists of the first stage or 'can' of the Mast Assembly, control box (for AC Models), Battery Charger (for DC Models), and AC or DC Motor, hydraulic pump and reservoir, 12v battery (for DC Models), a tilt back assembly (standard on all 31/37 and 38/44 machines, optional on 24/30 machines), and four Outriggers.

### Operator Controls

Controls consist of a Lower Emergency Stop Switch, Upper Emergency Stop Switch, Key Switch and three (3) push button controls: Power On, Up, Down. The Power On button must be pushed along with the Up or Down button to operate the machine. An Emergency Lowering Valve is located on the power unit at the base of the machine.



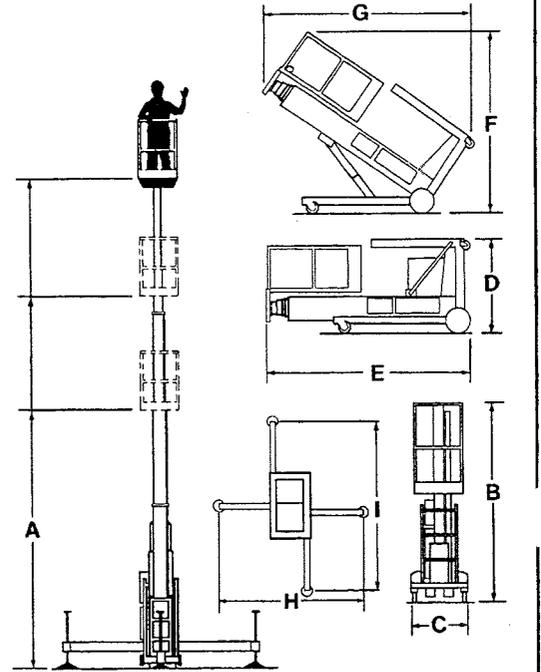
1. Platform
2. Mast
3. Chassis
4. Outriggers
5. Midrail Entrance Bar

Figure 1-1: UL Portable Personnel Lift

# Introduction & Specifications

Table 1-1: Specifications

ITEM	UL-24/30	UL-31/37	UL-33/39	UL-38/44	UL-40/46
<b>Platform Height</b> (A) Maximum	24 ft.	31 ft.	33 ft.	38 ft.	40 ft.
<b>Maximum Platform Capacity</b>	300 lbs.	300 lbs.	300 lbs.	300 lbs.	300 lbs.
<b>Maximum Number of Occupants</b>	1	1	1	1	1
<b>Stored Dimensions</b>					
(B) Vertical Height	79.5 in.	100 in.	100 in.	115 in.	115 in.
(C) Width	29 in.	29 in.	29 in.	29 in.	29 in.
(D) Depth/Horizontal Height	45 in.	45 in.	45 in.	45 in.	45 in.
(E) Horizontal Length	79.5 in.	98 in.	98 in.	115 in.	115 in.
(F) Diagonal Storage Height	72 in.	73.5 in.	84.5 in.	79 in.	90 in.
(G) Diagonal Storage Length	87 in.	107 in.	107 in.	120 in.	120 in.
<b>Base Dimensions with Outriggers extended</b>					
(H) Side to Side	95.5 in.	132 in.	132 in.	132 in.	132 in.
(I) Front to Back	110 in.	146 in.	146 in.	146 in.	146 in.
<b>Weight</b>					
Without Outriggers & Screwjacks	560 lbs.	703 lbs.	703 lbs.	744 lbs.	744 lbs.
Set of Outriggers & Screwjacks	52 lbs.	60 lbs.	60 lbs.	60 lbs.	60 lbs.
Additional Weight for D.C. Option	53 lbs.	53 lbs.	53 lbs.	53 lbs.	53 lbs.
<b>Guardrail Height</b>	42 in.	42 in.	42 in.	42 in.	42 in.
<b>Toe Board Height</b>	6 in.	6 in.	6 in.	6 in.	6 in.
<b>Lift System/Max. System Voltage</b> A.C. Electric Motor D.C. Electric Power Source	120 VAC 60 HZ or 220 VAC 50/60 HZ 1-12 Volt Battery, Grp. 27 105 Amp/Hrs., Min. Wt. 52 lbs.				
<b>Battery Charger</b>	Automatic, 120 VAC 60 Hz or 220 VAC 50HZ Output: 10 Amps, 12 Volts D.C.				
<b>Maximum Hydraulic System Pressure</b>	2000 PSI				



\*Specifications subject to change without notice.

Read, understand and follow all safety rules and operating instructions before attempting to operate the machine.

## 2.1 Preparation for Use

### **⚠ WARNING ⚠**

STAND CLEAR when cutting the metal banding to avoid being cut when the banding snaps back.

1. Remove the metal banding securing the battery (DC machines only) and the machine to the crate.
2. Remove the battery from the crate (DC machines only). The battery weighs 52 lbs. (115 kg), lift properly (or have someone help you) to prevent back injury.
3. Disassemble the crate.
4. Remove any other banding or straps from the machine.
5. Using a forklift raise the machine up far enough to remove the base of the crate (Figure 2-1). Lower the machine.

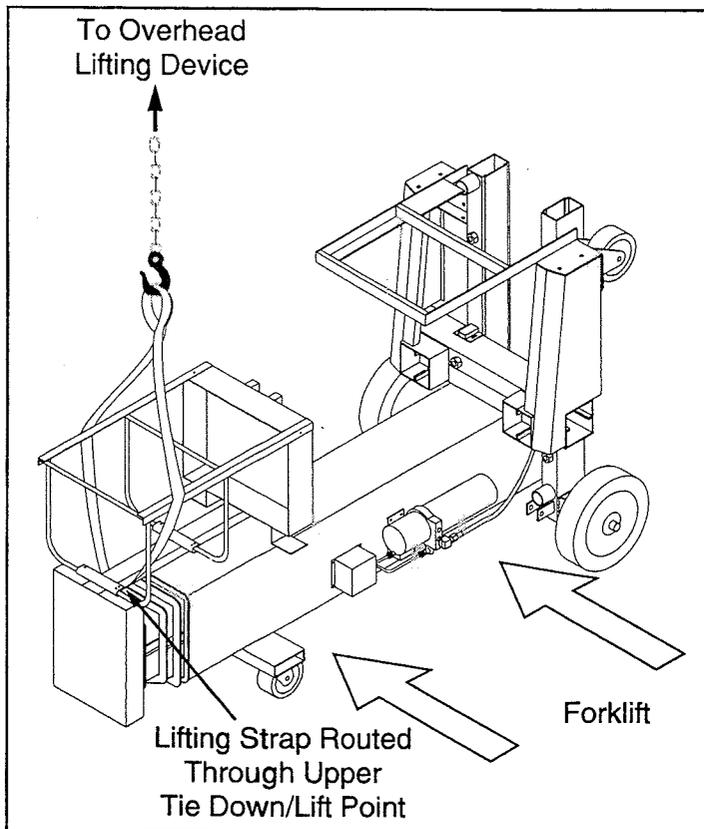


Figure 2-1: Lifting UL Lifts

6. Attach a lifting strap to the upper tie down/lift point (Figure 2-2) and a suitable lifting device. With the lifting device raise the machine to its vertical position.
7. For DC machines, install the battery in the battery box and connect the battery cables to the terminals. Close and secure the battery box. If necessary plug the Battery Charger cord into a grounded A.C. outlet of proper voltage and frequency and charge the battery.

## 2.2 Preparation For Shipment

The following instructions are for shipping the machine by a freight carrier.

For instructions on transporting UL Lifts short distances by pick-up or small flat bed truck see *Section 3.5*.

1. Fully lower the Cage.
2. Disconnect the battery negative (-) lead from the battery terminal (Figure 2-1).
3. Band the Cage Assembly to the Chassis.
4. Attach a lifting strap to the upper lift point and a suitable lifting device (Figure 1). Lower the machine with the lifting device to the horizontal position.
5. Using a forklift raise the machine up far enough to place the base of the crate under the machine. Lower the machine onto the base of the crate.
6. Band the machine to the crate.
7. Assemble the rest of the crate around the machine and band together.

## 2.3 Lifting Work Platform (Figure 2-1)

Lower the machine into a horizontal position with a suitable lifting device ( i.e. overhead crane or forklift). Use a forklift of adequate capacity, see the weight specification in *Table 1-1*, to lift the machine.

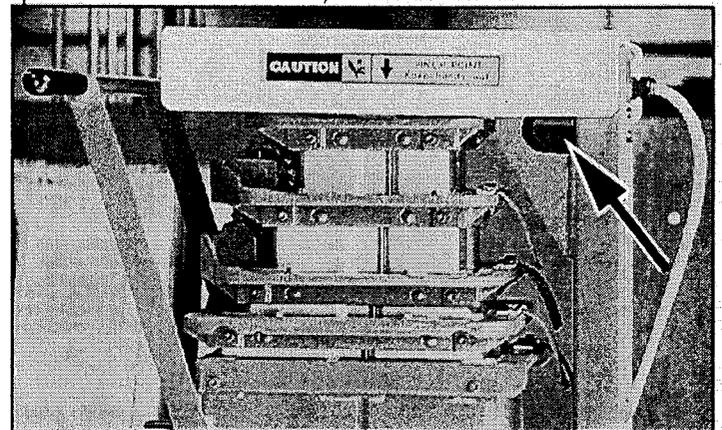


Figure 2-2: Upper Tie Down/Lift Point

## 2.4 Storage

No preparation is required for normal storage. Regular maintenance per *Table 4-1* should be performed. If the Lift is to be placed in long term storage (dead storage) use the following preservation procedure.

### **PRESERVATION**

1. Clean painted surfaces. If the paint surface is damaged, repaint.
2. Check the level of the hydraulic oil with the cage fully lowered. Unscrew the reservoir cap/dipstick, oil should be visible on the dipstick. Add ISO #46 hydraulic oil if necessary.

### **BATTERY**

Remove the battery and place in alternate service.

## 3.0 Introduction

### GENERAL FUNCTIONING

The AC or DC electric motor directly drives a hydraulic pump. The oil flow is directed to the lift or down functions by electrically activated solenoid valves.

### DESIGN FEATURES

The UL-Series Lifts have the following features to ensure safe operation:

- Interlocks are provided on each outrigger socket that prevent Platform elevation if the Outriggers are improperly installed.
- The Power and UP or Down buttons must be depressed for the controls to operate, preventing inadvertent actuation of the controls.
- The Chassis and Platform Controls are equipped with an Emergency Stop Switch for stopping all powered functions.
- An Emergency Lowering Valve is provided to lower the Platform in the event electrical power is lost.
- Dual chain lift system for added safety.
- An Orbit Level is provided on the Chassis Base so the machine can be properly leveled.

## 3.1 Safety Rules and Precautions



### WARNING



All personnel shall carefully read, understand and follow all safety rules, operating instructions and the Scaffold Industry Association's MANUAL OF RESPONSIBILITIES before performing maintenance on or operating any UpRight Aerial Work Platform.

#### Before using the UL-Series Lift:

**NEVER** elevate Platform unless all four (4) Outriggers have been properly installed. All outrigger screwjack pads must be in solid contact with a firm surface before the Platform is elevated.

**NEVER** attempt to move the UpRight Lift with people or materials on the Platform or with the Platform elevated.

**NEVER** operate the machine within ten feet of power lines. **THIS MACHINE IS NOT INSULATED.**

**NEVER** sit, climb, or stand on the Platform guardrails or midrail.

**NEVER** elevate Platform without first leveling the base.

**NEVER** use ladders, planks or other devices to increase the height of the Platform.

**NEVER** attach overhanging loads to the Platform or increase the Platform size.

**NEVER** elevate the Platform if it contains more than one person or more than the rated load of 300 pounds.

**LOOK** up, down and around for overhead obstructions and electrical conductors.

**NEVER** change operating or safety systems.

**NEVER** use the UL-24/30 Outriggers with any of the other UL models.

**CLOSE** the bar across opening after entering Platform.

**INSPECT** the machine thoroughly for cracked welds, loose or missing hardware, hydraulic leaks, damaged control or power cables and loose wire connections.

**NEVER** use the UpRight Lift as a freight or personnel elevator.

**NEVER** recharge batteries near sparks or open flame; batteries that are being charged emit highly explosive hydrogen gas.

**AFTER USE** secure the work Platform against unauthorized use by turning key switch off and removing key.

**NEVER** replace any component or part with anything other than original UpRight replacement parts without the manufacturer's consent.

## 3.2 Controls and Indicators

The controls and indicators for operation of the UL-Series Lifts are shown in Figure 3-1. The name and function of each control and indicator are listed in Table 3-1. The index numbers in the figure correspond to the index numbers in the table. **The operator shall know the location of each control and indicator and have a thorough knowledge of the function and operation of each before attempting to operate the unit.**

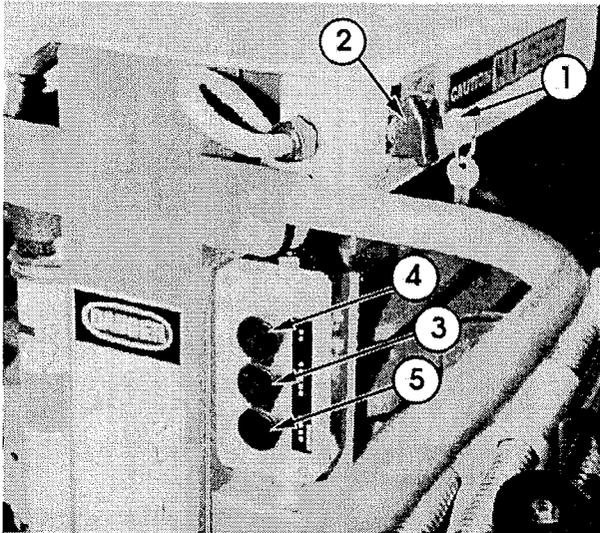
Table 3-1: Controls and Indicators

### Platform Controls

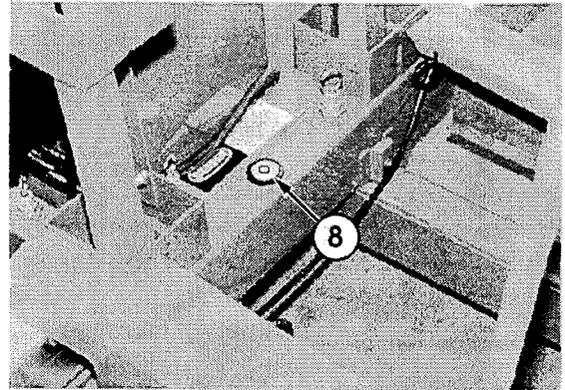
INDEX NO.	NAME	FUNCTION
1	Key Switch	Turn switch to <b>ON</b> to provide power to the Controls and to <b>OFF</b> to cut power to the Controls.
2	Emergency Stop Switch	Push red switch guard down to cut off power to all functions (OFF). Push red switch guard up and push toggle switch up to provide power (ON).
3	Power On Button	Push this button along with either the Up or Down Button to lift or lower the Platform.
4	Up Button	Push this button along with the Power Button to lift the Platform.
5	Down Button	Push this button along with the Power Button to lower the Platform.

### Chassis

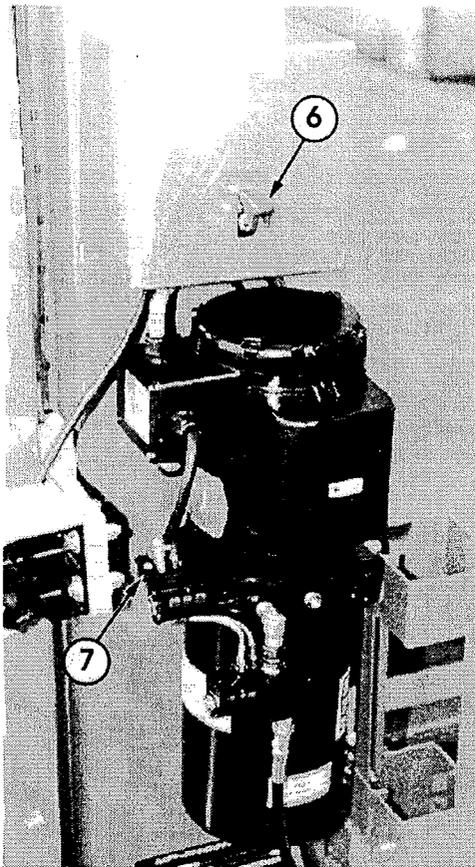
INDEX NO.	NAME	FUNCTION
6	Emergency Stop Switch	Push red switch guard down to cut off power to all functions (OFF). Push red switch guard up and push toggle switch up to provide power (ON).
7	Emergency Lowering Valve	Turn the knob counterclockwise to open the valve and lower the Platform. Turn the knob clockwise to close the valve for normal operation.
8	Orbit Level	After properly installing the outriggers level the base of the machine by adjusting the outriggers until the bubble is within the center circle.
9	Battery Charger	After plugging the charger in turn the timer dial to 12, the ammeter will indicate DC charging current. Charger turns off when the timer returns to 0. <b>Do not turn the dial to HOLD or select 6 Volt with the Voltage selector Switch.</b>



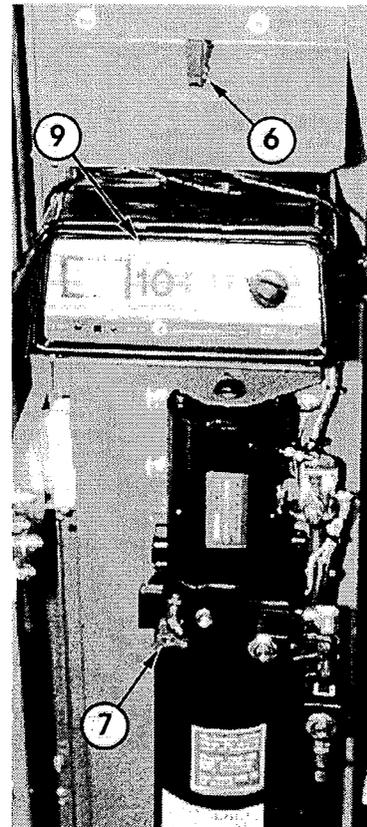
Platform Controls



Orbit Level, Chassis



AC Machines



DC Machines

Figure 3-1: Controls and Indicators

### 3.3 Pre-Operation Inspection

**NOTE:** Carefully read, understand and follow all safety rules and operating instructions. Perform the following steps each day before use.



#### WARNING



**DO NOT** perform service on or in the mast assembly area with the platform elevated.

1. Inspect all four Outriggers for bends, cracks, condition of the screwjacks and screwjack pads.
2. Check the level of the hydraulic oil with the platform fully lowered. Unscrew the reservoir cap/dipstick, oil should be visible on the dipstick. Add ISO #46 hydraulic oil if necessary.
3. Check that fluid level in the battery is correct (See Section 4.2).
4. Verify battery is charged.
5. Check that A.C. extension cord has been disconnected from charger (DC units only).
6. Check that all guardrails are in place and all fasteners are properly tightened.
7. Carefully inspect the entire lift for damage such as cracked welds or structural members, loose or missing parts, oil leaks, damaged cables or hoses, loose connections and wheel damage.
8. Check the accuracy of the Orbit Level.
9. Perform the **Safety/Interlock Test**, Section 3.5.

### 3.4 Outrigger Installation

1. Remove the outriggers from storage location.
2. Insert into designated outrigger socket in base (Figure 3-2).
3. Push in until locking pin engages hole in end of outrigger. Pull outward on outrigger to ensure engagement.
4. Repeat the above steps for all four outriggers. Make sure all four (4) locking pins are engaged.
5. Level the base, centering the bubble in the Orbit Level on the base by adjusting the screwjacks at the end of each outrigger (Figure 3-3). **DO NOT** release the tension on an outrigger, by turning counterclockwise, to level base.
6. **All four (4) screwjack pads must be in solid contact with a firm surface before the platform is elevated.**

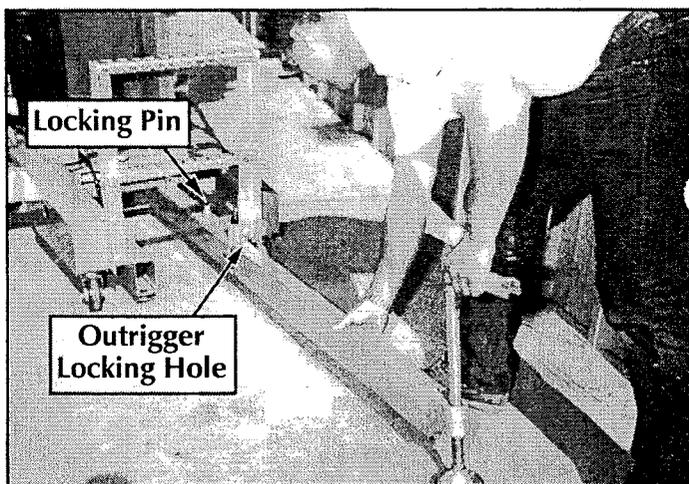


Figure 3-2: Inserting Outrigger

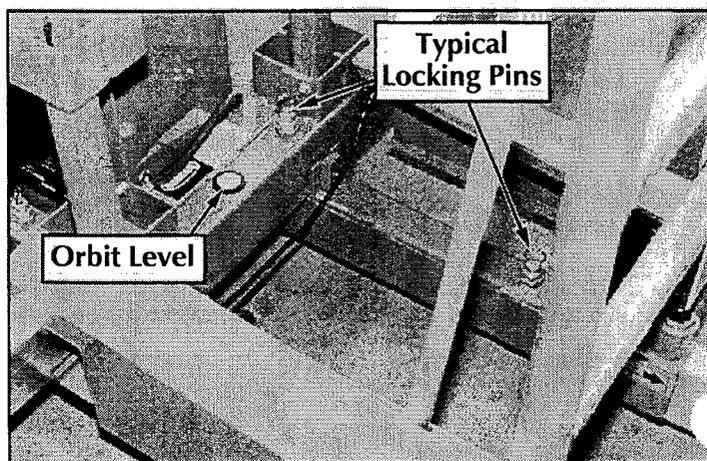


Figure 3-3: Base

## ALTERNATE OUTRIGGER CONFIGURATION

### **! DANGER !**

This alternate configuration shall be used **only** when it is necessary to operate the unit next to a wall and there is insufficient distance to the wall to allow full outrigger length.

The platform **must not** be elevated higher than the wall.

All four (4) outriggers must be installed. When it is necessary to operate the UL Lift next to a wall or in a corner, the following alternate outrigger positions may be used.

1. After all four (4) outriggers have been properly installed, slide the outrigger adjacent to the wall(s) all the way into the socket by lifting the ring on the locking pin (Figure 3-2) and pushing in on the outrigger.
2. Position the unit next to the wall or corner and extend the outrigger adjacent to the wall(s) as far as possible.
3. Level the base, centering the bubble in the Orbit Level on the base by adjusting screwjacks at end of each outrigger (Figure 3-3).
4. **All four (4) screwjack pads must be in solid contact with a firm surface before the platform is elevated.**

## 3.5 Safety/Interlock Test

### **! DANGER !**

Never perform these tests from the platform. Keep clear of the Platform as it raises and lowers.

1. Properly install all four (4) outriggers and level base.
2. While standing on the ground attempt to raise the Platform with first the Chassis Emergency Stop Switch and then the Platform Emergency Stop Switch in the OFF position. The Platform should **not** elevate.
3. While standing on the ground elevate the Platform slightly and then open the Emergency Lowering Valve to verify it's operation. Close the Emergency Lowering Valve.
4. Release the tension on one (1) outrigger by turning the screwjack counterclockwise, until the screwjack pad is off the ground.
5. While standing on the ground activate the control panel to elevate the platform. Machine should not elevate.
6. Re-level the base with all four (4) outriggers then repeat step 2 with another outrigger.
7. Repeat steps 4 , 5 & 6 until all four (4) outriggers have been tested.

**DO NOT use a machine that elevates when: either Emergency Stop Switch is in the OFF position; the tension has been released on an outrigger or will not lower with the Emergency Lowering Valve. Machine must be repaired before using.**

### 3.6 Operation

**Note:** Before operating lift ensure that pre-operation and safety/interlock inspection has been completed, any deficiencies have been corrected and the operator has been thoroughly trained on this machine.

1. Read, fully understand and follow these operation instructions.
2. Be sure the unit has been properly set up with all four (4) outriggers properly installed and the base leveled.

**NOTE:** Platform will not elevate unless all four outriggers are properly installed and screwjack pads are firmly in contact with floor.

3. Plug unit into the proper power source (A.C. units only.).
4. Turn ON Lower Emergency Stop Switch located above the Power Unit (Figure 3). Open switch guard and push switch toward guard. In the event of an emergency push the switch guard to stop the unit.
5. Mount the platform using the access ladder.
6. Close bar across entrance after mounting platform.
7. Check for overhead obstructions.
8. Turn ON Platform Emergency Stop Switch, located on the right side of the pinch shield (Figure 3-1). Open switch guard and push switch toward guard. In the event of an emergency push the switch guard to stop the unit.
9. Turn ON Key Switch located on the right side of the pinch shield.
10. Push both the middle and top buttons, on the Control Box, at the same time to elevate the platform. Release the buttons to stop.
11. Check that the area below the platform is clear before lowering the platform.
12. Push both the middle and bottom buttons at the same time to lower the platform. Release the buttons to stop.
13. After use, secure unit from unauthorized use by turning Key Switch OFF and remove key.

### EMERGENCY LOWERING



#### WARNING



If the platform should fail to lower, NEVER climb down the mast.

Ask a person on the ground to open the Emergency Lowering Valve to lower the platform. This valve is located on the Power Unit mounted on the mast.

1. Open the Emergency Lowering Valve by turning the knob counterclockwise.
2. To close turn the Emergency Lowering Valve clockwise.

Once the platform is fully lowered, be certain that the Emergency Lowering Valve is closed again. The platform will not elevate if the Emergency Lowering Valve has not been closed.

### AFTER USE EACH DAY

1. Ensure that the platform is fully lowered.
2. Park the machine on level ground, under cover.
3. Secure against vandals, children or unauthorized operation by turning the Key Switch to OFF and remove the key.

## 3.7 Loaders

### LARGE LOADERS AND UNITS WITH TILT BACK ASSEMBLY

If your Loader looks like the one in Figure 3-4, follow these directions, if not refer to the following section on Compact Loaders, page 3-8:

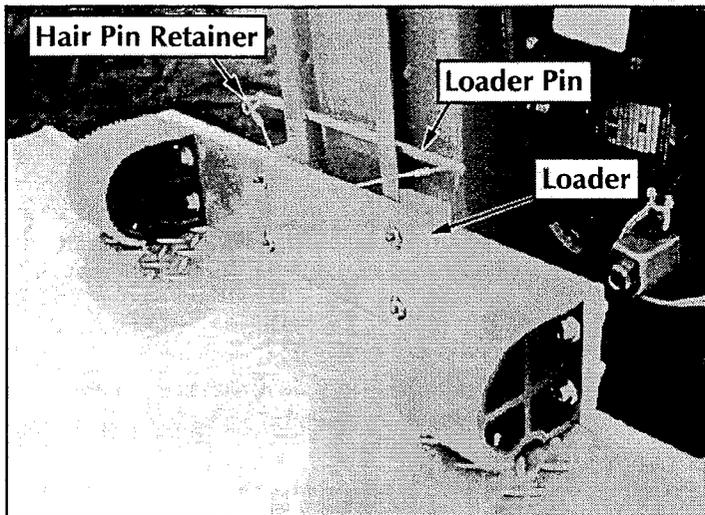


Figure 3-4: Large Loader, in load position

### Loading

1. Slide the loader, located on the back of the unit, up past the top set of holes and engage the loader pin through the top set of holes below the loader.
2. Position the unit so the mast comes in contact with the vehicle bed.

### ⚠ WARNING ⚠

Make sure Loader fully engages tailgate or vehicle bed to prevent machine from falling.

3. Remove the loader pin and slide the loader down until it comes into contact with the vehicle bed, Figure 3-4. Then replace the loader pin in the first available set of holes **above** the loader and secure with the hair pin retainer.
4. Insert an outrigger into the front outrigger socket until the locking pin engages the hole in the end of the outrigger.
5. Lift upward on the end of the outrigger using the loader as a pivot until the unit rotates to a horizontal position in the vehicle bed, Figure 3-5).

6. Push the base of the unit towards the front of the vehicle bed, Figure 3-6. The machine will slide on the loader until the rear wheels contact the vehicle bed. The unit may then be rolled on the rear wheels and the casters located near the top of the unit.
7. Remove the outrigger in the front socket and put it in the outrigger storage location.
8. Secure the unit with suitable strength rope or tie straps using the tie down holes located on the base of the unit and at the top of the cage support member, Figure 3-7.

### ⚠ CAUTION ⚠

To prevent serious damage to the mast assembly, do not place rope or tie downs across the mast assembly when securing the unit for transportation.



Figure 3-5: Tilting machine onto vehicle

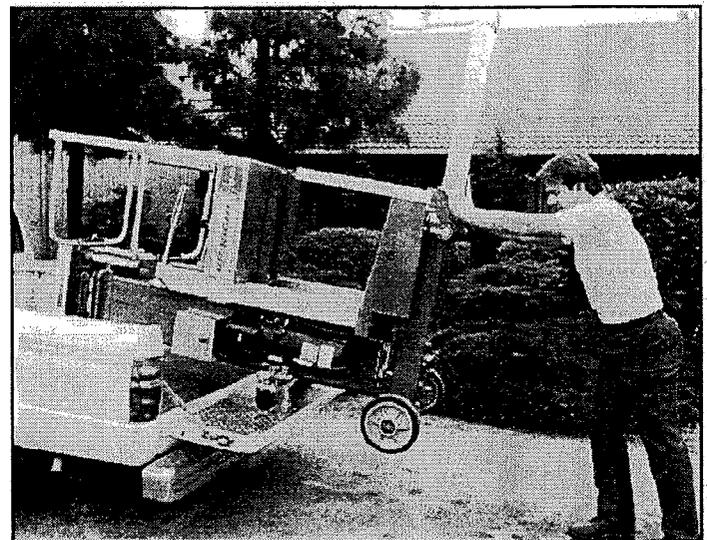


Figure 3-6: Pushing machine into transport position

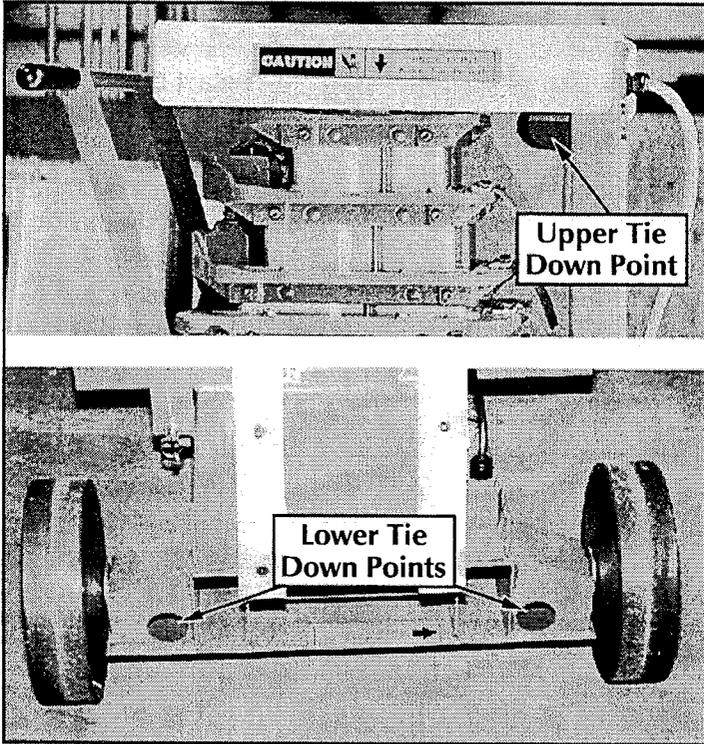


Figure 3-7: Tie Down Points

## Unloading

1. Unsecure the unit.
2. Insert the outrigger into the front outrigger socket until the locking pin engages the hole in the front end of the outrigger.
3. Roll the unit back until the rear wheels are off the edge of the tailgate or vehicle bed.
4. Pull downward on the outrigger, allowing the unit to slide on the loader. As the unit stops sliding on the loader, it will pivot on the loader to an upright position. Gradually counterbalance the unit's weight by applying an upward force on the outrigger. This allows the unit to settle gently on the wheels, avoiding undue impact loading on the unit.
5. Remove the front outrigger and put it in the outrigger storage location.

## COMPACT LOADERS ONLY

If your Loader looks like the one in Figure 3-8, follow these directions:

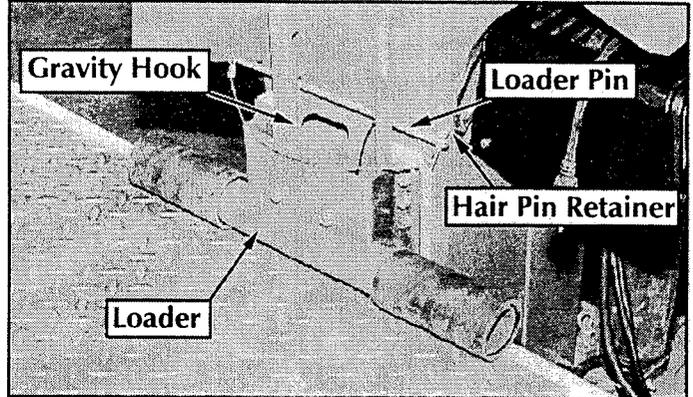


Figure 3-8: Compact Loader, in load position

## DC Models

Disconnect the battery plug and remove the battery from the cradle using the handles on either side of the battery, Figure 3-9.

<b>⚠</b>	<b>CAUTION</b>	<b>⚠</b>
<p>The battery weighs 52 lbs. (115 kg), lift properly (or have someone help you) to prevent back injury.</p>		

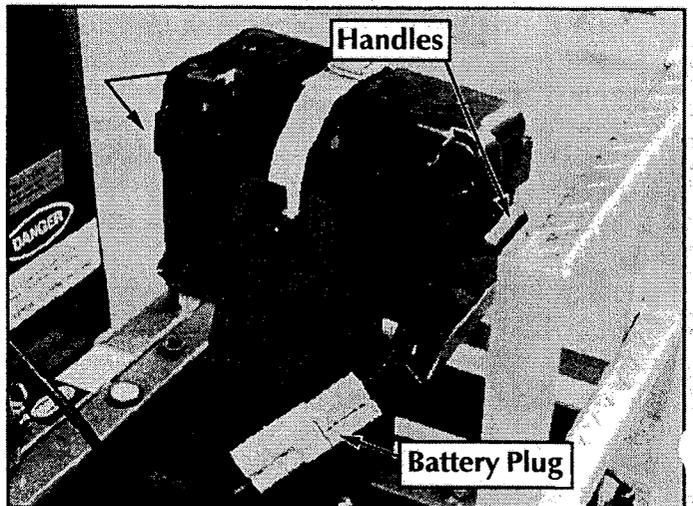


Figure 3-9: Battery (DC units only)

## Loading

1. Engage the loader pin through the top set of holes in the loader channel.
2. Secure the loader to the loader pin with the gravity hook.
3. Position the unit so the mast comes in contact with the vehicle bed.

### ⚠ WARNING ⚠

Make sure Loader fully engages tailgate or vehicle bed.

4. Release the gravity hook and slide the loader down until it comes into contact with the vehicle bed or tailgate, Figure 3-8. Then place the loader pin in the **first** available set of holes **above** the loader and secure with the hair pin retainer.
4. Insert the T-handle into the front socket until the locking pin engages the hole in the end of the T-handle, Figure 3-10.
5. Lift upward on the T-handle using the loader as a pivot until the unit rotates to a horizontal position in the vehicle bed, Figure 3-11.
6. Push the base of the unit towards the front of the vehicle bed, Figure 3-12. The machine will slide on the loader until the wheel ramp contacts the vehicle bed and raises the wheels onto the bed. The unit may then be rolled on the rear wheels and casters located near the top of the unit.
7. Remove the T-handle in the front socket and put it in the storage location.

8. Secure the unit with suitable strength rope or tie straps using the tie down holes located on the base of the unit and at the top of the cage support member, Figure 3-7.



### CAUTION



To prevent damage to the mast assembly, do not place rope or tie downs across the mast assembly when securing the unit for transportation.

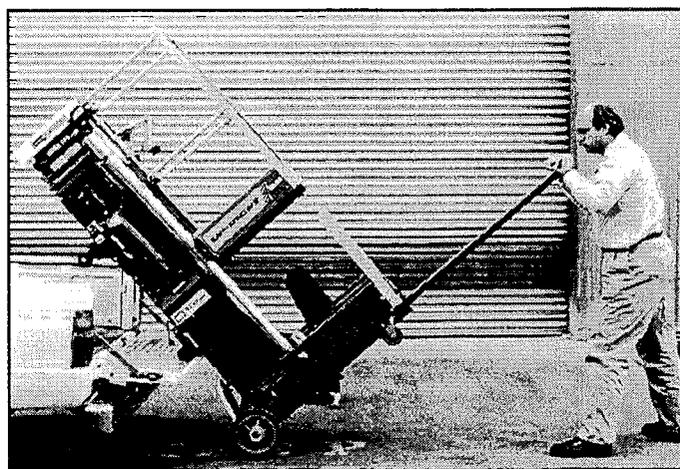


Figure 3-11: Tilting machine onto vehicle

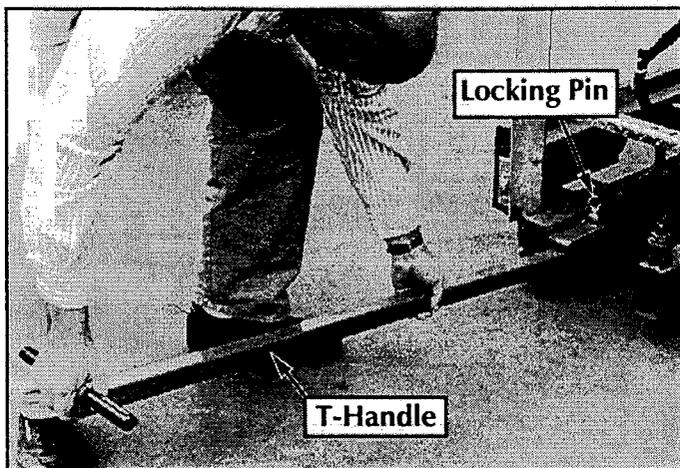


Figure 3-10: T-Handle installation



Figure 3-12: Pushing machine into transport position

### Unloading

1. Unsecure the unit.
2. Insert the T-handle into the front socket until the locking pin engages the hole in the front end of the T-handle.
3. Roll the unit back until the rear wheels are off the edge of the tailgate or vehicle bed.
4. Pull downward on the T-handle, allowing the unit to slide on the loader. As the unit stops sliding on the loader, it will pivot on the loader to an upright position. Gradually counterbalance the unit's weight by applying an upward force on the T-handle. This allows the unit to settle gently on the wheels, avoiding undue impact on the unit.
5. Remove the T-handle and put it in the storage location.

### DC Models

Replace the battery, being careful when lifting, and reconnect the battery plug making certain it is fully engaged.

### 3.8 Passage Through A Doorway

The UL-31/37, UL-33/39, UL-38/44 and UL-40/46 are equipped with a castered rear Tilt Back assembly, the UL-24/30 can have this assembly as an option. When the unit is tilted back onto this support frame, the overall height can be reduced to allow the unit to pass through a standard doorway (except UL-40/46).

### LOWERING

#### ⚠ CAUTION ⚠

Before tilting the UpRight Lift onto the rear Tilt Back assembly be sure the retaining pin is fully inserted with the hair pin retainer installed and the cylinder assembly is fully extended.

**DO NOT** drop Tilt Back frame.

Keep out from under Tilt Back frame and machine when tilting.

1. Be sure area is clear of personnel and obstructions.
2. While holding Tilt Back frame, remove the retaining pin and lower the caster frame until the hole in the cylinder assembly aligns with the upper mounting bracket pin hole, Figure 3-13.
3. Attach the cylinder assembly to the upper mounting bracket using the retaining pin and hair pin retainer, Figure 3-13.

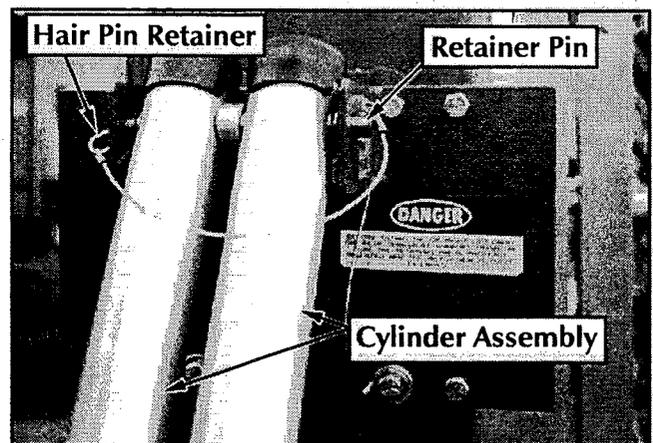


Figure 3-13: Cylinder Assembly secured with retaining pin

# Operation

4. Place Tilt Back Handle in tilt/lift position by releasing locking pin and pulling handle out of the Tilt Back assembly until the locking pin engages, Figure 3-14.
5. Push down on the Tilt Back Handle until the unit comes to rest on the rear transport support frame. As the mast tilts back, counterbalance the machine's weight by increasing upward force on end of Tilt Back Handle, Figure 3-14. This allows machine to gently come to rest on Tilt Back casters.
6. For all machines **except** the UL-24/30, pull down on the handle on the back of the mast to compress the cylinder assembly, Figure 3-15.

For the UL-24/30, equipped with Tilt Back, remove the Interlock Clip, Figure 3-16, from the tube and use the cage top guardrail to pull down and compress the cylinder assembly.

7. Return Tilt Back Handle to storage position making sure locking pin engages.



Figure 3-15: Compressing Cylinder Assembly (except UL-24/30)



Figure 3-14: Lowering and raising machine with Tilt Back Handle

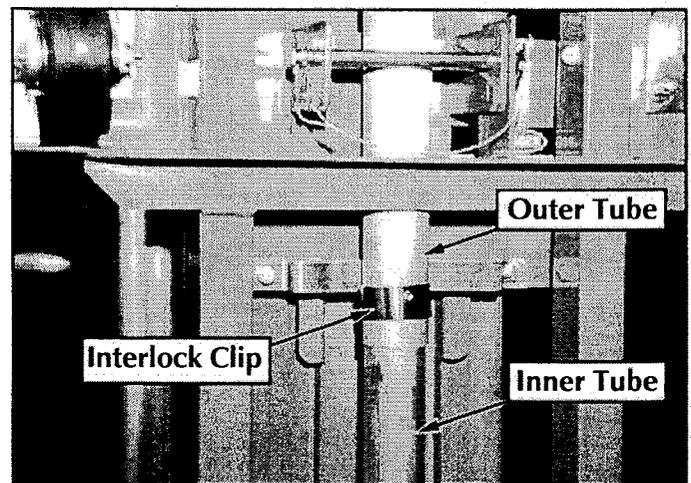


Figure 3-16: UL-24/30 Tilt Back Interlock Clip

## RAISING

1. For all machines **except** UL-24/30, lift up on mast handle to extend cylinder assembly, Figure 3-17.  
For the UL-24/30, equipped with Tilt Back, position Interlock Clip, Figure 3-16, over hole in outer tube and use the cage top guardrail to lift up and extend the cylinder assembly until the Interlock Clip engages the inner tube.
2. Fully extend the Tilt Back Handle until the locking pin engages.
3. Lift up on the Tilt Back Handle. As the mast approaches vertical, counterbalance machine's weight by increasing the downward force on end of Tilt Back Handle, Figure 3-14. This allows machine to settle gently on the front casters.
4. Return Tilt Back Handle to storage position making sure locking pin engages.
5. While holding Tilt Back frame, remove retaining pin and raise Tilt Back assembly to the stowed position. Secure with the retaining pin, making sure pin is fully inserted and hair pin retainer installed.

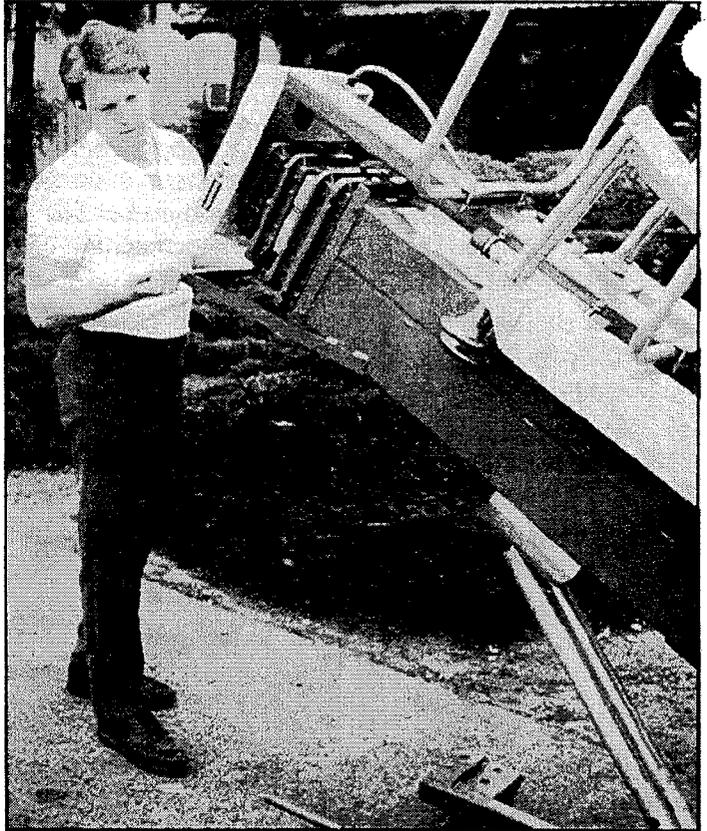


Figure 3-17: Extending Cylinder Assembly

## 4.0 Introduction

This section contains instructions for the maintenance of the UL-Series Lifts. Procedures for the operational checkout adjustment, scheduled maintenance, and repair/removal are included.

Referring to *Section 3.0* will aid in understanding the operation and function of the various components and systems of the UL-Series Lifts and help in diagnosing and repair of the machine.

### **SPECIAL TOOLS**

The following is a list of special tools that are required to perform certain maintenance procedures. These tools may be purchased from your dealer.

Description	Part Number
Tee Adapter	20733-002
Adapter	14048-001
Adapter	11923-003
Pressure Gauge, 0-3000 psi	14124-030
Cylinder Seal Assist Tool	62477-000
Gland Nut Wrench	62521-000
Strap Wrench	62482-000
Tie Rod Tensioner (2 req'd.)	62738-000
Tensioner Spacer	17415-000
Tensioner Bracket (2 req'd.)	62739-000

## 4.1 Preventative Maintenance (Table 4-1)

The complete inspection consists of periodic visual and operational checks, together with all necessary adjustments to assure proper performance. Daily inspection will prevent abnormal wear and prolong the life of all systems. The inspection and maintenance schedule is to be performed at regular intervals. Inspection and maintenance shall be performed by personnel who are trained and familiar with mechanical and electrical procedures. Complete descriptions of the procedures are in the text following the table.

 <b>WARNING</b> 	
Before performing preventative maintenance familiarize yourself with the operation of the machine.	
Never enter the area below the Platform when the Platform is elevated.	

The Preventative Maintenance Table has been designed to be used for machine service and maintenance repair. **Please copy the following page and use the Preventative Maintenance Table as a checklist when inspecting a machine for service.**

## Preventative Maintenance Table Key

### Interval

Daily=each shift or every day  
 30d=every month or 30 days  
 3m=every 3 months  
 1y=every year

Y=Yes/Acceptable

N=No/Not Acceptable

R=Repaired/Acceptable

## Preventative Maintenance Report

Date: _____	
Owner: _____	
Model No: _____	Serial No: _____
Serviced By: _____	
Service Interval: _____	

**Table 4-1: Preventative Maintenance**

COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Battery System (DC Units only)	Check electrolyte level	Daily			
	Check battery cable condition	Daily			
	Charge batteries	Daily			
	Check charger condition & operation	Daily			
	Check specific gravity	30d			
	Clean exterior	3m			
Hydraulic Oil	Clean terminals	3m			
	Check oil level	Daily			
Hydraulic System	Drain and replace oil (ISO #46)	1y			
	Check for leaks	Daily			
	Check hose connections	30d			
Emergency Hydraulic System	Check for exterior wear	30d			
	Open the emergency lowering valve and check for serviceability	Daily			
	Check for hose fitting leaks	Daily			
	Wipe clean	30d			
Hydraulic Pump	Check for leaks at mating surfaces	30d			
	Check mounting bolts for proper torque	30d			
	Check condition & operation	Daily			
Controls	Check condition & operation	Daily			
Control Cable	Check the exterior of the cable for pinching, binding or wear	Daily			
Platform Deck and Rails	Check fasteners for proper torque	Daily			
	Check welds for cracks	Daily			
	Check condition of deck	Daily			
Elevating Assembly	Check entry way closure	Daily			
	Inspect for external damage, dents, loose rivets or cracks	Daily			
	Check chains and sheaves for wear	3m			
Chassis	Inspect and adjust sequence straps	30d			
	Check hoses for pinch or rubbing points	Daily			
	Check welds for cracks	Daily			
	Check casters for damage	Daily			
Lift Cylinder	Check component mounting for proper torque	3m			
	Check for leaks	Daily			
	Check fittings for proper torque	30d			
Entire Unit	Perform pre-operation inspection	Daily			
	Check for and repair collision damage	Daily			
	Lubricate	3m			
	Check fasteners for proper torque	3m			
Labels	Check for corrosion-remove and repaint	3m			
	Check for peeling, missing, or unreadable labels & replace	Daily			

## 4.2 Battery Maintenance (DC units only)

Electrical energy for the motor is supplied by a 12 volt battery. Proper care and maintenance of the battery and motor will ensure maximum performance from the lift.

<b>⚠ WARNING ⚠</b>
<p>Hazard of explosive gas mixture. Keep sparks, flame and smoking materials away from batteries.</p> <p>Always wear safety glasses when working with batteries.</p> <p>Battery fluid is highly corrosive. Rinse away any spilled fluid thoroughly with clean water.</p>

### BATTERY INSPECTION AND CLEANING

Check battery fluid level daily, especially if work platform is being used in a warm, dry climate. If required add distilled water only, use of tap water with high mineral content will shorten battery life.

<b>⚠ CAUTION ⚠</b>
<p>If battery water level is not maintained, battery will not fully charge, creating a low discharge rate which will damage Motor/Pump unit and void warranty.</p>

Battery should be inspected periodically for signs of cracks in the cases, electrolyte leakage and corrosion of the terminals. Inspect cables for worn spots or breaks in the insulation and for broken cable terminals.

Clean battery that show signs of corrosion at the terminals or onto which electrolyte has overflowed during charging. Use a baking soda solution to clean the battery, taking care not to get the solution inside the cells. Rinse thoroughly with clear water. Clean battery and cable contact surfaces to a bright metal finish whenever a cable is removed.

### BATTERY CHARGING (Figure 4-1)

Charge battery at end of each work shift or sooner if battery has been discharged.

<b>⚠ CAUTION ⚠</b>
<p>Charge battery in a well ventilated area.</p> <p>Do not charge battery when the lift is in an area containing sparks or flames.</p> <p>Permanent damage to battery will result if battery is not immediately recharged after discharging.</p> <p>Never leave charger operating unattended for more than two days.</p> <p>Never disconnect cables from battery when charger is operating.</p> <p>Keep charger dry.</p>

When night air temperatures fall below 65°F (18°C) a battery charged in an unheated area should be placed on charger as soon after use as possible. Under such conditions a 4 hour equalize charge once a week in the early afternoon will improve state of charge and battery life.

1. Check battery fluid level. If electrolyte level is lower than  $\frac{3}{8}$  in. (10 mm) above plates add distilled water only.
2. The battery charger is located on the left side of the mast. Connect extension cord (12 gauge conductor minimum and 50 ft. (15 m) in length maximum) to the charger plug. Connect other end of extension cord to properly grounded outlet of proper voltage and frequency.
3. Turn the timer dial fully clockwise to "12", the ammeter will indicate DC charging current. Charger turns off when the timer returns to "0".

**Do not turn the dial to HOLD or select 6 Volt with the Voltage Selector Switch.**

To determine if the battery is fully charged turn the timer dial clockwise until the charger comes on. The ammeter should indicate a charging rate of 1 (one) amp or less for a fully charged battery.

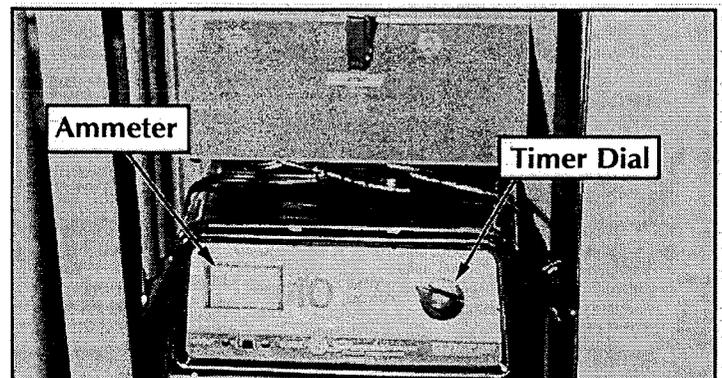


Figure 4-1: Battery Charger

## BATTERY CELL EQUALIZATION

The specific gravity of the electrolyte in the battery cells should be equalized monthly. To do this, charge batteries as outlined in Battery Charging. After this initial charge, check the electrolyte level in all cells and add distilled water as necessary. Then, turn the charger on for an additional eight hours. During this time, the charging current will be low (four amps) as cells are equalizing.

After equalization, the specific gravity of all cells should be checked with a hydrometer. The temperature corrected specific gravity in this state should be 1.260. If any corrected readings are below 1.230, the battery should be replaced.

Do not check the specific gravity in a cell to which water has just been added. If there is not enough electrolyte in a fully charged cell to obtain a sample for the hydrometer, add water and continue charging for one to two hours to adequately mix the water and electrolyte.

## 4.3 Lubrication

Refer to Figure 4-2 for location of items that require lubrication service. Use an aerosol chain lubricant for all components to be lubricated that require oil.

### REAR WHEEL BEARINGS

Apply lubricant into bearing area.

### CASTERS

Using a grease gun apply 1 or 2 shots of multi-purpose bearing grease to each zerk fitting. Swivel casters have two zerk fittings, one at the wheel bearing and one at the swivel.

### CHAINS

1. Ensure that Platform is fully lowered.
2. Apply enough aerosol chain lubricant to exposed section of chain to allow lubricant to run down chain.

### SCREW JACKS

Apply a moderate amount of aerosol chain lubricant to each screwjack assembly.

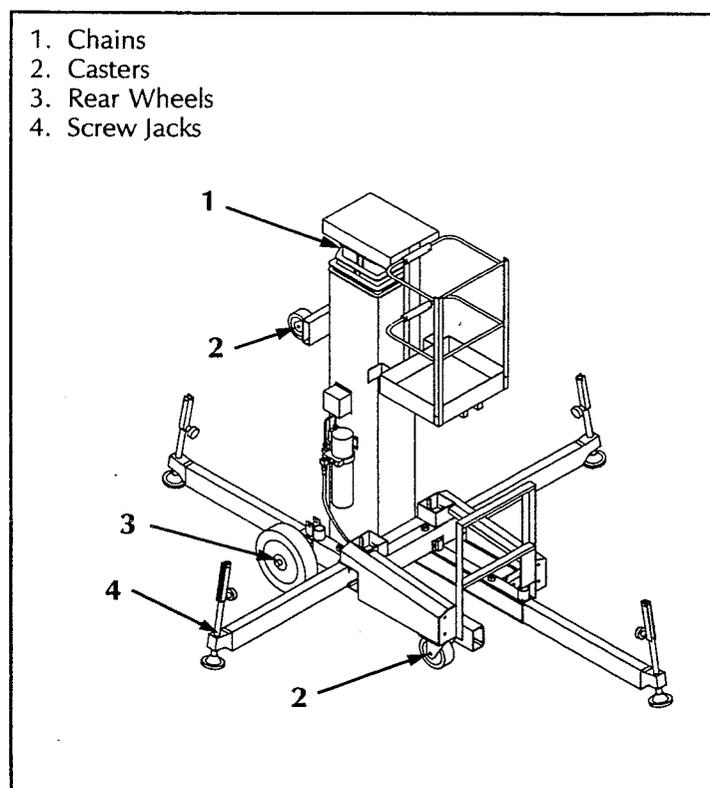


Figure 4-2: Lubrication

## HYDRAULIC OIL RESERVOIR (Figure 4-3)

Verify the Platform is fully lowered.

1. Remove hydraulic reservoir from pump by removing four screws and four grip plates.
2. Provide a suitable container (reservoir has a 1.5 gallon (5.7 l) capacity) and dispose of hydraulic fluid properly, contact your local oil recycler.

**Note: Ensure o-ring is in place on pump when installing hydraulic reservoir.**

3. Reinstall hydraulic reservoir to pump assembly with grip plates and screws.
4. Fill hydraulic reservoir through the dipstick hole with ISO #46 hydraulic fluid. Hydraulic reservoir has a 1.5 gallon (5.7 l) capacity.

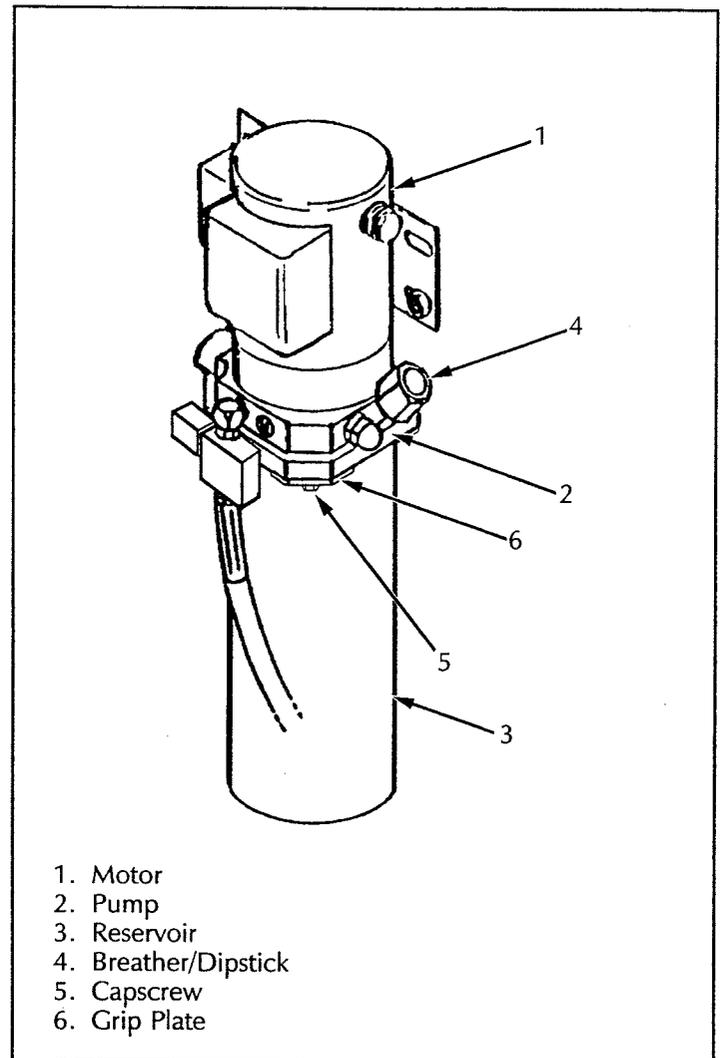


Figure 4-3: Hydraulic Power Unit

### 4.4 Setting System Relief Pressure (Figure 4-4)

Check the hydraulic system pressure whenever the pump or relief valve has been serviced or replaced.

#### ⚠ WARNING ⚠

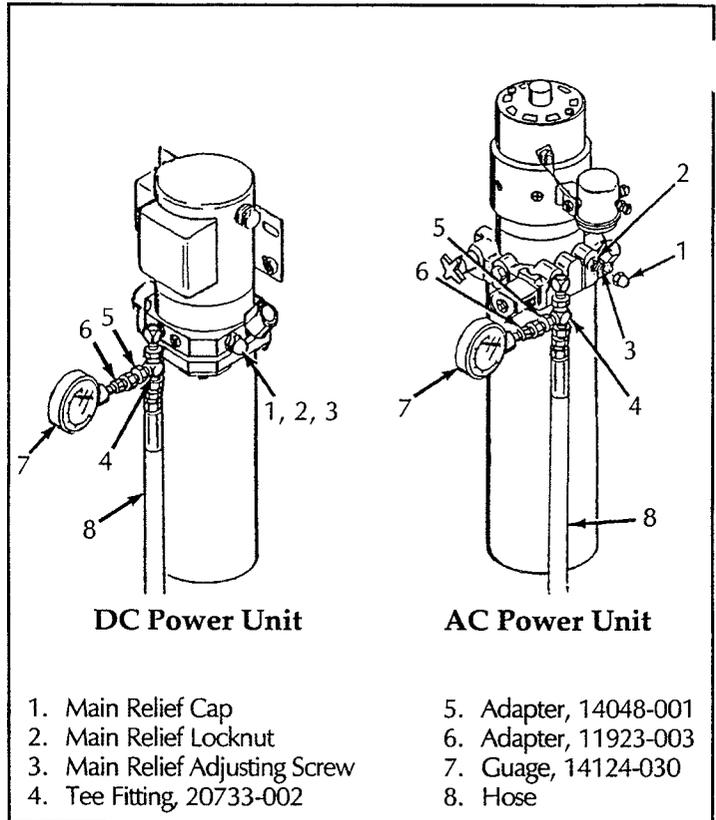
The hydraulic oil may be of sufficient temperature to cause burns. Wear safety gloves and safety glasses when handling hot oil.

The oil in the hydraulic system is under very high pressure which can easily cause severe cuts. **Obtain medical assistance immediately if cut by hydraulic oil.**

1. Operate the hydraulic system for 3-5 minutes to warm the hydraulic oil.

**Note: Installing pressure gauge requires special adapter fittings, refer to Special Tools list, Section 4.0.**

2. Unscrew hose and plug to prevent foreign material from entering hydraulic system.
3. Install special tee and adapter fittings (P/N: 20733-002, 14048-001 and 11923-003) and 14124-030, 0-3000 PSI pressure gauge.
4. Unplug hose and attach to special tee adapter fitting.
5. Properly install all four (4) outriggers and level base of the machine.
6. Remove the acorn nut cap and loosen the locknut on the Relief Valve and turn the adjusting screw counterclockwise several turns.
7. Place 300 lbs. on the platform.
8. Have an assistant standing on the ground or a suitable work platform push and hold the **POWER ON** and **UP** buttons. Slowly turn the adjusting screw clockwise until the platform raises smoothly (check gauge for pressure, should be approximately 1800 psi (124 Bar)).
9. Have your assistant lower the platform.
10. Remove the special adapter fittings and gauge and reconnect the hose.



**Figure 4-4: Relief Valve Adjustment**

## 4.5 Mast Assembly

### DISASSEMBLY

Using a suitable lifting device, lower the work platform into a horizontal position (Figure 4-5). If possible place the machine onto a sturdy work table using a forklift.

#### ⚠ WARNING ⚠

Never attempt to lower lift into a horizontal position without the use of a suitable lifting device, bodily injury or damage to the machine may result.

**NOTE:** Mark all components as they are removed so they can be reinstalled in the correct sequence and location.

### Cage Assembly Removal (Figure 4-6)

1. Extend elevating assembly slightly, open the Emergency Lowering Valve and pull on the cage guard-rail, to allow access to cage support mount.
2. Remove cage support screws, slide the cage support out of the sixth stage mast and set aside. It should not be necessary to remove the Pinch Shield. Be careful not to damage the control cable.

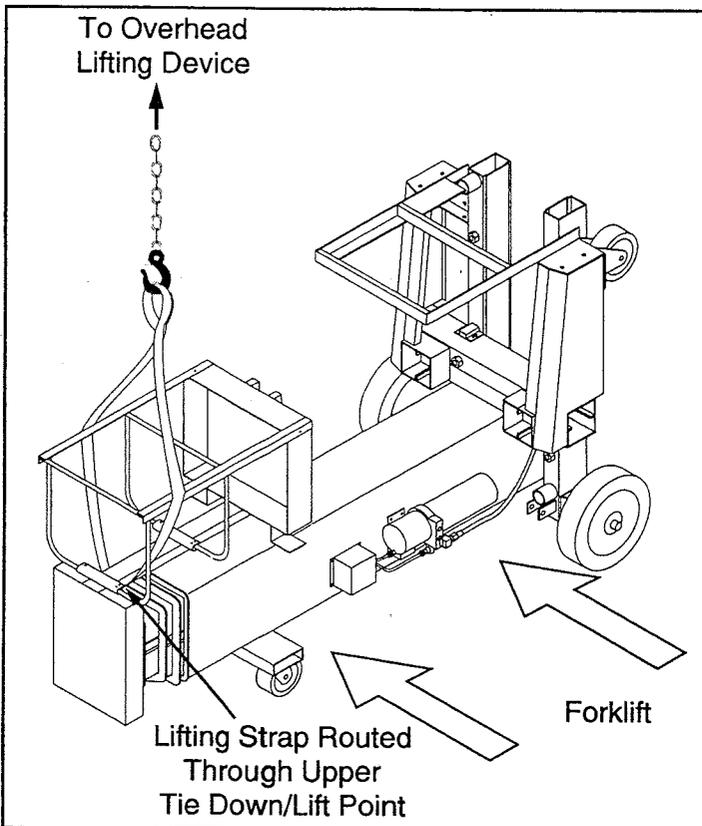


Figure 4-5: Lifting/Lowering UL Lift

### #6 Mast

1. Remove sequence strap retainer on the top of #4 mast. Attach a length of wire or banding material to the end of the sequence strap to aid in re-assembly.
2. Remove the Allen head screws holding the top mast bearings between the #5 and #6 mast. Remove the top mast bearings.
3. Slide #6 mast out of #5 mast. As mast is removed the bottom four mast bearings will fall out, note their orientation for re-assembly.
4. Disconnect chain from top of #4 mast.

### #5 Mast

1. Remove sequence strap retainer on the top of #3 mast. Attach a length of wire or banding material to the end of the sequence strap to aid in re-assembly.
2. Remove the Allen head screws holding the top mast bearings between the #4 and #5 mast. Remove the top mast bearings.
3. Slide #5 mast out of #4 mast. As mast is removed the bottom four mast bearings will fall out, note their orientation for re-assembly.
4. Disconnect chain from top of #3 mast.

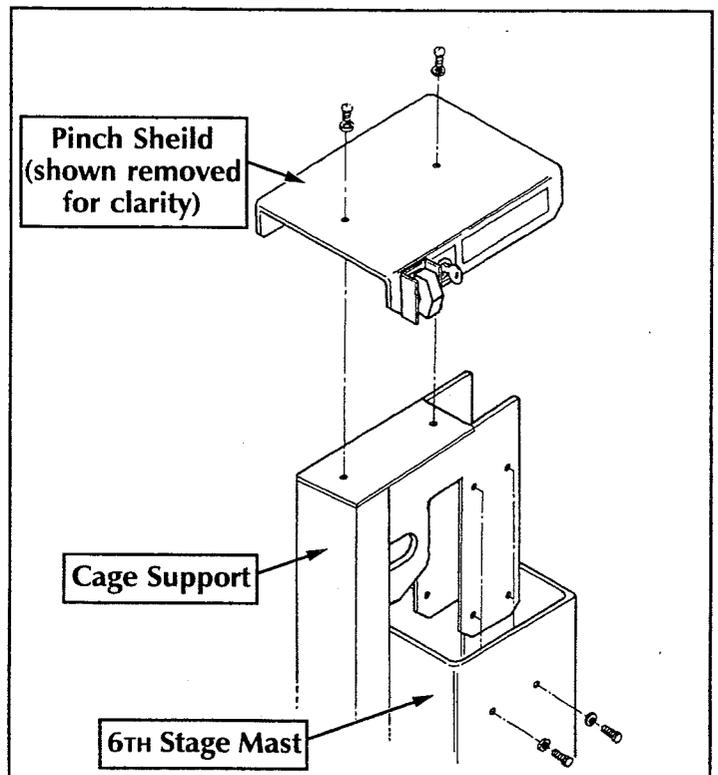


Figure 4-6: Cage Assembly Removal

## #4 Mast

1. Remove sequence strap retainer on the top of #2 mast. Attach a length of wire or banding material to the end of the sequence strap to aid in re-assembly.
2. Remove the Allen head screws holding the top mast bearings between the #3 and #4 mast. Remove the top mast bearings.
3. Slide #4 mast out of #3 mast. As mast is removed the bottom four mast bearings will fall out, note their orientation for re-assembly.
4. Disconnect chain from top of #2 mast.
5. Remove cylinder by following instructions in *Section 4.7*.

## #3 Mast

1. Remove sequence strap retainer on the top of #1 mast. Attach a length of wire or banding material to the end of the sequence strap to aid in re-assembly.
2. Remove the Allen head screws holding the top mast bearings between the #2 and #3 mast. Remove the top mast bearings.
3. Slide #3 mast out of #2 mast. As mast is removed the bottom four mast bearings will fall out, note their orientation for re-assembly.

## #2 Mast

1. Remove the Allen head screws holding the top mast bearings between the #1 and #2 mast. Remove the top mast bearings.
2. Slide #2 mast out of #1 mast. As mast is removed the bottom four mast bearings will fall out, note their orientation for re-assembly.

## INSTALLATION (Figure 4-7)

### #2 Mast

1. Set #2 mast in place.
2. Install bottom lower bearings.
3. Install bottom upper bearings.
4. Slide #2 mast in all the way except 12-15" (30 -38 cm).
5. Install top bearings and secure with retaining screws (all are 5/8" (16 mm) long).
6. Slide #2 mast in completely.

### #3 Mast

1. Set #3 mast in place with the sequencing strap inside.
2. Install bottom lower bearings.
3. Install bottom upper bearings.
4. Slide #3 mast in all the way except 12-15" (30 -38 cm).
5. Install top bearings and secure with retaining screws (all are 5/8" (16 mm) long).
6. Place a 10" (25 cm) long wood block between #3 and #2 masts, slide #3 mast down tight against block. Pull sequencing strap attached to wire or banding completely out the bottom of assembly.

### #4 Mast

1. Set #4 mast in place with the sequencing strap inside and the chains on the bottom.
2. Install bottom lower bearings (with notches).
3. Install bottom upper bearings.
4. Slide mast #4 in, make sure chains are not twisted.
5. Install top bearings and secure with retaining screws (5/8" (16 mm) top, 3/4" (19 mm) bottom).
6. Install chains around #3 pulley and through #3 casting, secure to #2 casting with new roll pins.
7. Use a center punch to dimple pin hole after roll pins are installed.
8. Pull sequencing strap attached to wire or banding completely out the bottom of assembly.

### #5 Mast

1. Set #5 mast in place with the sequencing strap inside.
2. Install bottom lower bearings (with notches).
3. Install bottom upper bearings.
4. Slide #5 mast in, make sure chains are not twisted.
5. Install top bearings and secure with retaining screws (5/8" (16 mm) top, 3/4" (19 mm) bottom).
6. Slide mast in leaving 10" (25 cm) exposed.
7. Feed strap through strap slot in #4 mast, pull sequencing strap attached to wire or banding completely out the bottom of assembly.

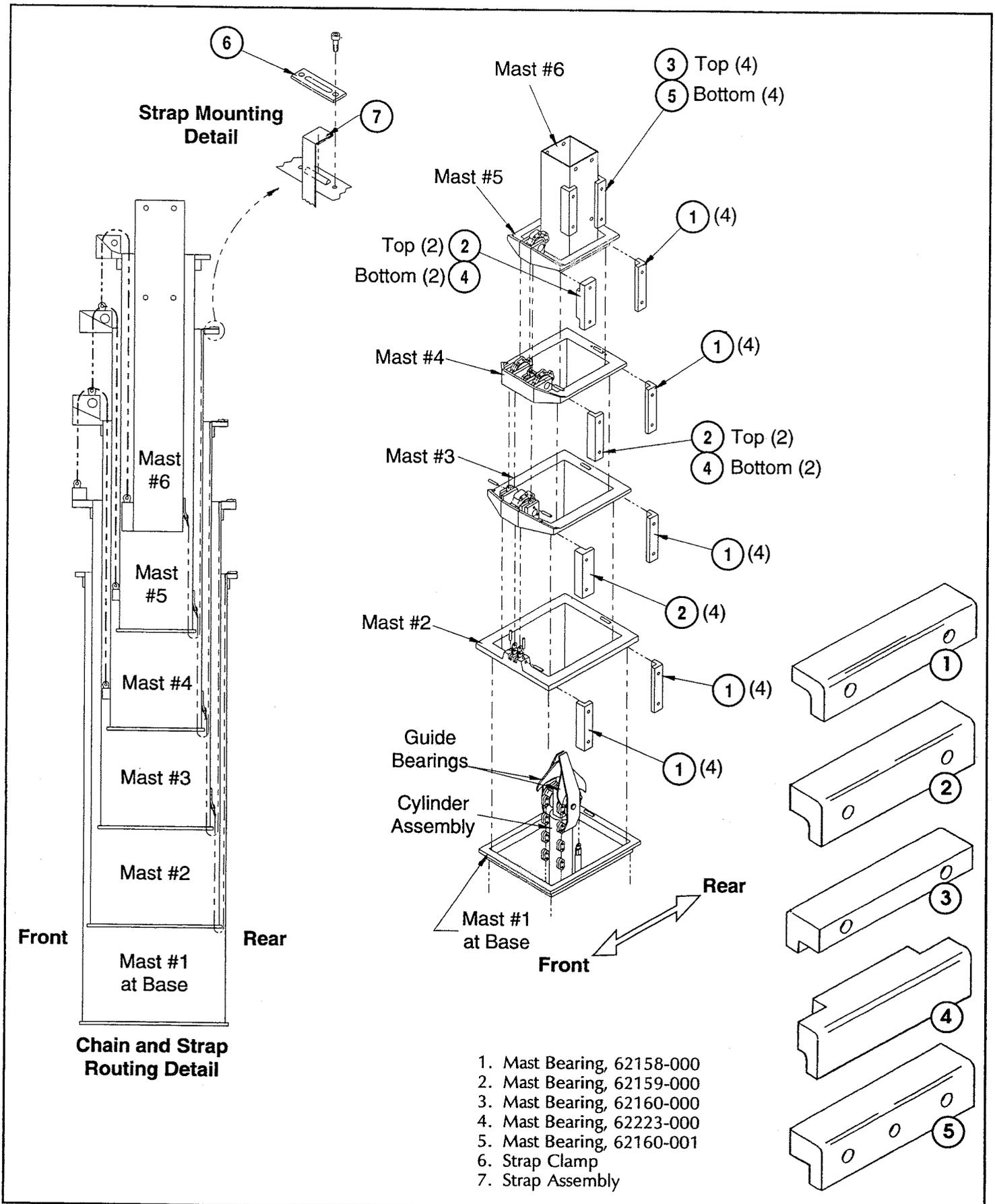


Figure 4-7: Mast Assembly

**#6 Mast**

1. Set #6 mast in place with the sequencing strap inside.
2. Install bottom lower bearings.
3. Install bottom upper bearings.
4. Slide #6 mast in, make sure chains are not twisted.
5. Install top bearings and secure with retaining screws (all 3/4" (19 mm) long).
6. Install #6 chain around #5 sheave and through casting, secure to #4 casting with new roll pins.
7. Feed #5 chains around #4 sheaves and through casting, secure to #3 casting with new roll pins.
8. Use a center punch to dimple pin holes after all roll pins are installed.

**Sequencing Strap Installation**

When installing straps make sure they are not twisted.

1. Feed #6 strap above #5 mast with fish tape (wire or banding).
2. Slide #5 strap through #4 casting.
3. Feed #5 strap above #4 mast with fish tape.
4. Install strap #6 to #4 top casting.
5. Install strap #5 to #3 top casting.
6. Install the strap clamps retaining screws using Loctite® 242 or equivalent on the threads. Pull straps tight while tightening retaining screws.

Install Cylinder Assembly, following instructions in Section 4.6, to complete Sequencing Strap Installation.

**4.6 Cylinder Assembly****SEAL REPLACEMENT (Figure 4-8)**

**Note:** The Lift Cylinder Seal can be accessed from the bottom of the Lift without removing the Cylinder Assembly.

Using a suitable lifting device, lower the work platform into a horizontal position (Figure 4-5). If possible place the machine onto a sturdy work table using a forklift.

▲	<b>WARNING</b>	▲
---	----------------	---

Never attempt to lower lift into a horizontal position without the use of a suitable lifting device, bodily injury or damage to the machine may result.

1. Remove cylinder mounting plate fasteners, rod end fasteners and retaining ring.
2. Remove hydraulic hose from the cylinder fitting and plug the cylinder fitting to prevent contaminants from entering the cylinder.
3. Remove the cylinder mounting plate.
4. Rotate the cylinder rod so that the fittings are pointing straight up, then remove the fittings.

▲	<b>CAUTION</b>	▲
---	----------------	---

Marring the surface of the cylinder rod will cause improper cylinder function. Use a strap wrench to prevent rod damage.

5. Using a Strap Wrench, 62482-000, to secure the cylinder rod, unscrew the cylinder rod end.
6. Remove the seal retaining ring using the Gland Nut Wrench, 62521-000.

**Note:** Apply clean hydraulic fluid to new cylinder seal, threads and all sliding surfaces prior to assembly.

7. Replace the seal making sure the lip of the seal is facing inward.
8. Using the Gland Nut Wrench reinstall the seal retaining ring.

▲	<b>CAUTION</b>	▲
---	----------------	---

Scratches or nicks on the cylinder rod will prevent the seal from seating properly.

9. Using the Strap Wrench to hold the rod, replace the cylinder rod end.

10. Set the cylinder mounting plate into place and secure with fasteners.
11. Reinstall retaining ring.
12. Reinstall fittings.
13. Reconnect hydraulic hose.
14. Using a suitable lifting device, raise the lift to its normal vertical position.
15. Check the function of the lift cylinder by elevating the platform. If the work platform is 'spongy' the cylinder will require bleeding to remove air from the system.
16. Bleed air from 'spongy' cylinder by cycling the mast four times. The cylinder is self bleeding, air will be forced out of the cylinder during the lowering cycle.

## ORIFICE VALVE CLEANING

(Figure 4-8)

1. Complete the Seal Replacement procedure through step 5.
2. Remove retaining ring from threaded end of rod end.
3. Remove orifice valve from inside rod end.
4. Clean orifice valve hole with a straight pin. Flush with solvent to remove any contamination that may remain.
5. Reinstall orifice valve into rod end. Reinstall retaining ring into rod end to secure orifice valve.
6. Reassemble rod end into cylinder rod.
7. Reinstall cylinder mounting plate and secure with fasteners.
8. Reinstall retaining ring.
9. Reconnect hydraulic hose.
10. Bleed cylinder by cycling the lift four times.

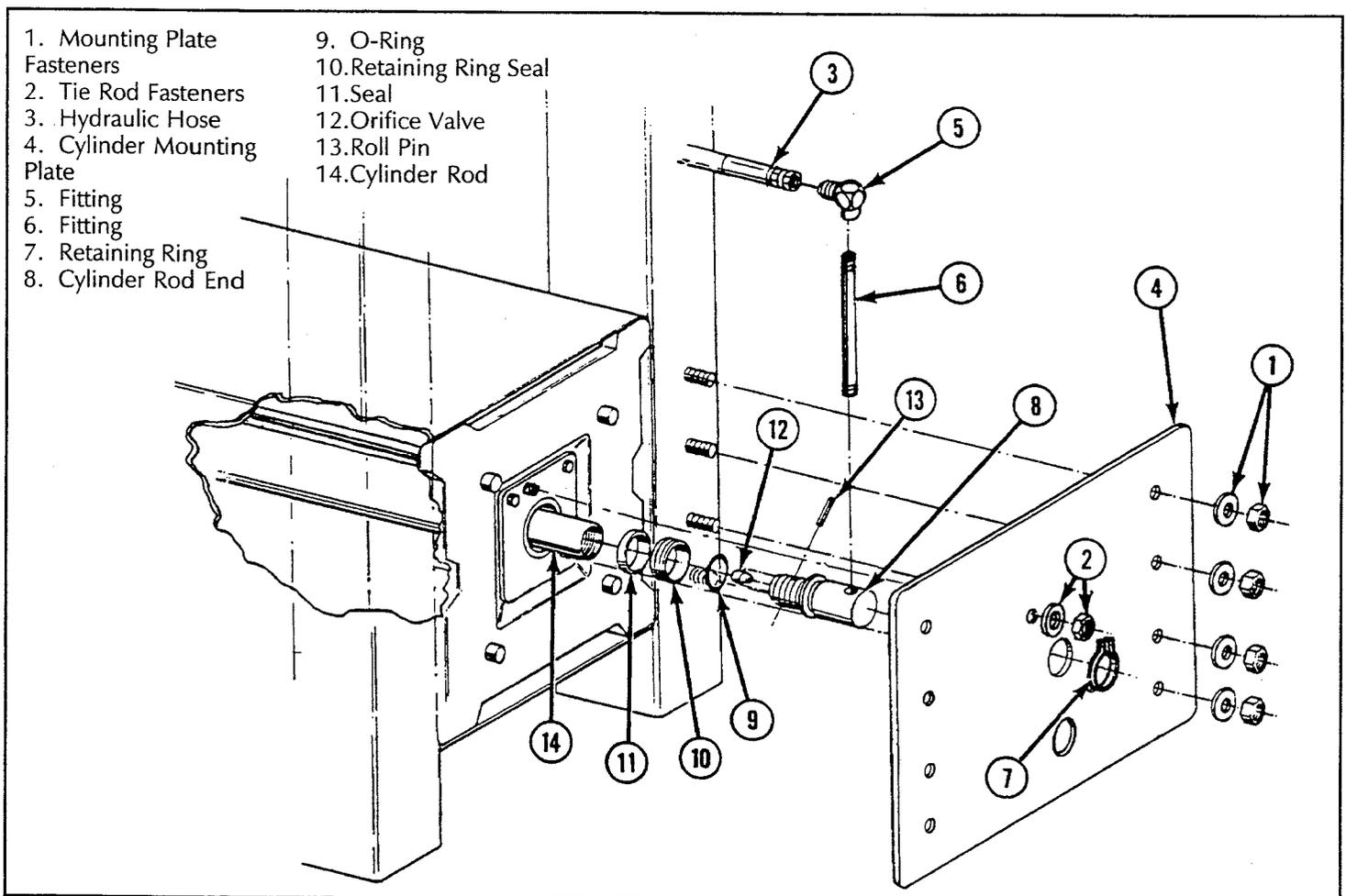


Figure 4-8: Lift Cylinder Assembly

**CYLINDER REMOVAL (Figure 4-9)**

Using a suitable lifting device, lower the work platform into a horizontal position (Figure 4-5). If possible place the machine onto a sturdy work table using a forklift.

**WARNING**

Never attempt to lower lift into a horizontal position without the use of a suitable lifting device, bodily injury or damage to the machine may result.

1. Disconnect and plug the hydraulic hose at the lift cylinder fitting.
2. Remove nuts, washers, tie rod locknuts and cylinder retaining ring.
3. Remove cylinder mounting plate. Replace tie rod nuts finger tight.
4. Remove sequence strap retainers on the top of #3 and #2 masts. Attach a length of string or banding material to the end of the sequence strap to aid in re-assembly.
5. Remove front and rear mast cover plates from the bottom of the #1 mast.
6. Remove the screws and washers attaching the #2 and #3 bottom castings to the #2 and #3 mast assemblies.
7. While keeping tension on the tie rods slide the cylinder and #2 and #3 bottom castings out the bottom of the UL Lift far enough to expose both castings.
8. Install cylinder Tensioner Brackets, 62739-000, and Tensioner Spacer, 17415-000, on #2 and #3 bottom castings. Install the Tie Rod Tensioners, 62738-000, and remove all slack from the chains with the Tie Rod Tensioners.
9. Remove cylinder assembly from mast assembly.

**INSTALLATION**

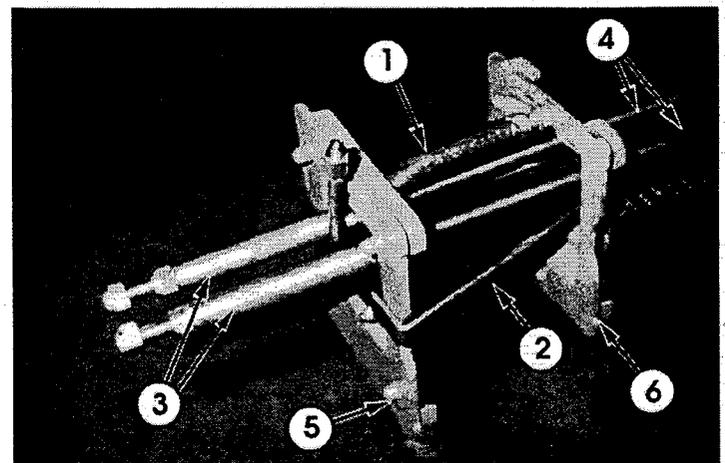
**NOTE: Cylinder assembly must have Tension Brackets, Tensioner Spacer and Tie Rod Tensioners installed to remove slack from chain.**

1. Slide cylinder assembly into mast assembly until #2 and #3 bottom castings are at the bottom of the mast assembly.

2. Remove cylinder Tensioner Brackets and Tensioner Spacer from #2 and #3 bottom castings and Tie Rod Tensioners from tie rods.
3. While maintaining tension on the tie rods to keep slack out of the chains, slide cylinder assembly completely into the mast assembly.
4. Install the screws and washers attaching the #2 and #3 bottom castings to the #2 and #3 mast assemblies.
5. Feed #4 strap above #3 mast with fish tape (wire or banding).
2. Slide #4 strap through #2 casting.
3. Feed #3 strap above #2 mast with fish tape.
4. Install strap #4 to #2 top casting.
5. Install strap #3 to #1 top casting.
6. While maintaining tension on the sequencing straps, install strap retainers using Loctite® 242 or equivalent on the threads of the retainer screws.
7. Install cylinder mounting plate, nuts, washers, tie rod locknuts and cylinder retaining ring.

**NOTE: Install tie rod locknuts so the same amount of thread is showing on each.**

8. Install front and rear mast cover plates on the bottom of #1 mast.
9. Reinstall hydraulic hose at the lift cylinder fitting.



- |   |                            |
|---|----------------------------|
| 1. Tensioner Spacer                     | 4. Tie Rods                |
| 2. Tensioner Bracket (only one visible) | 5. Bottom Casting, Mast #2 |
| 3. Tie Rod Tensioners                   | 6. Bottom Casting, Mast #  |

**Figure 4-9: Cylinder Assembly Installation**

10. Using a suitable lifting device, raise the work platform into a vertical position.
11. Move machine to a suitable area for testing.
12. Install all four outriggers according to the operating instructions.
13. With the pinch shield removed, inspect cylinder guide bearings (Figure 4-7). Elevate machine two or three feet (60-90 cm) while viewing cylinder guide bearings with a flashlight.

<span style="font-size: 1.2em; font-weight: bold; margin: 0 10px;">CAUTION</span>
<p>Keep hands clear of the mast assembly when the Pinch Shield is removed for inspection purposes, pinching injury to hands may result.</p> <p>Never operate a machine with the Pinch Shield removed, except for inspection.</p>

14. If the cylinder guide bearings are rubbing the sides of the mast, tighten the tie rod lock nut on the side opposite where the rubbing is occurring.
15. Re-elevate the machine two or three feet (60-90 cm) while viewing the top of the cylinder, if the guide bearings are not rubbing, replace the pinch shield and test full operation of the machine.
16. Bleed cylinder by cycling the lift four times.

## 4.7 Torque Specifications

### HYDRAULIC COMPONENTS

Use the following values to torque hydraulic components used on UpRight Work Platforms.

**Note: Always lubricate threads with clean hydraulic oil prior to installation.**

Table 4-2: Hydraulic Component Torque

TYPE: SAE PART SERIES	CARTRIDGE POPPET		FITTINGS		HOSES	
	(Ft/Lbs	Nm)	(Ft/Lbs	Nm)	(In/Lbs	Nm)
#4	N/A	N/A	N/A	N/A	135-145	15-16
#6	N/A	N/A	10-20	14-27	215-245	24-28
#8	25-30	34-41	25-30	34-41	430-470	49-53
#10	35-40	47-54	35-40	47-54	680-750	77-85
#12	85-90	115-122	85-90	115-122	950-1050	107-131
#16	130-140	176-190	130-140	176-190	1300-1368	147-155

Coil nuts: 30 In/Lbs (3 Nm)

### FASTENERS

Use the following values to torque fasteners used on UpRight Work Platforms unless a specific torque value is called out for the part being installed.

Table 4-3: Bolt Torque

THREAD SIZE <small>American National Standard-UNF (fine)</small>	WIDTH ACROSS FLATS	TORQUE VALUE	
		ENGLISH	METRIC
1/4	7/16	110 In/Lbs	12 Nm
5/16	1/2	190 In/Lbs	22 Nm
3/8	9/16	30 Ft/Lbs	41 Nm
7/16	5/8	50 Ft/Lbs	68 Nm
1/2	3/4	75 Ft/Lbs	102 Nm
5/8	15/16	150 Ft/Lbs	203 Nm
3/4	1 1/8	250 Ft/Lbs	339 Nm
7/8	1 5/16	400 Ft/Lbs	542 Nm
1	1 1/2	600 Ft/Lbs	813 Nm

## NOTES

Blank area for notes.

## 5.0 Introduction

Table 5-1 provides a logical sequence of tests that are designed to isolate problems with X-Series machines. This table includes a list of probable causes and remedies.



### **WARNING**



When troubleshooting, ensure that the work platform is resting on a firm, level surface.

When performing any service which requires the platform to be raised ensure all four (4) outriggers are properly installed.

Unplug the machine or disconnect the battery when replacing or testing the continuity of any electrical component.

## GENERAL PROCEDURE

Troubleshooting should be carried out in two steps, first thoroughly study both hydraulic and electric schematics to determine possible causes. Loose terminal connections and short circuits are always a potential cause when troubleshooting. Secondly, check suspect components electrically, hydraulically and mechanically to determine if they are at fault. Refer to Tables 6-1 and 6-2 for Reference Designations used in Table 5-1.

# Troubleshooting

Table 5-1: Troubleshooting

TROUBLE	PROBABLE CAUSE	REMEDY
Lift Function inoperable, electric motor does not start.	1. Not plugged in or faulty connection (AC only).	Check all AC plugs and cords used.
	2. No power at wall outlet (AC only).	Check power output at wall outlet.
	3. Faulty Battery Charger (DC only).	Check the voltage output of the Battery Charger. If less than 12 VDC, repair or replace.
	4. Faulty Battery (BAT).	After completely charging Battery, test Battery. Replace as required.
	5. Key Switch (SW2), Emergency Stop Switch (SW1, SW3) or Push-button Switch (SW4, SW5) failed open.	With the switch in the ON position, check continuity across the contacts. If none, replace.
	6. Outrigger Interlock Switch (SW7, SW8, SW9, SW10).	Make sure all four outriggers are in firm contact with floor. Check continuity of interlock switches. Test for continuity through cable assembly and repair or replace.
	7. Open circuit in cable to motor control box.	While operating the Lift function, check the voltage across the Relay Coil. If no voltage present, replace faulty Transformer (T1). <b>For Models with Serial Numbers through 1965,</b> check the Motor Relay by depressing the manual override button located on the front center face of the Motor Relay (CR). If the motor starts then replace the faulty Motor Relay (CR). <b>For Models with Serial Numbers 1966 to current:</b> <i>WARNING: While control circuit is energized, NEVER come in contact with any components or the electrical mounting brackets. To do so could result in serious injury or death.</i> Check the Motor Relay by observing the contacts while energizing the UP circuit. If the contacts are not activated then replace the faulty Motor Relay (CR).
	8. Faulty Motor Relay (CR) or control voltage transformer (T1) (AC only).	While operating the Lift function, check the voltage across the Electric Motor Terminals. If 12 VDC or more is present, replace the Motor.
	9. Faulty Motor Relay (CR) (DC only).	Check continuity across the contact terminals of Motor Relay (CR) while operating the Lift function. If there is no continuity, replace.
	10. Faulty Electric Motor (MTR) (AC only).	Replace Motor.
	11. Faulty Electric Motor (MTR) (DC only).	While operating the Lift function, check the voltage across the Electric Motor Terminals. If 12 VDC or more is present, replace the Motor.

TROUBLE	PROBABLE CAUSE	REMEDY
Lift function inoperable, Electric Motor starts when control is activated.	1. Emergency Lowering Valve (V3) open.	Close valve.
	2. Hydraulic Reservoir Low.	Check hydraulic fluid level, top off as required.
	3. Down Valve (V1) stuck.	Check or replace Down Valve (V1).
	4. Relief Valve (RV1) out of adjustment or faulty.	Adjust the Relief Valve (RV1). If not adjustable, replace.
	5. Lift Valve (V2) faulty.	Check or replace Lift Valve (V2).
	6. Faulty Hydraulic Pump (PMP).	Check pressure and delivery of the Hydraulic Pump. Replace if required.
Platform does not lower using electrical switches.	1. Down Valve Solenoid (SOL1) faulty.	Test for continuity across Solenoid. Repair or replace.
	2. Down Valve (V1) stuck closed.	Clean or replace valve.
	3. Electrical malfunction.	Check all AC plugs and cords used (AC only). Check power output at wall outlet (AC only). With each switch (SW1, SW2, SW3, SW4, SW6) in the ON position, check continuity across the contacts. If none, replace.
Platform does not lower or lowers very slowly.	1. Down Orifice (ORF) plugged. 2. Mechanical interference.	Remove and clean Down Orifice check valve. Inspect Mast Assembly.
Platform continues to lower when controls are released.	1. Down Valve (V1) stuck open.	Clean or replace Down Valve.

## 6.0 Introduction

This section contains electrical and hydraulic power schematics, and associated information for maintenance purposes.

The diagrams are to be used in conjunction with *Table 5-1: Troubleshooting Guide*. They allow understanding of the make up and functions of the systems for checking, tracing, and faultfinding during troubleshooting analysis.

The components that comprise the electrical and hydraulic systems are given a reference designation and are explained as to function and location in the following tables.

### INDEX

Figure	Page
Figure 6-1: Electrical Schematic, DC Models .....	6-2
Figure 6-2: Electrical Schematic, 110 VAC Models .....	6-3
Figure 6-3: Electrical Schematic, 220 VAC Models .....	6-3
Figure 6-4: Hydraulic Schematic .....	6-4

## 6.1 Electrical Schematic

Table 6-1: Electrical Schematic Legend

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
BAT	Battery, 12 volts (DC only)	To store energy.	Inside Battery Box, under Platform on Chassis Base.
CHGR	Charger, Battery (DC only)	Charges battery.	Left side of Mast.
CR	Relay, Motor Start	Connects power source to Motor.	AC units, inside Electrical Control Box. DC units, mounted on Power Unit.
MOT	Motor, Electric	Provides power to drive hydraulic pump.	Upper portion of Power Unit.
SOL1	Solenoid, Down (coil)	Opens Down Valve.	Coil mounted on valve closest to Emergency Lowering Valve.
SOL2	Solenoid, Up (coil)	Opens Up Valve.	Coil mounted on valve connected to outlet side of pump.
SW1	Switch, Chassis Emergency Stop.	Control circuit shut off.	AC units, mounted on Electrical Control Box. DC units, mounted on Charger cover.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
SW2	Switch, Key	Provides power to upper controls.	Pinch Shield.
SW3	Switch, Platform Emergency Stop.	Control circuit shut off.	Pinch Shield.
SW4	Switch, Power On.	Supplies power to either Up or Down Switch.	Center button of platform controls.
SW5	Switch, Up Selector	Supplies power to Up circuit.	Upper button of platform controls.
SW6	Switch, Down Selector	Supplies power to Down circuit.	Lower button of platform controls.
SW7	Switch, Rear Outrigger Interlock.	Opens Up circuit if Outrigger is not properly installed.	Top of rear Outrigger Socket.
SW8	Switch, Right Outrigger Interlock.	Opens Up circuit if Outrigger is not properly installed.	Top of right side Outrigger Socket.
SW9	Switch, Left Outrigger Interlock.	Opens Up circuit if Outrigger is not properly installed.	Top of left side Outrigger Socket.
SW10	Switch, Front Outrigger Interlock.	Opens Up circuit if Outrigger is not properly installed.	Top of front Outrigger Socket.
TR	Transformer (AC only)	Converts AC power to 24 VDC.	Inside Electrical Control Box

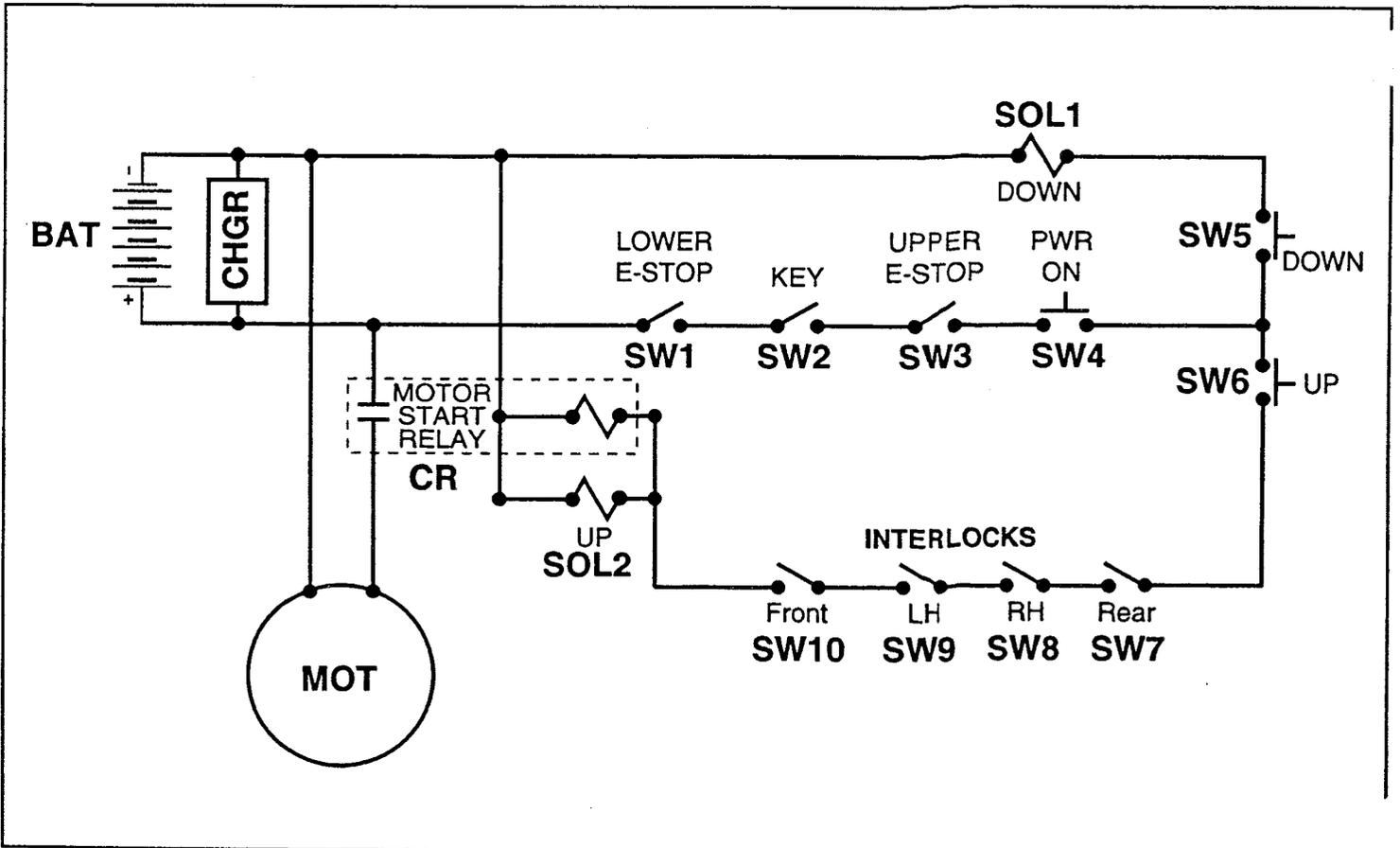


Figure 6-1: Electrical Schematic, DC Models

# Schematics

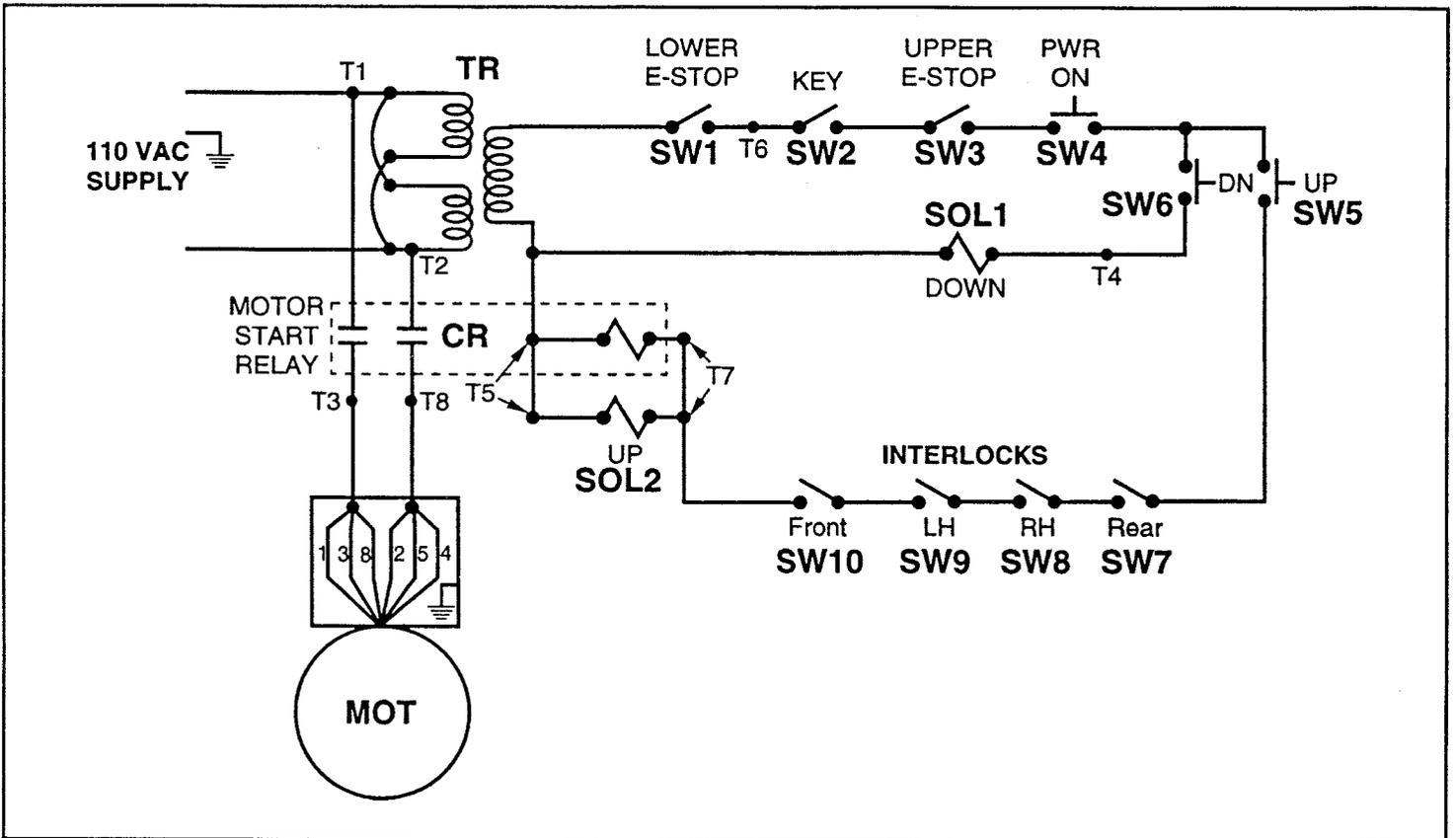


Figure 6-2: Electrical Schematic, 110 VAC Models

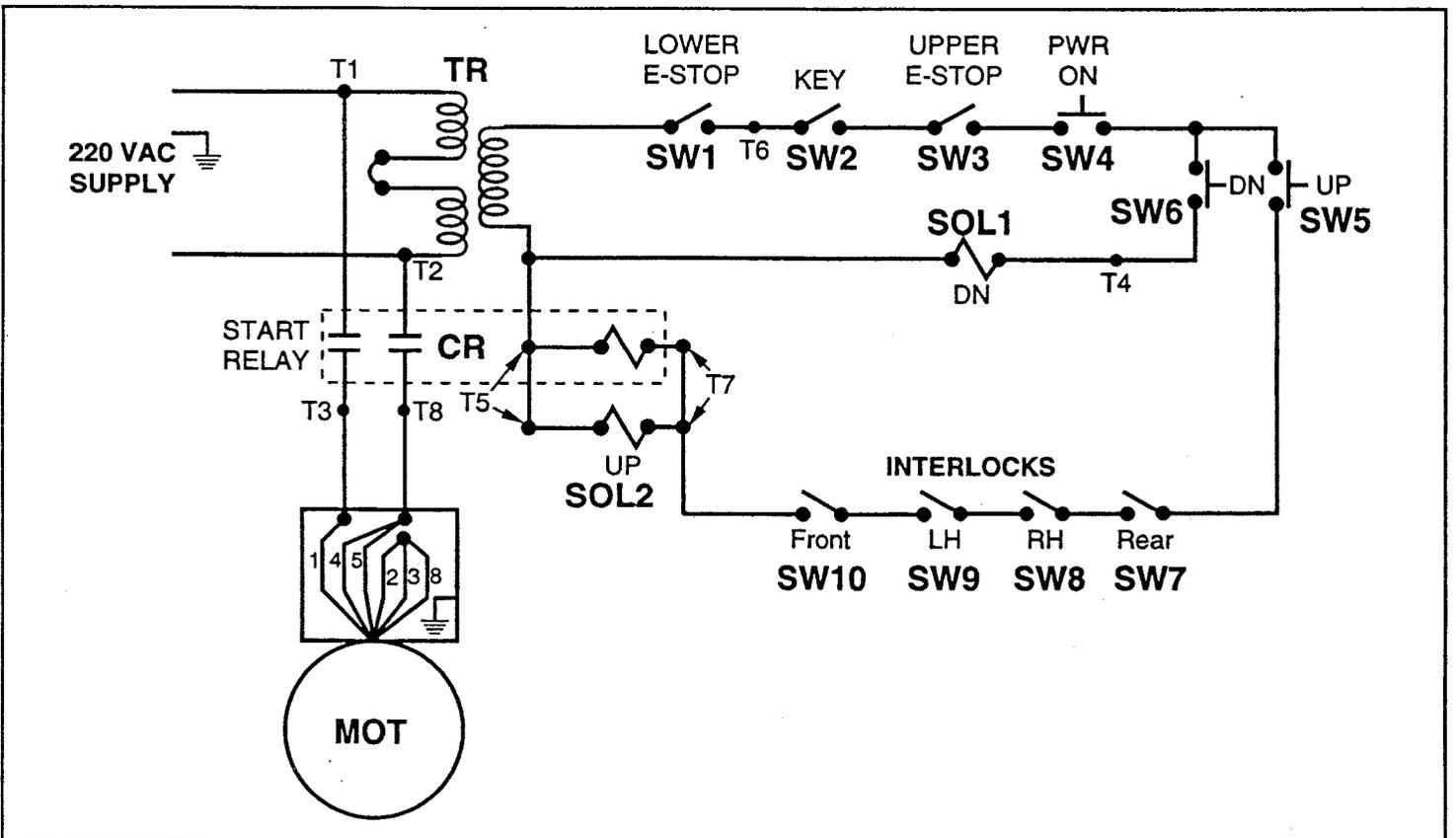


Figure 6-2: Electrical Schematic, 220 VAC Models

## 6.2 Hydraulic Schematic

Table 6-2: Hydraulic Schematic Legend

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
CV	Check Valve	Prevents oil from returning to tank through the pump. side circuit.	Under Allen Head plug (AC units) or Hex Head plug (DC units) next to Emergency Lowering Valve.
CYL	Cylinder, Lift	Provides force to lift Platform.	Inside the Mast Assembly.
ORF	Orifice, Down	Controls the platform rate of descent.	Inside the base of the Lift Cylinder.
PMP	Pump, Hydraulic	Supplies hydraulic oil flow lift function.	Middle section of Power Unit.
RV	Valve, Main Relief	Provides over pressure protection to Pump and limits Platform lifting capacity.	On Power Unit near Filler Cap/ Dipstick, under acorn nut cap.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
V1	Valve, Down	Allows oil to flow out of Lift Cylinder to Tank.	Middle of Power Unit mounted near Emergency Lowering Valve.
V2	Valve, Up	Allows oil to flow into Lift Cylinder.	Mounted in block connected in line with Pump outlet and Lift Cylinder hose.
V3	Valve, Emergency Lowering	Manually operated, allows oil to flow out of Lift Cylinder to tank, to lower Platform in the event of an emergency.	Middle of Power Unit mounted left of Down Valve.

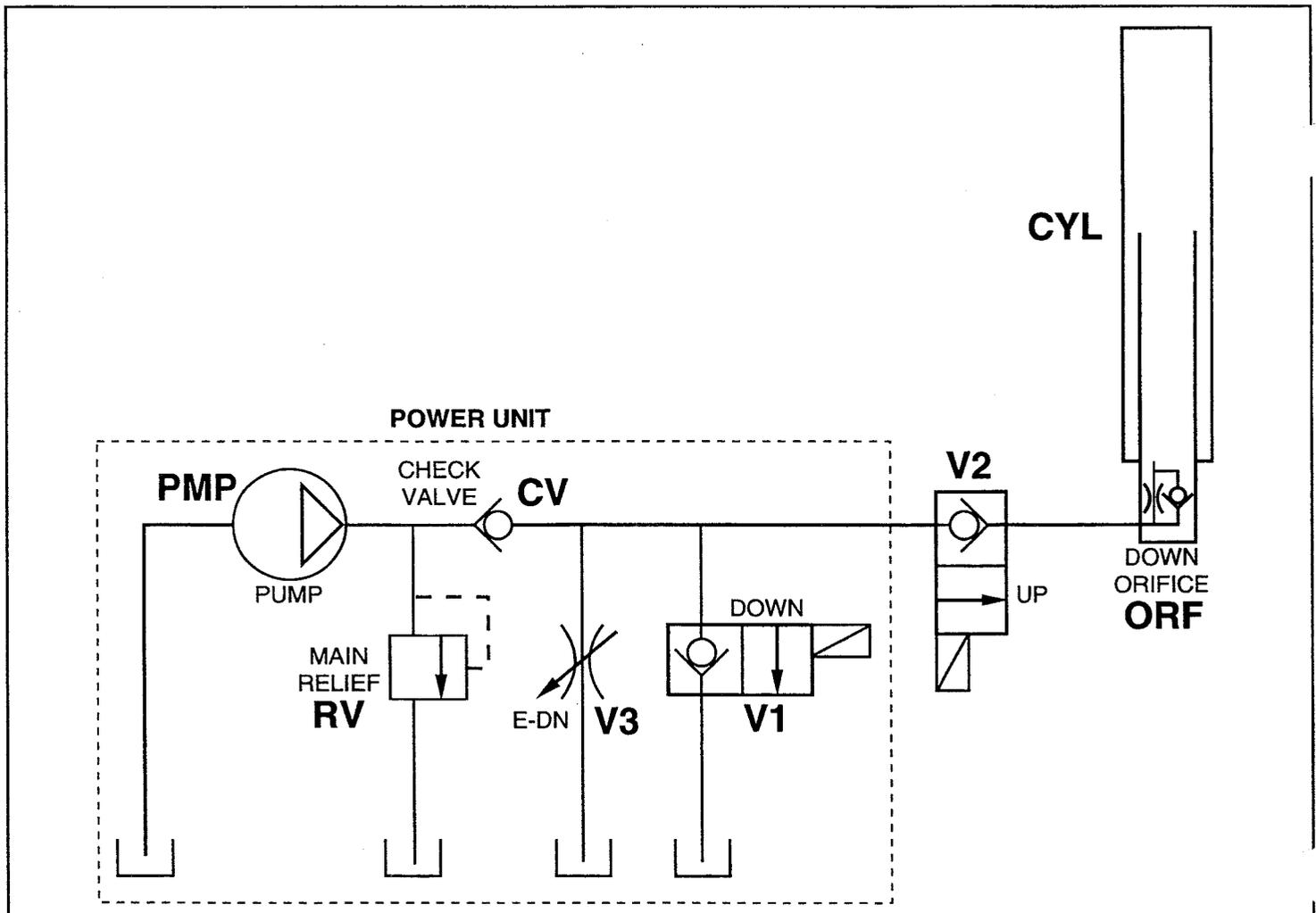


Figure 6-4: Hydraulic Schematic

## 7.0 Introduction

This section lists and illustrates the replaceable assemblies and parts of the Forth and Fifth Generation UL-24/31/33/38/40 Portable Personnel Lifts, as manufactured by UpRight, Inc. The UL-24 is the only machine covered in this manual that was offered as Fourth and Fifth Generation models. To determine which generation machine you have refer to the following serial number ranges:

- 4th Generation - 8359 to 9286
- 5th Generation - 9300 to current

Each parts list contains the component parts for that assembly indented to show relationship where applicable.

## 7.1 Index

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**FINAL ASSEMBLY, DOMESTIC, 4<sup>TH</sup> GEN.  
UL-24 AC: 62855-001**

ITEM	PART	DESCRIPTION	QTY.
1	62855-001	BASIC ASSY	1
2	62856-000	A.C. POWER ASSY.- DOMESTIC	1
3	62897-002	LABEL KIT - DOMESTIC	1

**FINAL ASSEMBLY, DOMESTIC, 4<sup>TH</sup> GEN.  
UL-24 DC: 62851-001**

ITEM	PART	DESCRIPTION	QTY.
1	62855-001	BASIC ASSY	1
2	62857-000	D.C. POWER ASSY.- DOMESTIC	1
3	62897-003	LABEL KIT - DOMESTIC	1

**FINAL ASSEMBLY, DOMESTIC, 4<sup>TH</sup> GEN.  
UL-31/33 AC: 62852-000**

ITEM	PART	DESCRIPTION	UL-31 QTY.	UL-33 QTY.
1	62855-002	BASIC ASSY	1	1
2	62856-000	A.C. POWER ASSY.- DOMESTIC	1	1
3	62897-004	LABEL KIT - DOMESTIC	1	1
4	62487-001	ADD'L HEIGHT KIT		1

**FINAL ASSEMBLY, DOMESTIC, 4<sup>TH</sup> GEN.  
UL-31/33 DC: 62852-001**

ITEM	PART	DESCRIPTION	UL-31 QTY.	UL-33 QTY.
1	62855-002	BASIC ASSY	1	1
2	62857-000	D.C. POWER ASSY.- DOMESTIC	1	1
3	62897-005	LABEL KIT - DOMESTIC	1	1
4	62487-001	ADD'L HEIGHT KIT		1

**FINAL ASSEMBLY, DOMESTIC, 4<sup>TH</sup> GEN.  
UL-38/40 AC: 62853-000**

ITEM	PART	DESCRIPTION	UL-38 QTY.	UL-40 QTY.
1	62855-003	BASIC ASSY	1	1
2	62856-000	A.C. POWER ASSY.- DOMESTIC	1	1
3	62897-006	LABEL KIT - DOMESTIC	1	1
4	62488-001	ADD'L HEIGHT KIT		1

**FINAL ASSEMBLY, DOMESTIC, 4<sup>TH</sup> GEN.  
UL-38/40 DC: 62853-001**

ITEM	PART	DESCRIPTION	UL-38 QTY.	UL-40 QTY.
1	62855-003	BASIC ASSY	1	1
2	62857-000	D.C. POWER ASSY.- DOMESTIC	1	1
3	62897-007	LABEL KIT - DOMESTIC	1	1
4	62488-001	ADD'L HEIGHT KIT		1

**FINAL ASSEMBLY, DOMESTIC, 5<sup>TH</sup> GEN.  
UL-24 AC: 62851-005**

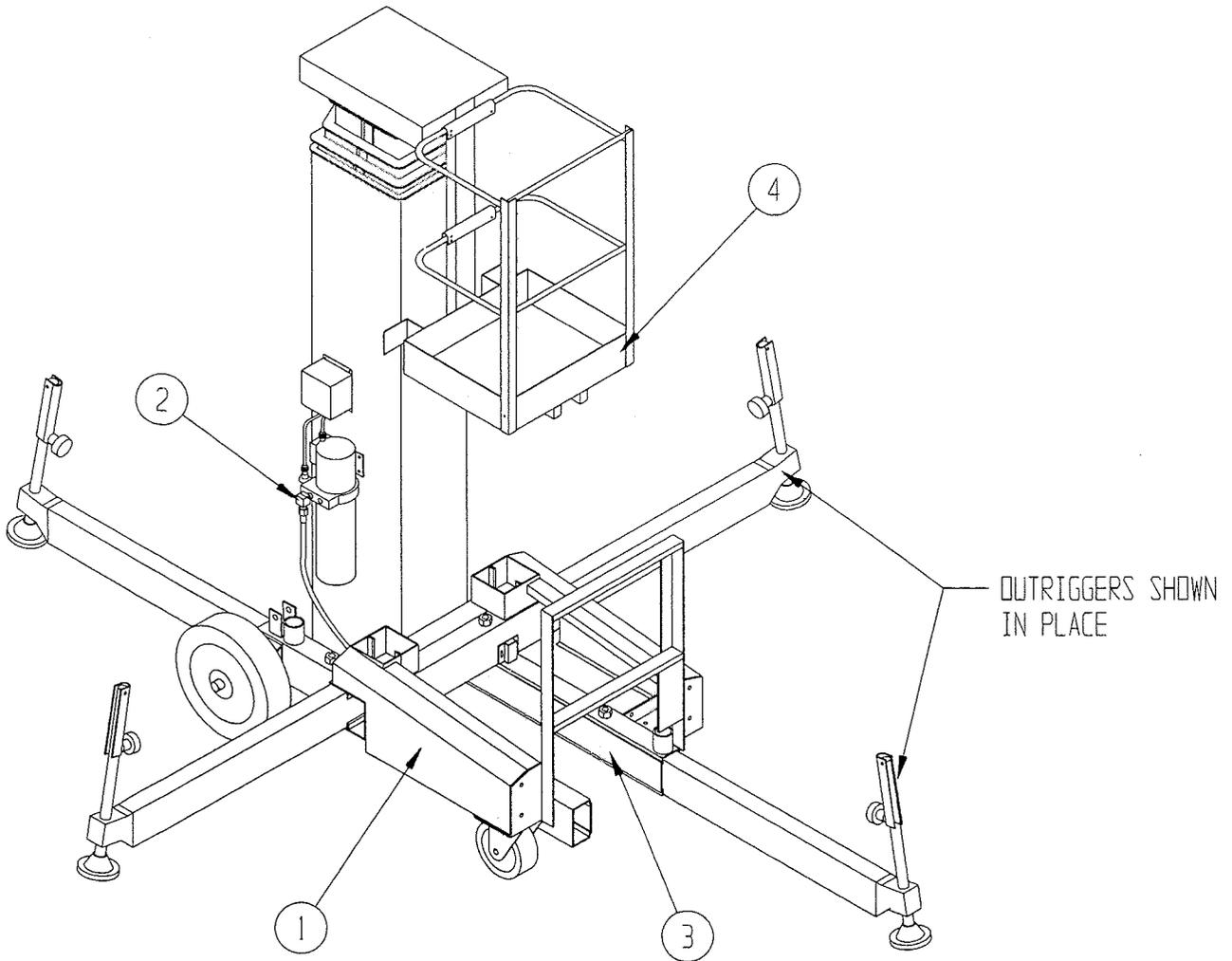
ITEM	PART	DESCRIPTION	QTY.
1	62855-004	BASIC ASSY	1
2	62856-003	A.C. POWER ASSY.- DOMESTIC	1
3	62897-008	LABEL KIT - DOMESTIC	1

**FINAL ASSEMBLY, DOMESTIC, 5<sup>TH</sup> GEN.  
UL-24 DC: 62851-006**

ITEM	PART	DESCRIPTION	QTY.
1	62855-004	BASIC ASSY	1
2	62857-002	D.C. POWER ASSY.- DOMESTIC	1
3	62897-009	LABEL KIT - DOMESTIC	1

# Illustrated Parts Breakdown

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**FINAL ASSEMBLY, DOMESTIC**

# Illustrated Parts Breakdown

**FINAL ASSEMBLY, EUROPE, 4<sup>TH</sup> GEN.**  
UL-24 AC: 62851-002

ITEM	PART	DESCRIPTION	QTY.
1	62855-001	BASIC ASSY	1
2	62856-001	A.C. POWER ASSY.- EUROPE	1
3	62897-014	LABEL KIT - EUROPE	1

**FINAL ASSEMBLY, EUROPE, 4<sup>TH</sup> GEN.**  
UL-24 DC: 62851-003

ITEM	PART	DESCRIPTION	QTY.
1	62855-001	BASIC ASSY	1
2	62857-001	D.C. POWER ASSY.- EUROPE	1
3	62897-015	LABEL KIT - EUROPE	1

**FINAL ASSEMBLY, EUROPE, 4<sup>TH</sup> GEN.**  
UL-31/33 AC: 62852-002

ITEM	PART	DESCRIPTION	UL-31 QTY.	UL-33 QTY.
1	62855-002	BASIC ASSY	1	1
2	62856-001	A.C. POWER ASSY.- EUROPE	1	1
3	62897-016	LABEL KIT - EUROPE	1	1
4	62487-001	ADD'L HEIGHT KIT		1

**FINAL ASSEMBLY, EUROPE, 4<sup>TH</sup> GEN.**  
UL-31/33 DC: 62852-003

ITEM	PART	DESCRIPTION	UL-31 QTY.	UL-33 QTY.
1	62855-002	BASIC ASSY	1	1
2	62857-001	D.C. POWER ASSY.- EUROPE	1	1
3	62897-017	LABEL KIT - EUROPE	1	1
4	62487-001	ADD'L HEIGHT KIT		1

**FINAL ASSEMBLY, EUROPE, 4<sup>TH</sup> GEN.**  
UL-38/40 AC: 62853-002

ITEM	PART	DESCRIPTION	UL-38 QTY.	UL-40 QTY.
1	62855-003	BASIC ASSY	1	1
2	62856-001	A.C. POWER ASSY.- EUROPE	1	1
3	62897-018	LABEL KIT - EUROPE	1	1
4	62488-001	ADD'L HEIGHT KIT		1

**FINAL ASSEMBLY, EUROPE, 4<sup>TH</sup> GEN.**  
UL-38/40 DC: 62853-003

ITEM	PART	DESCRIPTION	UL-38 QTY.	UL-40 QTY.
1	62855-003	BASIC ASSY	1	1
2	62857-001	D.C. POWER ASSY.- EUROPE	1	1
3	62897-019	LABEL KIT - EUROPE	1	1
4	62488-001	ADD'L HEIGHT KIT		1

**FINAL ASSEMBLY, EUROPE, 5<sup>TH</sup> GEN.**  
UL-24 AC: 62851-007

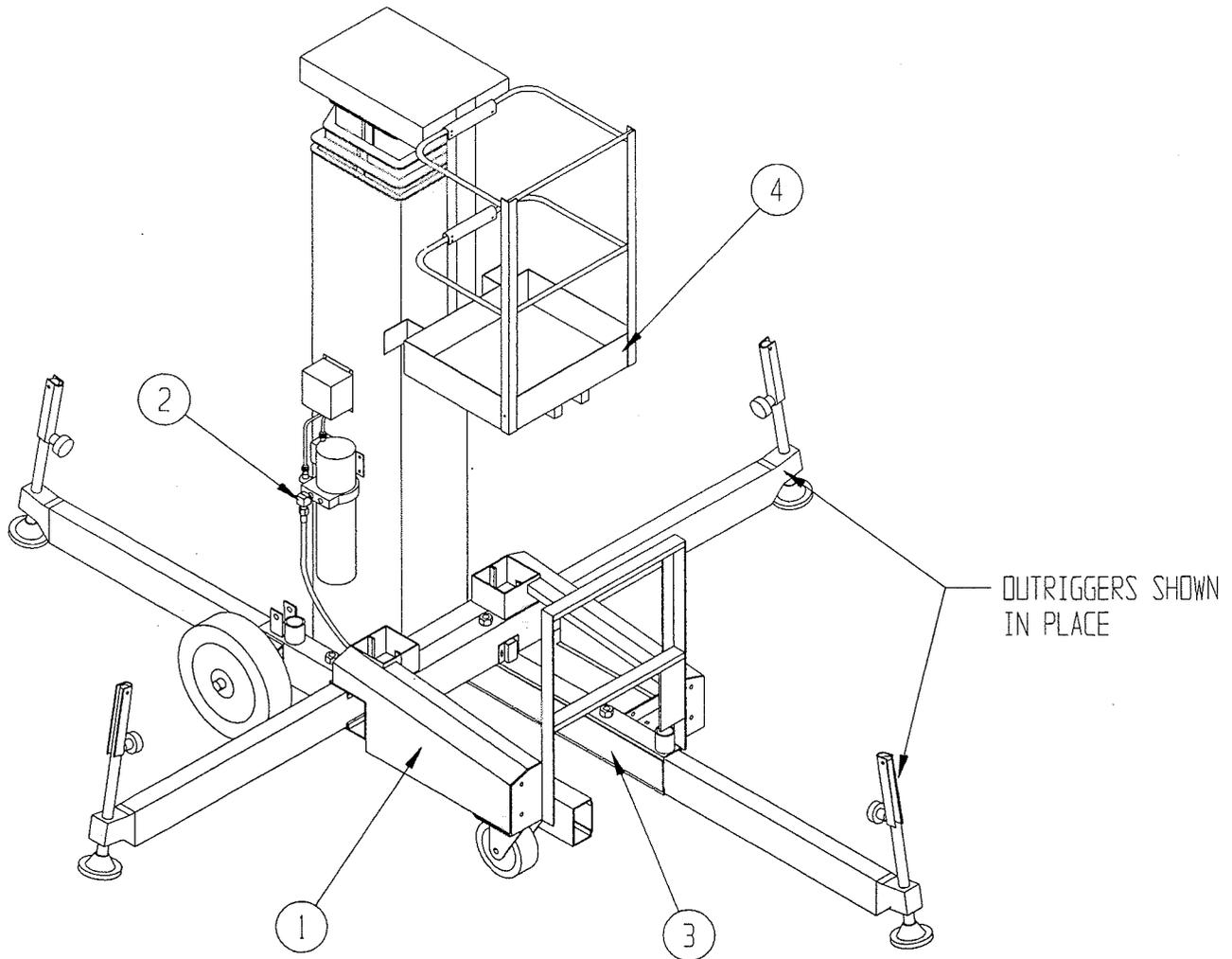
ITEM	PART	DESCRIPTION	QTY.
1	62855-004	BASIC ASSY	1
2	62856-004	A.C. POWER ASSY.- EUROPE	1
3	62897-014	LABEL KIT - EUROPE	1

**FINAL ASSEMBLY, EUROPE, 5<sup>TH</sup> GEN.**  
UL-24 DC: 62851-008

ITEM	PART	DESCRIPTION	QTY.
1	62855-004	BASIC ASSY	1
2	62857-003	D.C. POWER ASSY.- EUROPE	1
3	62897-015	LABEL KIT - EUROPE	1

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**FINAL ASSEMBLY, EUROPE**

# Illustrated Parts Breakdown

## BASIC ASSEMBLY, DOMESTIC, 4<sup>TH</sup> GEN.

UL-24: 62855-001

UL-31/33: 62855-002

UL-38/40: 62855-003

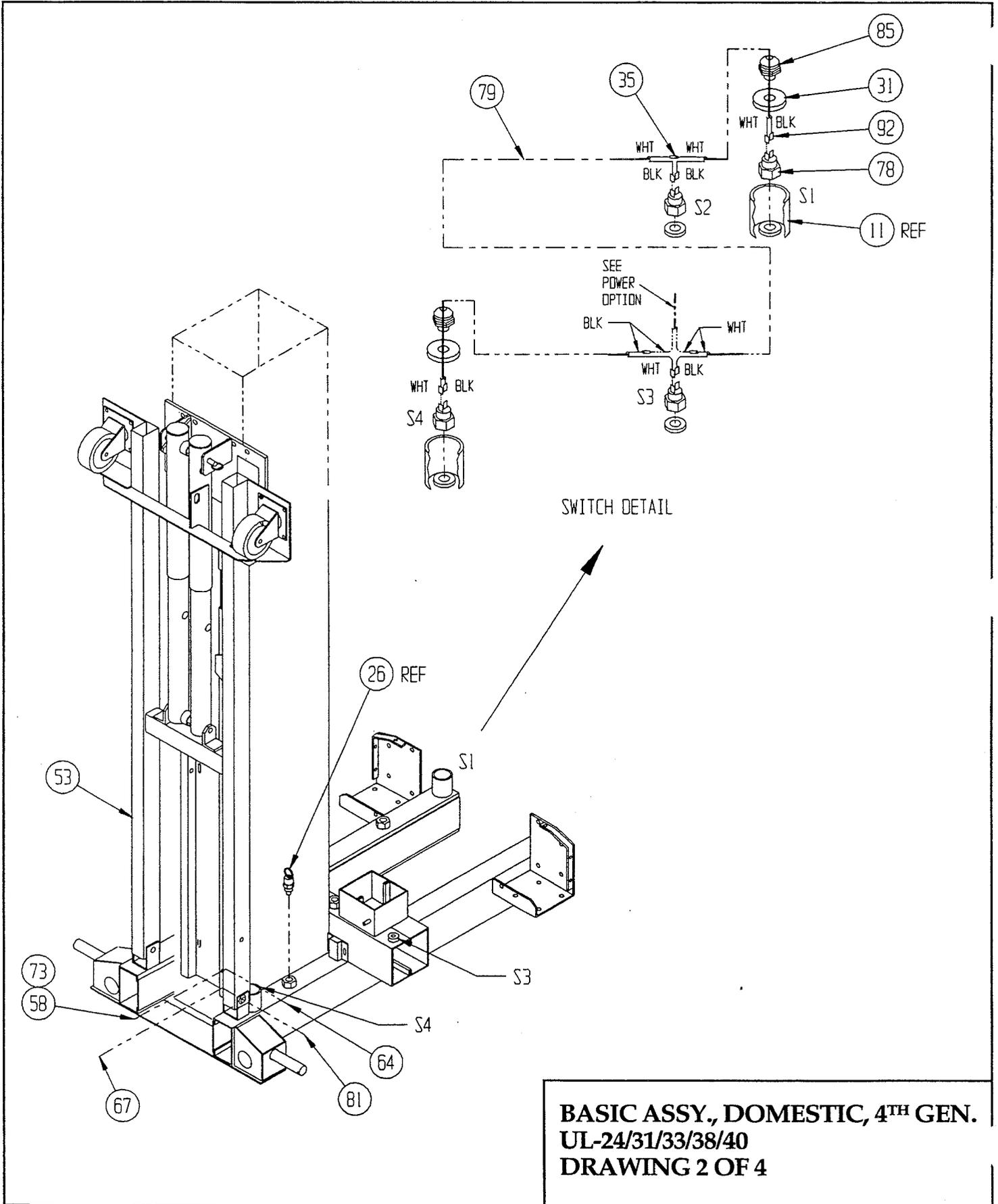
ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
1	62247-000	CABLE STORAGE TUBE	1		
	62248-000	CABLE STORAGE TUBE		1	
	62249-000	CABLE STORAGE TUBE			1
2	62269-001	OUTRIGGER ASSEMBLY	4		
	62270-001	OUTRIGGER ASSEMBLY		4	4
3	62400-001	CAGE ASSEMBLY	1		
	62419-001	CAGE ASSEMBLY		1	1
4	62429-000	LADDER WELDMENT	1	1	
	62430-000	LADDER WELDMENT			1
5	62662-001	LIFT CYLINDER ASSEMBLY	1		
	62663-001	LIFT CYLINDER ASSEMBLY		1	
	62664-001	LIFT CYLINDER ASSEMBLY			1
6	62668-000	MAST ASSEMBLY #2	1		
	62669-000	MAST ASSEMBLY #2		1	
	62670-000	MAST ASSEMBLY #2			1
7	62671-000	MAST ASSEMBLY #3	1		
	62672-000	MAST ASSEMBLY #3		1	
	62673-000	MAST ASSEMBLY #3			1
8	62674-000	MAST ASSEMBLY #4	1		
	62675-000	MAST ASSEMBLY #4		1	
	62676-000	MAST ASSEMBLY #4			1
9	62677-000	MAST ASSEMBLY #5	1		
	62678-000	MAST ASSEMBLY #5		1	
	62679-000	MAST ASSEMBLY #5			1
10	62425-000	MAST ASSEMBLY #6	1		
	62426-000	MAST ASSEMBLY #6		1	
	62427-000	MAST ASSEMBLY #6			1
11	62860-001	BASE WELDMENT	1		
	62860-002	BASE WELDMENT		1	
	62860-003	BASE WELDMENT			1
12	62820-001	RETRACT CORD (ELECT.)	1		
	62820-002	RETRACT CORD (ELECT.)		1	
	62820-003	RETRACT CORD (ELECT.)			1
13	62784-001	CASTER, SWIVEL		2	
14	62745-000	LOADER BAR		1	
15	62776-000	LOADER CASTER ASSEMBLY	1		
16	62470-002	COVER PLATE, MAST	2	2	2
17	62843-001	GRIP		2	4
19	62781-001	WHEEL	2	2	2
20	62799-001	ENCLOSURE BOX & COVER	1	1	1
21	62799-002	SWITCH OPERATOR COVER	3	3	3
22	62799-003	CONTACT BLOCK N.O.	3	3	3
23	30652-000	KIT, HANDLE BAR		1	1
26	03570-000	RETAINING PIN, OUTRIGGER	4	4	4
27	62250-000	PIN ASSEMBLY, LOADER	1	1	1
28	00942-000	ORBIT LEVEL	1	1	1
29	05440-000	KEY SWITCH	1	1	1
*	05442-000	KEY ONLY	1	1	1
30	29936-006	GUARD, TOGGLE SWITCH	1	1	1
31	62880-004	FITTING 1 1/4 X 1/2	2	2	2
32	12797-000	TOGGLE SWITCH	1	1	1
33	13919-009	CLAMP	3	3	3
34	20398-024	CLAMP	2	2	2
35	29620-002	CONN BUTT 14-16	8	8	8
36	26610-001	ELECTRICAL BOX	1	1	1
37	62129-000	STRAP RETAINER	4	4	4
38	62158-000	MAST BEARING	20	20	20
39	62159-000	MAST BEARING	8	8	8
40	62160-000	MAST BEARING	4	4	4

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
41	62160-001	MAST BEARING	4	4	4
42	62223-000	MAST BEARING	4	4	4
43	62469-000	PINCH SHIELD	1	1	1
48	11735-020	ROLL PIN, 1/8 DIA X 1 1/4	2	2	2
49	11753-012	COTTER PIN, 1/8 X 1 1/2	2	2	2
50	62399-001	PIN, LEAF CHAIN	2	2	2
51	62686-000	PIN, CHAIN	1	1	1
52	62687-000	PIN, CHAIN	1	1	1
53	62861-000	TILT BACK ASSY		1	1
54	11238-006	WASHER, SPLIT 3/8	8	8	8
56	11239-006	WASHER, FLAT 3/8 ASTM	8		
57	11240-003	WASHER, FLAT #10	1	1	1
58	11240-004	WASHER 1/4 STD	8	8	8
59	11240-005	WASHER, FLAT 5/16	16	16	16
60	11240-006	WASHER, FLAT 3/8	8	8	8
63	11246-006	LOCKNUT, (THIN) 3/8-16	4		
64	11248-004	LOCKNUT, 1/4-20	8	8	8
65	11248-005	LOCKNUT, 5/16-18 UNC HEX	8	8	8
66	11248-006	LOCKNUT, 3/8-16 UNC HEX	4	4	4
67	11248-008	LOCKNUT, 1/2-13UNC HEX		2	2
68	11249-003	LOCKNUT, 10-32 UNF HEX	3	3	3
69	05503-003	SCREW, HEX/WASH. HD #6 AB X 3/8	2	2	2
70	29939-002	LOCKNUT, 1/2 NPT	1	1	1
71	14252-004	NUT SERT, 1/4-20 UNC	6	6	6
72	12553-005	SCREW, SOC HD 1/4-20 X 5/8	22	22	22
73	12553-006	SCREW, SOC HD 1/4-20 X 3/4	20	20	20
74	11253-008	SCREW, HHC 5/16-18 X 1	8	8	8
75	11254-010	SCREW, MHHC 3/8-16 X 1 1/4	4	4	4
76	62878-000	COVER WELDMENT R.H.	1	1	1
77	62879-000	COVER WELDMENT L.H.	1	1	1
78	62881-000	SWITCH	4	4	4
79	29489-099	WIRE, 2 CONN.	8FT	8FT	8FT
80	11252-004	SCREW, 1/4-20 UNC HHC X 1/2	6	6	6
81	11256-020	SCREW, 1/2-13UNC HHC X 2 1/2		2	2
82	29448-099	WIRE, 16 AWG 7 CONN	2	2	2
83	29454-099	WIRE, 16 AWG RED	.5FT	.5FT	.5FT
84	11823-005	SCREW, BUTT HD 3/8-16 X 5/8	8	8	8
85	29925-000	CONNECTOR, CABLE	4	4	4
86	11728-006	SCREW SOC HD 10-32 X 3/4	3	3	3
87	11811-004	SCREW, SELF TAP 10-32 X 1/2	2	2	2
88	11715-004	SCREW 10-32 X 1/2	2	2	2
89	11254-022	SCREW, HHC 3/8-16 X 2 3/4	4		
90	29925-003	CONNECTOR, CABLE	1	1	1
92	29601-013	CONN, RING 14-16 #10	12	12	12

\*Not Shown

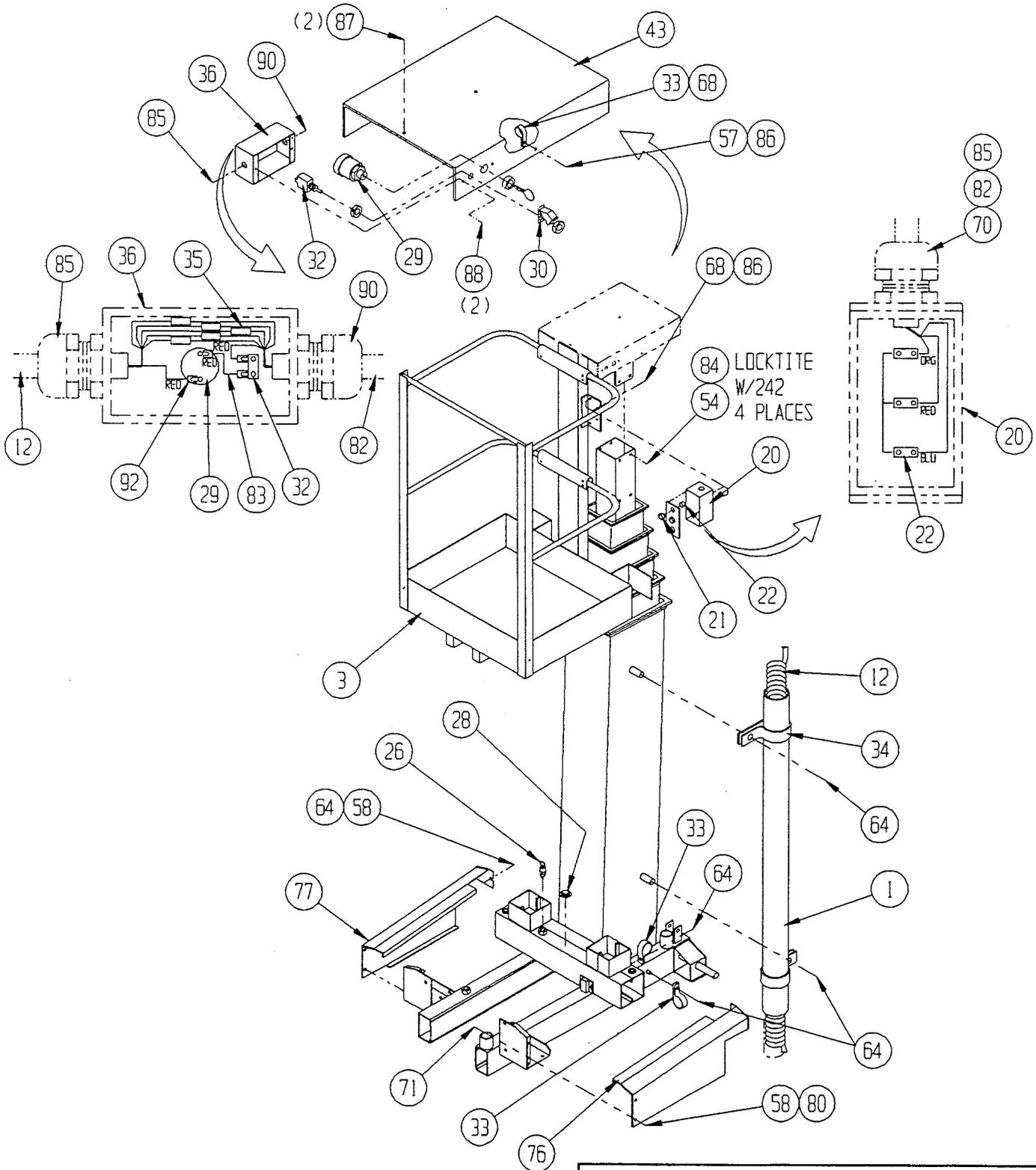


# Illustrated Parts Breakdown





# Illustrated Parts Breakdown



**BASIC ASSY., DOMESTIC, 4<sup>TH</sup> GEN.**  
**UL-24/31/33/38/40**  
**DRAWING 4 OF 4**

# Illustrated Parts Breakdown

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*NOTES*

# Illustrated Parts Breakdown

## BASIC ASSEMBLY, 5<sup>TH</sup> GENERATION

UL-24

62855-004

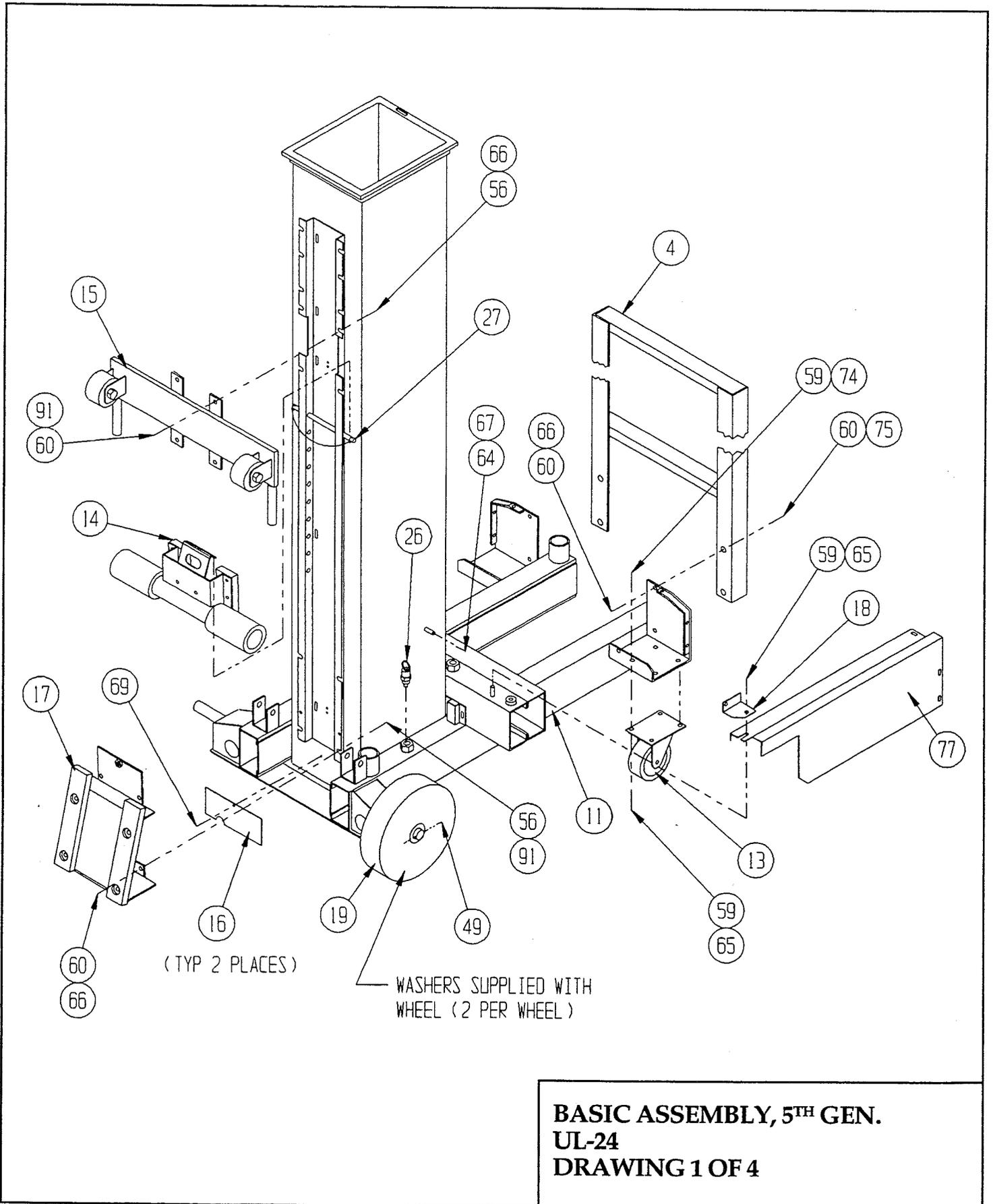
ITEM	PART	DESCRIPTION	QTY.
1	62246-000	CABLE STORAGE TUBE	1
2	62269-001	OUTRIGGER ASSEMBLY	4
3	62400-001	CAGE ASSEMBLY	1
4	62429-000	LADDER WELDMENT	1
5	62662-001	LIFT CYLINDER ASSEMBLY	1
6	62668-000	MAST ASSEMBLY #2	1
7	62671-000	MAST ASSEMBLY #3	1
8	62674-000	MAST ASSEMBLY #4	1
9	62677-000	MAST ASSEMBLY #5	1
10	62425-000	MAST ASSEMBLY #6	1
11	62860-001	BASE WELDMENT	1
12	62820-001	RETRACT CORD (ELECT.)	1
13	62784-001	CASTER, SWIVEL	2
14	62745-001	LOADER BAR	1
15	62776-001	LOADER ASSEMBLY	1
16	62470-002	COVER PLATE, MAST	2
17	62926-000	LOADER SLIDE ASSY	1
18	62916-000	CORD TUBE BRACKET	1
19	62781-001	WHEEL	2
20	62799-001	ENCLOSURE BOX & COVER	1
21	62799-002	SWITCH OPERATOR COVER	3
22	62799-003	CONTACT BLOCK N.O.	3
23	62912-000	POWER UNIT COVER	1
24	62908-000	OUTRIGGER SOCKET WELDMENT	1
25	62911-000	OUTRIGGER TIE	1
26	03570-000	RETAINING PIN, OUTRIGGER	4
27	62250-000	PIN ASSEMBLY, LOADER	1
28	00942-000	ORBIT LEVEL	1
29	05440-000	KEY SWITCH	1
*	05442-000	KEY ONLY	1
30	29936-006	GUARD, TOGGLE SWITCH	1
31	62880-004	FITTING, 1 1/4 X 1/2	2
32	12797-000	TOGGLE SWITCH	1
33	13919-009	CLAMP	2
34	20398-024	CLAMP	2
35	29620-002	CONN, BUTT 14-16	8
36	26610-001	COVER, ELECT. BOX	1
37	62129-000	STRAP RETAINER	4
38	62158-000	MAST BEARING	20
39	62159-000	MAST BEARING	8
40	62160-000	MAST BEARING	4
41	62160-001	MAST BEARING	4
42	62223-000	MAST BEARING	4
43	62469-000	PINCH SHIELD	1
48	11735-020	ROLL PIN, 1/8 DIA X 1 1/4	2
49	11753-012	COTTER PIN, 1/8 X 1 1/2	2
50	62399-001	PIN, LEAF CHAIN	2
51	62686-000	PIN, CHAIN	1
52	62687-000	PIN, CHAIN	1
53	62346-000	NYLON STRAP	1
54	11238-006	WASHER, SPLIT 3/8	8
55	26553-005	RIVET 3/16 .251-.375 GRIP	2
56	11239-006	WASHER, FLAT 3/8 ASTM	8
57	11240-003	WASHER, FLAT #10	1
58	11240-004	WASHER, 1/4 STD	8
59	11240-005	WASHER, FLAT 5/16	16
60	11240-006	WASHER, FLAT 3/8	20

ITEM	PART	DESCRIPTION	QTY.
61	62920-000	LIFT HANDLE WELDMENT	1
62	62843-001	GRIP	2
64	11248-004	LOCKNUT, 1/4-20	8
65	11248-005	LOCKNUT, 5/16-18 UNC HEX	10
66	11248-006	LOCKNUT, 3/8-16 UNC HEX	18
67	13919-010	CLAMP	2
68	11249-003	LOCKNUT, 10-32 UNF HEX	3
69	05503-003	SCREW, HEX/WASH. HD #6 AB X 3/8	2
70	29939-002	LOCKNUT, 1/2 NPT	1
71	14252-004	NUT SERT, 1/4-20 UNC	6
72	12553-005	SCREW, SOC HD 1/4-20 X 5/8	22
73	12553-006	SCREW, SOC HD 1/4-20 X 3/4	20
74	11253-008	SCREW, HHC 5/16-18 X 1	8
75	11254-010	SCREW, MHHC 3/8-16 X 1 1/4	4
76	62914-000	COVER WELDMENT L.H.	1
77	62913-000	COVER WELDMENT R.H.	1
78	62881-000	SWITCH	4
79	29489-099	WIRE, 2 CONN.	8
80	11252-004	SCREW, 1/4-20 UNC HHC X 1/2	6
81	62330-000	PIN / LANYARD ASSY	1
82	29448-099	WIRE, 16 AWG 7 CONN	1.5FT
83	29454-099	WIRE, 16 AWG RED	.5FT
84	11823-005	SCREW, BUTT HD 3/8-16 X 5/8	8
85	29925-000	CONNECTOR, CABLE	4
86	11728-006	SCREW, SOC HD 10-32 X 3/4	3
87	11811-004	SCREW, SELF TAP 10-32 X 1/2	2
88	11715-004	SCREW, 10-32 X 1/2	2
90	29925-003	CONNECTOR, CABLE	2
91	11254-008	SCREW, 3/8-16 UNC HHC X 1	8
92	29601-013	CONN, RING 14-16 #10	12

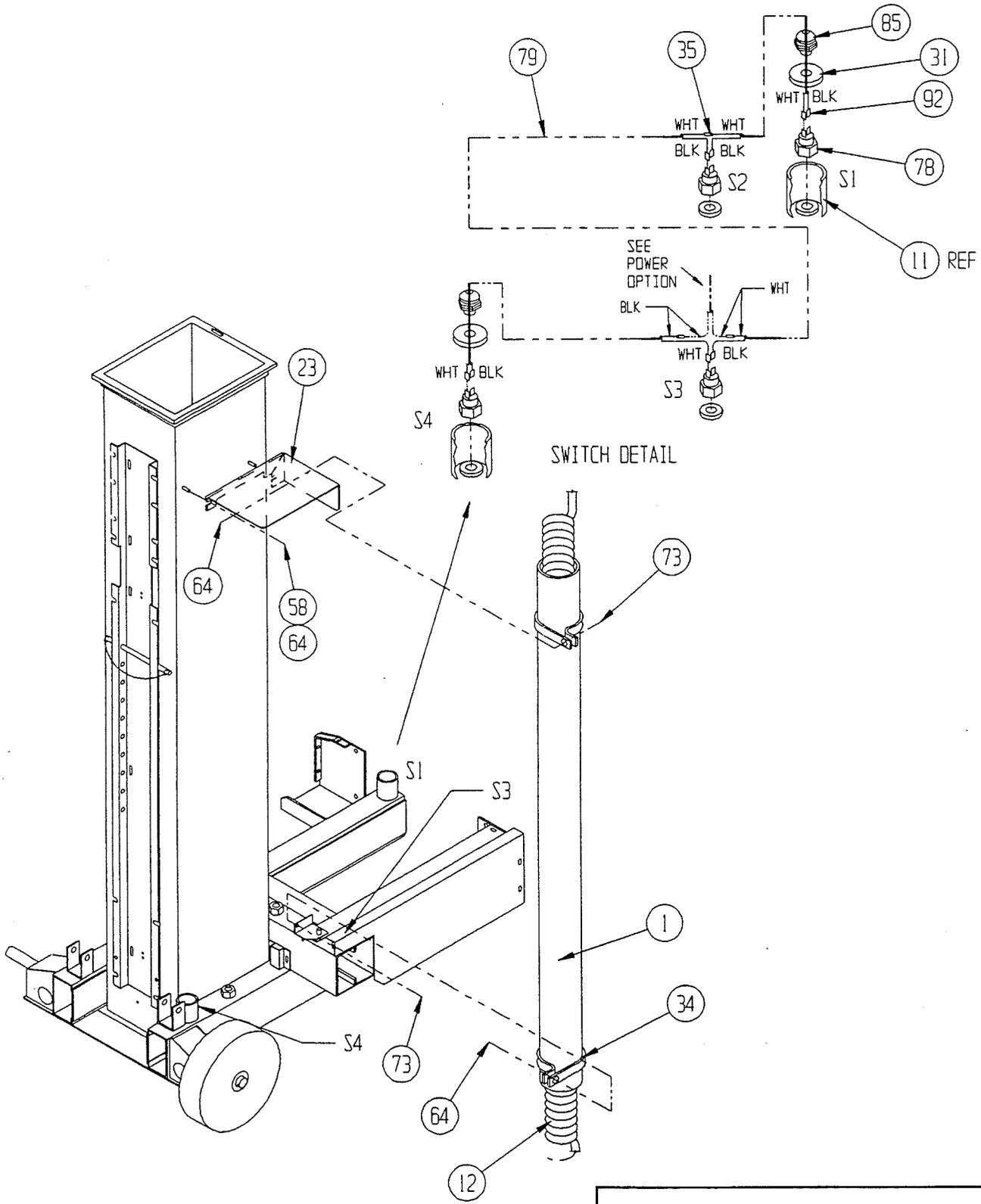
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# Illustrated Parts Breakdown

Section  
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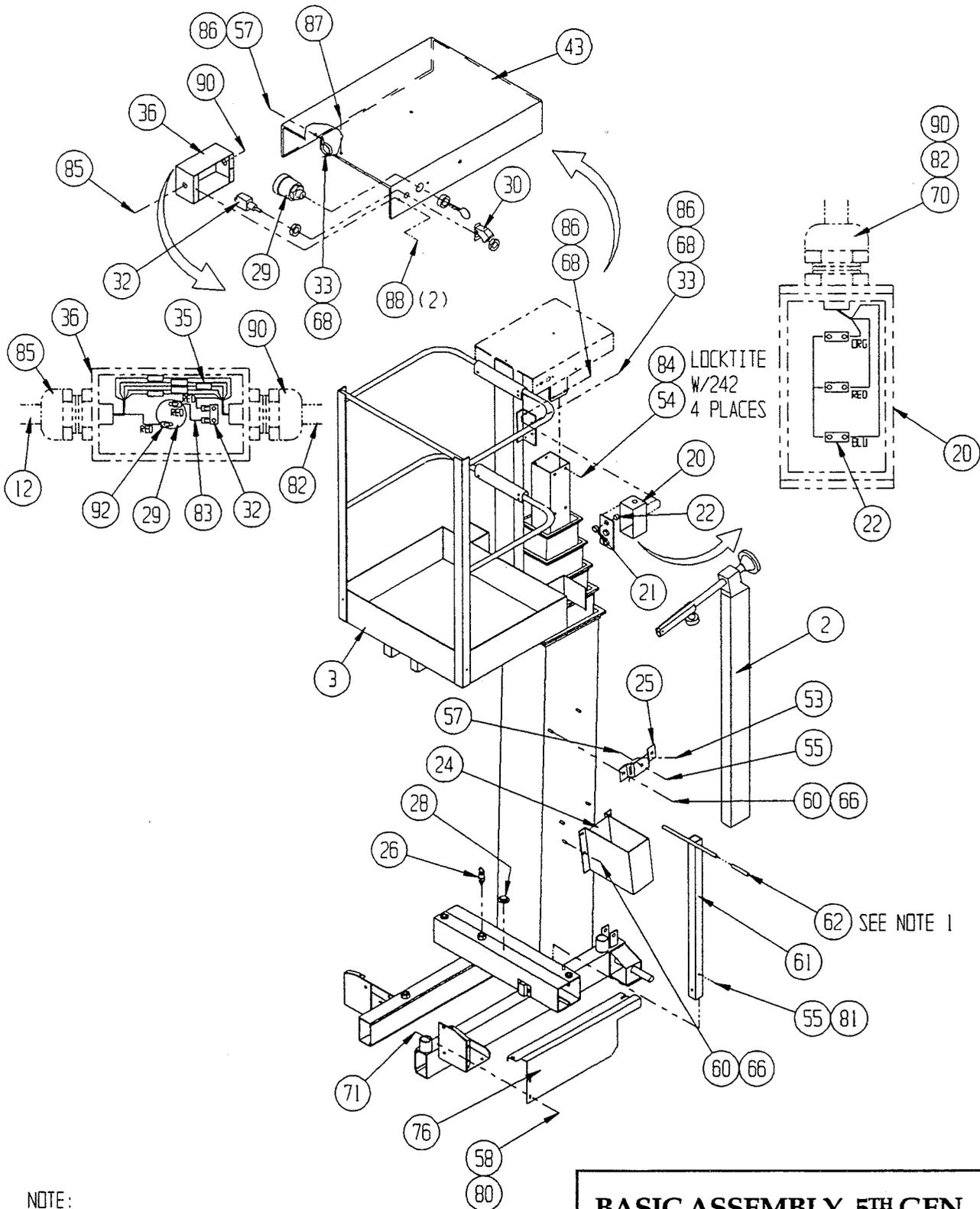
# Illustrated Parts Breakdown



**BASIC ASSEMBLY, 5<sup>TH</sup> GEN.  
UL-24  
DRAWING 2 OF 4**



# Illustrated Parts Breakdown



NOTE:  
1. BOND ITEM #61 TO ITEM #62 WITH  
3M ADHESIVE CA-40 OR EQUIVALENT

**BASIC ASSEMBLY, 5<sup>TH</sup> GEN.**  
**UL-24**  
**DRAWING 4 OF 4**

# Illustrated Parts Breakdown

Section  
7.2

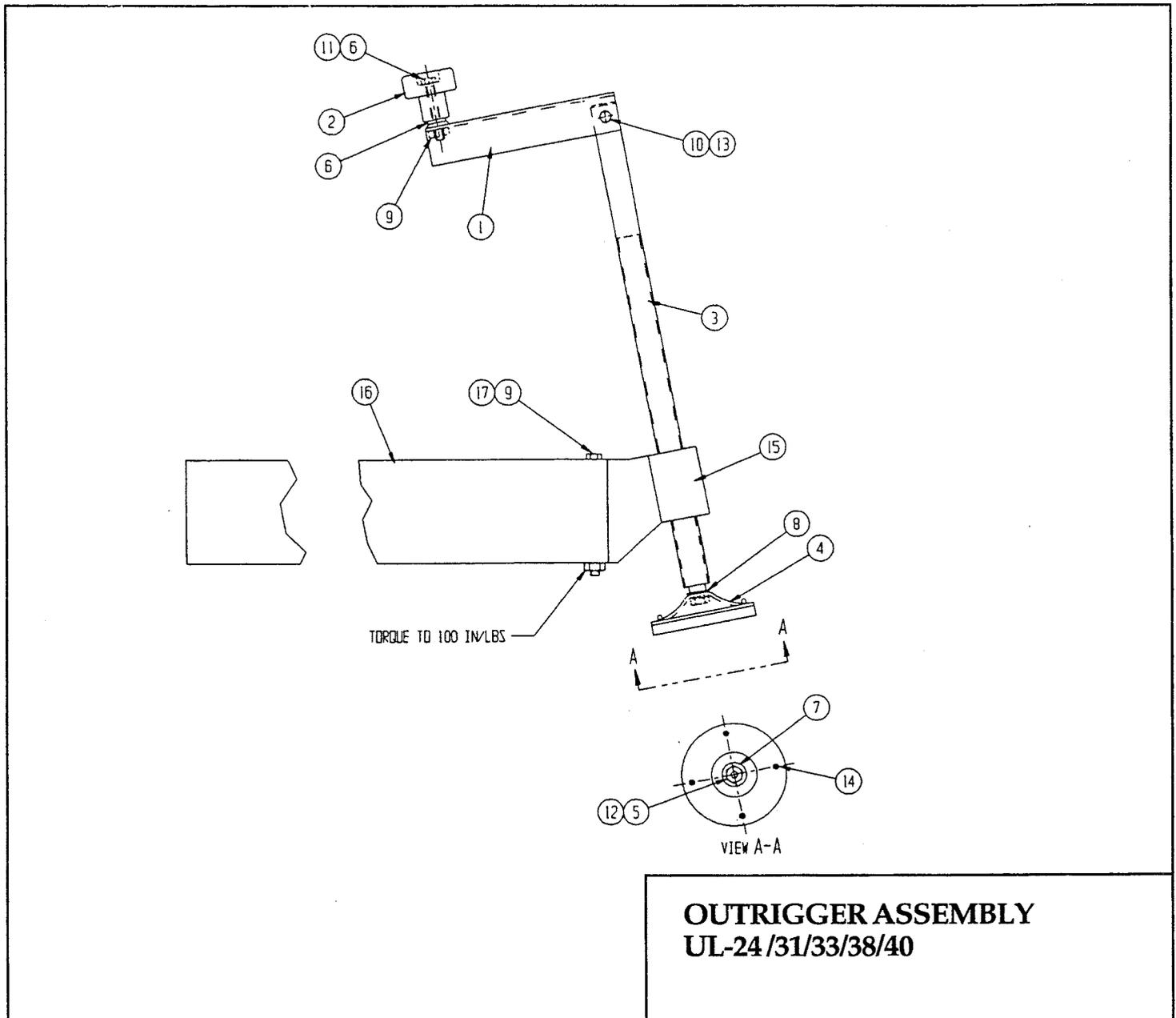
## OUTRIGGER ASSEMBLY

UL-24: 62269-001

UL-31/33/38/40: 62270-001

ITEM	PART	DESCRIPTION	24 QTY.	31/33/38/40 QTY.
1	03471-000	HANDLE ARM	1	1
2	03508-000	KNOB	1	1
3	62636-000	SCREW	1	1
4	03532-000	PAD ASSEMBLY	1	1
5	11238-005	WASHER	1	1
6	11240-004	WASHER, 1/4 FLAT	2	2
7	11240-005	WASHER, 5/16 FLAT	1	1
8	14996-010	WASHER, 5/8 FLAT SAE	1	1
9	11248-004	NUT, 1/4-20 ESNA	2	2
10	11248-005	NUT, 5/16-18 ESNA	1	1

ITEM	PART	DESCRIPTION	24 QTY.	31/33/38/40 QTY.
11	11252-018	SCREW, HHC 1/4-20 X 2 1/4	1	1
12	11253-008	SCREW, HHC 5/16-18 X 1	1	1
13	11253-014	SCREW, HHC 5/16-18 X 3/4	1	1
14	26553-005	RIVET, 3/16 X 3/8 AL POP	4	4
15	62459-000	OUTRIGGER CASTING	1	1
16	62460-000	OUTRIGGER TUBE	1	
	62461-000	OUTRIGGER TUBE		1
17	11252-036	SCREW, HHC 1/4-20 X 4 1/2 LG	1	1



## Illustrated Parts Breakdown

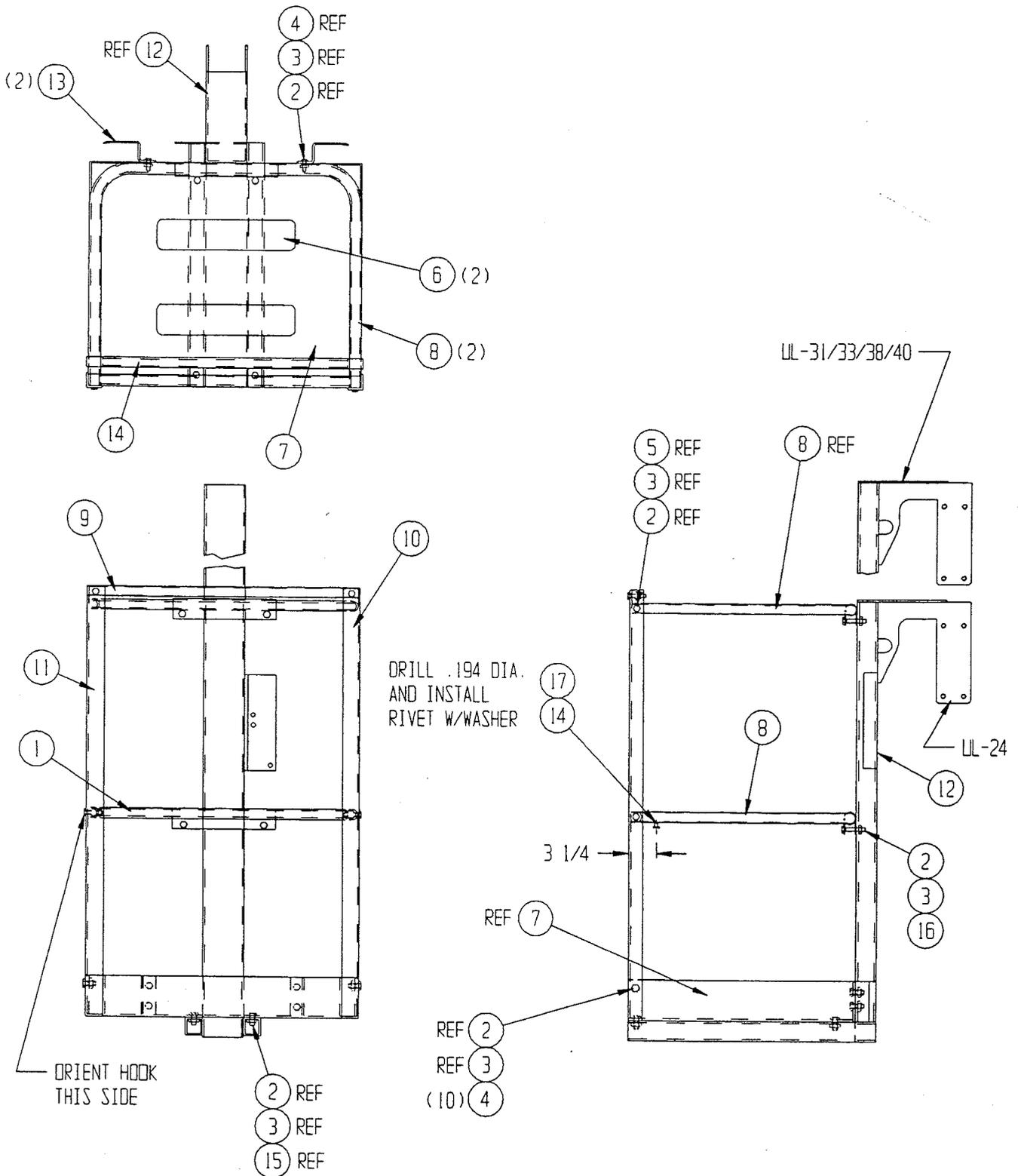
## CAGE ASSEMBLY

UL-24: 62400-001

UL-31/33/38/40: 62419-001

ITEM	PART	DESCRIPTION	24 QTY.	31/33/38/40 QTY.
1	62794-000	MIDRAIL WELDMENT ARM	1	1
2	11240-004	WASHER, FLAT 1/4	36	36
3	11248-004	NUT HEX ESNA 1/4-20 UNC	20	20
4	11252-008	SCREW, HHC GR5 1/4-20 X 1	6	6
5	11252-014	SCREW, HHC GR5 1/4-20 X 1 3/4	6	6
6	60830-000	SAFETY WALK	2	2
7	62401-000	CAGE PAN	1	1
8	62402-000	RAIL FORMED	2	2
9	62403-000	FRONT RAIL	1	1
10	62404-001	POST R.H.	1	1
11	62405-001	POST L.H.	1	1
12	62413-001	CAGE SUPPORT WELDMENT	1	
	62418-001	CAGE SUPPORT WELDMENT		1
13	62340-000	OUTRIGGER STORAGE RETAINER	2	2
14	26553-004	RIVET, 3/16 .251-.375 GRIP	1	1
15	11252-016	SCREW, 1/4-20 UNC HHC X 2	4	4
16	11252-022	SCREW, 1/4-20 UNC HHC X 2 3/4	4	4
17	14996-003	WASHER, #10 SAE FLAT	1	1

# Illustrated Parts Breakdown



**CAGE ASSEMBLY**  
**UL-24/31/33/38/40**

# Illustrated Parts Breakdown

## LIFT CYLINDER ASSEMBLY

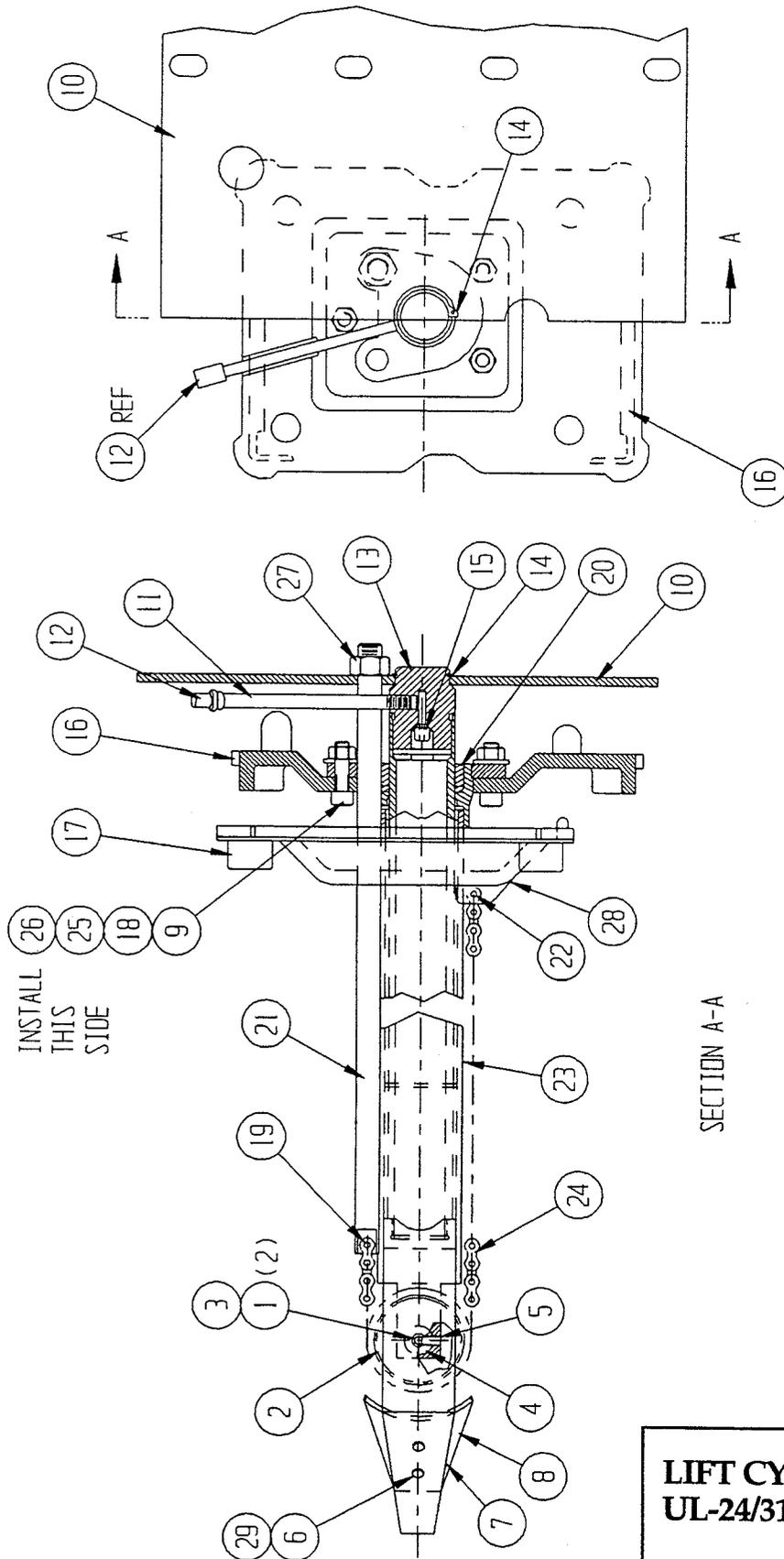
UL-24: 62662-001

UL-31/33: 62663-001

UL-38/40: 62664-001

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
1	62642-016	BEARING	2	2	2
2	62651-000	SHEAVE, ROLLER	2	2	2
3	11828-005	SCREW, FLT HD SOC 1/4-20 UNC X 5/8	2	2	2
4	62068-000	SHAFT, ROLLER	1	1	1
5	11737-010	ROLLPIN	1	1	1
6	26553-006	RIVET, 3/16 DIA. POP	4	4	4
7	62655-000	CHAIN GUARD	2	2	2
8	62339-001	CYLINDER GUIDE BEARING	4	4	4
9	63988-006	SHIM, WASHER	2	2	2
10	62815-000	CYLINDER MOUNT PLATE	1	1	1
11	20908-005	NIPPLE, FITTING 1/4-18 NPT X 5	1	1	1
12	12432-005	FITTING, STRAIGHT	1	1	1
13	62286-000	CYLINDER ROD END	1	1	1
14	11764-023	RETAINING RING	1	1	1
15	62173-000	VALVE	1	1	1
16	62761-000	CASTING, 2ND STAGE	1	1	1
17	62763-000	CASTING, 3RD STAGE	1	1	1
18	11248-006	LOCKNUT, 3/8-16 UNC HEX	3	3	3
19	62169-003	MASTER LINK	2	2	2
20	62071-000	SEAL RETAINING RING	1	1	1
21	62656-000	TIE ROD	2	2	2
22	62754-000	PIN #3 BOTTOM	1	1	1
23	62084-000	CYLINDER	1		
	62085-000	CYLINDER		1	
	62086-000	CYLINDER			1
*	62084-099	KIT, SEAL	1	1	1
24	62168-108	CHAIN, 67 1/2 LONG	2		
	62168-136	CHAIN, 85 LONG		2	
	62168-154	CHAIN, 96 1/4 LONG			2
25	11240-006	WASHER, 3/8 DIA FLAT	3	3	3
26	11287-012	SCREWS, 3/8-16 UNC SOC HD X 1 1/2	3	3	3
27	11248-010	LOCKNUT, 5/8 UNF HEX	2	2	2
28	11735-020	ROLL PIN	2	2	2
29	11240-003	WASHER, #10 FLAT	4	4	4

# Illustrated Parts Breakdown



**LIFT CYLINDER ASSEMBLY**  
**UL-24/31/33/38/40**

# Illustrated Parts Breakdown

## MAST ASSEMBLY, 3<sup>RD</sup> STAGE

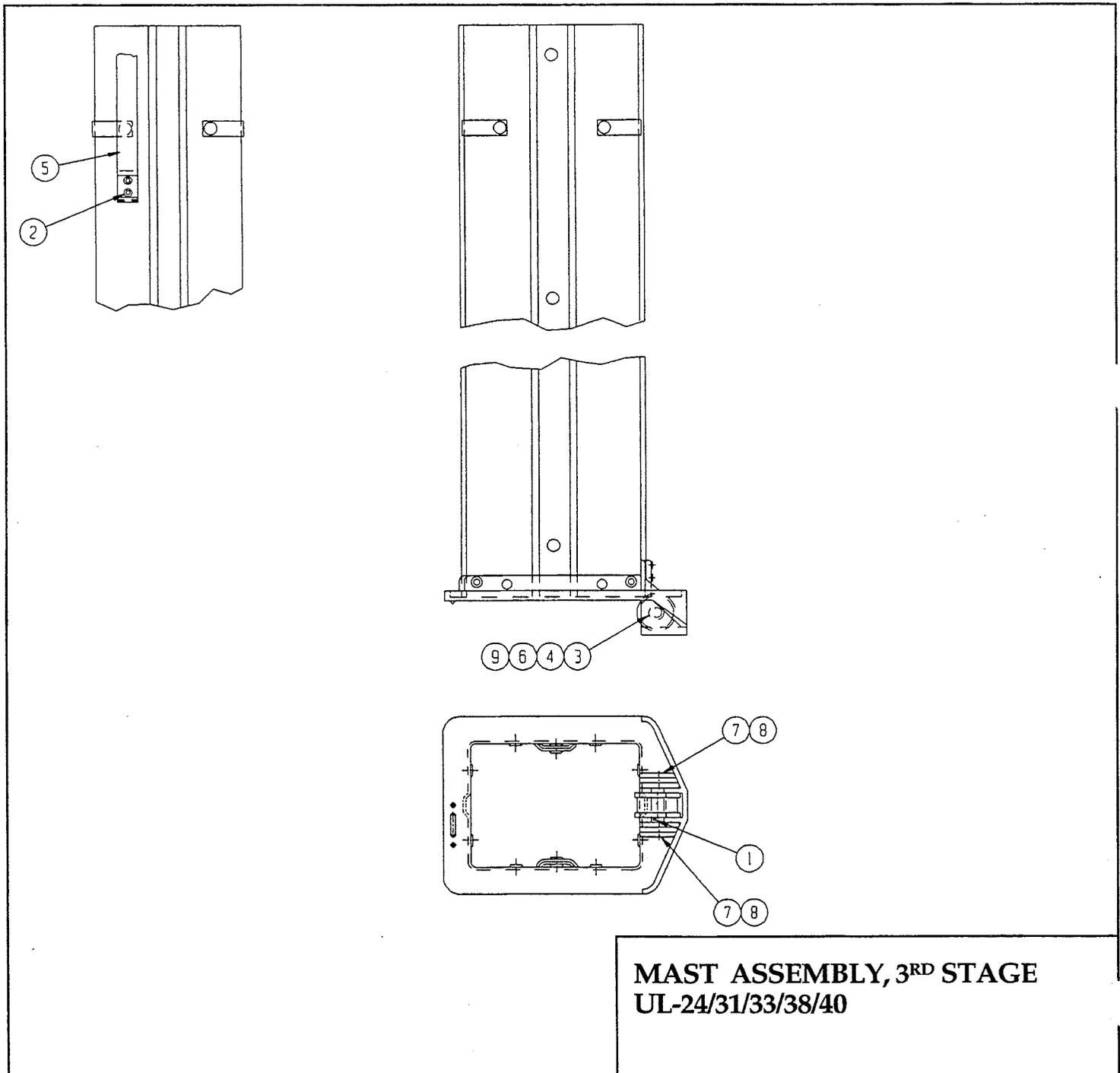
UL-24: 62671-000

UL-31/33: 62672-000

UL-38/40: 62673-000

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
1	11735-012	ROLL PIN	1	1	1
2	26553-002	POP RIVET, 3/16 .126-.250 GRIP	2	2	2
3	62642-016	BEARING	1	1	1
4	62650-000	SHAFT	1	1	1

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
5	62753-000	STRAP ASSEMBLY	1	1	1
6	62652-000	SHEAVE	1	1	1
7	62399-001	PIN, CHAIN	2	2	2
8	11751-004	COTTER PIN, 1/16 X 1/2	4	4	4
9	62642-010	BEARING	1	1	1



# Illustrated Parts Breakdown

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## MAST ASSEMBLY, 4<sup>TH</sup> STAGE

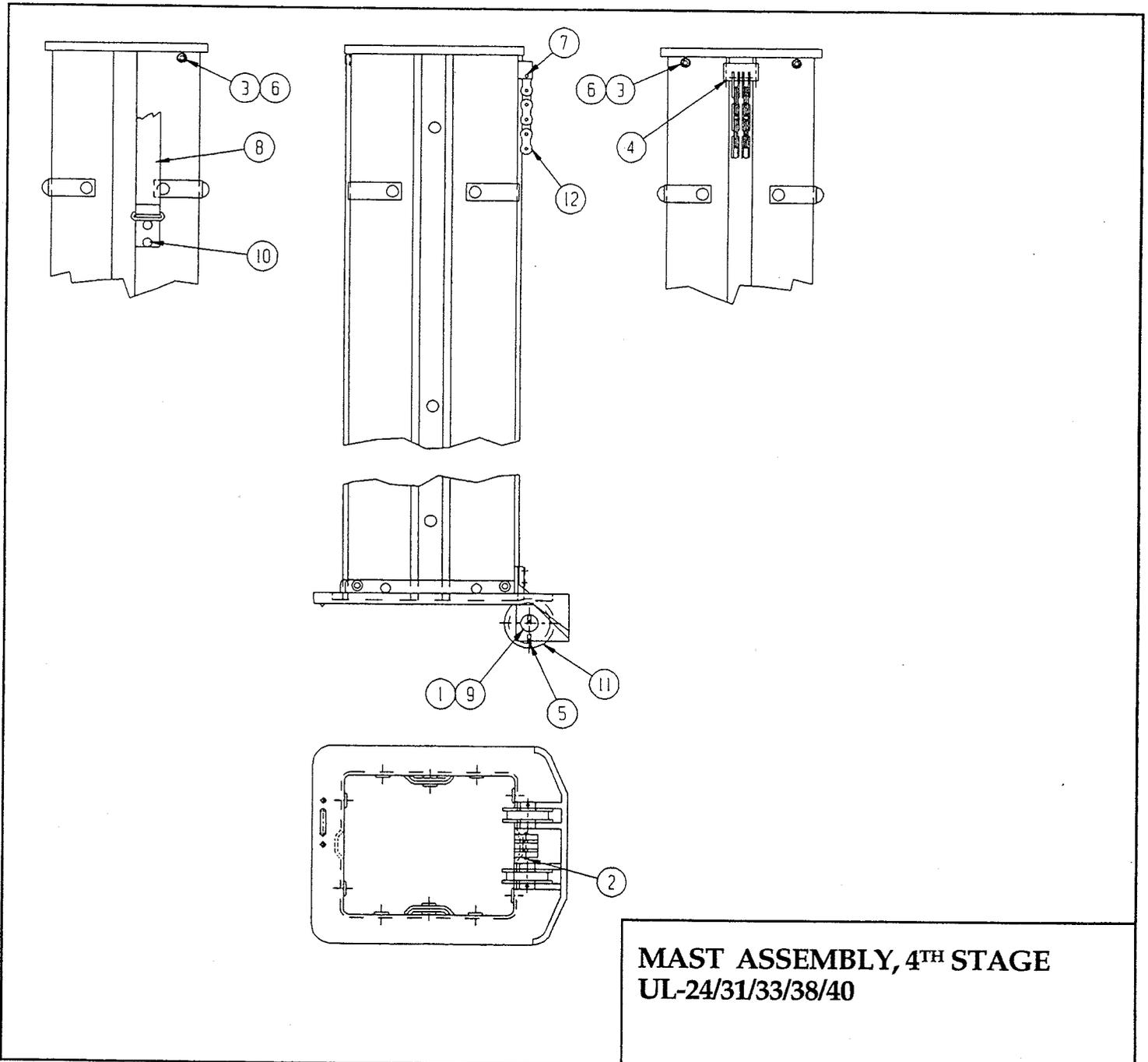
UL-24: 62674-000

UL-31/33: 62675-000

UL-38/40: 62676-000

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
1	62642-010	BEARING	2	2	2
2	62686-000	PIN, CHAIN (TOP CASTING)	1	1	1
3	11240-004	WASHER, 1/4 FLAT	5	5	5
4	11735-020	ROLL PIN	2	2	2
5	11735-012	ROLL PIN	2	2	2
6	12553-006	SCREW, SOC HD 1/4-20 X 3/4	3	3	3
7	62687-000	PIN, CHAIN (BOTTOM CASTING)	1	1	1

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
8	62753-000	STRAP ASSEMBLY	1	1	1
9	62128-000	SHAFT	2	2	2
10	26553-002	POP RIVET, 3/16	2	2	2
11	62654-000	SHEAVE	2	2	2
12	62167-139	CHAIN, 69 1/2 LONG	2		
	62167-179	CHAIN, 89 1/2 LONG		2	
	62167-211	CHAIN, 105 1/2 LONG			2



**MAST ASSEMBLY, 4<sup>TH</sup> STAGE**  
**UL-24/31/33/38/40**

# Illustrated Parts Breakdown

## MAST ASSEMBLY, 5<sup>TH</sup> STAGE

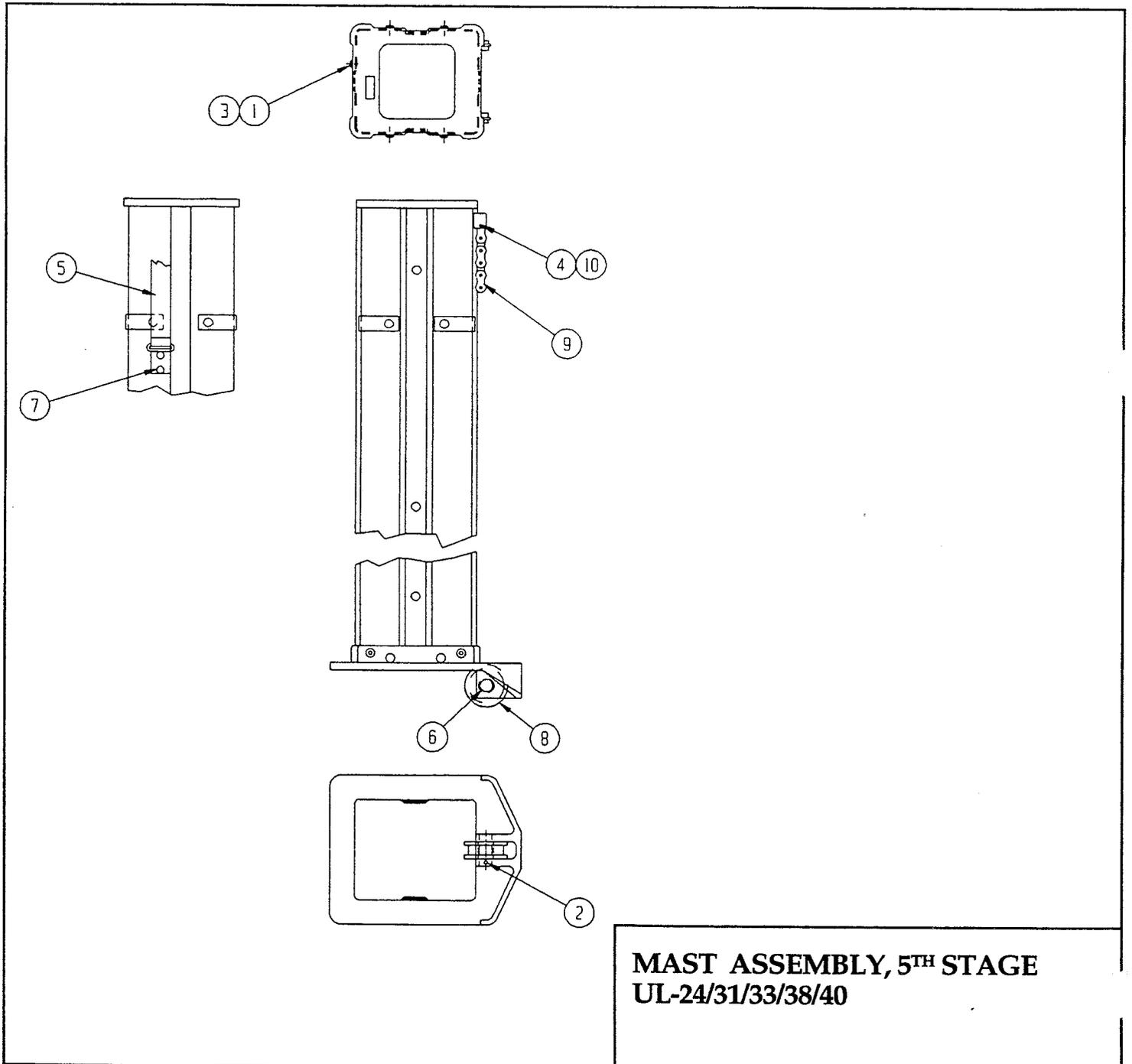
UL-24: 62677-000

UL-31/33: 62678-000

UL-38/40: 62679-000

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
1	11240-004	WASHER, 1/4 FLAT	4	4	4
2	11735-012	ROLL PIN	1	1	1
3	12553-005	SCREW, SOC HD 1/4-20 X 5/8 LONG	4	4	4
4	62399-001	PIN, LEAF	2	2	2
5	62753-000	STRAP ASSEMBLY	1	1	1
6	62127-000	SHAFT	1	1	1

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
7	26553-002	POP RIVET, 3/16 DIA.	2	2	2
8	62653-000	SHEAVE	1	1	1
9	62166-141	CHAIN, 71 1/2 LONG	2		
	62166-181	CHAIN, 91 1/2 LONG		2	
	62166-213	CHAIN, 107 1/2 LONG			2
10	11751-004	COTTER PIN, 1/16 X 1/2	4	4	4



**MAST ASSEMBLY, 5<sup>TH</sup> STAGE**  
**UL-24/31/33/38/40**

# Illustrated Parts Breakdown

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**7.2**

## MAST ASSEMBLY, 6<sup>TH</sup> STAGE

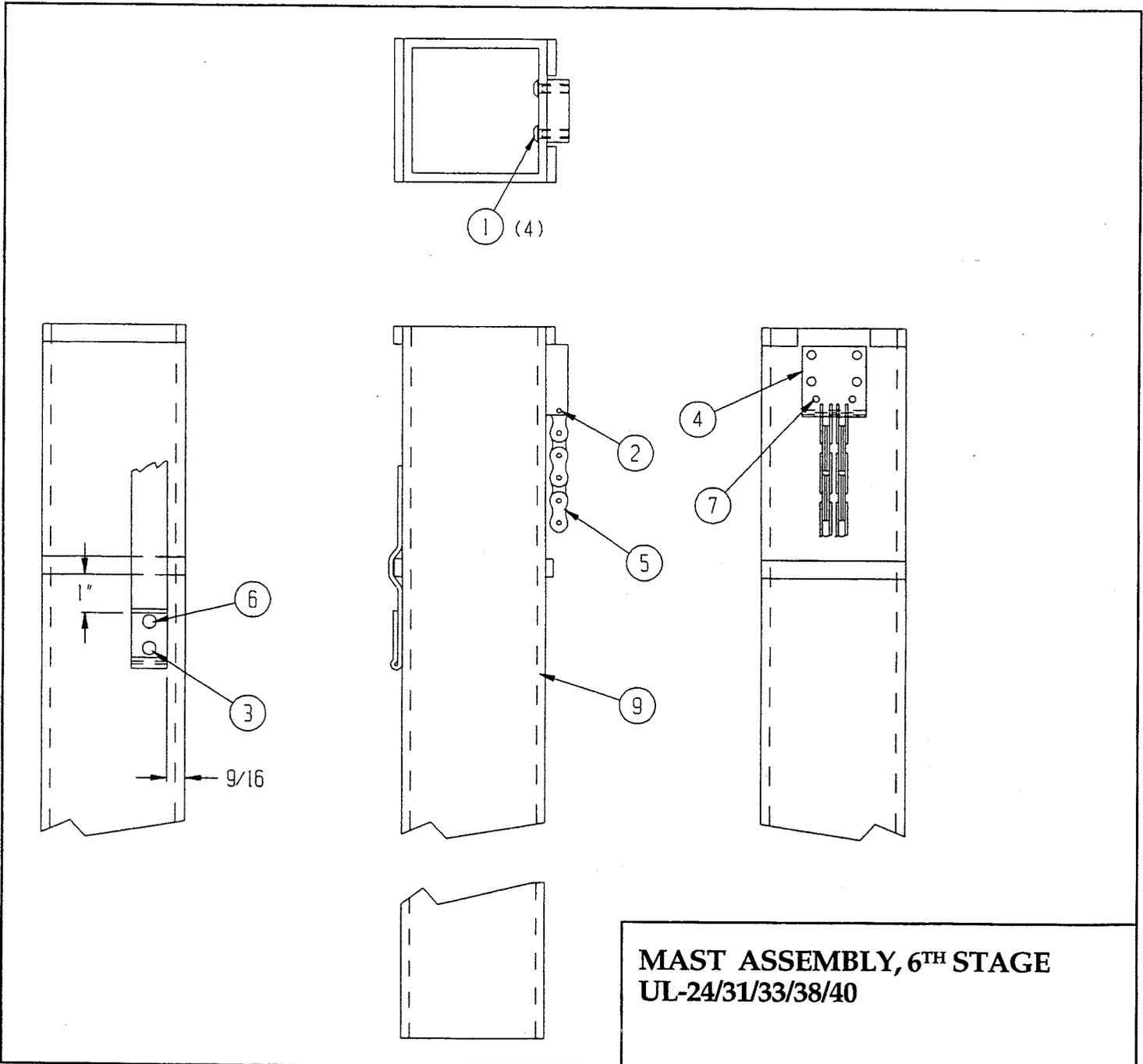
UL-24: 62425-000

UL-31/33: 62426-000

UL-38/40: 62427-000

ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
1	11821-005	SCREW, BUTT HD 1/4-20 X 5/8	4	4	4
2	62398-004	PIN LEAF	1	1	1
3	26553-006	POP RIVET, 3/16, .375-.500 GRIP	2	2	2
4	62152-001	CHAIN ATTACHMENT BLOCK	1	1	1
5	62165-143	CHAIN, 71 1/2 LONG	2		
	62165-183	CHAIN, 91 1/2 LONG		2	
	62165-215	CHAIN, 107 1/2 LONG			2

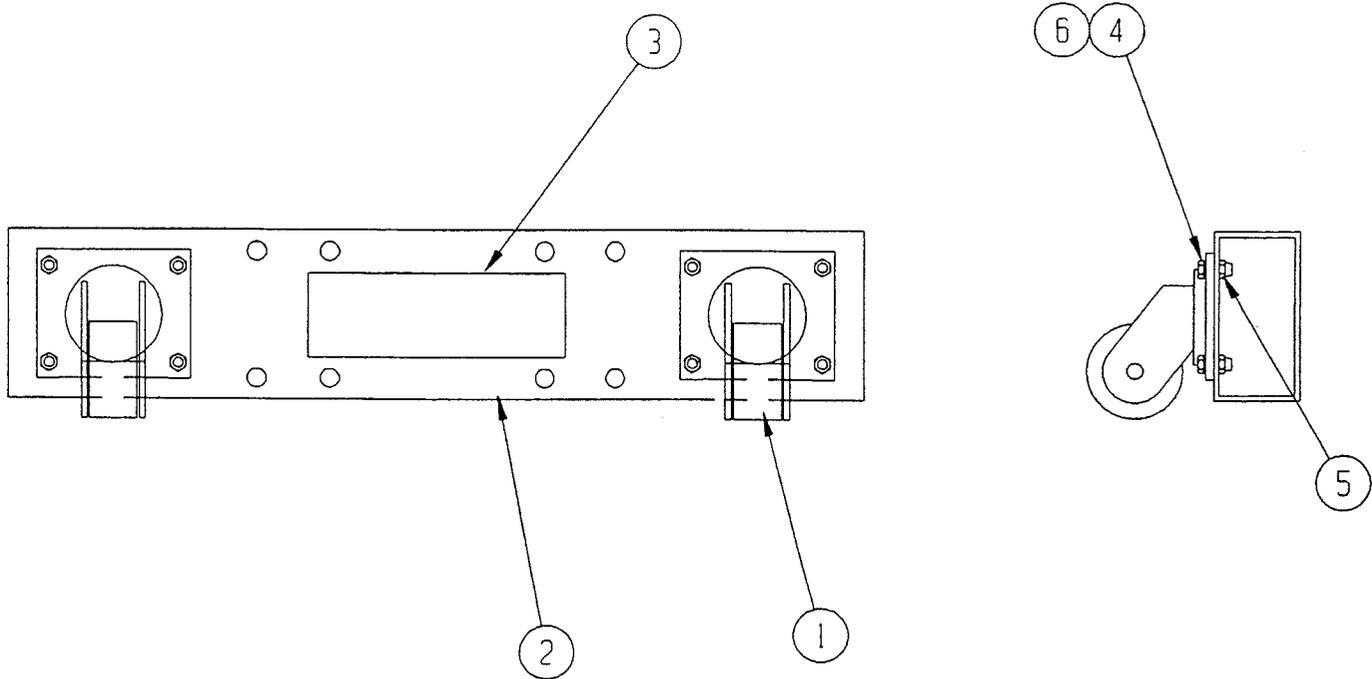
ITEM	PART	DESCRIPTION	24 QTY.	31/33 QTY.	38/40 QTY.
6	62753-000	STRAP ASSEMBLY	1	1	1
7	11735-005	ROLL PIN, 1/8 DIA. X 5/8	2	2	2
9	62445-000	MAST WELDMENT STAGE #6	1		
	62446-000	MAST WELDMENT STAGE #6		1	
	62447-000	MAST WELDMENT STAGE #6			1



# Illustrated Parts Breakdown

**LOADER CASTER ASSEMBLY, 4<sup>TH</sup> GEN.**  
**UL-24**  
 62776-000

ITEM	PART	DESCRIPTION	QTY.
1	03491-000	CASTER	2
2	62193-000	CASTER SUPPORT TUBE	1
3	62575-000	LABEL, CAUTION	1
4	11240-005	WASHER, 5/16 STD FLAT	16
5	11248-005	LOCKNUT, 5/16-18 HEX	8
6	11253-008	SCREW, 5/16-18 UNC HHC X 1	8



**LOADER CASTER ASSY., 4<sup>TH</sup> GEN.**  
**UL-24**

# Illustrated Parts Breakdown

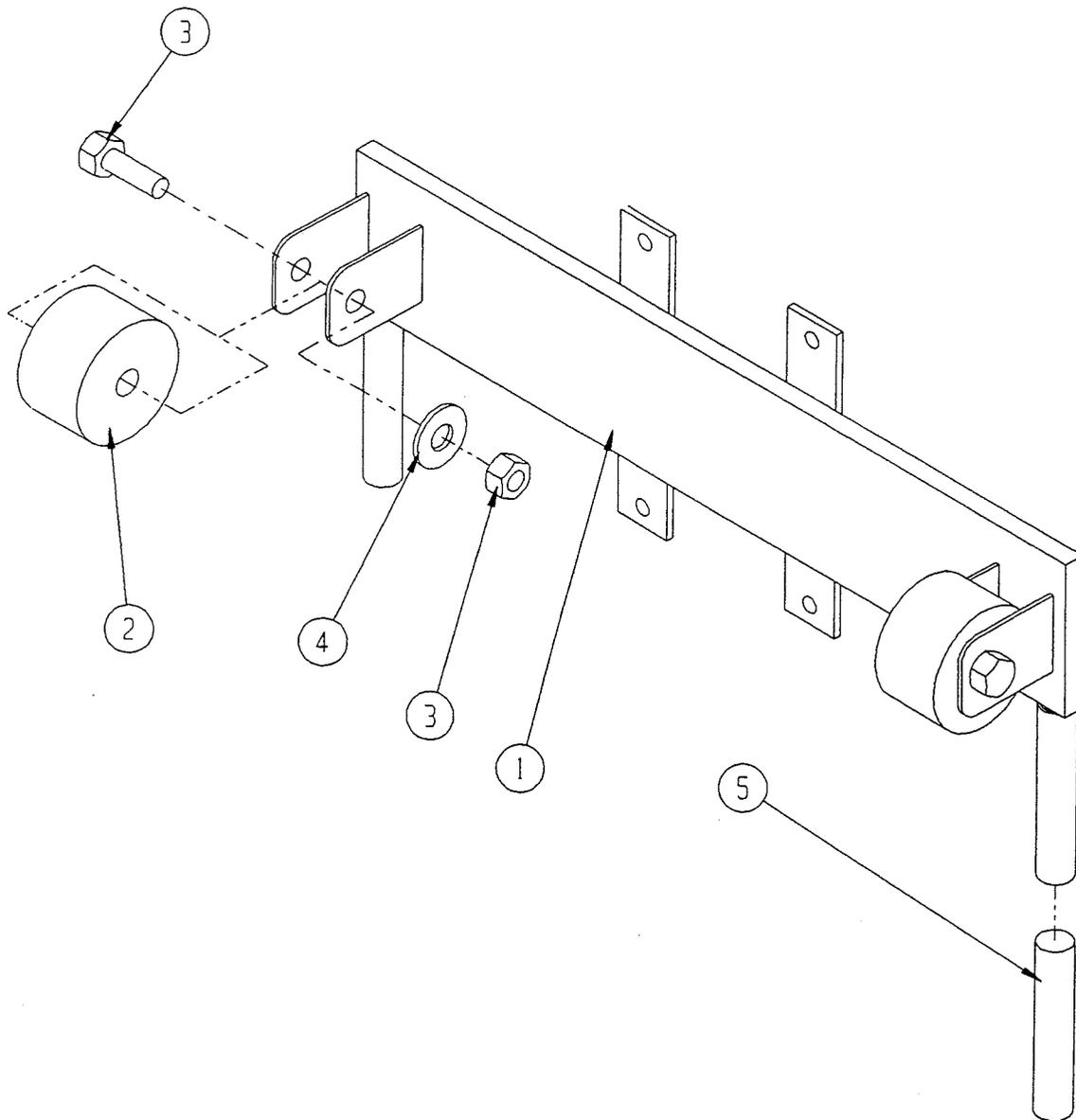
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## LOADER CASTER ASSEMBLY, 5<sup>TH</sup> GEN.

UL-24

62776-001

ITEM	PART	DESCRIPTION	QTY.
1	62934-000	LOADER WELDMENT	1
2	63989-001	WHEEL	2
3	63990-001	AXLE	2
4	11240-008	WASHER, 1/2 STD FLAT	2
5	62843-001	GRIP	2

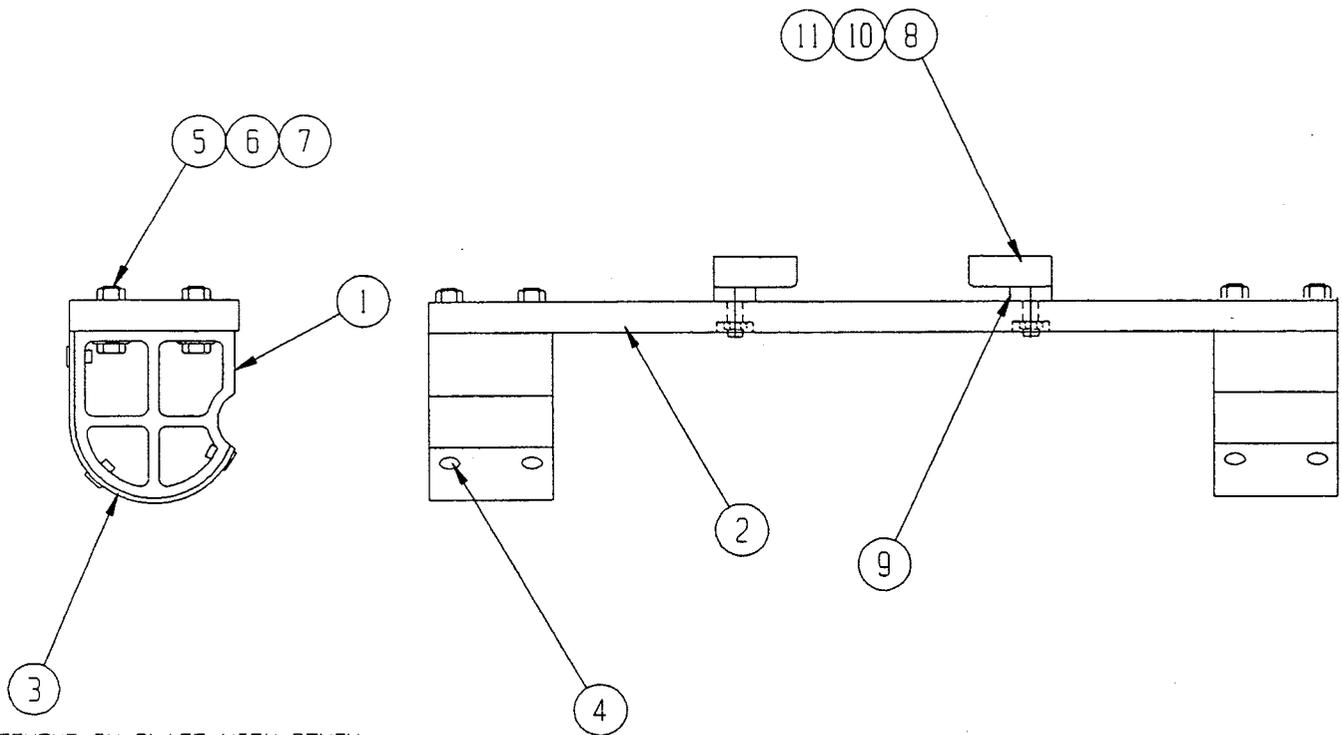


**LOADER CASTER ASSY., 5<sup>TH</sup> GEN.  
UL-24**

# Illustrated Parts Breakdown

**LOADER BAR ASSEMBLY, 4<sup>TH</sup> GEN.**  
**UL-24/31/33/38/40**  
 62745-000

ITEM	PART	DESCRIPTION	QTY.
1	62737-000	FOOT	2
2	62718-000	MOUNTING BAR	1
3	24552-001	BELTING, 3 PLY ROUGH TOP	2
4	62786-006	SCREW, #10 FLT HD, DRILL/TAP X 3/4	12
5	11248-006	LOCKNUT, 3/8-16	8
6	11240-006	WASHER, FLAT 3/8 DIA	8
7	11254-014	SCREW, 3/8-16 X 1 3/4 LG	8
8	62232-000	LOADER BEARING	2
9	62724-000	SPACER, LOADER BEARING	2
10	26529-016	SCREW, FLT HD SOC 5/16-18 X 2 LG	4
11	11248-005	NUT, ESNA 5/16-18	4



CEMENT IN PLACE WITH ROUGH  
 SIDE OUT PRIOR TO RIVETING

**LOADER BAR ASSEMBLY, 4<sup>TH</sup> GEN.**  
**UL-24/31/33/38/40**

# Illustrated Parts Breakdown

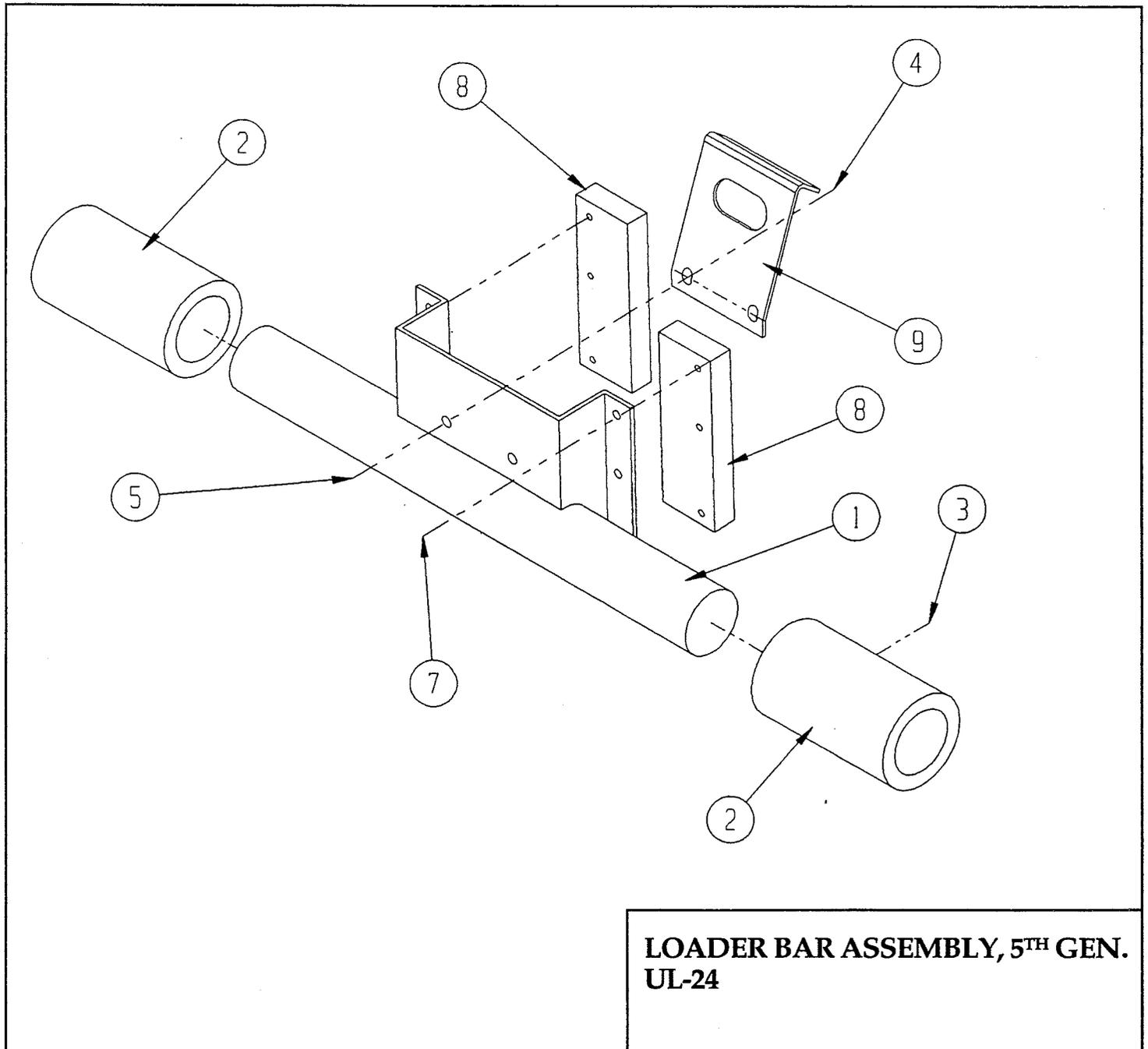
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## LOADER BAR ASSEMBLY, 5<sup>TH</sup> GEN.

UL-24

62745-001

ITEM	PART	DESCRIPTION	QTY.
1	62925-000	LOADER BAR WELDMENT	1
2	61694-005	HOSE, 2 5/8 OD X 2 ID X 5	2
3	26554-004	RIVET, 1/4 DIA X .5-.6 GRIP	2
4	15936-003	BOLT, SHOULDER	2
5	11248-005	LOCK NUT, 5/16-18 UNC HEX	2
7	14066-006	SCREW, 1/4-AB SLFTP HWH X 3/4	6
8	62922-000	SLIDE PAD	2
9	62923-000	LOADER HANGER	1



# Illustrated Parts Breakdown

## LOADER SLIDE ASSEMBLY, 5<sup>TH</sup> GEN.

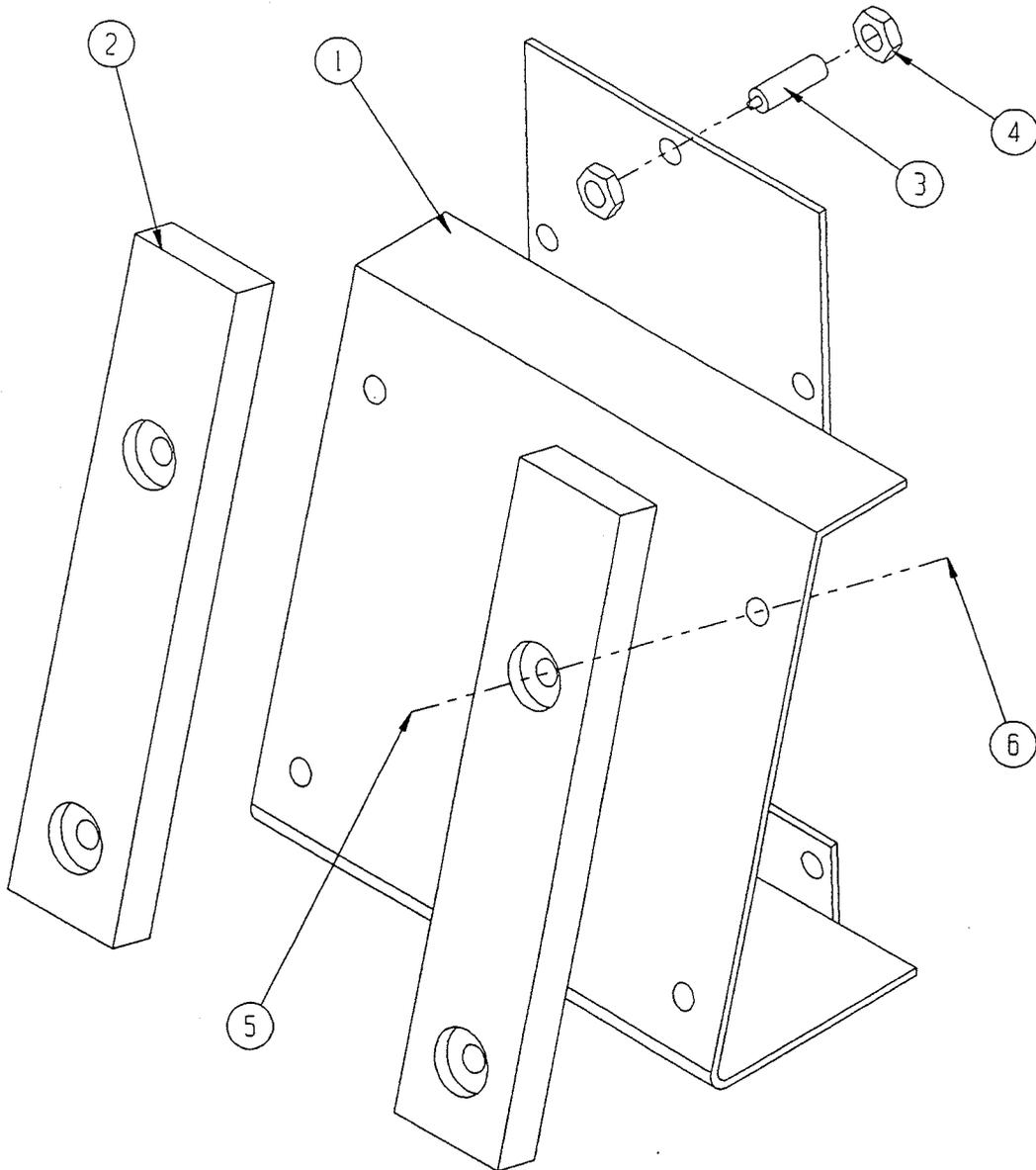
UL-24

62926-000

ITEM	PART	DESCRIPTION	QTY.
1	62930-000	LOADER SLIDE PLATE	1
2	62931-000	SLIDE BLOCK	2
3	61693-009	PLUNGER, SPRING 3/8 X 1 1/8	1
4	11273-006	JAM NUT, 3/8-16 UNC HEX	2
5	26529-012	SCREW, 5/16-18 FHS X 1-1/2	4
6	11248-005	LOCKNUT, 5/16-18 UNC HEX	4

# Illustrated Parts Breakdown

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**LOADER SLIDE ASSY, 5<sup>TH</sup> GEN.  
UL-24**

# Illustrated Parts Breakdown

## TILT BACK ASSEMBLY

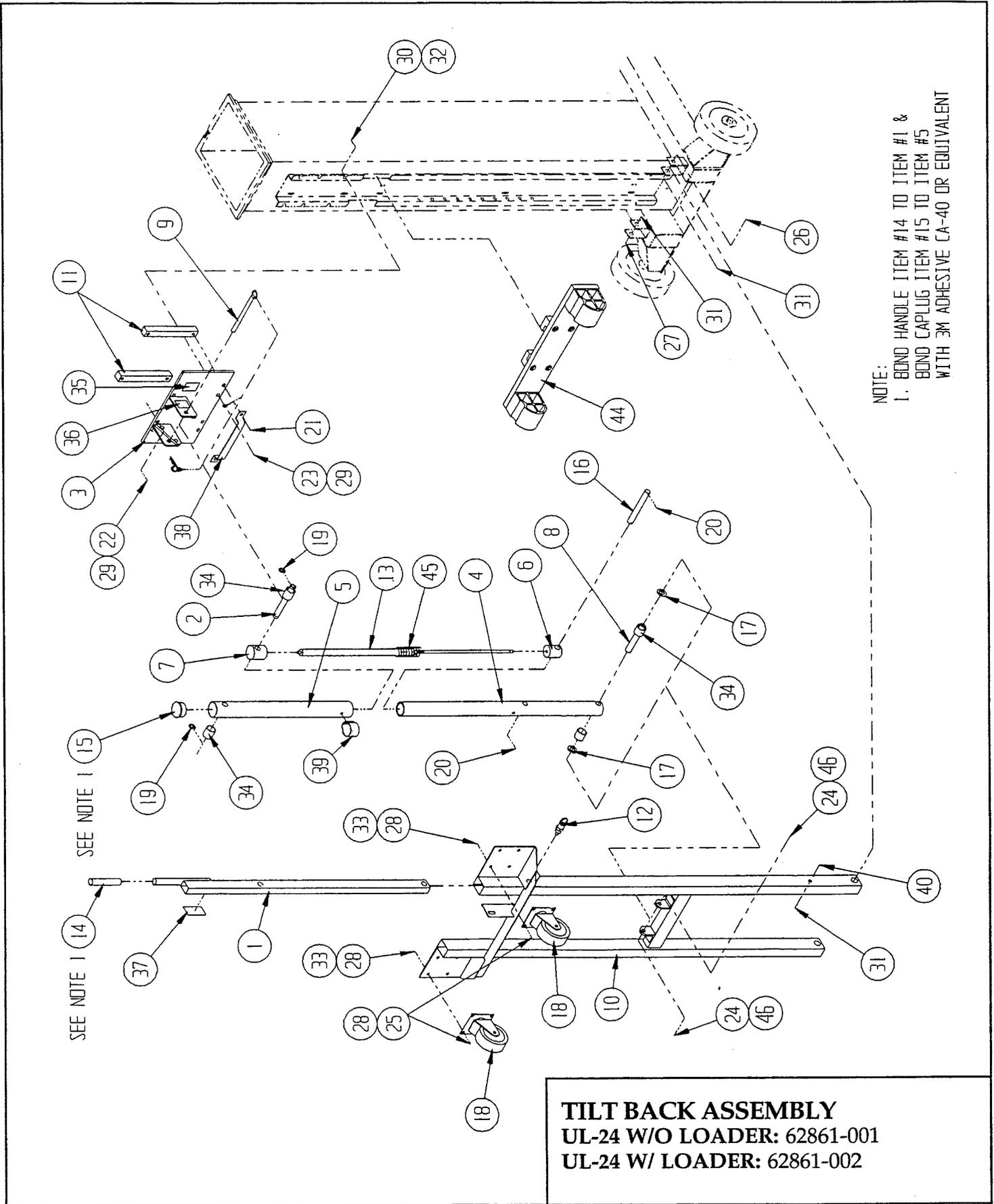
UL-24 W/O LOADER: 62861-001

UL-24 W/ LOADER: 62861-002

ITEM	PART	DESCRIPTION	WO/ LDR QTY.	W/ LDR QTY.
1	62844-000	WELDMENT, LIFT BAR	1	1
2	62846-000	TUBE, CYLINDER MOUNT	1	1
3	62847-000	WELDMENT, MOUNT BRACKET	1	1
4	62883-000	TUBE, CYLINDER INNER	1	1
5	62884-000	TUBE, CYLINDER OUTER	1	1
6	62885-000	FITTING, CYLINDER END	1	1
7	62886-000	FITTING, CYLINDER END	1	1
8	62887-000	PIN, CYLINDER MOUNT	1	1
9	62891-000	ASSEMBLY, LANYARD	1	1
10	62892-000	WELDMENT, TILT BACK FRAME	1	1
11	62778-000	SPACER	2	2
12	03570-000	PIN, RETAINING	1	1
13	63650-010	CYLINDER, GAS SPRING	1	1
14	62843-001	GRIP	1	1
15	63926-004	CAPLUG	1	1
16	62888-003	PIN, 3/4 X 2 1/2	1	1
17	11786-005	BUSHING	2	2
18	62784-004	CASTER	2	2
19	11764-012	RING, RETAINING	2	2
20	11753-012	PIN, COTTER 1/8 X 1 1/2	2	2
21	11254-008	SCREW, HHC 3/8-16 X 1	4	4
22	11254-010	SCREW, HHC 3/8-16 X 1 1/4	3	3
23	11254-012	SCREW, HHC 3/8-16 X 1 1/2	1	1
24	11256-008	SCREW, HHC 1/2-13 X 1 1/2	2	2
25	11253-008	SCREW, HHC 5/16-18 X 1	8	8
26	11256-022	SCREW, HHC 1/2-13 X 2 3/4	1	1
27	11256-026	SCREW, HHC 1/2-13 X 3 1/4	1	1
28	11240-005	WASHER, 5/16 STD FLAT	16	16
29	11240-006	WASHER, 3/8 STD FLAT	4	4
30	11239-006	WASHER, 3/8 ASTM	4	4
31	11248-008	NUT, HEX 1/2-13	3	3
32	11248-006	NUT, HEX 3/8-16	4	4
33	11248-005	NUT, HEX 5/16-18	8	8
34	16590-002	PIPE, 3/4 SCHED 40 ALUM X 1 3/16 LG	4	4
35	62466-001	LABEL, BEFORE TILTING	1	1
36	62814-000	LABEL, INSERT PIN	1	1
37	62876-000	LABEL, LEVER	1	1
38	62903-000	TUBE BRACKET	1	1
39	00167-000	INTERLOCK CLIP	1	1
40	11256-016	SCREW, 1/2-13UNC HHC X 2	1	1
44	62245-000	LOADER BAR ASSEMBLY		1
45	62944-000	SPRING, UL TILT BACK		1
46	11238-008	LOCKWASHER, 1/2	2	2

# Illustrated Parts Breakdown

Section  
7.2



NOTE:  
1. BOND HANDLE ITEM #14 TO ITEM #1 &  
BOND CAPLUG ITEM #15 TO ITEM #5  
WITH 3M ADHESIVE CA-40 OR EQUIVALENT

SEE NOTE 1

SEE NOTE 1

**TILT BACK ASSEMBLY**  
 UL-24 W/O LOADER: 62861-001  
 UL-24 W/ LOADER: 62861-002

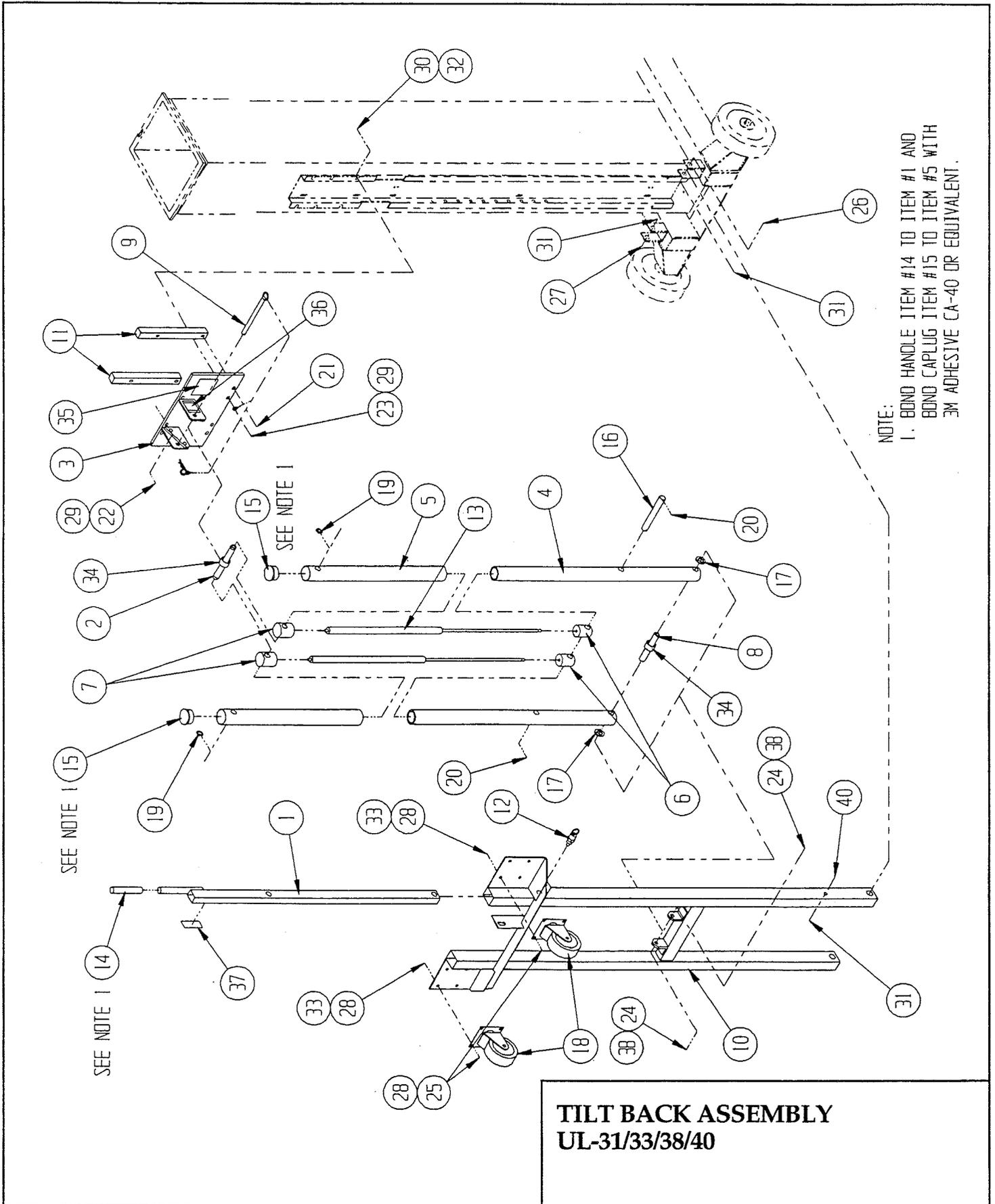
## TILT BACK ASSEMBLY

UL-31/33/38/40

62861-000

ITEM	PART	DESCRIPTION	QTY.
1	62844-000	WELDMENT, LIFT BAR	1
2	62846-000	TUBE, CYLINDER MOUNT	1
3	62847-000	WELDMENT, MOUNT BRACKET	1
4	62883-000	TUBE, CYLINDER INNER	2
5	62884-000	TUBE, CYLINDER OUTER	2
6	62885-000	FITTING, CYLINDER END	2
7	62886-000	FITTING, CYLINDER END	2
8	62887-000	PIN, CYLINDER MOUNT	1
9	62891-000	ASSEMBLY, LANYARD	1
10	62892-000	WELDMENT, TILT BACK FRAME	1
11	62778-000	SPACER	2
12	03570-000	PIN, RETAINING	1
13	63650-010	CYLINDER, GAS SPRING	2
14	62843-001	GRIP	1
15	63926-004	CAPLUG	2
16	62888-001	PIN, 3/4 X 5	1
17	11786-005	BUSHING	2
18	62784-004	CASTER	2
19	11764-012	RING, RETAINING	2
20	11753-012	PIN, COTTER 1/8 X 1 1/2	2
21	11254-008	SCREW, HHC 3/8-16 X 1	4
22	11254-010	SCREW, HHC 3/8-16 X 1 1/4	3
23	11254-012	SCREW, HHC 3/8-16 X 1 1/2	1
24	11256-008	SCREW, HHC 1/2-13 X 1 1/2	2
25	11253-008	SCREW, HHC 5/16-18 X 1	8
26	11256-022	SCREW, HHC 1/2-13 X 2 3/4	1
27	11256-026	SCREW, HHC 1/2-13 X 3 1/4	1
28	11240-005	WASHER, 5/16 STD FLAT	16
29	11240-006	WASHER, 3/8 STD FLAT	4
30	11239-006	WASHER, 3/8 ASTM	4
31	11248-008	NUT, HEX 1/2-13	3
32	11248-006	NUT, HEX 3/8-16	4
33	11248-005	NUT, HEX 5/16-18	8
34	16590-001	PIPE, 3/4 SCHED 40 ALUM X 3/8 LG	2
35	62466-001	LABEL, BEFORE TILTING	1
36	62814-000	LABEL, INSERT PIN	1
37	62876-000	LABEL, LEVER	1
38	11238-008	LOCKNUT, 1/2	2
40	11256-016	SCREW, 1/2-13UNC HHC X 2	1

# Illustrated Parts Breakdown



# Illustrated Parts Breakdown

**DC POWER ASSY., DOMESTIC, 4<sup>TH</sup> GEN.**

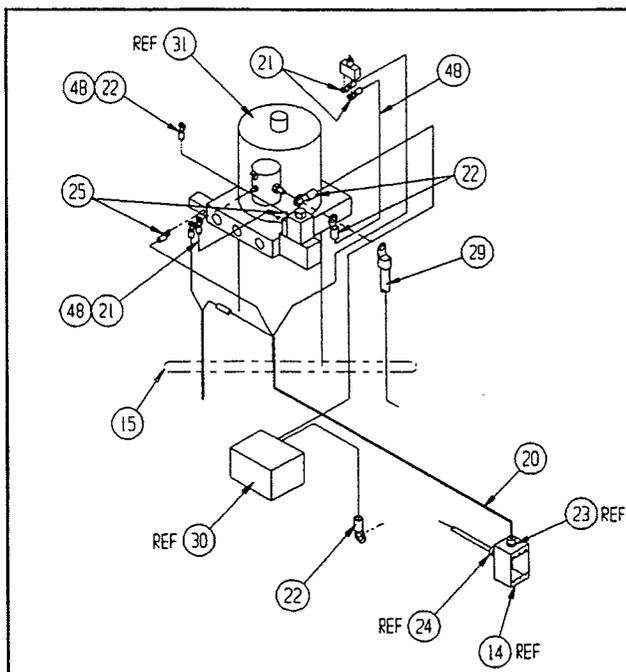
**UL-24/31/33/38/40**

62857-000

ITEM	PART	DESCRIPTION	QTY.
1	14996-004	WASHER, FLAT SAE 1/4	8
2	11240-005	WASHER, FLAT STD 5/16	14
3	11240-006	WASHER, FLAT STD 3/8	2
4	11246-005	NUT, ESNA THIN 5/16-18	2
5	11248-004	NUT, ESNA 1/4-20	8
6	11248-005	NUT, ESNA 5/16-18	4
7	11238-004	WASHER, SPLIT/LOCK 1/4	2
8	11250-001	NUT, HEX 6-32	2
9	11254-004	SCREW, HHC GR5 3/8-16 X 1/2	2
10	11715-004	SCREW, MACH RD HD 6-32 X 1/2	2
11	13963-004	FITTING, 90°	1
12	14252-004	NUT-SERT, 1/4-20	2
13	14940-001	EYE BOLT, 1/4 X 1	2
14	15769-000	BELL BOX	1
15	61796-099	GROMMET	1
16	15936-003	SCREW, SHOULDER 3/8 DIA X 3/8 LG	2
17	24611-007	PLYWOOD, 1/2 EXT A/C 3 1/2 X 12	2
18	26554-002	RIVET, POP 1/4 DIA .25 X .38 GRIP	2
19	27967-000	BATTERY BOX	1
20	29493-099	WIRE, 16 GA 3 COND. SO	4FT
21	29601-013	CONN. RING TERM. 16-14 GA #10	4
22	29601-015	CONN. RING TERM. 16-14 GA 3/8 DIA	4
23	29925-000	CONN. CABLE	1
24	29925-003	CONN. CABLE	1
25	29931-003	CONN. F PUSH TERM. 16-14	3
26	29961-000	INLET, FLG MALE	1
27	29962-000	COVER, ELECT. BOX	1
28	62125-001	BATTERY CABLE ASSY X 30" LG	1
29	62125-002	BATTERY CABLE ASSY X 69" LG	1
30	62143-000	CHARGER, BATTERY, 110 VAC 60 HZ	1
31	62162-000	POWER UNIT, DC	1
*	62162-023	COIL/CARTRIDGE, DOWN VALVE	1
*	62162-003	SCREEN	1

ITEM	PART	DESCRIPTION	QTY.
*	62162-004	SEAL, RESERVOIR	1
*	62162-005	RESERVOIR	1
*	62162-006	MOTOR	1
*	62162-007	SOLENOID	1
*	62162-012	KIT, SEAL/PUMP	1
*	62162-016	EMERGENCY DOWN VALVE	1
*	62161-026	KNOB, EMERG. DOWN VALVE	1
*	62162-017	RELIEF VALVE	1
*	62162-010	BRACKET, RELAY	1
*	62161-004	BREATHER/DIPSTICK	1
*	62161-006	FILTER, PICK-UP	1
32	62192-003	HOSE ASSY, 1/4 X 36" LG	1
33	62261-000	MOUNTING BRACKET, DC POWER UNIT	1
34	62299-001	BATTERY	1
35	62315-000	MOUNTING, BATTERY CHARGER	1
36	62709-000	BATTERY RETAINER	1
37	62757-000	BATTERY CRADLE	1
38	62758-000	BATTERY BOX BRACKET	2
39	62830-001	CHARGER SHIELD	1
40	62734-006	SCREW, 6-32 UNC FLT SLOT X 3/4	4
41	11240-008	WASHER, FLAT 1/2 DIA	4
42	08942-000	RECEPTACLE	1
43	26610-001	BOX	1
44	26611-002	COVER	1
45	29620-002	CONN, BUTT 14-16 GA	4
46	63923-015	VALVE, LIFT	1
47	11939-006	FITTING	1
48	29452-099	WIRE, 16 AWG BLK	3Ft
49	13487-008	NIPPLE, 1/2 NPT	1
50	29939-002	LOCKNUT, 1/2 NPT	1
51	29936-006	SWITCH GUARD	1
52	12797-000	SWITCH, EMERGENCY STOP	1
53	11938-015	FITTING	1

**\*Not Shown**



**DC POWER ASSY., DOMESTIC,  
4<sup>TH</sup> GEN.  
UL-24/31/33/38/40  
DRAWING 1 OF 2**



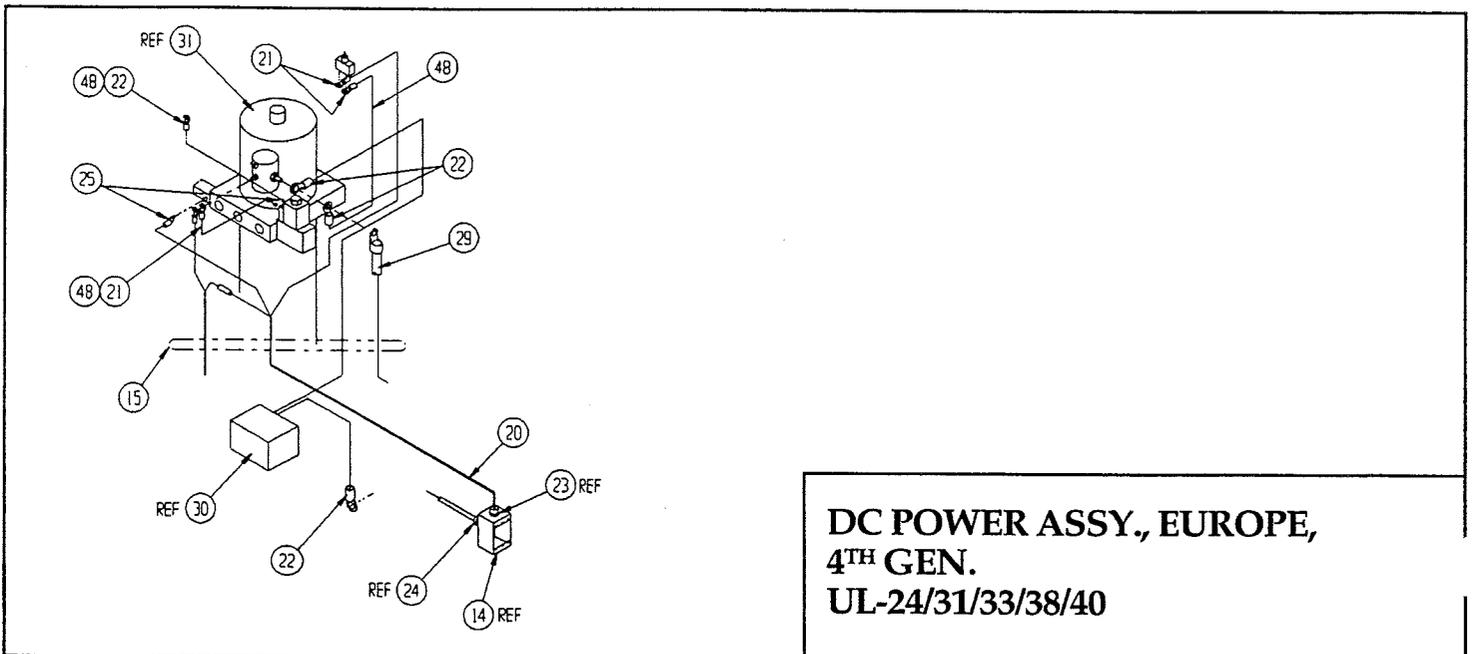
# Illustrated Parts Breakdown

**DC POWER ASSY., EUROPE, 4<sup>TH</sup> GEN.**  
**UL-24/31/33/38/40**  
62857-001

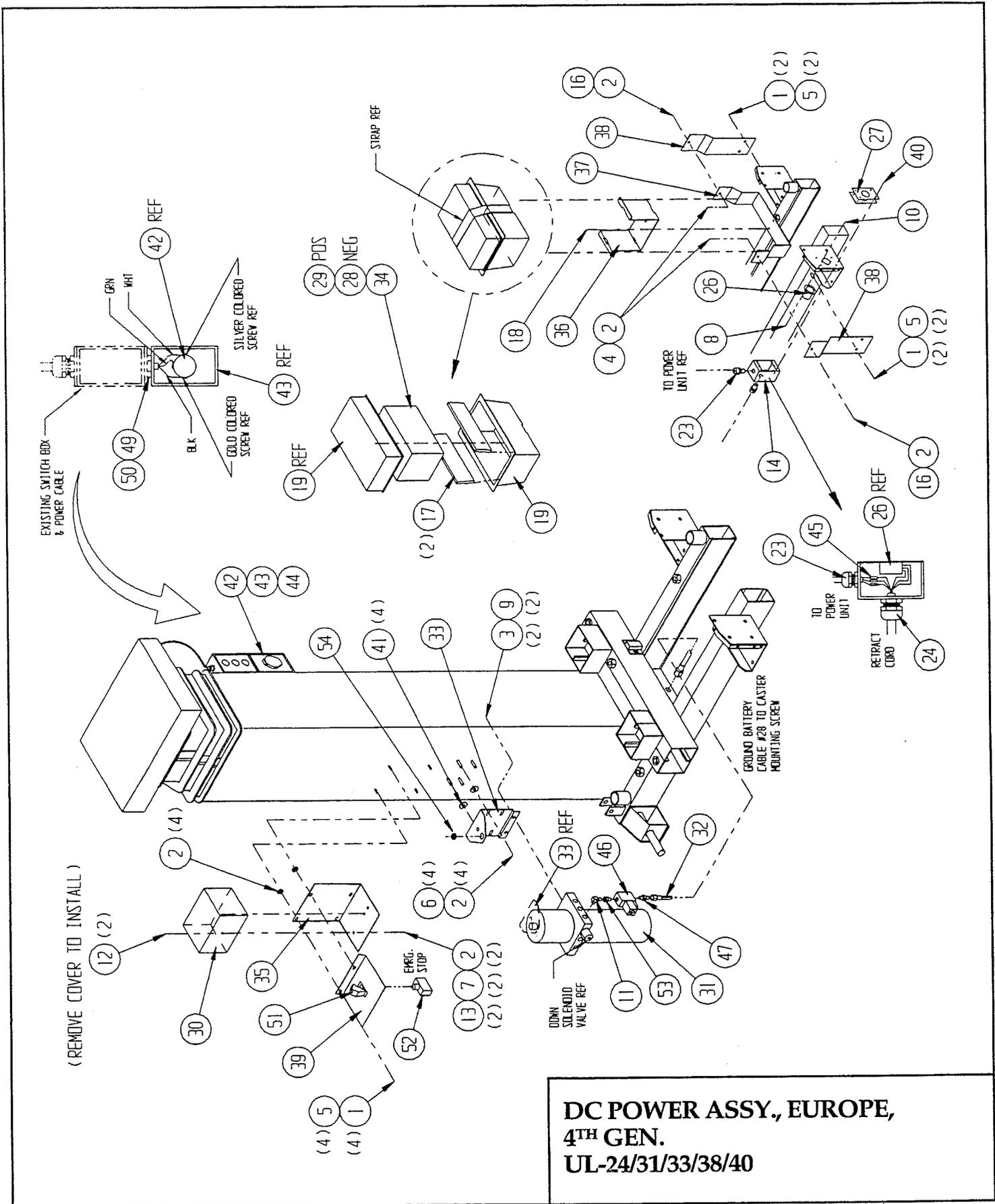
ITEM	PART	DESCRIPTION	QTY.
1	14996-004	WASHER, FLAT SAE 1/4	8
2	11240-005	WASHER, FLAT STD 5/16	14
3	11240-006	WASHER, FLAT STD 3/8	2
4	11246-005	NUT, ESNA THIN 5/16-18	2
5	11248-004	NUT, ESNA 1/4-20	8
6	11248-005	NUT, ESNA 5/16-18	4
7	11238-004	WASHER, SPLIT/LOCK 1/4	2
8	11250-001	NUT, HEX 6-32	2
9	11254-004	SCREW, HHC GR5 3/8-16 X 1/2	2
10	11715-004	SCREW, MACH RD HD 6-32 X 1/2	2
11	13963-004	FITTING, 90°	1
12	14252-004	NUT-SERT, 1/4-20	2
13	14940-001	EYE BOLT, 1/4 X 1	2
14	15769-000	BELL BOX	1
15	12865-099	LOOM, 3/4	4FT
16	15936-003	SCREW, SHOULDER 3/8 DIA X 3/8 LG	2
17	24611-007	PLYWOOD, 1/2 EXT A/C 3 1/2 X 12	2
18	26554-002	RIVET, POP 1/4 DIA .25 X .38 GRIP	2
19	27967-000	BATTERY BOX	1
20	29493-099	WIRE, 16 GA 3 COND. SO	4FT
21	29601-013	CONN. RING TERM. 16-14 GA #10	4
22	29601-015	CONN. RING TERM. 16-14 GA 3/8 DIA	4
23	29925-000	CONN. CABLE	1
24	29925-003	CONN. CABLE	1
25	29931-003	CONN. F PUSH TERM. 16-14	3
26	29961-000	INLET, FLG MALE	1
27	29962-000	COVER, ELECT. BOX	1
28	62125-001	BATTERY CABLE ASSY X 30" LG	1
29	62125-002	BATTERY CABLE ASSY X 69" LG	1
30	62782-000	CHARGER, BATTERY	1
31	62162-000	POWER UNIT, DC	1
*	62162-023	COIL/CARTRIDGE, DOWN VALVE	1
*	62162-003	SCREEN	1

ITEM	PART	DESCRIPTION	QTY.
*	62162-004	SEAL, RESERVOIR	1
*	62162-005	RESERVOIR	1
*	62162-006	MOTOR	1
*	62162-007	SOLENOID	1
*	62162-012	KIT, SEAL/PUMP	1
*	62162-016	EMERGENCY DOWN VALVE	1
*	62161-026	KNOB, EMERG. DOWN VALVE	1
*	62162-017	RELIEF VALVE	1
*	62162-010	BRACKET, RELAY	1
*	62161-004	BREATHING/DIPSTICK	1
*	62161-006	FILTER, PICK-UP	1
32	62192-003	HOSE ASSY, 1/4 X 36" LG	1
33	62261-000	MOUNTING BRACKET, DC POWER UNIT	1
34	62299-001	BATTERY	1
35	62315-000	MOUNTING, BATTERY CHARGER	1
36	62709-000	BATTERY RETAINER	1
37	62757-000	BATTERY CRADLE	1
38	62758-000	BATTERY BOX BRACKET	2
39	62830-001	CHARGER SHIELD	1
40	62734-006	SCREW, 6-32 UNC FLT SLOT X 3/4	4
41	11240-008	WASHER, FLAT 1/2 DIA	4
42	08942-000	RECEPTACLE	1
43	26610-001	BOX	1
44	26611-002	COVER	1
45	29620-002	CONN, BUTT 14-16 GA	4
46	63923-015	VALVE, LIFT	1
47	11939-006	FITTING	1
48	29452-099	WIRE, 16 AWG BLK	3FT
49	13487-008	NIPPLE, 1/2 NPT	1
50	29939-002	LOCKNUT, 1/2 NPT	1
51	29936-006	SWITCH GUARD	1
52	12797-000	SWITCH, EMERGENCY STOP	1
53	11938-015	FITTING	1
54	61796-099	GROMMET	1

\*Not Shown



# Illustrated Parts Breakdown



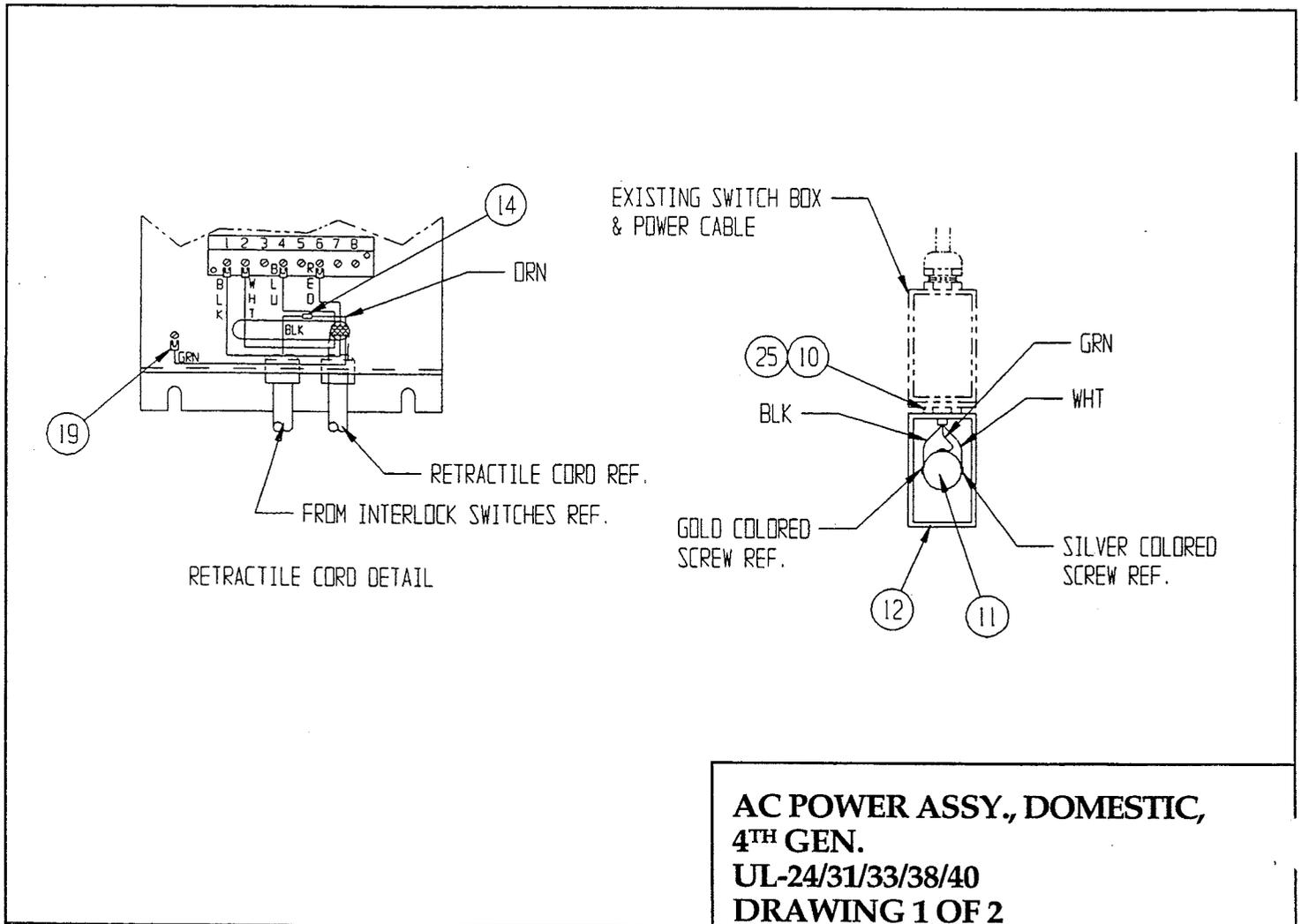
# Illustrated Parts Breakdown

AC POWER ASSY., DOMESTIC, 4<sup>TH</sup> GEN.  
UL-24/31/33/38/40  
62856-000

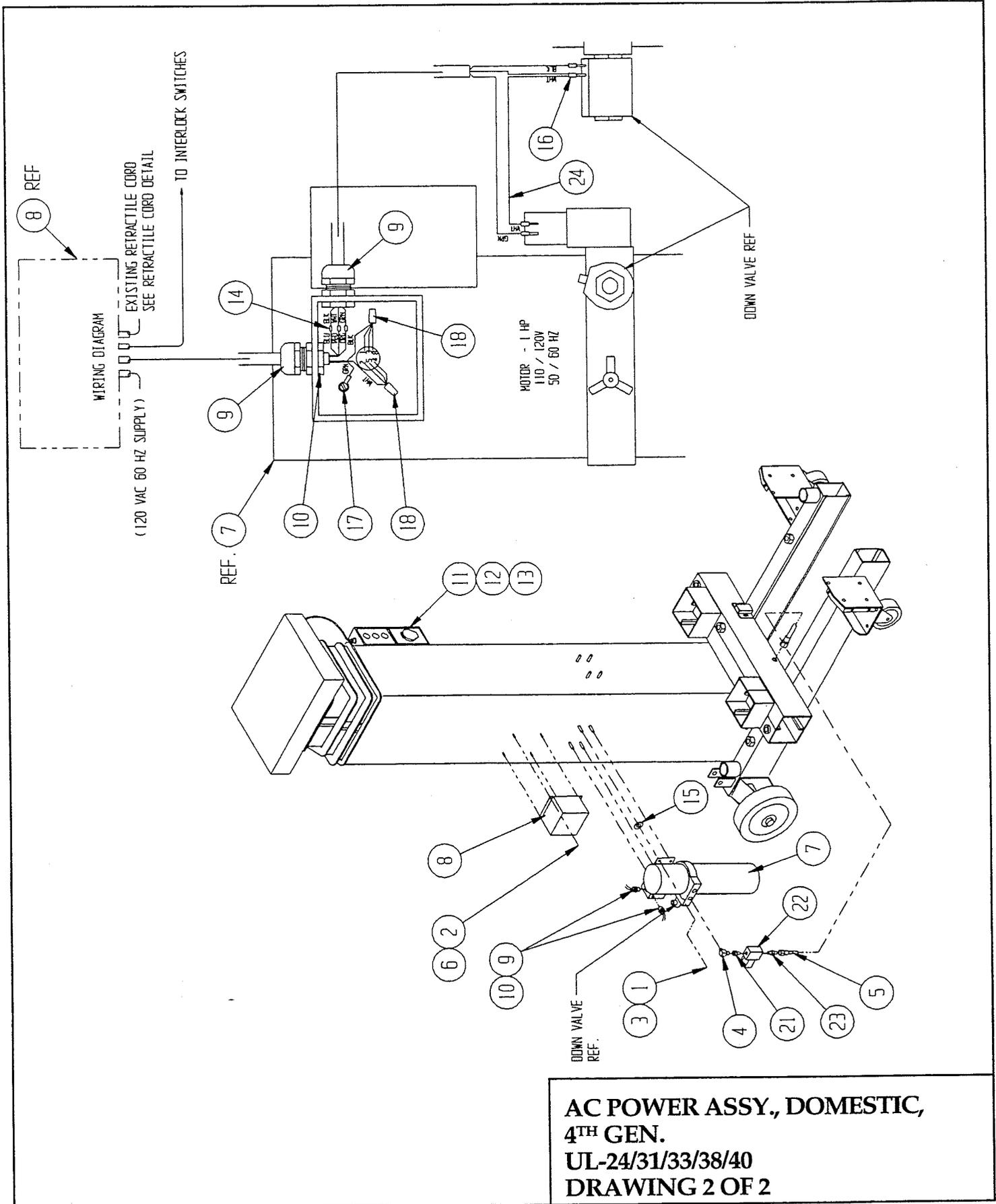
ITEM	PART	DESCRIPTION	QTY.
1	11240-005	WASHER, FLAT 5/16	4
2	11248-004	NUT, ESNA 1/4-20	4
3	11248-005	NUT, ESNA 5/16-18	4
4	13963-004	FITTING, 90°	1
5	62192-003	HOSE ASSY, 1/4 X 36 LG	1
6	14996-004	WASHER, 1/4 SAE FLAT	4
7	62161-000	POWER UNIT, AC	1
*	62161-023	VALVE, DOWN	1
*	62161-002	COIL, DOWN VALVE	1
*	62161-003	SCREEN	1
*	62161-004	BREATHER/DIPSTICK	1
*	62161-005	SEAL, RESERVOIR	1
*	62161-006	FILTER, PICKUP	1
*	62161-007	MOTOR	1
*	62161-008	RESERVOIR	1
*	62161-009	RELIEF VALVE	1
*	62161-010	CLAMP, RESERVOIR	4
*	62161-012	KIT, SEAL/PUMP	1
*	62161-028	CAPACITOR, START	1
*	62161-029	CAPACITOR, RUN	1

ITEM	PART	DESCRIPTION	QTY.
*	62162-016	EMERGENCY DOWN VALVE	1
*	62161-026	KNOB, EMERG. DOWN VALVE	1
8	62416-004	CONTROL BOX ASSY	1
9	29925-000	CONNECTOR, CABLE	2
10	29929-004	NUT, LOCK 1/2 NPT	3
11	08942-000	RECEPTACLE	1
12	26610-001	BOX, ELEC	1
13	26611-002	COVER, ELEC BOX	1
14	29620-002	CONN, BUTT 14-16	4
15	11240-008	WASHER, 1/2 STD FLAT	4
16	29931-003	CONN, PUSH TERM	4
17	29601-013	CONN, #10 RING 16-14	1
18	13540-001	WIRE NUT, YELLOW 12-10	2
19	29610-002	CONN, FORK 16-14 #8	6
21	11938-015	FITTING	1
22	63923-016	VALVE, SOL.	1
23	11939-006	FITTING	1
24	29451-099	WIRE, 16 AWG WHT	1FT
25	13487-008	NIPPLE, 1/2 NPT	1

\*Not Shown



# Illustrated Parts Breakdown



**AC POWER ASSY., DOMESTIC,  
4<sup>TH</sup> GEN.  
UL-24/31/33/38/40  
DRAWING 2 OF 2**

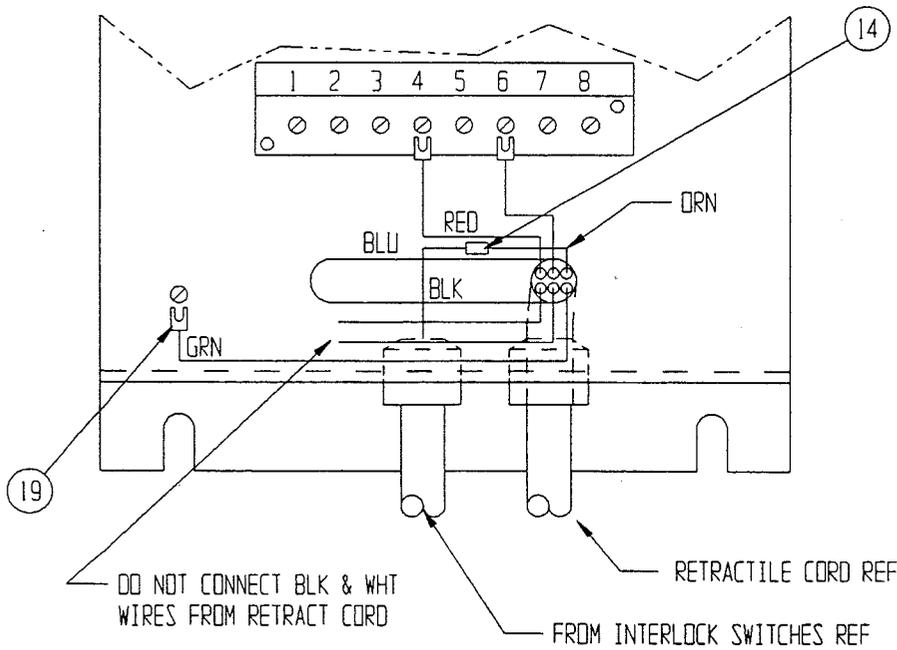
# Illustrated Parts Breakdown

**AC POWER ASSY., EUROPE, 4<sup>TH</sup> GEN.**  
**UL-24/31/33/38/40**  
 62856-001

ITEM	PART	DESCRIPTION	QTY.
1	11240-005	WASHER, FLAT 5/16	4
2	11248-004	NUT, ESNA 1/4-20	4
3	11248-005	NUT, ESNA 5/16-18	4
4	13963-004	FITTING, 90	1
5	62192-003	HOSE ASSY, 1/4 X 36 LG	1
6	14996-004	WASHER, 1/4 SAE FLAT	4
7	62161-000	POWER UNIT, AC	1
*	62161-023	VALVE, DOWN	1
*	62161-002	COIL, DOWN VALVE	1
*	62161-003	SCREEN	1
*	62161-004	BREATHER/DIPSTICK	1
*	62161-005	SEAL, RESERVOIR	1
*	62161-006	FILTER, PICKUP	1
*	62161-007	MOTOR	1
*	62161-008	RESERVOIR	1
*	62161-009	RELIEF VALVE	1
*	62161-010	CLAMP, RESERVOIR	4
*	62161-012	KIT, SEAL/PUMP	1
*	62161-028	CAPACITOR, START	1
*	62161-029	CAPACITOR, RUN	1

ITEM	PART	DESCRIPTION	QTY.
*	62162-016	EMERGENCY DOWN VALVE	1
*	62161-026	KNOB, EMERG. DOWN VALVE	1
8	62416-004	CONTROL BOX ASSY	1
9	29925-000	CONNECTOR, CABLE	2
10	29929-004	NUT, LOCK 1/2 NPT	2
14	29620-002	CONN, BUTT 14-16	4
15	11240-008	WASHER, 1/2 STD FLAT	4
16	29931-003	CONN, PUSH TERM	4
17	29601-013	CONN, #10 RING 16-14	1
18	13540-001	WIRE NUT, YELLOW 12-10	2
19	29610-002	CONN, FORK 16-14 #8	6
21	11938-015	FITTING	1
22	63923-016	VALVE, SOL.	1
23	11939-006	FITTING	1
24	29451-099	WIRE, 16 AWG WHT	1FT

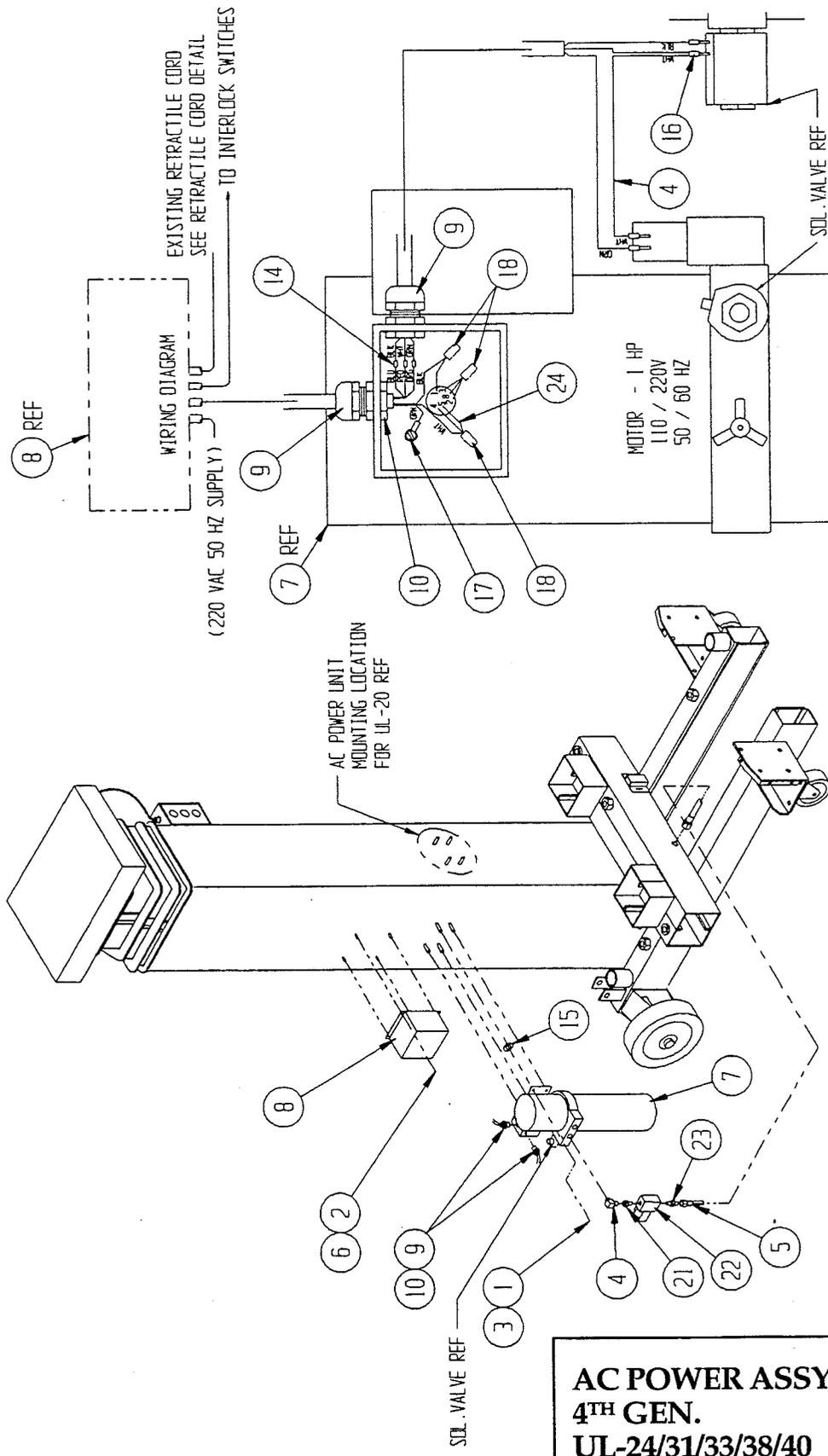
**\*Not Shown**



RETRACTIBLE CORD DETAIL

**AC POWER ASSY., EUROPE,**  
**4<sup>TH</sup> GEN.**  
**UL-24/31/33/38/40**

# Illustrated Parts Breakdown



**AC POWER ASSY., EUROPE,  
4<sup>TH</sup> GEN.  
UL-24/31/33/38/40**

# Illustrated Parts Breakdown

DC POWER ASSY., DOMESTIC, 5<sup>TH</sup> GEN.

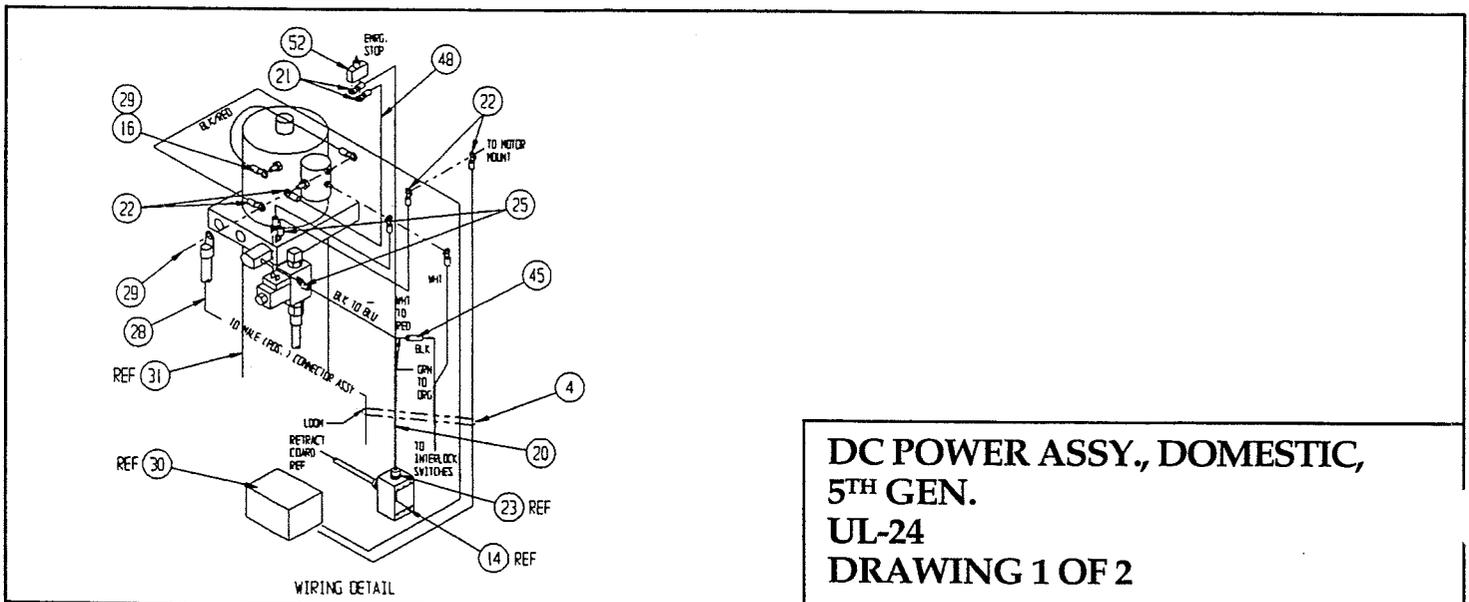
UL-24

62857-002

ITEM	PART	DESCRIPTION	QTY.
1	14996-004	WASHER, FLAT SAE 1/4	4
2	11240-005	WASHER, FLAT STD 5/16	18
3	11240-006	WASHER, FLAT STD 3/8	2
4	12865-099	LOOM, 3/4 DIA.	4FT
5	11248-004	NUT, ESNA 1/4-20	4
6	11248-005	NUT, ESNA 5/16-18	12
7	11238-004	WASHER, SPLIT/LOCK 1/4	2
8	11250-001	NUT, HEX 6-32	2
9	11254-004	SCREW, HHC CR5 3/8-16 X 1/2	2
10	11715-004	SCREW, MACH RD HD 6-32 X 1/2	2
11	13963-004	FITTING, 90°	1
12	14252-004	NUT SERT, 1/4-20	2
13	14940-001	EYE BOLT, 1/4 X 1	2
14	15769-000	BELL BOX	1
15	11253-007	SCREW, 5/16-18 UNC HHC X 7/8	4
16	62125-013	CABLE ASSY X 6	1
17	24611-007	PLYWOOD, 1/2 EXT A/C 3 1/2 X 12	2
18	24611-032	PLYWOOD, 1/2 EXT A/C 3 1/2 X 6	2
19	27967-000	BATTERY BOX	1
20	29493-099	WIRE, 16 GA 3 COND. SO	8FT
21	29601-013	CONN. RING 16-14 GA #10	4
22	29601-015	CONN. RING 16-14 GA 3/8 DIA	4
23	29925-000	CONN. CABLE	1
24	29925-003	CONN. CABLE	1
25	29931-003	CONN. F PUSH 16-14	3
26	29961-000	INLET, FLG MALE	1
27	29962-000	COVER, ELECT. BOX	1
28	62927-001	CABLE AND CONNECTOR ASSY	1
*	29902-000	CONNECTOR	1
*	29431-099	CABLE, #2 AWG	10.5FT
*	29602-025	CONN, RING 5/16	4
29	10154-000	TERMINAL COVER	2
30	62143-000	CHARGER, BATTERY	1
31	62162-000	POWER UNIT, DC	1
*	62162-001	CARTRIDGE, DOWN VALVE	1
*	62162-002	COIL, DOWN VALVE	1

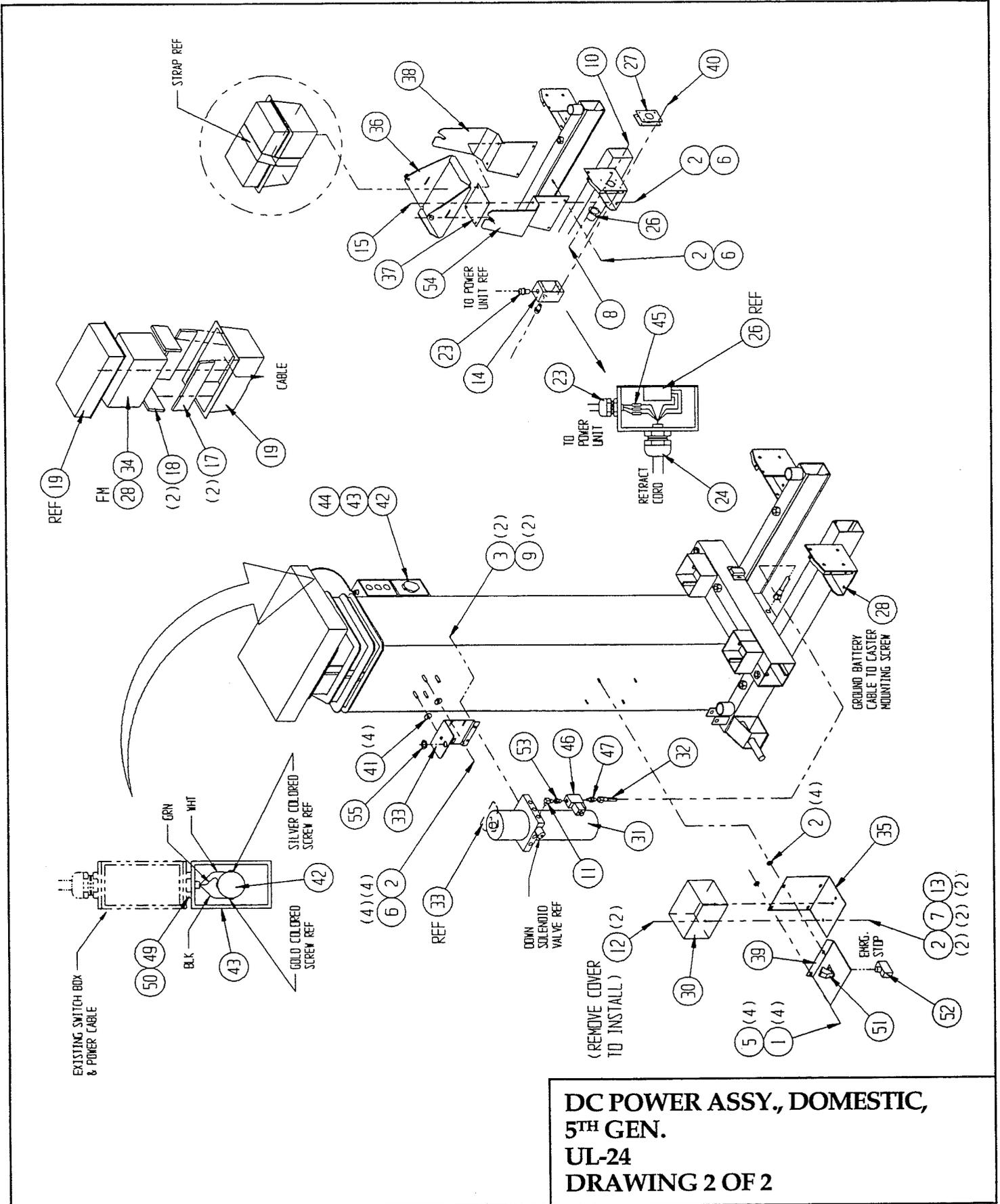
ITEM	PART	DESCRIPTION	QTY.
*	62162-003	SCREEN	1
*	62162-004	SEAL, RESERVOIR	1
*	62162-005	RESERVOIR	1
*	62162-006	MOTOR	1
*	62162-007	SOLENOID	1
*	62162-012	KIT, SEAL/PUMP	1
*	62162-016	EMERGENCY DOWN VALVE	1
*	62161-026	KNOB, EMERG. DOWN VALVE	1
*	62162-017	RELIEF VALVE	1
*	62162-010	BRACKET, RELAY	1
*	62161-004	BREATHER/DIPSTICK	1
*	62161-006	FILTER, PICK-UP	1
32	62192-018	HOSE ASSY, 1/4 X 59	1
33	62915-000	D.C. MOTOR MOUNT	1
34	62299-001	BATTERY	1
35	62315-000	MOUNT, BATTERY CHARGER	1
36	62928-000	PAN WELDMENT	1
37	62921-000	MOUNT STIFFENER	1
38	62919-000	COVER, R.H.	1
39	62917-000	CHARGER SHIELD	1
40	62734-006	SCREW, 6-32 UNC FLT SLOT X 3/4	4
41	11240-008	WASHER, FLAT 1/2 DIA	4
42	08942-000	RECEPTACLE	1
43	26610-001	BOX	1
44	26611-002	COVER	1
45	29620-002	CONN, BUTT 14-16 GA	4
46	63923-015	VALVE SOL.	1
47	11939-006	FITTING	1
48	29452-099	WIRE, 16 AWG BLK	3FT
49	13487-008	NIPPLE, 1/2 NPT	1
50	29939-002	LOCKNUT, 1/2 NPT	1
51	29936-006	SWITCH GUARD	1
52	12797-000	SWITCH, TOGGLE	1
53	11938-015	FITTING	1
54	62918-000	BATTERY COVER, L.H.	1
55	61796-099	GROMMET	1

\*Not Shown



**DC POWER ASSY., DOMESTIC,  
5<sup>TH</sup> GEN.  
UL-24  
DRAWING 1 OF 2**

# Illustrated Parts Breakdown



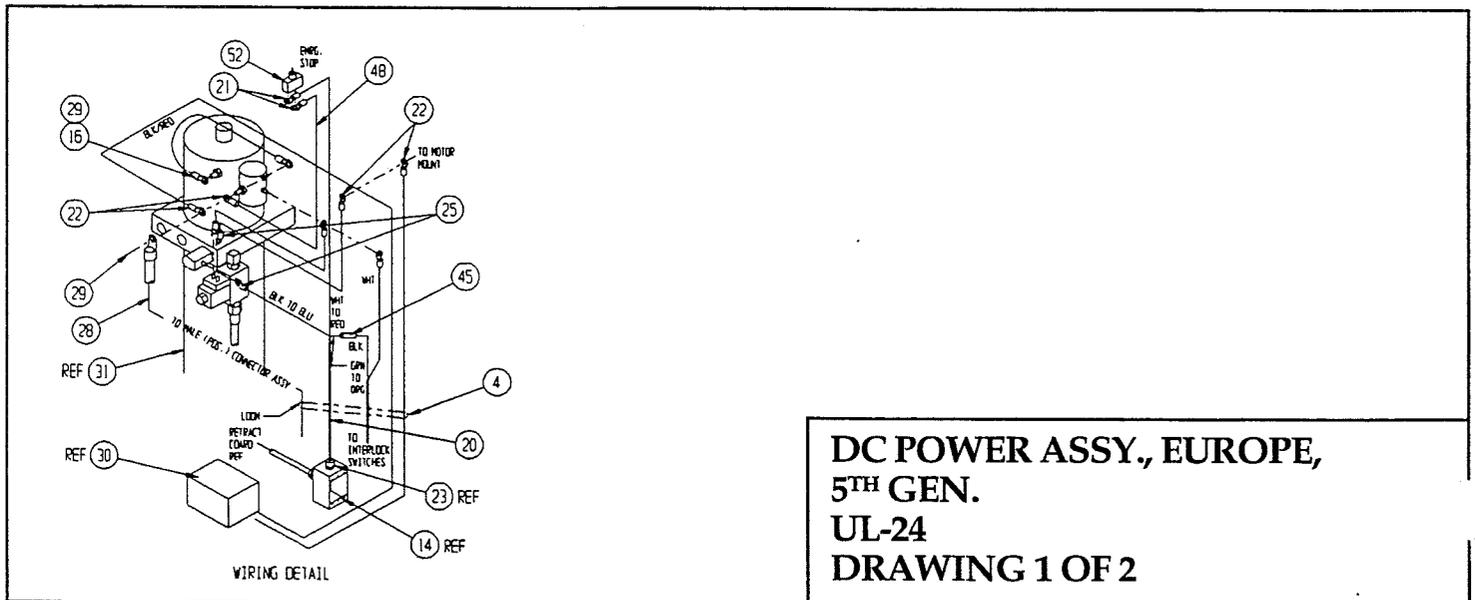
# Illustrated Parts Breakdown

DC POWER ASSY., EUROPE, 5<sup>TH</sup> GEN.  
UL-24  
62857-003

ITEM	PART	DESCRIPTION	QTY.
1	14996-004	WASHER, FLAT SAE 1/4	4
2	11240-005	WASHER, FLAT STD 5/16	18
3	11240-006	WASHER, FLAT STD 3/8	2
4	12865-099	LOOM, 3/4 DIA.	4FT
5	11248-004	NUT, ESNA 1/4-20	4
6	11248-005	NUT, ESNA 5/16-18	12
7	11238-004	WASHER, SPLIT/LOCK 1/4	2
8	11250-001	NUT, HEX 6-32	2
9	11254-004	SCREW, HHC GR5 3/8-16 X 1/2	2
10	11715-004	SCREW, MACH RD HD 6-32 X 1/2	2
11	13963-004	FITTING, 90°	1
12	14252-004	NUT SERT, 1/4-20	2
13	14940-001	EYE BOLT, 1/4 X 1	2
14	15769-000	BELL BOX	1
15	11253-007	SCREW 5/16-18 UNC HHC X 7/8	4
16	62125-013	CABLE ASSY X 6	1
17	24611-007	PLYWOOD, 1/2 EXT A/C 3 1/2 X 12	2
18	24611-032	PLYWOOD, 1/2 EXT A/C 3 1/2 X 6	2
19	27967-000	BATTERY BOX	1
20	29493-099	WIRE, 16 GA 3 COND. SO	8FT
21	29601-013	CONN. RING 16-14 GA #10	4
22	29601-015	CONN. RING 16-14 GA 3/8 DIA	4
23	29925-000	CONN. CABLE	1
24	29925-003	CONN. CABLE	1
25	29931-003	CONN. F PUSH 16-14	3
26	29961-000	INLET, FLG MALE	1
27	29962-000	COVER, ELECT. BOX	1
28	62927-001	CABLE AND CONNECTOR ASSY	1
*	29902-000	CONNECTOR	1
*	29431-099	CABLE, #2 AWG	10.5FT
*	29602-025	CONN, RING 5/16	4
29	10154-000	TERMINAL COVER	2
30	62782-000	CHARGER, BATTERY	1
31	62162-000	POWER UNIT, DC	1
*	62162-001	CARTRIDGE, DOWN VALVE	1
*	62162-002	COIL, DOWN VALVE	1

ITEM	PART	DESCRIPTION	QTY.
*	62162-003	SCREEN	1
*	62162-004	SEAL, RESERVOIR	1
*	62162-005	RESERVOIR	1
*	62162-006	MOTOR	1
*	62162-007	SOLENOID	1
*	62162-012	KIT, SEAL/PUMP	1
*	62162-016	EMERGENCY DOWN VALVE	1
*	62161-026	KNOB, EMERG. DOWN VALVE	1
*	62162-017	RELIEF VALVE	1
*	62162-010	BRACKET, RELAY	1
*	62161-004	BREATHER/DIPSTICK	1
*	62161-006	FILTER, PICK-UP	1
32	62192-018	HOSE ASSY, 1/4 X 59	1
33	62915-000	D.C. MOTOR MOUNT	1
34	62299-001	BATTERY	1
35	62315-000	MOUNT, BATTERY CHARGER	1
36	62928-000	PAN WELDMENT	1
37	62921-000	MOUNT STIFFENER	1
38	62919-000	COVER, R.H.	1
39	62917-000	CHARGER SHIELD	1
40	62734-006	SCREW, 6-32 UNC FLT SLOT X 3/4	4
41	11240-008	WASHER, FLAT 1/2 DIA	4
42	08942-000	RECEPTACLE	1
43	26610-001	BOX	1
44	26611-002	COVER	1
45	29620-002	CONN, BUTT 14-16 GA	4
46	63923-015	VALVE SOL.	1
47	11939-006	FITTING	1
48	29452-099	WIRE, 16 AWG BLK	3FT
49	13487-008	NIPPLE, 1/2 NPT	1
50	29939-002	LOCKNUT, 1/2 NPT	1
51	29936-006	SWITCH GUARD	1
52	12797-000	SWITCH, TOGGLE	1
53	11938-015	FITTING	1
54	62918-000	BATTERY COVER, L.H.	1
55	61796-099	GROMMET	1

\*Not Shown



DC POWER ASSY., EUROPE,  
5<sup>TH</sup> GEN.  
UL-24  
DRAWING 1 OF 2



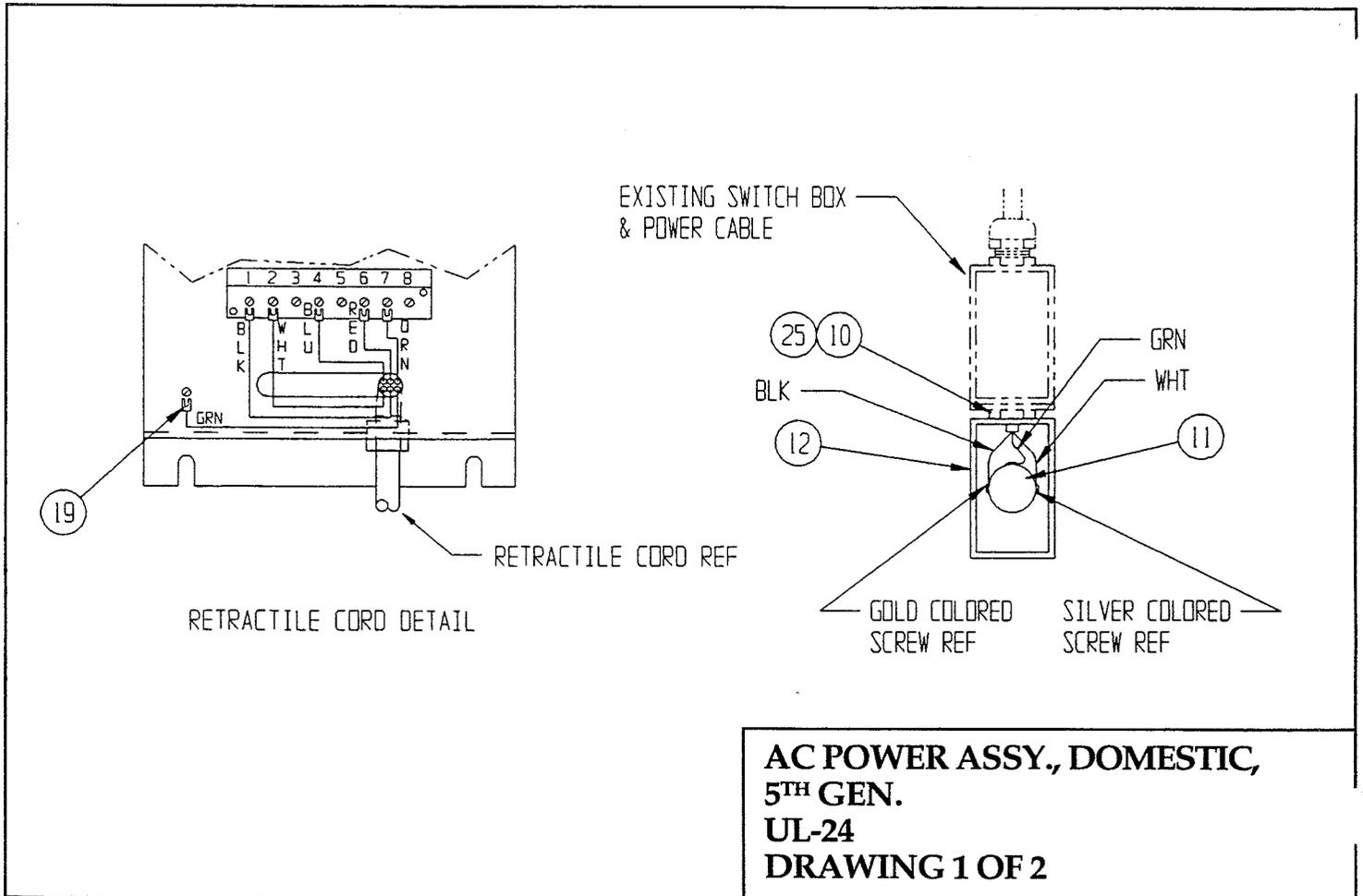
# Illustrated Parts Breakdown

AC POWER ASSY., DOMESTIC, 5<sup>TH</sup> GEN.  
UL-24  
62856-003

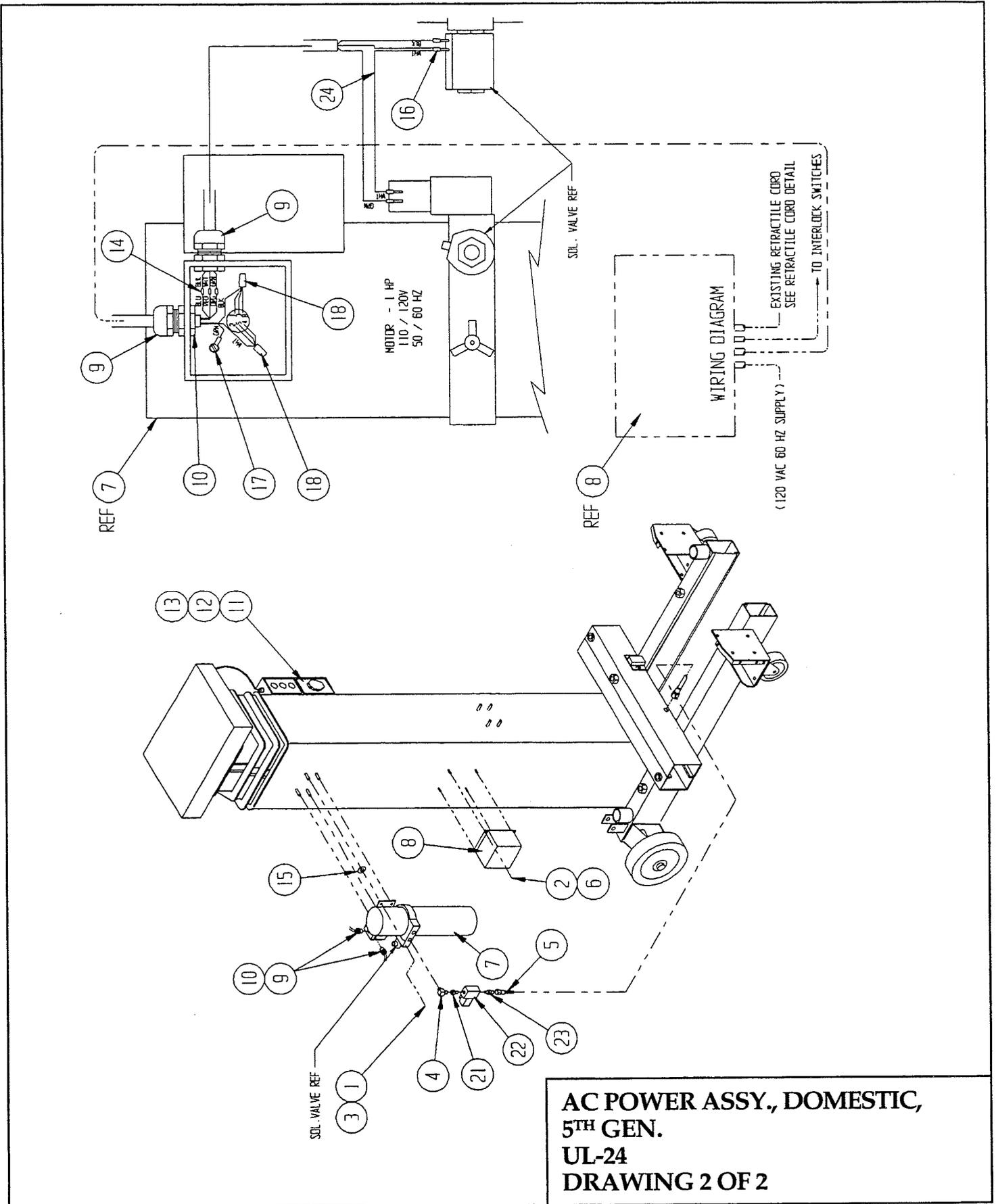
ITEM	PART	DESCRIPTION	QTY.
1	11240-005	WASHER, FLAT 5/16	4
2	11248-004	LOCKNUT, 1/4-20 HEX	4
3	11248-005	LOCKNUT, 5/16-18 HEX	4
4	13963-004	FITTING, 90°	1
5	62192-018	HOSE ASSY, 1/4 X 59	1
6	14996-004	WASHER, 1/4 SAE FLAT	4
7	62161-000	POWER UNIT, AC	1
*	62616-023	VALVE, DOWN	1
*	62161-002	COIL, DOWN VALVE	1
*	62161-003	SCREEN	1
*	62161-004	BREATHER/DIPSTICK	1
*	62161-005	SEAL, RESERVOIR	1
*	62161-006	FILTER PICKUP	1
*	62161-007	MOTOR	1
*	62161-008	RESERVOIR	1
*	62161-009	RELIEF VALVE	1
*	62161-010	CLAMP, RESERVOIR	4
*	62161-012	KIT, SEAL/PUMP	1
*	62161-028	CAPACITOR	1
*	62161-029	CAPACITOR, RUN	1
*	62162-016	EMERG. DOWN VALVE	1
*	62161-026	KNOB, EMERG. LOWERING VALVE	1

ITEM	PART	DESCRIPTION	QTY.
8	62416-004	CONTROL BOX ASSY	1
9	29925-000	CONNECTOR, CABLE	2
10	29929-004	LOCKNUT, 1/2 NPT	3
11	08942-000	RECEPTACLE	1
12	26610-001	BOX, ELEC	1
13	26611-002	COVER, ELEC BOX	1
14	29620-002	CONN. BUTT 14-16	3
15	11240-008	WASHER, 1/2 STD FLAT	4
16	29931-003	CONN. PUSH TERM	4
17	29601-013	CONN. #10 RING 16-14	1
18	13540-001	WIRE NUT, YELLOW 12-10	2
19	29610-002	CONN, FORK 16-14 #8	6
21	11938-015	FITTING	1
22	63923-016	VALVE, SOL.	1
23	11939-006	FITTING	1
24	29451-099	WIRE, 16 AWG WHT	1FT
25	13487-008	NIPPLE, 1/2 NPT	1

\*Not Shown



# Illustrated Parts Breakdown



# Illustrated Parts Breakdown

AC POWER ASSY., EUROPE, 5<sup>TH</sup> GEN.

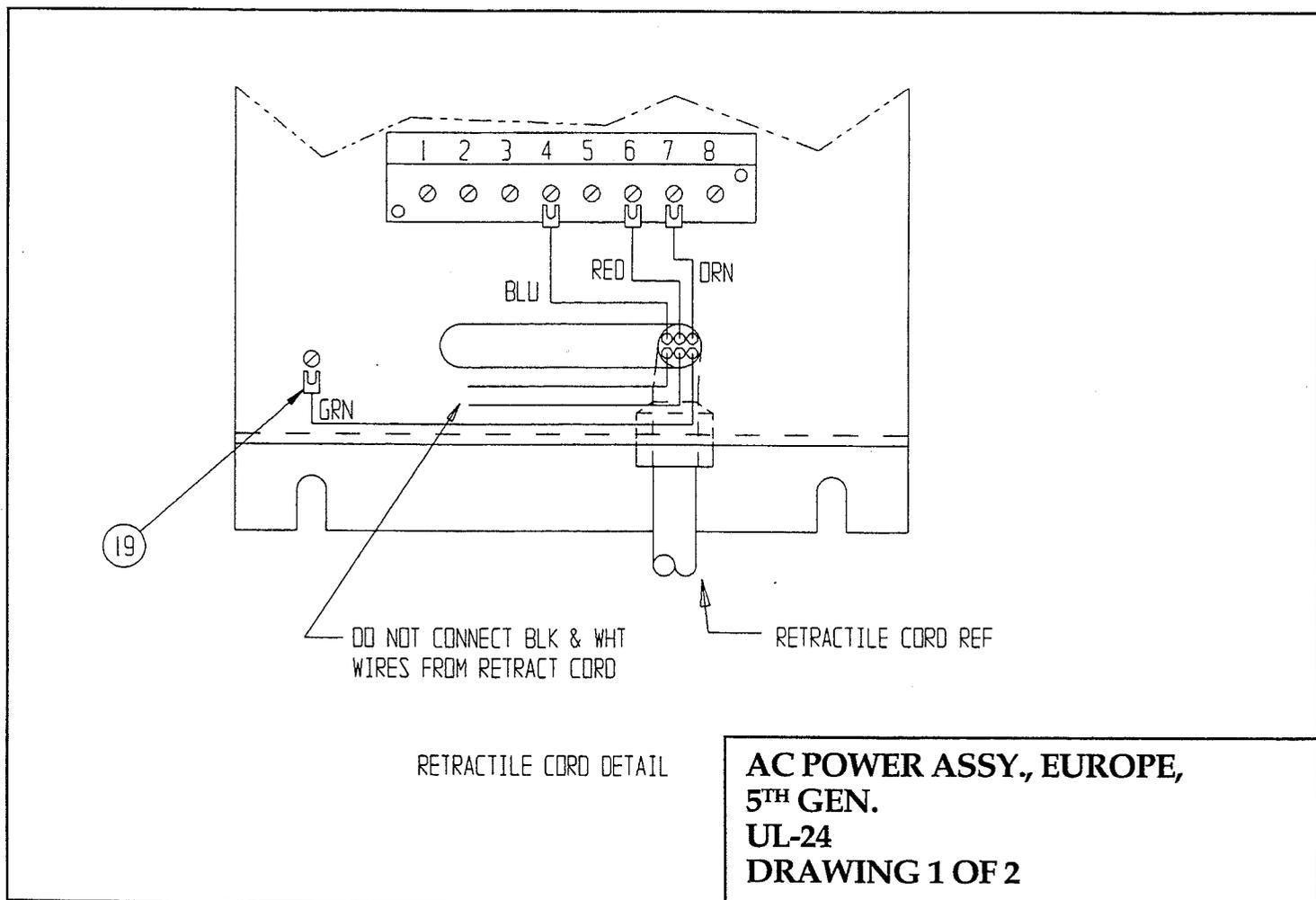
UL-24

62856-004

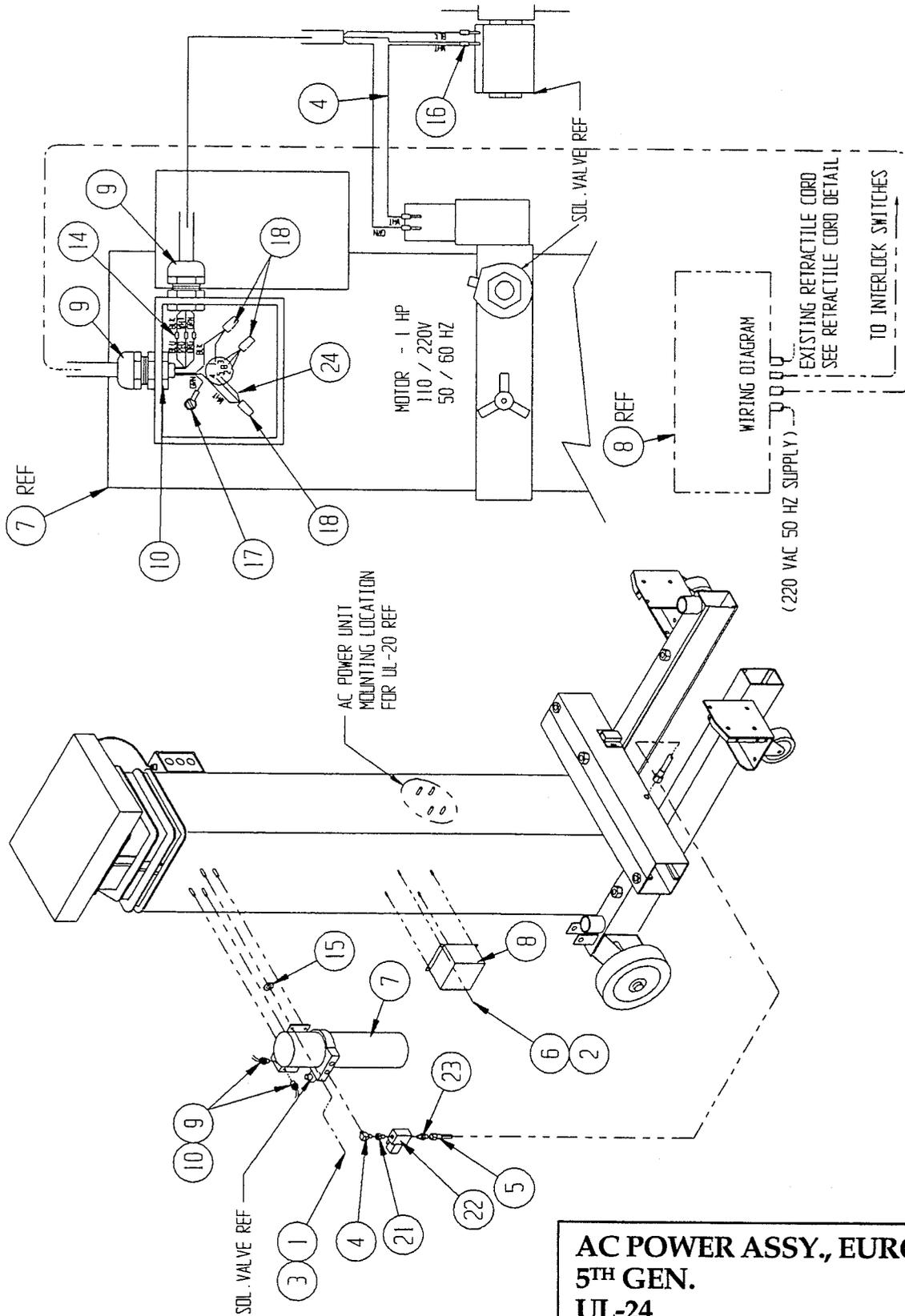
ITEM	PART	DESCRIPTION	QTY.
1	11240-005	WASHER, FLAT 5/16	4
2	11248-004	LOCKNUT, 1/4-20 HEX	4
3	11248-005	LOCKNUT, 5/16-18 HEX	4
4	13963-004	FITTING, 90°	1
5	62192-018	HOSE ASSY, 1/4 X 59	1
6	14996-004	WASHER, 1/4 SAE FLAT	4
7	62161-000	POWER UNIT, AC	1
*	62616-023	VALVE, DOWN	1
*	62161-002	COIL, DOWN VALVE	1
*	62161-003	SCREEN	1
*	62161-004	BREATHER/DIPSTICK	1
*	62161-005	SEAL, RESERVOIR	1
*	62161-006	FILTER PICKUP	1
*	62161-007	MOTOR	1
*	62161-008	RESERVOIR	1
*	62161-009	RELIEF VALVE	1
*	62161-010	CLAMP, RESERVOIR	4
*	62161-012	KIT, SEAL/PUMP	1
*	62161-028	CAPACITOR	1
*	62161-029	CAPACITOR, RUN	1
*	62162-016	EMERG. DOWN VALVE	1
*	62161-026	KNOB, EMERG. LOWERING VALVE	1

ITEM	PART	DESCRIPTION	QTY.
8	62416-004	CONTROL BOX ASSY	1
9	29925-000	CONNECTOR, CABLE	2
10	29929-004	LOCKNUT, 1/2 NPT	3
14	29620-002	CONN. BUTT 14-16	3
15	11240-008	WASHER, 1/2 STD FLAT	4
16	29931-003	CONN. PUSH TERM	4
17	29601-013	CONN. #10 RING 16-14	1
18	13540-001	WIRE NUT, YELLOW 12-10	2
19	29610-002	CONN, FORK 16-14 #8	6
21	11938-015	FITTING	1
22	63923-016	VALVE, SOL.	1
23	11939-006	FITTING	1
24	29451-099	WIRE, 16 AWG WHT	1FT

\*Not Shown



# Illustrated Parts Breakdown



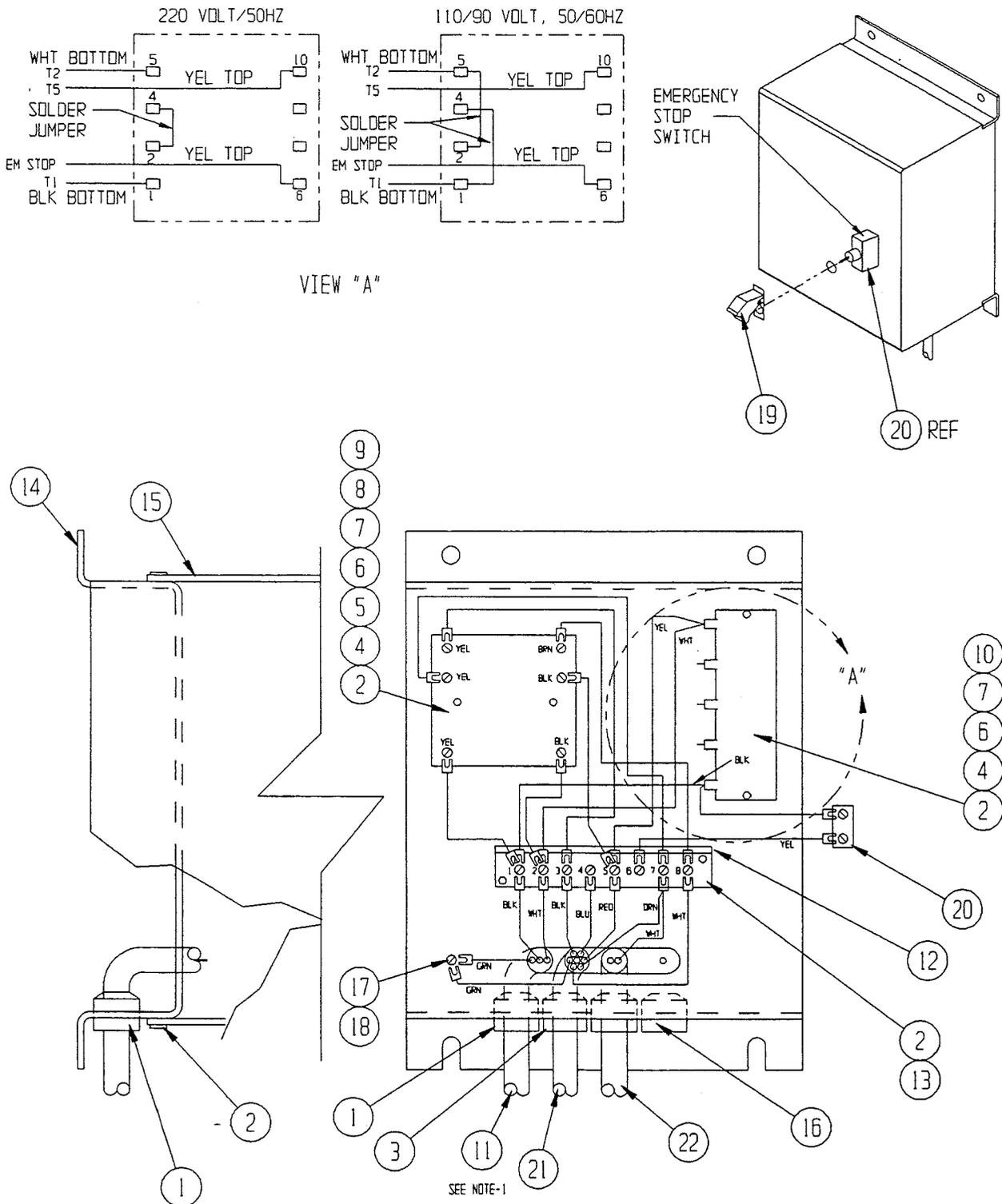
**AC POWER ASSY., EUROPE,  
5<sup>TH</sup> GEN.  
UL-24  
DRAWING 2 OF 2**

# Illustrated Parts Breakdown

CONTROL BOX ASSEMBLY AC, ELEC.  
UL-24/31/33/38/40  
62416-004

ITEM	PART	DESCRIPTION	QTY.
1	11868-011	BUSHING, STRAIN RELIEF	2
2	14073-006	SCREW, 8-32 HH X 3/4	9
3	29925-000	CONNECTOR CABLE	1
4	29451-099	WIRE, 16 AWG WHT	1
5	29452-099	WIRE, 16 AWG BLK	1
6	29456-099	WIRE, 16 AWG YEL	4
7	29610-002	CONN, FORK 16-14 #8	18
8	29455-099	WIRE, 16 AWG BRN	.83
9	62525-001	CONTACTOR	1
10	29977-000	TRANSFORMER	1
11	62179-000	POWER CORD	1
12	62393-008	MARKER, TERM. STRIP	1
13	62394-008	TERM. STRIP	1
14	62833-000	MOUNTING BRACKET	1
15	62415-001	COVER	1
16	11868-014	BUSHING, STRAIN RELIEF	1
17	11728-004	SCREW, 10-32 X 1/2	1
18	11249-003	LOCKNUT, 10-32 HEX	1
19	29936-006	SWITCH GUARD	1
20	12797-000	SWITCH, TOGGLE	1
21	29448-099	WIRE, 16 GA 7 COND	1FT
22	29489-099	WIRE, 16 GA 2 COND	4FT

# Illustrated Parts Breakdown



**NOTE:**

- 1. CUT ITEM # 11 @ 19" LG.  
SAVE REMAINING FOR FINAL ASSY.

**CONTROL BOX ASSY. AC, ELEC.**  
**UL-24/31/33/38/40**

# Illustrated Parts Breakdown

## LABEL KIT, 4<sup>TH</sup> GEN.

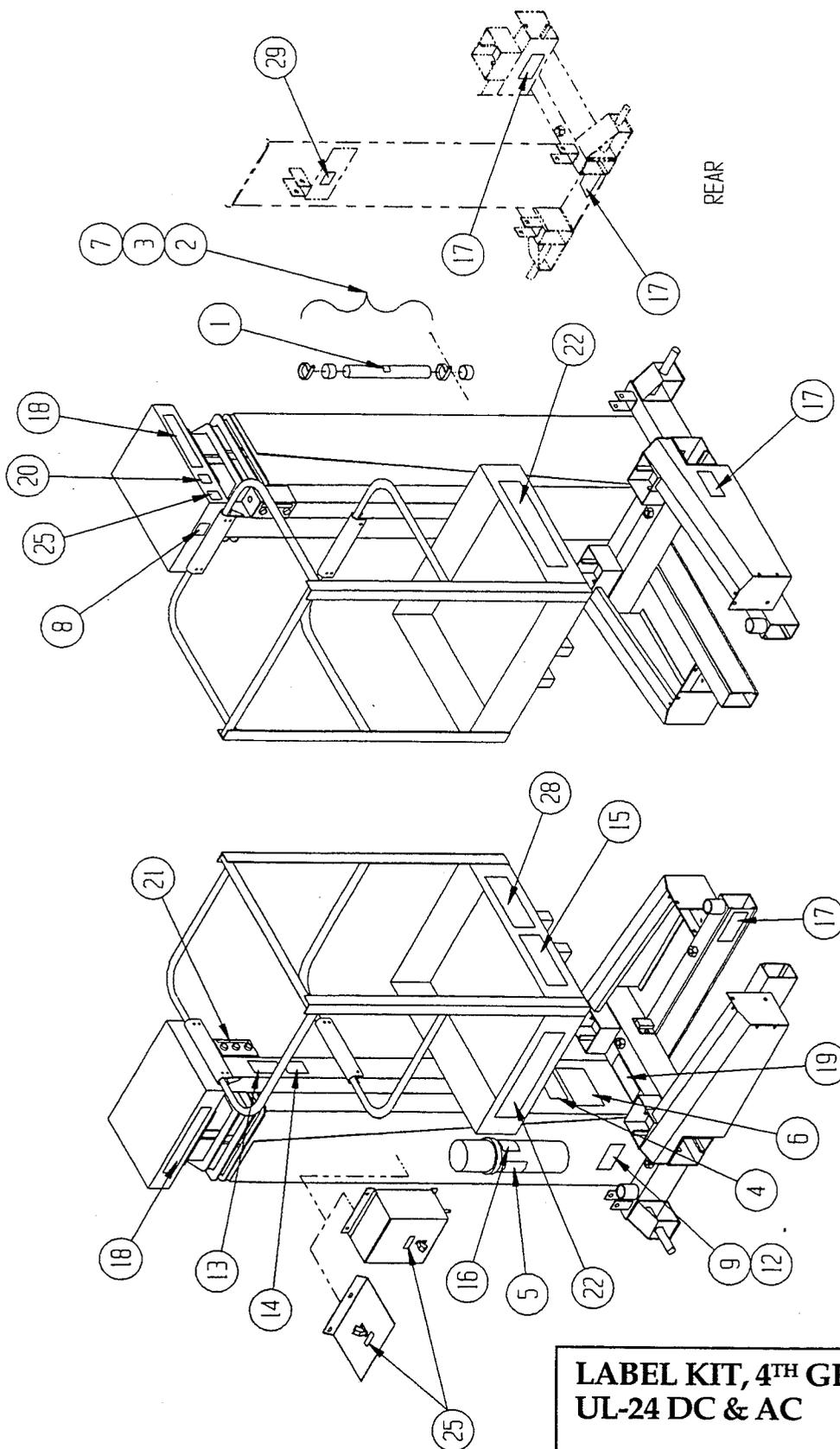
UL-24 DC: 62897-003

UL-24 AC: 62897-002

ITEM	PART	DESCRIPTION	DC QTY.	AC QTY.
1	03610-000	LABEL, OPERATING INST.	1	1
2	65099-000	INSTRUCTION TUBE ASSY	1	1
*	20398-012	CLAMP	2	2
*	03613-002	TUBE, INSTRUCTION	1	1
*	03612-000	CAP, INSTRUCTION TUBE	2	2
3	62300-005	USER MANUAL	1	1
4	05221-000	LABEL, BATTERY FLUID	1	
5	05223-000	LABEL, EMERGENCY DOWN	1	1
6	05225-000	LABEL, DANGER HYDROGEN GAS	1	
7	60577-001	ANSI MANUAL	1	1
8	64444-000	LABEL, USA	1	1
9	26551-004	RIVET, POP 1/8 .126-.187 GRIP	4	4
12	61205-000	NAME PLATE	1	1
13	62214-000	LABEL, DANGER BEFORE ELEVATING	1	1
14	62215-001	LABEL, CAUTION BEFORE USING	1	1
15	62216-000	LABEL, CAUTION MAX LOAD 300 LBS (136KG)	1	1
16	62217-000	LABEL, HYDRAULIC FLUID	1	1
17	62218-000	LABEL, INSERT OUTRIGGER	4	4
18	62220-000	LABEL, CAUTION PINCH POINT	2	2
19	62221-001	LABEL, DANGER CENTER BUBBLE	1	1
20	62322-000	LABEL, ON-OFF CONTROL	1	1
21	62840-000	LABEL, CONTROL	1	1
22	62567-000	LABEL, UL-24	2	2
25	62792-000	LABEL, EMERGENCY STOP	2	2
28	62821-001	LABEL, DANGER DO NOT ELEVATE	1	1
29	62575-000	LABEL, CAUTION DO NOT LOWER	1	1

\*Not Shown

# Illustrated Parts Breakdown



# Illustrated Parts Breakdown

## LABEL KIT, DOMESTIC, 4<sup>TH</sup> GEN.

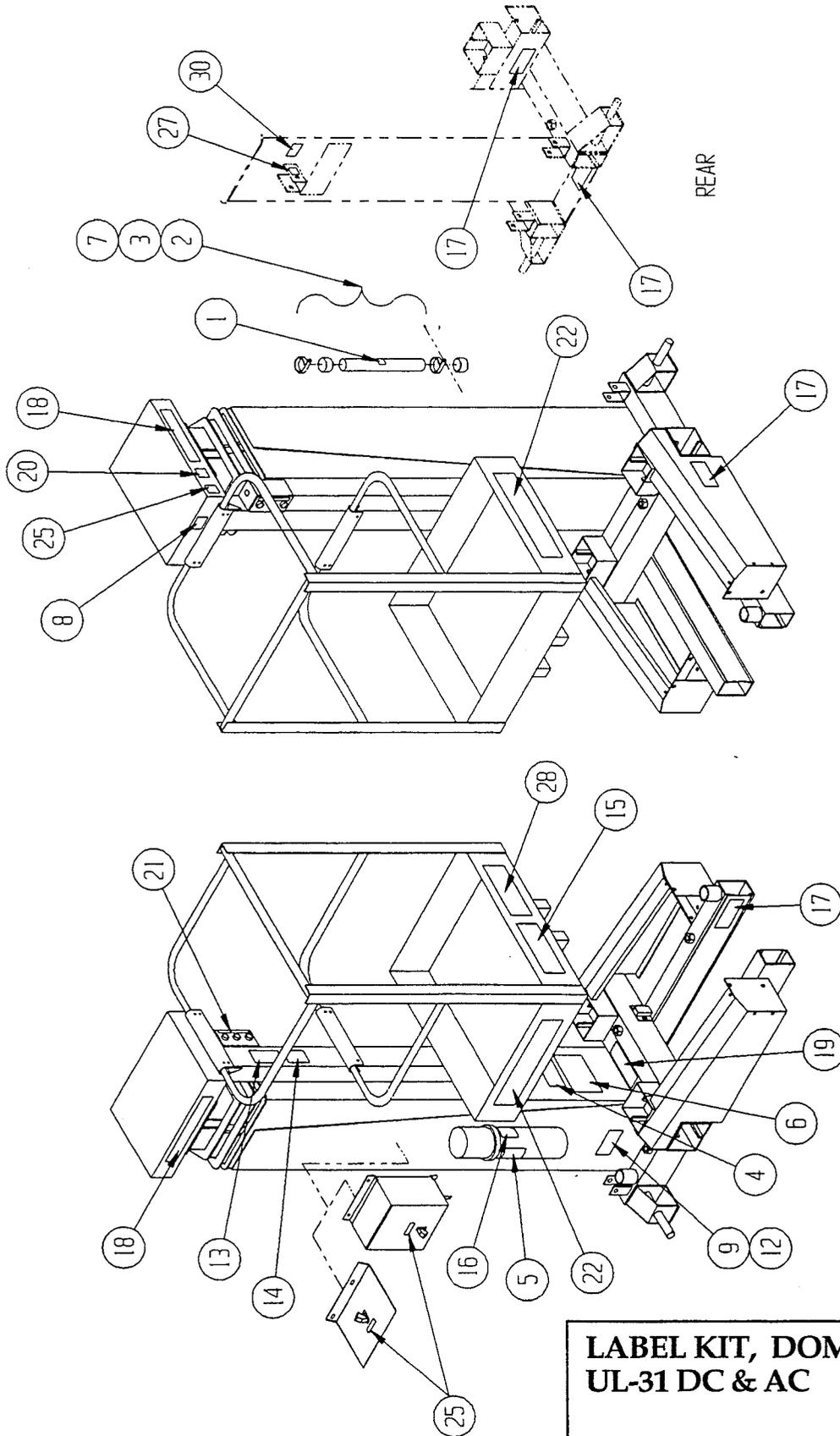
UL-31 DC: 62897-005

UL-31 AC: 62897-004

ITEM	PART	DESCRIPTION	DC QTY.	AC QTY.
1	03610-000	LABEL, OPERATING INST.	1	1
2	65099-000	INSTRUCTION TUBE ASSY	1	1
-	20398-012	CLAMP	2	2
-	03613-002	TUBE, INSTRUCTION	1	1
-	03612-000	CAP, INSTRUCTION TUBE	2	2
3	62300-005	USER MANUAL	1	1
4	05221-000	LABEL, BATTERY FLUID	1	
5	05223-000	LABEL, EMERGENCY DOWN	1	1
6	05225-000	LABEL, DANGER HYDROGEN GAS	1	
7	60577-001	ANSI MANUAL	1	1
8	64444-000	LABEL, USA	1	1
9	26551-004	RIVET, POP 1/8 .126-.187 GRIP	4	4
12	61205-000	NAME PLATE	1	1
13	62214-000	LABEL, DANGER BEFORE ELEVATING	1	1
14	62215-001	LABEL, CAUTION BEFORE USING	1	1
15	62216-000	LABEL, CAUTION MAX LOAD 300 LBS (136KG)	1	1
16	62217-000	LABEL, HYDRAULIC FLUID	1	1
17	62218-000	LABEL, INSERT OUTRIGGER	4	4
18	62220-000	LABEL, CAUTION PINCH POINT	2	2
19	62221-001	LABEL, DANGER CENTER BUBBLE	1	1
20	62322-000	LABEL, ON-OFF CONTROL	1	1
21	62840-000	LABEL, CONTROL	1	1
22	62569-000	LABEL, UL-31	2	2
25	62792-000	LABEL, EMERGENCY STOP	2	2
27	62814-000	LABEL, INSERT PIN HERE	REF	REF
28	62821-001	LABEL, DANGER DO NOT ELEVATE	1	1
30	62466-000	LABEL, DANGER BEFORE TILTING	REF	REF

**Note: Use this Kit for UL-33 machines, refer to the Extra Height Kit for the UL-33 Label (Item #22).**

# Illustrated Parts Breakdown



**LABEL KIT, DOMESTIC, 4<sup>TH</sup> GEN.  
UL-31 DC & AC**

# Illustrated Parts Breakdown

## LABEL KIT, EUROPE, 4<sup>TH</sup> GEN.

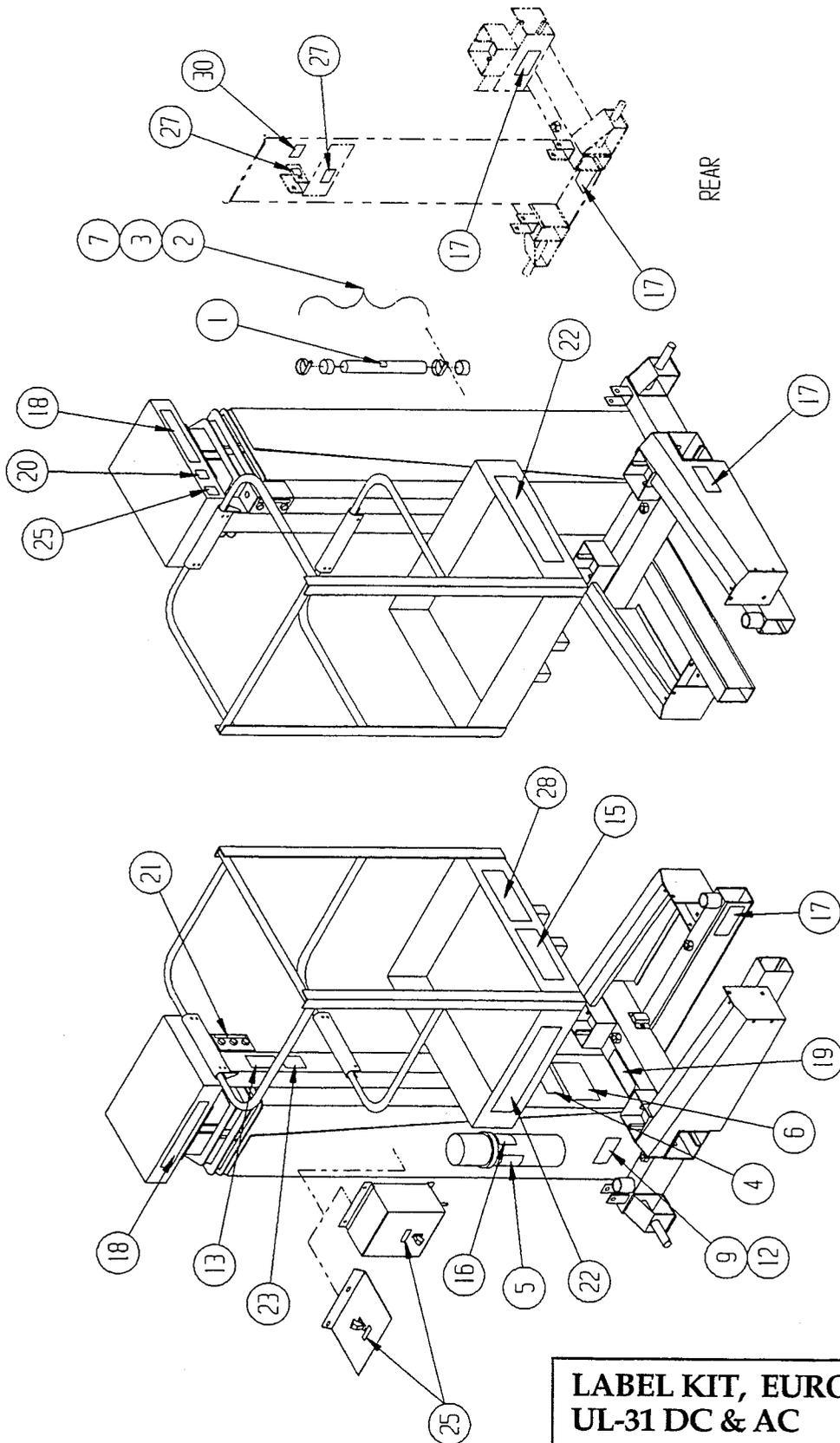
UL-31 DC: 62897-017

UL-31 AC: 62897-016

ITEM	PART	DESCRIPTION	DC QTY.	AC QTY.
1	03610-000	LABEL, OPERATING INST.	1	1
2	65099-000	INSTRUCTION TUBE ASSY	1	1
-	20398-012	CLAMP	2	2
-	03613-002	TUBE, INSTRUCTION	1	1
-	03612-000	CAP, INSTRUCTION TUBE	2	2
3	62949-000	USER MANUAL	1	1
4	05221-000	LABEL, BATTERY FLUID	1	
5	05223-000	LABEL, EMERGENCY DOWN	1	1
6	05225-000	LABEL, DANGER HYDROGEN GAS	1	
7	60577-001	ANSI MANUAL	1	1
9	26551-004	RIVET POP 1/8 .126-.187 GRIP	4	4
12	61205-000	NAME PLATE	1	1
13	62214-000	LABEL, DANGER BEFORE ELEVATING	1	1
14	62215-001	LABEL, CAUTION BEFORE USING	1	1
15	62216-000	LABEL, CAUTION MAX LOAD 300 LBS (136KG)	1	1
16	62217-000	LABEL, HYDRAULIC FLUID	1	1
17	62218-000	LABEL, INSERT OUTRIGGER	4	4
18	62220-000	LABEL, CAUTION PINCH POINT	2	2
19	62221-001	LABEL, DANGER CENTER BUBBLE	1	1
20	62322-000	LABEL, ON-OFF CONTROL	1	1
21	62840-000	LABEL, CONTROL	1	1
22	62569-000	LABEL, UL-31	2	2
23	62943-000	LABEL, WIND SPEED	1	1
25	62792-000	LABEL, EMERGENCY STOP	2	2
27	62814-000	LABEL, INSERT PIN HERE	REF	REF
28	62821-001	LABEL, DANGER DO NOT ELEVATE	1	1
30	62466-000	LABEL, DANGER BEFORE TILTING	REF	REF

**Note:** Use this Kit for UL-33 machines, refer to the Extra Height Kit for the UL-33 Label (Item #22).

# Illustrated Parts Breakdown



**LABEL KIT, EUROPE, 4<sup>TH</sup> GEN.  
UL-31 DC & AC**

# Illustrated Parts Breakdown

## LABEL KIT , DOMESTIC, 4<sup>TH</sup> GEN.

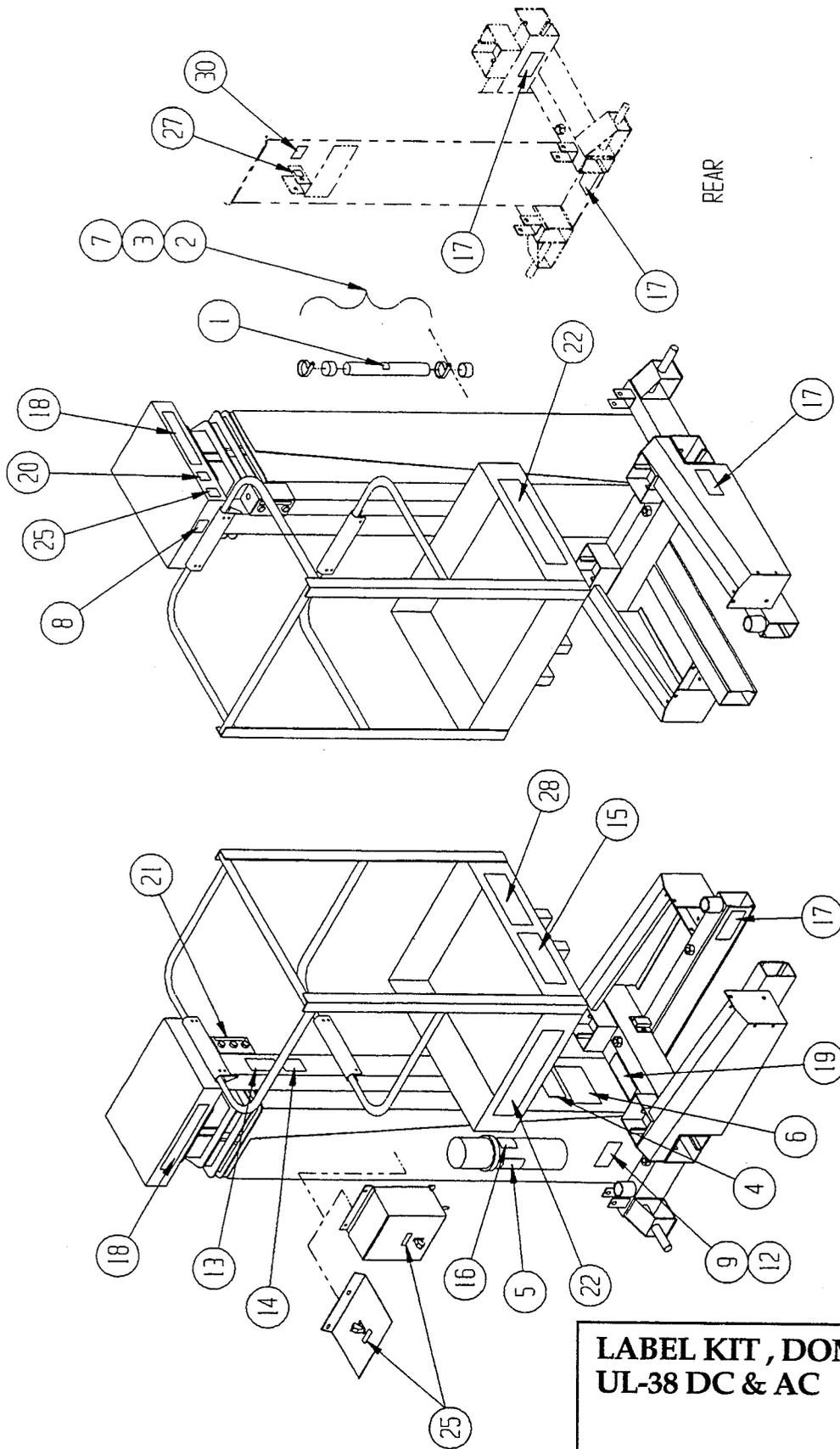
UL-38 DC: 62897-007

UL-38 AC: 62897-006

ITEM	PART	DESCRIPTION	DC QTY.	AC QTY.
1	03610-000	LABEL, OPERATING INST.	1	1
2	65099-000	INSTRUCTION TUBE ASSY	1	1
-	20398-012	CLAMP	2	2
-	03613-002	TUBE, INSTRUCTION	1	1
-	03612-000	CAP, INSTRUCTION TUBE	2	2
3	62300-005	USER MANUAL	1	1
4	05221-000	LABEL, BATTERY FLUID	1	
5	05223-000	LABEL, EMERGENCY DOWN	1	1
6	05225-000	LABEL, DANGER HYDROGEN GAS	1	
7	60577-001	ANSI MANUAL	1	1
8	64444-000	LABEL, USA	1	1
9	26551-004	RIVET, POP 1/8 .126-.187 GRIP	4	4
12	61205-000	NAME PLATE	1	1
13	62214-000	LABEL, DANGER BEFORE ELEVATING	1	1
14	62215-001	LABEL, CAUTION BEFORE USING	1	1
15	62216-000	LABEL, CAUTION MAX LOAD 300 LBS (136KG)	1	1
16	62217-000	LABEL, HYDRAULIC FLUID	1	1
17	62218-000	LABEL, INSERT OUTRIGGER	4	4
18	62220-000	LABEL, CAUTION PINCH POINT	2	2
19	62221-001	LABEL, DANGER CENTER BUBBLE	1	1
20	62322-000	LABEL, ON-OFF CONTROL	1	1
21	62840-000	LABEL, CONTROL	1	1
22	62571-000	LABEL, UL-38	2	2
25	62792-000	LABEL, EMERGENCY STOP	2	2
27	62814-000	LABEL, INSERT PIN HERE	REF	REF
28	62821-001	LABEL, DANGER DO NOT ELEVATE	1	1
30	62466-000	LABEL, DANGER BEFORE TILTING	REF	REF

**Note:** Use this Kit for UL-40 machines, refer to the Extra Height Kit for the UL-40 Label (Item #22).

# Illustrated Parts Breakdown



**LABEL KIT , DOMESTIC, 4<sup>TH</sup> GEN.  
UL-38 DC & AC**

# Illustrated Parts Breakdown

## LABEL KIT , EUROPE, 4<sup>TH</sup> GEN.

UL-38 DC: 62897-019

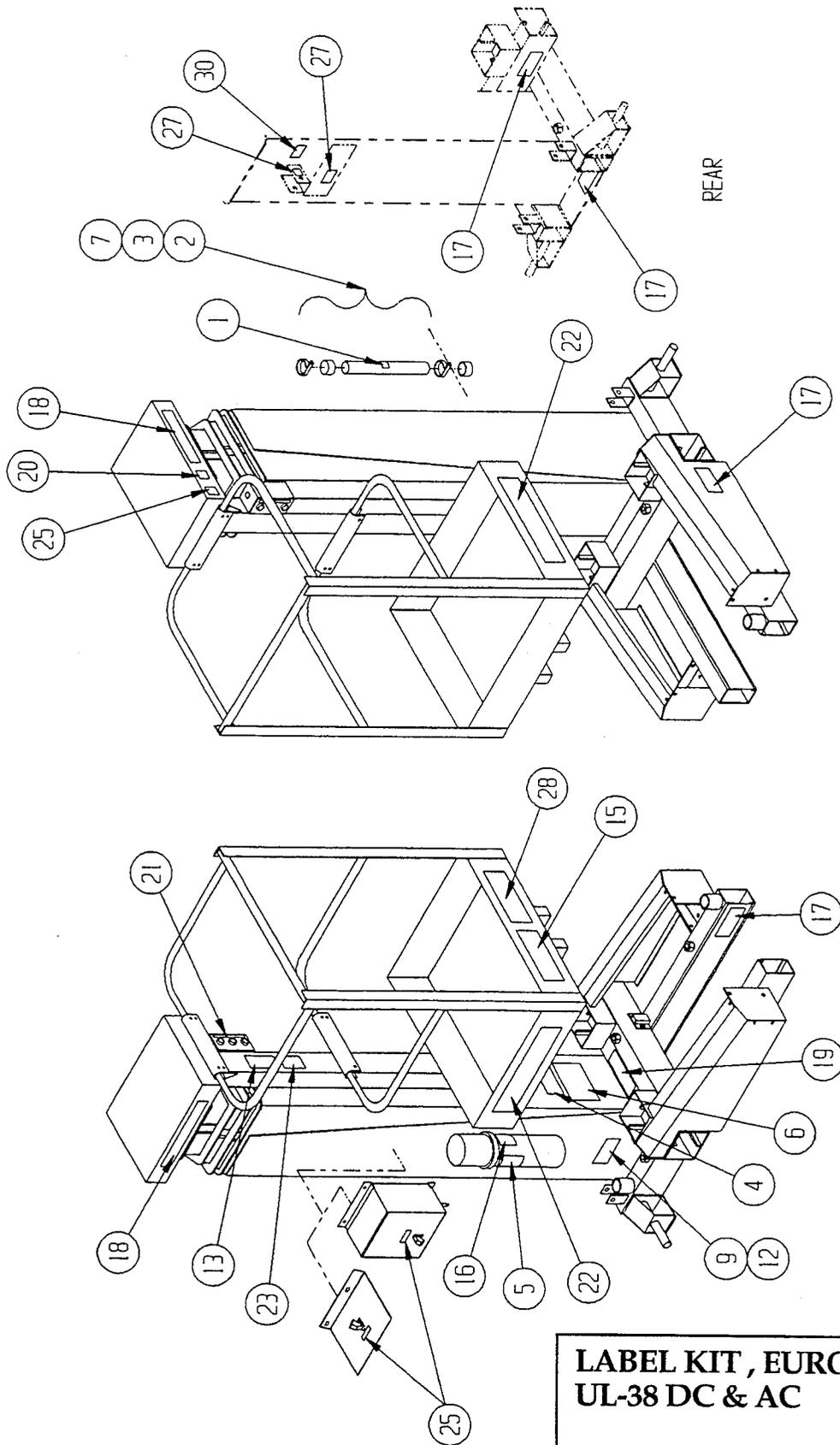
UL-38 AC: 62897-018

ITEM	PART	DESCRIPTION	DC QTY.	AC QTY.
1	03610-000	LABEL, OPERATING INST.	1	1
2	65099-000	INSTRUCTION TUBE ASSY	1	1
-	20398-012	CLAMP	2	2
-	03613-002	TUBE, INSTRUCTION	1	1
-	03612-000	CAP, INSTRUCTION TUBE	2	2
3	62949-000	USER MANUAL	1	1
4	05221-000	LABEL, BATTERY FLUID	1	
5	05223-000	LABEL, EMERGENCY DOWN	1	1
6	05225-000	LABEL, DANGER HYDROGEN GAS	1	
7	60577-001	ANSI MANUAL	1	1
9	26551-004	RIVET POP, 1/8 .126-.187 GRIP	4	4
12	61205-000	NAME PLATE	1	1
13	62214-000	LABEL, DANGER BEFORE ELEVATING	1	1
14	62215-001	LABEL, CAUTION BEFORE USING	1	1
15	62216-000	LABEL, CAUTION MAX LOAD 300 LBS (136KG)	1	1
16	62217-000	LABEL, HYDRAULIC FLUID	1	1
17	62218-000	LABEL, INSERT OUTRIGGER	4	4
18	62220-000	LABEL, CAUTION PINCH POINT	2	2
19	62221-001	LABEL, DANGER CENTER BUBBLE	1	1
20	62322-000	LABEL, ON-OFF CONTROL	1	1
21	62840-000	LABEL, CONTROL	1	1
22	62571-000	LABEL, UL-38	2	2
23	62943-000	LABEL, WIND SPEED	1	1
25	62792-000	LABEL, EMERGENCY STOP	2	2
27	62814-000	LABEL, INSERT PIN HERE	REF	REF
28	62821-001	LABEL, DANGER DO NOT ELEVATE	1	1
30	62466-000	LABEL, DANGER BEFORE TILTING	REF	REF

**Note:** Use this Kit for UL-40 machines, refer to the Extra Height Kit for the UL-40 Label (Item #22).

# Illustrated Parts Breakdown

Section  
7.2



**LABEL KIT, EUROPE, 4<sup>TH</sup> GEN.  
UL-38 DC & AC**

# Illustrated Parts Breakdown

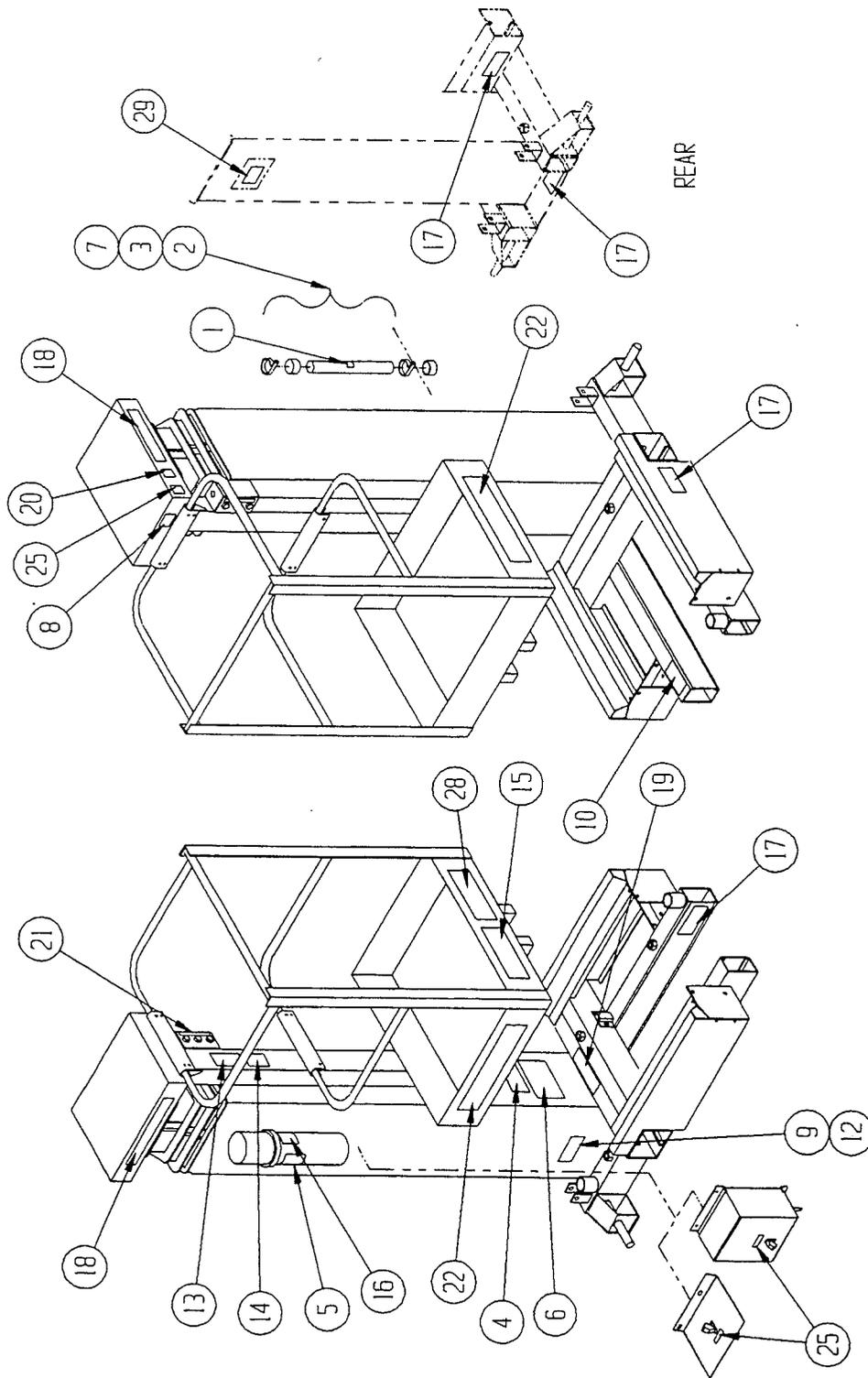
## LABEL KIT, DOMESTIC, 5<sup>TH</sup> GEN.

UL-24 DC: 62897-009

UL-24 AC: 62897-008

ITEM	PART	DESCRIPTION	DC QTY.	AC QTY.
1	03610-000	LABEL, OPERATING INST.	1	1
2	65099-000	INSTRUCTION TUBE ASSY	1	1
-	20378-012	CLAMP	2	2
-	03613-002	TUBE, INSTRUCTION	1	1
-	03612-000	CAP, INSTRUCTION TUBE	2	2
3	62300-005	USER MANUAL	1	1
4	05221-000	LABEL, BATTERY FLUID	1	
5	05223-000	LABEL, EMERGENCY DOWN	1	1
6	05225-000	LABEL, DANGER HYDROGEN GAS	1	
7	60577-001	ANSI MANUAL	1	1
8	64444-000	LABEL USA	1	1
9	26551-004	RIVET POP, 1/8 .126-.187 GRIP	4	4
10	62725-001	LABEL, CAUTION LOADER	1	1
12	61205-000	NAME PLATE	1	1
13	62214-000	LABEL, DANGER BEFORE ELEVATING	1	1
14	62215-001	LABEL, CAUTION BEFORE USING	1	1
15	62216-000	LABEL, CAUTION MAX LOAD 300 LBS (136KG)	1	1
16	62217-000	LABEL, HYDRAULIC FLUID	1	1
17	62218-000	LABEL, INSERT OUTRIGGER	4	4
18	62220-000	LABEL, CAUTION PINCH POINT	2	2
19	62221-001	LABEL, DANGER CENTER BUBBLE	1	1
20	62322-000	LABEL, ON-OFF CONTROL	1	1
21	62840-000	LABEL, CONTROL	1	1
22	62567-000	LABEL, UL-24	2	2
25	62792-000	LABEL, EMERGENCY STOP	2	2
28	62821-001	LABEL, DANGER DO NOT ELEVATE	1	1
29	62575-000	LABEL, CAUTION DO NOT LOWER	1	1

# Illustrated Parts Breakdown



**LABEL KIT, DOMESTIC, 5<sup>TH</sup> GEN.  
UL-24 DC & AC**

# Illustrated Parts Breakdown

## LABEL KIT, EUROPE, 5<sup>TH</sup> GEN.

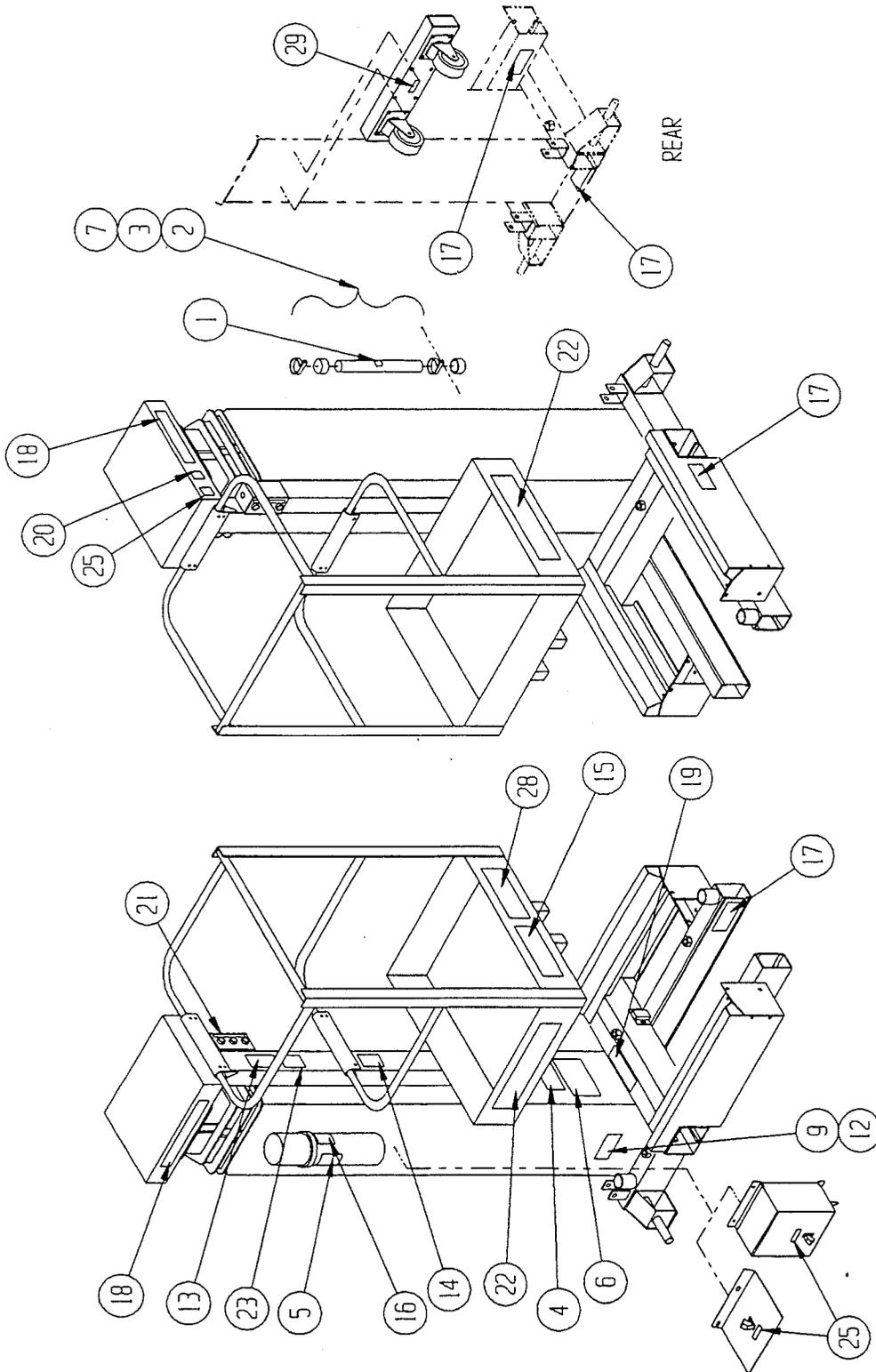
UL-24 DC: 62897-015

UL-24 AC: 62897-014

ITEM	PART	DESCRIPTION	DC QTY.	AC QTY.
1	03610-000	LABEL, OPERATING INST.	1	1
2	65099-000	INSTRUCTION TUBE ASSY	1	1
*	20378-012	CLAMP	2	2
*	03613-002	TUBE, INSTRUCTION	1	1
*	03612-000	CAP, INSTRUCTION TUBE	2	2
3	62949-000	USER MANUAL	1	1
4	05221-000	LABEL, BATTERY FLUID	1	
5	05223-000	LABEL, EMERGENCY DOWN	1	1
6	05225-000	LABEL, DANGER HYDROGEN GAS	1	
7	60577-001	ANSI MANUAL	1	1
9	26551-004	RIVET POP, 1/8 .126-.187 GRIP	4	4
12	61205-000	NAME PLATE	1	1
13	62214-000	LABEL, DANGER BEFORE ELEVATING	1	1
14	62215-001	LABEL, CAUTION BEFORE USING	1	1
15	62216-000	LABEL, CAUTION MAX LOAD 300 LBS (136KG)	1	1
16	62217-000	LABEL, HYDRAULIC FLUID	1	1
17	62218-000	LABEL, INSERT OUTRIGGER	4	4
18	62220-000	LABEL, CAUTION PINCH POINT	2	2
19	62221-001	LABEL, DANGER CENTER BUBBLE	1	1
20	62322-000	LABEL, ON-OFF CONTROL	1	1
21	62840-000	LABEL, CONTROL	1	1
22	62567-000	LABEL, UL-24	2	2
23	62943-000	LABEL, WIND SPEED	1	1
25	62792-000	LABEL, EMERGENCY STOP	2	2
28	62821-001	LABEL, DANGER DO NOT ELEVATE	1	1
29	62575-000	LABEL, CAUTION DO NOT LOWER	1	1

# Illustrated Parts Breakdown

Section  
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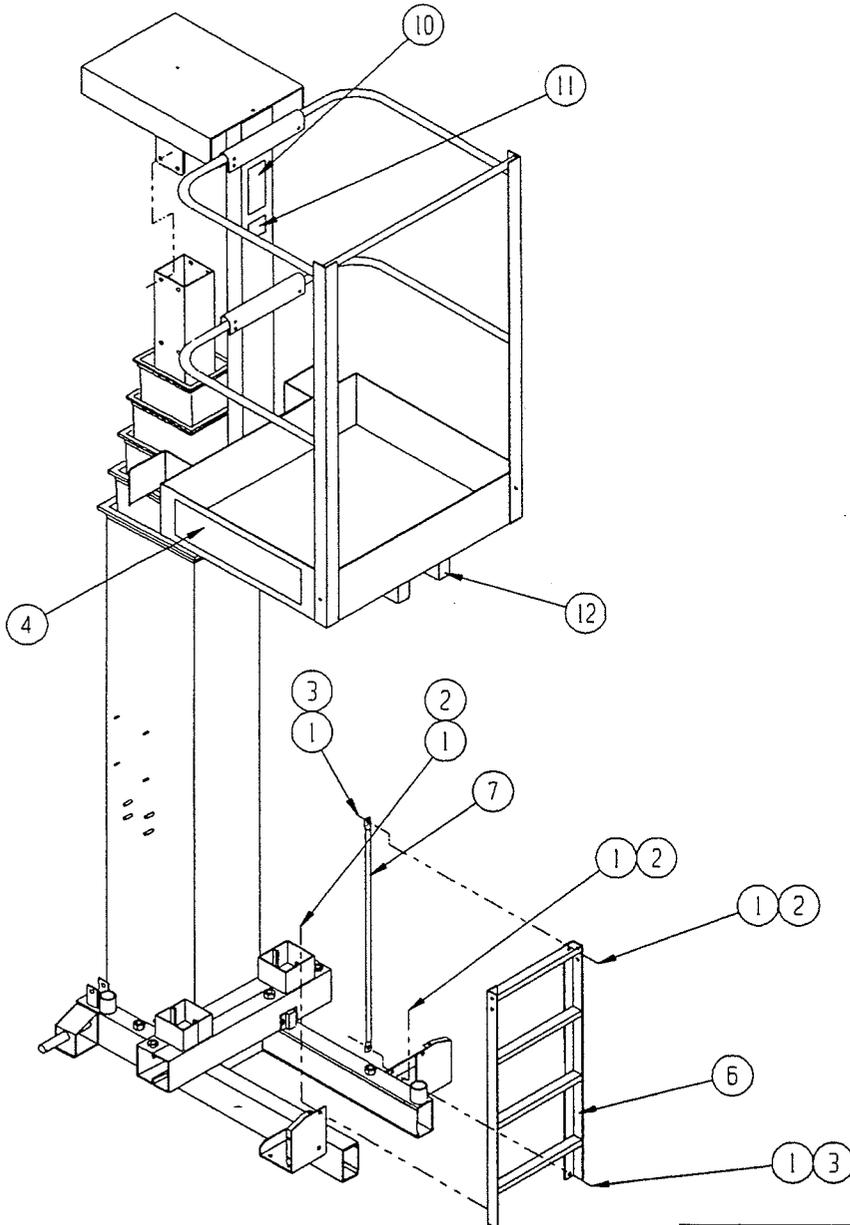
**LABEL KIT, EUROPE, 5<sup>TH</sup> GEN.  
UL-24 DC & AC**

# Illustrated Parts Breakdown

## 33FT ADDITIONAL HEIGHT KIT UL-33 62487-001

ITEM	PART	DESCRIPTION	QTY.
1	11240-006	WASHER, 3/8 FLAT	16
2	11248-006	LOCKNUT, 3/8-16 UNC	8
3	11254-008	SCREW, 3/8-16 UNC HHC X 1	8
4	62900-000	LABEL, UL-33	2
6	62489-000	LADDER WELDMENT	1

ITEM	PART	DESCRIPTION	QTY.
7	62904-000	TUBE, LADDER SUPPORT	2
10	62214-000	LABEL, BEFORE ELEVATING	1
11	62215-000	LABEL, BEFORE USING	1
12	62413-001	CAGE SUPPORT WELDMENT	1



**33FT ADDITIONAL HEIGHT KIT  
UL-33**

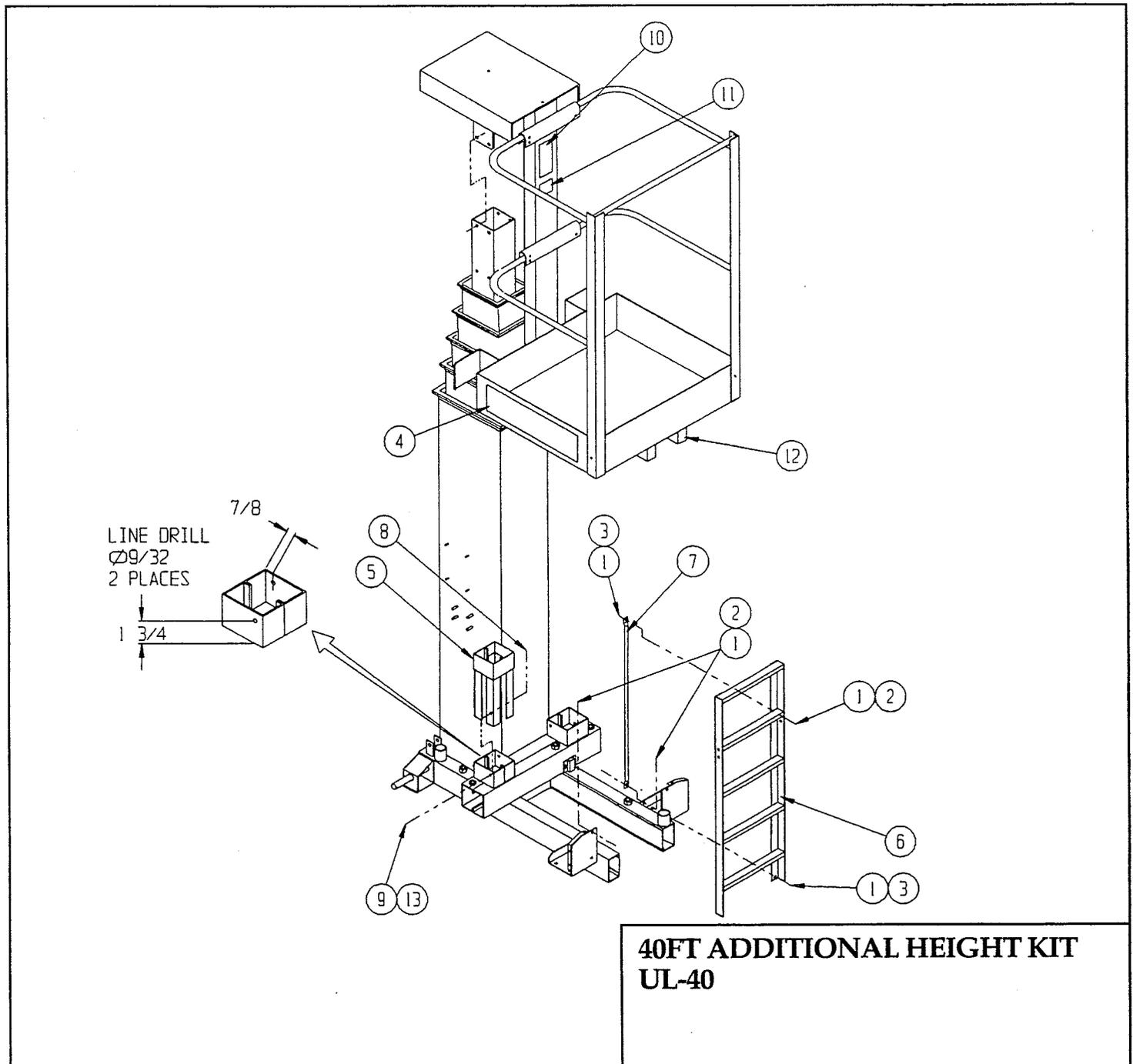
# Illustrated Parts Breakdown

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## 40FT ADDITIONAL HEIGHT KIT UL-40 62488-001

ITEM	PART	DESCRIPTION	QTY.
1	11240-006	WASHER, 3/8 FLAT	16
2	11248-006	LOCKNUT, 3/8-16 UNC	8
3	11254-008	SCREW, 3/8-16 UNC HHC X 1	8
4	62901-000	LABEL, UL-33	2
5	62496-001	OUTRIGGER POCKET WELDMENT	2
6	62490-000	LADDER WELDMENT	1

ITEM	PART	DESCRIPTION	QTY.
7	62904-000	TUBE, LADDER SUPPORT	2
8	11248-004	LOCKNUT, 1/4-20 UNC HEX	4
9	11240-004	WASHER, 1/4 DIA FLAT	4
10	62214-000	LABEL, BEFORE ELEVATING	1
11	62215-000	LABEL, BEFORE USING	1
12	62413-001	CAGE SUPPORT WELDMENT	1
13	11252-006	SCREW, 1/4-20 UNC X 3/4	4

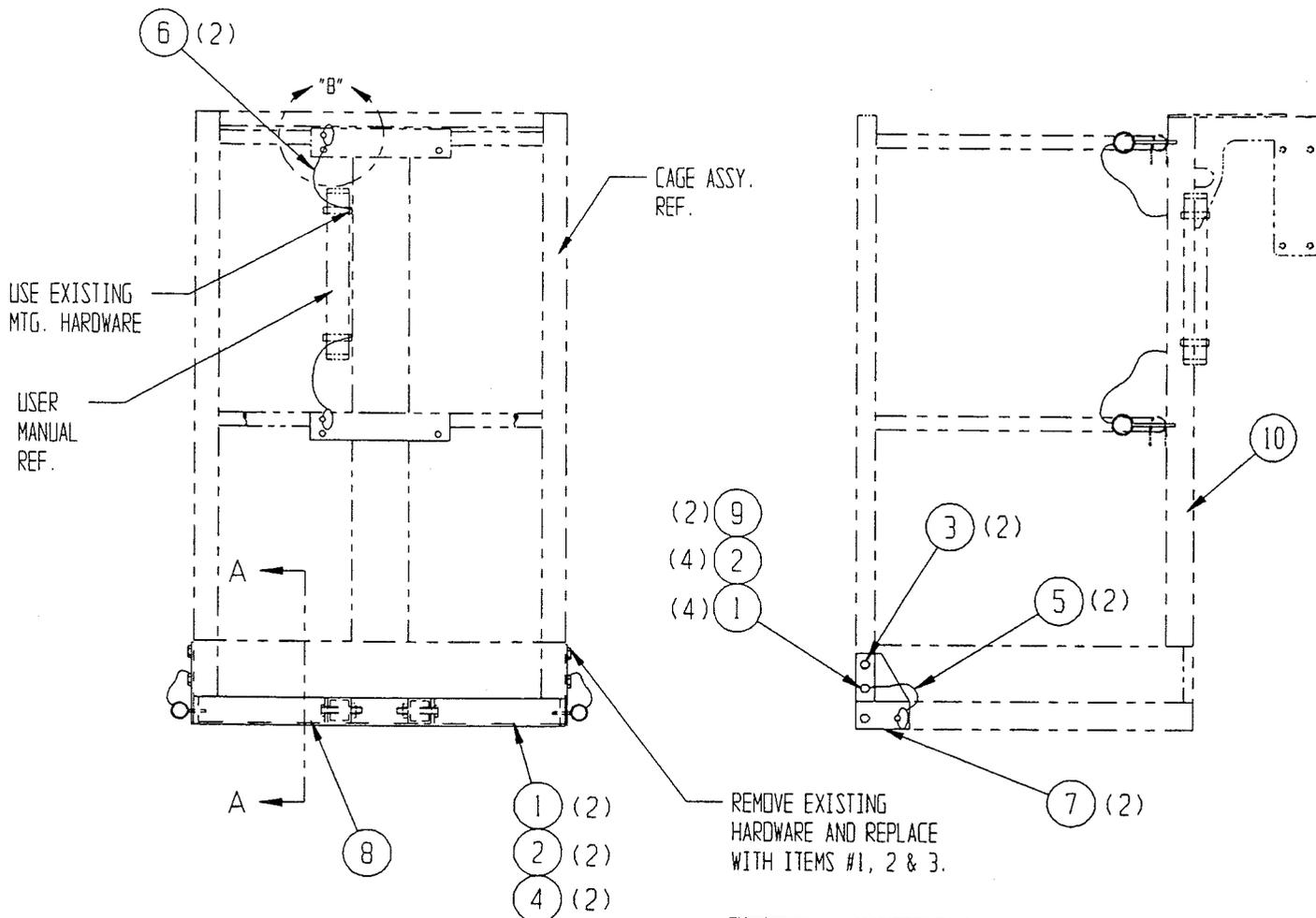
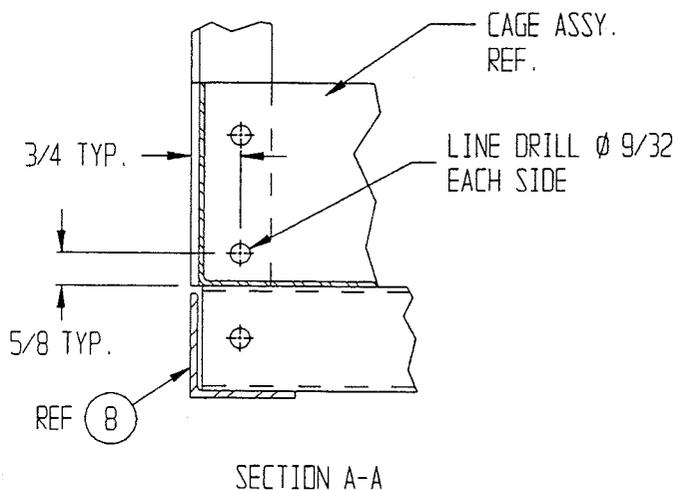
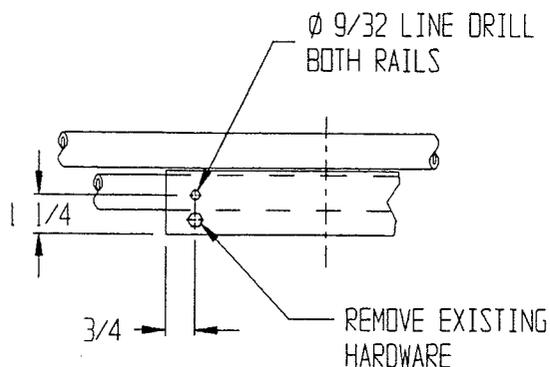


**DETACHABLE CAGE KIT - OPTION****UL-24/31/33/38/40**

62472-000

ITEM	PART	DESCRIPTION	QTY.
1	11239-004	WASHER	6
2	11248-004	NUT, ESNA 1/4-20	6
3	11252-008	SCREW, HHC 1/4-20 X 1	2
4	11252-020	SCREW, HHC 1/4-20 X 2 1/2	2
5	62375-000	PIN AND LANYARD ASSY., LOWER	2
6	62374-000	PIN AND LANYARD ASSY., UPPER	2
7	62473-000	SUPPORT PLATE	2
8	62474-000	WELDMENT, LOWER MOUNT	1
9	11252-010	SCREW, HHC 1/4-20 X 1 1/4	2
10	62413-001	UL-24, CAGE, SUPPORT WELDMENT	REF
	62418-001	UL-31/33/38/40, CAGE, SUPPORT WELDMENT	REF

# Illustrated Parts Breakdown



**DETACHABLE CAGE KIT**  
**UL-24/31/33/38/40**

# Illustrated Parts Breakdown

## FIBERGLASS CAGE KIT - OPTION

### UL-24

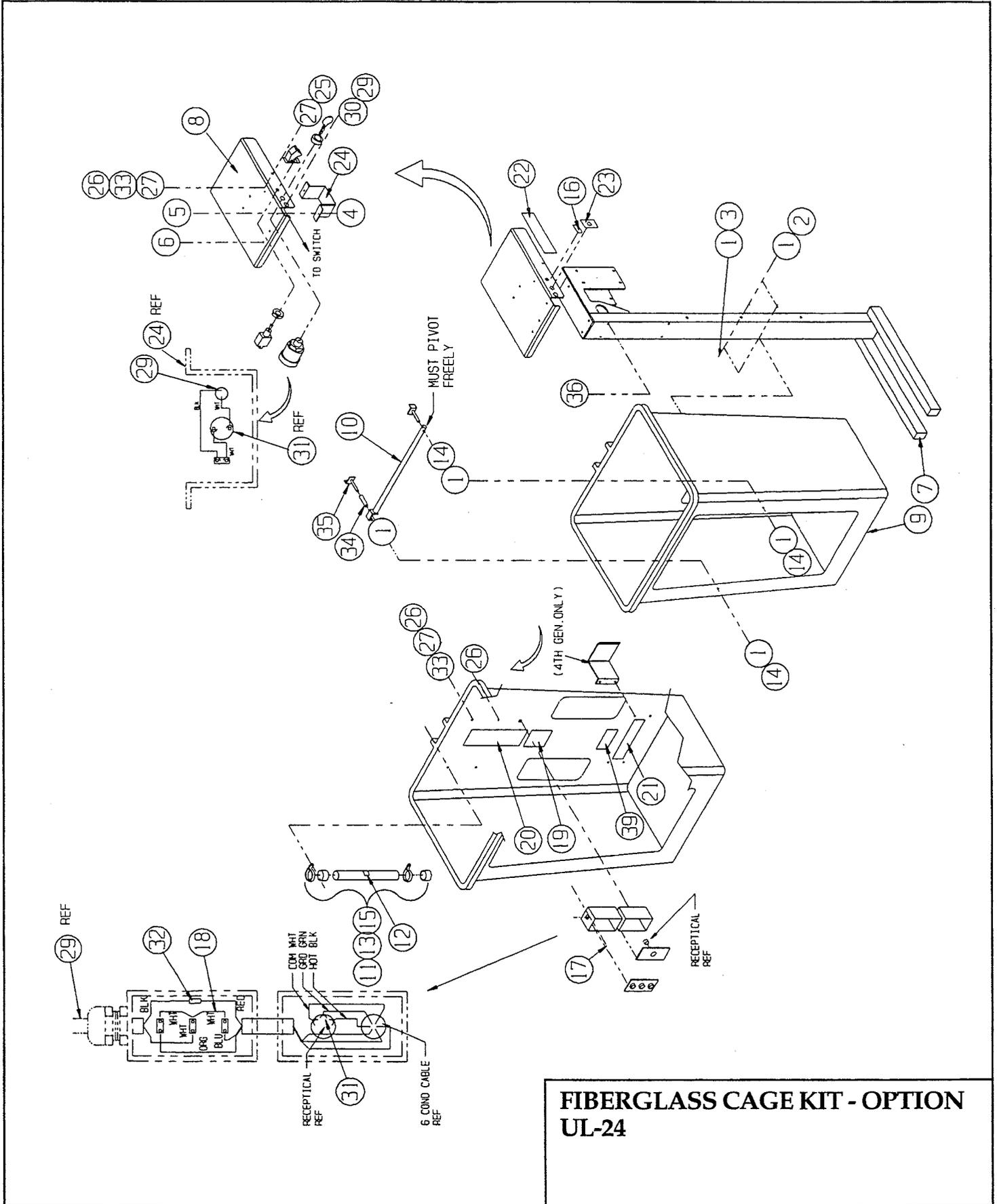
#### 62550-001

ITEM	PART	DESCRIPTION	QTY.
1	11240-006	WASHER, 3/8 DIA. FLAT	10
2	11248-006	NUT, HEX ESNA 3/8-16	6
3	11254-056	SCREW, HHC CRS 3/8-16 X 7	3
4	62553-003	NYLON LOCKNUT #8-32	2
5	62554-006	HEX HD NYLON SCREW #8-32 X 3/4 LG	2
6	62555-006	HEX HD NYLON SCREW 1/4-20 X 3/4 LG	4
7	62544-000	WELDMENT, CAGE SUPPORT	1
8	62546-001	PINCH SHIELD	1
9	62543-000	FIBERGLASS CAGE	1
-	62341-000	OUTRIGGER RETAINERS (4 <sup>th</sup> GEN. ONLY)	2
10	62794-002	GATE WELDMENT	1
11	60577-001	MANUAL, ANSI	1
12	03610-000	LABEL, OPERATING INST. STORAGE	1
13	65099-000	OPERATING INST. STORAGE TUBE ASSY.	1
-	03612-000	CAP	2
-	03613-002	TUBE, 1 1/2 O.D. X .062 CLEAR X 11 5/16	1
-	20398-012	CLAMP	2
17	14412-008	SCREW, SOC HD 10-24 X 1 LG	2

ITEM	PART	DESCRIPTION	QTY.
18	29451-099	WIRE, 16 GA WHITE	1 FT
19	62215-000	LABEL, CAUTION BEFORE USING	1
20	62214-000	LABEL, DANGER BEFORE ELEVATING	1
21	62216-000	LABEL, MAX. LOAD 300 LBS.	1
22	62220-000	LABEL, KEEP HANDS OUT	2
23	62322-000	LABEL, KEY SWITCH	1
24	62262-001	SWITCH SHIELD	1
25	11709-006	SCREW, #10-24 UNC RD HD X 3/4	1
26	11248-003	LOCKNUT, #10-24 UNC HEX	8
27	11240-003	WASHER, #10 DIA. FLAT	3
29	29499-099	WIRE, 16 GA 3 COND	1 FT
30	11868-011	BUSHING, STRAIN RELIEF	2
31	29601-013	CONN TERM, FORK	7
32	29620-003	CONN, BUTT	5
33	13919-003	CLAMP, HOSE	2
34	18062-010	TUBE 5/8 OD X .120 W CDS X 1 1/2	1
35	62837-000	MIDRAIL PIN WELDMENT	2
39	62821-000	LABEL, DO NOT ELEVATE	1

\*Not Shown

# Illustrated Parts Breakdown



# Illustrated Parts Breakdown

## FIBERGLASS CAGE KIT-OPTION

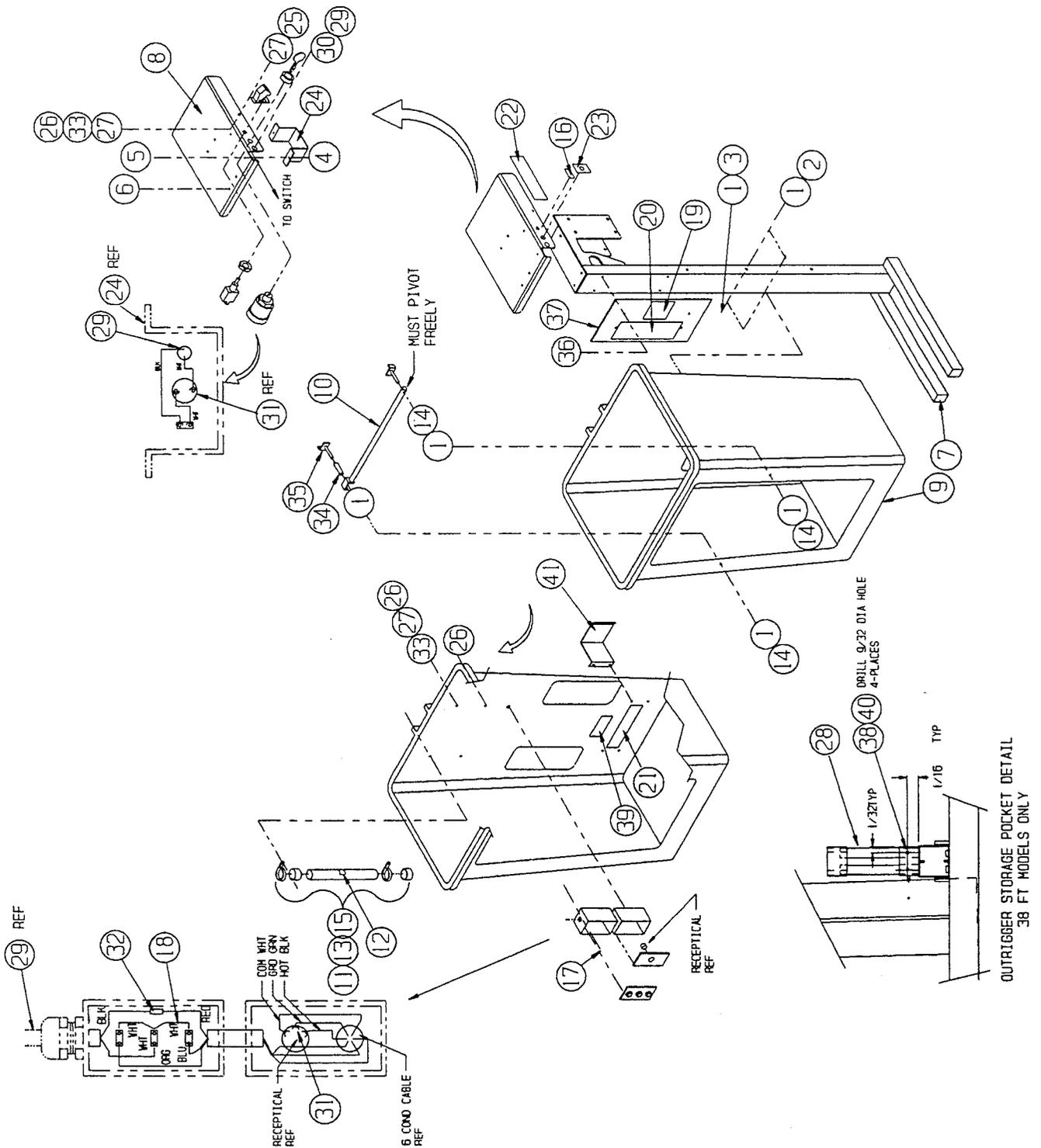
UL-31: 62551-002

UL-38: 62551-003

ITEM	PART	DESCRIPTION	31 QTY.	38 QTY.
1	11240-006	WASHER, 3/8 FLAT	10	10
2	11248-006	NUT, HEX ESNA 3/8-16	6	6
3	17254-056	SCREW, HHC GR5 3/8-16 X 7 LG	3	3
4	62553-003	NYLON LOCK NUT #8-32	2	2
5	62554-006	HEX HD NYLON SCREW #8-32 X 3/4 LG	2	2
6	62555-006	HEX HD NYLON SCREW 1/4-20 X 3/4 LG	4	4
7	62545-000	WELDMENT, CAGE SUPPORT	1	1
8	62546-001	PINCH SHIELD	1	1
9	62543-000	FIBERGLASS CAGE	1	1
10	62794-002	GATE WELDMENT	1	1
11	60577-001	MANUAL, ANSI	1	1
12	03610-000	LABEL, OPERATING INST. STORAGE	1	1
13	03610-000	OPERATING INST. STORAGE TUBE ASSY.	1	1
-	03612-000	CAP	2	2
-	03613-002	TUBE, 1 1/2 O.D. X .062 CLEAR X 11 15/16	1	1
-	20398-012	CLAMP	2	2
14	11247-012	LOCKNUT, 3/8-16 UNC HEX	3	3
15	62300-005	MANUAL, USER	1	1
16	62792-000	LABEL, EMERGENCY STOP	1	1
17	14412-008	SCRE, 10-24 SOC HD X 1	2	2
18	29451-099	WIRE, 16 GA WHITE	1 FT	1 FT
19	62215-000	LABEL, CAUTION BEFORE USING	1	1

ITEM	PART	DESCRIPTION	31 QTY.	38 QTY.
20	62214-000	LABEL, DANGER BEFORE ELEVATING	1	1
21	62216-000	LABEL, MAX. LOAD 300 LBS.	1	1
22	62220-000	LABEL, KEEP HANDS OUT	2	2
23	62322-000	LABEL, KEY SWITCH	1	1
24	62262-001	SHIELD, SWITCH	1	1
25	11709-006	SCREW, #10-24 UNC RD HD X 3/4	1	1
26	11248-003	LOCKNUT, #10-24 UNC HEX	8	8
27	11240-003	WASHER, #10 DIA. FLAT	3	3
28	62496-001	WELDMENT, OUTRIGGER POCKET		2
29	29489-099	WIRE, 16 GA 3 COND.	3.3'	3.3'
30	11868-011	BUSHING, STRAIN RELIEF	2	2
31	29601-013	CONN, TERM, FORK	7	7
32	29620-003	CONN, BUTT	5	5
33	13919-003	CLAMP, HOSE	2	2
34	18062-010	TUBE, 5/8 OD X .120 W CDS X 1 1/2	1	1
35	62837-000	WELDMENT, MIDRAIL PIN	2	2
36	62556-006	RIVET, BLIND PLASTIC .236 DIA	4	4
37	62547-000	SHIELD	1	1
38	11252-008	SCREW, HEX HD 1/4-20 X 1 LG		4
39	62821-001	LABEL, DO NOT ELEVATE	1	1
40	11248-004	LOCKNUT, ESNA 1/4-20		4
41	62340-000	OUTRIGGER RETAINER		2
	62341-000	OUTRIGGER RETAINER	2	

# Illustrated Parts Breakdown



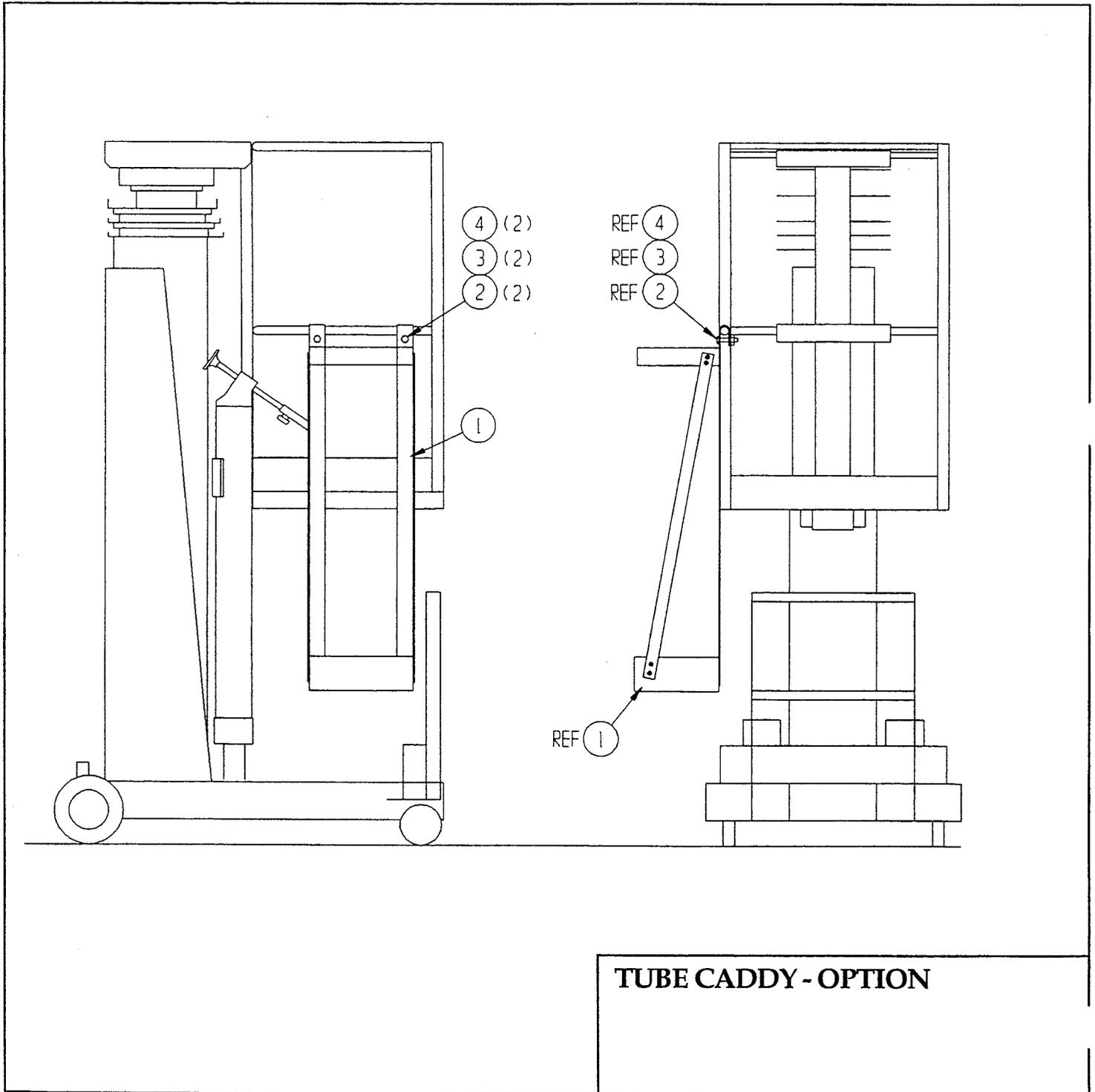
**FIBERGLASS CAGE KIT-OPTION  
UL-31/38**

# Illustrated Parts Breakdown

## TUBE CADDY - OPTION

62535-000

ITEM	PART	DESCRIPTION	QTY.
1	62536-000	TUBE CADDY ASSEMBLY	1
2	11240-004	WASHER, FLAT 1/4	2
3	11248-004	NUT, ESNA HEX 1/4-20	2
4	11252-014	SCREW, HHC GR5 1/4-20 X 1 3/4	2



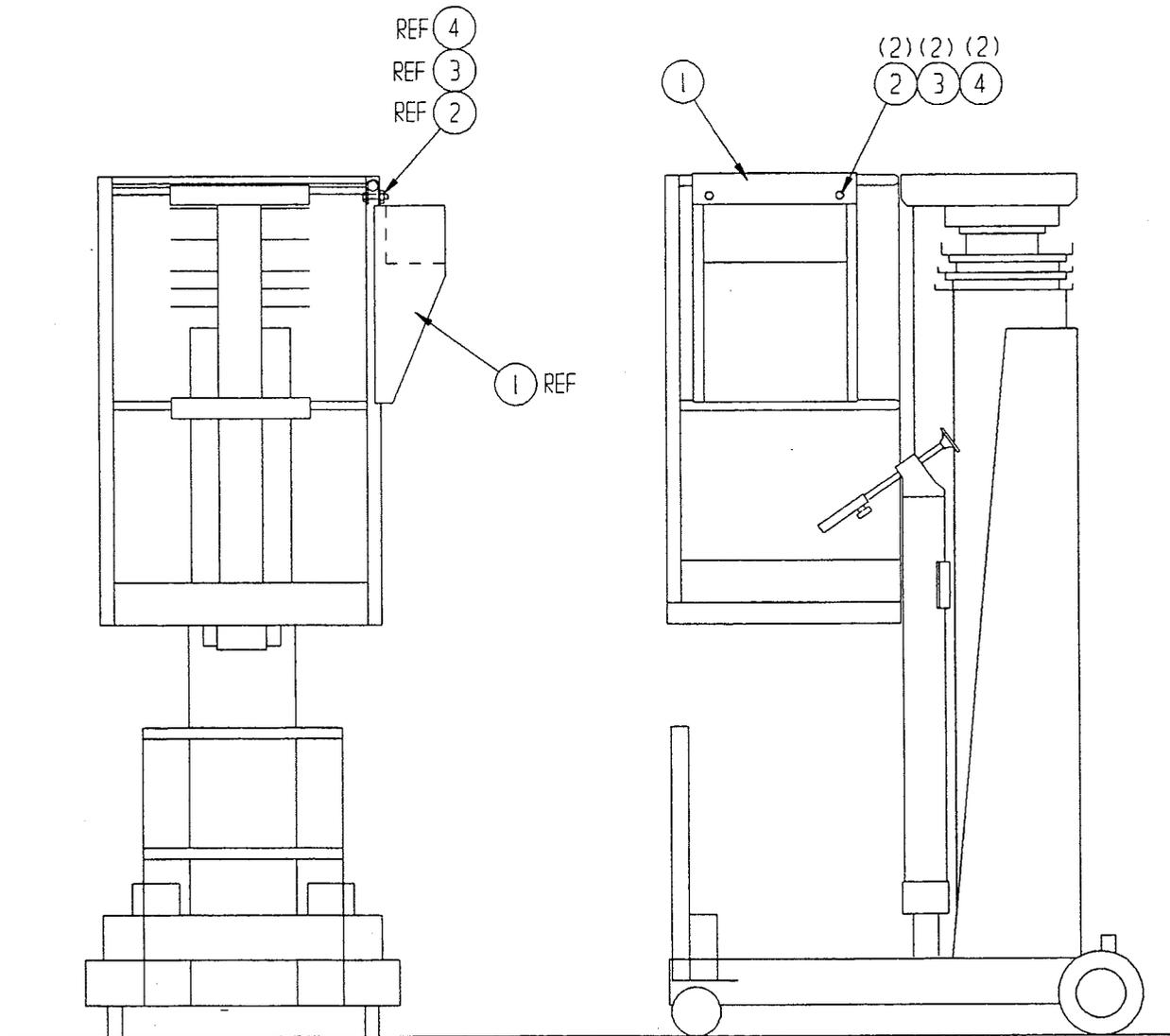
**TUBE CADDY - OPTION**

# Illustrated Parts Breakdown

## TOOL TRAY - OPTION

62530-000

ITEM	PART	DESCRIPTION	QTY.
1	62531-000	TOOL TRAY ASSEMBLY	1
2	11240-004	WASHER, FLAT 1/4	2
3	11248-004	NUT, ESNA HEX 1/4-20	2
4	11252-014	SCREW, HHS GR5 1/4-20 X 1 3/4	2



TOOL TRAY - OPTION

# Illustrated Parts Breakdown

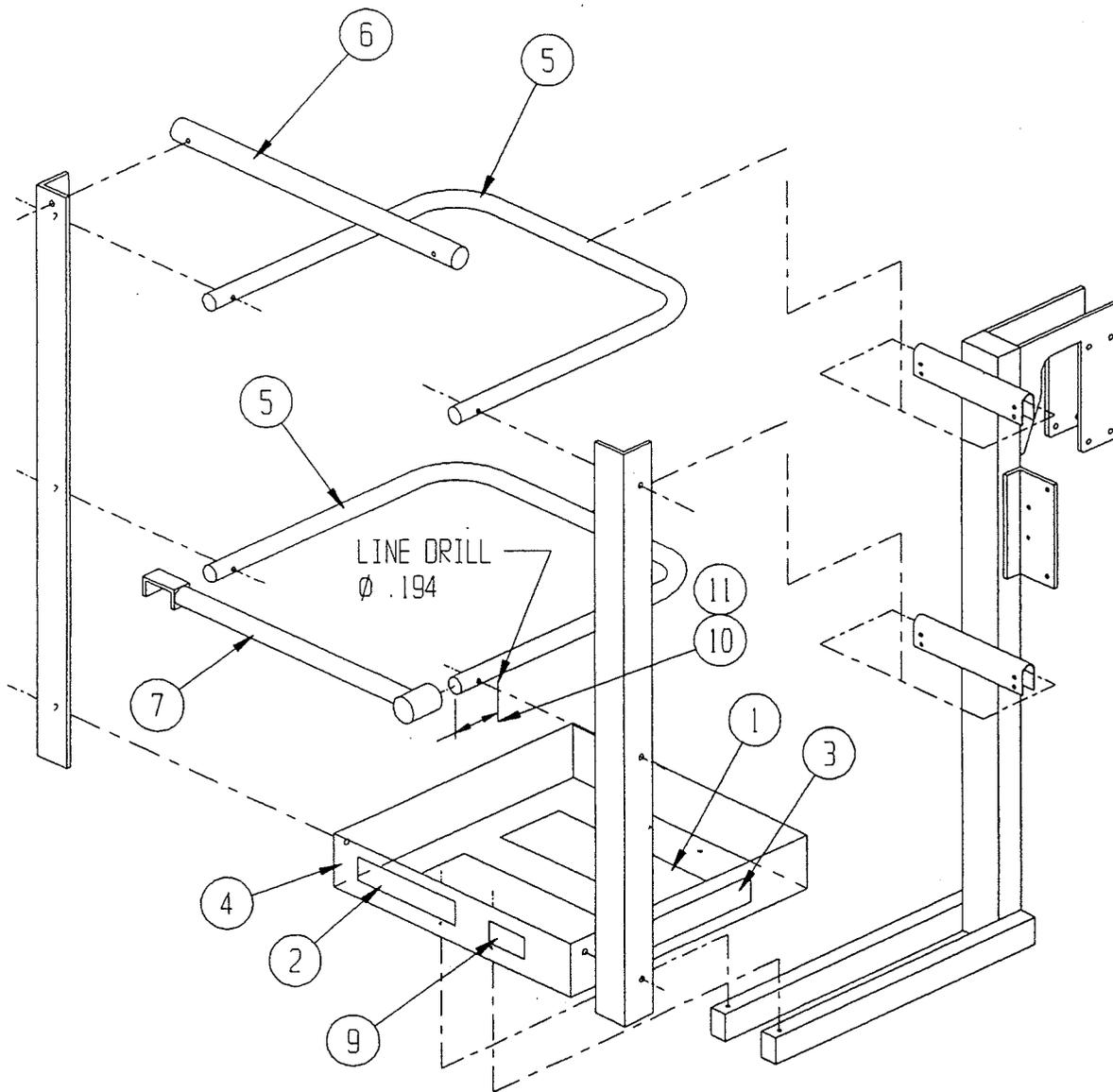
## NARROW CAGE KIT - OPTION

62486-001

ITEM	PART	DESCRIPTION	QTY.
1	60830-000	SAFETY WALK	2
2	62216-000	LABEL, MAX LOAD 300 LBS.	1
3	62564-000	LABEL, UPRIGHT	2
4	62483-000	PAN, NARROW	1
5	62484-000	RAIL, NARROW	2
6	62485-000	FRONT RAIL, NARROW	1
7	62794-001	MIDRAIL WELDMENT	1
9	62821-000	LABEL, DO NOT ELEVATE	1
10	14996-003	RIVET, 3/16 DIA. .251-.375 GRIP	1
11	26553-004	WASHER, #10 SAE FLAT	1

# Illustrated Parts Breakdown

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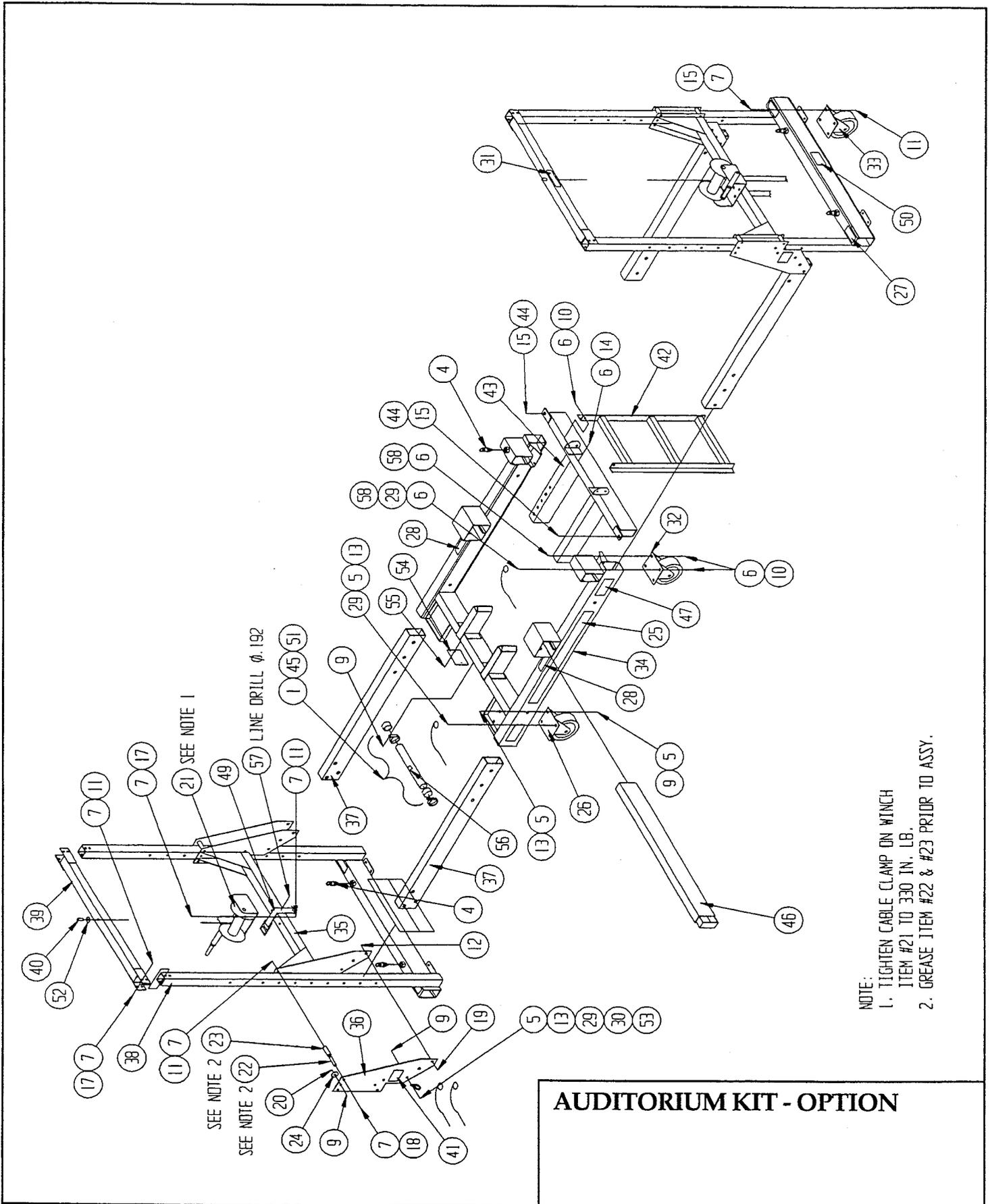
**NARROW CAGE KIT - OPTION**

## AUDITORIUM KIT - OPTION

62360-001

ITEM	PART	DESCRIPTION	QTY.
1	65099-000	LABEL, INSTRUCTION TUBE ASSY	1
-	20398-012	CLAMP	2
-	03613-002	TUBE, INSTRUCTION	1
-	03612-000	CAP, INSTRUCTION TUBE	2
4	03570-000	PIN, RETAINING	5
5	11240-004	WASHER, 1/4 STD FLAT	4
6	11240-005	WASHER, 5/16 STD FLAT	36
7	11240-006	WASHER, 3/8 STD FLAT	56
9	11248-004	LOCKNUT, 1/4-20 UNC HEX	22
10	11248-005	LOCKNUT, 5/16-18 UNC HEX	18
11	11248-006	LOCKNUT, 3/8-16 UNC HEX	44
12	11248-008	LOCKNUT, 1/2-13UNC HEX	4
13	11252-008	SCREW, 1/4-20 UNC HHC X 1	4
14	11253-010	SCREW, 5/16-18 UNC HHC X 1 1/4	2
15	11254-008	SCREW, 3/8-16 UNC HHC X 1	18
17	11254-024	SCREW, 3/8-16 UNC HHC X 3	12
18	11254-030	SCREW, 3/8-16 HHC X 3 3/4	16
19	11256-032	SCREW, 1/2-13UNC X 4	4
20	11828-008	SCREW, 1/4-20 FLT HD SOC X 1	16
21	12610-000	WINCH	2
22	17408-010	PIPE, 3/8 SCH 80 X 2 1/2	16
23	17416-002	PIPE, 3/4 SCH 80 X 2 3/8	16
24	60643-001	PAD, ROUND	16
25	61517-000	LABEL, UPRIGHT	2
26	03491-000	CASTER	2
27	62218-000	LABEL, INST.	4
28	62221-001	LABEL, DANGER	2
29	62319-000	PIN ASSY	8
30	62330-000	PIN ASSY	4
31	62338-000	LABEL, DANGER	2
32	62343-000	CASTER	2
33	62344-000	CASTER	4
34	62361-001	SUPPORT FRAME WELDMENT	1
35	62368-000	BEARING PLATE WELDMENT	2
36	62370-000	BEARING PLATE	4
37	62372-000	SUPPORT TUBE WELDMENT	4
38	62376-000	END COLUMN WELDMENT	2
39	62380-000	TOP CROSS BAR WELDMENT	2
40	62383-000	CABLE ASSY	2
41	62384-000	LABEL, DANGER	4
42	62385-000	LADDER WELDMENT	1
43	62388-001	LADDER SUPPORT WELDMENT	1
44	11273-006	NUT, JAM 3/8-16 UNC HEX	2
45	62304-001	USER MANUAL	1
46	62462-000	RETAINING TUBE WELDMENT	2
47	62465-000	LABEL, DANGER	4
49	62346-000	STRAP, NYLON	2
50	62497-000	LABEL, CAUTION	2
51	60577-001	ANSI MANUAL	1
52	11239-005	WASHER, 5/16 ASTM FLAT	2
53	13919-013	HOSE CLAMP	4
54	61205-000	NAME PLATE	1
55	26551-004	RIVET, POP 1/8 .188-.250 GRIP	4
56	03610-000	LABEL, OPERATING INST.	1
57	26553-004	RIVET, POP 3/16 .25-.375 GRIP	2
58	11253-008	SCREW, 5/16-18 UNC HHC X 1	16

# Illustrated Parts Breakdown



## NOTES

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# UpRight

Call Toll Free in U.S.A.

**1-800-926-LIFT**

**UpRight, Inc.**  
1775 Park Street  
Selma, California 93662  
TEL: 209/896-5150  
FAX: 209/896-9012  
PARTSFAX: 209/896-9244

**UpRight, Europe**  
(Europe, Africa & Middle East)  
Pottery Road  
Dun Laoire, Ireland  
TEL: 353/1/285-3333  
FAX: 353/1/284-0015

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