

UpRight

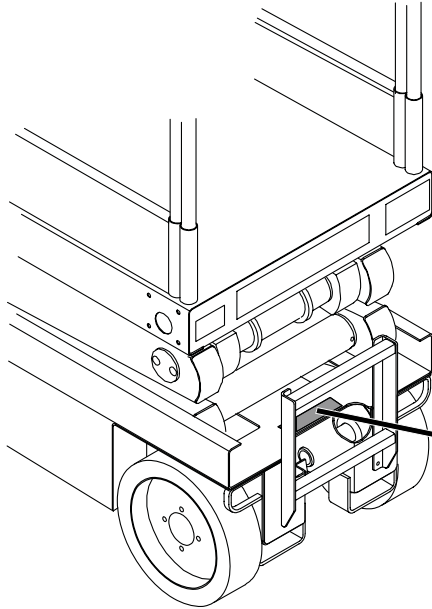


Service & Parts Manual

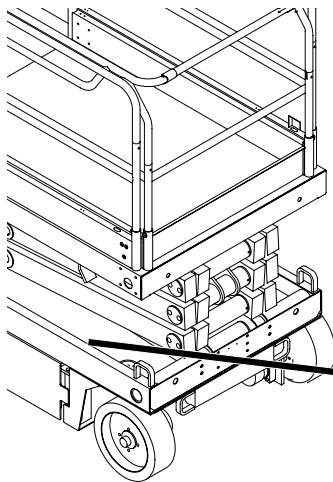
SERVICE & PARTS MANUAL

X Series

Serial Numbers 15020 to current



When contacting UpRight for service or parts information, be sure to include the MODEL and SERIAL NUMBERS from the equipment nameplate. Should the nameplate be missing, the SERIAL NUMBER is also stamped on top of the top right side scissor guide channel towards the front of the machine.



Stamped Serial
Number

UpRight Inc.

1775 PARK ST. SELMA CALIFORNIA 93662 USA

Model: _____ Serial number: _____
GVW: _____ lbs. _____ kg. Mfg. date: _____
Maximum allowable incline of machine when elevated: _____ deg.
Occupants and equipment must not exceed the rated maximum
load: _____ lbs. _____ kg Maximum platform occupants: _____
Maximum allowable side force on platform: _____ lbs. _____ N
Maximum platform height: _____ ft. _____ m
Maximum platform reach: _____ ft. _____ m
Maximum allowable wind speed: _____ mph _____ km/h
Maximum hydraulic system pressure: _____ psi _____ bar
Maximum system voltage: _____ vdc
Maximum wheel load: _____ lbs. _____ kg

This machine is manufactured to comply with ANSI A92.6-1999.

**CAUTION: CONSULT OPERATOR'S MANUAL BEFORE USE.
THIS PLATFORM IS NOT ELECTRICALLY INSULATED**

UpRight, Inc.

1775 Park Street
Selma, California 93662

TEL: 559/891-5200

FAX: 559/891-9012

PARTS: 1-888-UR-PARTS

PARTS FAX: 559/896-9244

UpRight

Call Toll Free in U.S.A.

1-800-926-LIFT

UpRight International Support Centre

Innsbrukweg 114
3047 AH Rotterdam
Netherlands

TEL: +31-10-238-0000

FAX: +31-10-238-0001

Parts Tel: +31-10-490-8090

Parts Fax: +31-10-490-8099

P/N 060571-005
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FOREWORD

HOW TO USE THIS MANUAL

This manual is divided into six sections.

SECTION 1 INTRODUCTION

General description and machine specifications.

SECTION 2 MACHINE OPERATION AND SPECIFICATIONS

Information on how to operate the work platform and how to prepare it for operation.

SECTION 3 MAINTENANCE

Preventative maintenance and service information.

SECTION 4 TROUBLESHOOTING

Causes and solutions to typical problems.

SECTION 5 SCHEMATICS

Schematics and valve block diagram with description and location of components.

SECTION 6 ILLUSTRATED PARTS BREAKDOWN

Complete parts lists with illustrations.

SPECIAL INFORMATION

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

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

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTE: Gives helpful information.

WORKSHOP PROCEDURES

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.

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.

TABLE OF CONTENTS

Section 1

Introduction

| | |
|-------------------------|-----|
| 1.1 Introduction | 1-1 |
| Purpose | 1-1 |
| Scope | 1-1 |
| 1.2 General Description | 1-1 |
| Platform | 1-1 |
| Platform Controller | 1-1 |
| Elevating Assembly | 1-1 |
| Chassis | 1-2 |
| Purpose of Equipment | 1-2 |
| Special Limitations | 1-2 |

Section 2

Operation and Specifications

| | |
|---|------|
| 2.1 Introduction | 2-2 |
| 2.2 Pre-Operation and Safety Inspection | 2-2 |
| 2.3 Operation | 2-4 |
| Platform Extension | 2-4 |
| Travel with Platform Lowered | 2-4 |
| Steering | 2-5 |
| Elevating the Platform | 2-5 |
| Travel with Work Platform Elevated | 2-5 |
| Lowering the Platform | 2-5 |
| Emergency Lowering | 2-6 |
| Lower the Guardrails, X26N | 2-7 |
| Fold Down Guardrails, X31N | 2-7 |
| After Use Each Day | 2-8 |
| Parking Brake Release | 2-8 |
| 2.4 Transporting The Work Platform | 2-9 |
| By Crane | 2-9 |
| By Forklift | 2-9 |
| By Truck | 2-9 |
| 2.5 Maintenance | 2-10 |
| Blocking Elevating Assembly | 2-10 |
| Battery Maintenance | 2-11 |
| Battery Charging | 2-12 |
| 2.6 Preventative Maintenance | 2-14 |
| 2.7 Preventative Maintenance Checklist | 2-15 |
| Preventative Maintenance Key | 2-15 |
| Preventative Maintenance Report | 2-15 |
| 2.8 Specifications | 2-16 |

Section 3

Maintenance

| | |
|--|------|
| 3.1 Introduction | 3-1 |
| Terminology | 3-1 |
| General Procedures | 3-1 |
| 3.2 Date Code Identification on Hoses | 3-1 |
| 3.3 Special Tools | 3-2 |
| 3.4 UpRight Connectors | 3-2 |
| Male Connector (Plug) | 3-3 |
| Female Connector (Receptacle) | 3-3 |
| Releasing Locking Fingers | 3-3 |
| Crimping | 3-3 |
| Removing Contact from Heavy Duty Plug | 3-3 |
| 3.5 Supporting Elevating Assembly | 3-4 |
| X20N, X20W, X26N | 3-4 |
| X31N | 3-5 |
| 3.6 Battery Maintenance | 3-6 |
| Battery Inspection and Cleaning | 3-6 |
| Battery Charging | 3-6 |
| Battery Cell Equalization | 3-7 |
| 3.7 Switch Adjustments | 3-8 |
| Tilt Sensor | 3-8 |
| Down Limit Switch | 3-8 |
| Control Handle | 3-9 |
| 3.8 Motor Controller and I/O Board Dip Switch Settings | 3-10 |
| Controller | 3-10 |
| I/O Board | 3-10 |
| 3.9 Hydraulic Oil Tank and Filter | 3-11 |
| Fluid Level | 3-11 |
| Oil and Filter Replacement | 3-11 |
| Reservoir Breather/Cap | 3-11 |
| 3.10 Setting Hydraulic Pressures | 3-12 |
| Main Relief Valve | 3-12 |
| Steering Relief Valve | 3-13 |
| Lift Relief Valve | 3-13 |
| Counterbalance Valves | 3-13 |
| 3.11 Hydraulic Manifold | 3-14 |
| Removal | 3-14 |
| Disassembly | 3-14 |
| Cleaning and Inspection | 3-14 |
| Assembly | 3-14 |
| Installation | 3-14 |
| 3.12 Hydraulic Pump | 3-16 |
| Removal | 3-16 |
| Installation | 3-16 |
| 3.13 Hydraulic Drive Motors and Hubs | 3-16 |
| Removal | 3-16 |
| Installation | 3-16 |
| 3.14 Brake Cylinder | 3-17 |
| Removal | 3-17 |
| Disassembly | 3-17 |
| Cleaning and Inspection | 3-17 |
| Assembly | 3-17 |
| Installation | 3-18 |

| | |
|--|------|
| 3.15 Steering Cylinder | 3-18 |
| Removal | 3-18 |
| Disassembly | 3-18 |
| Cleaning and Inspection | 3-18 |
| Assembly | 3-19 |
| Installation | 3-19 |
| 3.16 Depression Mechanism Cylinder | 3-19 |
| Removal | 3-19 |
| Installation | 3-19 |
| 3.17 Lift Cylinder | 3-20 |
| Removal | 3-20 |
| Disassembly | 3-20 |
| Cleaning and Inspection | 3-20 |
| Reassembly | 3-21 |
| Installation | 3-22 |
| 3.18 Electric Motor | 3-23 |
| Troubleshooting | 3-23 |
| Disassembly | 3-23 |
| Inspection | 3-23 |
| 3.19 Torque Specifications | 3-24 |
| Hydraulic Components | 3-24 |
| Fasteners | 3-24 |

Section 4

Troubleshooting

| | |
|--|-----|
| 4.1 Introduction | 4-1 |
| General Procedure | 4-1 |
| 4.2 Troubleshooting | 4-2 |
| Special Tools | 4-2 |
| Adjustment Procedures | 4-2 |
| Checking Pump Pressures | 4-2 |
| 4.3 Upright Motor Controller Diagnostics | 4-3 |
| 4.4 Measured Voltage at I/O Board | 4-4 |
| 4.5 Hydraulic | 4-5 |
| 4.6 Electric | 4-6 |

Section 5

Schematics

| | |
|----------------------------|-----|
| 5.1 Introduction | 5-1 |
| Contents | 5-1 |
| 5.2 Electrical | 5-2 |
| 5.3 Hydraulics | 5-6 |

Section 6

Illustrated Parts Breakdown

| | |
|----------------------------|-----|
| 6.1 Introduction | 6-1 |
| Contents | 6-1 |

LIST OF FIGURES

Section 1

Introduction

| | |
|--|-----|
| Figure 1-1: X Series Work Platform | 1-1 |
|--|-----|

Section 2

Operation and Specifications

| | |
|---|------|
| Figure 2-1: Chassis Controls | 2-2 |
| Figure 2-2: Emergency Lowering | 2-3 |
| Figure 2-3: Platform Controls | 2-3 |
| Figure 2-4: Platform Extension | 2-4 |
| Figure 2-5: Emergency Lowering Valve Handle | 2-6 |
| Figure 2-6: Parking Brake Release. | 2-8 |
| Figure 2-7: Secure Crane Straps. | 2-9 |
| Figure 2-8: Transporting the Work Platform | 2-9 |
| Figure 2-9: Blocking the Elevating Assembly | 2-10 |
| Figure 2-10: Power Module | 2-11 |
| Figure 2-11: Battery Charger | 2-12 |

Section 3

Maintenance

| | |
|---|------|
| Figure 3-1: UpRight Connector Kit | 3-2 |
| Figure 3-2: Plugs and Receptacles, UpRight Connectors | 3-2 |
| Figure 3-3: Locking Finger, UpRight Connector. | 3-3 |
| Figure 3-4: Heavy Duty UpRight Connector | 3-3 |
| Figure 3-5: Blocking the Elevating Assembly--X20N, X20W, X26N | 3-4 |
| Figure 3-6: Blocking the Elevating Assembly--X31N. | 3-5 |
| Figure 3-7: Battery Charger | 3-6 |
| Figure 3-8: Power Module | 3-7 |
| Figure 3-9: Level Sensor | 3-8 |
| Figure 3-10: Down Limit Switch | 3-8 |
| Figure 3-11: Control Handle | 3-9 |
| Figure 3-12: Controller. | 3-10 |
| Figure 3-13: I/O Board | 3-10 |
| Figure 3-14: Oil Filter | 3-11 |
| Figure 3-15: Hydraulic Tank | 3-11 |
| Figure 3-16: Hydraulic Manifold | 3-12 |
| Figure 3-17: Hydraulic Manifold | 3-15 |
| Figure 3-18: Hydraulic Pump. | 3-16 |
| Figure 3-19: Drive Motor. | 3-16 |
| Figure 3-20: Brake Cylinder | 3-17 |
| Figure 3-21: Brake Cylinder Assembly | 3-17 |
| Figure 3-22: Steering Cylinder. | 3-18 |
| Figure 3-23: Depression Mechanism Cylinder | 3-19 |
| Figure 3-24: Five Section Scissor Assembly | 3-20 |
| Figure 3-25: Lift Cylinder Remove and Replace | 3-21 |
| Figure 3-26: Lift Cylinder Assembly | 3-22 |
| Figure 3-27: Electric Motor | 3-23 |

Section 4

Troubleshooting

Figure 4-1: Hydraulic Test Port. 4-2

Figure 4-2: Motor Controller. 4-3

LIST OF TABLES

Section 3
Maintenance

Table 3-1: Torque Specifications for Hydraulic Components3-24

Table 3-2: Torque Specifications for SAE Fasteners3-24

Table 3-3: Torque Specifications for Metric Fasteners, U.S. Customary Units3-25

Table 3-4: Torque Specifications for Metric Fasteners, SI Units3-25

Section 4
Troubleshooting

Table 4-1: LED Fault Codes4-3

Table 4-2: Hydraulic Troubleshooting Table4-5

Table 4-3: Electrical Troubleshooting Table4-6

INTRODUCTION

1.1 INTRODUCTION

PURPOSE

The purpose of this service and parts manual is to provide instructions and illustrations for the operation and maintenance of this work platform manufactured by UpRight, Inc., of Selma, California.

SCOPE

The manual includes procedures for proper operation, maintenance, adjustment, and repair of this product as well as recommended maintenance schedules and troubleshooting.

1.2 GENERAL DESCRIPTION

The work platform consists of the platform, controller, elevating assembly, power module, control module, and chassis.

! WARNING !

DO NOT use the work platform without guardrails properly assembled and in place.

Figure 1-1: X Series Work Platform

PLATFORM

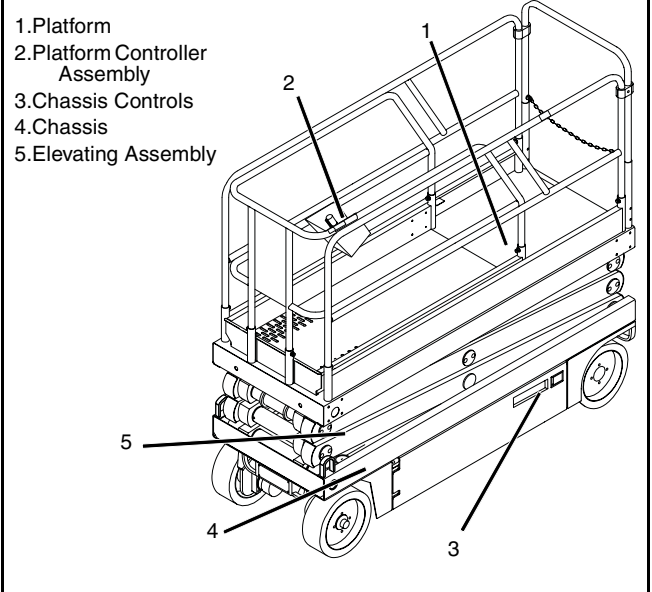
The platform has a reinforced steel floor, 43.5 inch (1.11 m) high guardrails with midrail, 6 inch (152 mm) toeboards, and an entry chain at the rear of the platform. The guardrails can be folded down for access through doors or for shipment.

PLATFORM CONTROLLER

The platform controller contains the controls to operate the machine. It is located at the front of the platform cage. A complete explanation of control functions can be found in Section 2.

ELEVATING ASSEMBLY

The platform is raised and lowered by the elevating assembly. The hydraulic pump, driven by the engine, powers the cylinder. Solenoid operated valves control raising and lowering.



CHASSIS

The chassis is a structural frame that supports all the components of the X Series work platform.

PURPOSE OF EQUIPMENT

The objective of the work platform is to provide a quickly deployable, self propelled, variable height work platform to elevate personnel and materials to overhead work areas.

SPECIAL LIMITATIONS

Travel with the platform raised is limited to a creep speed range.

Elevating of the work platform is limited to firm, level surfaces only. Any degree of slope greater than 2° will sound a warning alarm when the machine is elevated.



The elevating function shall ONLY be used when the work platform is level and on a firm surface. The work platform is NOT intended to be driven over uneven, rough, or soft terrain when elevated.

OPERATION AND SPECIFICATIONS

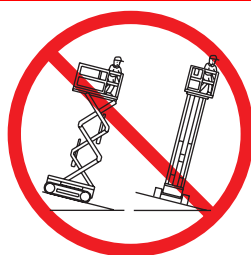
WARNING

All personnel shall carefully read, understand and follow all safety rules, operating instructions, and the Scaffold Industry Association's MANUAL OF RESPONSIBILITIES of ANSI A92.6-1999 before operating or performing maintenance on any UpRight Aerial Work Platform.

Safety Rules



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



NEVER elevate the platform or drive the machine while elevated unless the machine is on firm, level surface.



NEVER sit, stand or climb on guardrail or midrail.

NEVER operate the machine without first surveying the work area for surface hazards such as holes, drop-offs, bumps and debris.

NEVER operate the machine if all guardrails are not properly in place and secured with all fasteners properly torqued.

SECURE chain or gate across entrance after mounting the platform.

NEVER use ladders or scaffolding on the platform.

NEVER attach overhanging loads or increase the platform size.

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

DISTRIBUTE all loads evenly on the platform.

NEVER use damaged equipment. (Contact UpRight for instructions. See toll-free phone number on back cover.)

NEVER change operating or safety systems.

INSPECT the machine thoroughly for cracked welds, loose hardware, hydraulic leaks, damaged control cable, loose wire connections and wheel bolts.

NEVER climb down the elevating assembly with the platform elevated.

NEVER perform service on the machine while the platform is elevated without blocking the elevating assembly.

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 the key switch off and removing the key.

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

2.1 INTRODUCTION

This manual covers operation of the X Series Self-Propelled Work Platform. **This manual must be stored on the machine at all times.**

2.2 PRE-OPERATION AND SAFETY INSPECTION

Carefully read, understand and follow all safety rules, operating instructions, labels, and the Scaffold Industry Association's MANUAL OF RESPONSIBILITIES. Perform the following steps each day before use.

1. Open module covers and inspect for damage, oil leaks, or missing parts.
2. Check the level of the hydraulic oil with the platform fully lowered. Open the Left Module and remove the reservoir cap. Oil should be visible in the filler screen. Add hydraulic fluid if necessary.
3. Check that fluid level in the batteries is correct. (See "Battery Maintenance" on Page 2-11.)
4. Verify that batteries are charged.
5. Check that A.C. extension cord has been disconnected from the charger.
6. Check that all guardrails are in place with all fasteners properly tightened.
7. Check that the slide-out deck extension is secured with the pin.
8. Inspect the machine thoroughly for cracked welds, loose or missing hardware, hydraulic leaks, damaged control cable, loose wire connections and wheel bolts.
9. Close and secure module covers.
10. Move the machine, if necessary, to an unobstructed area to allow for full elevation.
11. Pull Chassis Emergency Stop Switch to the ON position.
12. Pull Platform Emergency Stop Switch to the ON position.

Figure 2-1: Chassis Controls

13. Turn and hold the Chassis Key Switch to CHASSIS.
14. Push the Chassis Lift/Lower Switch to LIFT to elevate the platform until the Scissor Brace can be rotated to the vertical position. Block the elevating assembly as described on Page 2-10.
15. Visually inspect the elevating assembly, lift cylinder, cables and hoses for cracked welds, loose hardware, hydraulic leaks, loose wire connections and erratic operation. Check for missing or loose parts.
16. Verify that the depression mechanism has deployed into position under each module. Remove the Scissor Brace as described on Page 2-10.
17. Push the Chassis Lift/Lower Switch to LIFT and fully elevate the platform.
18. Partially lower the platform by pushing the Chassis Lift/Lower Switch to LOWER, and check operation of the audible lowering alarm.

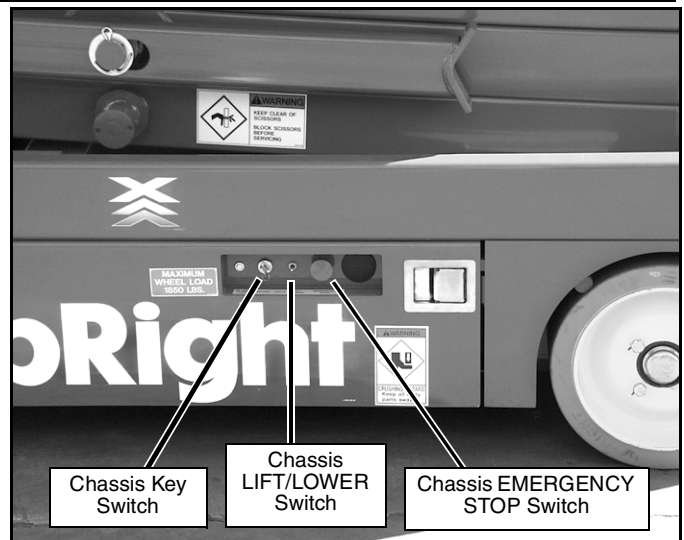


Figure 2-2: Emergency Lowering

19. Pull out on the Emergency Lowering Knob to check for proper operation. Once the platform has lowered, release the knob.
20. Push the Chassis Emergency Stop Switch to check for proper operation. All the machine functions should be disabled. Pull out the Emergency Stop Switch to resume.
21. Turn the Chassis Key Switch to DECK.
22. Check that the route is clear of obstacles (persons, obstructions, holes, drop-offs, bumps, and debris), is level, and capable of supporting the wheel loads.
23. Mount the platform and properly close the entrance.

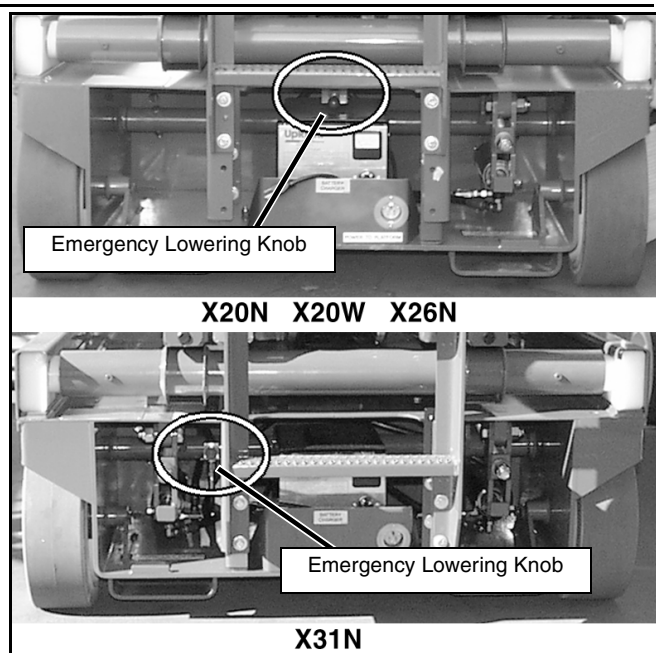
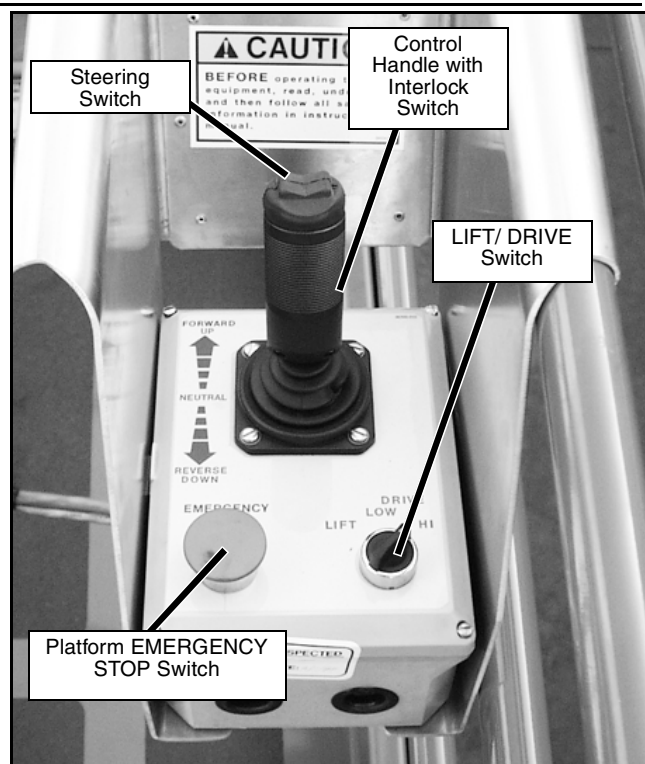


Figure 2-3: Platform Controls

24. PLATFORM CONTROLS, Turn Lift/Drive Switch to DRIVE.

NOTE: Use both HI and LOW drive (if applicable) when performing the following steps.

25. Engage the Interlock Switch and move the Control Handle FORWARD, then REVERSE, to check for speed control.
26. Push the Steering Switch RIGHT, then LEFT, to check for steering control.
27. Turn the Lift/Drive Switch to LIFT.
28. Engage the Interlock Switch and move the Control Handle forward to check platform lift controls. Raise the platform to full elevation.
29. Pull back on the Control Handle. The platform should descend and the audible lowering alarm should sound.
30. Lower the platform completely.
31. Push the Platform Emergency Stop Switch to check for proper operation. All the machine functions should be disabled. Pull out the Platform Emergency Stop Switch to resume.



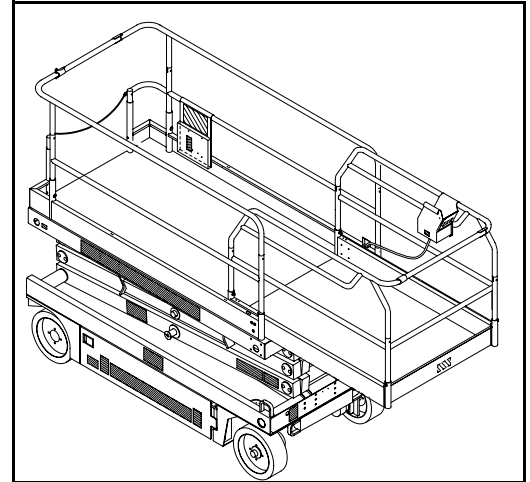
2.3 OPERATION

Before operating the work platform, ensure that the pre-operation safety inspection has been completed, and that any deficiencies have been corrected. **Never operate a damaged or malfunctioning machine.** The operator must be thoroughly trained on this machine, and must read, fully understand, and follow this Operator Manual and Scaffold Industry Association's MANUAL of RESPONSIBILITIES of ANSI A92.6-1999.

PLATFORM EXTENSION

Figure 2-4: Platform Extension

1. Mount the platform and properly close the entrance.
2. Depress the foot lever located at the rear of the platform extension. Push the platform extension forward until the pin engages the front stop.
3. To retract the platform extension, depress the foot lever and pull the platform extension toward the rear of the machine until the pin engages the rear stop.



TRAVEL WITH PLATFORM LOWERED

1. Check that the route is clear of obstacles (persons, obstructions, holes, drop-offs, bumps, and debris), is level, and capable of supporting the wheel loads.
2. Turn the Chassis Key Switch to DECK.
3. Pull Chassis Emergency Stop Switch to the ON position.
4. Mount the platform and properly close the entrance.
5. Check clearances above, below and to the sides of the platform.
6. Pull Platform Emergency Stop Switch to the ON position.
7. Turn Lift/Drive Switch to DRIVE.

NOTE: Turn Lift/Drive Switch to HI (if applicable) for traveling on level ground, or to LOW when extra torque is required for climbing grades.

8. Engage the Interlock Switch and move the Control Handle to FORWARD or REVERSE to travel in the desired direction. The speed of the machine will vary depending on how far from center the Control Handle is moved.

STEERING

1. Turn the Lift/Drive switch to DRIVE.
2. Engage the Interlock Switch, push the Steering Switch RIGHT or LEFT to turn the wheels in the desired direction. Observe the tires while operating the machine to ensure proper direction.

NOTE: Steering is not self-centering. Wheels must be returned to the straight ahead position by operating the Steering Switch.

ELEVATING THE PLATFORM

1. Select a firm, level surface.
2. Turn the Lift/Drive Switch to LIFT.
3. Engage the Interlock Switch and push the Control Handle forward.
4. If the machine is not level, the tilt alarm will sound and the machine will not lift or drive. **If the tilt alarm sounds, the platform must be lowered and the machine moved to a firm, level surface before attempting to re-elevate the platform.**

TRAVEL WITH WORK PLATFORM ELEVATED

NOTE: The machine will travel at reduced speed when the platform is elevated.

1. Check that the route is clear of obstacles (persons, obstructions, holes, drop-offs, bumps, and debris), is level, and capable of supporting the wheel loads.
2. Check clearances above, below and to the sides of the platform.
3. Turn the Lift/Drive Switch to DRIVE.
4. Engage the Interlock Switch and move the Control Handle to FORWARD or REVERSE to travel in the desired direction. The speed of the machine will vary depending on how far from center the Control Handle is moved.
5. If the machine is not level, the tilt alarm will sound and the machine will not lift or drive. **If the tilt alarm sounds, the platform must be lowered and the machine moved to a firm, level surface before attempting to re-elevate the platform.**

LOWERING THE PLATFORM

1. Turn the Lift/Drive Switch to LIFT.
2. Engage the Interlock Switch and pull back on the Control Handle to lower the platform.

EMERGENCY LOWERING

! WARNING !

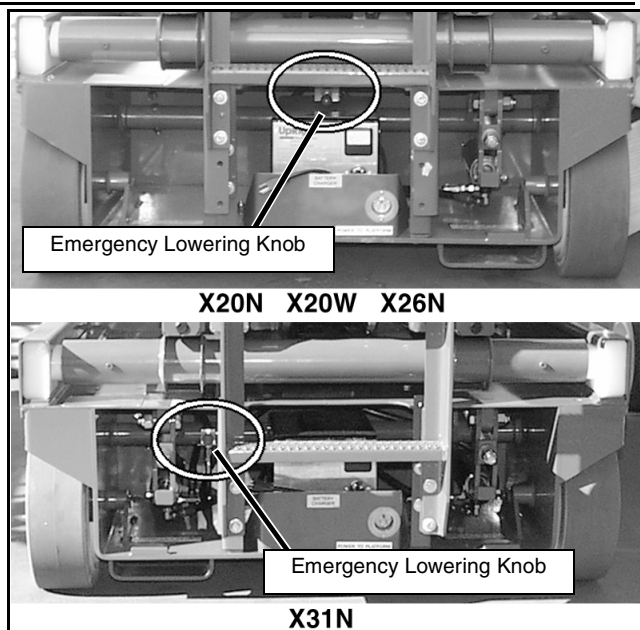
If the platform should fail to lower, **NEVER** climb down the elevating assembly.

Figure 2-5: Emergency Lowering Valve Handle

The Emergency Lowering Valve for the X20N, X20W, and X26N is located at the rear of the machine, above the charger.

The Emergency Lowering Valve for the X31N is located at the rear of the machine, to the left of the charger.

1. Open the Emergency Lowering Valve by pulling and holding the knob.
2. To close, release the knob. The platform will not elevate if the Emergency Lowering Valve is open.



LOWER THE GUARDRAILS, X26N

This procedure applies only to the X26N model for the purpose of passing through a standard double doorway. **Guardrails must be returned to proper position before using the machine.**

LOWERING PROCEDURE

1. Ensure that the slide out-deck extension is fully retracted and the deck pin is locked. Place the Platform Controls on the platform.
2. Remove and retain the set screws from the side guardrails and the rollout deck guardrails.
3. Pull the four retaining pins and lower the roll-out deck guardrail completely.
4. Pull the two retaining pins and lower the rear guardrail until it rests on the stop screws.
5. Pull the two retaining pins and lower the side guardrails completely.
6. Raise the rear guardrail until the retaining pins engage. Remove and retain the stop screws and nuts from the rear guardrail.
7. Pull the two retaining pins and lower the rear guardrail completely.

RAISING PROCEDURE

1. Raise the rear guardrail until the retaining pins engage.
2. Install the stop screws and nuts on the rear guardrail and torque to 31 Ft/Lbs (42 Nm).
3. Pull the two retaining pins and lower the rear guardrail until it rests on the stop screws.
4. Pull the two retaining pins and raise the side guardrails until the tops are level with the rear guardrail.
5. Raise the rear guardrail until the retaining pins engage.
6. Pull the four retaining pins and raise the roll-out deck guardrail until the top is level with the side guardrails.
7. Hang the controller on the roll-out deck guardrail.
8. Install the set screws and torque to 31 Ft/Lbs (42 N-m).

FOLD DOWN GUARDRAILS, X31N

This procedure applies only to the X31N model for the purpose of passing through a standard double doorway. **Guardrails must be returned to proper position before using the machine.**

FOLD DOWN PROCEDURE

1. Unhook the controller from the side guardrail and place it on the platform.
2. Pull the retaining pin on the front guardrail and rotate inwards.
3. Pull the retaining pin on the rear guardrail and rotate inwards.
4. Starting with the roll-out deck guardrails and then the outer guardrails, lift up on each guardrail and fold inwards.

ERECTION PROCEDURE

1. Starting with the outer guardrails and then the roll-out deck guardrails, raise each guardrail and drop it down securing it in the vertical position.
2. Rotate the front and rear upper guardrails outward and secure them to the opposite side guardrails using the retaining pins.
3. Hang the controller on the side guardrail.



WARNING



Before operating machine, guardrails must be securely fastened in their proper position.

AFTER USE EACH DAY

1. Ensure that the platform is fully lowered.
2. Park the machine on a firm, level surface, preferably under cover, secure against vandals, children, and unauthorized operation.
3. Turn the Key Switch to OFF and remove the key to prevent unauthorized operation.

PARKING BRAKE RELEASE

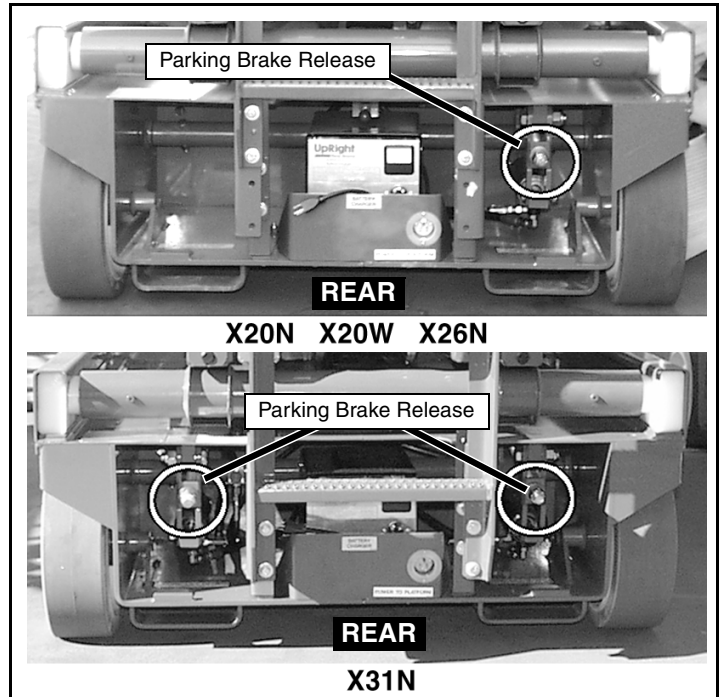
Perform the following only when the machine will not operate under its own power and it is necessary to move the machine or when winching onto a trailer to transport.

NOTE: X31N models have two identical brake adjustment nuts located on both sides of the ladder. The X20N, X20W, and X26N have only one.

Figure 2-6: Parking Brake Release

The Brake Adjustment/Release Nut(s) is/are located at the rear of the machine to the right and/or left of the ladder.

1. To release the brakes, turn the nut(s) counterclockwise until the brakes disengage the tires.
2. The machine will now roll when pushed or pulled.
3. To re-engage the brakes, turn the nut(s) clockwise until the brakes have fully engaged the tires. Verify that the brakes have fully engaged the rear tires before operating the machine by testing their ability to hold the machine on a 22% grade.



! WARNING !

Never tow faster than 1 ft./sec. (0,3m/sec.)

Never operate the work platform with the parking brakes released. Serious injury or damage could result.

2.4 TRANSPORTING THE WORK PLATFORM

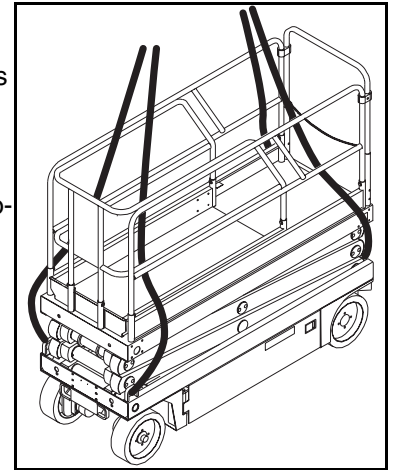
Figure 2-7: Secure Crane Straps

BY CRANE

Secure straps to Lugs only. Guide the crane straps inside the rails and outside the chassis.

BY FORKLIFT

Forklift from the rear of the machine using the forklift pockets provided. If necessary, the machine may be forklifted from the side by lifting under the Chassis Modules.



! WARNING !

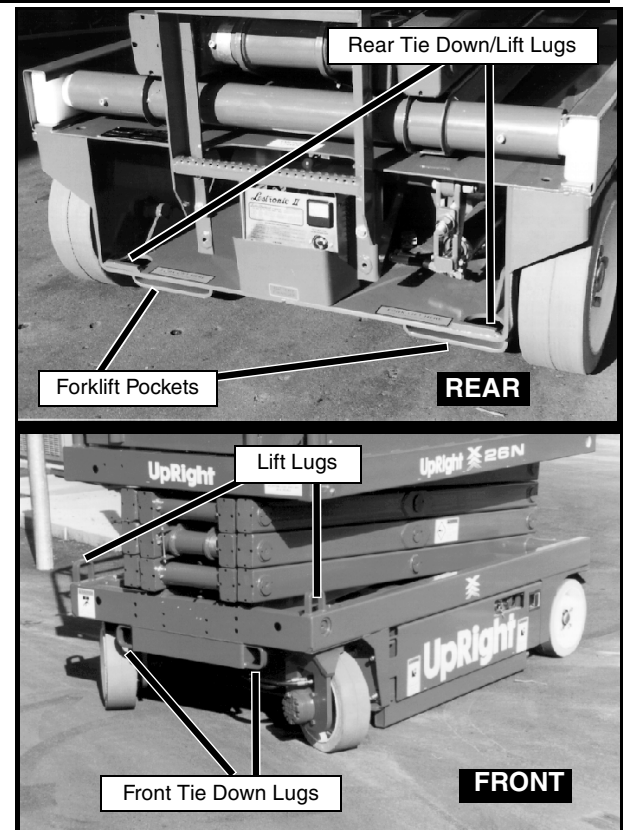
Forklifting is for transporting only.

See specifications for weight of the work platform and be certain that forklift is of adequate capacity to lift the platform.

Figure 2-8: Transporting the Work Platform

BY TRUCK

1. Maneuver the work platform into transport position and chock the wheels. The platform must be in the fully lowered position for transport.
2. Secure the work platform to the transport vehicle by attaching chains or straps of adequate load capacity to the front and rear Tie Downs.



! CAUTION !

Front tie down lugs are not to be used to lift the work platform.

Overtightening of chains or straps attached to tie down lugs may result in damage to the work platform.

2.5 MAINTENANCE

! WARNING !

Never perform service while the platform is elevated without first blocking the elevating assembly.

DO NOT stand in the elevating assembly area while deploying or storing brace.

DO NOT block the elevating assembly with a load on the platform.

Figure 2-9: Blocking the Elevating Assembly

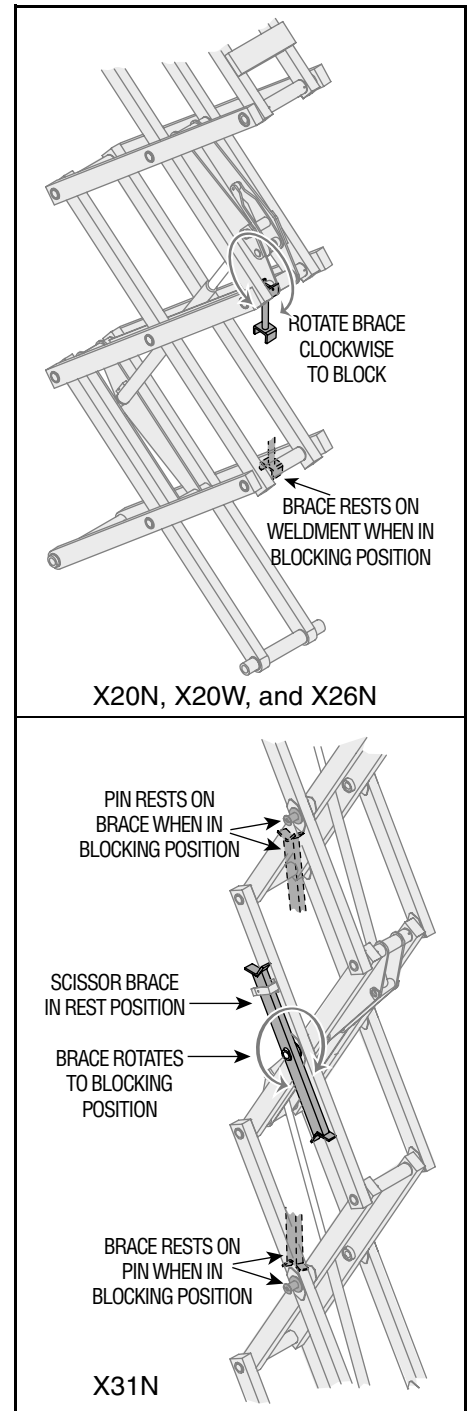
BLOCKING ELEVATING ASSEMBLY

INSTALLATION

1. Park the work platform on a firm, level surface.
2. Pull Chassis Emergency Stop Switch to the ON position.
3. Pull Platform Emergency Stop Switch to the ON position.
4. Turn and hold the Chassis Key Switch to CHASSIS.
5. Push the Chassis Lift/Lower Switch to LIFT to elevate the platform until the Scissor Brace can be rotated to the vertical position.
6. X20N, X20W, and X26N - From rear of the machine, lift the Scissor Brace from its stowed position. Rotate upward and outward, then down until it is hanging vertically below its attachment point.
7. X31N - From the left side of the machine, pull the locking pin securing the brace. Rotate the Scissor Brace counterclockwise until it is in the vertical position.
8. Lower the platform by pushing the Chassis Lift/Lower Switch to LOWER and gradually lower the platform until the Scissor Brace is supporting the platform.

REMOVAL

1. Using the Chassis Controls, gradually elevate the platform until the Scissor Brace is clear.
2. X20N, X20W, and X26N - Rotate the Scissor Brace outward and upward over its mounting point until it rests in the stowed position.
3. X31N - Rotate the Scissor Brace clockwise until the locking pin engages.
4. Lower the platform by pushing the Chassis Lift/Lower Switch to LOWER to completely lower the platform.



BATTERY MAINTENANCE

! WARNING !

Hazard of explosive gas mixture. Keep sparks, flame, and smoking material away from batteries.

Always wear safety glasses when working near batteries.

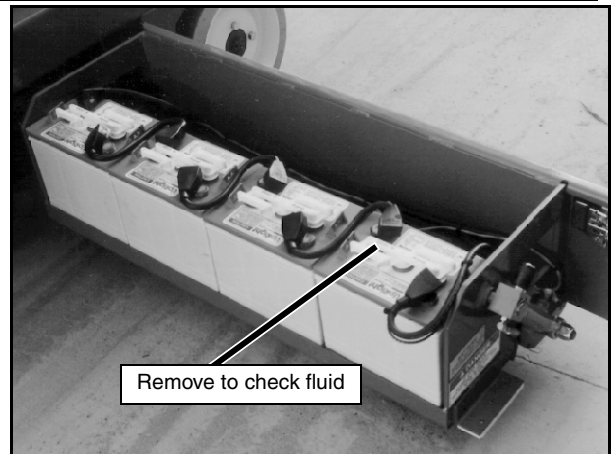
*Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.***

Battery fluid is highly corrosive. Thoroughly rinse away any spilled fluid with clean water.

Always replace batteries with UpRight batteries or manufacturer approved replacements weighing 62 lbs. (28 kg.) each.

Figure 2-10: Power Module

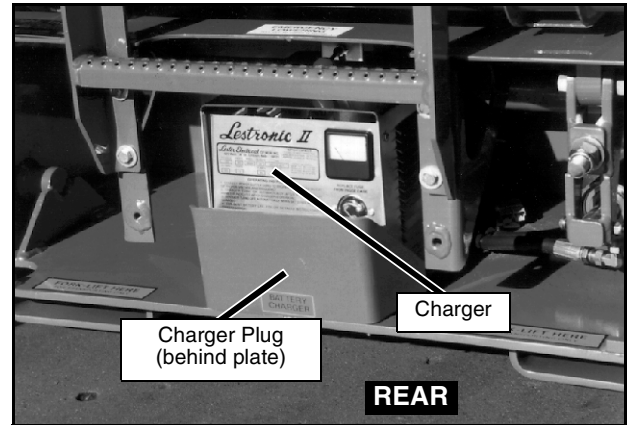
- Check the battery fluid level daily, especially if the work platform is being used in a warm, dry climate.
- If the electrolyte level is lower than 3/8 in. (10 mm) above the plates, add distilled water only. DO NOT use tap water with high mineral content, as it will shorten battery life.
- The battery and cables should be inspected regularly for signs of cracks in the case, electrolyte leakage and corrosion of the terminals. Inspect cables for worn spots or breaks in the insulation and for broken cable terminals. Keep terminals and tops of batteries clean.
- Refer to the Service Manual to extend battery life and for complete service instructions.



BATTERY CHARGING

Figure 2-11: Battery Charger

Charge the batteries at the end of each work shift or sooner if batteries have been discharged.



! WARNING !

Charge batteries only in a well ventilated area.

Do not charge the batteries if the work platform is near a source of sparks or flames.

Permanent damage to the batteries will result if the batteries are not recharged immediately after discharging.

Never leave the battery charger operating for more than two days.

Never disconnect the cables from the batteries when the battery charger is operating.

Keep the battery charger dry.

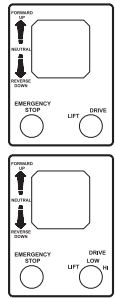
1. Check battery fluid level. If electrolyte level is lower than 3/8 in. (10 mm) above the plates, add distilled water only.
2. Connect an extension cord to the battery charger plug. Plug the extension cord (12 gauge [1.5 mm²] minimum conductor diameter; 50 ft. [15m] maximum length) to properly grounded outlet of correct voltage and frequency.
3. The battery charger turns on automatically after a short delay.

NOTE: The battery charger circuit must be used with a GFI (Ground Fault Circuit Interrupt) outlet. **DO NOT** operate the machine while the charger is plugged in.

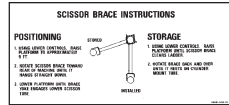
066554-000
1 Required



066560-010
1 Required
X20W, X26N, X31N

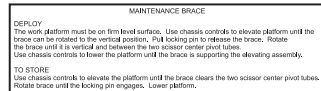


066560-011
1 Required
X20N



066561-000
1 Required
X20N, X20W, X26N

066561-002
1 Required
X31N



005221-000
1 Required



062562-001
1 Required



066552-000
1 Required



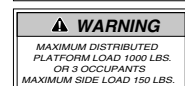
101250-002
2 Required
X20N



101250-003
2 Required
X20W



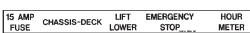
101250-004
2 Required
X26N



101250-005
2 Required
X31N



066559-000
1 Required



101252-004
1 Required
X20N, X20W



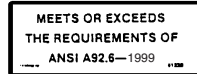
101252-005
1 Required
X26N



101252-006
1 Required
X31N



061220-002
1 Required



066556-001
4 Required

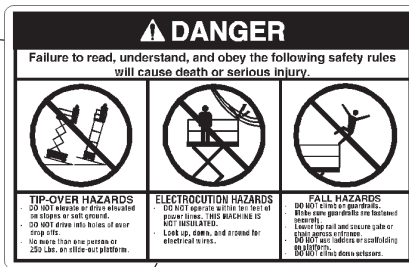


X31N Platform

⚠ DANGER

THIS BAR MUST BE PINNED IN POSITION ACROSS END OF PLATFORM BEFORE OPERATING MACHINE.

061787-001
1 Required
X31N



066550-000
1 Required



066554-000
1 Required



010076-001
1 Required



101251-000
1 Required



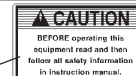
066556-000
2 Required



107051-000
1 Required



066553-000
2 Required



066555-000
1 Required



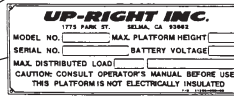
060197-000
1 Required



005223-003
1 Required
X31N



066558-000
1 Required
X20N, X20W, X26N



061205-005
1 Required



014222-003-99
2 Required



066522-000
1 Required

NOTE:Labels can be ordered by using Part Number located by each label. For machines equipped with options consult the Service Manual.

Proper label installation is required. All of these labels shall be present and in good condition before operating the work platform. Be sure to read, understand, and follow these labels BEFORE operating the work platform.

2.6 PREVENTATIVE MAINTENANCE

The complete inspection consists of periodic visual and operational checks, along with periodic minor adjustments that assure proper performance. Daily inspection will prevent abnormal wear and will 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.

W A R N I N G

Before performing preventative maintenance, familiarize yourself with the operation of the machine.

Always block the elevating assembly whenever it is necessary to perform maintenance while the platform is elevated.

The preventative maintenance table has been designed for machine service and maintenance repair. Please photocopy the following page and use the table as a checklist when inspecting the machine for service.

2.7 PREVENTATIVE MAINTENANCE CHECKLIST

PREVENTATIVE MAINTENANCE KEY

Interval

Daily=each shift or every day

50h/30d=every 50 hours or 30 days

250h/6m=every 250 hours or 6 months

1000h/2y=every 1000 hours or 2 years

Y=Yes/Acceptable

N=No/Not Acceptable

R=Repaired/Acceptable

| COMPONENT | INSPECTION OR SERVICES | INTERVAL | Y | N | R |
|----------------------------|---|----------|---|---|---|
| Batteries | Check electrolyte level | Daily | | | |
| | Check specific gravity | 6m | | | |
| | Clean exterior | 6m | | | |
| | Check battery cable condition | Daily | | | |
| | Clean terminals | 6m | | | |
| Hydraulic Oil | Check oil level | Daily | | | |
| | Change filter | 6m | | | |
| | Drain and replace oil | 2y | | | |
| Hydraulic System | Check for leaks | Daily | | | |
| | Check hose connections | 30d | | | |
| | Check hoses for exterior wear | 30d | | | |
| Emergency Hydraulic System | Operate the emergency lowering valve and check for serviceability | Daily | | | |
| Chassis Controls | Check switch operation | Daily | | | |
| Platform Controls | Check switch operation | Daily | | | |
| Control Cable | Check the exterior of the cable for pinching, binding or wear | 6m | | | |
| Platform Deck and Rails | Check fasteners for proper torque | Daily | | | |
| | Check welds for cracks | Daily | | | |
| | Check condition of deck | Daily | | | |
| Tires | Check for damage | Daily | | | |
| | Check lug nuts (torque to 90 ft. lbs.) | 6m | | | |
| Hydraulic Pump | Wipe clean | 30d | | | |
| | Check for leaks at mating surfaces | 30d | | | |
| | Check for hose fitting leaks | Daily | | | |
| | Check mounting bolts for proper torque | 6m | | | |

PREVENTATIVE MAINTENANCE REPORT

Date: _____

Owner: _____

Model No: _____

Serial No: _____

Served By: _____

Service Interval: _____

| COMPONENT | INSPECTION OR SERVICES | INTERVAL | Y | N | R |
|--------------------|--|----------|---|---|---|
| Drive Motors | Check for operation | Daily | | | |
| Steering System | Check hardware & fittings for proper torque | 6m | | | |
| | Grease pivot pins | 30d | | | |
| | Check steering cylinder for leaks | 30d | | | |
| Elevating Assembly | Inspect for structural cracks | Daily | | | |
| | Check pivot points for wear | 6m | | | |
| | Check mounting pin pivot bolts for proper torque | 6m | | | |
| | Check elevating arms for bending | 6m | | | |
| Chassis | Check hoses for pinch or rubbing points | Daily | | | |
| | Check component mounting for proper torque | 6m | | | |
| | Check welds for cracks | Daily | | | |
| Tilt Sensor | Check for operation | 6m | | | |
| Lift Cylinder | Check the cylinder rod for wear | 30d | | | |
| | Check mounting pin pivot bolts for proper torque | 6m | | | |
| | Check seals for leaks | 30d | | | |
| | Inspect pivot points for wear | 6m | | | |
| | Check fittings for proper torque | 6m | | | |
| Entire Unit | Check for and repair collision damage | Daily | | | |
| | Check fasteners for proper torque | 6m | | | |
| | Check for corrosion-remove and repaint | 6m | | | |
| | Lubricate | 30d | | | |
| Labels | Check for peeling, missing, or unreadable labels & replace | Daily | | | |

2.8 SPECIFICATIONS

| ITEM | X20N | X20W | X26N | X31N |
|-------------------------------|--|---|---|---|
| Platform Size w/ Extension | 28 in. x 87 in. [0,7 m x 2,21 m] | 46.25 in. x 87 in. [1,17 m x 2,21 m] | 46.25 in. x 87 in. [1,17 m x 2,21 m] | 46.25 in. x 87 in. [1,17 m x 2,21 m] |
| Max. Platform Capacity | | | | |
| Standard | 750 lbs. [340 kg] | 1000 lbs. [453 kg] | 1000 lbs. [453 kg] | 700 lbs. [318 kg] |
| on Extension | 250 lbs. [110 kg] | 250 lbs. [110 kg] | 250 lbs. [110 kg] | 250 lbs. [110 kg] |
| Max. No. of occupants | | | | |
| Standard (total) | 2 people | 4 people | 3 people | 3 people |
| on Extension | 1 person | 1 person | 1 person | 1 person |
| Height | | | | |
| Working Height | 26 ft. [7,9 m] | 26 ft. [7,9 m] | 32 ft. [9,75 m] | 37 ft. [11,28 m] |
| Max. Platform Height | 20 ft. [6,1 m] | 20 ft. [6,1 m] | 26 ft. [7,92 m] | 30.5 ft. [0,8 m] |
| Min. Platform Height | 38 in. [0,97 m] | 38 in. [0,97 m] | 43 in. [1,1 m] | 48 in. [1,2 m] |
| Dimensions | | | | |
| Weight | 3,828 lbs. [1656 kg] | 4,273 lbs. [1858 kg] | 4,747 lbs. [2072 kg] | 5480 lbs. [2485,7 kg] |
| Overall Width | 32.5 in. [0,83 m] | 48 in. [1,22 m] | 48 in. [1,22 m] | 48 in. [1,22 m] |
| Overall Height | 78.5 in. [2 m] | 78.5 in. [2 m] | 83.5 in. [2,1 m] | 88.5 in. [2,25 m] |
| Overall Length, Extension In | 92.5 in. [2,3 m] | 92.5 in. [2,3 m] | 92.5 in. [2,3 m] | 92.5 in. [2,3 m] |
| Overall Length, Extension Out | 128.5 in. [3,26 m] | 128.5 in. [3,26 m] | 128.5 in. [3,26 m] | 128.5 in. [3,26 m] |
| Drivable Height | 20 ft. [6,1 m] | 20 ft. [6,1 m] | 26 ft. [7,93 m] | 30.58 ft. [9,3 m] |
| Drive Speed | | | | |
| Platform Lowered | 0 to 2.0 mph [0 to 3,2 km/h] | | | |
| Platform Raised | 0 to 0.62 mph [0 to 1 km/h] | | | |
| Energy Source | 24 Volt Battery Pack (4-220 Amp Hour, 6 Volt Batteries, min. wt. 62 lbs. [28,12 kg] each) | | | |
| Motor | 24 Volt 4 Horse Power DC Electric Motor | | | |
| System Voltage | 24 Volt DC | | | |
| Battery Charger | 25 AMP, 110/220 VAC | | | |
| Battery Duty Cycle | 25% for 8 Hours | | | |
| Hydraulic Tank Capacity | 5 Gallons [19 l] | 5 Gallons [19 l] | 5 Gallons [19 l] | 5 Gallons [19 l] |
| Maximum Hydraulic Pressure | 3000 psi [206,8 bar] | | | |
| Lift System | One Single Stage Lift Cylinder | One Single Stage Lift Cylinder | One Single Stage Lift Cylinder | Two Single Stage Lift Cylinders |
| Lift Speed | Raise, 35 sec./Lower 30 sec. | Raise, 40 sec./Lower 30 sec. | Raise, 45 sec./Lower 40 sec. | Raise, 65 sec./Lower 40 sec. |
| Control System | Control Handle with Interlock Switch, Rotary Drive/Lift Switch, and Red Mushroom EMERGENCY STOP Switch | | | |
| Drive System | Dual Front Wheel Hydraulic Motors | | | |
| Tires | 15 in. [381 mm] Diameter Solid Rubber, non-marking | | | |
| Parking Brake | Dual Spring Applied, Hydraulic Release | | | |
| Turning Radius | 8 in. [254 mm] Inside | | | |
| Maximum Gradeability | 23% [13°] | 23% [13°] | 22% [12°] | 20% [11°] |
| Wheel Base | 74.75 in. [1,9 m] | | | |
| Guardrails | 40 in. [1,02 m] High | | | |
| Toeboard | 6 in. [152 mm] High | | | |

Specifications are subject to change without notice. Hot weather or heavy use may reduce performance.

Meets or exceeds all applicable requirements of OSHA and ANSI A92.6-1999

MAINTENANCE

3.1 INTRODUCTION

Reference: • Section 2 for recommended maintenance intervals.

W A R N I N G

Be sure to read, understand and follow all information in the Operation Section of this manual before attempting to operate or perform service on any work platform.

NOTE: For Information on the engine refer to your local engine dealer.

This section contains instructions for the maintenance of the work platform. Procedures for the operation inspection, adjustment, scheduled maintenance, and repair/removal are included.

Referring to Section 2 will aid in understanding the operation and function of the various components and systems of the work platform, and help in diagnosing and repair of the machine.

TERMINOLOGY

TERMINAL BLOCKS Located in upper and lower control boxes. Designated by TB##. (##) designates the number of the block which is written on the terminal block. "R" (right) or "L" (left) may follow the number.

WIRE COLOR Indicated by color/color. First color refers to insulation color and second color indicates stripe. If second color is not given, there is no stripe.

GENERAL PROCEDURES

CONTACT BLOCKS Removed by inserting a flat screwdriver into the slot at either end of the block and prying outward. Installed by pressing into an empty slot.

SWITCH MOUNT BASE Assembled to back of switch actuator. Removed by rotating the small black lever counterclockwise and lifting off the base.

TERMINAL BLOCKS Remove wires by inserting a small flat bladed screwdriver into square beside the wire. Install wires by stripping ½" of insulation, inserting screwdriver in square and inserting wire. Be sure no strands are bent backwards. Replace wires with same rating and type.

3.2 DATE CODE IDENTIFICATION ON HOSES

GATES uses a five digit code: Year, Month, Day.

i.e.: 6 11 29 - means 1996, month 11 (November), day 29.

PARKER uses a ten digit code: Plant, Year, Month, Day.

i.e.: XXXX 6 11 29 - means Plant XXXX, 1996, month 11 (November), day 29.

DAYCO stamps month, day and year on each hose.

3.3 SPECIAL TOOLS

The following is a list of special tools which may be required to perform certain maintenance procedures on the work platform.

- 0-1000 psi (0-69 bar) Hydraulic Pressure Gauge with Adapter Fittings
- 0-3000 psi (0-207 bar) Hydraulic Pressure Gauge with Adapter Fittings
- 0-6000 psi (0-414 bar) Hydraulic Pressure Gauge with Adapter Fittings
- Small UpRight Connector Field Kit (UpRight P/N 030899-000)
- Large UpRight Connector Field Kit (UpRight P/N 030898-000)
- Inclinator

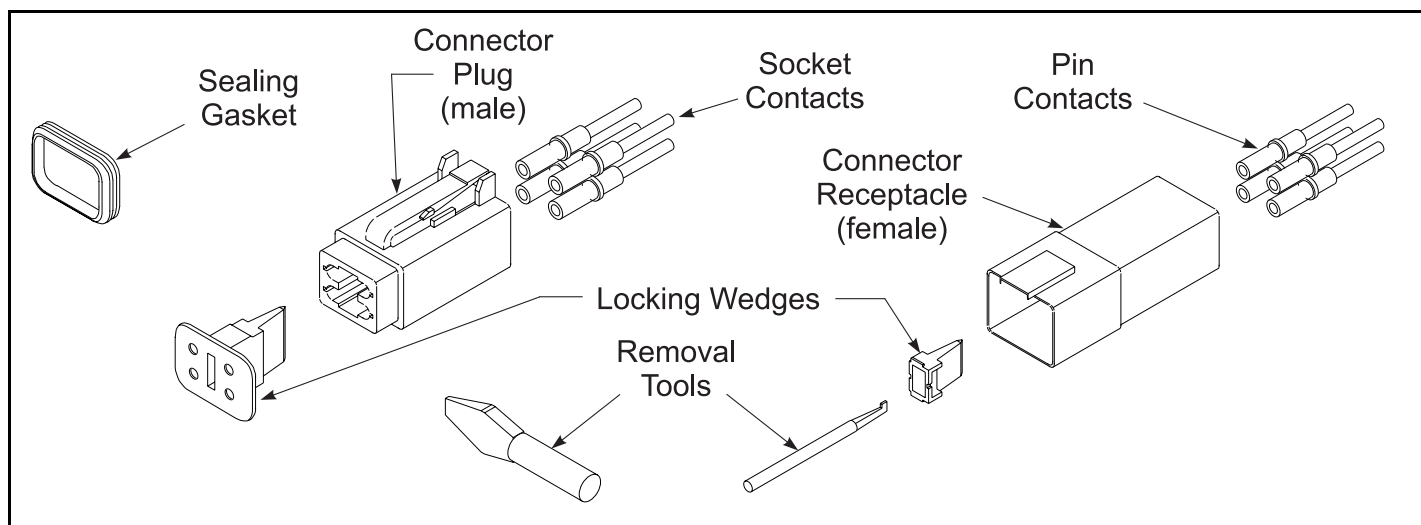
3.4 UPRIGHT CONNECTORS

UpRight connectors are designed so that connector parts, contacts, or electrical cables may be replaced without replacing the entire connector.

Figure 3-1: UpRight Connector Kit



Figure 3-2: Plugs and Receptacles, UpRight Connectors



MALE CONNECTOR (PLUG)

1. Disconnect the male connector (plug) from the female connector (receptacle).
2. Using the flat end of the Removal Tool (or flat blade screwdriver), pry the Locking Wedge from the Male Connector. Care should be taken that the Silicon Gasket is not damaged during this procedure.
3. Check all parts for damage. Replace all parts which are damaged or worn.
4. Replace or recrimp the wires and contacts. Refer to "Crimping" procedure.

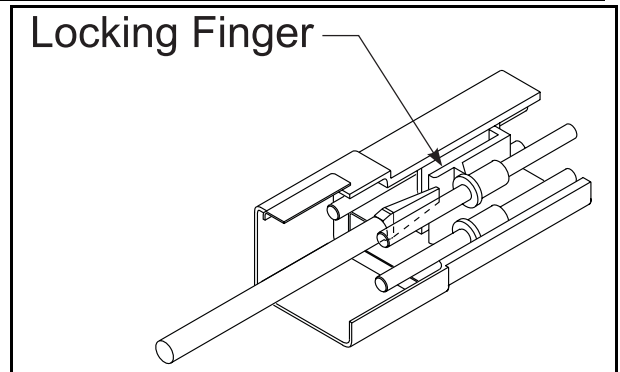
FEMALE CONNECTOR (RECEPTACLE)

1. Disconnect the male connector (plug) from the female connector (receptacle).
2. Using the notched end of the Removal Tool (or a wire hook), pull the Locking Wedge from the Female Connector.
3. Check all parts for damage. Replace all parts which are damaged or worn.
4. Replace or recrimp the wires and contacts. Refer to "Crimping" procedure.

RELEASING LOCKING FINGERS

Figure 3-3: Locking Finger, UpRight Connector

1. The Locking Fingers can be released following the removal of the Locking Wedge of either the male or female connector.
2. Use the removal tool (or flat bladed screwdriver) to push the Locking Fingers aside. This will release the grip on the contact.
3. Pull the wire and contact out of the connector.



CRIMPING

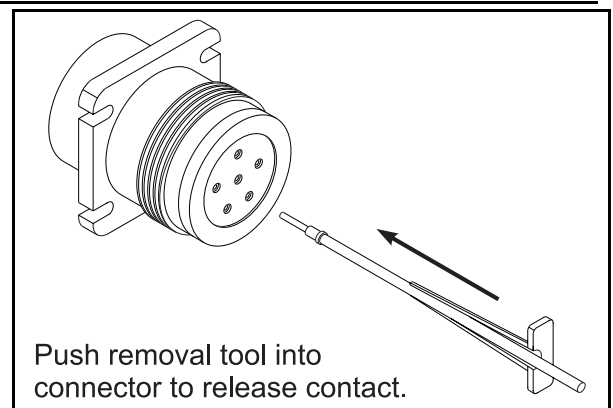
NOTE: Complete crimping instructions are included in each Field Kit.

1. Strip $\frac{1}{4}$ " (6 mm) from the wire.
2. Insert the contact into the crimping tool.
3. Insert the stripped wire into the contact. Copper strands should be visible in the bleed hole of the contact, and no copper strands should be loose (outside) of the contact barrel.
4. Completely close the handles of the crimping tool. Release the handles of the crimping tool and remove the crimped contact.
5. Inspect the crimped contact to ensure that all strands are secure in the crimp barrel.

REMOVING CONTACT FROM HEAVY DUTY PLUG

Figure 3-4: Heavy Duty UpRight Connector

1. Slip the removal tool along the wire to be replaced.
2. Push the removal tool into the connector until the contact is released.
3. Pull the wire and contact out of the plug.



3.5 SUPPORTING ELEVATING ASSEMBLY

! WARNING !

Never perform service on the work platform in the elevating assembly area while the platform is elevated without first blocking the elevating assembly.

DO NOT stand in the elevating assembly area while deploying or storing the brace.

X20N, X20W, X26N

Figure 3-5: Blocking the Elevating Assembly--X20N, X20W, X26N

INSTALLATION

1. Park the work platform on a firm, level surface.
2. Verify that both Emergency Stop Switches are ON.
3. Turn the Chassis Key Switch to CHASSIS.
4. Push the Chassis Lift Switch to UP, and elevate the platform approximately 9.5 Ft. (2.9 m).
5. Rotate the Scissor Brace towards the front, and allow it to hang vertically over the lower scissor pivot tube.
6. Push the Chassis Lift Switch to the DOWN position, and gradually lower the platform until the brace rests on the lower scissor arm pivot tube.



REMOVAL

1. Push the Chassis Lift Switch to the UP position and gradually raise the platform until the lower end of the Scissor Brace will clear the lower scissor arm pivot tube.
2. Rotate the Scissor Brace up and over towards the rear so that it rests on the cylinder mount, stowed position.
3. Push the Chassis Lift Switch to the DOWN position, and completely lower the platform.
4. Turn the Chassis Key Switch to DECK.

X31N

Figure 3-6: Blocking the Elevating Assembly--X31N

INSTALLATION

1. Park the work platform on a firm, level surface.
2. Verify that both Emergency Stop Switches are ON.
3. Turn the Chassis Key Switch to CHASSIS.
4. Push the Chassis Lift Switch to UP, and elevate the platform approximately 9 Ft. (2.7 m), leaving enough room to freely rotate the Scissor Brace.
5. Pull out on the retaining pin, and rotate the Scissors Brace into the vertical position.
6. Push the Chassis Lift Switch to the DOWN position, and gradually lower the platform until the upper and lower pivot pins rest on the Scissor Brace.



REMOVAL

1. Push the Chassis Lift Switch to the UP position and gradually raise the platform until the Scissor Brace will clear the pivot pins.
2. Rotate the Scissor Brace counterclockwise until it locks into position parallel with the scissor arm.
3. Push the Chassis Lift Switch to the DOWN position, and completely lower the platform.

3.6 BATTERY MAINTENANCE

Electrical energy for the motor is supplied by four 6 volt batteries wired in series for 24 volts DC. Proper care and maintenance of the batteries and motor will ensure maximum performance from the work platform.

NOTE: If system voltage drops below 17 volts (on a 24 volt system), the charger will not recharge the batteries. If this extreme voltage drop occurs, disconnect and recharge each battery separately, using a 6 volt charger to bring the voltage in each up to at least 4 1/2 volts.

! WARNING !

Hazard of explosive gas mixture. Keep sparks, flame, and smoking material away from battery.

Always wear safety glasses when working with batteries.

*Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.***

Battery fluid is highly corrosive. Thoroughly rinse away any spilled fluid with clean water.

BATTERY INSPECTION AND CLEANING

Check the battery fluid level daily, especially if the work platform is being used in a warm, dry climate. If required, add distilled water ONLY. Use of tap water will shorten battery life.

! CAUTION !

If battery water level is not maintained, batteries will not fully charge, creating a low discharge rate which will damage the motor/pump unit and void the warranty.

The battery should be inspected regularly for signs of cracks in the case, electrolyte leakage, and corrosion of the terminals. Inspect cables for worn spots or breaks in the insulation and for broken cable terminals.

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

BATTERY CHARGING

Charge the batteries at the end of each work shift, or sooner if the batteries have been discharged.

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

Figure 3-7: Battery Charger



CHARGE BATTERY AS FOLLOWS:

1. Check the fluid level. If the electrolyte level is lower than 3/8 in. (10mm) above the plates, add clean, distilled water only.
2. Connect the charger plug to a properly grounded outlet of the proper voltage and frequency.
3. The charger turns on automatically after a short delay. The ammeter will indicate DC charging current.
4. The charger turns off automatically when the batteries are fully charged.

! WARNING !

Charge the battery only in a well-ventilated area.

Do not charge the battery when the work platform is in an area containing sparks or flames.

Permanent damage will result if the battery is not immediately recharged after discharging.

Never leave the charger unattended for more than two days.

Never disconnect the cables from the battery when the charger is operating.

Keep the charger dry.

Never operate the machine while the charger is plugged in.

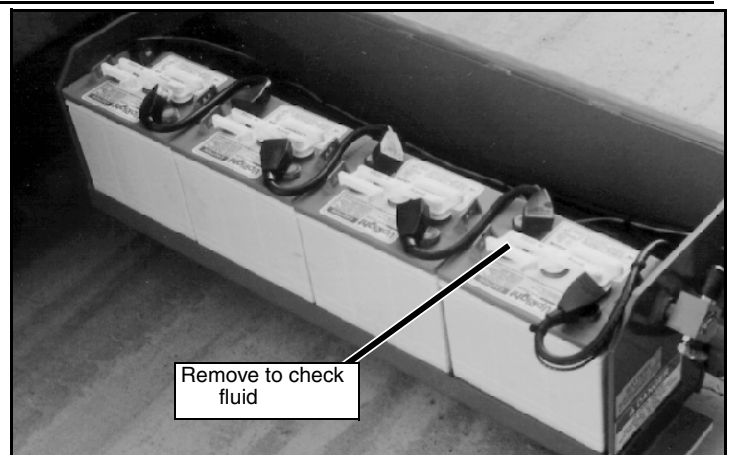
BATTERY CELL EQUALIZATION

Figure 3-8: Power Module

The specific gravity of the electrolyte in the battery cells should be equalized monthly. To do this, charge the batteries as outlined in Battery Charging. After this initial charge, check the electrolyte level in all cells and add distilled water as necessary. 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 batteries containing such cells 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.



3.7 SWITCH ADJUSTMENTS

TILT SENSOR

INTRODUCTION

The Tilt Sensor is located on the chassis between the scissor sections and is covered with a protective metal box. It has three wires: red-power (24 v in); black-ground; white-output (24 v out). To verify the sensor is working properly there is one red LED under the sensor that indicates the sensor is off level.

Figure 3-9: Level Sensor

ADJUSTMENT

1. Place the machine on a firm, level surface $\pm 1/4^\circ$.
2. Use the Inclinator (P/N: 10119-000-00) to ensure the front and rear of the Chassis is level $\pm 1/4^\circ$.
3. Use the Chassis Controls to raise the platform to approximately 9.5 Ft. (2.9 m).
4. Install the Scissor Brace (see Page 3-4).
5. Remove the Tilt Sensor Electrical Box cover at the front of the machine.
6. Adjust the three leveling lock nuts until the bubble is centered in the circle on the attached bubble level.
7. Replace the Tilt Sensor Electrical Box cover.
8. Store the Scissor Brace and lower the platform.



TEST

Raise the platform approximately 7 feet, then push the level sensor to the side. The red LED should turn on, and the tilt alarm should sound.

DOWN LIMIT SWITCH

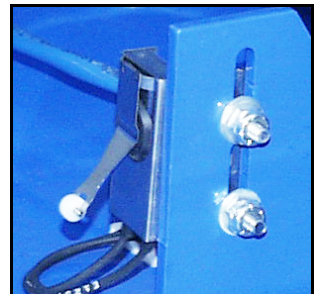
The Down Limit Switch provides power to the High Speed Circuit when the platform is completely lowered and enables the Tilt Sensor/Depression Interlock Circuit when the platform is elevated. The Down Limit Switch is located on the chassis frame at the front of the machine near the lowest pivot tube of the elevating assembly. The switch adjustment is to be performed with the platform completely lowered.

! WARNING !

Always use the elevating assembly brace whenever it is necessary to enter the elevating assembly when the platform is elevated.

Figure 3-10: Down Limit Switch

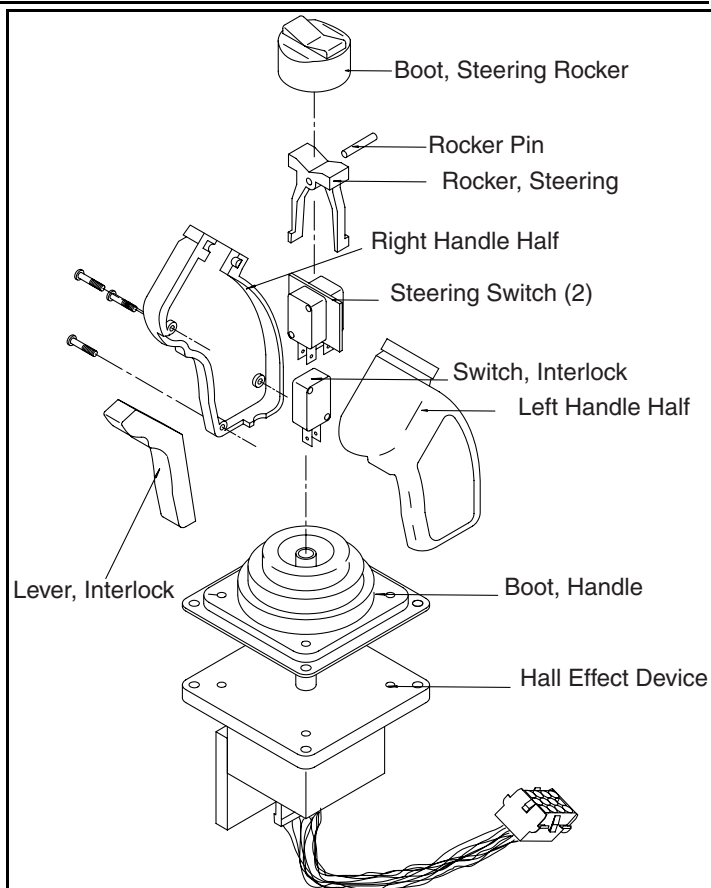
1. Disconnect the switch wires at the control module by unplugging the slide terminals.
2. Loosen the bolts securing the switch to the chassis mount just enough to allow the switch to slide. Slide the switch down.
3. Use a multimeter to check continuity in the switch. The switch contacts should be open (no continuity). Slowly slide the switch upward until the contacts close. Tighten the bolts to secure the switch in place.
4. Connect the switch leads.
5. Elevate the platform six inches and verify that the high speed circuit is inoperable. If the high speed circuit is operable, the switch is not properly adjusted and the above procedure must be repeated.



CONTROL HANDLE

Figure 3-11: Control Handle

1. Remove handle if necessary from Platform Control box.
2. Remove and replace defective parts. Refer to Section 6 for repair part numbers.



3.8 MOTOR CONTROLLER AND I/O BOARD DIP SWITCH SETTINGS

NOTE: Before the dip switch settings will take effect, power must be disconnected or Emergency Stop Switches must be depressed.

CONTROLLER

Figure 3-12: Controller

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--------|----|-----|-----|----|-----|-----|-----|----|
| X20N | on | off | off | on | off | on | off | on |
| X20W | on | on | off | on | off | off | off | on |
| X26/31 | on | on | off | on | off | off | off | on |

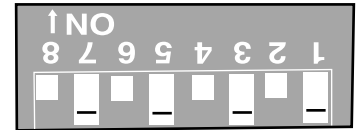
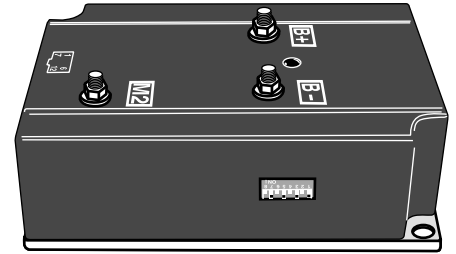
The above table shows the default dip switch settings on the controller box when the machine leaves the factory. The following adjustments may be made to these settings:

Switches 3 and 4 determine the elevated “creep” speed. If the machine does not operate at the specified speed at the default settings, use the following table to adjust the dip switch settings.

| | 3 | 4 |
|-------------|-----|-----|
| 1 (slowest) | off | off |
| 2 | on | off |
| 3 (default) | off | on |
| 4 (fastest) | on | on |

Switches 5 and 6 determine the deceleration time. Switch 5 is for the deceleration rate while the platform is lowered. Switch 6 is for the elevated rate.

| Decel | 5 | 6 |
|-----------|-----|-----|
| .24 sec. | off | off |
| 1.27 sec. | on | on |



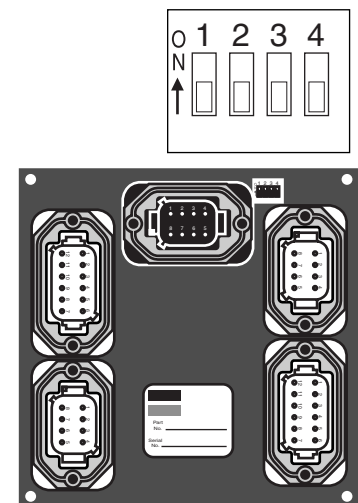
I/O BOARD

Figure 3-13: I/O Board

| | 1 | 2 | 3 | 4 |
|--------|-----|-----|-----|-----|
| X20N | off | off | off | off |
| X20W | off | off | off | off |
| X26/31 | off | off | off | off |

The above table shows the default dip switch settings on the I/O board when the machine leaves the factory. Switches 3 and 4 work together to determine the optional alarm settings.

| 1 | 2 | 3 | 4 | Result |
|-----|-----|-----|-----|--|
| on | | | | Two Speed Mode (not used) |
| off | | | | Proportional Control |
| | on | | | Not used |
| | off | | | Depression Mechanism extends when platform is raised |
| | | off | off | Down alarm only |
| | | on | off | Down and Reverse alarm |
| | | off | on | Drive and Down alarm |
| | | on | on | All Motion alarm |



3.9 HYDRAULIC OIL TANK AND FILTER

FLUID LEVEL

With the platform fully lowered, open the left module and remove the reservoir breather/cap. Oil should be at the full mark.

OIL AND FILTER REPLACEMENT

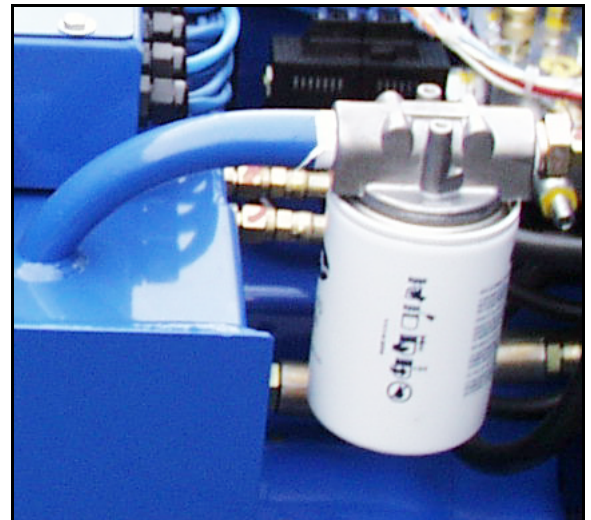
1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.

⚠ CAUTION ⚠

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

Figure 3-14: Oil Filter

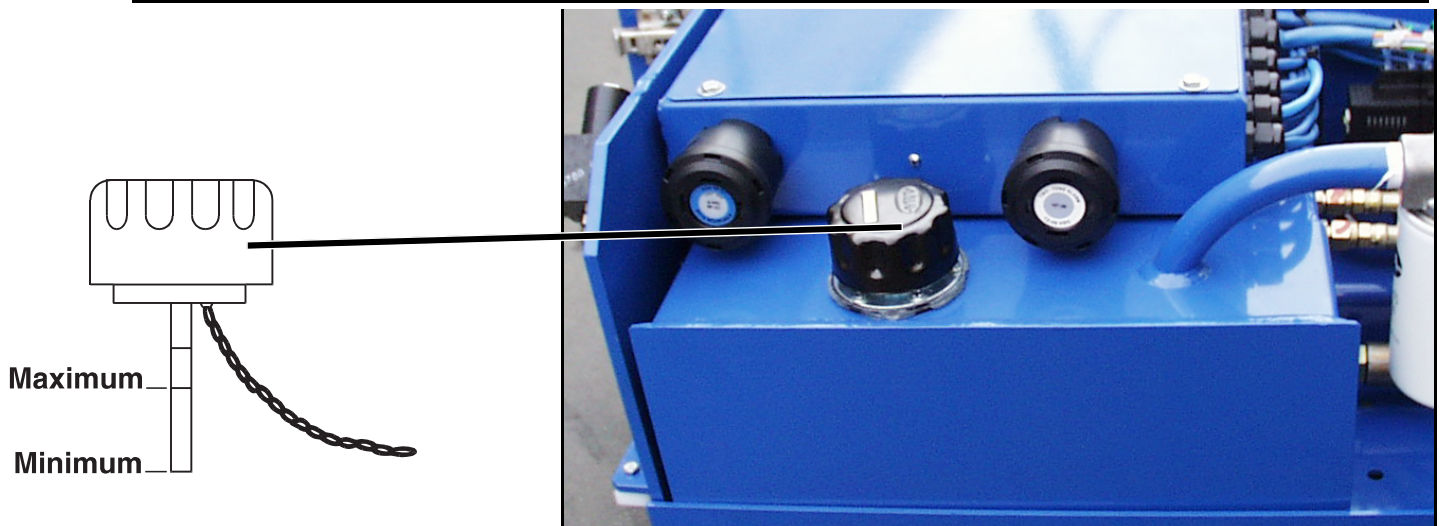
2. Provide a suitable container to catch the drained oil. Hydraulic tank has a 5 gallon (19 L) capacity.
3. Open left module door.
4. Remove the drain plug and allow all the oil to drain. Dispose of hydraulic fluid properly (contact your local oil recycler).
5. Reinstall the drain plug.
6. Unscrew the filter from the filter assembly.
7. Apply a thin film of clean hydraulic oil (ISO #46) to the gasket of the replacement filter.
8. Screw the replacement filter onto the filter head until the gasket makes contact, then turn the filter 3/4 of a turn further.
9. Fill the hydraulic reservoir with ISO #46 hydraulic oil until the oil is up to the full mark on the dipstick.



RESERVOIR BREATHER/CAP

Clean the breather/cap at the same time that the oil filter is replaced. Use cleaning solvent and blow dry with clean, dry compressed air.

Figure 3-15: Hydraulic Tank



3.10 SETTING HYDRAULIC PRESSURES

Check the hydraulic pressures whenever the pump, manifold, or relief valves have been serviced or replaced.

! WARNING !

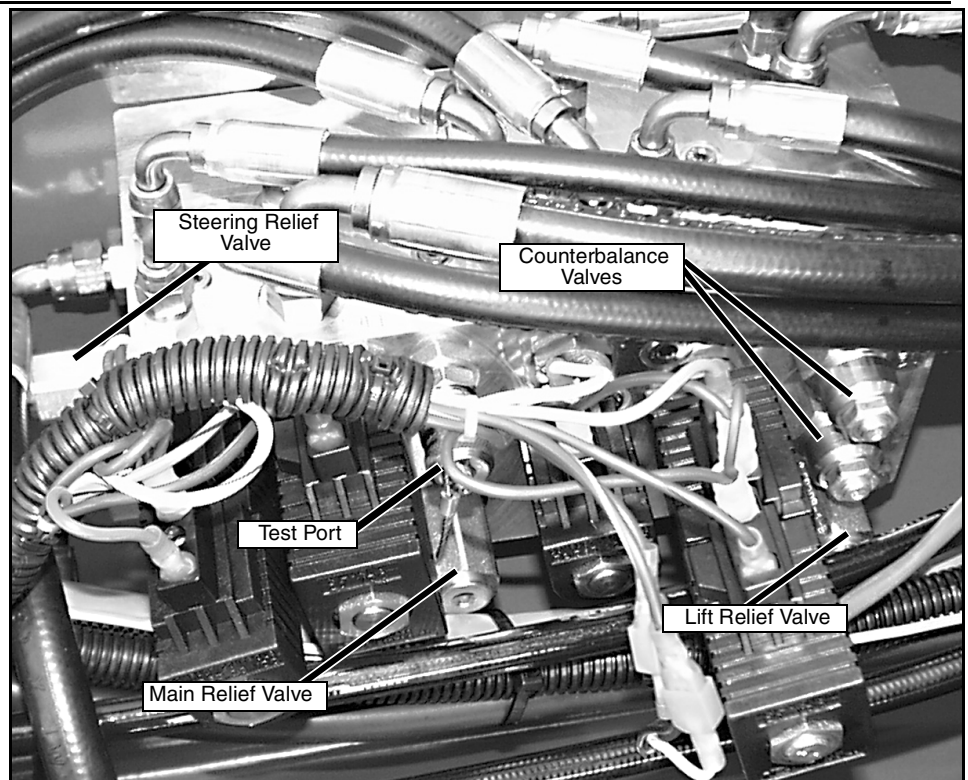
The hydraulic oil may be of sufficient temperature to cause burns. Wear safety gloves and safety glasses when handling hot oil.

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.

MAIN RELIEF VALVE

1. Operate the hydraulic system 10-15 minutes to warm the oil.
2. Slowly drive the machine to within 3 inches of a solid, immovable brick wall. Ease the machine forward until the front of the chassis is in solid contact with the wall.
3. Insert a 3000 psi (207 bar) pressure gauge into the test port.
4. Loosen the locknut or remove the cover on the Main Relief Valve, and turn the adjusting screw counterclockwise two full turns.
5. Remove the Platform Controls from the guardrail so that the machine may be operated from the ground. Slowly push the control lever in the direction of the wall.
6. Slowly turn the Main Relief Valve adjusting screw clockwise to increase the pressure until the gauge reads 2800 psi (193 bar) for X20W, X26, X31, and 3000 psi (207 bar) for X20N.
7. Tighten locknut or replace Main Relief Valve cover and torque to 6 Ft/Lbs (8 Nm.).

Figure 3-16: Hydraulic Manifold



STEERING RELIEF VALVE

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.
2. Install gauge in gauge port.
3. Loosen the locknut or remove the cover on the Steering Relief Valve, and turn the adjusting screw counterclockwise two full turns.
4. While one person holds the Steering Switch to steer to the right or left, slowly turn the Steering Relief Valve adjusting screw clockwise to increase the pressure until the gauge reads 1000 psi (69 bar).
5. Tighten locknut or replace Steering Relief Valve cover and torque to 6 Ft/Lbs (8 Nm).
6. Remove gauge and replace cap.

LIFT RELIEF VALVE

1. Operate the hydraulic system 10-15 minutes to warm the oil.
2. Loosen locknut or remove cover on the Lift Relief Valve and turn the adjusting screw counterclockwise two full turns.
3. Place the maximum rated load (see Specifications Table, Section 2) on the platform.
4. Turn and hold the Chassis Key Switch to CHASSIS. Push the Chassis Lift Switch to UP position and hold it there.
5. Slowly turn the Lift Relief Valve adjusting screw clockwise to increase the pressure until the platform just begins to rise.
6. Release the Chassis Lift Switch. Tighten locknut or replace Lift Relief Valve cover and torque to 6 Ft/Lbs (8 Nm).

COUNTERBALANCE VALVES

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.
2. Remove gauge port cap and install the pressure gauge assembly.
3. Lift the work platform and support the chassis with jackstands so that the wheels are off the ground.
4. Loosen the locknuts on Counterbalance Valves.
5. With the Chassis Key Switch on DECK and the Drive/Lift Switch in DRIVE, depress the Interlock Lever and slowly pull the Control Lever to REVERSE to drive the wheels.
6. Adjust the Forward Counterbalance Valve by turning the adjustment screw until the pressure gauge indicates 325 psi (22.4 bar).
7. Slowly push the Control Lever to forward to drive the wheels.
8. Adjust the Reverse Counterbalance Valve by turning the adjustment screw until the pressure gauge indicates 325 psi (22.4 bar).
9. Check the settings by slowly moving the Control Lever FORWARD, then REVERSE, checking the gauge to ensure pressures are properly set. Readjust as needed.
10. Tighten locknuts on valves to 6 Ft/Lbs (8 Nm). Remove blocks and lower the work platform to the ground.

3.11 HYDRAULIC MANIFOLD

It is not necessary to remove the manifold to perform all maintenance procedures (i.e. replacing a single valve). Determine whether or not the manifold should be removed before maintenance begins.

REMOVAL

1. Tag and disconnect the solenoid valve leads.
2. Tag, disconnect, and plug hydraulic hoses.
3. Remove the bolts that hold the manifold to the module, being careful not to damage the ground wires.
4. Remove the manifold block.

DISASSEMBLY

NOTE: Mark all components as they are removed so as not to confuse their location during assembly. Refer to Figure 3-17 often to aid in disassembly and assembly.

1. Remove coils from solenoid valves.
2. Remove solenoid valves, relief valves and counterbalance valves.
3. Remove fittings and plugs.

CLEANING AND INSPECTION

1. Wash the manifold in cleaning solvent to remove built up contaminants, then blow out all the passages with clean compressed air.
2. Inspect the manifold for cracks, thread damage, and scoring where the O-rings seal against internal and external surfaces.
3. Wash and dry each component and check for thread damage, torn or cracked O-rings, and proper operation of each component.
4. Replace all parts and O-rings found unserviceable.

ASSEMBLY

NOTE: Lubricate all O-rings before installation to prevent damage to the O-rings. Refer to “Table 3-1:” on Page 3-24 for the proper torque values when installing any hydraulic component.

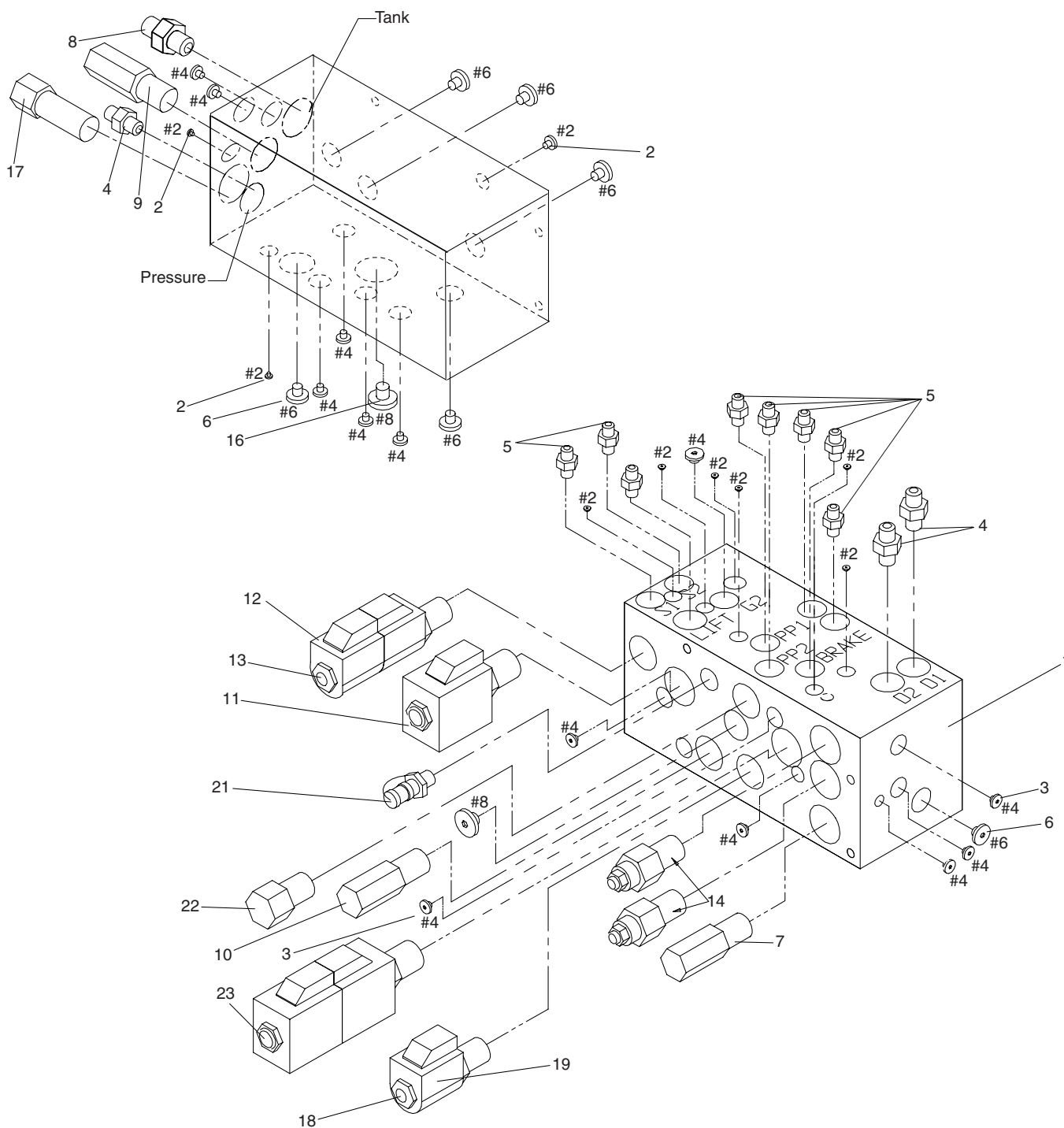
1. Install fittings and plugs.
2. Install counterbalance valves, relief valves and solenoid valves.
3. Install coils on solenoid valves.

INSTALLATION

NOTE: Refer to Table 3-1 for hydraulic component torque specifications.

1. Attach the manifold assembly to the module with bolts, making sure all the ground wires are attached with the front right hand bolt.
2. Connect solenoid leads as tagged.
3. Connect hydraulic hoses. Be certain to tighten hoses to manifold.
4. Operate each hydraulic function, and check for proper function and leaks.
5. Check the level in the hydraulic fluid tank.
6. Adjust all relief valves mounted on the Hydraulic Manifold according to instructions in “3.10 Setting Hydraulic Pressures” on Page 3-12.

Figure 3-17: Hydraulic Manifold



- | | |
|--|--|
| 1. CONTROL VALVE BLOCK | 14. COUNTERBALANCE VALVE |
| 2. FITTING #2 PLUG | 16. FITTING PLUG #8 |
| 3. FITTING #4 PLUG | 17. FLOW DIVIDER VALVE (1.0 GPM) |
| 4. FITTING STRAIGHT 6MB - 6MJ | 18. 2 POS POPPET VALVE W/ COIL (DEPRESSION MECHANISM) |
| 5. FITTING STR 4MBH - 4MJ | 19. COIL |
| 6. FITTING PLUG #6 | 21. FITTING GAUGE |
| 7. LIFT RELIEF VALVE (2000 PSI (138 BAR)) | 22. CHECK VALVE |
| 8. FITTING 8MB-8MJX | 23. 3 POS - 4 WAY SOLENOID W/ COILS (DRIVE) |
| 9. STEERING RELIEF VALVE (1000 PSI (69 BAR)) | |
| 10. MAIN RELIEF VALVE (2800 PSI (193 BAR)) | |
| 11. 2 POS - 4 WAY SOLENOID W/ COIL (LIFT) | |
| 12. COIL | |
| 13. 3 POS - 4 WAY SOLENOID W/ COILS (STEER) | |

3.12 HYDRAULIC PUMP

Figure 3-18: Hydraulic Pump

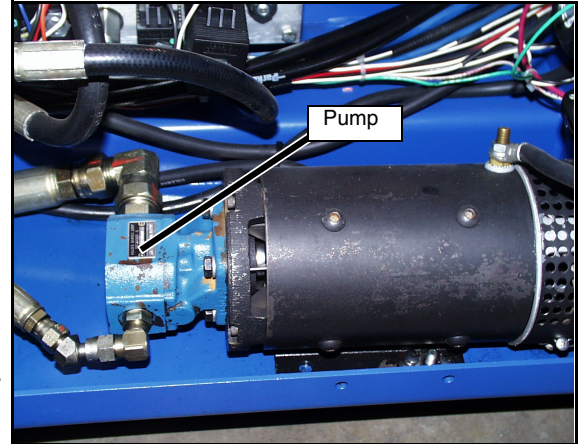
REMOVAL

NOTE: If the hydraulic tank has not been drained, suitable means for plugging the hoses should be provided to prevent excessive fluid loss.

1. Mark, disconnect, and plug the hose assemblies.
2. Loosen the capscrews and remove the pump assembly from the motor.

INSTALLATION

1. Lubricate the pump shaft with general purpose grease and attach the pump to the motor with the capscrews.
2. Using a criss-cross pattern, torque each capscrew a little at a time until all of the capscrews are torqued to 20 Ft/Lbs (27 Nm).
3. Unplug and reconnect the hydraulic hoses.
4. Check the oil level in the hydraulic tank before operating the work platform.



3.13 HYDRAULIC DRIVE MOTORS AND HUBS

REMOVAL

1. Block the rear wheels to prevent the machine from rolling.
2. Use a 1 ton (1000 Kg) capacity jack to raise the front of the machine. Place two 1 ton (1000 Kg) jackstands beneath the machine for support. Remove the jack.
3. Remove the wheel bolts and wheel.
4. Remove the cotter pin, slotted nut, hub, and shaft key.

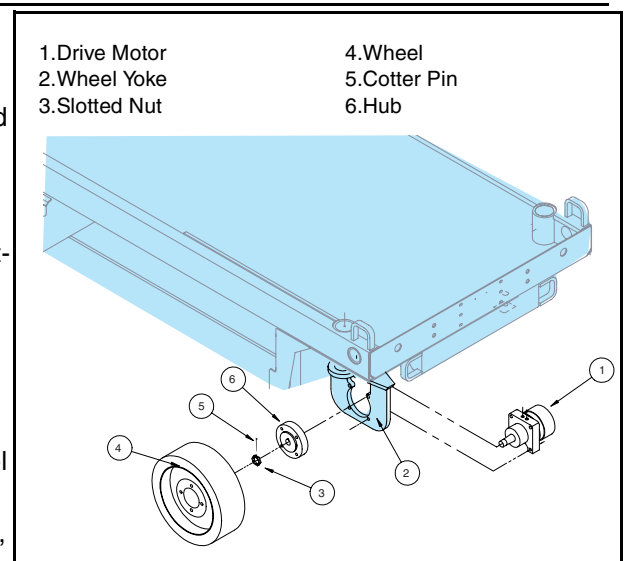
NOTE: Before disconnecting any hoses, thoroughly clean off all the outside dirt around the fittings. **IMMEDIATELY** plug the port holes after disconnecting the hoses and before removing the motor from the vehicle.

5. Tag, disconnect and plug the hose assemblies to prevent foreign material from entering.
6. Remove the locknuts, capscrews, and drive motor.

Figure 3-19: Drive Motor

INSTALLATION

1. Position the drive motor in the wheel yoke, and secure it with capscrews and locknuts.
2. Install the shaft key, hub, and slotted nut. Torque the slotted nut to 140-160 Ft/Lbs (190-217 Nm). Install a new cotter pin. **DO NOT** back off the nut to install the cotter pin.
3. Remove the plugs from the hose assemblies and reconnect them to the drive motor.
4. Install the wheel and secure with wheel bolts. Torque to 80 Ft/Lbs (108 Nm).
5. Remove the jackstands, lower the jack, and remove. Operate the drive system and check for leaks.



3.14 BRAKE CYLINDER

The brake cylinder is located between the rear wheels at the rear of the chassis.

NOTE: The X31N has two brake cylinders. All other X Series machines have only one.

Figure 3-20: Brake Cylinder

REMOVAL

1. Block the wheels to prevent the work platform from rolling when the brake is removed.
2. Remove the adjustment locknut and jam nut.
3. Tag and disconnect the hose assemblies and cap the openings to prevent foreign material from entering.
4. Remove the shoulder bolt and locknut that mounts the cylinder rod to the brake tube.
5. Remove the cotter pin and pivot pin from the rear cylinder mount. Remove the cylinder.

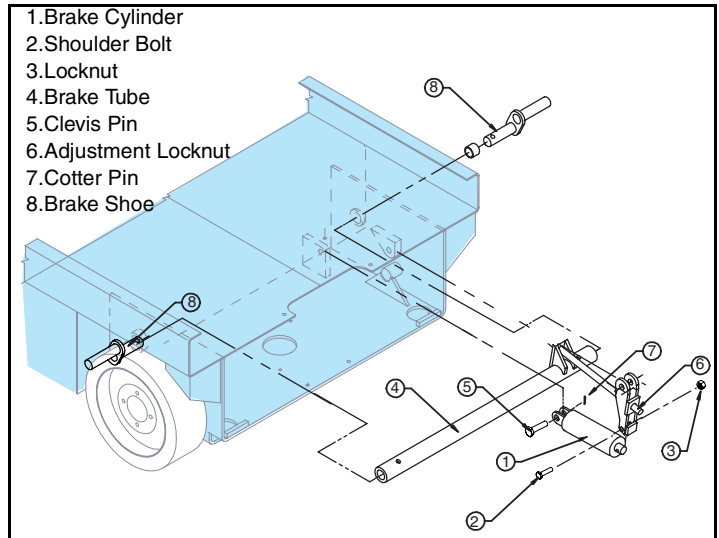


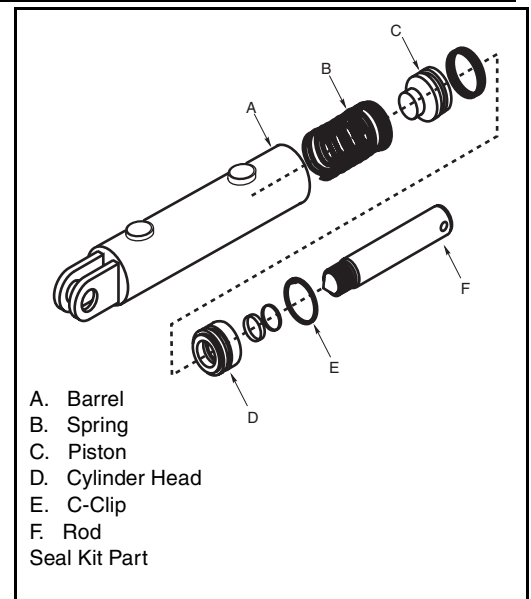
Figure 3-21: Brake Cylinder Assembly

DISASSEMBLY

1. Remove the C-clip from the barrel assembly and remove the cylinder.
2. Completely disassemble the cylinder.
3. Remove all the seals and O-rings, noting their location to aid in reassembly.

CLEANING AND INSPECTION

1. Wash all the metal parts in cleaning solvent, and blow dry with filtered compressed air.
2. Inspect all the threaded components for stripped or damaged threads.
3. Check the inside surface of the cylinder barrel for scoring or excessive wear.
4. Check the piston and headcap for scoring or excessive wear.
5. Inspect the surface of the shaft for scoring or excessive wear.



ASSEMBLY

1. Lubricate and install new seals and O-rings.
2. Install the headcap onto the shaft.
3. Install the new internal backup rings and O-rings on the piston.
4. Install the piston on the shaft and torque to 250 Ft/Lbs (339 Nm).
5. Place the spring into the barrel. Lubricate the piston seal with clean hydraulic fluid, and install the shaft assembly in the inner cylinder barrel.
6. Push the rod in far enough that the head is below the C-clip groove. Install the C-clip.

INSTALLATION

1. Install the clevis end pivot pin through the cylinder clevis and cylinder link, and secure with a new cotter pin.
2. Install the rod end shoulder bolt through the cylinder rod and brake tube mounting tabs, and secure with the locknut.
3. Install the hydraulic hoses.
4. Install the adjustment locknut. Tighten the bolt until the brake shoes fully engage the tires. Secure with the locknut.
5. Lower the machine and operate the drive circuit. Check that the brake shoes retract and clear the tires when driving and fully engage the tires when stopped. Test the brakes, if possible, on a 14° (25%) incline. Check for leaks.

3.15 STEERING CYLINDER

REMOVAL

1. Turn the wheels to the straight position.
2. Elevate the platform and block the elevating assembly with the brace. (See "Supporting Elevating Assembly" on Page 3-4.)
3. Tag and disconnect the hose assemblies from the cylinder fittings, and immediately cap the openings to prevent foreign material from entering.
4. Remove the cotter pins from the pivot pins.
5. Remove the pivot pins, straight up through the Chassis, while supporting the cylinder. Remove the cylinder.

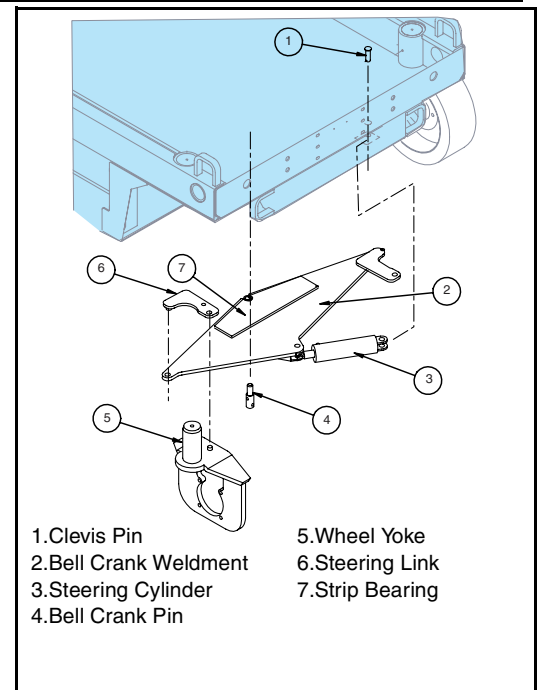
Figure 3-22: Steering Cylinder

DISASSEMBLY

1. Remove the set screw that secures the thread cap on the cylinder barrel.
2. Unscrew the thread cap from the barrel.
3. Withdraw the head cap, piston, and shaft assembly from the barrel tube.
4. Remove the piston nut, piston, and head cap.
5. Remove the rod wiper, U-cup, O-ring, and backup ring from the headcap. Discard the seals.
6. Remove the internal backup rings, O-ring, and cast iron piston seals from the piston and discard.

CLEANING AND INSPECTION

1. Wash all the metal parts in cleaning solvent and blow dry with filtered compressed air.
2. Inspect all the threaded components for stripped or damaged threads.
3. Check the inside surface of the cylinder barrel for scoring or excessive wear.
4. Check the piston and headcap for scoring or excessive wear.
5. Inspect the surface of the shaft for scoring or excessive wear.



ASSEMBLY

1. Lubricate and install new rod wiper, U-cup, O-ring and backup ring on the headcap.
2. Install the headcap onto the shaft.
3. Install the new internal backup rings, O-ring and piston seal on the piston.
4. Install the piston on the shaft and secure with the piston nut. Torque to 75 Ft/Lbs (102 Nm).
5. Lubricate the piston seal with clean hydraulic fluid, and install the shaft assembly in the cylinder barrel.
6. Screw head cap into cylinder barrel until tight, and secure with set screw.

INSTALLATION

1. Position the cylinder assembly in the chassis and insert pivot pins, and secure with new cotter pins.
2. Connect the hose assemblies to the fittings.
3. Operate the steering circuit several times throughout its entire range of travel to expel trapped air, and check for leaks.

3.16 DEPRESSION MECHANISM CYLINDER

Figure 3-23: Depression Mechanism Cylinder

The Depression Mechanism Cylinders are located at the ends of each swing-out module.

REMOVAL

1. Open the module door to reach the desired Depression Mechanism Cylinder.
2. Tag and disconnect the hoses from the cylinder fittings, and immediately cap the openings to prevent foreign material from entering.
3. Remove the pin clip and locknut from the pivot pins, then pull the cylinder off the pins.

INSTALLATION

1. Place cylinder, piston end down, onto pivot pins. Install locknut and pin clip.
2. Connect the hoses to the fittings.
3. Lift the platform, then lower it and move the machine. Repeat this several times to check for proper operation.



3.17 LIFT CYLINDER

The X20N, X20W and X26N are all equipped with one Lift Cylinder. The X31N has two Lift Cylinders. The procedure for removing the lift cylinder(s) is the same for all models.

! WARNING !

Use a suitable maintenance stand to access the upper lift cylinder on the X31N. DO NOT stand on the elevating assembly.

REMOVAL

1. Elevate platform and install brace. (See "Supporting Elevating Assembly" on Page 3-4.)
2. Provide a suitable container to catch the hydraulic fluid, then disconnect the hydraulic hoses from the cylinder. Immediately plug hoses and fittings to prevent foreign material from entering.
3. Remove Emergency Lowering Valve Cable and Down Valve wires from the Emergency Lowering/Down Valve.
4. Remove retaining rings securing Lift Cylinder Pivot Pins. On X26N machines, remove the left roll pin in the Upper Pivot Pin.
5. Remove lower Pivot Pin by driving pin towards locking pin side. Lower cylinder to rest on chassis.
6. Attach a suitable hoisting device and sling to the cylinder, and remove upper Pivot Pin.
7. Carefully remove the cylinder.

DISASSEMBLY

1. Remove the fittings and Down Valve from the cylinder assembly.
2. Unscrew the headcap, and remove the rod and piston assembly from the barrel tube.
3. Unscrew the piston from the rod, then remove the head cap from the cylinder rod.
4. Remove all O-rings, seals, and wipers from the head cap, piston and rod.

CLEANING AND INSPECTION

1. Clean all metal parts in solvent, and blow dry with filtered compressed air.
2. Check all threaded parts for stripped or damaged threads.
3. Check the bearing surfaces inside of the head cap, inside of the cylinder barrel and the rod for signs of scoring or excessive wear.
4. Replace all seals and O-rings.

Figure 3-24: Five Section Scissor Assembly

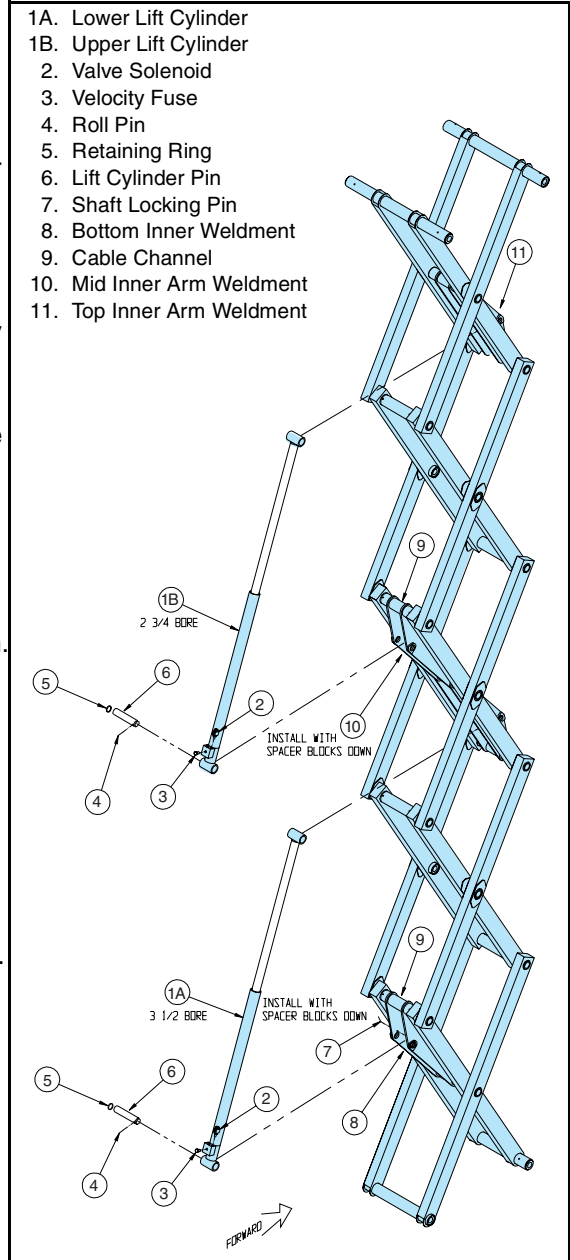
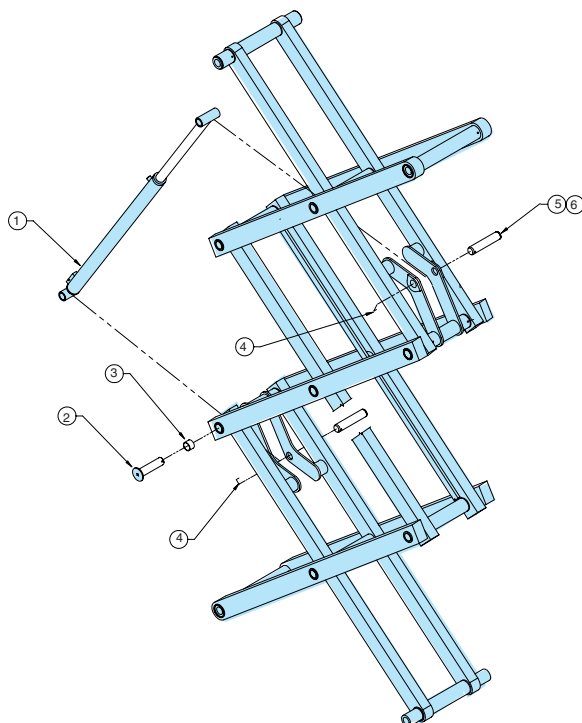


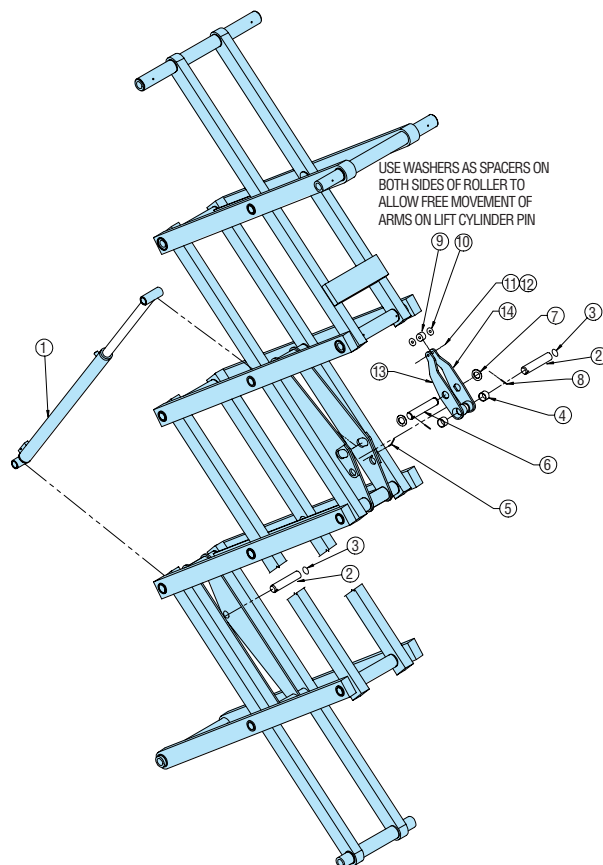
Figure 3-25: Lift Cylinder Remove and Replace

1. Lift Cylinder
2. Pivot Pin
3. Bearing
4. Shaft Locking Pin
5. Lift Cylinder Pin
6. Retaining Ring



Three Section Scissor Assembly

1. Lift Cylinder
2. Lift Cylinder Pin
3. Retaining Ring
4. Oilite Bearing
5. Shaft Locking Pin
6. Lift Cylinder Pin
7. Washer
8. Roll Pin
9. Bearing
10. Flat Washer
11. Screw
12. Nut
13. Torsion Arm, Right Side
14. Torsion Arm, Left Side



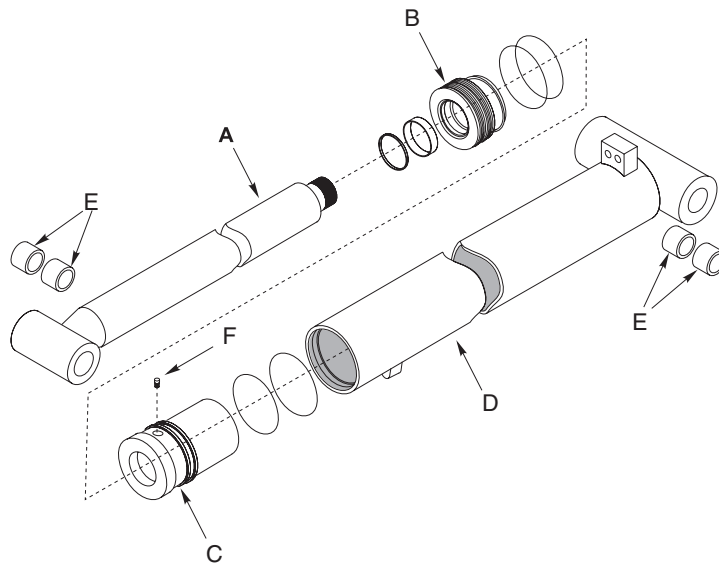
Four Section Scissor Assembly

REASSEMBLY

1. Lubricate and install new O-rings, seals and wipers on the head cap and piston.
2. Multipurpose lubricant should be used.
3. Install the headcap on the cylinder rod from the piston end.
4. Apply Locktite #262 to the threads on the piston and screw the piston on the rod.
5. Lubricate the piston and install the piston and rod assembly in the barrel tube.
6. Thread the head cap into the barrel tube and hand tighten, then turn $\frac{1}{4}$ turn further with a wrench.
7. Install the Down Valve and fittings.

Figure 3-26: Lift Cylinder Assembly

Lift Cylinder Assembly for X20W, X26N, and the lower cylinder of the X31N



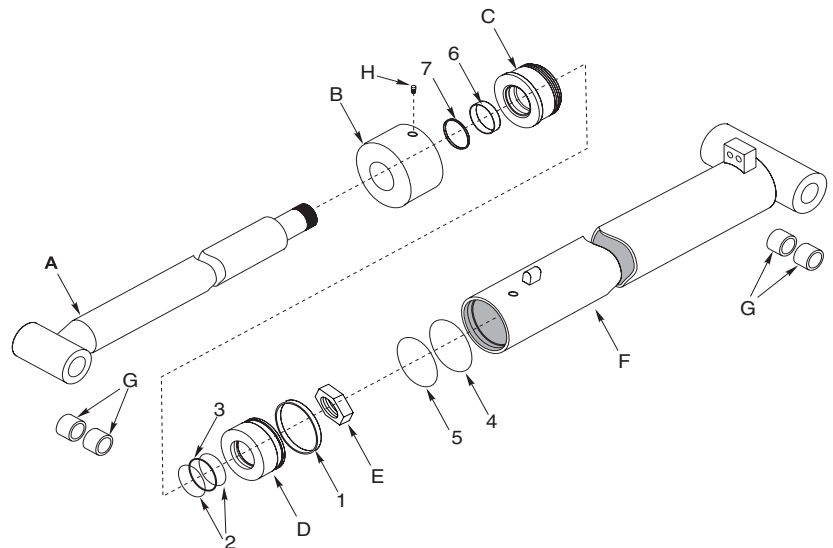
- A. Rod
 - B. Thread Cap Head
 - C. Piston
 - D. Barrel
 - E. Bronze Bushings
 - F. Set Screw
- Seal Kit Part Number 066601-010

Lift Cylinder Assembly for X20N and the upper cylinder of the X31N

- A. Rod
- B. Thread Cap
- C. Thread Cap Head
- D. Piston
- E. Thin Locknut
- F. Barrel
- G. Bronze Bushings
- H. Set Screw

Seal Kit Number 066618-101

- 1. Uniring
- 2. Back-up Ring
- 3. O-Ring
- 4. O-Ring
- 5. Back-up Ring
- 6. Loaded U-Cup
- 7. Rod Wiper

**INSTALLATION**

1. Attach a suitable hoisting device and sling to the cylinder. Carefully position the cylinder in the Elevating Assembly and install the upper Pivot Pin.
2. On X20 machines, make sure the Locking Pin fully engages the pivot and pin. Install the retaining ring.
3. On X26N machines, install a new roll pin.
4. Carefully lift the cylinder and align the lower mount and install the Pivot Pin. Make sure the locking pin is properly installed, then install the retaining ring.
5. Connect the Emergency Lowering Valve cable and Down Valve wires.
6. Unplug hydraulic hoses and attach to the cylinder. Replace hydraulic fluid removed from the Lift Cylinder.
7. Test with weight at rated platform load to check system operation. Check for leaks and level of fluid.

3.18 ELECTRIC MOTOR

TROUBLESHOOTING

1. Read the nameplate to become familiar with the motor, especially the rated voltage.
2. Try to turn the shaft by hand. Keep motor leads separated while doing this. If the shaft turns freely, go to step 3. If the shaft won't turn, proceed to step A.
 - a. The shaft could be tight for a number of reasons; this check is to determine if the tightness is of a temporary nature only. Obtain power to produce the nameplate voltage. **Do not make a permanent connection.** First, touch the motor leads quickly to the power supply just long enough to observe if the shaft runs. If it does turn, then hold the motor leads on the power supply for a longer time. If the motor sounds normal, go to step 3. If the motor sounds noisy, it should be taken apart as described in the disassembly section.
3. If the motor turned freely, connect an ammeter in the circuit as shown in Figure 3-27A. With rated voltage applied and the shaft running free, the ammeter should read less than 20% of the nameplate full load current. If the motor meets the above conditions, then it can be assumed the original problem is external to the motor.

Figure 3-27: Electric Motor

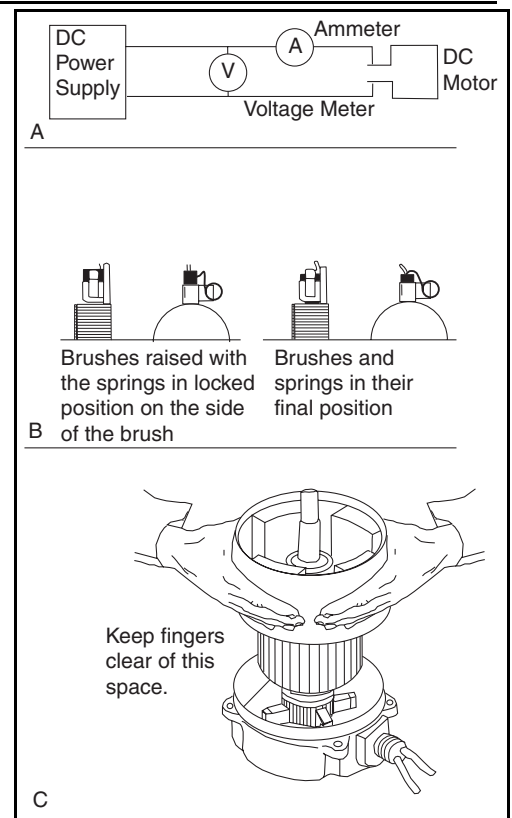
DISASSEMBLY

NOTE: Do not place the stator ring in any mechanical holding device during the disassembly or assembly operation. Permanent distortion or other damage will result.

1. Remove three bolts.
2. Remove pulley end cover.
3. Pull the armature out of the assembly in one swift motion.
4. Remove commutator end cover.

INSPECTION

1. Once the motor has been disassembled, go through the following check list steps to determine where the problem lies.
2. Bearings should spin smoothly and easily and have ample lubrication and be free of corrosion.
3. Armature should be checked for grounds and shorted turns. Refinish commutator surface if pitted or excessively worn.
4. Brushes should be checked for wear and to ensure that they are free in the brush holders.



3.19 TORQUE SPECIFICATIONS

HYDRAULIC COMPONENTS

NOTE: Always lubricate threads with clean hydraulic oil prior to installation

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

Table 3-1: Torque Specifications for Hydraulic Components

| Type: SAE Part Series | Cartridge Poppet | | Fittings | | Hoses | |
|-----------------------|------------------|---------|----------|---------|-----------|---------|
| | Ft/Lbs | Nm | Ft/Lbs | Nm | Ft/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 | 107-119 |
| #16 | 130-140 | 176-190 | 130-140 | 176-190 | 1300-1368 | 147-155 |

FASTENERS

This standard applies to the preloading of fasteners measured by installation torque.

NOTE: For other preloading methods or fasteners, consult UpRight Engineering Department.



This general standard applies to all SAE and Metric fasteners, unless otherwise specified.

THREAD CONDITION

- For lubed or zinc plated fasteners, use $K = .15$
- For dry unplated fasteners, use $K = .20$

TORQUE TABLES

Table 3-2: Torque Specifications for SAE Fasteners

| | |  SAE J429 Grade 5 | | |  SAE J429 Grade 8 | | |
|------------------------------|-----------|---|------------------------------------|---------|---|------------------------------------|---------|
| Nominal Thread Size | | Clamp Load | Tightening Torque K=.15 K=.20 | | Clamp Load | Tightening Torque K=.15 K=.20 | |
| | | lbs. | in-lbs. | in-lbs. | lbs. | in-lbs. | in-lbs. |
| Unified Coarse Thread Series | 1/4 -20 | 2,000 | 75 | 100 | 2850 | 107 | 143 |
| | 5/16 - 18 | 3,350 | 157 | 210 | 4700 | 220 | 305 |
| | | lbs. | ft-lbs. | ft-lbs. | lbs. | ft-lbs. | ft-lbs. |
| | 3/8-16 | 4,950 | 23 | 31 | 6950 | 32.5 | 44 |
| | 7/16-14 | 6,800 | 37 | 50 | 9600 | 53 | 70 |
| | 1/2-13 | 9,050 | 57 | 75 | 12800 | 80 | 107 |
| | 9/16-12 | 11,600 | 82 | 109 | 16400 | 115 | 154 |
| | 5/8-11 | 14,500 | 113 | 151 | 20300 | 159 | 211 |
| | 3/4-10 | 21,300 | 200 | 266 | 30100 | 282 | 376 |
| | 7/8-9 | 29,435 | 321 | 430 | 41550 | 454 | 606 |
| | 1-8 | 38,600 | 483 | 640 | 54540 | 680 | 900 |



| | |  SAE J429 Grade 5 | | |  SAE J429 Grade 8 | | |
|----------------------------|---------|---|------------------------------------|---------|---|------------------------------------|---------|
| Nominal Thread Size | | Clamp Load | Tightening Torque K=.15 K=.20 | | Clamp Load | Tightening Torque K=.15 K=.20 | |
| | | lbs. | in-lbs. | in-lbs. | lbs. | in-lbs. | in-lbs. |
| Unified Fine Thread Series | 1/4 -28 | 2,300 | 85 | 115 | 3250 | 120 | 163 |
| | 5/16-24 | 3,700 | 173 | 230 | 5200 | 245 | 325 |
| | | lbs. | ft-lbs. | ft-lbs. | lbs. | ft-lbs. | ft-lbs. |
| | 3/8-24 | 5,600 | 26 | 35 | 7900 | 37 | 50 |
| | 7/16-20 | 7,550 | 42 | 55 | 10700 | 59 | 78 |
| | 1/2-20 | 10,200 | 64 | 85 | 14400 | 90 | 120 |
| | 9/16-18 | 13,000 | 92 | 122 | 18300 | 129 | 172 |
| | 5/8-18 | 16,300 | 128 | 170 | 23000 | 180 | 240 |
| | 3/4-16 | 23,800 | 223 | 298 | 33600 | 315 | 420 |
| | 7/8-14 | 32,480 | 355 | 473 | 45855 | 500 | 668 |
| | 1-12 | 42,270 | 528 | 704 | 59670 | 745 | 995 |

Table 3-3: Torque Specifications for Metric Fasteners, U.S. Customary Units

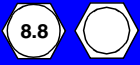
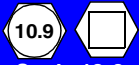

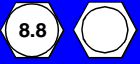


| Nominal Thread Size |  Grade 8.8 | | |  Grade 10.9 | | |  Grade 12.9 | | |
|---------------------|--|-------------------|---------|---|-------------------|---------|---|-------------------|---------|
| | Clamp Load | Tightening Torque | | Clamp Load | Tightening Torque | | Clamp Load | Tightening Torque | |
| | | K = .15 | K = .20 | | K = .15 | K = .20 | | K = .15 | K = .20 |
| mm | lbs. | in-lbs. | in-lbs. | lbs. | in-lbs. | in-lbs. | lbs. | in-lbs. | in-lbs. |
| 3 | - | - | - | - | - | - | 823 | 14.6 | 19.5 |
| 3.5 | - | - | - | - | - | - | 1,109 | 22.9 | 30.5 |
| 4 | - | - | - | - | - | - | 1,436 | 33.9 | 45.2 |
| 5 | 1,389 | 41.0 | 19.5 | 1,987 | 58.7 | 19.5 | 2,322 | 68.6 | 91.2 |
| 6 | 1,966 | 69.7 | 28.3 | 2,813 | 100.0 | 28.3 | 3,287 | 116.8 | 155.8 |
| 7 | 2,826 | 116.8 | 37.2 | 4,044 | 167.3 | 37.2 | 4,727 | 195.6 | 260.2 |
| | | ft-lbs. | ft-lbs. | | ft-lbs. | ft-lbs. | | ft-lbs. | ft-lbs. |
| 8 | 3,579 | 14.1 | 18.8 | 5,122 | 20.1 | 26.9 | 5,986 | 23.6 | 31.4 |
| 10 | 11,742 | 27.9 | 37.2 | 8,117 | 39.9 | 53.3 | 9,486 | 46.7 | 62.3 |
| 12 | 8,244 | 48.7 | 64.9 | 11,797 | 69.7 | 92.2 | 13,787 | 81.1 | 108.4 |
| 14 | 11,246 | 77.4 | 103.3 | 16,093 | 110.6 | 147.5 | 18,808 | 129.1 | 172.6 |
| 16 | 15,883 | 125.4 | 166.7 | 21,971 | 173.3 | 230.9 | 25,677 | 202.1 | 269.2 |
| 18 | 19,424 | 171.9 | 229.4 | 26,869 | 238.2 | 317.2 | 31,401 | 278.1 | 371.0 |
| 20 | 2,304 | 243.4 | 325.3 | 34,286 | 337.8 | 449.9 | 40,070 | 394.6 | 525.9 |
| 22 | 30,653 | 331.9 | 442.5 | 42,403 | 458.8 | 612.2 | 49,556 | 536.2 | 715.4 |
| 24 | 35,711 | 420.4 | 562.0 | 49,400 | 583.4 | 778.1 | 57,733 | 682.2 | 909.4 |
| 27 | 46,435 | 617.3 | 84.8 | 64,235 | 853.4 | 1138.1 | 75,069 | 997.2 | 1329.8 |
| 30 | 56,753 | 837.9 | 1117.4 | 78,509 | 1159.4 | 1545.2 | 91,751 | 1354.9 | 1807.0 |
| 33 | 70,208 | 1140.3 | 1520.1 | 97,121 | 1576.9 | 2102.8 | 113,503 | 1843.9 | 2457.5 |
| 36 | 82,651 | 1464.1 | 1952.3 | 114,334 | 2025.3 | 2700.9 | 133,620 | 2367.6 | 3156.0 |

Table 3-4: Torque Specifications for Metric Fasteners, SI Units

| Nominal Thread Size |  Grade 8.8 | | |  Grade 10.9 | | |  Grade 12.9 | | |
|---------------------|--|-------------------|---------|---|-------------------|---------|---|-------------------|---------|
| | Clamp Load | Tightening Torque | | Clamp Load | Tightening Torque | | Clamp Load | Tightening Torque | |
| | | K = .15 | K = .20 | | K = .15 | K = .20 | | K = .15 | K = .20 |
| mm | N | N-m | N-m | N | N-m | N-m | N | N-m | N-m |
| 3 | - | - | - | - | - | - | 3,660 | 1.65 | 2.2 |
| 3.5 | - | - | - | - | - | - | 4,932 | 2.59 | 3.45 |
| 4 | - | - | - | - | - | - | 6,387 | 3.83 | 5.11 |
| 5 | 6,177 | 4.63 | 2.2 | 8,840 | 6.63 | 2.2 | 10,330 | 7.75 | 10.3 |
| 6 | 8,743 | 7.87 | 3.2 | 12,512 | 11.3 | 3.2 | 14,623 | 13.2 | 17.6 |
| 7 | 12,570 | 13.2 | 4.2 | 17,990 | 18.9 | 4.2 | 21,025 | 22.1 | 29.4 |
| 8 | 15,921 | 19.1 | 25.5 | 22,784 | 27.3 | 36.5 | 26,626 | 32 | 42.6 |
| 10 | 52,230 | 37.8 | 50.5 | 36,105 | 54.1 | 72.2 | 42,195 | 63.3 | 84.4 |
| 12 | 36,670 | 66 | 88 | 52,475 | 94.5 | 125 | 61,328 | 110 | 147 |
| 14 | 50,025 | 105 | 140 | 71,587 | 150 | 200 | 83,663 | 175 | 234 |
| 16 | 70,650 | 170 | 226 | 97,732 | 235 | 313 | 114,218 | 274 | 365 |
| 18 | 86,400 | 233 | 311 | 119,520 | 323 | 430 | 139,680 | 377 | 503 |
| 20 | 10,250 | 330 | 441 | 152,513 | 458 | 610 | 178,238 | 535 | 713 |
| 22 | 136,350 | 450 | 600 | 188,618 | 622 | 830 | 220,433 | 727 | 970 |
| 24 | 158,850 | 570 | 762 | 219,743 | 791 | 1055 | 256,808 | 925 | 1233 |
| 27 | 206,550 | 837 | 115 | 285,728 | 1157 | 1543 | 333,923 | 1352 | 1803 |
| 30 | 252,450 | 1136 | 1515 | 349,223 | 1572 | 2095 | 408,128 | 1837 | 2450 |
| 33 | 312,300 | 1546 | 2061 | 432,015 | 2138 | 2851 | 504,885 | 2500 | 3332 |
| 36 | 367,650 | 1985 | 2647 | 508,582 | 2746 | 3662 | 594,368 | 3210 | 4279 |

NOTES:

TROUBLESHOOTING

4.1 INTRODUCTION

The following section on troubleshooting provides guidelines on the types of problems users may encounter in the field, helps determine the cause of problems, and suggests proper corrective action.

Careful inspection and accurate analysis of the symptoms listed in the Troubleshooting Guide will localize the trouble more quickly than any other method. This manual cannot cover all possible problems that may occur. If a specific problem is not covered in this manual, call our toll free number for service assistance.

Referring to Section 2.0 and 5.0 will aid in understanding the operation and function of the various components and systems and help in diagnosing and repair of the machine.

GENERAL PROCEDURE

Thoroughly study hydraulic and electronic schematics in **Section 5**. Check for loose connections and short circuits. Check/repair/replace each component in the Truth Table that is listed under each machine function that does not operate properly.

Use the charts on the following pages to help determine the cause of a fault.

NOTE: Spike protection diodes at components have been left out of the charts to eliminate confusion.

! WARNING !

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

When performing any service that requires the platform to be raised, ensure that the platform is braced as described on page 3-4.

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

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FAX: 1-559-891-8931

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FAX: +353-1-202-4105

4.2 TROUBLESHOOTING

1. Verify your problem.
 - Do a full function test from both the platform and chassis controls, and note all functions that are not operating correctly.
2. Narrow the possible causes of the malfunction.
 - Use the troubleshooting guide to determine which components are common to all circuits that are not functioning correctly. To aid in troubleshooting, the letters following the component on the table are the same as the component's designation on the schematics.
3. Identify the problem component.
 - Test components that are common to all circuits that are not functioning correctly. Remember to check wires and terminals between suspect components. Be sure to check connections to battery negative.
4. Repair or replace any component found to be faulty.
5. Verify that repair is complete.
 - Do a full function test from both the platform and chassis controls to verify that all functions are operating correctly and that the machine is performing to specified values.

SPECIAL TOOLS

Following is a list of tools which may be required to perform certain maintenance procedures on the X Series Work Platforms.

- Flow Meter with Pressure Gauge (UpRight P/N 067040-000)
- 0-69 bar (0-1000 psi (0-69 bar) Hydraulic Pressure Gauge with Adapter Fittings (UpRight P/N 014124-010)
- 0-207 bar (0-3000 psi (0-207 bar) Hydraulic Pressure Gauge with Adapter Fittings (UpRight P/N 014124-030)
- Adapter Fitting (UpRight P/N 063965-002)
- Inclinator (UpRight P/N 010119-000)
- Crimping Tool (UpRight P/N 028800-009)
- Terminal Removal Tool (UpRight P/N 028800-006)

ADJUSTMENT PROCEDURES

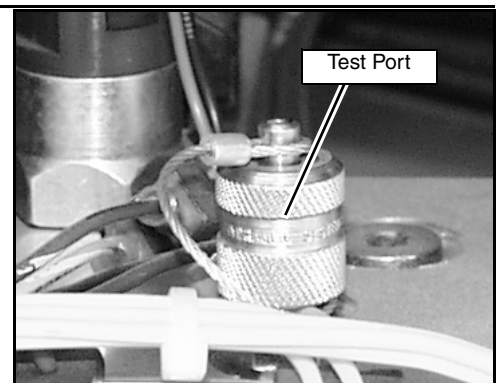
Figure 4-1: Hydraulic Test Port

Hydraulic settings must be checked whenever a component is repaired or replaced.

Remove counterbalance valves and "bench test" them if they are suspect.

Connect a pressure gauge of appropriate range to the test port located on the hydraulic manifold.

Correct pressure settings are listed in the hydraulic schematic.



CHECKING PUMP PRESSURES

Remove hose from pump port and connect pressure tester.

4.3 UPRIGHT MOTOR CONTROLLER DIAGNOSTICS

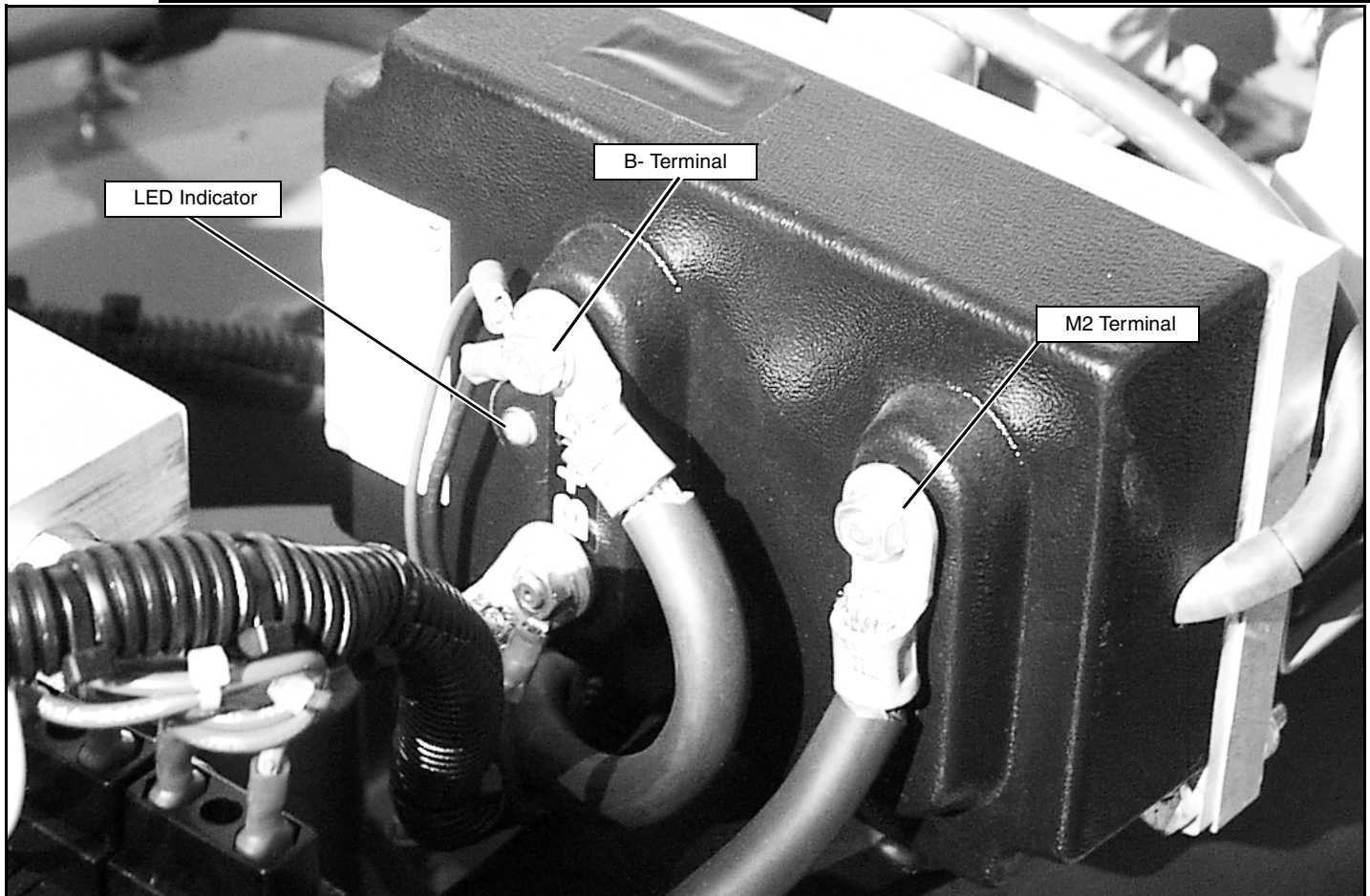
Batteries must be fully charged before troubleshooting.

Check/Repair all connections before replacing any components

Table 4-1: LED Fault Codes

| FLASH CODE | MEANING | STATUS | CORRECTIVE ACTION |
|------------|--|---|--|
| LED on | Power to the controller and the controller is operational. | System is functional | None. |
| LED off | No power to the controller, or internal fault in the controller. | Battery cables not connected properly; Failed controller | Check battery cable connections. Replace the controller. |
| 2 Flash | Procedural fault. | Lift, drive, or steer switch is engaged at start-up; Drive/Lift Switch rotated while operating | Cycle the control handle through neutral to clear fault. |
| 3 Flash | Controller senses B- at the M2 terminal. | Short circuit at the motor; M2 cable in contact with B- cable; Short circuit within controller | Check cable routing and connections. Test terminals for source of B-. Replace the controller |
| 4 Flash | Controller senses B+ at the M2 terminal before engaging the motor start relay. | B+ cable routed incorrectly; M2 cable making contact with B+ cable; Motor start relay contacts welded closed. | Check cable routing and connections. Test terminals for source of B+. Replace the motor start relay. |
| 5 Flash | Controller senses open circuit at M2 after engaging the motor start terminal. | Cables loose or not connected; Faulty motor start relay | Check the cable routing and connections. Check the signal from motor controller to relay. Check/replace the motor start relay. |
| 6 Flash | Faulty signal from control handle or I/O board. | Faulty control handle; Wiring error | If upper controls are affected, check/replace the control handle. If lower controls are affected, check/replace the I/O board. |
| 7 Flash | Battery voltage below 12V or above 45V. | Dead batteries; Bad cable connections | Check batteries and cable connections. |
| 8 Flash | Thermal cut-off. | Controller is overheated due to overuse or other failure | Allow system to cool. Locate and repair other source of overheat. |

Figure 4-2: Motor Controller



4.4 MEASURED VOLTAGE AT I/O BOARD

Be sure that both the Platform and Chassis Emergency Stop Switches are pulled out to the ON position.

All voltages are measured between the component and the B- terminal on the Motor Controller.

| CONNECTOR | PIN NUMBER | DESCRIPTION |
|-----------|------------|--|
| J1 | 1 | 24 Volts = Lift Mode Active / 0 Volts = Lift Mode Inactive |
| | 2 | No Connection |
| | 3 | 24 Volts = Drive Allowed / 0 Volts = Drive Not Allowed |
| | 4 | 24 Volts from Lower E-Stop / Lower E-Stop Not Depressed |
| | 5 | 24 Volts from Upper E-Stop / Lower and Upper E-Stops Not Depressed |
| | 6 | 24 Volts Out to Interlock Lever when Upper Controls Selected & Upper/Lower E-Stops Not Depressed |
| | 7 | No Connection |
| | 8 | 24 Volts = Drive Forward or Lift Up / 0 Volts = Stop Drive Forward or Lift Up |
| | 9 | 24 Volts = Drive Reverse or Lift Down / 0 Volts = Stop Reverse Drive or Lift Down |
| | 10 | Accelerator Input / 20K Pot / 3.5 Volts to 0 Volts, Minimum to Maximum Speed |
| | 11 | 24 Volts = Steer Left / 0 Volts = Stop Steer Left |
| | 12 | 24 Volts = Steer Right / 0 Volts = Stop Steer Right. |
| J2 | 1 | Goes to 0 Volts to Activate Depression Mechanism Extend Solenoid / 24 Volts = Solenoid OFF |
| | 2 | No Connection |
| | 3 | 24 Volt Supply for Solenoids |
| | 4 | Goes to 0 Volts to Activate Forward Solenoid / 24 Volts = Solenoid OFF |
| | 5 | Goes to 0 Volts to Activate Reverse Solenoid / 24 Volts = Solenoid OFF |
| | 6 | Goes to 0 Volts to Activate Lift Up Solenoid / 24 Volts = Solenoid OFF |
| | 7 | Goes to 0 Volts to Activate Steer Left Solenoid / 24 Volts = Solenoid OFF |
| | 8 | Goes to 0 Volts to Activate Steer Right Solenoid / 24 Volts = Solenoid OFF |
| J3 | 1 | Goes to 0 Volts to Activate Alarm / 24 Volts = Alarm OFF |
| | 2 | 24 Volts = Tilt Inactive / 0 Volts = Tilt Active |
| | 3 | 24 Volt Supply for Alarm, Tilt Sensor, Lift Down and Depression Mechanism Retract Solenoids |
| | 4 | 24 Volts = Below Height Limit / 0 Volts = Above Height Limit |
| | 5 | Goes to 0 Volts to Activate Lift Down Solenoid / 24 Volts = Solenoid OFF |
| | 6 | Goes to 0 Volts to Activate Depression Mechanism Solenoid / 24 Volts = Solenoid OFF |
| | 7 | 24 Volts = High Speed Active / 0 Volts = Low Speed Active |
| | 8 | Battery Negative Supply for Tilt Sensor |
| J4 | 1 | Goes to 0 Volts to Activate Line Contactor / 24 Volts = Line Contactor OFF |
| | 2 | Supplies 24 Volts to Upper Control / Lower Control Switch |
| | 3 | 24 Volts = Lower Control Mode |
| | 4 | Supplies 24 Volts to Ground Lift Switch when in Lower Control Mode |
| | 5 | 24 Volt Supply Output |
| | 6 | Goes to 0 Volts to Activate Hour Meter / 24 Volts = Hour Meter Not Activated |
| | 7 | 24 Volts = Lift Up from Ground Control / 0 Volts = Lift Up OFF |
| | 8 | 24 Volts = Lift Down from Ground Control / 0 Volts = Lift Down OFF |
| | 9 | 24 Volt Supply Input from Battery via Lower E-Stop / Lower E-Stop Not Depressed |
| | 10 | 24 Volts from Upper Control Switch / 24 Volts = Upper Control Mode |
| | 11 | Battery Negative Input to I/O Board |
| | 12 | 24 Volt Supply for Hour Meter and Line Contactor |
| J5 | 1 | 24 Volts power to Pin 1 of SC1000 (Key ON Power) |
| | 2 | 24 Volts = Command Controller to Drive / 0 Volts = Stop Controller Drive |
| | 3 | 24 Volts = Command Controller to Steer / 0 Volts = Steer OFF |
| | 4 | 24 Volts = Command Controller to Lift / 0 Volts = Stop Lift |
| | 5 | 24 Volts = Command Normal Speed / 0 Volts = Command Speed Cutback |
| | 6 | 24 Volts = Line Contactor OFF / 0 Volts = Line Contactor ON |
| | 7 | 24 Volts = No Direction Solenoid Allowed / 0 Volts = Direction Solenoid Allowed to Activate |
| | 8 | Accelerator 3.5 Volts to 0 Volts / Minimum to Maximum Speed |

4.5 HYDRAULIC

Table 4-2: Hydraulic Troubleshooting Table

| COMPONENT | FUNCTION | LIFT PLATFORM | LOWER PLATFORM | STEER RIGHT | STEER LEFT | DRIVE FORWARD | DRIVE REVERSE | HIGH/LOW DRIVE SPEED | CREEP | DEPRESSION MECHANISM EXTEND | DEPRESSION MECHANISM RETRACT | BRAKES |
|------------------------------------|----------|---------------|----------------|-------------|------------|---------------|---------------|----------------------|-------|-----------------------------|------------------------------|--------|
| Check Valve | | | | | | | | | | X | X | |
| Steering Cylinder | | | | X | X | | | | | | | |
| Lift Cylinder | X | | | | | | | | | | | |
| Depression Mechanism Cylinder | | | | | | | | | | X | X | |
| Break Cylinder | | | | | | | | | | | | X |
| Priority Flow Divider | X | | | X | X | X | X | | X | X | X | X |
| Suction Strainer | X | | | X | X | X | X | | X | X | X | |
| Return Filter | X | | | X | X | X | X | | X | X | X | |
| Drive Motors (2) | | | | | | X | X | | | | | |
| Pump | X | | | X | X | X | X | | X | X | X | |
| Main Relief Valve | X | | | | | X | X | | X | X | X | X |
| Steering Relief | | | | X | X | | | | | | | |
| Tank | | | | | | | | | | | | |
| Steering Right/Left Valve | | | | X | X | | | | | | | |
| Lift Valve | X | | | | | | | | | | | |
| Down/Emergency Lowering Valve | | X | | | | | | | | | | |
| Depression Mechanism Retract Valve | | | | | | | | | | | X | |
| Depression Mechanism Extend Valve | | | | | | | | | | X | | |
| Forward/Reverse Valve | | | | | | X | X | X | | | | |
| Series/Parallel Valve (2) | | | | | | X | X | X | | | | |
| Counterbalance Valve | | | | | | X | X | | X | | | X |

4.6 ELECTRIC

Table 4-3: Electrical Troubleshooting Table

| COMPONENT | FUNCTION | LOWER CONTROLS | UPPER CONTROLS | DRIVE FORWARD | DRIVE REVERSE | HIGH/LOW SPEED DRIVE | HIGH SPEED/CREEP | RAISE PLATFORM | LOWER PLATFORM | STEER LEFT | STEER RIGHT | DEPRESSION MECHANISM EXTEND | DEPRESSION MECHANISM RETRACT | BRAKES | TILT ALARM | DOWN ALARM | BATTERY CHARGE |
|-----------------------------------|----------|----------------|----------------|---------------|---------------|----------------------|------------------|----------------|----------------|------------|-------------|-----------------------------|------------------------------|--------|------------|------------|----------------|
| Alarm | | | | | | | | | | | | | | | | | |
| Batteries | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | |
| Battery Charger | | | | | | | | | | | | | | | | | X |
| 15 AMP Circuit Breaker | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | |
| 175 AMP Fuse | | X | X | X | X | | X | X | X | X | X | X | X | X | | | |
| Hour Meter/Low Voltage indicator | | | | | | | | | | | | | | | | | |
| I/O Board | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | |
| Motor Control | | X | X | X | X | | X | X | X | X | X | X | X | X | | | |
| Motor | | X | X | X | X | | X | X | X | X | X | X | X | X | | | |
| Motor Relay | | X | X | X | X | | X | X | X | X | X | X | X | X | | | |
| Chassis Emergency Stop Switch | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | |
| Chassis Lift Switch | | | | | | | | X | X | | | | | | | | |
| Chassis Key Switch | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | |
| Lift/Drive Selector Switch | | | X | X | X | | | X | X | | | | | | | | |
| Limit Switch | | | | | | | X | | | | | | | | | | |
| Platform Emergency Stop Switch | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | |
| Interlock Switch | | X | X | X | X | | X | X | X | X | X | X | X | | | | |
| PQ Control Handle | | | X | X | X | | | X | X | | | | | | | | |
| Loading Clearance Lowering Switch | | | | | | | | | X | | | | | | | | |
| Platform Steering Switch (2) | | | | | | | | | | X | X | | | | | | |
| Tilt Sensor | | X | X | X | X | | X | X | X | X | X | X | X | X | X | X | |
| Steering Solenoid (right) | | | | | | | | | | | X | | | | | | |
| Steering Solenoid (left) | | | | | | | | | | X | | | | | | | |
| Platform Lift Solenoid | | | | | | | | X | | | | | | | | | |
| Reverse Solenoid | | | | | X | | | | | | | | | | | | |
| Forward Solenoid | | | | X | | | | | | | | | | | | | |

| COMPONENT | FUNCTION | | | | | | | | | | | | | | |
|--|----------|----------------|----------------|---------------|---------------|----------------------|------------------|----------------|----------------|------------|-------------|-----------------------------|------------------------------|--------|------------|
| | | LOWER CONTROLS | UPPER CONTROLS | DRIVE FORWARD | DRIVE REVERSE | HIGH/LOW SPEED DRIVE | HIGH SPEED/CREEP | RAISE PLATFORM | LOWER PLATFORM | STEER LEFT | STEER RIGHT | DEPRESSION MECHANISM EXTEND | DEPRESSION MECHANISM RETRACT | BRAKES | TILT ALARM |
| Series/Parallel Solenoid(2) | | | | | | X | | | | | | | | | |
| Depression Mechanism Extension Solenoid | | | | | | | | | | | | X | | | |
| Down Solenoid | | | | | | | | | X | | | | | | |
| Depression Mechanism Retraction Solenoid | | | | | | | | | | | | | X | | |

NOTES:

SCHEMATICS

5.1 INTRODUCTION

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

The diagrams are to be used in conjunction with the ***Troubleshooting Tables*** in **Section 4**. They allow understanding of the makeup 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.

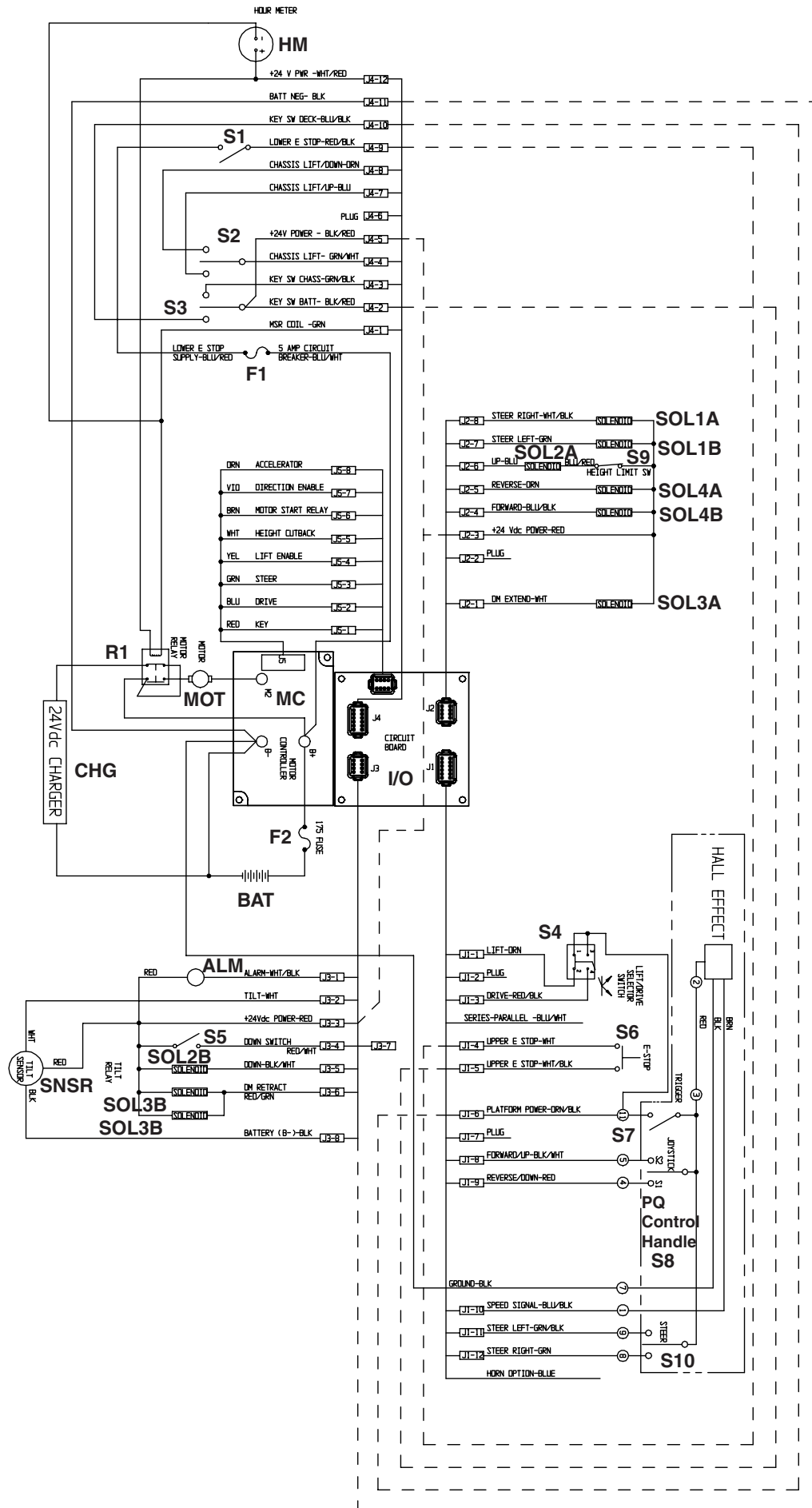
CONTENTS

| | |
|---|------|
| Legend: Electrical Schematic, X20N--065616-024 | 5-2 |
| Legend: Electrical Schematic, X20W, X26N, X31N--066769-020 | 5-4 |
| Legend: Hydraulic Schematic, X20N--065615-023 | 5-6 |
| Legend: Hydraulic Schematic, X20W, X26N--066781-020. | 5-8 |
| Legend: Hydraulic Schematic, X31N--066781-021 | 5-10 |

5.2 ELECTRICAL

Legend: Electrical Schematic, X20N--065616-024

| Reference Number | Name | Function | Location |
|------------------|--|---|--|
| ALM | Alarm | Provides warning sound when slope of machine exceeds 2° side-to-side, or fore and aft and also when deck is lowering | Chassis Between Battery Modules |
| BAT | Batteries | Powers work platform | Power Module |
| CHG | Battery Charger | Charges battery | Left Battery Module |
| F1 | 15 AMP Circuit Breaker | Electrical overload protection | Chassis Controls |
| F2 | 175 AMP Fuse | Overload protection for electric motor | Chassis Controls |
| HM | Hour Meter/Low Voltage Indicator | Shows how many hours the machine has been in use | Chassis Controls |
| I/O | I/O Board | Connection point for machine function wiring | Control Module |
| MC | Motor Control | Controls the speed of electric motor | Control Module |
| MOT | Motor | Provides power to hydraulic pump | Control Module |
| R1 | Motor Relay | Controls the speed of the electric motor | Control Module |
| S1 | Chassis Emergency Stop Switch | Shuts down all machine functions | Chassis Controls |
| S2 | Chassis Lift Switch | Elevates platform | Chassis Controls |
| S3 | Chassis Key Switch | Allows some machine functions to be initiated from ground level | Chassis Controls |
| S4 | Lift/Drive Selector Switch | Activates lift or drive functions | Platform Controls |
| S5 | Limit Switch | Stops lift assembly at lower limit, cuts out high speed drive when platform is elevated | Platform Controls |
| S6 | Platform Emergency Stop Switch | Shuts down all machine functions | Platform Controls |
| S7 | Interlock Switch | Safety mechanism for joystick | Platform Controls |
| S8 | PQ Control Handle | Proportionally controls the drive and lift functions | Platform Controls |
| S9 | Height Limit Switch | Cuts out lift function when platform reaches maximum height | Rear end of chassis between scissor sections |
| S10 | Platform Steering Switch (2) | Control left and right steering solenoids | Platform Controls |
| SNSR | Tilt Sensor | Activates tilt alarm and disables all machine functions except platform lower when the machine is more than 2° out of level | Chassis between Battery Modules |
| SOL1A | Steering Solenoid (right) | Shifts steering valve to the left | Hydraulic Manifold |
| SOL1B | Steering Solenoid (left) | Shifts steering valve to the right | Hydraulic Manifold |
| SOL2A | Platform Lift Solenoid | Raises platform | Hydraulic Manifold |
| SOL2B | Down Solenoid | Lowers platform | Lift Cylinder |
| SOL3A | Depression Mechanism Extension Solenoid | Extends depression mechanism bars | Hydraulic Manifold |
| SOL3B | Depression Mechanism Retraction Solenoid | Retracts depression mechanism bars | Depression Mechanism Cylinder |
| SOL4A | Reverse Solenoid | Shifts forward/reverse valve to reverse | Hydraulic Manifold |
| SOL4B | Forward Solenoid | Shifts forward/reverse valve to forward | Hydraulic Manifold |

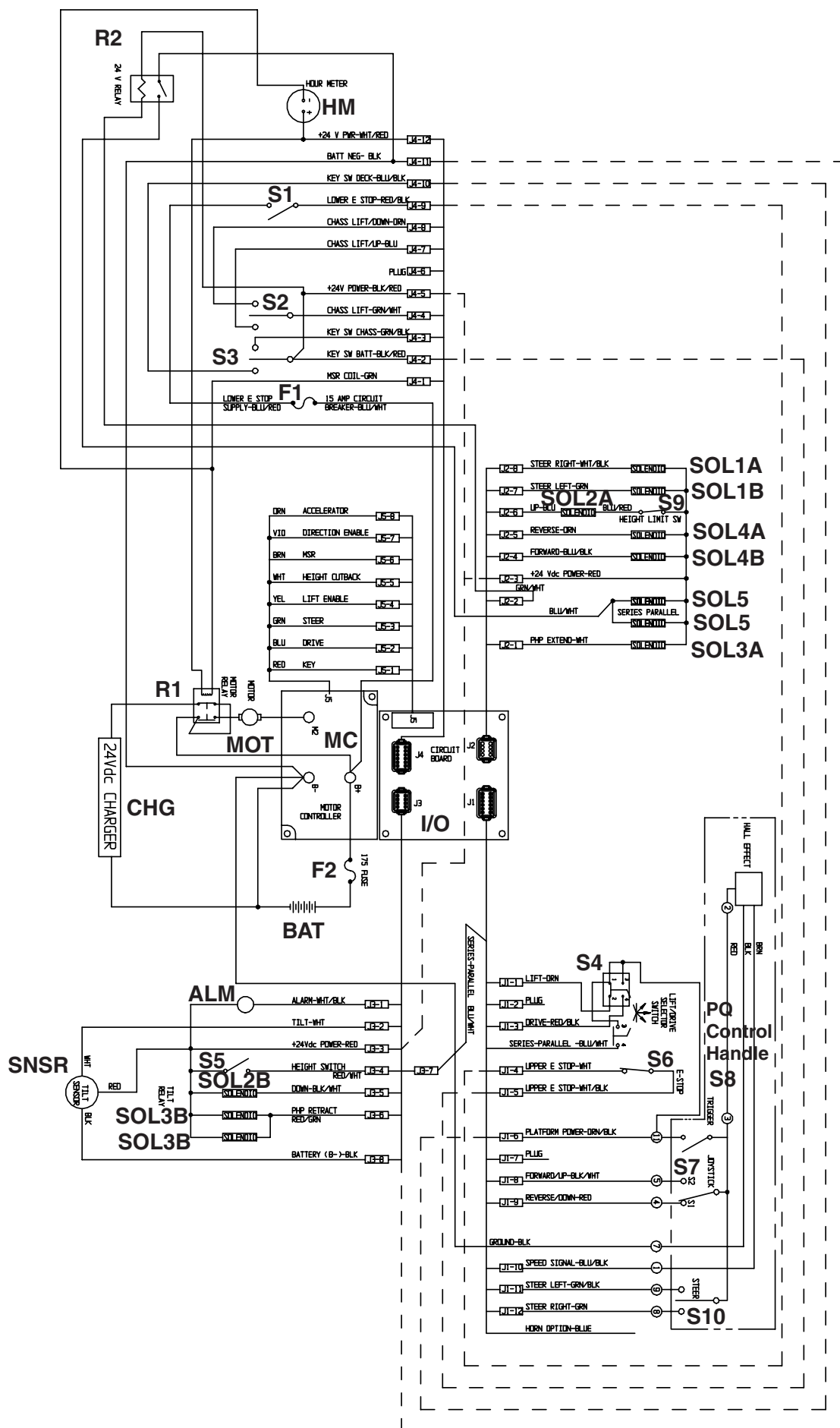


Schematics - 5.2 - Electrical

Legend: Electrical Schematic, X20W, X26N, X31N--066769-020

| Reference Number | Name | Function | Location |
|------------------|----------------------------------|--|---|
| ALM | Alarm | Provides warning sound when slope of machine exceeds 2° side-to-side, or fore and aft and also when deck is lowering | Chassis Between Battery Modules |
| BAT | Batteries | Powers work platform | Swing-out Modules on each side of the Chassis |
| CHG | Battery Charger | Charges battery | Left Battery Module |
| F1 | 15 AMP Circuit Breaker | Electrical overload protection | Chassis Controls |
| F2 | 175 AMP Fuse | Overload protection for electric motor | Chassis Controls |
| HM | Hour Meter/Low Voltage Indicator | Shows how many hours the machine has been in use | Chassis Controls |
| I/O | I/O Board | Connection point for machine function wiring | Control Module |
| MC | Motor Control | Controls the speed of electric motor | Control Module |
| MOT | Motor | Provides power to hydraulic pump | Control Module |
| R1 | Motor Relay | Controls the speed of the electric motor | Control Module |
| R2 | Series/Parallel Relay | Activates Series/Parallel solenoids | Control Module |
| S1 | Chassis Emergency Stop Switch | Shuts down all machine functions | Chassis Controls |
| S2 | Chassis Lift Switch | Elevates platform | Chassis Controls |
| S3 | Chassis Key Switch | Allows some machine functions to be initiated from ground level | Chassis Controls |
| S4 | Lift/Drive Selector Switch | Activates lift or drive functions, and high and low speed drive | Platform Controls |
| S5 | Limit Switch | Stops lift assembly at lower limit, cuts out high speed drive when platform is elevated | Platform Controls |

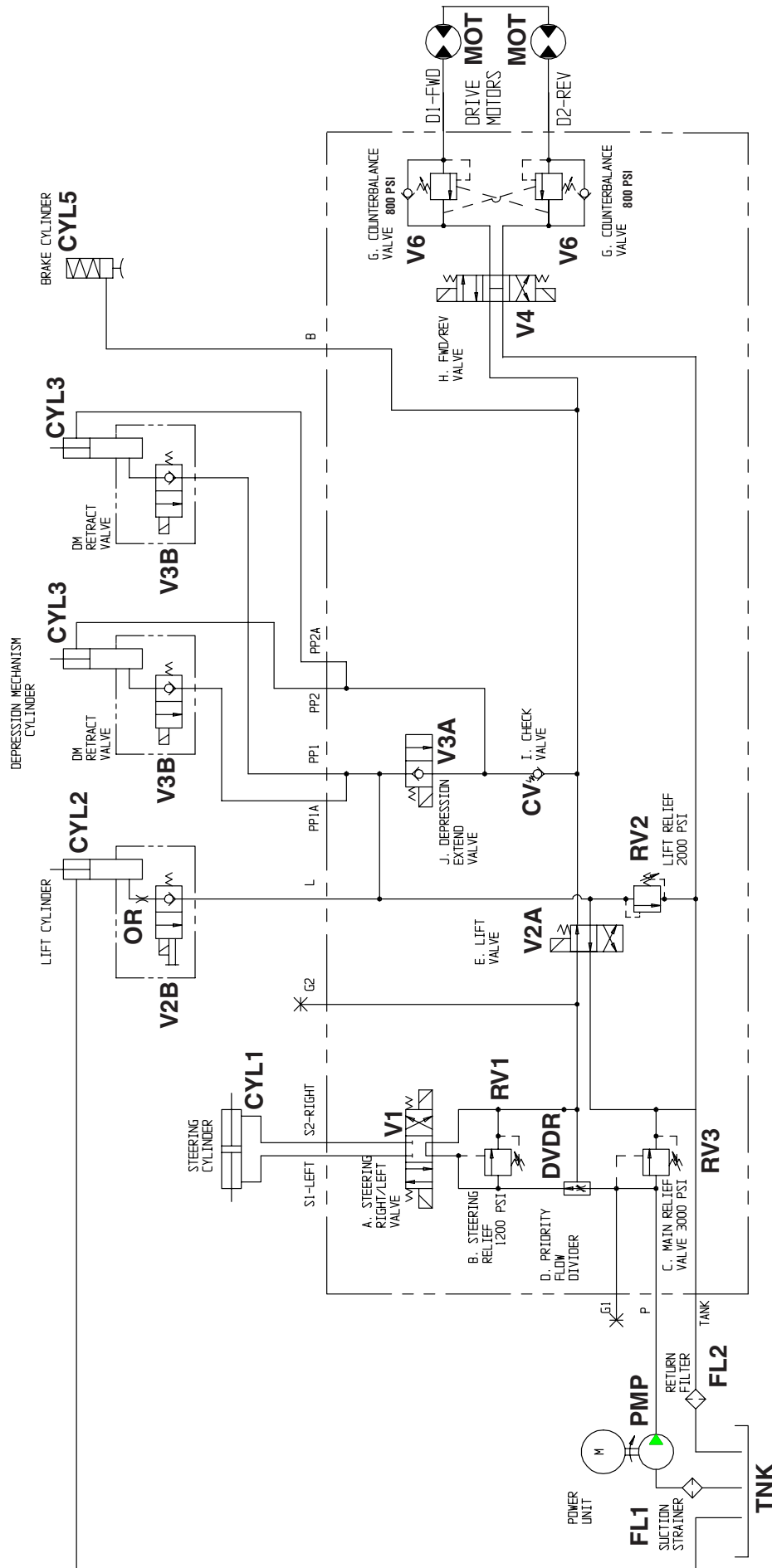
| Reference Number | Name | Function | Location |
|------------------|--|---|--|
| S6 | Platform Emergency Stop Switch | Shuts down all machine functions | Platform Controls |
| S7 | Interlock Switch | Safety mechanism for joystick | Platform Controls |
| S8 | PQ Control Handle | Proportionally controls the drive and lift functions | Platform Controls |
| S9 | Height Limit Switch | Cuts out lift function when platform reaches maximum height | Rear end of chassis between scissor sections |
| S10 | Platform Steering Switch (2) | Control left and right steering solenoids | Platform Controls |
| SNSR | Tilt Sensor | Activates tilt alarm and disables all machine functions except platform lower when the machine is more than 2° out of level | Chassis between Battery Modules |
| SOL1A | Steering Solenoid (right) | Shifts steering valve to the left | Hydraulic Manifold |
| SOL1B | Steering Solenoid (left) | Shifts steering valve to the right | Hydraulic Manifold |
| SOL2A | Platform Lift Solenoid | Raises platform | Hydraulic Manifold |
| SOL2B | Down Solenoid | Lowers platform | Lift Cylinder |
| SOL3A | Depression Mechanism Extension Solenoid | Extends depression mechanism bars | Hydraulic Manifold |
| SOL3B | Depression Mechanism Retraction Solenoid (2) | Retracts depression mechanism bars | Depression Mechanism Cylinder |
| SOL4A | Reverse Solenoid | Shifts forward/reverse valve to reverse | Hydraulic Manifold |
| SOL4B | Forward Solenoid | Shifts forward/reverse valve to forward | Hydraulic Manifold |
| SOL5 | Series/Parallel Solenoids (2) | Shift between high and low speed drive | Control Module |



5.3 HYDRAULICS

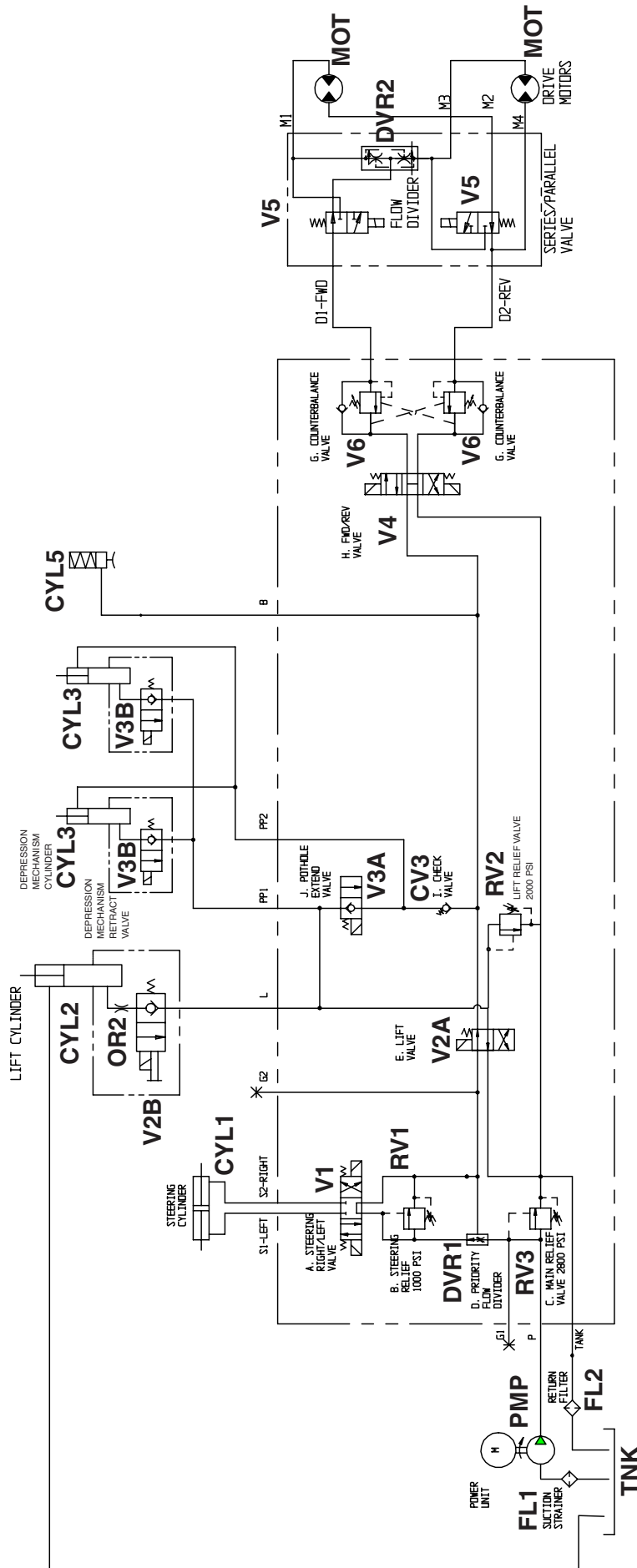
Legend: Hydraulic Schematic, X20N--065615-023

| Reference number | Name | Function | Location |
|------------------|--|--|---|
| CV | Check Valve | Allows Depression Mechanism to retract in drive mode | Hydraulic Manifold |
| CYL1 | Steering Cylinder | Provides force to turn front wheels | Front of chassis above drive motors |
| CYL2 | Lift Cylinder | Provides force to lift platform | Elevating Assembly |
| CYL3 | Depression Mechanism Cylinder (2) | Extends or retracts DM bar | Front of hydraulic tank |
| CYL5 | Brake Cylinder | Stops machine from moving while parked | Rear End of Chassis |
| DVR | Priority Flow Divider | Provides priority oil flow to steering | Hydraulic Manifold |
| FL1 | Suction Strainer | Traps particles in hydraulic tank | Inside hydraulic tank at outlet |
| FL2 | Return Filter | Filters oil returning to tank | Back of hydraulic tank |
| MOT | Drive Motors (2) | Provides tractive effort to move platform | Front motor mounts |
| OR | Orifice | Controls oil flow to and from the lift cylinder | Lift cylinder |
| PMP | Pump | Provides hydraulic pressure for all functions | On Electric Motor Between Battery Modules |
| RV1 | Steering Relief | Provides pressure protection to pump and steering components when steering | Hydraulic Manifold |
| RV2 | Lift Relief | Controls platform lifting capacity | Hydraulic Manifold |
| RV3 | Main Relief Valve | Provides pressure protection to the hydraulic system | Hydraulic Manifold |
| TNK | Tank | Holds hydraulic oil | Rear End of Chassis |
| V1 | Steering Right/Left Valve | Provides directional control for steering | Hydraulic Manifold |
| V2A | Lift Valve | Provides oil control for drive or lift functions | Hydraulic Manifold |
| V2B | Down/Emergency Lowering Valve | Allows oil to return to tank; manually operated for emergency lowering | Lift Cylinder |
| V3A | Depression Mechanism Extend Valve | Provides oil control for DM bar | Hydraulic Manifold |
| V3B | Depression Mechanism Retract Valve (2) | Provides oil control for DM bar | Depression Mechanism Cylinder |
| V4 | Forward/Reverse Valve | Provides oil control for drive or lift functions | Hydraulic Manifold |
| V6 | Counterbalance Valve (2) | Prevents machine from running away on slopes; cushions stops | Hydraulic Manifold |



Legend: Hydraulic Schematic, X20W, X26N--066781-020

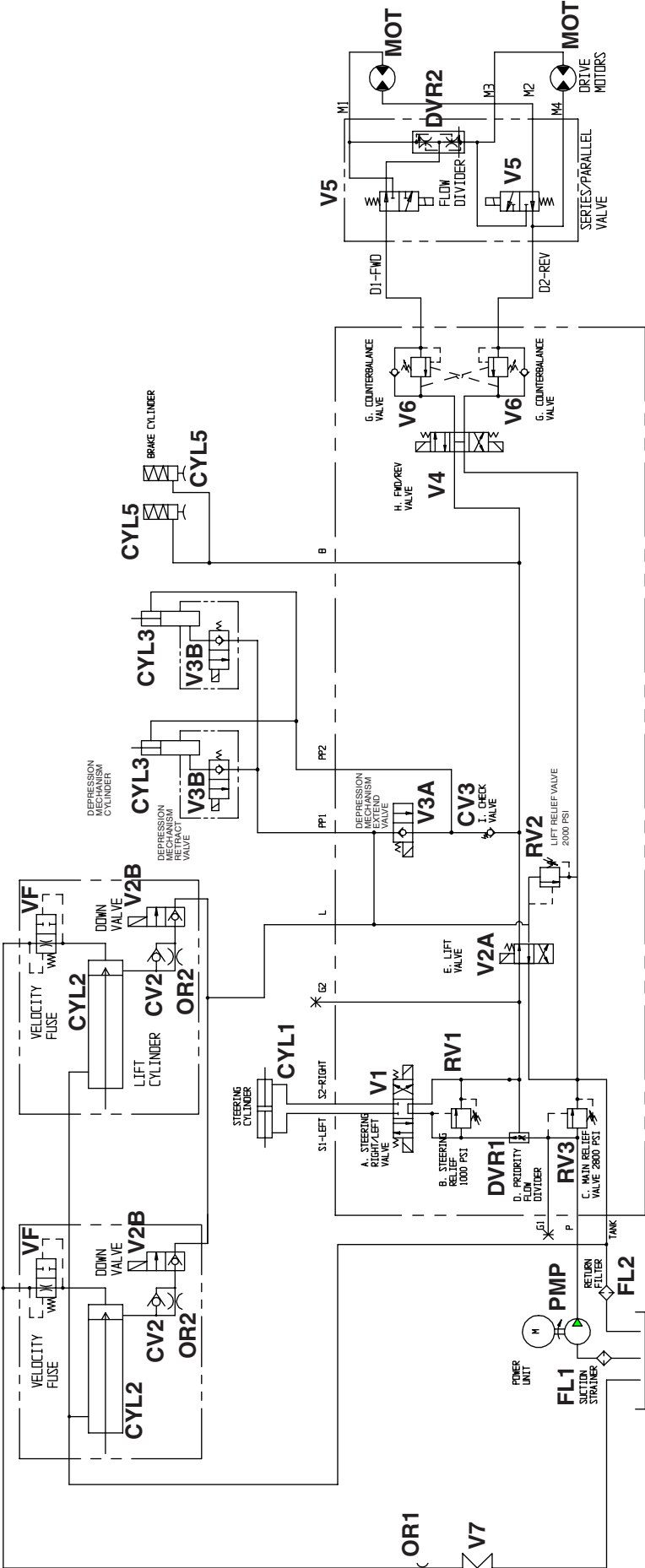
| Reference number | Name | Function | Location |
|------------------|--|--|-------------------------------------|
| CV3 | Check Valve | Allows Depression Mechanism to retract in drive mode | Hydraulic Manifold |
| CYL1 | Steering Cylinder | Provides force to turn front wheels | Front of chassis above drive motors |
| CYL2 | Lift Cylinder | Provides force to lift platform | Elevating Assembly |
| CYL3 | Depression Mechanism Cylinder (2) | Extends or retracts DM bar | Front of hydraulic tank |
| CYL5 | Brake Cylinder (2) | Stops machine from moving while parked | Rear End of Chassis |
| DVR1 | Priority Flow Divider | Provides priority oil flow to steering | Hydraulic Manifold |
| DVR2 | Flow Divider | Divides oil to drive motors in parallel drive mode | Series/Parallel Block |
| FL1 | Suction Strainer | Traps particles in hydraulic tank | Inside hydraulic tank at outlet |
| FL2 | Return Filter | Filters oil returning to tank | Back of hydraulic tank |
| MOT | Drive Motors (2) | Provides tractive effort to move platform | Front motor mounts |
| OR2 | Orifice (2) | Controls the descent rate by restricting oil flow | Lift Cylinders |
| PMP | Pump | Provides hydraulic pressure for all functions | Control Module |
| RV1 | Steering Relief | Provides pressure protection to pump and steering components when steering | Hydraulic Manifold |
| RV2 | Lift Relief Valve | Controls platform capacity | Hydraulic Manifold |
| RV3 | Main Relief Valve | Provides pressure protection to hydraulic system | Hydraulic Manifold |
| TNK | Tank | Holds hydraulic oil | Control Module |
| V1 | Steering Right/Left Valve | Provides directional control for steering | Hydraulic Manifold |
| V2A | Lift Valve | Provides oil control for drive or lift functions | Hydraulic Manifold |
| V2B | Down Valve | Allows Platform to descend | Lift Cylinder |
| V3A | Depression Mechanism Extend Valve | Provides oil control for DM bar | Hydraulic Manifold |
| V3B | Depression Mechanism Retract Valve (2) | Provides oil control for DM bar | Depression Mechanism Cylinder |
| V4 | Forward/Reverse Valve | Provides oil control for drive or lift functions | Hydraulic Manifold |
| V5 | Series/Parallel Valve (2) | Controls drive speed | Series/Parallel Block |
| V6 | Counterbalance Valve (2) | Prevents machine from running away on slopes; cushions stops | Hydraulic Manifold |

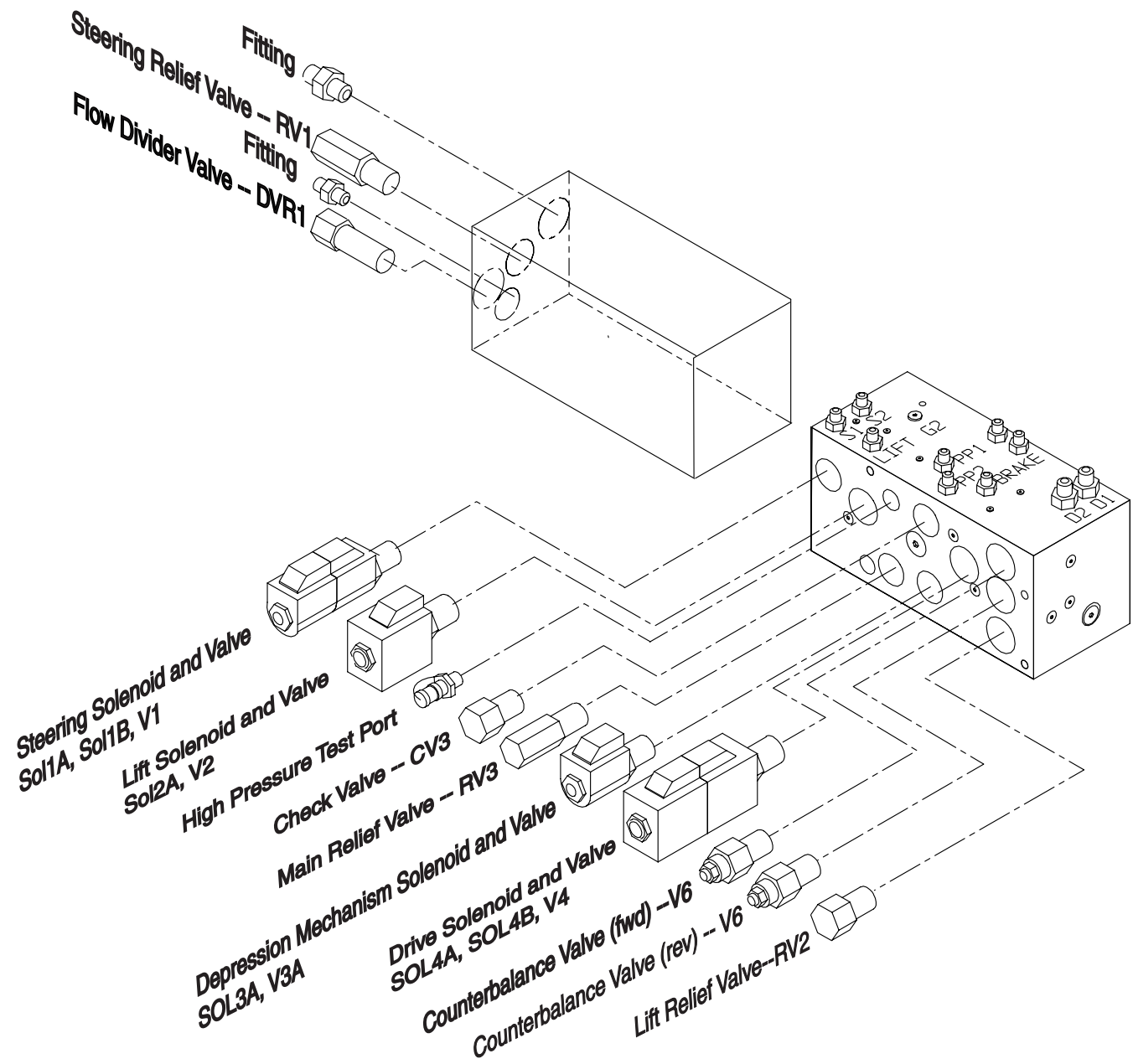


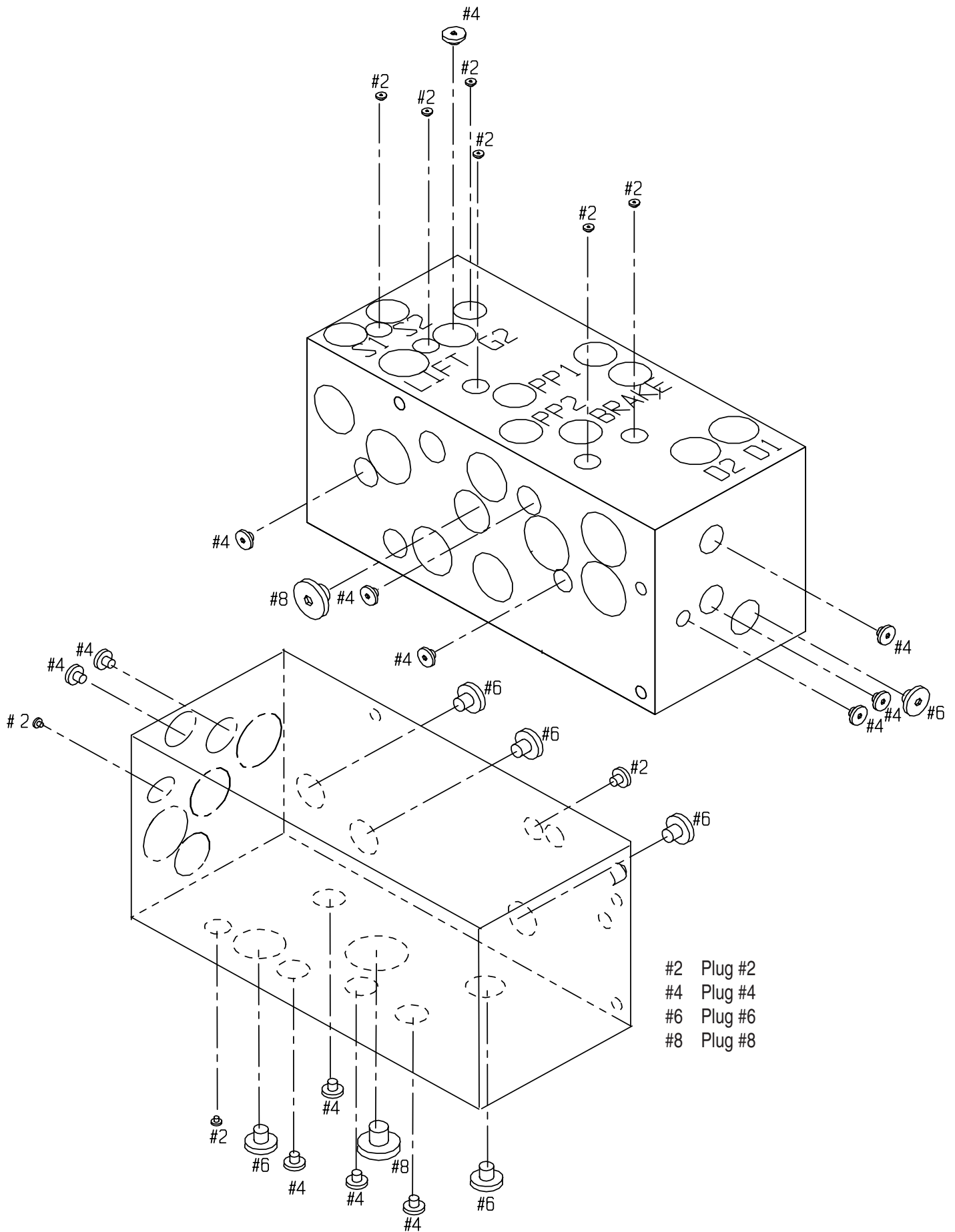
Schematics - 5.3 - Hydraulics

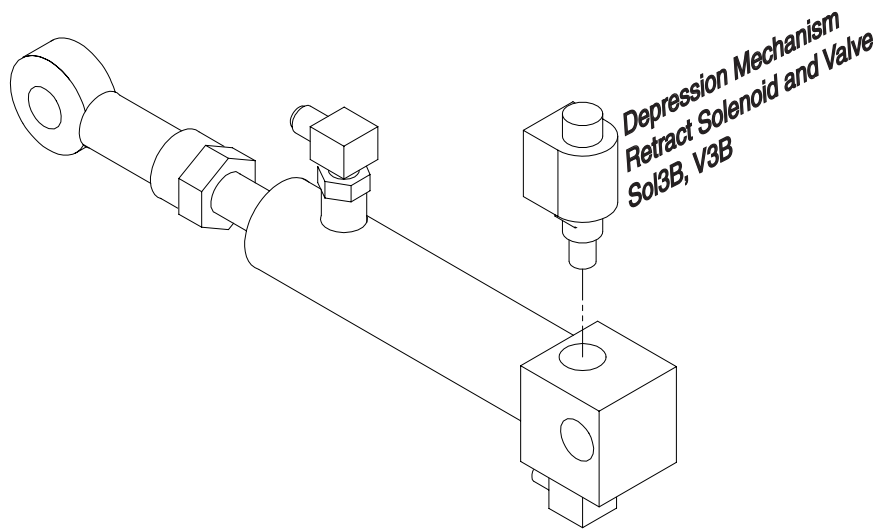
Legend: Hydraulic Schematic, X31N--066781-021

| Reference number | Name | Function | Location |
|------------------|--|--|-------------------------------------|
| CV2 | Check Valve (2) | Reduces descent rate of platform | Lift Cylinders |
| CV3 | Check Valve | Allows Depression Mechanism to retract in drive mode | Hydraulic Manifold |
| CYL1 | Steering Cylinder | Provides force to turn front wheels | Front of chassis above drive motors |
| CYL2 | Lift Cylinder (2) | Provides force to lift platform | Elevating Assembly |
| CYL3 | Depression Mechanism Cylinder (2) | Extends or retracts DM bar | Front of hydraulic tank |
| CYL5 | Brake Cylinder (2) | Stops machine from moving while parked | Rear End of Chassis |
| DVR1 | Priority Flow Divider | Provides priority oil flow to steering | Hydraulic Manifold |
| DVR2 | Flow Divider | Divides oil to drive motors in parallel drive mode | Series/Parallel Block |
| FL1 | Suction Strainer | Traps particles in hydraulic tank | Inside hydraulic tank at outlet |
| FL2 | Return Filter | Filters oil returning to tank | Back of hydraulic tank |
| MOT | Drive Motors (2) | Provides tractive effort to move platform | Front motor mounts |
| OR1 | Orifice | Controls the descent rate by restricting oil flow | Chassis |
| OR2 | Orifice (2) | Controls the descent rate by restricting oil flow | Lift Cylinders |
| PMP | Pump | Provides hydraulic pressure for all functions | Control Module |
| RV1 | Steering Relief Valve | Provides pressure protection to pump and steering components when steering | Hydraulic Manifold |
| RV2 | Lift Relief Valve | Controls platform capacity | Hydraulic Manifold |
| RV3 | Main Relief Valve | Provides pressure protection to hydraulic system. | Hydraulic Manifold |
| TNK | Tank | Holds hydraulic oil | Control Module |
| V1 | Steering Right/Left Valve | Provides directional control for steering | Hydraulic Manifold |
| V2A | Lift Valve | Provides oil control for drive or lift functions | Hydraulic Manifold |
| V2B | Down Valve (2) | Allows oil to return to tank; | Lift Cylinder |
| V3A | Depression Mechanism Extend Valve | Provides oil control for DM bar | Hydraulic Manifold |
| V3B | Depression Mechanism Retract Valve (2) | Provides oil control for DM bar | Depression Mechanism Cylinder |
| V4 | Forward/Reverse Valve | Provides oil control for drive or lift functions | Hydraulic Manifold |
| V5 | Series/Parallel Valve (2) | Controls drive speed | Series/Parallel Block |
| V6 | Counterbalance Valve (2) | Prevents machine from running away on slopes; cushions stops | Hydraulic Manifold |
| V7 | Emergency Down Valve | Lowers Platform manually when machine doesn't function | Chassis |
| VF | Velocity Fuse (2) | Prevents free fall of platform in the event of a pressure loss | Lift Cylinder |

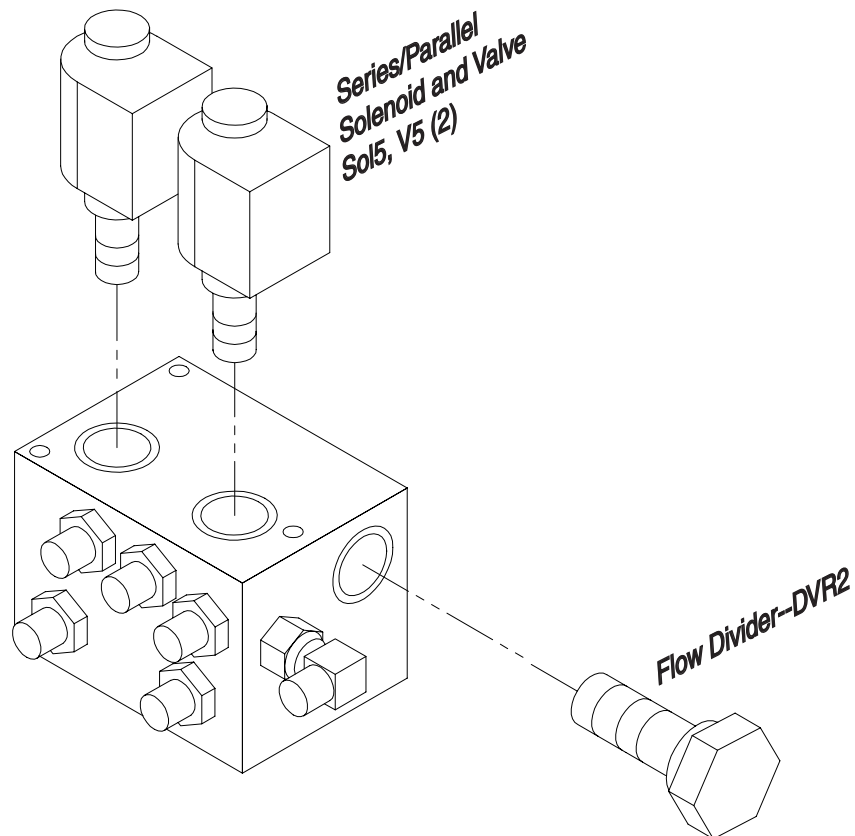








Depression Mechanism Cylinder



Series/Parallel Drive Block

ILLUSTRATED PARTS BREAKDOWN

6.1 INTRODUCTION

This section lists and illustrates the replaceable assemblies and parts of this product, as manufactured by UpRight, Inc.

Each parts list contains the component parts for that assembly.

CONTENTS

| | | | |
|------------------------------------|------|---|------|
| Final Assembly-X20N | | Guardrail Assembly-X31N | |
| 066000-020 | 6-4 | 066855-000 | 6-47 |
| Final Assembly-X20W | | Power Module | |
| 066050-020 | 6-8 | 066009-010 | 6-48 |
| Final Assembly-X26N | | Control Module | |
| 066100-020 | 6-12 | 066008-020 | 6-50 |
| Final Assembly-X31N | | Hydraulic Manifold | |
| 066850-020 | 6-16 | 101120-121 | 6-52 |
| Basic Assembly-X20N | | Hydraulic Reservoir Assembly | |
| 066001-001 | 6-20 | 066780-021 | 6-54 |
| Basic Assembly-X20W | | Depression Mechanism Cylinder Assembly | |
| 066051-001 | 6-21 | 066803-000 | 6-55 |
| Basic Assembly-X26N | | Series/Parallel Valve Assembly-X20W, X26N, X31N | |
| 066101-001 | 6-22 | 066808-000 | 6-56 |
| Basic Assembly-X31N | | Hose Kit-X20N | |
| 066851-000 | 6-23 | 066011-020 | 6-58 |
| Chassis Assembly-X20N | | Hose Kit-X20W,X26N | |
| 066002-010 | 6-24 | 066061-020 | 6-60 |
| Chassis Assembly-X20W,X26N | | Hose Kit-X31N | |
| 066052-001 | 6-28 | 066861-020 | 6-62 |
| Chassis Assembly-X31N | | Platform Controls-X20N | |
| 066852-000 | 6-32 | 066013-022 | 6-64 |
| Scissor Assembly-X20N | | Platform Controls-X20W, X26N, X31N | |
| 066003-000 | 6-36 | 066013-024 | 6-66 |
| Scissor Assembly-X20W | | Lower Control Box Assembly | |
| 066053-000 | 6-37 | 066014-020 | 6-68 |
| Scissor Assembly-X26N | | Roller Single Switch Wire Assembly | |
| 066103-000 | 6-38 | 066490-020 | 6-69 |
| Scissor Assembly-X31N | | Label Kit-X20N | |
| 066853-000 | 6-40 | 066010-015 | 6-70 |
| Deck Extension Assembly-X20N | | Label Kit-X20W | |
| 066006-010 | 6-42 | 066060-015 | 6-72 |
| Deck Extension Assembly-X20W, X26N | | Label Kit-X26N | |
| 066056-010 | 6-43 | 066110-015 | 6-74 |
| Deck Extension Assembly-X31 | | Label Kit-X31N | |
| 066856-000 | 6-44 | 066860-015 | 6-76 |
| Guardrail Assembly-X20N | | Power to Platform Option-X20, X26 | |
| 066005-015 | 6-45 | 066610-010 | 6-78 |
| Guardrail Assembly-X20W, X26N | | Motion Beacon Option | |
| 066055-015 | 6-46 | 066611-010 | 6-79 |
| | | 060571-005 | |

Illustrated Parts Breakdown - 6.1 - Introduction

| | | | |
|---|------|-------------------------------|------|
| Horn Option | | Generator Option | |
| 066614-020 | 6-80 | 066615-000 | 6-83 |
| Air to Platform Option | | Removable Controller Option | |
| 066629-001 | 6-81 | 061898-010 | 6-84 |
| Hour Meter/Low Voltage Indicator Option | | Flashing Amber Light X20, X26 | |
| 066613-020 | 6-82 | 066611-020 | 6-86 |

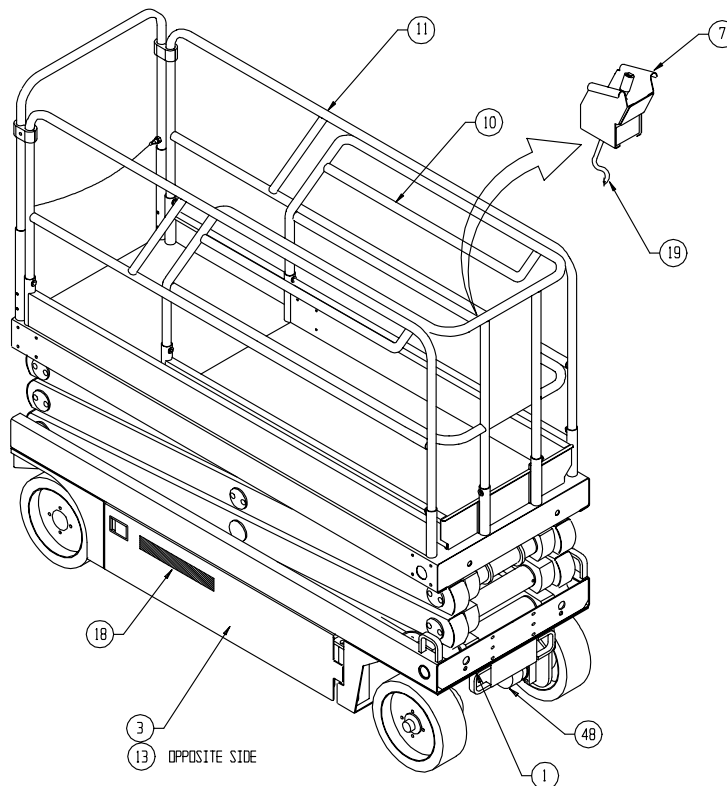
NOTES:

Final Assembly-X20N

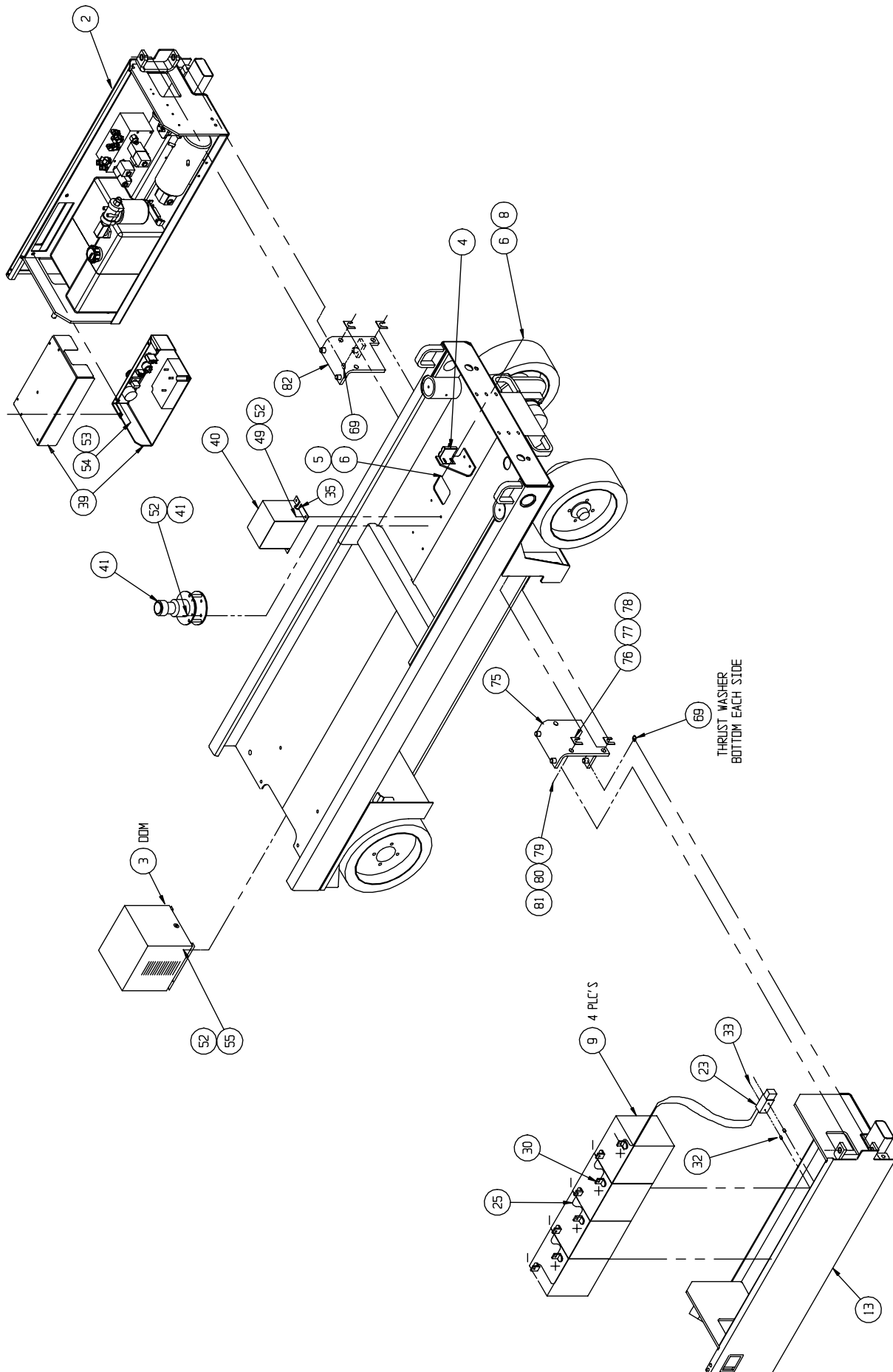
066000-020

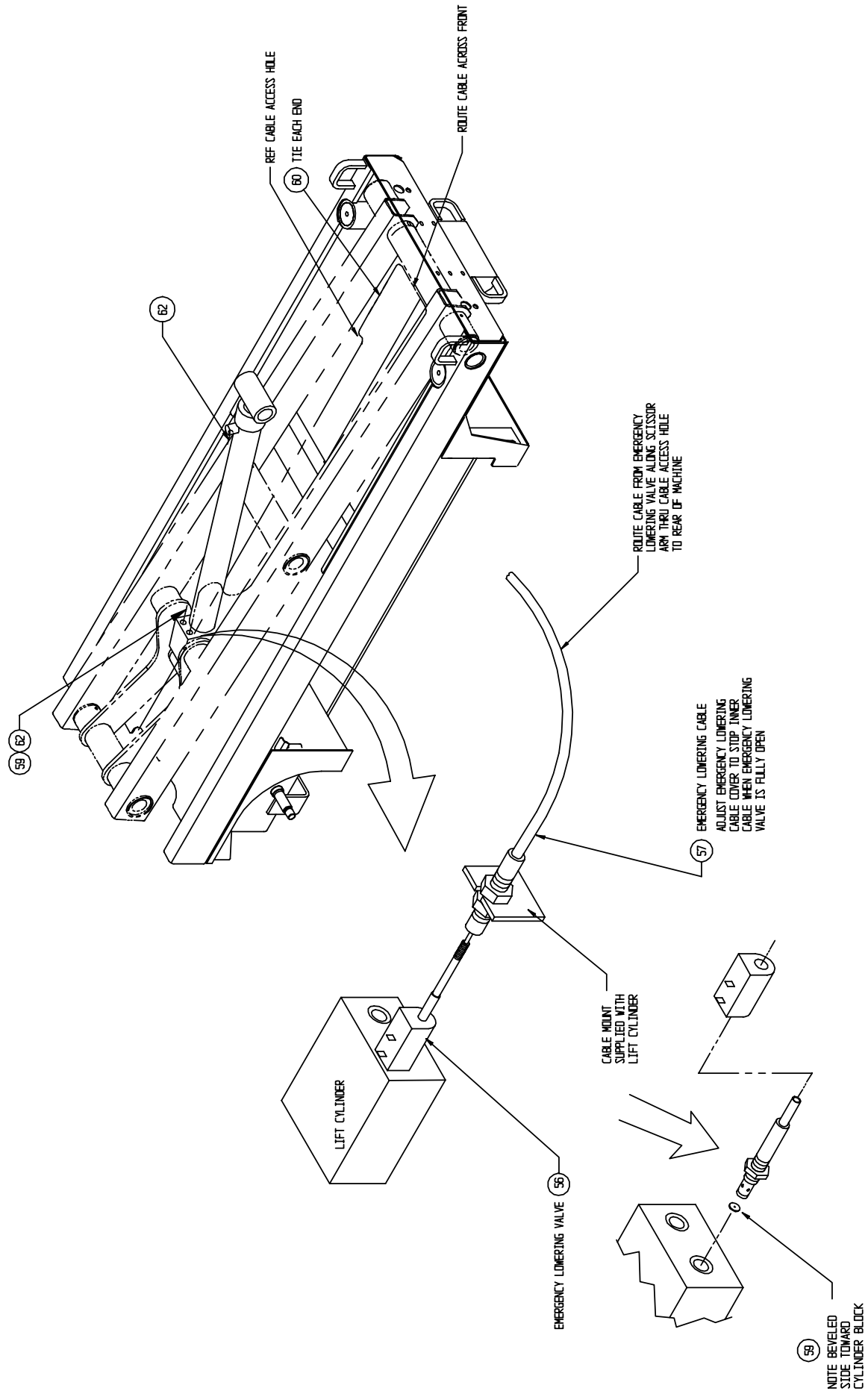
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|--------------|----------------------------|------|
| 1 | 066001-001 | BASIC ASSY | 1 |
| 2 | 066008-020 | CONTROL MODULE | 1 |
| 3 | 063944-011 | CHARGER | 1 |
| | 063944-011-R | CHARGER, RE-MANUFACTURED | 1 |
| 4 | 066490-020 | SWITCH ROLLER ASSY | 1 |
| 5 | 011248-003 | NUT HEX ESNA 10-24 | 2 |
| 6 | 011240-003 | WASHER #10 STD FLAT | 4 |
| 7 | 066013-022 | CONTROLLER ASSEMBLY | 1 |
| 8 | 013965-006 | SCREW HHC 10-24 X 3/4 | 2 |
| 9 | 015796-000 | BATTERY 6 V | 4 |
| * | 015796-001 | BATTERY 6 V - DRY | |
| 10 | 066006-010 | EXTENSION DECK | 1 |
| 11 | 066055-015 | PLATFORM/GUARDRAIL ASSY | 1 |
| 13 | 066009-010 | POWER MODULE | 1 |
| 14 | 066011-020 | HYDRAULIC HOSE KIT / INST. | 1 |
| 15 | 066781-020 | HYDRAULIC SCHEMATIC | REF |
| 16 | 065616-024 | ELECTRICAL SCHEMATIC | REF |
| 17 | 110030-000 | SPECIFICATION SHEET | REF |
| 18 | 066010-015 | LABEL KIT / INSTALLATION | 1 |
| 19 | 066012-020 | CONTROL CABLE ASSY | 1 |
| 20 | 065943-102 | WIRE HARNESS ASSY J3 | 1 |
| 22 | 066610-010 | POWER TO PLATFORM | 1 |
| 23 | 101182-007 | CABLE ASSY W/ CONNECTOR | 1 |
| 24 | 101182-008 | CABLE ASSY W/ CONNECTOR | 1 |
| 25 | 064195-001 | CABLE ASSY X 012 | 3 |
| 26 | 062125-005 | CABLE ASSY X 14 | 1 |
| 27 | 064195-040 | CABLE ASSY X 40 | 1 |
| 28 | 062125-011 | CABLE ASSY X 9 | 1 |
| 29 | 064195-005 | CABLE ASSY X 5 | 1 |
| 30 | 010154-001 | COVER BATTERY TERMINAL | 10 |
| 31 | 029601-039 | CONN RING 5/16 10-12 | 3 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-----------------------------------|------|
| 32 | 014252-004 | NUTSERT 1/4-20 UNC | 2 |
| 33 | 011252-010 | SCREW HHC 1/4-20 UNC X 1 1/4 | 2 |
| 34 | 063497-025 | PLUG BYPASS WIRE ASSY | 1 |
| 38 | 065942-102 | CABLE ASSY VALVE BLOCK | 1 |
| 39 | 066014-020 | LOWER CONTROL ASSY | 1 |
| 40 | 066768-000 | TILT ALARM COVER WELDMENT | 1 |
| 41 | 029945-020 | LEVEL SENSOR WIRE ASSY | 1 |
| 44 | 029601-021 | CONN RING 3/8 10-12 | 1 |
| 45 | 067340-101 | WIRE ASSY LOWER CONTROLS | 1 |
| 48 | 065369-099 | HOSE GUARD | 4 FT |
| 51 | 011240-004 | WASHER 1/4 STD FLAT | 6 |
| 52 | 011248-004 | NUT HEX ESNA 1/4-20UNC | 8 |
| 53 | 011254-008 | SCREW HHC 3/8-16 X 1 | 6 |
| 54 | 011240-006 | WASHER 3/8 STD FLAT | 6 |
| 55 | 011821-006 | SCREW BUTTON HD 3/4-20 X 3/4 | 2 |
| 56 | 066179-000 | VALVE DELTA | 1 |
| 57 | 065754-001 | CABLE | 1 |
| 59 | 063664-008 | ORIFICE HYDRAFORCE #7051070 | 1 |
| 62 | 011941-005 | FITTING STR 6MB-6MJ | 2 |
| 69 | 011154-020 | WASHER THRUST | 2 |
| 75 | 066713-002 | WELDMENT, DOOR HINGE | 1 |
| 76 | 066762-000 | SHIM 20GA | A/R |
| 77 | 066763-000 | SHIM 16GA | A/R |
| 78 | 066764-000 | SHIM 12GA | A/R |
| 79 | 011250-012 | NUT 3/4-10 HEX | 4 |
| 80 | 014099-020 | SCREW HHC GR5 PLTD 3/4-10 X 2 1/2 | 4 |
| 81 | 011240-012 | WASHER 3/4 FLAT | 4 |
| 82 | 066713-001 | WELDMENT, DOOR HINGE | 1 |
| 83 | 013283-002 | CABLE MOUNT | 8 |



Drawing # 1 of 4



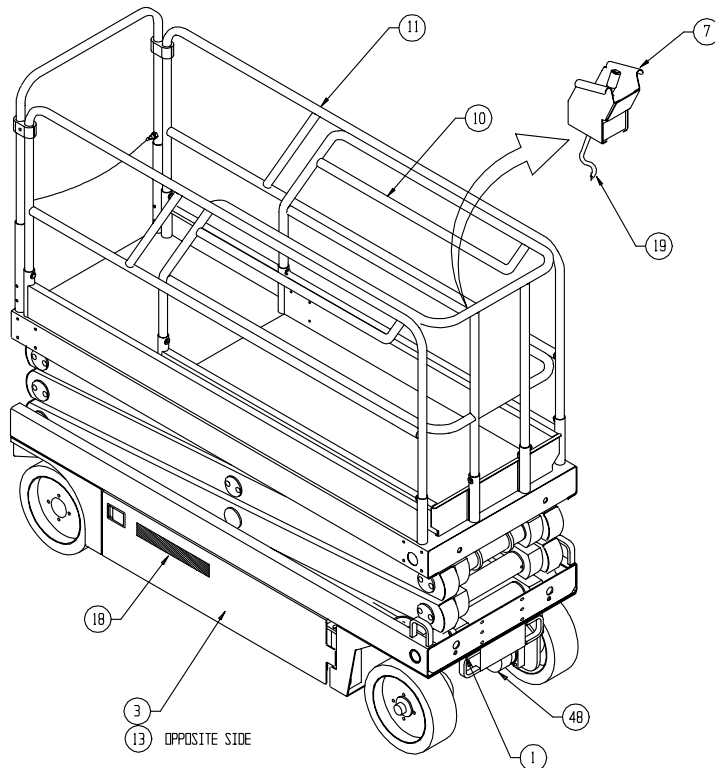


Final Assembly-X20W

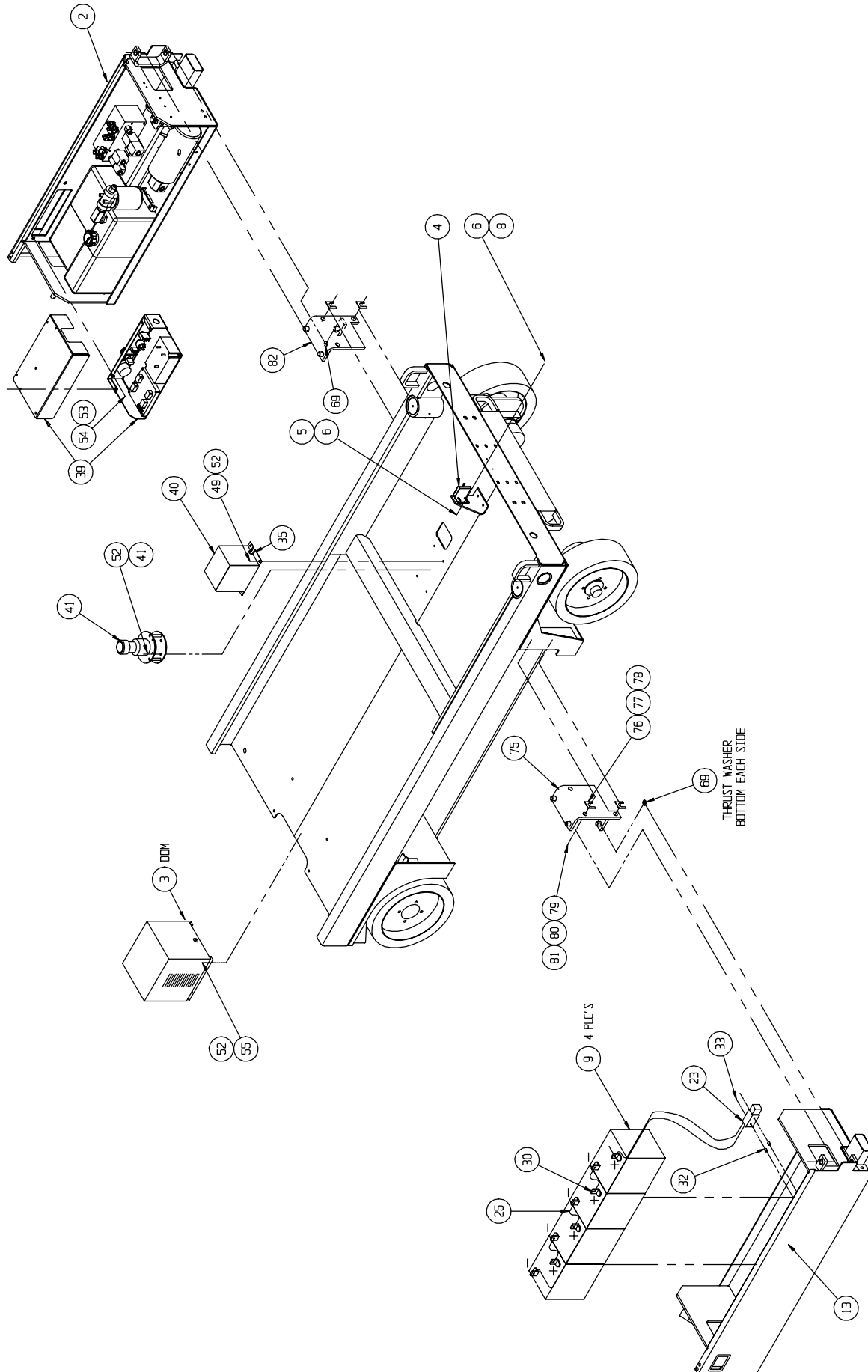
066050-020

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|--------------|----------------------------|------|
| 1 | 066051-001 | BASIC ASSY | 1 |
| 2 | 066008-020 | CONTROL MODULE | 1 |
| 3 | 063944-011 | CHARGER | 1 |
| | 063944-011-R | CHARGER, RE-MANUFACTURED | |
| 4 | 066490-020 | SWITCH ROLLER ASSY | 1 |
| 5 | 011248-003 | NUT HEX ESNA 10-24 | 2 |
| 6 | 011240-003 | WASHER #10 STD FLAT | 4 |
| 7 | 066013-024 | CONTROLLER ASSEMBLY | 1 |
| 8 | 013965-006 | SCREW HHC 10-24 X 3/4 | 2 |
| 9 | 015796-000 | BATTERY 6 V | 4 |
| * | 015796-001 | BATTERY 6 V - DRY | |
| 10 | 066056-010 | EXTENSION DECK | 1 |
| 11 | 066055-015 | PLATFORM/GUARDRAIL ASSY | 1 |
| 13 | 066009-010 | POWER MODULE | 1 |
| 14 | 066061-020 | HYDRAULIC HOSE KIT / INST. | 1 |
| 15 | 066781-020 | HYDRAULIC SCHEMATIC | REF |
| 16 | 066769-020 | ELECTRICAL SCHEMATIC | REF |
| 17 | 110030-000 | SPECIFICATION SHEET | REF |
| 18 | 066060-015 | LABEL KIT / INSTALLATION | 1 |
| 19 | 066012-021 | CONTROL CABLE ASSY | 1 |
| 20 | 065943-102 | WIRE HARNESS ASSY J3 | 1 |
| 22 | 066610-010 | POWER TO PLATFORM | 1 |
| 23 | 101182-007 | CABLE ASSY W/ CONNECTOR | 1 |
| 24 | 101182-008 | CABLE ASSY W/ CONNECTOR | 1 |
| 25 | 064195-001 | CABLE ASSY X 012 | 3 |
| 26 | 062125-005 | CABLE ASSY X 14 | 1 |
| 27 | 064195-040 | CABLE ASSY X 40 | 1 |
| 28 | 062125-011 | CABLE ASSY X 9 | 1 |
| 29 | 064195-005 | CABLE ASSY X 5 | 1 |
| 30 | 010154-001 | COVER BATTERY TERMINAL | 10 |
| 31 | 029601-039 | CONN RING 5/16 10-12 | 3 |

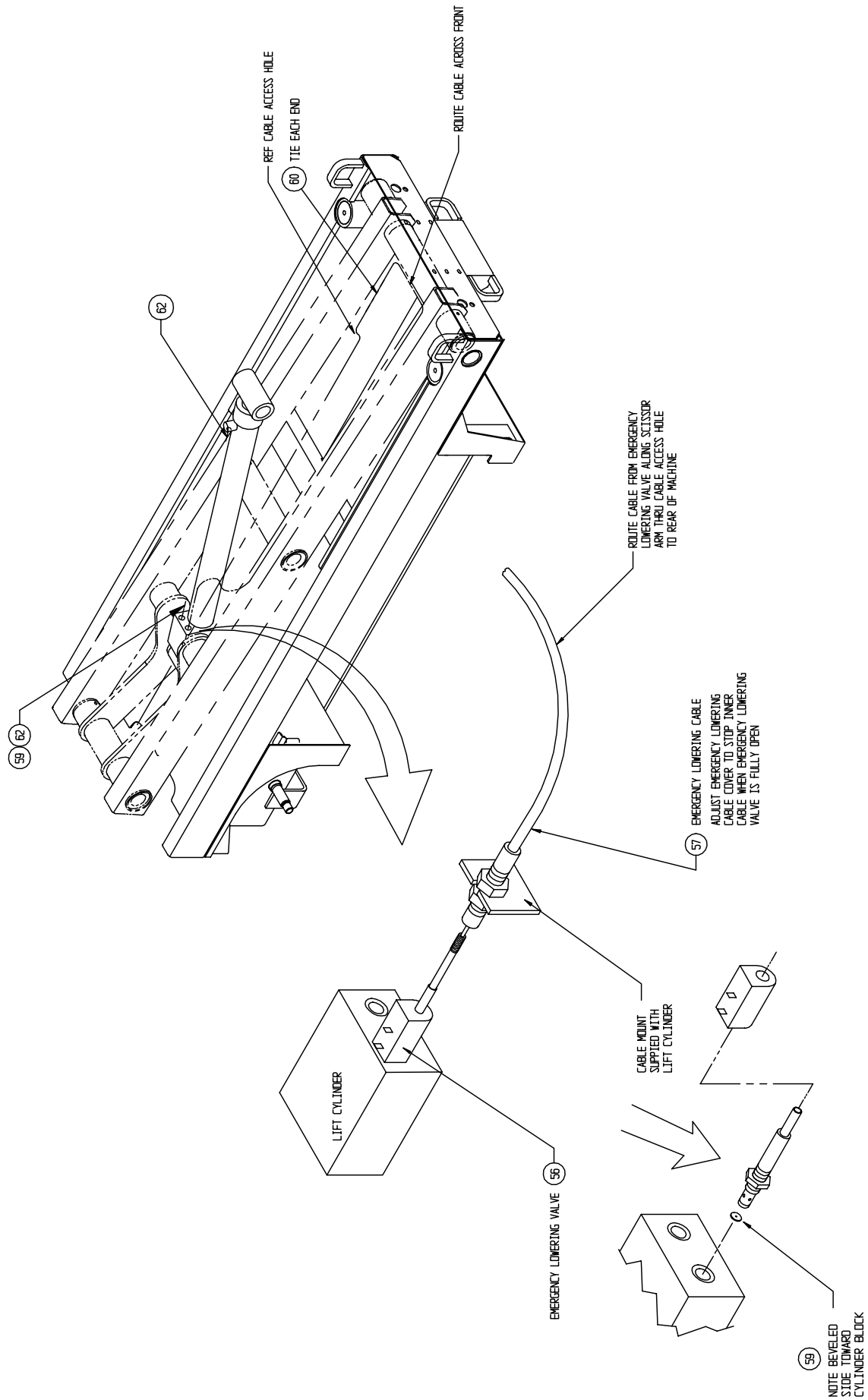
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-----------------------------------|------|
| 32 | 014252-004 | NUTSERT 1/4-20 | 2 |
| 33 | 011252-010 | SCREW HHC 1/4-20 X 1 1/4 | 2 |
| 34 | 063497-025 | PLUG BYPASS WIRE ASSY | 1 |
| 38 | 065942-102 | CABLE ASSY VALVE BLOCK | 1 |
| 39 | 066014-020 | LOWER CONTROL ASSY | 1 |
| 40 | 066768-000 | TILT ALARM COVER WELDMENT | 1 |
| 41 | 029945-020 | LEVEL SENSOR WIRE ASSY | 1 |
| 44 | 029601-021 | CONN RING 3/8 10-12 | 1 |
| 45 | 067340-101 | WIRE ASSY LOWER CONTROLS | 1 |
| 48 | 065369-099 | HOSE GUARD | 4 FT |
| 51 | 011240-004 | WASHER 1/4 STD FLAT | 6 |
| 52 | 011248-004 | NUT HEX ESNA 1/4-20UNC | 8 |
| 53 | 011254-008 | SCREW HHC 3/8-16 X 1 | 4 |
| 54 | 011240-006 | WASHER 3/8 STD FLAT | 4 |
| 55 | 011821-006 | SCREW BUTTON HD 3/4-20 X 3/4 | 2 |
| 56 | 066179-000 | VALVE DELTA | 1 |
| 57 | 065754-001 | CABLE | 1 |
| 59 | 063664-008 | ORIFICE HYDRAFORCE #7051070 | 1 |
| 62 | 011941-005 | FITTING STR 6MB-6MJ | 2 |
| 63 | 066047-000 | CABLE ASSY SER/PAR | 1 |
| 69 | 011154-020 | WASHER THRUST | 2 |
| 75 | 066713-002 | WELDMENT, DOOR HINGE | 1 |
| 76 | 066762-000 | SHIM 20GA | A/R |
| 77 | 066763-000 | SHIM 16GA | A/R |
| 78 | 066764-000 | SHIM 12GA | A/R |
| 79 | 011250-012 | NUT 3/4-10 HEX | 4 |
| 80 | 014099-020 | SCREW HHC GR5 PLTD 3/4-10 X 2 1/2 | 4 |
| 81 | 011240-012 | WASHER 3/4 FLAT | 4 |
| 82 | 066713-001 | WELDMENT, DOOR HINGE | 1 |
| 83 | 013283-002 | CABLE MOUNT | 8 |

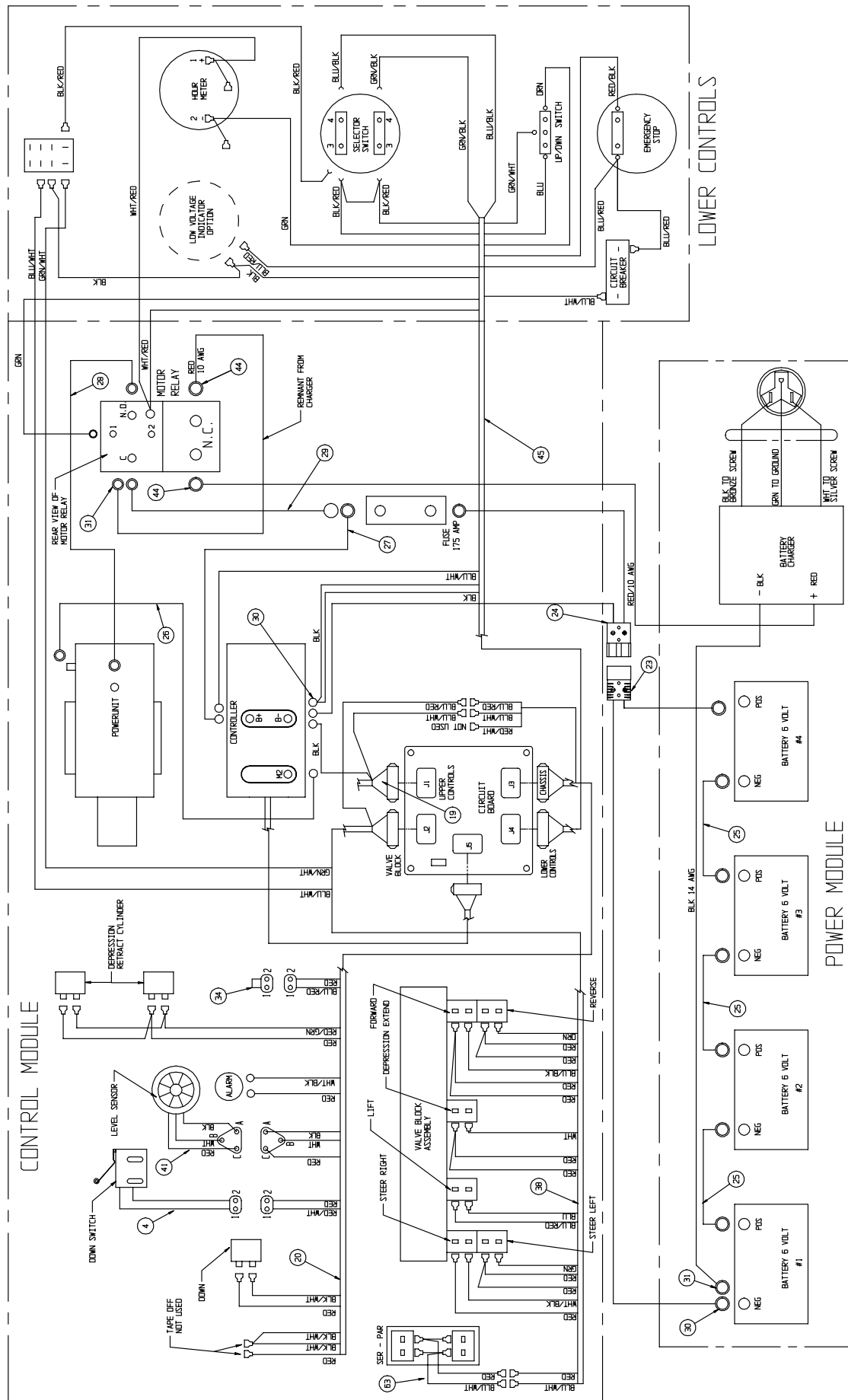


Drawing # 1 of 4



Drawing # 2 of 4





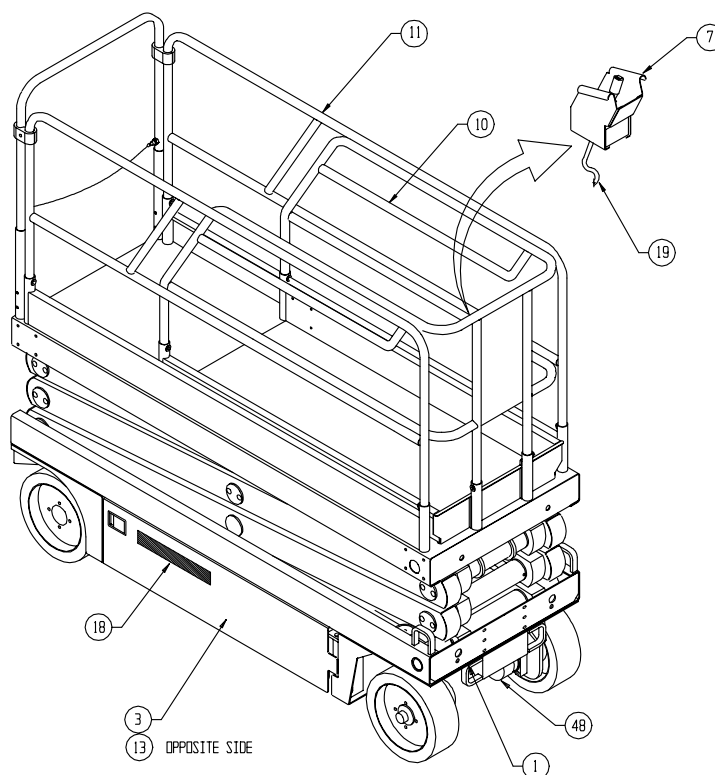
Drawing # 4 of 4

Final Assembly-X26N

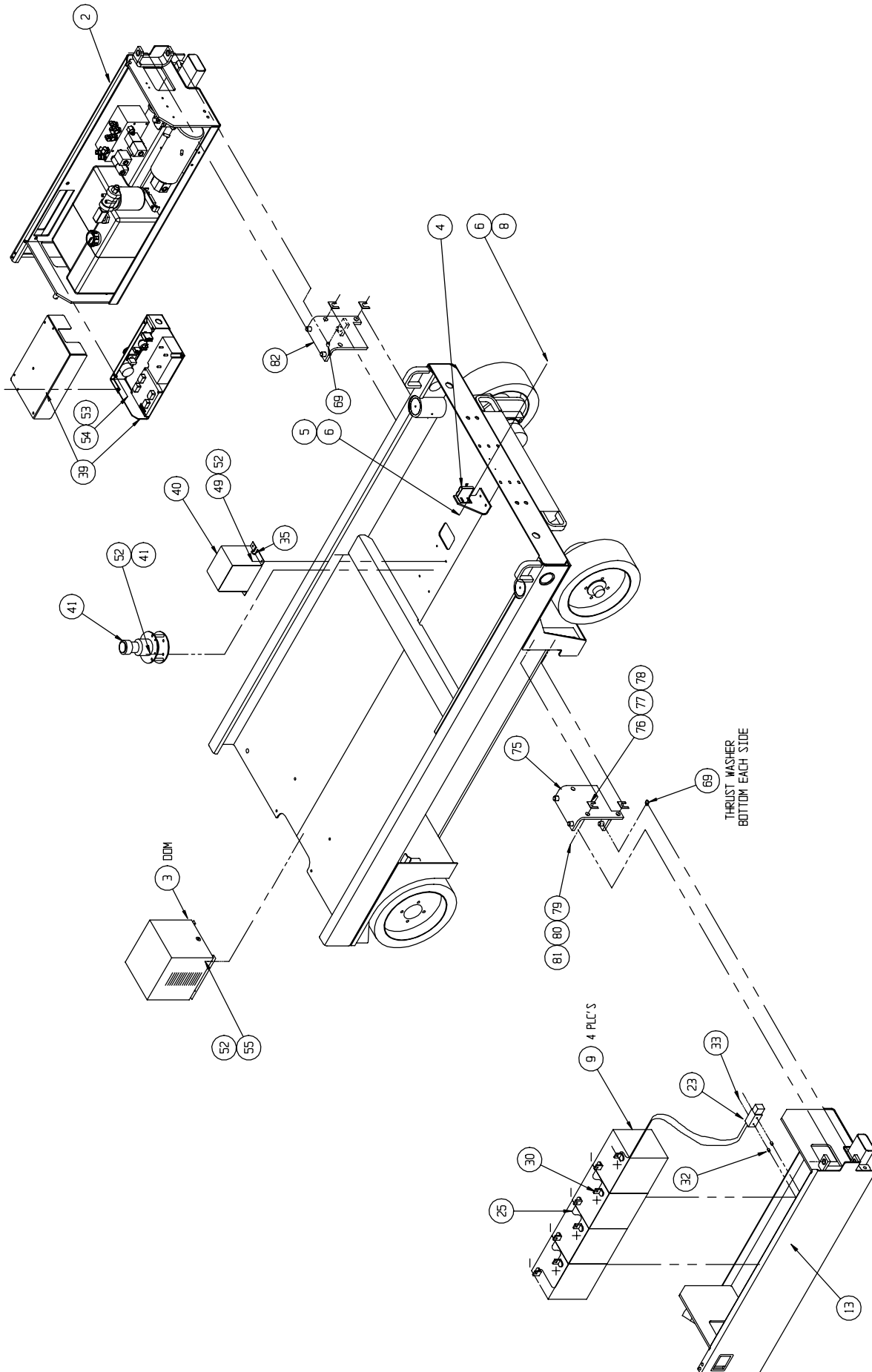
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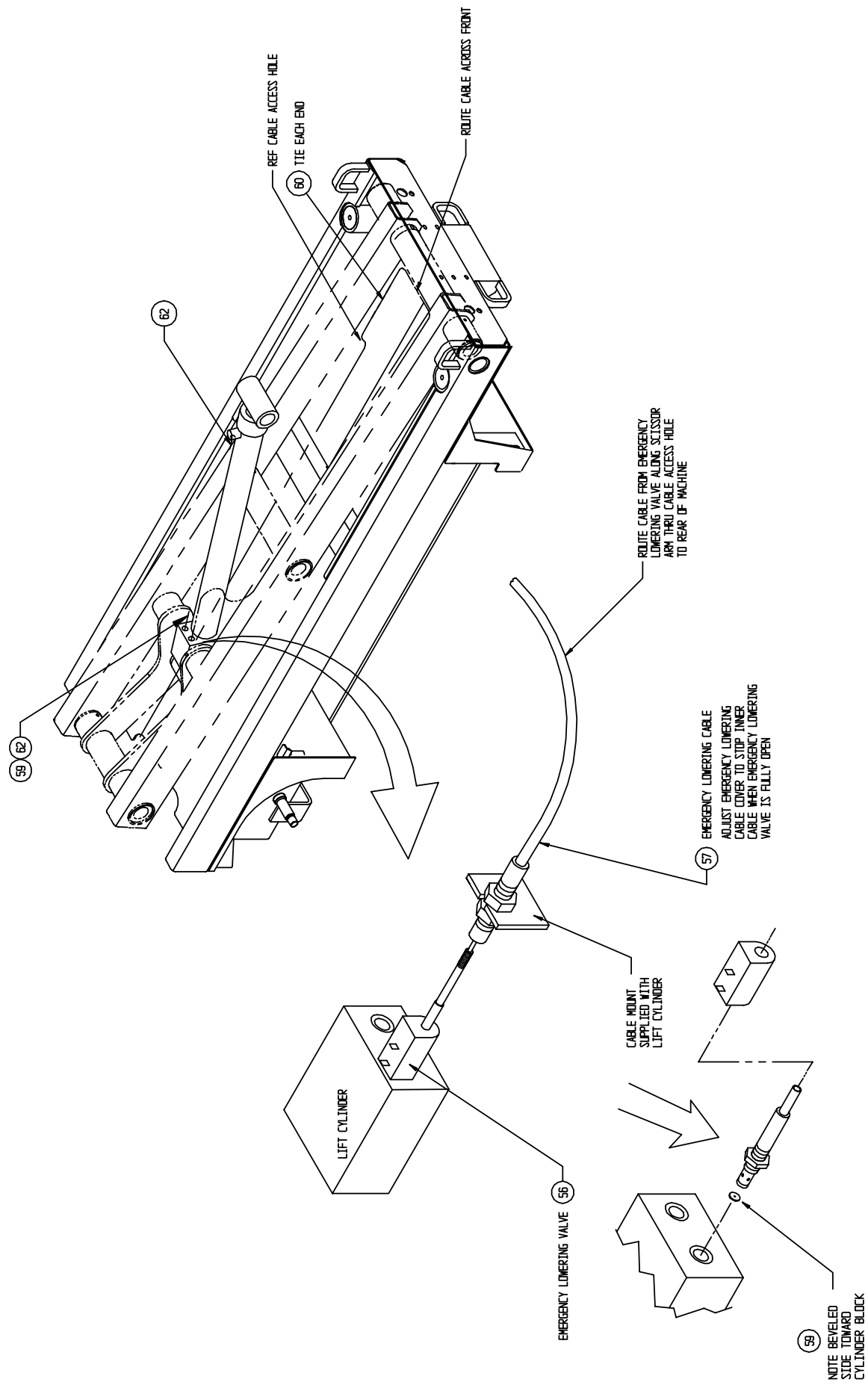
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|--------------|----------------------------|------|
| 1 | 066101-001 | BASIC ASSY | 1 |
| 2 | 066008-020 | CONTROL MODULE | 1 |
| 3 | 063944-011 | CHARGER | 1 |
| | 063944-011-R | CHARGER, RE-MANUFACTURED | |
| 4 | 066490-020 | SWITCH ROLLER ASSY | 1 |
| 5 | 011248-003 | NUT HEX ESNA 10-24 | 2 |
| 6 | 011240-003 | WASHER #10 STD FLAT | 4 |
| 7 | 066013-024 | CONTROLLER ASSEMBLY | 1 |
| 8 | 013965-006 | SCREW HHC 10-24 X 3/4 | 2 |
| 9 | 015796-000 | BATTERY 6 V | 4 |
| * | 015796-001 | BATTERY 6 V - DRY | |
| 10 | 066056-010 | EXTENSION DECK | 1 |
| 11 | 066055-015 | PLATFORM/GUARDRAIL ASSY | 1 |
| 13 | 066009-010 | POWER MODULE | 1 |
| 14 | 066061-020 | HYDRAULIC HOSE KIT / INST. | 1 |
| 15 | 066781-020 | HYDRAULIC SCHEMATIC | REF |
| 16 | 066769-020 | ELECTRICAL SCHEMATIC | REF |
| 17 | 110030-000 | SPECIFICATION SHEET | REF |
| 18 | 066110-015 | LABEL KIT / INSTALLATION | 1 |
| 19 | 066012-022 | CONTROL CABLE ASSY | 1 |
| 20 | 065943-102 | WIRE HARNESS ASSY J3 | 1 |
| 22 | 066610-010 | POWER TO PLATFORM | 1 |
| 23 | 101182-007 | CABLE ASSY W/ CONNECTOR | 1 |
| 24 | 101182-008 | CABLE ASSY W/ CONNECTOR | 1 |
| 25 | 064195-001 | CABLE ASSY X 012 | 3 |
| 26 | 062125-005 | CABLE ASSY X 14 | 1 |
| 27 | 064195-040 | CABLE ASSY X 40 | 1 |
| 28 | 062125-011 | CABLE ASSY X 9 | 1 |
| 29 | 064195-005 | CABLE ASSY X 5 | 1 |
| 30 | 010154-001 | COVER BATTERY TERMINAL | 10 |
| 31 | 029601-039 | CONN RING 5/16 10-12 | 3 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-----------------------------------|------|
| 32 | 014252-001 | NUTSERT 1/4-20 | 2 |
| 33 | 011252-010 | SCREW HHC 1/4-20 X 1 1/4 | 2 |
| 34 | 063497-025 | PLUG BYPASS WIRE ASSY | 1 |
| 38 | 065942-102 | CABLE ASSY VALVE BLOCK | 1 |
| 39 | 066014-020 | LOWER CONTROL ASSY | 1 |
| 40 | 066768-000 | TILT ALARM COVER WELDMENT | 1 |
| 41 | 029945-020 | LEVEL SENSOR WIRE ASSY | 1 |
| 44 | 029601-021 | CONN RING 3/8 10-12 | 1 |
| 48 | 065369-099 | HOSE GUARD | 4 FT |
| 51 | 011240-004 | WASHER 1/4 STD FLAT | 6 |
| 52 | 011248-004 | NUT HEX ESNA 1/4-20UNC | 8 |
| 53 | 011254-008 | SCREW HHC 3/8-16 X 1 | 4 |
| 54 | 011240-006 | WASHER 3/8 STD FLAT | 4 |
| 55 | 011821-006 | SCREW BUTTON HD 3/4-20 X 3/4 | 2 |
| 56 | 066179-000 | VALVE DELTA | 1 |
| 57 | 065754-001 | CABLE | 1 |
| 59 | 063664-008 | ORIFICE HYDRAFORCE #7051070 | 1 |
| 62 | 011941-005 | FITTING STR 6MB-6MJ | 2 |
| 63 | 066047-000 | CABLE ASSY SER/PAR | 1 |
| 69 | 011154-020 | WASHER THRUST | 2 |
| 75 | 066713-002 | WELDMENT, DOOR HINGE | 1 |
| 76 | 066762-000 | SHIM 20GA | A/R |
| 77 | 066763-000 | SHIM 16GA | A/R |
| 78 | 066764-000 | SHIM 12GA | A/R |
| 79 | 011250-012 | NUT 3/4-10 HEX | 4 |
| 80 | 014099-020 | SCREW HHC GR5 PLTD 3/4-10 X 2 1/2 | 4 |
| 81 | 011240-012 | WASHER 3/4 FLAT | 4 |
| 82 | 066713-001 | WELDMENT, DOOR HINGE | 1 |
| 83 | 013283-002 | CABLE MOUNT | 8 |



Drawing # 1 of 4



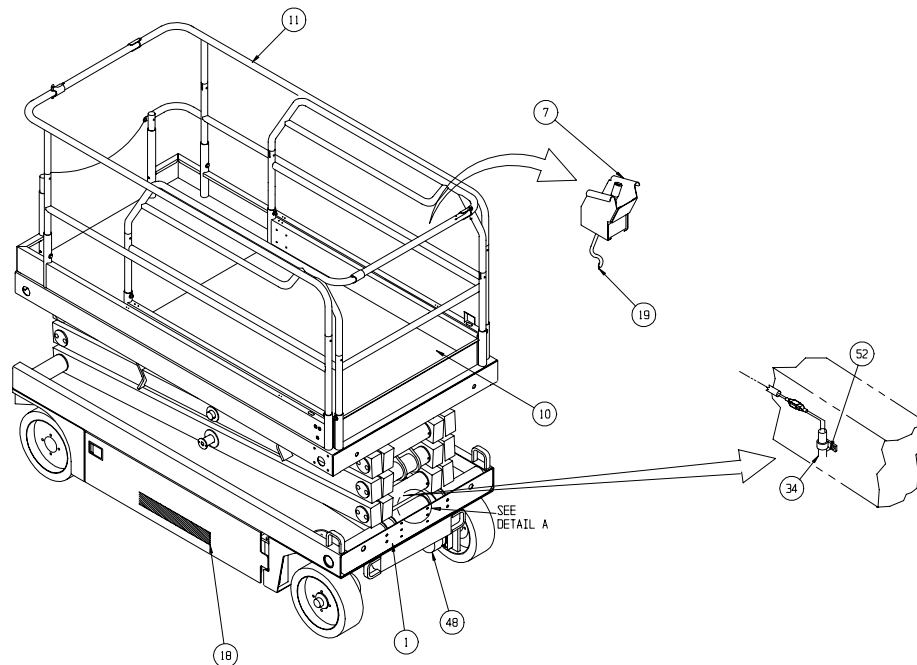


Final Assembly-X31N

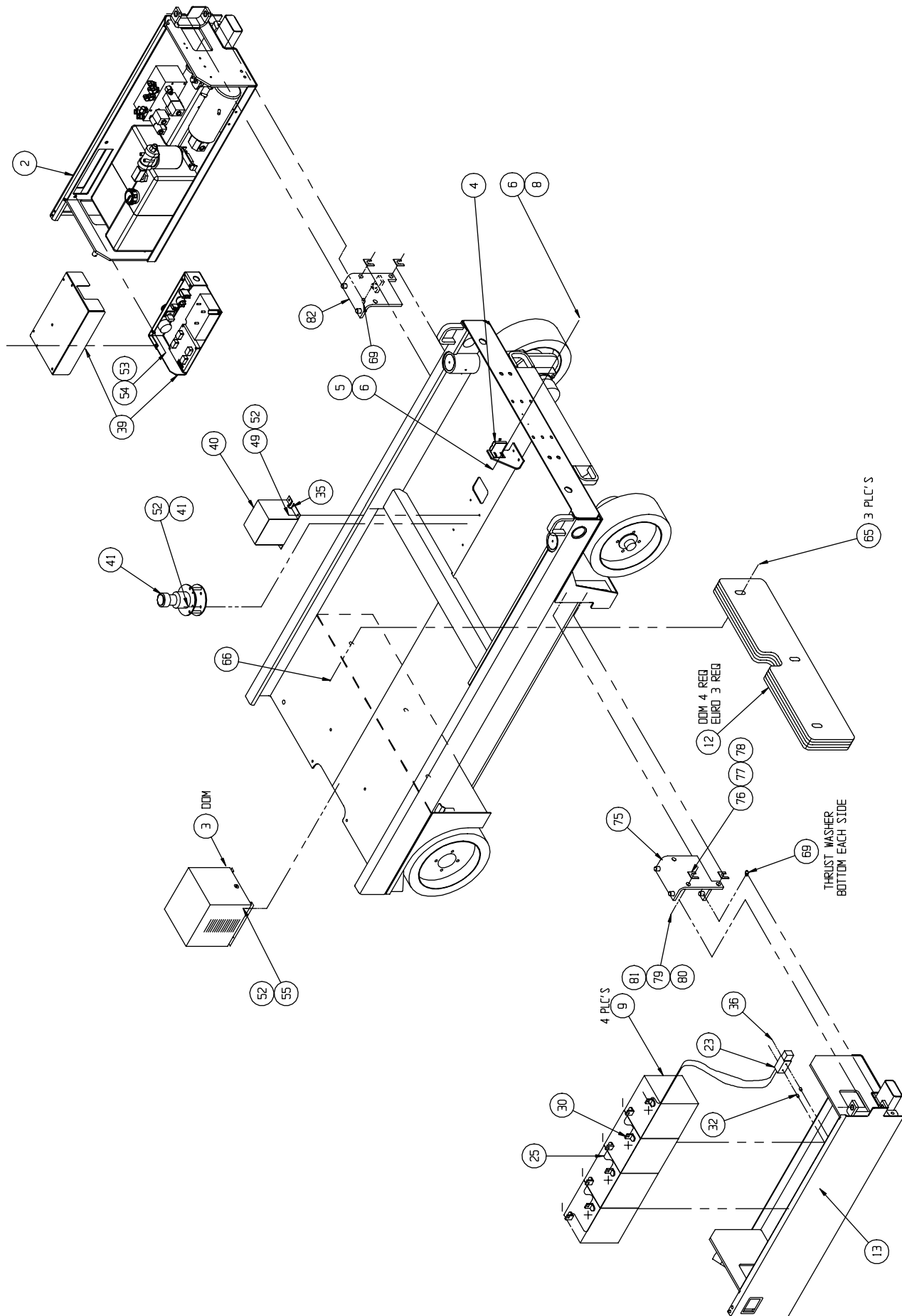
066850-020

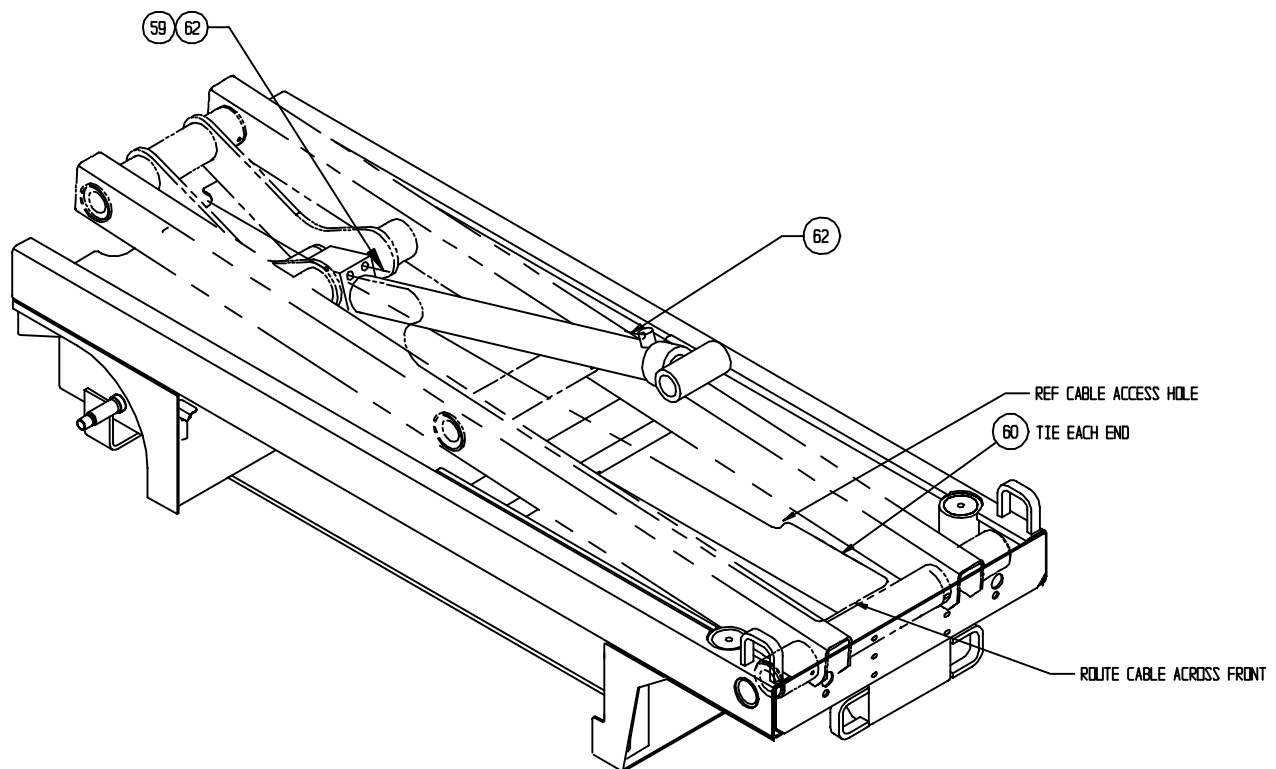
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|--------------|----------------------------|------|
| 1 | 066851-000 | BASIC ASSY | 1 |
| 2 | 066008-020 | CONTROL MODULE | 1 |
| 3 | 063944-011 | CHARGER | 1 |
| | 063944-011-R | CHARGER, RE-MANUFACTURED | 1 |
| 4 | 066490-020 | SWITCH ROLLER ASSY | 1 |
| 5 | 011248-003 | NUT HEX ESNA 10-24 | 2 |
| 6 | 011240-003 | WASHER #10 STD FLAT | 4 |
| 7 | 066013-024 | CONTROLLER ASSEMBLY | 1 |
| 8 | 013965-006 | SCREW HHC 10-24 X 3/4 | 2 |
| 9 | 015796-000 | BATTERY 6 V | 4 |
| * | 015796-001 | BATTERY 6 V - DRY | |
| 10 | 066856-000 | EXTENSION DECK | 1 |
| 11 | 066855-000 | PLATFORM/GUARDRAIL ASSY | 1 |
| 12 | 066818-000 | COUNTERWEIGHT | 4 |
| 13 | 066009-010 | POWER MODULE | 1 |
| 14 | 066861-020 | HYDRAULIC HOSE KIT / INST. | 1 |
| 15 | 066781-021 | HYDRAULIC SCHEMATIC | REF |
| 16 | 066769-020 | ELECTRICAL SCHEMATIC | REF |
| 17 | 110030-000 | SPECIFICATION SHEET | REF |
| 18 | 066860-015 | LABEL KIT / INSTALLATION | 1 |
| 19 | 066012-023 | CONTROL CABLE ASSY | 1 |
| 20 | 065943-102 | WIRE HARNESS ASSY J3 | 1 |
| 22 | 066610-010 | POWER TO PLATFORM | 1 |
| 23 | 101182-007 | CABLE ASSY W/ CONNECTOR | 1 |
| 24 | 101182-008 | CABLE ASSY W/ CONNECTOR | 1 |
| 25 | 064195-001 | CABLE ASSY X 012 | 3 |
| 26 | 062125-005 | CABLE ASSY X 14 | 1 |
| 27 | 064195-040 | CABLE ASSY X 40 | 1 |
| 28 | 062125-011 | CABLE ASSY X 9 | 1 |
| 29 | 064195-005 | CABLE ASSY X 5 | 1 |
| 30 | 010154-001 | COVER BATTERY TERMINAL | 10 |
| 31 | 029601-039 | CONN RING 5/16 10-12 | 3 |
| 32 | 014252-004 | NUTSERT 1/4-20 | 2 |
| 34 | 063497-020 | PLUG MERCURY WIRE ASSY | 1 |
| 36 | 011252-010 | SCREW HHC 1/4-20 X 1 1/4 | 2 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-----------------------------------|------|
| 38 | 065942-102 | CABLE ASSY VALVE BLOCK | 1 |
| 39 | 066014-020 | LOWER CONTROL ASSY | 1 |
| 40 | 066768-000 | TILT ALARM COVER WELDMENT | 1 |
| 41 | 029945-020 | LEVEL SENSOR WIRE ASSY | 1 |
| 44 | 029601-021 | CONN RING 3/8 10-12 | 1 |
| 45 | 067340-101 | WIRE ASSY LOWER CONTROLS | 1 |
| 48 | 065369-099 | HOSE GUARD | 4 FT |
| 49 | 011252-006 | SCREW HHC 1/4-20UNC X 3/4 | 2 |
| 50 | 011238-004 | WASHER 1/4 LOCK | 2 |
| 51 | 011240-004 | WASHER 1/4 STD FLAT | 6 |
| 52 | 011248-004 | NUT HEX ESNA 1/4-20UNC | 8 |
| 53 | 011254-008 | SCREW HHC 3/8-16 X 1 | 4 |
| 54 | 011240-006 | WASHER 3/8 STD FLAT | 4 |
| 55 | 011821-006 | SCREW BUTTON HD 1/4-20 X 3/4 | 2 |
| 56 | 066179-000 | VALVE DELTA | 1 |
| 57 | 065754-001 | CABLE - EMERG LOWER | 1 |
| 58 | 066368-000 | BRACKET | 1 |
| 59 | 063664-008 | ORIFICE HYDRAFORCE #7051070 | 1 |
| 62 | 011941-005 | FITTING STR 6MB-6MJ | 2 |
| 63 | 066047-000 | CABLE ASSY SER/PAR | 1 |
| 64 | 066047-001 | CABLE ASSY X31/X32 ONLY | 1 |
| 65 | 066819-028 | SCREW CARRIAGE 3/4-10 X 3/4 | 3 |
| 66 | 011248-012 | SCREW HEX ESNA 3/4-10 | 3 |
| 69 | 011154-020 | WASHER THRUST | 2 |
| 75 | 066713-002 | WELDMENT, DOOR HINGE | 1 |
| 75 | 066713-002 | WELDMENT, DOOR HINGE | 1 |
| 76 | 066762-000 | SHIM 20GA | A/R |
| 77 | 066763-000 | SHIM 16GA | A/R |
| 78 | 066764-000 | SHIM 12GA | A/R |
| 79 | 011250-012 | NUT 3/4-10 HEX | 4 |
| 80 | 014099-020 | SCREW HHC GR5 PLTD 3/4-10 X 2 1/2 | 4 |
| 81 | 011240-012 | WASHER 3/4 FLAT | 4 |
| 82 | 066713-001 | WELDMENT, DOOR HINGE | 1 |
| 83 | 013283-002 | CABLE MOUNT | 8 |



Drawing # 1 of 4





Basic Assembly-X20N

066001-001

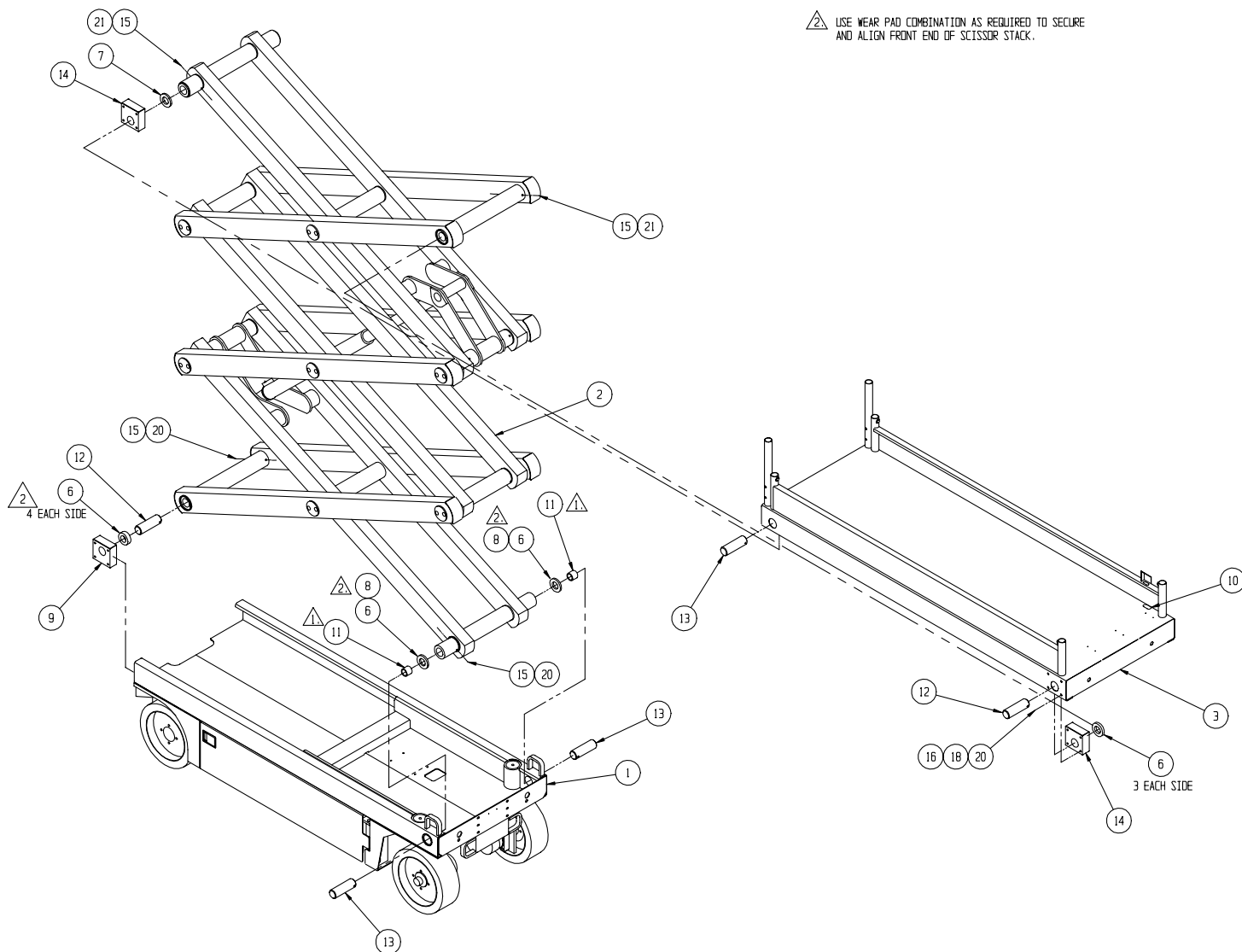
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|--------|
| 1 | 066002-010 | CHASSIS ASSEMBLY | 1 |
| 2 | 066003-000 | SCISSOR ASSEMBLY | 1 |
| 3 | 066250-010 | PLATFORM WELDMENT | 1 |
| 6 | 066189-000 | WEAR PAD 1/4 | 16 |
| 7 | 066189-001 | WEAR PAD 3/8 | 2 |
| 8 | 066189-004 | WEAR PAD 1/8 | 2 |
| 9 | 066191-001 | SLIDE BLOCK (BOTTOM) | 2 |
| 10 | 061796-099 | GROMMET | FT .63 |
| 11 | 066183-001 | BEARING EAGLE PICHER #323632 | 2 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------|------|
| 12 | 066222-001 | MOUNTING PIN | 4 |
| 13 | 066222-002 | MOUNTING PIN | 4 |
| 14 | 066191-000 | SLIDE BLOCK | 4 |
| 15 | 015936-023 | SCREW SHOULDER 3/8 X 3 1/2 LG | 8 |
| 16 | 011254-024 | SCREW HHC 3/8-16 X 3 LG | 8 |
| 18 | 011240-006 | WASHER 3/8 FLAT | 8 |
| 20 | 011248-006 | NUT 3/8-16 | 8 |
| 21 | 011248-005 | NUT 5/16-18 | 8 |

NOTES:

1. LOCTITE ITEM #11 (BEARING) TO ITEM #1 (CHASSIS) AND PEEN 4 PLACES @ 90° OUTSIDE EDGE OF BORE IN ITEM #1 (TYP 2 PLCS'S).

2. USE WEAR PAD COMBINATION AS REQUIRED TO SECURE AND ALIGN FRONT END OF SCISSOR STACK.

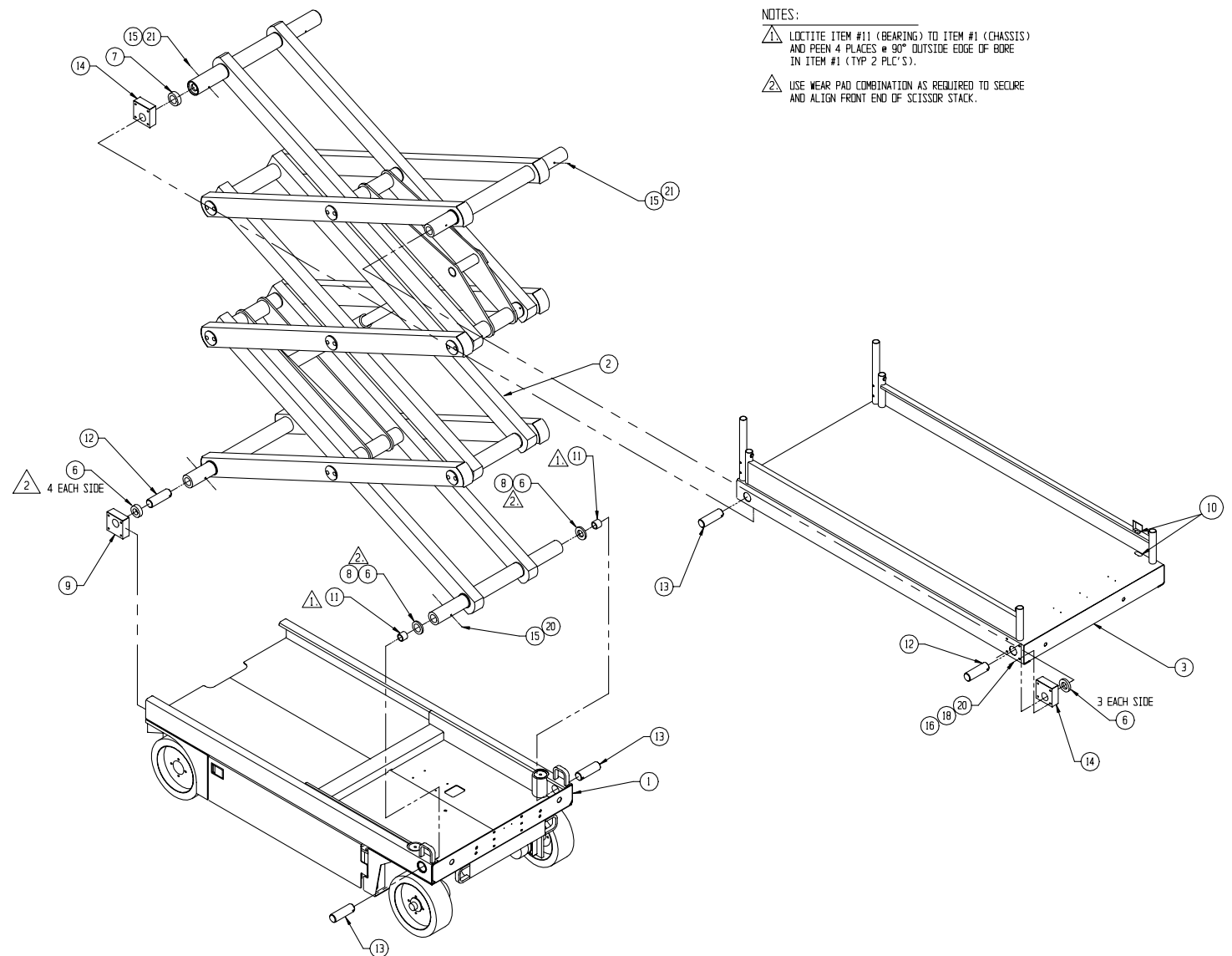


Basic Assembly-X20W

066051-001

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|--------|
| 1 | 066052-001 | CHASSIS ASSEMBLY | 1 |
| 2 | 066053-000 | SCISSOR ASSEMBLY | 1 |
| 3 | 066292-000 | PLATFORM WELDMENT | 1 |
| 6 | 066189-000 | WEAR PAD 1/4 | 16 |
| 7 | 066189-001 | WEAR PAD 3/8 | 2 |
| 8 | 066189-004 | WEAR PAD 1/8 | 2 |
| 9 | 066191-001 | SLIDE BLOCK (BOTTOM) | 2 |
| 10 | 061796-099 | GROMMET | FT .63 |
| 11 | 066183-001 | BEARING EAGLE PICHER #323632 | 2 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------|------|
| 12 | 066222-001 | MOUNTING PIN | 4 |
| 13 | 066222-002 | MOUNTING PIN | 4 |
| 14 | 066191-000 | SLIDE BLOCK | 4 |
| 15 | 015936-023 | SCREW SHOULDER 3/8 X 3 1/2 LG | 8 |
| 16 | 011254-032 | SCREW HHC 3/8-16 X 4 LG | 8 |
| 18 | 011240-006 | WASHER 3/8 FLAT | 8 |
| 20 | 011248-006 | NUT 3/8-16 | 8 |
| 21 | 011248-005 | NUT 5/16-18 | 8 |

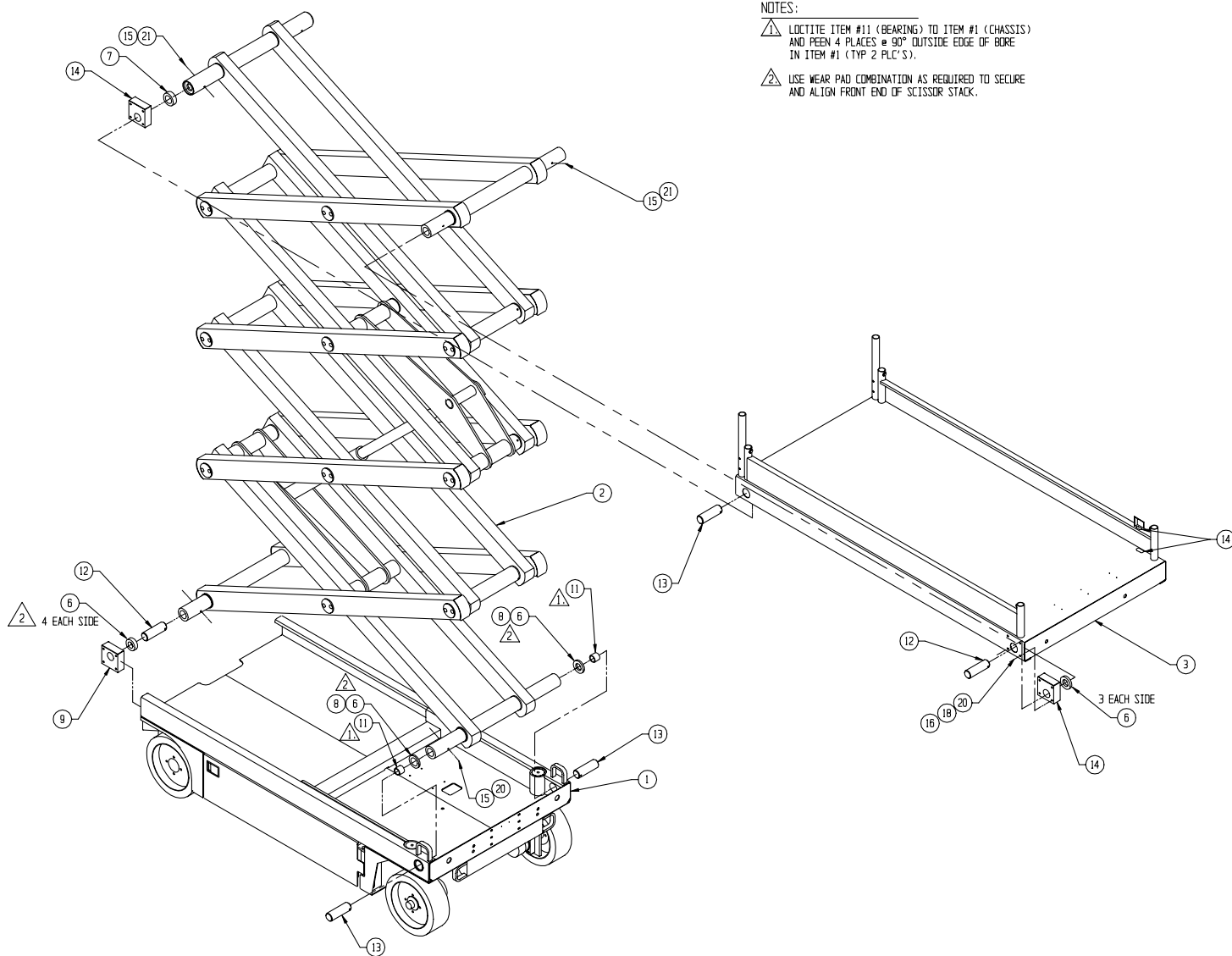


Basic Assembly-X26N

066101-001

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|--------|
| 1 | 066052-001 | CHASSIS ASSEMBLY | 1 |
| 2 | 066103-000 | SCISSOR ASSEMBLY | 1 |
| 3 | 066292-000 | PLATFORM WELDMENT | 1 |
| 6 | 066189-000 | WEAR PAD 1/4 | 16 |
| 7 | 066189-001 | WEAR PAD 3/8 | 2 |
| 8 | 066189-004 | WEAR PAD 1/8 | 2 |
| 9 | 066191-001 | SLIDE BLOCK (BOTTOM) | 2 |
| 10 | 061796-099 | GROMMET | FT .63 |
| 11 | 066183-001 | BEARING EAGLE Picher #323632 | 2 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------|------|
| 12 | 066222-001 | MOUNTING PIN | 4 |
| 13 | 066222-002 | MOUNTING PIN | 4 |
| 14 | 066191-000 | SLIDE BLOCK | 4 |
| 15 | 015936-023 | SCREW SHOULDER 3/8 X 3 1/2 LG | 8 |
| 16 | 011254-032 | SCREW HHC 3/8-16 X 4 LG | 8 |
| 18 | 011240-006 | WASHER 3/8 FLAT | 8 |
| 20 | 011248-006 | NUT 3/8-16 | 8 |
| 21 | 011248-005 | NUT 5/16-18 | 8 |

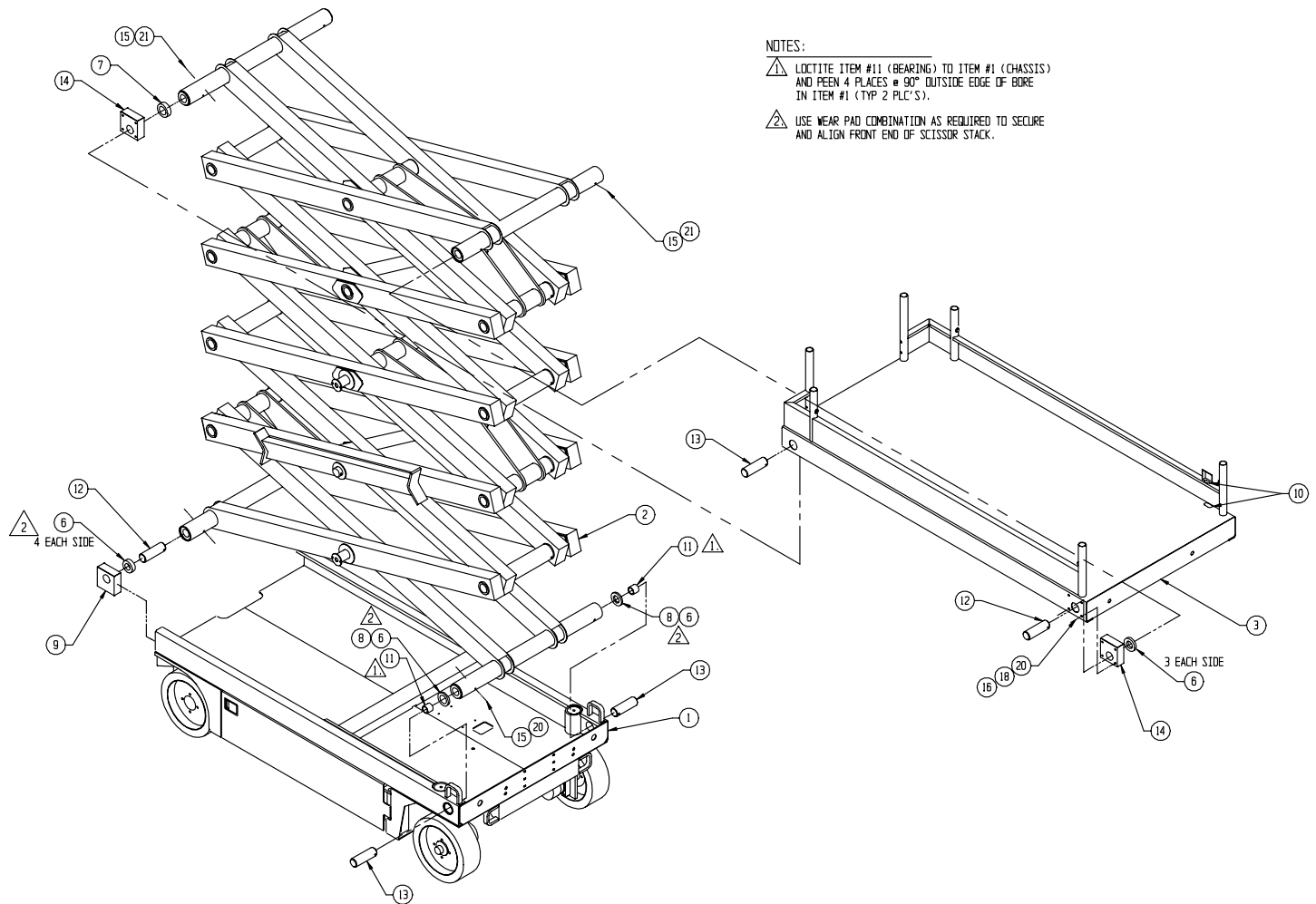


Basic Assembly-X31N

066851-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|--------|
| 1 | 066852-000 | CHASSIS ASSEMBLY | 1 |
| 2 | 066853-000 | SCISSOR ASSEMBLY | 1 |
| 3 | 066292-001 | PLATFORM WELDMENT | 1 |
| 6 | 066189-000 | WEAR PAD 1/4 | 16 |
| 7 | 066189-001 | WEAR PAD 3/8 | 2 |
| 8 | 066189-004 | WEAR PAD 1/8 | 2 |
| 9 | 066191-001 | SLIDE BLOCK (BOTTOM) | 2 |
| 10 | 061796-099 | GROMMET | FT .63 |
| 11 | 066183-001 | BEARING EAGLE Picher #323632 | 2 |
| 12 | 066222-001 | MOUNTING PIN | 4 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------|------|
| 13 | 066222-002 | MOUNTING PIN | 4 |
| 14 | 066191-000 | SLIDE BLOCK | 4 |
| 15 | 015936-023 | SCREW SHOULDER 3/8 X 3 1/2 | 8 |
| 16 | 011254-032 | SCREW HHC 3/8-16 X 4 LG | 8 |
| 18 | 011240-006 | WASHER 3/8 FLAT | 8 |
| 19 | 065369-099 | HOSE GUARD, NYLON | 1 |
| 20 | 011248-006 | NUT 3/8-16 | 8 |
| 21 | 011248-005 | NUT 5/16-18 | 8 |

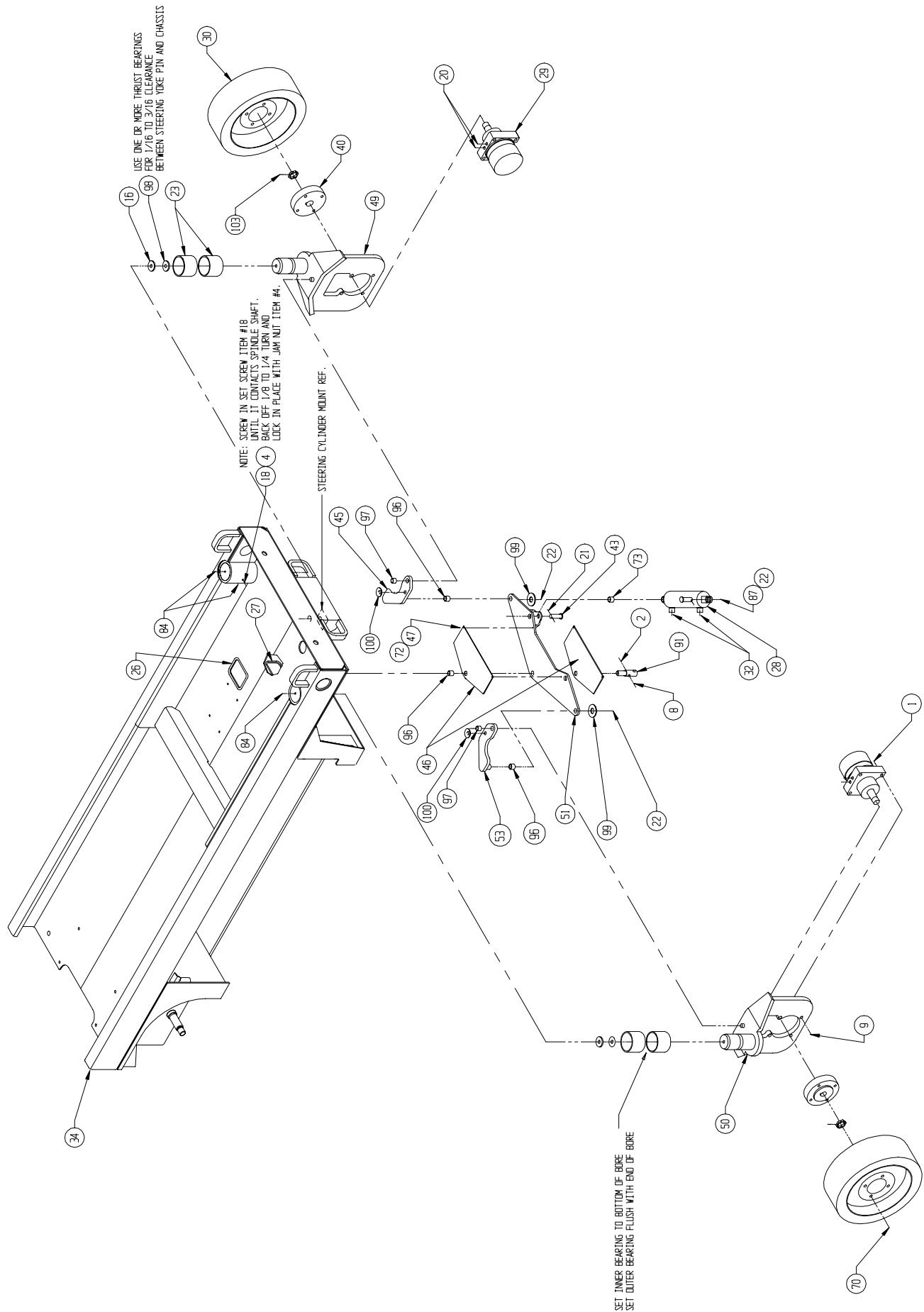


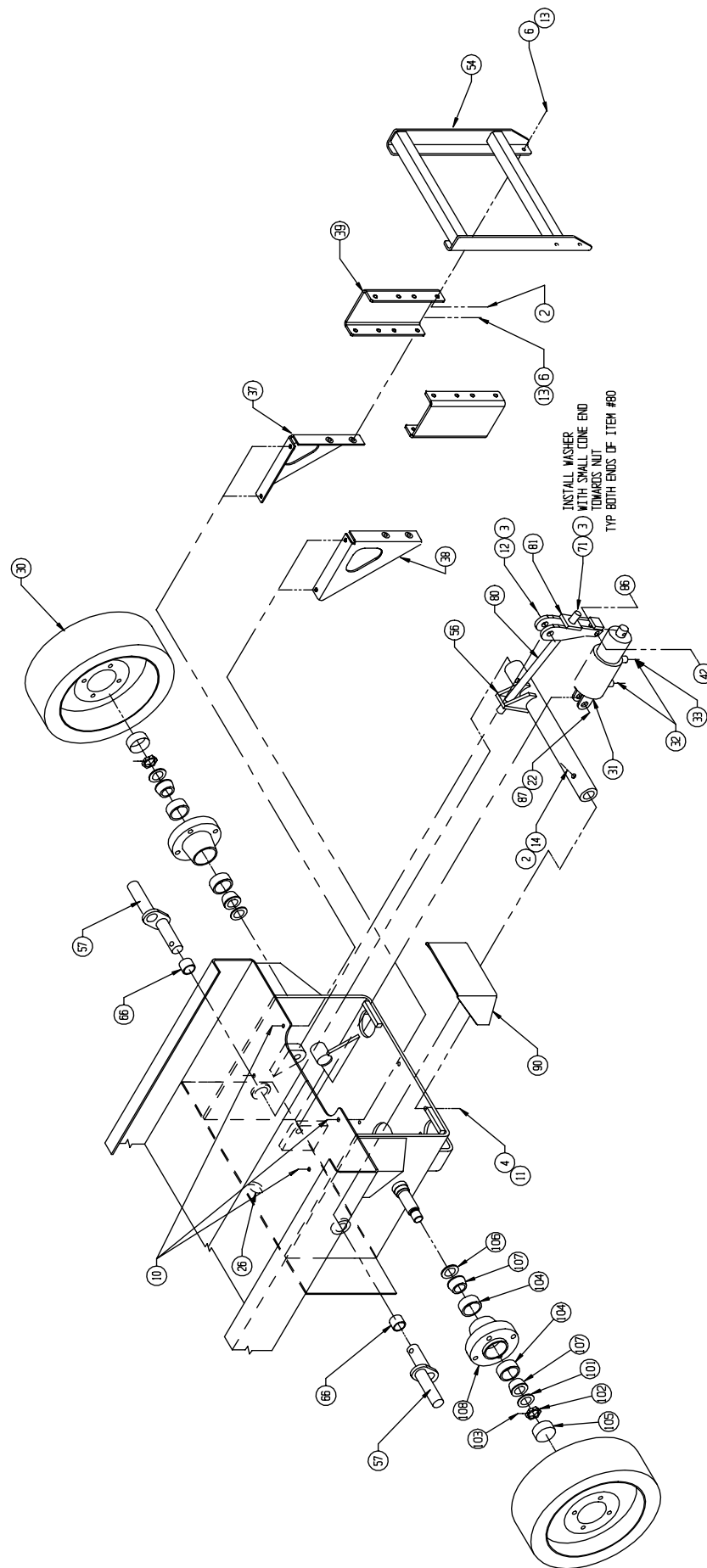
Chassis Assembly-X20N

066002-010

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------------|---------|
| 1 | 011248-008 | NUT HEX 1/2-13 UNC | 8 |
| 2 | 011248-006 | NUT HEX 3/8-16 UNC | 9 |
| 3 | 011248-012 | NUT HEX 3/4-10 UNC | 3 |
| 4 | 011273-006 | NUT JAM 3/8-16 | 2 |
| 6 | 011254-008 | SCREW HHC GR5 3/8-16 UNC X 1 | 8 |
| 8 | 011254-016 | SCREW HHC GR5 3/8-16 UNC X 2 | 1 |
| 9 | 011256-024 | SCREW HHC GR5 1/2-13 UNC X 3 | 8 |
| 10 | 011254-012 | SCREW HHC GR5 3/8-16 UNC X 1 1/2 | 4 |
| 11 | 011254-010 | SCREW HHC GR5 3/8-16 UNC X 1 1/4 | 2 |
| 12 | 011258-024 | SCREW HHC GR5 3/4-10 UNC X 3 | 1 |
| 13 | 011240-006 | WASHER 3/8 FLAT | 8 |
| 14 | 011287-022 | SCREW SOCKET HD 3/8-16 X 2 3/4 | 2 |
| 16 | 011782-008 | BEARING #TT 2301-3 (STEER) | 2 |
| 18 | 011705-016 | SCREW SET 3/8-16 X 1 | 2 |
| 20 | 011934-024 | FITTING | 4 |
| 21 | 011757-007 | PIN COTTER 5/8 | 1 |
| 22 | 011757-010 | PIN COTTER 3/4 | 4 |
| 23 | 027931-074 | BEARING #AA-2803-1 (STEERING) | 4 |
| 26 | 061796-099 | GROMMET | FT 1.25 |
| 27 | 061692-099 | GROMMET | FT 1.38 |
| 28 | 066602-000 | STEERING CYLINDER | 1 |
| * | 066602-010 | SEAL KIT, STEERING CYLINDER | - |
| 29 | 061817-001 | MOTOR HYD | 2 |
| * | 061817-010 | SEAL KIT, MOTOR | - |
| 30 | 061846-001 | WHEEL & TIRE | 4 |
| 31 | 066604-000 | BRAKE CYLINDER | 1 |
| * | 066604-010 | SEAL KIT, BRAKE CYLINDER | - |
| 32 | 011934-004 | FITTING 90 O RING BOSS 6MB 6MJ | 4 |
| 33 | 063664-007 | ORIFICE | 1 |
| 34 | 066717-000 | WELDMENT - CHASSIS | 1 |
| 37 | 066774-020 | WELDMENT - LADDER BRACKET R.H. | 1 |
| 38 | 066774-021 | WELDMENT - LADDER BRACKET L.H. | 1 |
| 39 | 066731-025 | LADDER BRACKET STANDOFF | 2 |
| 40 | 066325-000 | HUB - FRONT | 2 |
| 42 | 063559-006 | BOLT SHOULDER 3/8 X 2 | 1 |
| 43 | 011848-009 | CLEVIS PIN 5/8 X 2 | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|------|
| 45 | 066159-001 | STEERING LINK WELDMENT L.H. | 1 |
| 46 | 066190-000 | BEARING - STRIP | 2 |
| 47 | 026553-012 | RIVET 3/16 DIA X 1 1/8 GRIP | 2 |
| 49 | 066311-001 | WELDMENT - STEERING ANGLE LH | 1 |
| 50 | 066312-001 | WELDMENT - STEERING ANGLE RH | 1 |
| 51 | 066313-001 | WELDMENT - BELL CRANK | 1 |
| 53 | 066158-001 | STEERING LINK WELDMENT R.H. | 1 |
| 54 | 066307-001 | WELDMENT - LADDER | 1 |
| 56 | 066304-001 | WELDMENT - BRAKE TUBE | 1 |
| 57 | 066305-001 | WELDMENT - BRAKE | 2 |
| 66 | 027931-071 | BEARING #AA-1512-7 (BRAKE) | 2 |
| 70 | 014122-003 | WHEEL BOLT 1/2-20 X 1 | 16 |
| 71 | 066792-001 | WASHER 3/4 BELLVILLE | 2 |
| 72 | 02186-000 | WASHER 3/16 FLAT | 2 |
| 73 | 062642-001 | BEARING GARLOCK 10DU12 | 1 |
| 80 | 016759-015 | ROD, BRAKE RELEASE | 1 |
| 81 | 066728-000 | WELDMENT, BRAKE ADJUSTMENT | 1 |
| 84 | 013336-011 | FITTING GREASE | 4 |
| 86 | 011246-005 | NUT HEX ESNA 5/16-18 | 1 |
| 87 | 011848-041 | CLEVIS PIN 3/4 X 2 | 2 |
| 90 | 066796-000 | WELDMENT, CHARGER GUARD | 1 |
| 91 | 066737-000 | PIN, BELL CRANK | 1 |
| 96 | 062642-008 | BUSHING GARLOCK 12DU08 | 3 |
| 97 | 062642-006 | BUSHING 12 DU 06 | 2 |
| 98 | 011782-009 | BUSHING TT 2301-4 | 2 |
| 99 | 014996-012 | WASHER SAE 3/4 DIA | 2 |
| 100 | 066702-000 | SLIDE PAD, STEERING LINK | 2 |
| 101 | 011239-016 | WASHER 1 DIA FLAT ASTM | 2 |
| 102 | 011274-016 | NUT 1-14UNF SLOTTED HEX | 4 |
| 103 | 011753-012 | PIN COTTER 1/8 X 1 1/2 | 4 |
| 104 | 011776-004 | CUP BEARING | 4 |
| 105 | 05078-000 | CAP DUST | 2 |
| 106 | 05104-000 | SEAL GREASE | 2 |
| 107 | 011775-011 | CONE BEARING | 4 |
| 108 | 066773-000 | HUB ASSY | 2 |





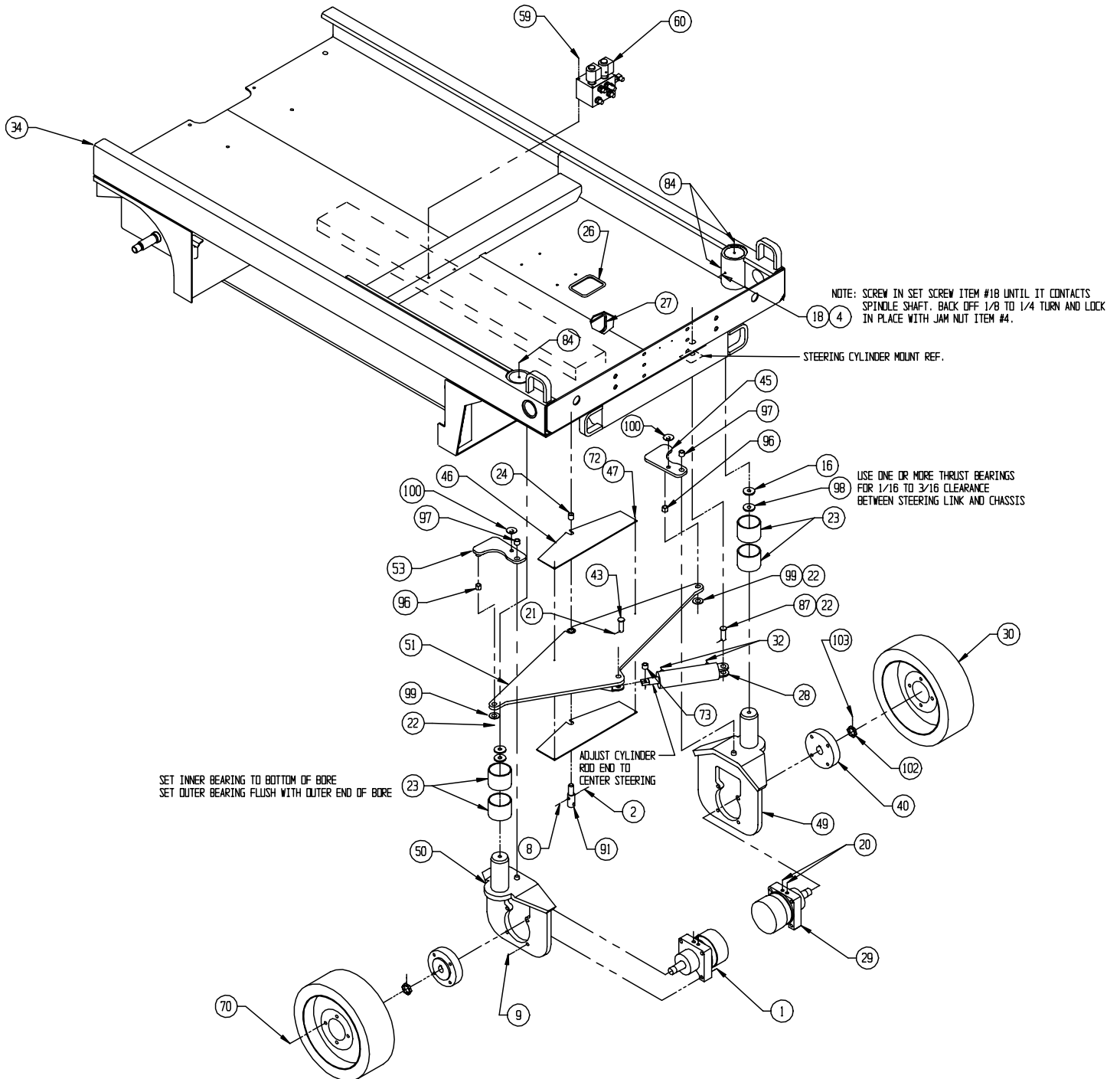
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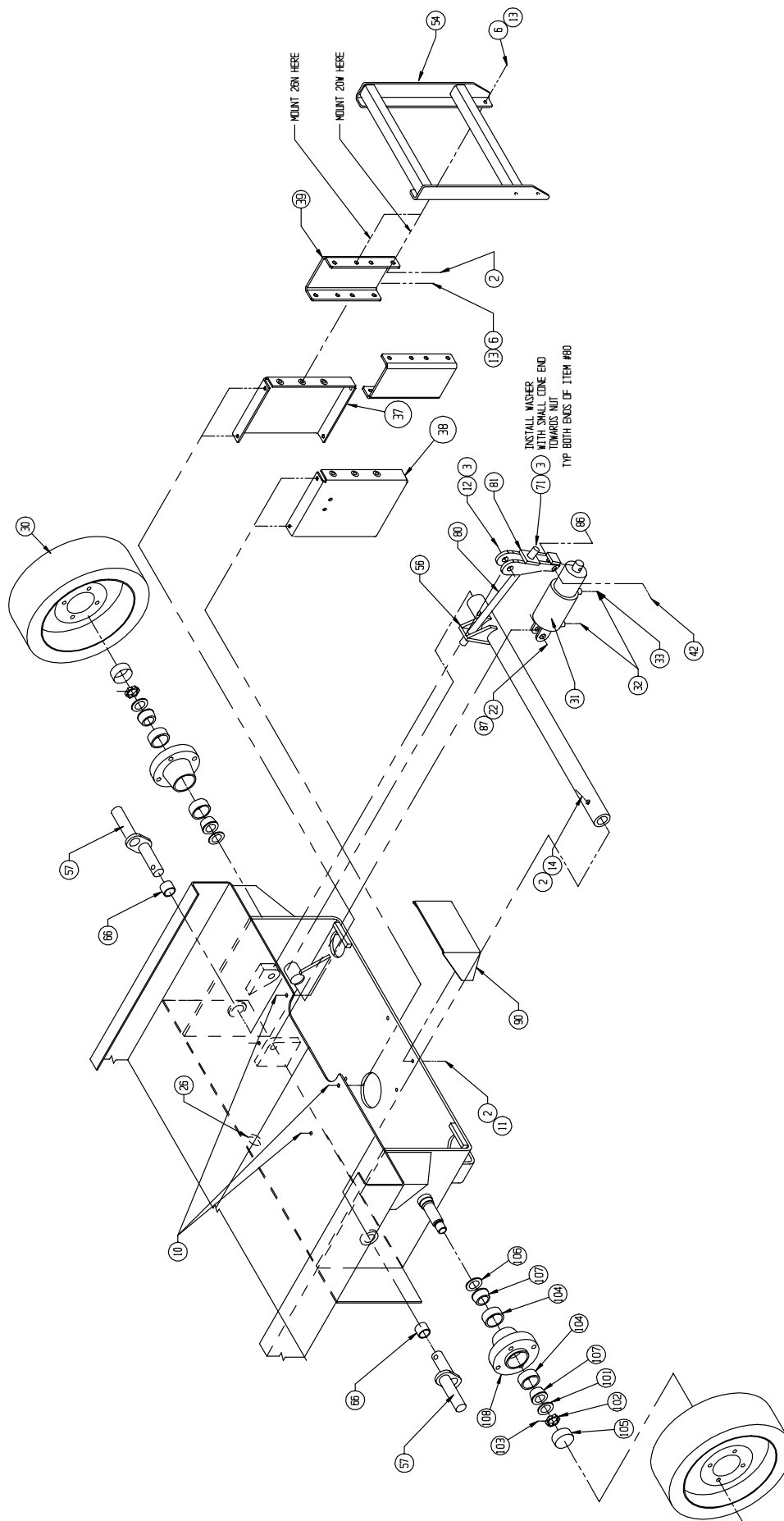
Chassis Assembly-X20W,X26N

066052-001

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------------|---------|
| 1 | 011248-008 | NUT HEX 1/2-13 UNC | 8 |
| 2 | 011248-006 | NUT HEX 3/8-16 UNC | 9 |
| 3 | 011248-012 | NUT HEX 3/4-10 UNC | 3 |
| 4 | 011273-006 | NUT JAM 3/8-16 | 2 |
| 6 | 011254-008 | SCREW HHC GR5 3/8-16 UNC X 1 | 8 |
| 8 | 011254-016 | SCREW HHC GR5 3/8-16 UNC X 2 | 1 |
| 9 | 011256-024 | SCREW HHC GR5 1/2-13 UNC X 3 | 8 |
| 10 | 011254-012 | SCREW HHC GR5 3/8-16 UNC X 1 1/2 | 4 |
| 11 | 011254-010 | SCREW HHC GR5 3/8-16 UNC X 1 1/4 | 2 |
| 12 | 011258-024 | SCREW HHC GR5 3/4-10 UNC X 3 | 1 |
| 13 | 011240-006 | WASHER 3/8 FLAT | 8 |
| 14 | 011287-022 | SCREW SOCKET HD 3/8-16 X 2 3/4 | 2 |
| 16 | 011782-008 | BEARING #TT 2301-3 (STEER) | 2 |
| 18 | 011705-016 | SCREW SET 3/8-16 X 1 | 2 |
| 20 | 011934-024 | FITTING | 4 |
| 21 | 011757-007 | PIN COTTER 5/8 | 1 |
| 22 | 011757-010 | PIN COTTER 3/4 | 4 |
| 23 | 027931-074 | BEARING #AA-2803-1 (STEERING) | 4 |
| 24 | 062642-012 | BEARING GARLOCK 12DU12 | 1 |
| 26 | 061796-099 | GROMMET | FT 1.25 |
| 27 | 061692-099 | GROMMET | FT 1.38 |
| 28 | 066793-000 | STEERING CYLINDER | 1 |
| * | 066793-010 | SEAL KIT, STEERING CYLINDER | 1 |
| 29 | 061817-001 | MOTOR HYD | 2 |
| * | 061817-010 | SEAL KIT, MOTOR | 1 |
| 30 | 061846-001 | WHEEL & TIRE | 4 |
| 31 | 066604-000 | BRAKE CYLINDER | 1 |
| * | 066604-010 | SEAL KIT, BRAKE CYLINDER | 1 |
| 32 | 011934-004 | FITTING 90 O RING BOSS 6MB 6MJ | 4 |
| 33 | 063664-007 | ORIFICE | 1 |
| 34 | 066750-000 | WELDMENT - WIDE CHASSIS | 1 |
| 37 | 066774-030 | WELDMENT - LADDER BRACKET R.H. | 1 |
| 38 | 066774-031 | WELDMENT - LADDER BRACKET L.H. | 1 |
| 39 | 066731-025 | LADDER BRACKET STANDOFF | 2 |
| 40 | 066325-000 | HUB - FRONT | 2 |
| 42 | 063559-006 | BOLT SHOULDER 3/8 X 2 | 1 |
| 43 | 011848-009 | CLEVIS PIN 5/8 X 2 | 1 |
| 45 | 066152-001 | STEERING LINK WELDMENT L.H. | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|------|
| 46 | 066190-011 | BEARING - STRIP | 2 |
| 47 | 026553-012 | RIVET 3/16 DIA X 1 1/8 GRIP | 2 |
| 49 | 066311-001 | WELDMENT - STEERING ANGLE LH | 1 |
| 50 | 066312-001 | WELDMENT - STEERING ANGLE RH | 1 |
| 51 | 066069-002 | WELDMENT - BELL CRANK | 1 |
| 53 | 066151-001 | STEERING LINK WELDMENT R.H. | 1 |
| 54 | 066307-001 | WELDMENT - LADDER | 1 |
| 56 | 066073-001 | WELDMENT - BRAKE TUBE | 1 |
| 57 | 066305-001 | WELDMENT - BRAKE | 2 |
| 59 | 011252-030 | SCREW HHC 1/4-20 X 3 3/4 | 2 |
| 60 | 066808-000 | VALVE ASSY SERIES PARALLEL | 1 |
| 66 | 027931-071 | BEARING #AA-1512-7 (BRAKE) | 2 |
| 70 | 014122-003 | WHEEL BOLT 1/2-20 X 1 | 16 |
| 71 | 066792-001 | WASHER 3/4 BELLVILLE | 2 |
| 72 | 02186-000 | WASHER 3/16 FLAT | . |
| 73 | 062642-001 | BEARING GARLOCK 10DU12 | 1 |
| 80 | 016759-015 | ROD, BRAKE RELEASE | 1 |
| 81 | 066728-000 | WELDMENT, BRAKE ADJUSTMENT | 1 |
| 84 | 013336-011 | FITTING GREASE | 4 |
| 86 | 011246-005 | NUT HEX ESNA 5/16-18 | 1 |
| 87 | 011848-041 | CLEVIS PIN 3/4 X 2 | 2 |
| 90 | 066796-000 | WELDMENT, CHARGER GUARD | 1 |
| 91 | 066737-000 | PIN, BELL CRANK | 1 |
| 96 | 062642-008 | BUSHING GARLOCK 12DU08 | 2 |
| 97 | 062642-006 | BUSHING 12 DU 06 | 2 |
| 98 | 011782-009 | BUSHING TT 2301-4 | 2 |
| 99 | 014996-012 | WASHER SAE 3/4 DIA | 2 |
| 100 | 066702-000 | SLIDE PAD, STEERING LINK | 2 |
| 101 | 011239-016 | WASHER 1 DIA FLAT ASTM | 2 |
| 102 | 011274-016 | NUT 1-14UNF SLOTTED HEX | 4 |
| 103 | 011753-012 | PIN COTTER 1/8 X 1 1/2 | 4 |
| 104 | 011776-004 | CUP BEARING | 4 |
| 105 | 05078-000 | CAP DUST | 2 |
| 106 | 05104-000 | SEAL GREASE | 2 |
| 107 | 011775-011 | CONE BEARING | 4 |
| 108 | 066773-000 | HUB ASSY | 2 |





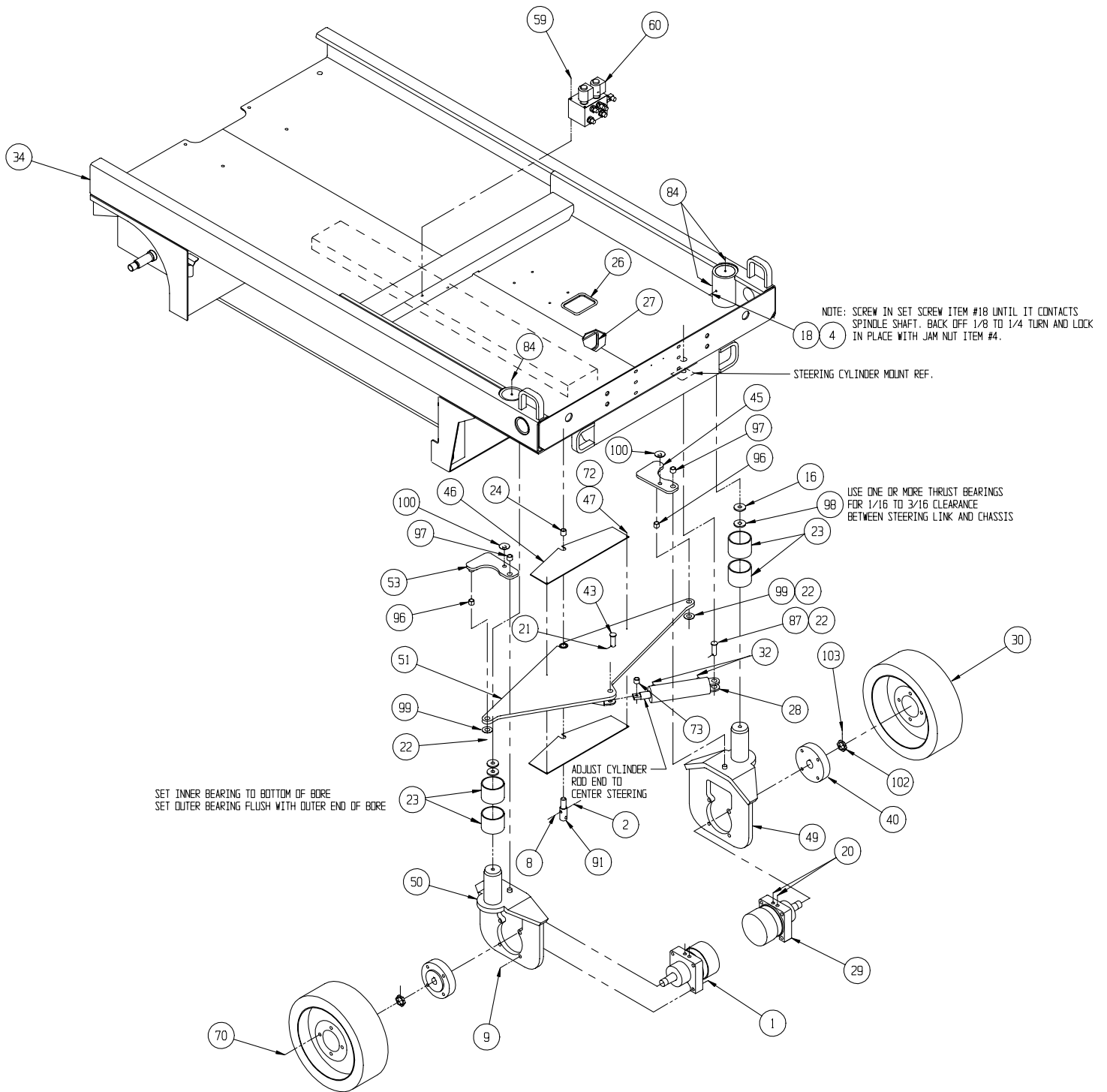
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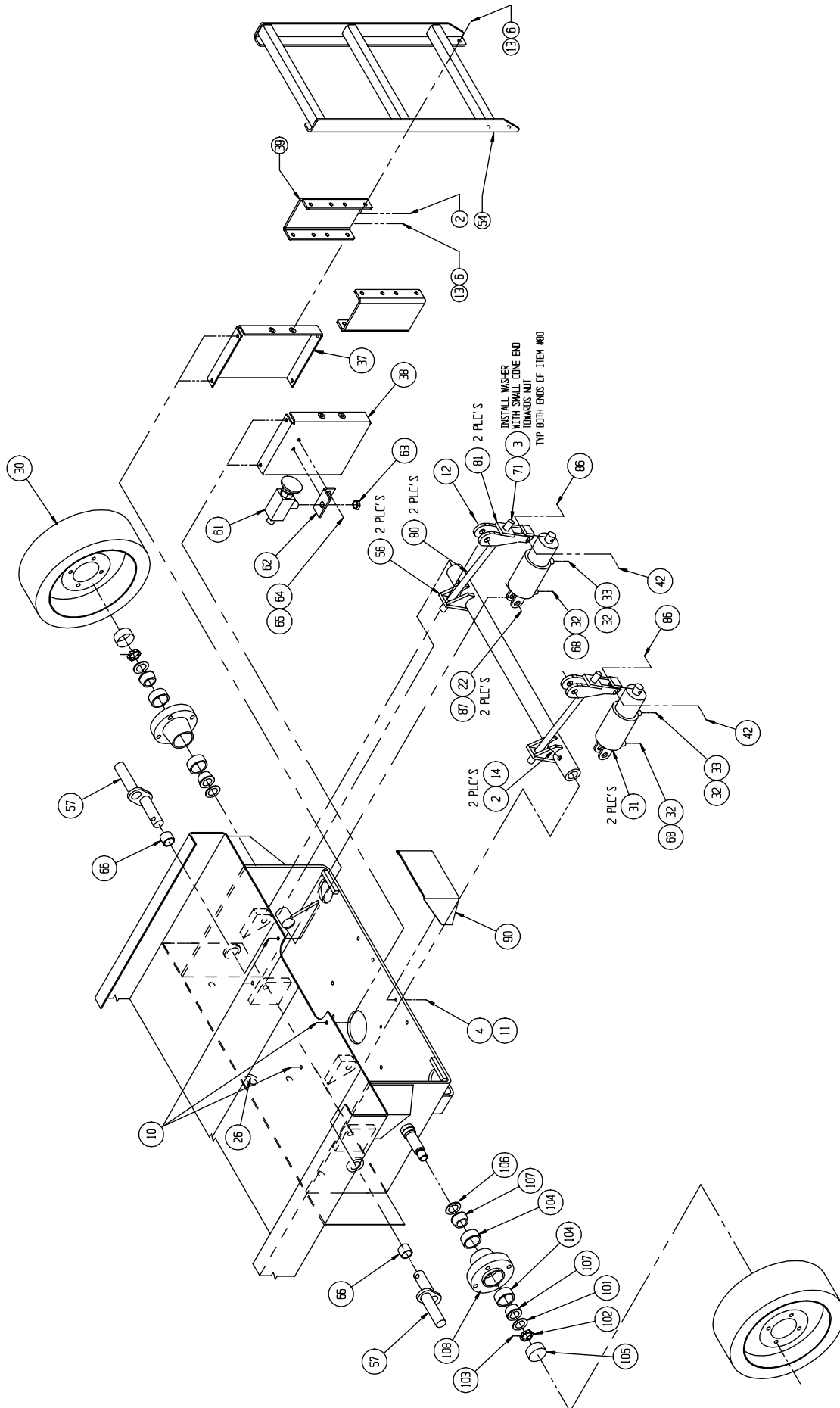
Chassis Assembly-X31N

066852-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------------|---------|
| 1 | 011248-008 | NUT HEX 1/2-13 UNC | 8 |
| 2 | 011248-006 | NUT HEX 3/8-16 UNC | 11 |
| 3 | 011248-012 | NUT HEX 3/4-10 UNC | 5 |
| 4 | 011273-006 | NUT JAM 3/8-16 | 2 |
| 6 | 011254-008 | SCREW HHC GR5 3/8-16 UNC X 1 | 8 |
| 8 | 011254-016 | SCREW HHC GR5 3/8-16 UNC X 2 | 1 |
| 9 | 011256-024 | SCREW HHC GR5 1/2-13 UNC X 3 | 8 |
| 10 | 011254-012 | SCREW HHC GR5 3/8-16 UNC X 1 1/2 | 8 |
| 11 | 011254-010 | SCREW HHC GR5 3/8-16 UNC X 1 1/4 | 2 |
| 12 | 011258-024 | SCREW HHC GR5 3/4-10 UNC X 3 | 2 |
| 13 | 011240-006 | WASHER 3/8 FLAT | 8 |
| 14 | 011287-022 | SCREW SOCKET HD 3/8-16 X 2 3/4 | 4 |
| 16 | 011782-008 | BEARING #TT 2301-3 (STEER) | 2 |
| 18 | 011705-016 | SCREW SET 3/8-16 X 1 | 2 |
| 20 | 011934-024 | FITTING | 4 |
| 21 | 011757-007 | PIN COTTER 5/8 | 1 |
| 22 | 011757-010 | PIN COTTER 3/4 | 6 |
| 23 | 027931-074 | BEARING #AA-2803-1 (STEERING) | 4 |
| 24 | 062642-012 | BEARING GARLOCK 12DU12 | 1 |
| 26 | 061796-099 | GROMMET | FT 1.25 |
| 27 | 061692-099 | GROMMET | FT 3.5 |
| 28 | 066793-000 | STEERING CYLINDER | 1 |
| * | 066793-010 | SEAL KIT, STEERING CYLINDER | - |
| 29 | 061817-001 | MOTOR HYD | 2 |
| * | 061817-010 | SEAL KIT, MOTOR | - |
| 30 | 061846-001 | WHEEL & TIRE | 4 |
| 31 | 066604-000 | BRAKE CYLINDER | 2 |
| * | 066604-010 | SEAL KIT, BRAKE CYLINDER | - |
| 32 | 011934-004 | FITTING 90 O RING BOSS 6MB 6MJ | 6 |
| 33 | 063664-007 | ORIFICE | 2 |
| 34 | 066750-001 | WELDMENT - WIDE CHASSIS X31N | 1 |
| 37 | 066774-030 | WELDMENT - LADDER BRACKET R.H. | 1 |
| 38 | 066774-031 | WELDMENT - LADDER BRACKET L.H. | 1 |
| 39 | 066731-025 | LADDER BRACKET STANDOFF | 2 |
| 40 | 066325-000 | HUB - FRONT | 2 |
| 42 | 063559-006 | BOLT SHOULDER 3/8 X 2 | 2 |
| 43 | 011848-009 | CLEVIS PIN 5/8 X 2 | 1 |
| 45 | 066152-001 | STEERING LINK WELDMENT L.H. | 1 |
| 46 | 066190-011 | BEARING - STRIP | 2 |
| 47 | 26553-012 | RIVET 3/16 DIA X 1 1/8 GRIP | 2 |
| 49 | 066311-001 | WELDMENT - STEERING ANGLE LH | 1 |

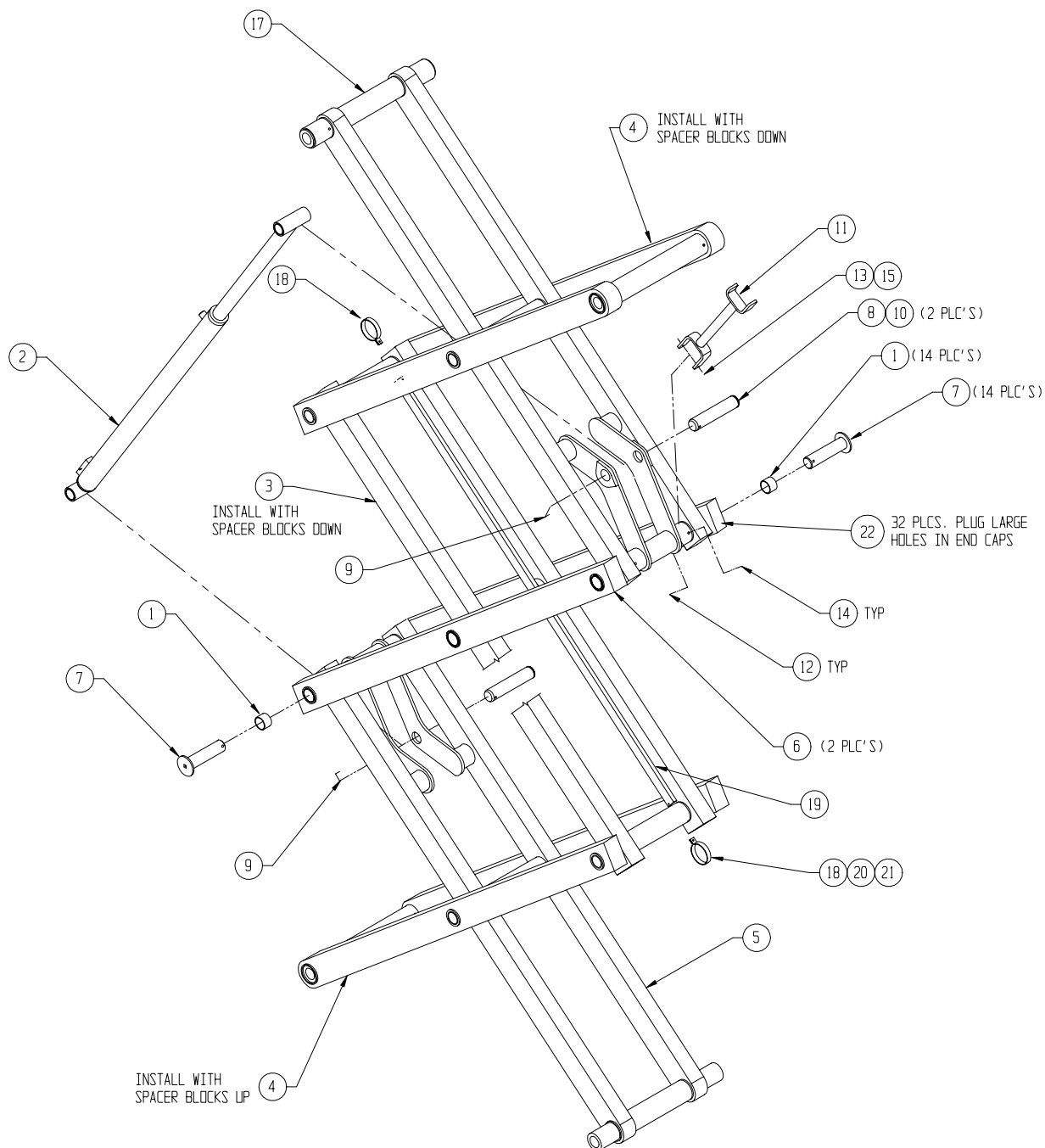
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|------|
| 50 | 066312-001 | WELDMENT - STEERING ANGLE RH | 1 |
| 51 | 066069-002 | WELDMENT - BELL CRANK | 1 |
| 53 | 066151-001 | STEERING LINK WELDMENT R.H. | 1 |
| 54 | 066307-010 | WELDMENT - LADDER | 1 |
| 56 | 066073-002 | WELDMENT - BRAKE TUBE | 1 |
| 57 | 066305-001 | WELDMENT - BRAKE | 2 |
| 59 | 011252-030 | SCREW UNC HHC 1/4-20 X 3 3/4 | 2 |
| 60 | 066808-000 | VALVE ASSY SERIES PARALLEL | 1 |
| 61 | 067961-000 | DOWN VALVE | 1 |
| 62 | 066817-000 | MOUNT, DOWN VALVE | 1 |
| 63 | 010147-003 | FITTING NUT #6 | 1 |
| 64 | 011252-006 | SCREW HHC 1/4-20 X 3/4 | 2 |
| 65 | 011248-004 | NUT 1/4-20 HEX | 2 |
| 66 | 027931-071 | BEARING #AA-1512-7 (BRAKE) | 2 |
| 68 | 020733-002 | FITTING TEE 6FJX-6MJ-6MJ | 2 |
| 70 | 014122-003 | WHEEL BOLT 1/2-20 X 1 | 16 |
| 71 | 066792-001 | WASHER 3/4 BELLVILLE | 4 |
| 72 | 02186-000 | WASHER 3/16 FLAT | 1 |
| 73 | 062642-001 | BEARING GARLOCK 10DU12 | 1 |
| 80 | 016759-015 | ROD, BRAKE RELEASE | 2 |
| 81 | 066728-000 | WELDMENT, BRAKE ADJUSTMENT | 2 |
| 84 | 013336-011 | FITTING GREASE | 4 |
| 86 | 011246-005 | NUT HEX ESNA 5/16-18 | 2 |
| 87 | 011848-041 | CLEVIS PIN 3/4 X 2 | 4 |
| 90 | 066796-000 | WELDMENT, CHARGER GUARD | 1 |
| 91 | 066737-000 | PIN, BELL CRANK | 1 |
| 96 | 062642-008 | BUSHING GARLOCK 12DU08 | 2 |
| 97 | 062642-006 | BUSHING 12 DU 06 | 2 |
| 98 | 011782-009 | BUSHING TT 2301-4 | 2 |
| 99 | 014996-012 | WASHER SAE 3/4 DIA | 2 |
| 100 | 066702-000 | SLIDE PAD, STEERING LINK | 2 |
| 101 | 011239-016 | WASHER 1 DIA FLAT ASTM | 2 |
| 102 | 011274-016 | NUT 1-14UNF SLOTTED HEX | 4 |
| 103 | 011753-012 | PIN COTTER 1/8 X 1 1/2 | 4 |
| 104 | 011776-004 | CUP BEARING | 4 |
| 105 | 05078-000 | CAP DUST | 2 |
| 106 | 05104-000 | SEAL GREASE | 2 |
| 107 | 011775-011 | CONE BEARING | 4 |
| 108 | 066773-000 | HUB ASSY | 2 |





NOTES:

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------|------|
| 12 | 011248-005 | NUT HEX 5/16-18 | 14 |
| 13 | 011248-006 | NUT HEX 3/8-16 | 1 |
| 14 | 015936-023 | SCREW SHOULDER 3/8-16 X 3 1/2 | 14 |
| 15 | 011254-044 | SCREW HHC GR5 3/8-16 X 5 1/2 | 1 |
| 17 | 066203-000 | WELDMENT, TOP INNER 3/16 | 1 |
| 18 | 066199-000 | PIPE RING | 2 |
| 19 | 066226-002 | CHANNEL, CABLE | 1 |
| 20 | 011248-004 | NUT HEX 1/4-20 | 2 |
| 21 | 011252-006 | SCREW HHC GR5 1/4-20 X 3/4 | 2 |
| 22 | 064462-035 | PLUG, 3/4" DIA CAP PLUG | 32 |

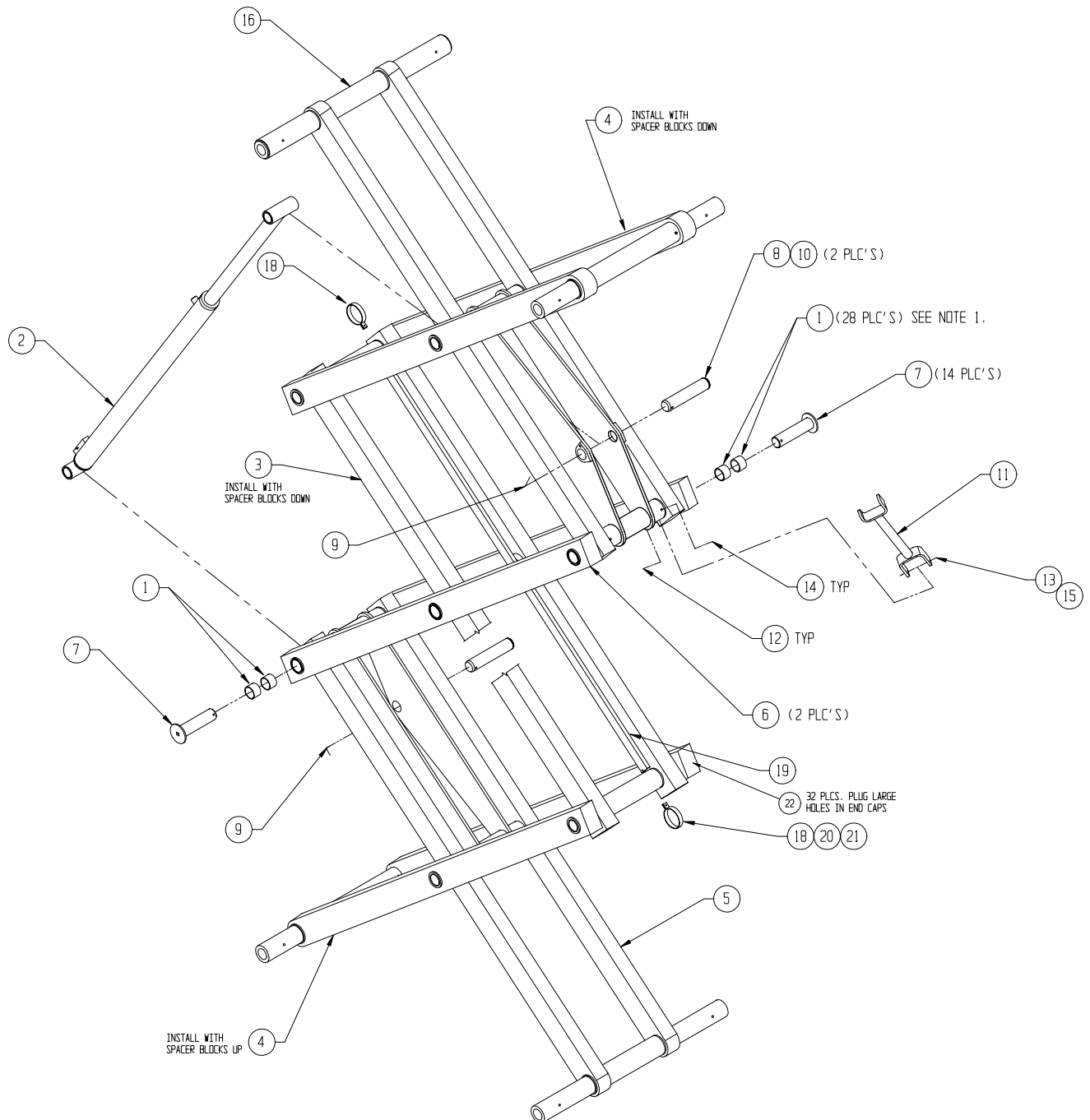


Scissor Assembly-X20W

066053-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------------|------|
| 1 | 066183-000 | BEARING, OILITE #EP3236-24 | 28 |
| 2 | 066601-000 | LIFT CYLINDER | 1 |
| * | 066601-010 | SEAL KIT, LIFT CYLINDER | - |
| 3 | 066201-000 | WELDMENT, MID INNER TUBE 1/8 | 1 |
| 4 | 066240-000 | WELDMENT, TOP & BOTTOM OUTER 1/8 | 2 |
| 5 | 066238-013 | WELDMENT, BOTTOM INNER 3/16 | 1 |
| 6 | 066211-003 | WELDMENT, MID OUTER 1/8 | 2 |
| 7 | 066210-000 | WELDMENT, PIVOT PIN | 14 |
| 8 | 066224-000 | PIN, LIFT CYLINDER | 2 |
| 9 | 066225-000 | PIN, SHAFT LOCKING | 2 |
| 10 | 011764-032 | RET RING TRUARC #5100-200 | 2 |
| 11 | 066214-000 | WELDMENT, SAFETY STAND | 1 |

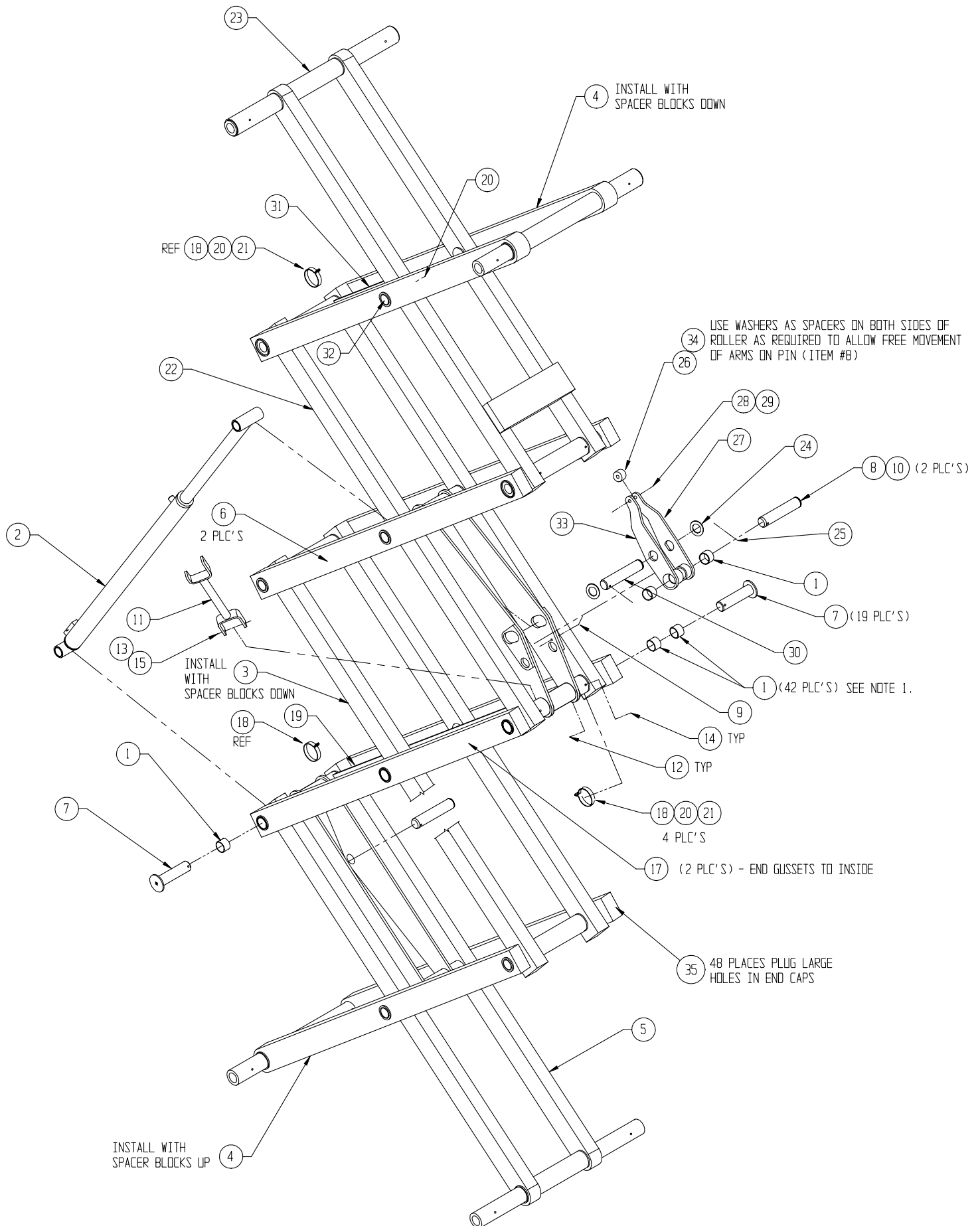
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------|------|
| 12 | 011248-005 | NUT HEX 5/16-18 | 14 |
| 13 | 011248-006 | NUT HEX 3/8-16 | 1 |
| 14 | 015936-023 | SCREW SHOULDER 3/8-16 X 3 1/2 | 14 |
| 15 | 011254-044 | SCREW HHC GR5 3/8-16 X 5-1/2 | 1 |
| 16 | 066238-003 | WELDMENT, TOP ARM | 1 |
| 18 | 066199-000 | PIPE RING | 2 |
| 19 | 066226-002 | CHANNEL, CABLE | 1 |
| 20 | 011248-004 | NUT HEX 1/4-20 | 2 |
| 21 | 011252-006 | SCREW HHC GR5 1/4-20 X 3/4 | 2 |
| 22 | 064462-035 | PLUG, 3/4" DIA. CAP PLUG | 32 |



Scissor Assembly-X26N

066103-000

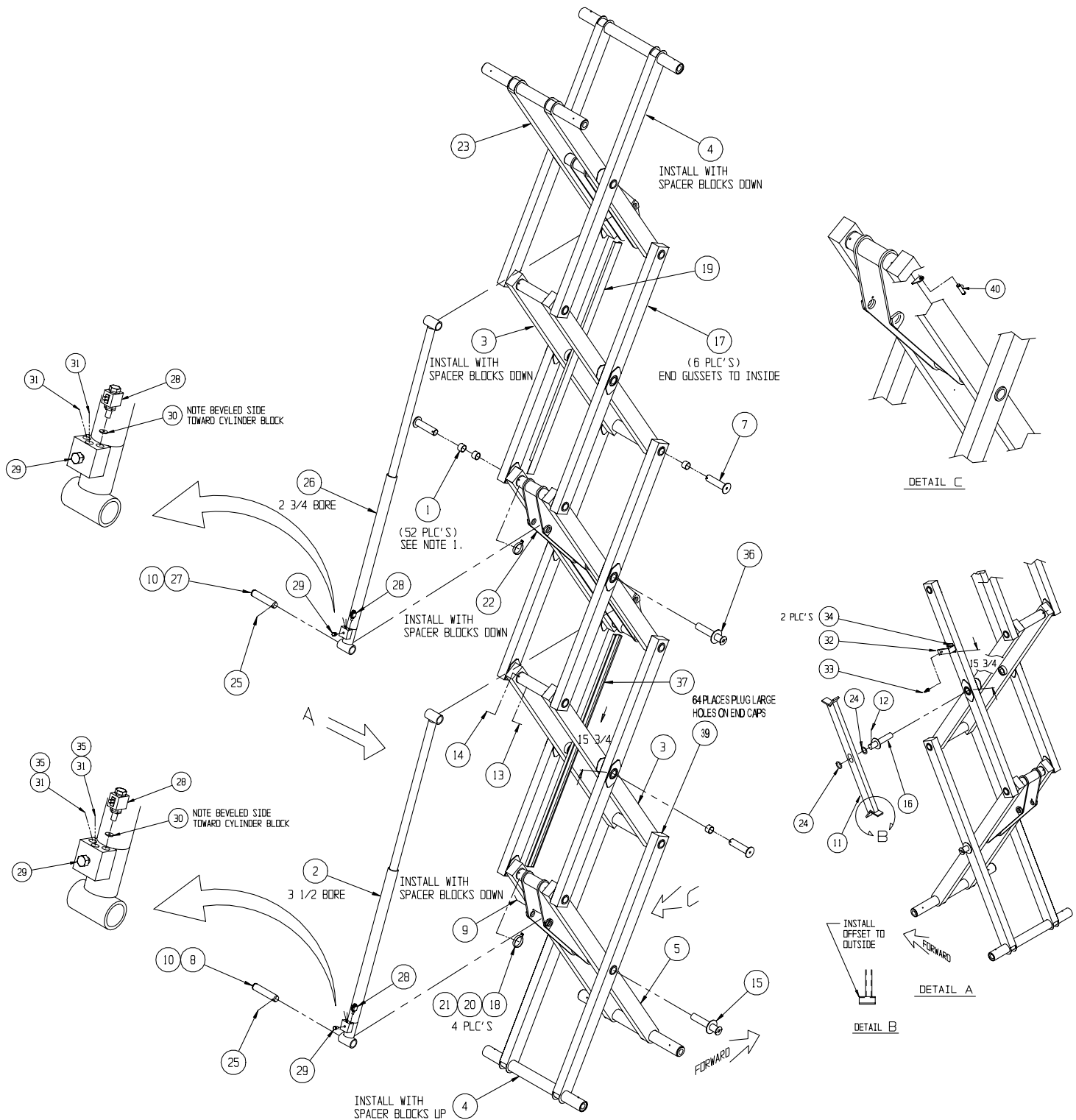
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------------|------|
| 1 | 066183-000 | BEARING, OILITE #EP3236-24 | 42 |
| 2 | 066601-000 | LIFT CYLINDER | 1 |
| * | 066601-010 | SEAL KIT, LIFT CYLINDER | - |
| 3 | 066201-001 | WELDMENT, MID INNER TUBE 1/8 | 1 |
| 4 | 066240-000 | WELDMENT, TOP & BOTTOM OUTER 1/8 | 2 |
| 5 | 066238-013 | WELDMENT, BOTTOM INNER 3/16 | 2 |
| 5 | 066238-013 | WELDMENT, BOTTOM INNER 3/16 | 1 |
| 6 | 066211-002 | WELDMENT, MID OUTER 1/4 | 2 |
| 7 | 066210-000 | WELDMENT, PIVOT PIN | 19 |
| 8 | 066224-000 | PIN, LIFT CYLINDER | 2 |
| 9 | 066225-000 | PIN, SHAFT LOCKING | 2 |
| 10 | 011764-032 | RET RING TRUARC #5100-200 | 2 |
| 11 | 066214-000 | WELDMENT, SAFETY STAND | 1 |
| 12 | 011248-005 | NUT HEX 5/16-18 | 20 |
| 13 | 011248-006 | NUT HEX 3/8-16 | 1 |
| 14 | 015936-023 | SCREW SHOULDER 3/8-16 X 3 1/2 | 20 |
| 15 | 011254-044 | SCREW HHC GR5 3/8-16 X 5 1/2 | 1 |
| 17 | 066211-001 | WELDMENT, MID OUTER ARM 1/8 | 2 |
| 18 | 066199-000 | PIPE RING | 4 |
| 19 | 066226-002 | CHANNEL, CABLE | 1 |
| 20 | 011248-004 | NUT HEX 1/4-20 | 4 |
| 21 | 011252-008 | SCREW HHC GR5 1/4-20 X 1 | 3 |
| 22 | 066120-000 | WELDMENT, MID INNER ARM 3/16 | 1 |
| 23 | 066121-000 | WELDMENT, TOP INNER ARM 1/8 | 1 |
| 24 | 011239-002 | WASHER 2 DIA ASTM | 2 |
| 25 | 011740-024 | ROLL PIN 1/2 X 3 | 2 |
| 26 | 065367-001 | BEARING TORRINGTON #YCRS32 | 1 |
| 27 | 066574-001 | WELDMENT, TORSION ARM L.H. | 1 |
| 28 | 011257-028 | SCREW HHC 5/8-11 X 3 1/2 | 1 |
| 29 | 011246-010 | NUT 5/8-11 THIN HEX | 1 |
| 30 | 066224-001 | PIN, LIFT CYLINDER | 1 |
| 31 | 066226-001 | CHANNEL, CABLE | 1 |
| 32 | 066210-002 | WELDMENT, PIVOT PIN | 1 |
| 33 | 066574-002 | WELDMENT, TORSION ARM R.H. | 1 |
| 34 | 011239-010 | WASHER, FLAT 5/8 ASTM | 4 |
| 35 | 064462-035 | PLUG, 3/4" DIA. CAP PLUG | 48 |



Scissor Assembly-X31N

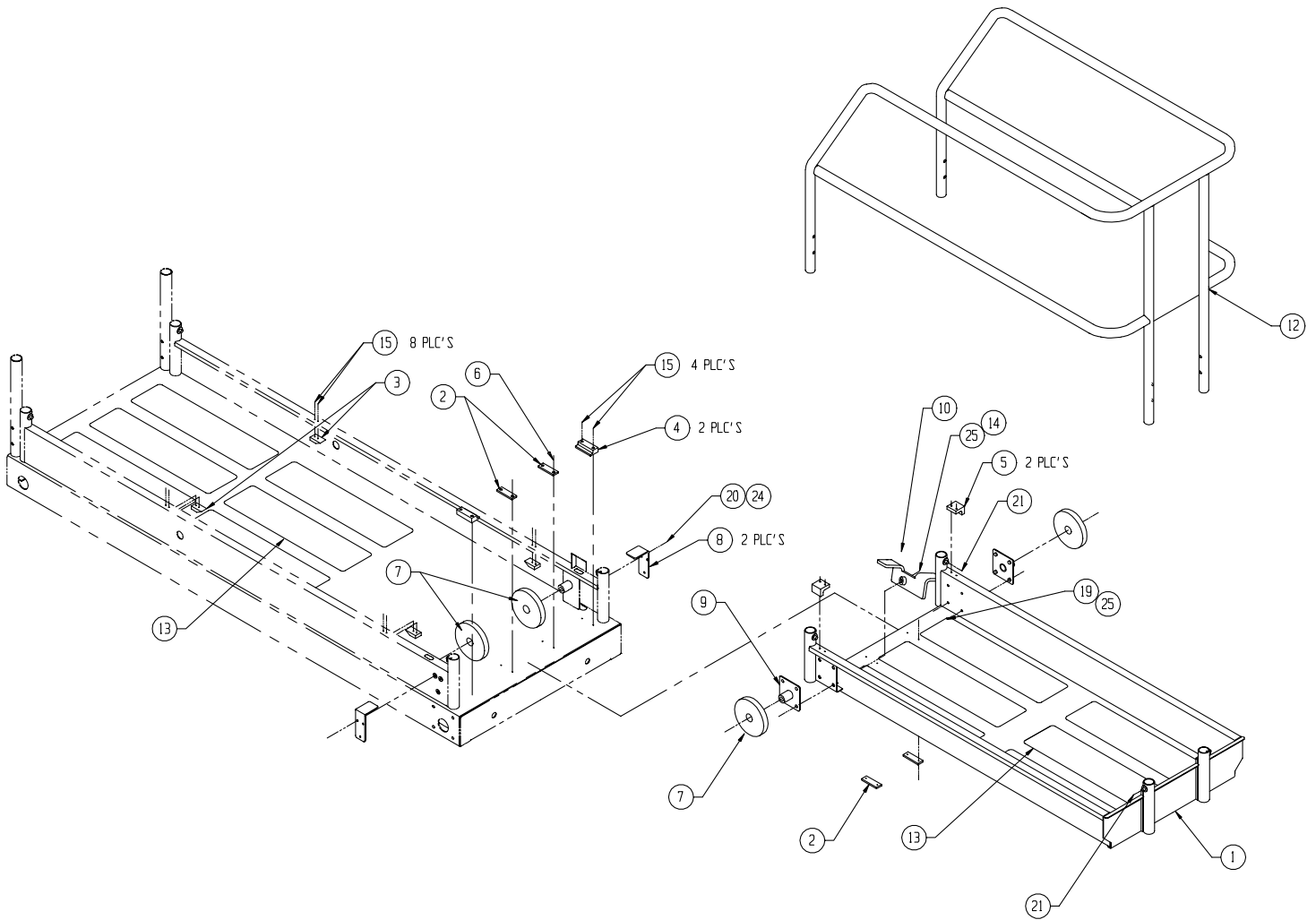
066853-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------------|------|
| 1 | 066183-000 | BEARING, OILITE #EP3236-24 | 52 |
| 2 | 066601-000 | LIFT CYLINDER | 1 |
| * | 066601-010 | SEAL KIT, LFT CYLINDER | - |
| 3 | 066201-001 | WELDMENT, MID INNER TUBE 1/8 | 2 |
| 4 | 066240-000 | WELDMENT, TOP & BOTTOM OUTER 1/8 | 2 |
| 5 | 066238-013 | WELDMENT, BOTTOM INNER 3/16 | 1 |
| 7 | 066210-000 | WELDMENT, PIVOT PIN | 23 |
| 8 | 066224-000 | PIN, LIFT CYLINDER | 2 |
| 9 | 066225-000 | PIN, SHAFT LOCKING | 4 |
| 10 | 011764-032 | RET RING TRUARC #5100-200 | 4 |
| 11 | 067591-000 | WELDMENT, SAFETY STAND | 1 |
| 12 | 011757-028 | COTTER PIN 3/8 DIA X 3-1/2 | 1 |
| 13 | 011248-005 | NUT HEX 5/16-18 | 26 |
| 14 | 015936-023 | SCREW SHOULDER 3/8 X 3 1/2 | 26 |
| 15 | 066210-010 | WELDMENT, PIVOT PIN | 1 |
| 16 | 066210-011 | WELDMENT, PIVOT PIN | 1 |
| 17 | 066211-001 | WELDMENT, MID OUTER ARM 1/8 | 6 |
| 18 | 066199-000 | PIPE RING | 4 |
| 19 | 066226-000 | CHANNEL, CABLE | 1 |
| 20 | 011248-004 | NUT HEX 1/4-20 | 4 |
| 21 | 011252-008 | SCREW HHC GR5 1/4-20 X 1 | 4 |
| 22 | 066120-010 | WELDMENT, MID INNER ARM 3/16 | 1 |
| 23 | 066121-010 | WELDMENT, TOP INNER ARM 1/8 | 1 |
| 24 | 011786-017 | MACHINERY BUSHING 2" ID X 14GA | 2 |
| 25 | 011740-024 | ROLL PIN 1/2 X 3 | 2 |
| 26 | 066168-000 | LIFT CYLINDER | 1 |
| * | 066168-010 | SEAL KIT, LIFT CYLINDER | 1 |
| 27 | 066224-010 | PIN LIFT CYLINDER | 2 |
| 28 | 063973-001 | VALVE SOLENOID | 2 |
| 29 | 066811-000 | FITTING, VELOCITY FUSE | 2 |
| 30 | 063664-008 | ORIFICE HYDRFORCE #7051070 | 2 |
| 31 | 011941-005 | FITTING STR 6MB-6MJ | 4 |
| 32 | 066814-000 | WELDMENT, SCISSOR BRACE | 1 |
| 33 | 03570-001 | RETAINING RING | 1 |
| 34 | 026554-002 | RIVET 1/4 POP | 2 |
| 35 | 011937-003 | FITTING 6FJX-6MJ 90 | 2 |
| 36 | 066210-012 | WELDMENT, PIVOT PIN | 1 |
| 37 | 066226-002 | HOSE CHANNEL | 1 |
| 39 | 064462-035 | PLUG, 3/4" DIA. CAP PLUG | 64 |
| 40 | 066638-000 | TEE, BULKHEAD, 6MJ-6MJ-6MJ | 1 |



| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------------|------|
| 1 | 066251-010 | WELDMENT DECK EXT. | 1 |
| 2 | 066198-000 | WEAR PAD | 4 |
| 3 | 066193-000 | STOP | 4 |
| 4 | 066176-000 | WEAR PAD | 2 |
| 5 | 066170-000 | WEAR PAD | 2 |
| 6 | 026553-002 | RIVET 3/16 DIA X .126-.250 GRIP | 8 |
| 7 | 066195-000 | PLATFORM ROLLER | 4 |
| 8 | 066407-010 | BRACKET | 2 |
| 9 | 066256-000 | WELDMENT ROLLER MOUNT | 2 |
| 10 | 067185-000 | DECKLOCK ASSY-SLIDEOUT | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 12 | 066260-000 | WELDMENT EXT. RAIL | 1 |
| 13 | 027966-005 | SAFTY WALK 6 X 24 | 12 |
| 14 | 011254-016 | SCREW HHC 3/8-16 X 2 | 2 |
| 15 | 026553-008 | RIVET 3/16 DIA X 1/2 GRIP | 16 |
| 19 | 011254-014 | SCREW HHC 3/8-16 X 1 3/4 | 6 |
| 20 | 011252-006 | SCREW HHC 1/4-20 X 3/4 | 6 |
| 21 | 066171-003 | SCREW HHC 3/8-16 X 2 1/2 | 4 |
| 24 | 011240-004 | WASHER 1/4 FLAT | 6 |
| 25 | 011238-006 | WASHER 3/8 LOCK | 8 |

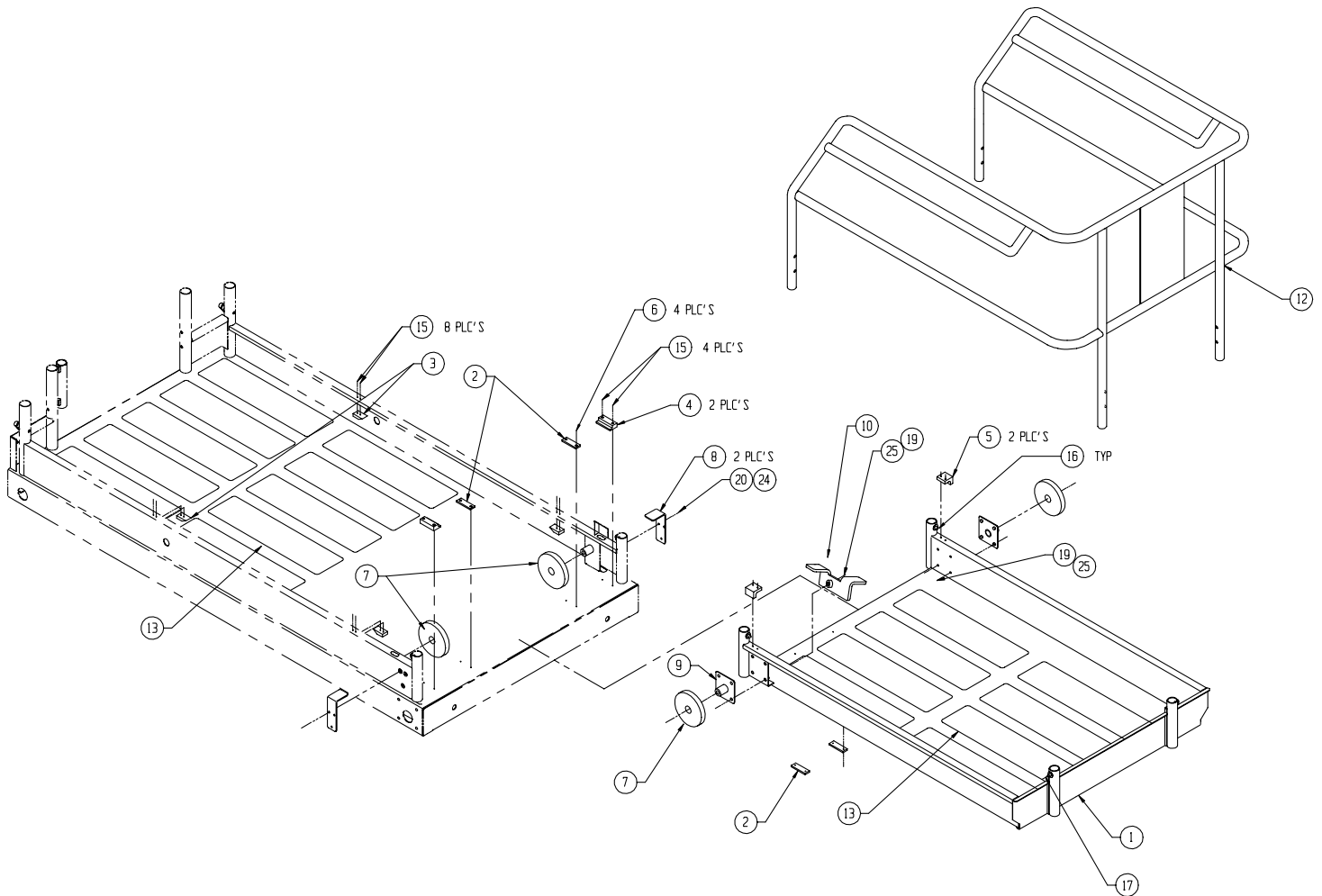


Deck Extension Assembly-X20W, X26N

066056-010

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 1 | 066294-001 | WELDMENT DECK EXT. | 1 |
| 2 | 066198-001 | WEAR PAD | 4 |
| 3 | 066193-000 | STOP | 4 |
| 4 | 066176-001 | WEAR PAD | 2 |
| 5 | 066170-001 | WEAR PAD | 2 |
| 6 | 026553-010 | RIVET 3/16 DIA X 5/8 GRIP | 4 |
| 7 | 066195-000 | PLATFORM ROLLER | 4 |
| 8 | 066407-011 | BRACKET | 2 |
| 9 | 066127-000 | WELDMENT ROLLER MOUNT | 2 |
| 10 | 067185-000 | DECKLOCK ASSY-SLIDEOUT | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 12 | 066130-000 | WELDMENT EXT. RAIL | 1 |
| 13 | 027966-005 | SAFTY WALK 6 X 24 | 18 |
| 15 | 026553-008 | RIVET 3/16 DIA X 1/2 GRIP | 12 |
| 16 | 03570-000 | RETAINING PIN ASSY | 4 |
| 17 | 011254-008 | SCREW HHC 3/8-16 X 1 | 4 |
| 19 | 011254-012 | SCREW HHC 3/8-16 X 1 1/2 | 8 |
| 20 | 011252-006 | SCREW HHC 1/4-20 X 3/4 | 6 |
| 24 | 011240-004 | WASHER 1/4 FLAT | 6 |
| 25 | 011238-006 | WASHER 3/8 LOCK | 8 |

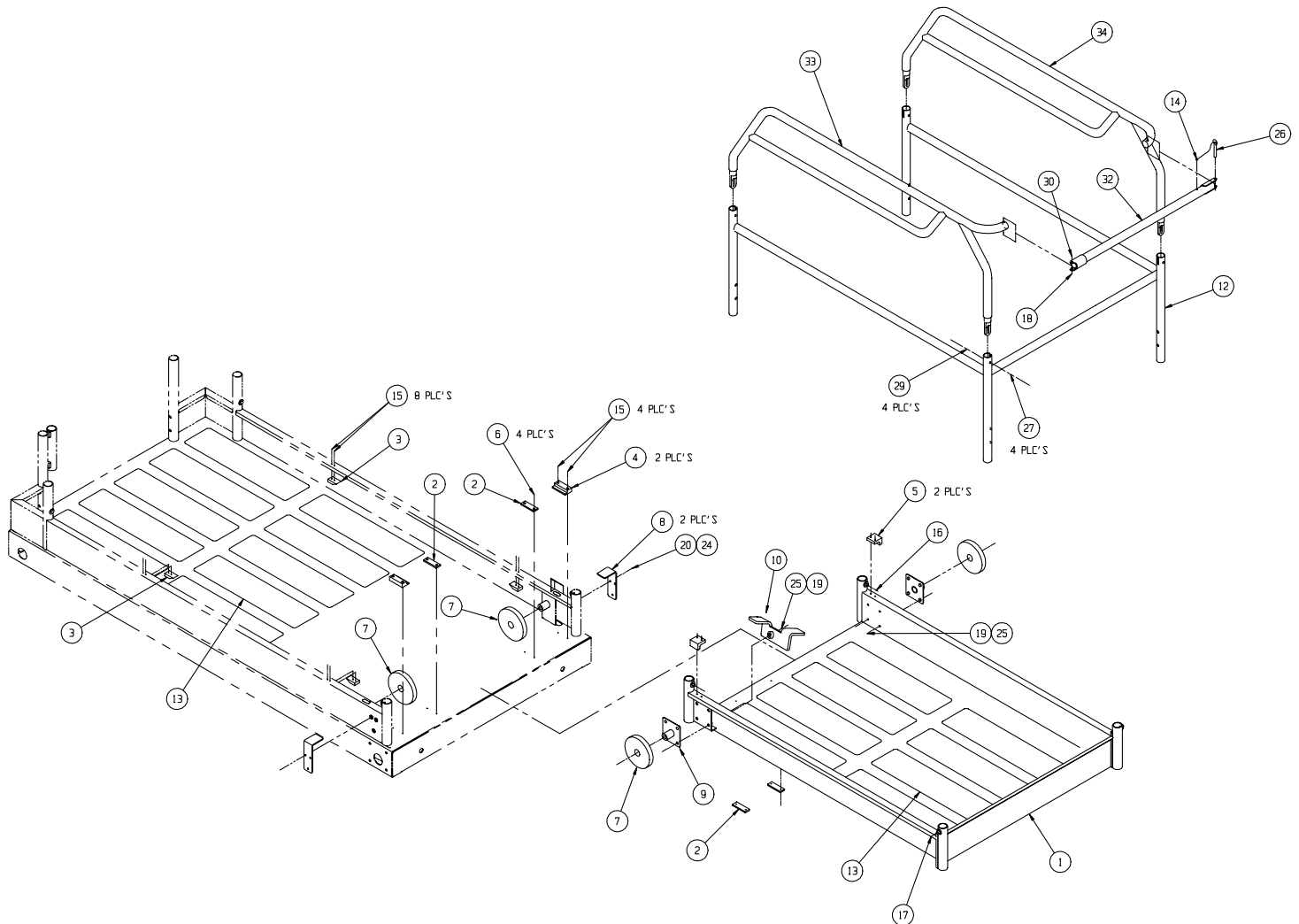


Deck Extension Assembly-X31

066856-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 1 | 066294-002 | WELDMENT DECK EXT. | 1 |
| 2 | 066198-001 | WEAR PAD | 4 |
| 3 | 066193-000 | STOP | 4 |
| 4 | 066176-001 | WEAR PAD | 2 |
| 5 | 066170-001 | WEAR PAD | 2 |
| 6 | 026553-010 | RIVET 3/16 DIA X 5/8 GRIP | 4 |
| 7 | 066195-000 | PLATFORM ROLLER | 4 |
| 8 | 066407-011 | BRACKET | 2 |
| 9 | 066127-000 | WELDMENT ROLLER MOUNT | 2 |
| 10 | 067185-000 | DECKLOCK ASSY-SLIDEOUT | 1 |
| 12 | 065802-002 | WELDMENT EXT. RAIL | 1 |
| 13 | 027966-005 | SAFTY WALK 6 X 24 | 18 |
| 14 | 026553-004 | RIVET 3/16 DIA X 3/8 GRIP | 1 |
| 15 | 026553-008 | RIVET 3/16 DIA X 1/2 GRIP | 12 |
| 16 | 03570-000 | RETAINING PIN ASSY | 4 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 17 | 011254-008 | SCREW HHC 3/8-16 X 1 | 4 |
| 18 | 011254-018 | SCREW HHC 3/8-16 X 2 1/4 | 2 |
| 19 | 011254-012 | SCREW HHC 3/8-16 X 1 1/2 | 8 |
| 20 | 011252-006 | SCREW HHC 1/4-20 X 3/4 | 6 |
| 24 | 011240-004 | WASHER 1/4 FLAT | 6 |
| 25 | 011238-006 | WASHER 3/8 LOCK | 8 |
| 26 | 010414-003 | LOCKING PIN ASS'Y | 1 |
| 27 | 011253-014 | SCREW HHC 5/16-18 X 1 3/4 | 2 |
| 29 | 011248-005 | NUT 5/16-18 ESNA | 4 |
| 30 | 011248-006 | NUT 3/8-16 ESNA | 2 |
| 32 | 065805-002 | WELDMENT, SWING RAIL | 1 |
| 33 | 065803-002 | WELDMENT, SIDE EXT R.H. | 1 |
| 34 | 065804-002 | WELDMENT, SIDE EXT L.H. | 1 |

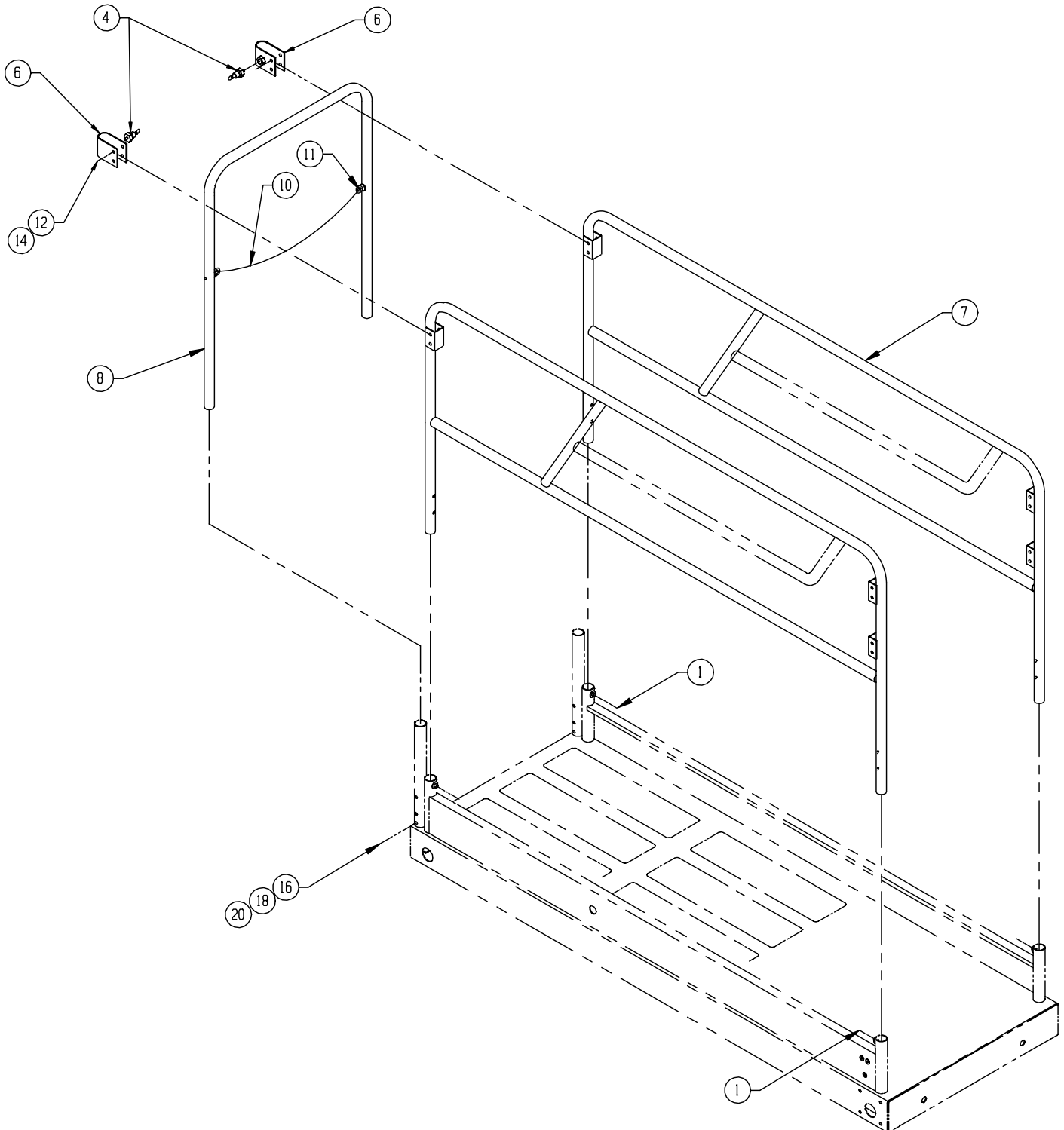


Guardrail Assembly-X20N

066005-015

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|--|------|
| 1 | 066171-003 | CAP SCREW 3/8-16 X 2 1/2 (FULL THREAD) | 4 |
| 4 | 03570-000 | RETAINING PIN ASSY | 2 |
| 6 | 066498-000 | WELDMENT, GATE LATCH | 2 |
| 7 | 066257-000 | WELDMENT SIDE RAIL | 2 |
| 8 | 066261-005 | WELDMENT, END RAIL | 1 |
| 10 | 063133-000 | CHAIN ASS'Y | 1 |
| 11 | 015748-002 | REPAIR LAPLINK | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 12 | 011248-005 | NUT 5/16-18 | 4 |
| 14 | 011253-016 | SCREW 5/16-18 HHC X 2 | 4 |
| 16 | 011254-020 | SCREW 3/8-16 HHC X 2 1/2 | 2 |
| 18 | 011240-006 | WASHER 3/8 FLAT | 6 |
| 20 | 011248-006 | NUT 3/8-16 HEX | 6 |

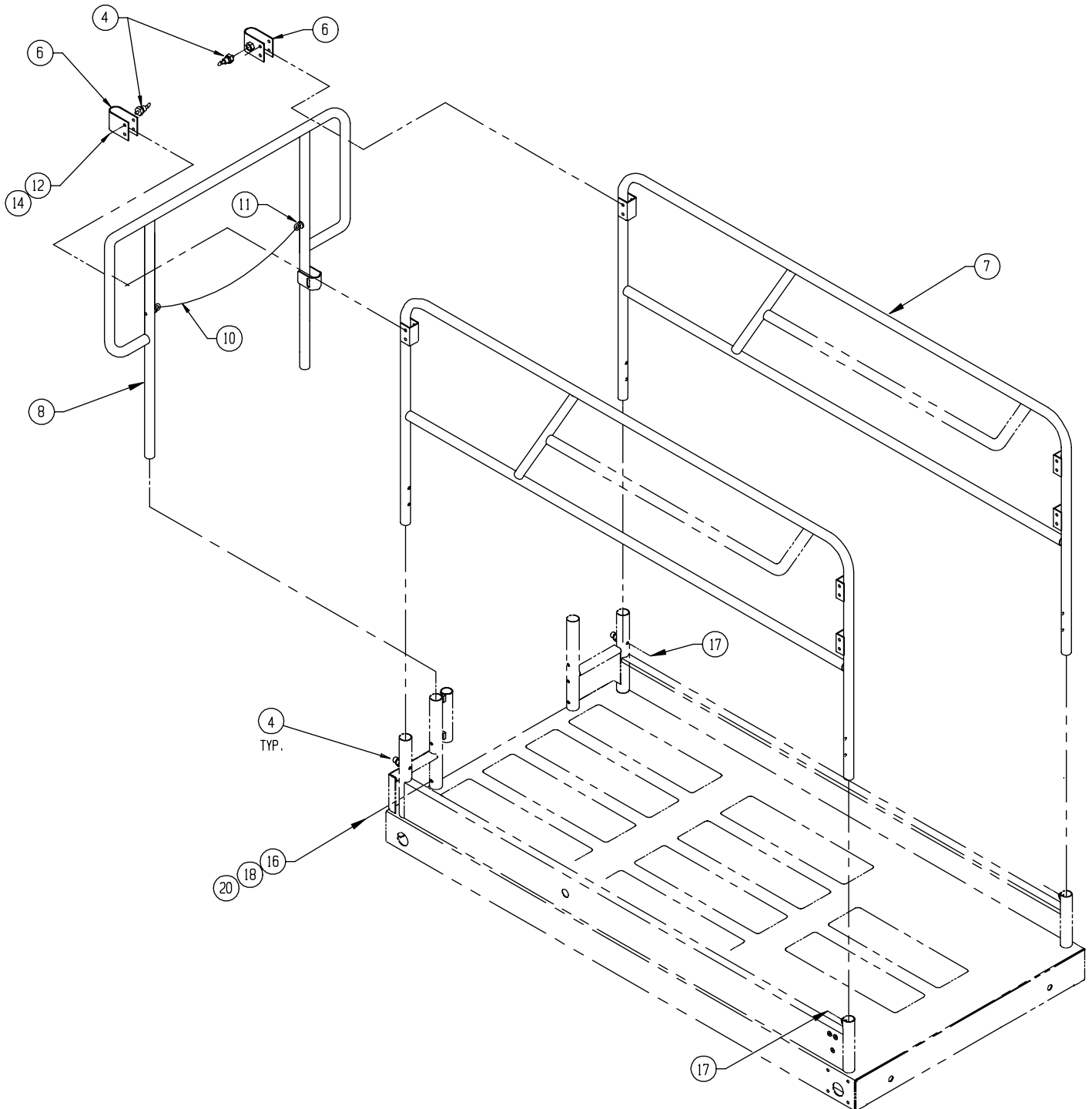


Guardrail Assembly-X20W, X26N

066055-015

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 4 | 03570-000 | RETAINING PIN ASSY | 6 |
| 6 | 066498-000 | WELDMENT, GATE LATCH | 2 |
| 7 | 066126-000 | WELDMENT SIDE RAIL | 2 |
| 8 | 066125-003 | WELDMENT, END RAIL | 1 |
| 10 | 063133-000 | CHAIN ASS'Y | 1 |
| 11 | 015748-002 | REPAIR LAPLINK | 1 |
| 12 | 011248-005 | NUT 5/16-18 | 4 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 14 | 011253-016 | SCREW 5/16-18 HHC X 2 | 4 |
| 16 | 011254-020 | SCREW 3/8-16 HHC X 2 1/2 | 2 |
| 17 | 011254-008 | SCREW 3/8-16 HHC X 1 | 4 |
| 18 | 011240-006 | WASHER 3/8 FLAT | 6 |
| 20 | 011248-006 | NUT 3/8-16 HEX | 6 |

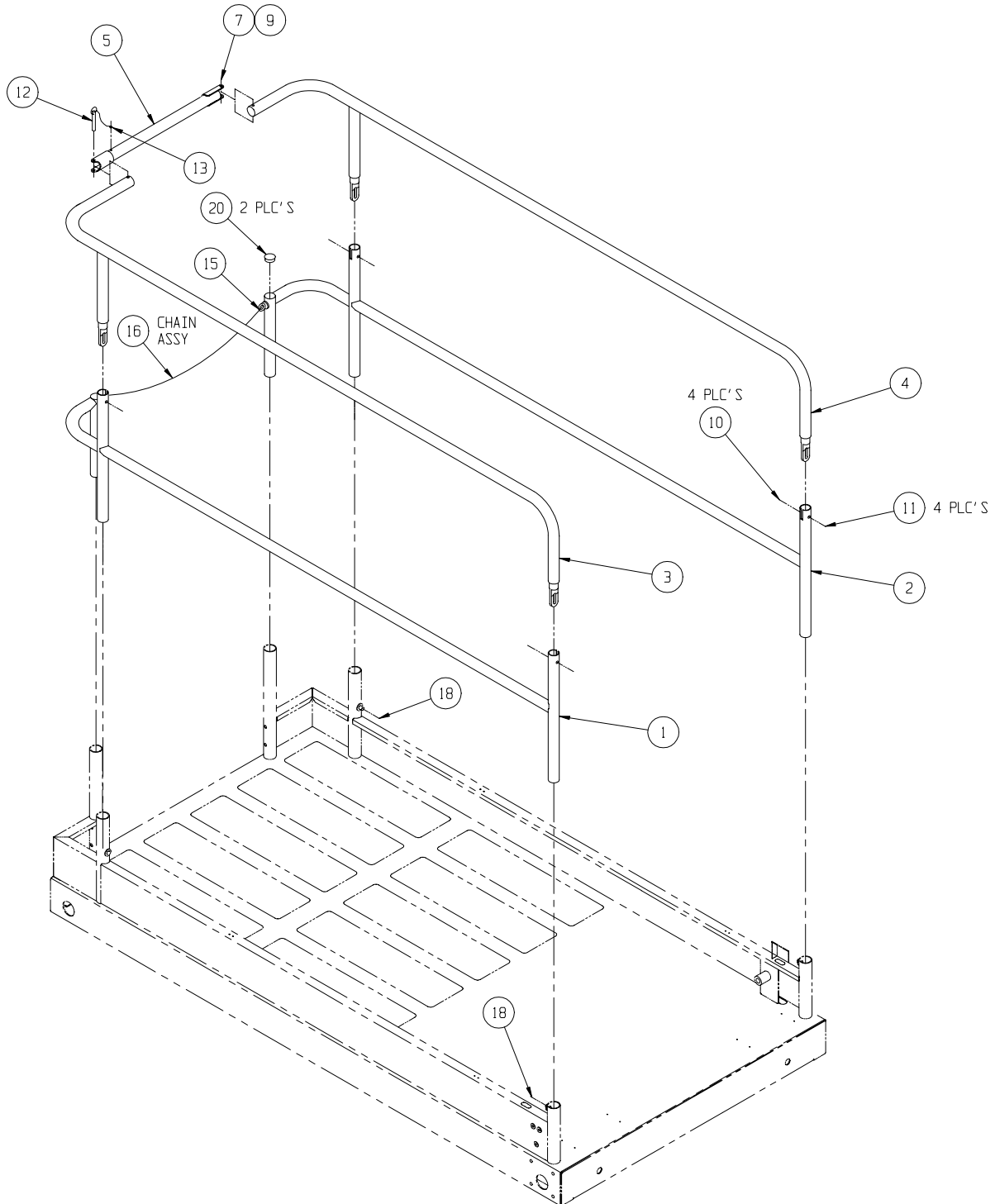


Guardrail Assembly-X31N

066855-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|--------------------------------|------|
| 1 | 065814-003 | WELDMENT, LOWER GUARDRAIL R.H. | 1 |
| 2 | 065814-002 | WELDMENT, LOWER GUARDRAIL L.H. | 1 |
| 3 | 065815-002 | WELDMENT, UPPER GUARDRAIL R.H. | 1 |
| 4 | 065816-002 | WELDMENT, UPPER GUARDRAIL L.H. | 1 |
| 5 | 065805-003 | WELDMENT, TOP SWING ARM | 1 |
| 7 | 011248-006 | NUT HEX ESNA 3/8-16UNC | 1 |
| 9 | 011254-018 | SCREW HHC 3/8-16UNC X 2 1/4 | 1 |
| 10 | 011248-005 | NUT HEX ESNA 5/16-18UNC | 4 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|------|
| 11 | 011253-014 | SCREW HHC 5/16-18UNC X 1 3/4 | 4 |
| 12 | 010414-003 | LOCKING PIN ASSY 10 LG | 1 |
| 13 | 026553-004 | RIVET 3/16 DIA | 1 |
| 15 | 015748-002 | REPAIR LINK | 1 |
| 16 | 063133-000 | ASSEMBLY CHAIN GATE | 1 |
| 18 | 03570-000 | RETAINING PIN ASSEMBLY | 4 |
| 20 | 066516-001 | PLUG 1 3/16 DIA | 2 |

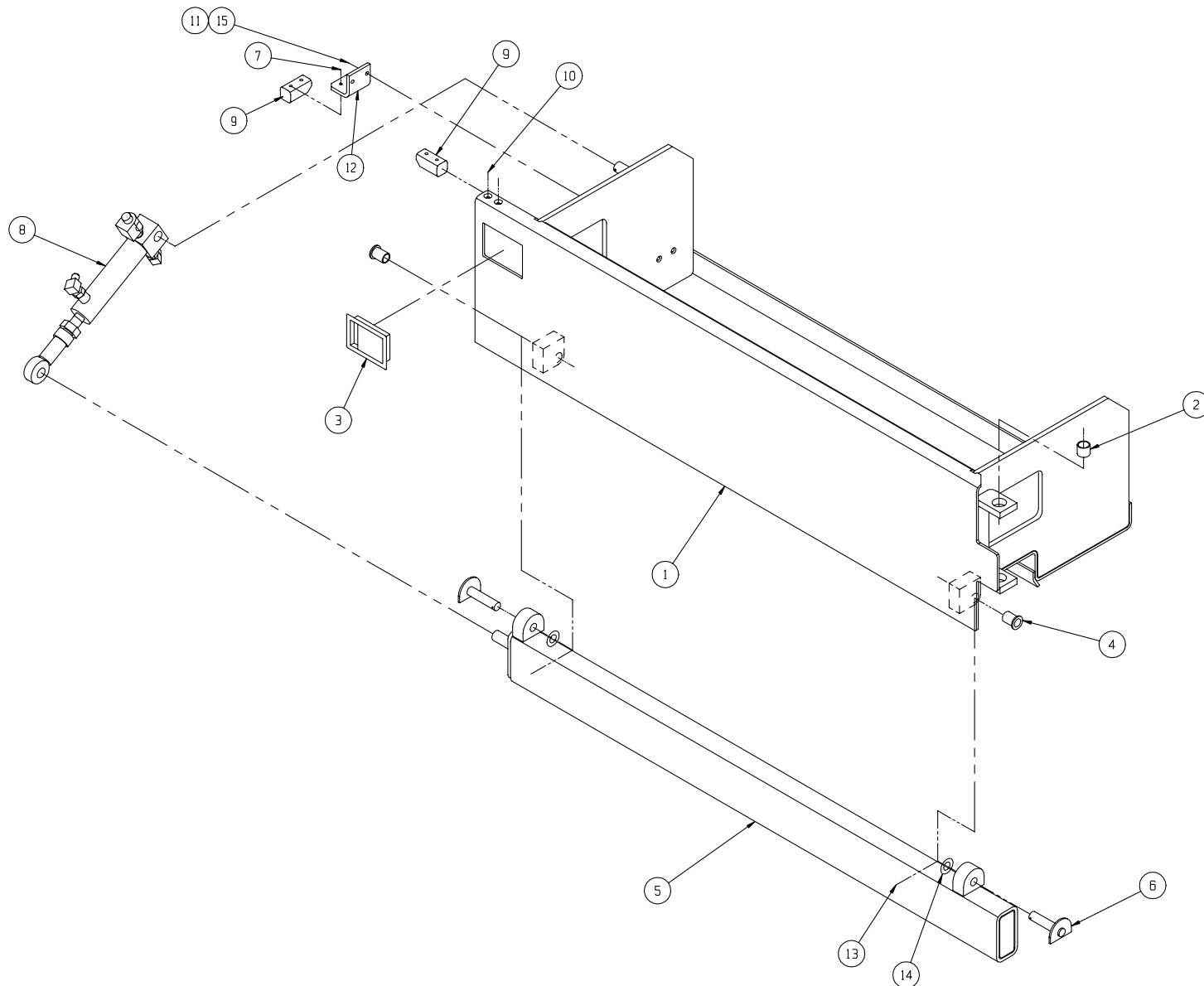


Power Module

066009-010

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------|------|
| 1 | 066310-010 | POWER MODULE WELDMENT | 1 |
| 2 | 027931-016 | BUSHING OILITE #AA-1049-14 | 2 |
| 3 | 062791-002 | LATCH COVER | 1 |
| 4 | 011781-011 | BUSHING OILITE #FF-703-1 | 2 |
| 5 | 066735-000 | WELDMENT, POT HOLE TUBE | 1 |
| 6 | 066753-000 | WELDMENT, PIVOT PIN | 2 |
| 7 | 011252-008 | SCREW HHC 1/4-20 X 1 | 2 |
| 8 | 066803-000 | CYLINDER ASSEMBLY | 1 |
| * | 066700-010 | SEAL KIT, CYLINDER | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|------|
| 9 | 066192-000 | BLOCK, COVER | 2 |
| 10 | 011828-008 | SCREW FLAT HD SOC 1/4-20 X 1 | 2 |
| 11 | 011248-006 | NUT ESNA 3/8-16 | 2 |
| 12 | 066342-000 | ANGLE | 1 |
| 13 | 011757-007 | PIN COTTER #REU 30 | 2 |
| 14 | 064350-010 | SHIM 5/8ID X 1 OD X .031 STL | 2 |
| 15 | 011240-006 | WASHER 3/8 STD FLAT | 2 |

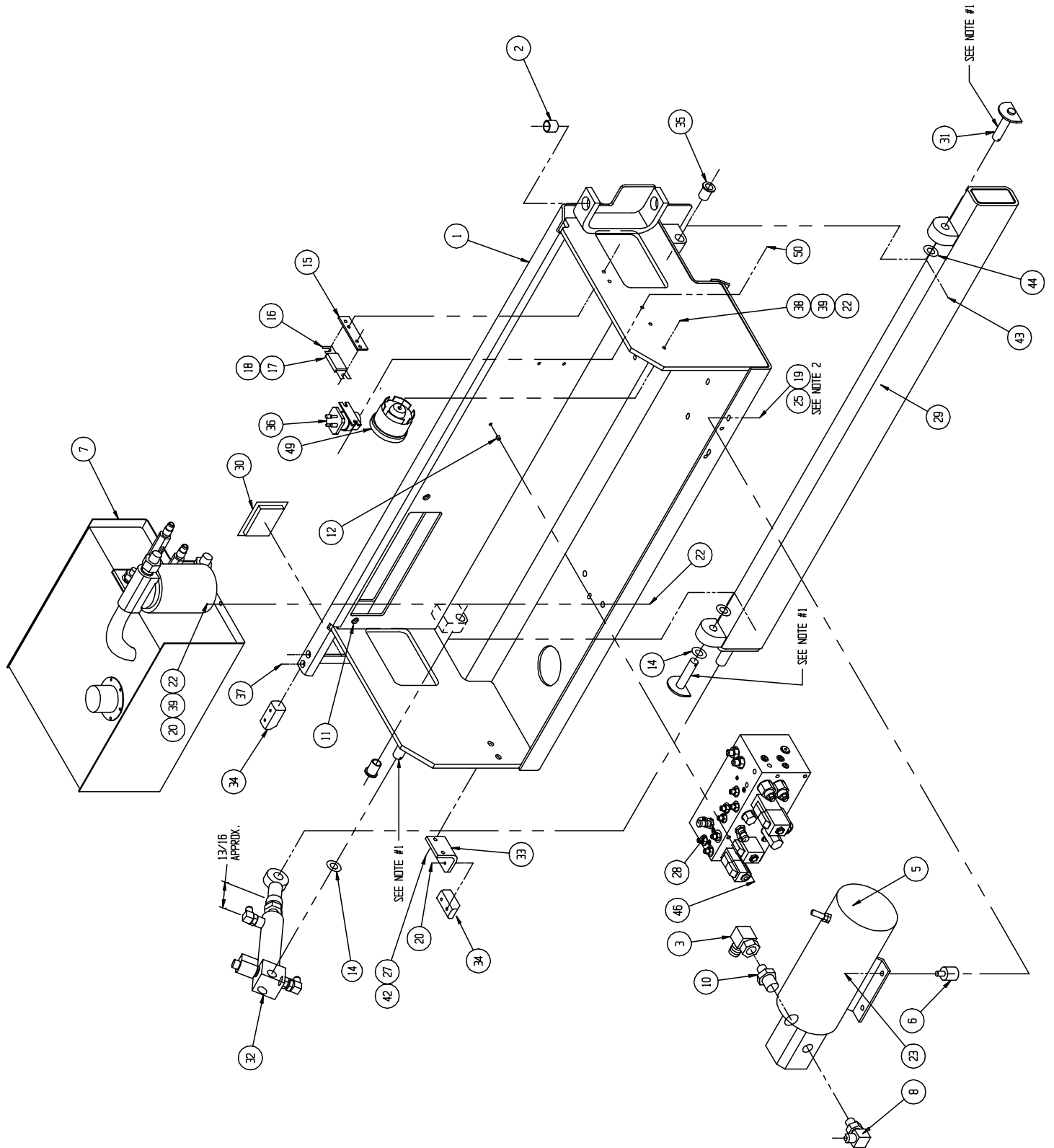


Control Module

066008-020

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-----------------------------|------|
| 1 | 066309-011 | CONTROL MODULE WELDMENT | 1 |
| 2 | 027931-016 | BUSHING OILITE #AA-1049-14 | 2 |
| 3 | 011937-007 | 90° 12FJX-12MJ | 1 |
| 5 | 065933-000 | POWER UNIT | 1 |
| * | 065933-006 | MOTOR | |
| * | 065933-007 | PUMP | |
| * | 065933-008 | BRUSHES | |
| 6 | 066046-007 | MOUNT VIBRATION | 4 |
| 7 | 066780-021 | HYDRAULIC RESERVOIR ASSY | 1 |
| 8 | 011934-004 | FITTING ELBOW 6MBH-6MJ | 1 |
| 9 | 020733-002 | FITTING TEE 6FJX-6MJ | 1 |
| 10 | 011941-012 | FITTING STR 8MB-12MJ | 1 |
| 11 | 014252-006 | NUTSERT 3/8-16 | 2 |
| 12 | 014252-004 | NUTSERT 1/4-20 UNC | 3 |
| 14 | 014996-012 | WASHER 3/4 | 2 |
| 15 | 010149-000 | FUSE BLOCK | 1 |
| 16 | 010148-001 | FUSE 175 AMP | 1 |
| 17 | 013965-010 | SCREW HEX HD #10-24 X 1 1/4 | 2 |
| 18 | 011248-003 | NUT HEX #10-24 | 2 |
| 19 | 011253-006 | SCREW HHC GR5 5/16-18 X 3/4 | 4 |
| 20 | 011252-008 | SCREW HHC GR5 1/4-20 X 1 | 2 |
| 22 | 011248-004 | NUT, 1/4-20 ESNA | 4 |
| 23 | 011248-005 | NUT HEX ESNA 5/16-18 | 4 |

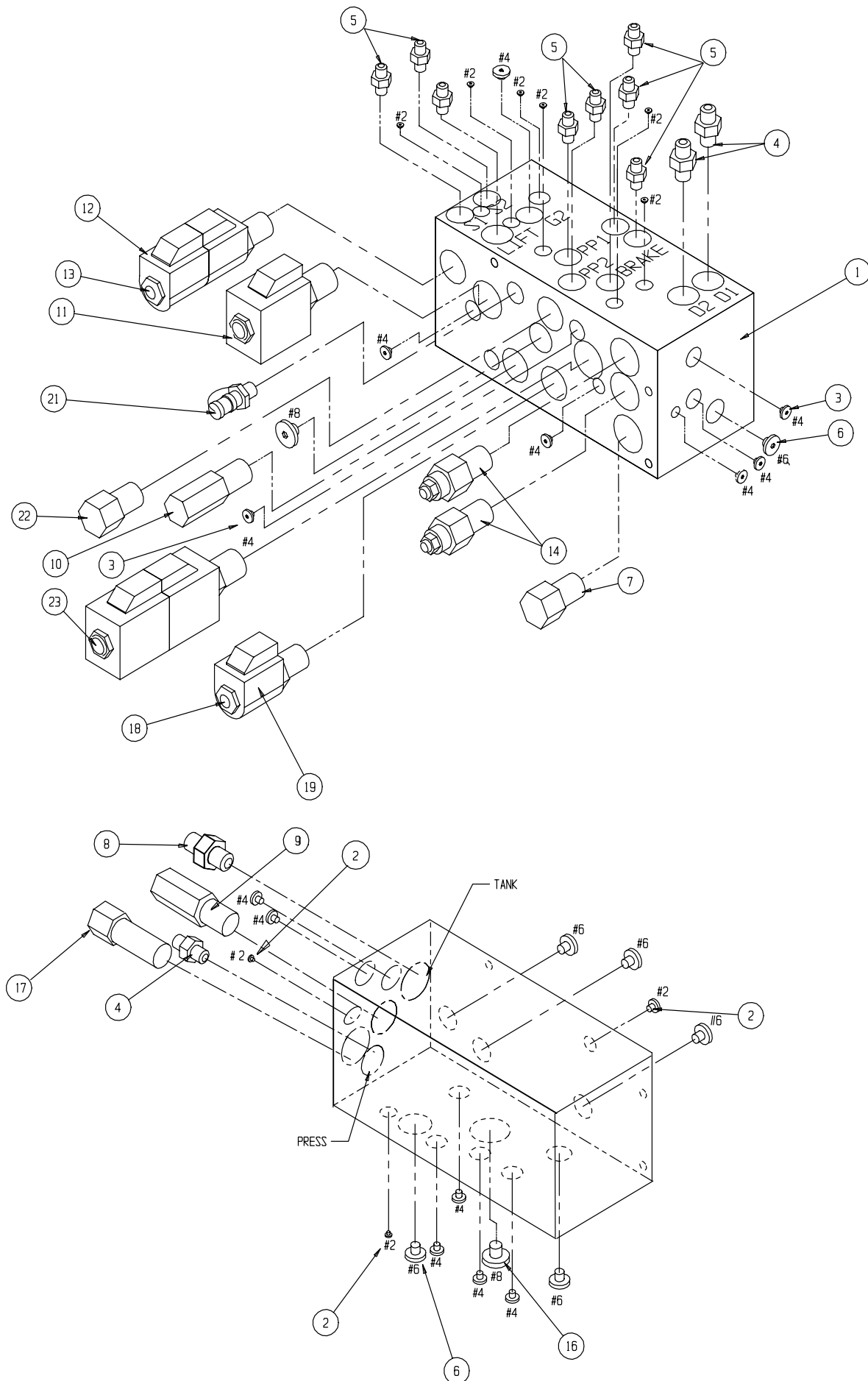
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|------|
| 25 | 011238-005 | WASHER 5/16 SPLIT LOCK | 4 |
| 27 | 011248-006 | NUT ESNA 3/8-16 | 2 |
| 28 | 101120-121 | VALVE ASSEMBLY | 1 |
| 29 | 066735-000 | WELDMENT, POT HOLE TUBE | 1 |
| 30 | 062791-002 | LATCH COVER | 1 |
| 31 | 066753-000 | WELDMENT, PIVOT PIN | 2 |
| 32 | 066803-000 | CYLINDER ASSEMBLY | 1 |
| 33 | 066342-000 | ANGLE | 1 |
| 34 | 066192-000 | BLOCK, COVER | 2 |
| 35 | 011781-011 | BUSHING OILITE #FF-703-1 | 2 |
| 36 | 010122-001 | SOLENOID 24V SPDT | 1 |
| 37 | 011828-008 | SCREW FLAT HD SOC 1/4-20 X 1 | 2 |
| 38 | 011252-010 | SCREW HHC 1/4-20 X 1 1/4 | 2 |
| 39 | 011240-004 | WASHER 1/4 FLAT | 2 |
| 42 | 011240-006 | WASHER 3/8 STD FLAT | 2 |
| 43 | 011757-007 | PIN COTTER #REU 30 | 2 |
| 44 | 064350-010 | SHIM 5/8ID X 1 OD X .031 STL | 2 |
| 46 | 011252-036 | SCREW HHC 1/4-20 X 4 1/2 | 3 |
| 48 | 065968-000 | CHANNEL TANK | 1 |
| 49 | 066807-001 | HORN DUAL TONE | 1 |
| 50 | 011252-006 | SCREW RD HD 6-32 X 3/4 | 1 |



Hydraulic Manifold

101120-121

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---|------|
| 1 | 100020-040 | CONTROL VALVE BLOCK | 1 |
| 2 | 012004-002 | FITTING #2 PLUG | 9 |
| 3 | 012004-004 | FITTING #4 PLUG | 14 |
| 4 | 011941-005 | FITTING STRAIGHT 6MB - 6MJ | 3 |
| 5 | 011941-001 | FITTING STR 4MBH - 4MJ | 5 |
| 6 | 012004-006 | FITTING PLUG #6 | 7 |
| 7 | 060390-009 | LIFT RELIEF VALVE (2500 PSI) | 1 |
| 8 | 011941-010 | FITTING 8MB-8MJX | 1 |
| 9 | 060390-013 | RELIEF VALVE, STEERING (1500 PSI) | 1 |
| 10 | 060390-025 | RELIEF VALVE, MAIN (3000 PSI) | 1 |
| 11 | 063923-006 | 2 POS - 4 WAY SOLENOID W/ COIL (LIFT) | 1 |
| 12 | 101120-033 | COIL | REF |
| 13 | 064845-000 | 3 POS - 4 WAY SOLENOID W/ COILS (STEERING) | 1 |
| 14 | 101120-035 | COUNTERBALANCE VALVE | 2 |
| 16 | 020021-008 | FITTING PLUG #8 | 1 |
| 17 | 064843-000 | FLOW DIVIDER VALVE (1.0 GPM) | 1 |
| 18 | 063973-001 | 2 POS POPPET VALVE W/ COIL (DEPRESSION MECHANISM) | 1 |
| 19 | 101120-033 | COIL | REF |
| 21 | 063965-001 | FITTING GAUGE | 1 |
| 22 | 064841-000 | CHECK VALVE | 1 |
| 23 | 063923-021 | 3 POS - 4 WAY SOLENOID W/ COILS (DRIVE) | 1 |

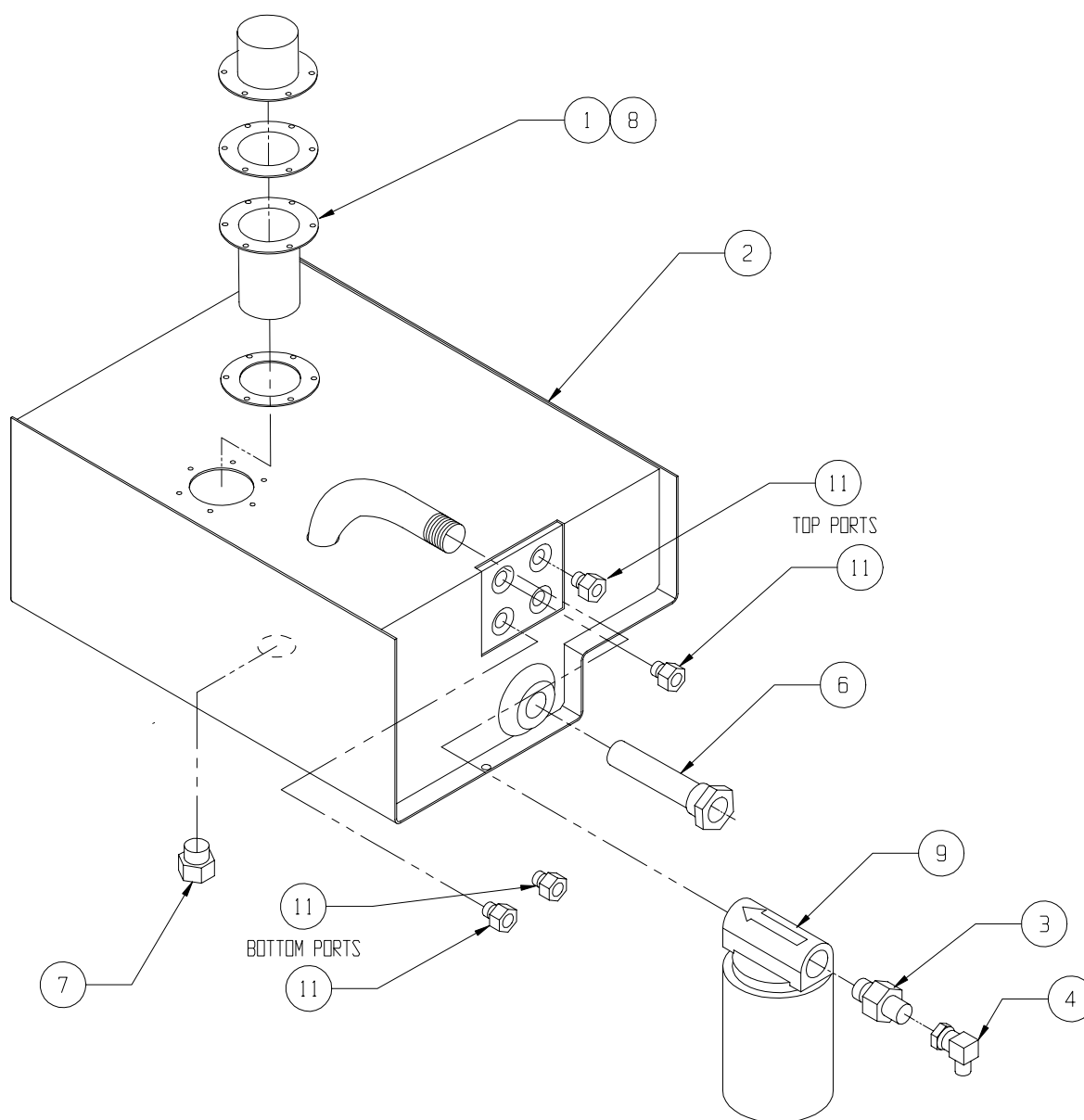


Hydraulic Reservoir Assembly

066780-021

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 1 | 05963-002 | FILLER BREATHER 5PSI | 1 |
| 2 | 066779-010 | WELDMENT RESERVOIR X32N | 1 |
| 3 | 011939-018 | FITTING STR 12MP-6MJ | 1 |
| 4 | 011937-003 | FITTING 90° 6FJX-6MJ | 1 |
| 6 | 061818-000 | FITTING SUCTION SCREEN | 1 |
| 7 | 021305-006 | FITTING PLUG MAGNETIC | 1 |

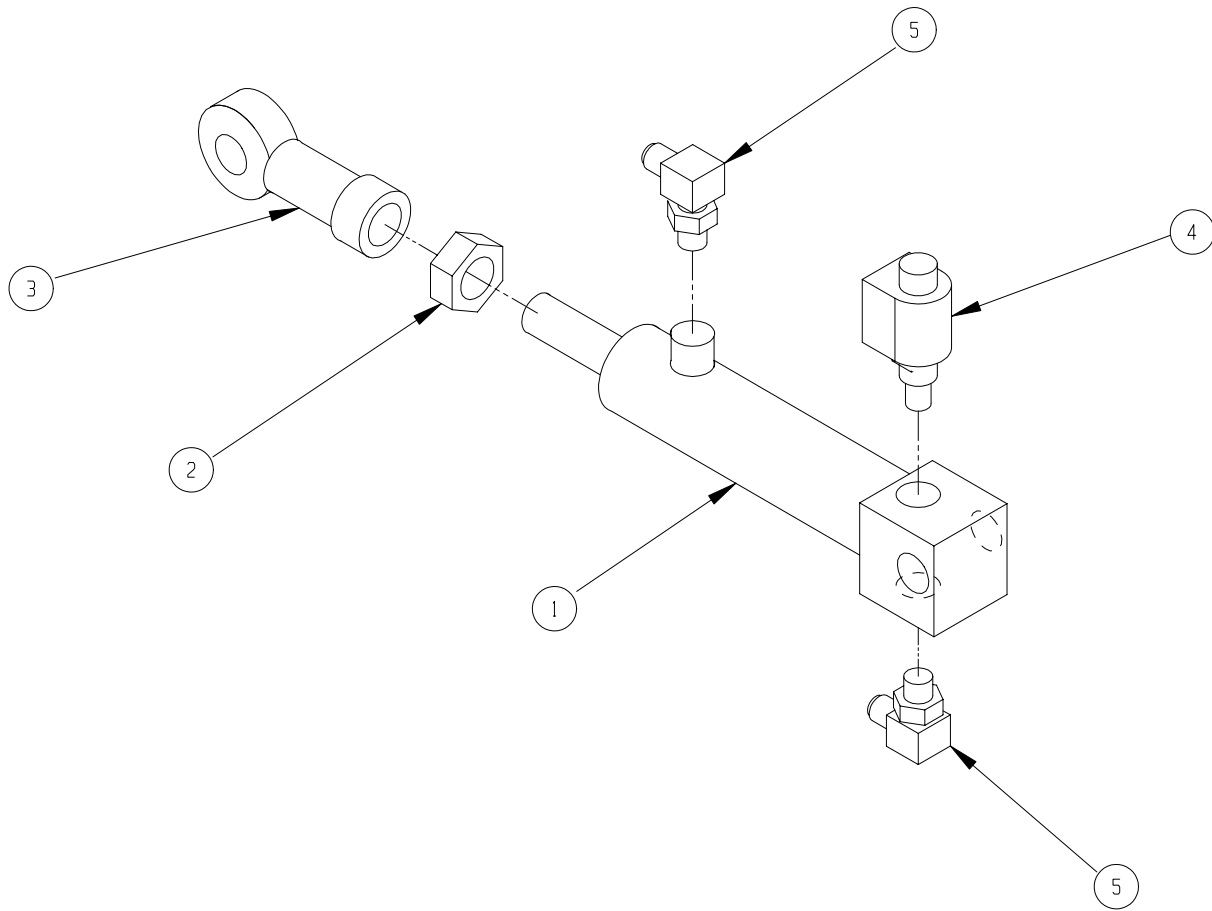
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------|------|
| 8 | 011811-006 | SCREW SELF TAP 10-32 X 1/2 | 6 |
| 9 | 05154-001 | FILTER | 1 |
| * | 05154-002 | REPLACEMENT FILTER | 1 |
| 11 | 020021-006 | FITTING PLUG 6MB | 4 |



Depression Mechanism Cylinder Assembly

066803-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 1 | 066700-001 | CYLINDER | 1 |
| * | 066700-010 | SEAL KIT, CYLINDER | - |
| 2 | 020495-012 | NUT, JAM 3/4-16 | 1 |
| 3 | 066701-000 | BEARING, ROD END | 1 |
| 4 | 063973-001 | VALVE N.C. | 1 |
| 5 | 011934-001 | FITTING 90° 4MB-4MJ | 2 |

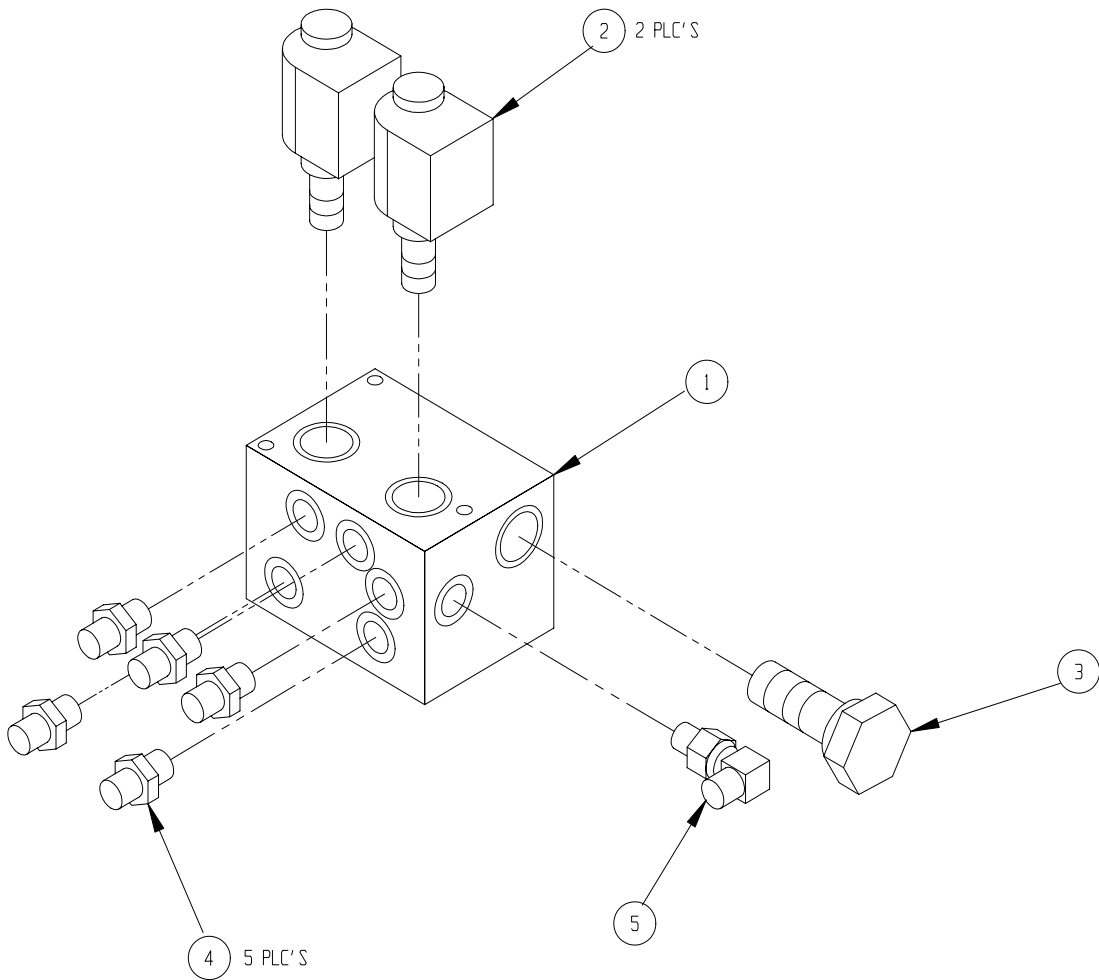


Series/Parallel Valve Assembly-X20W, X26N, X31N

066808-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------|------|
| 1 | 066703-001 | VALVE BLOCK - SERIES PARALLEL | 1 |
| 2 | 061797-000 | VALVE, 3 WAY 2 POSITION | 2 |
| 3 | 063924-007 | VALVE, FLOW DIVIDER | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 4 | 011941-005 | FITTING, STR 6MB-6MJ | 5 |
| 5 | 011934-004 | FITTING, 90° 6MB-6MJ | 1 |

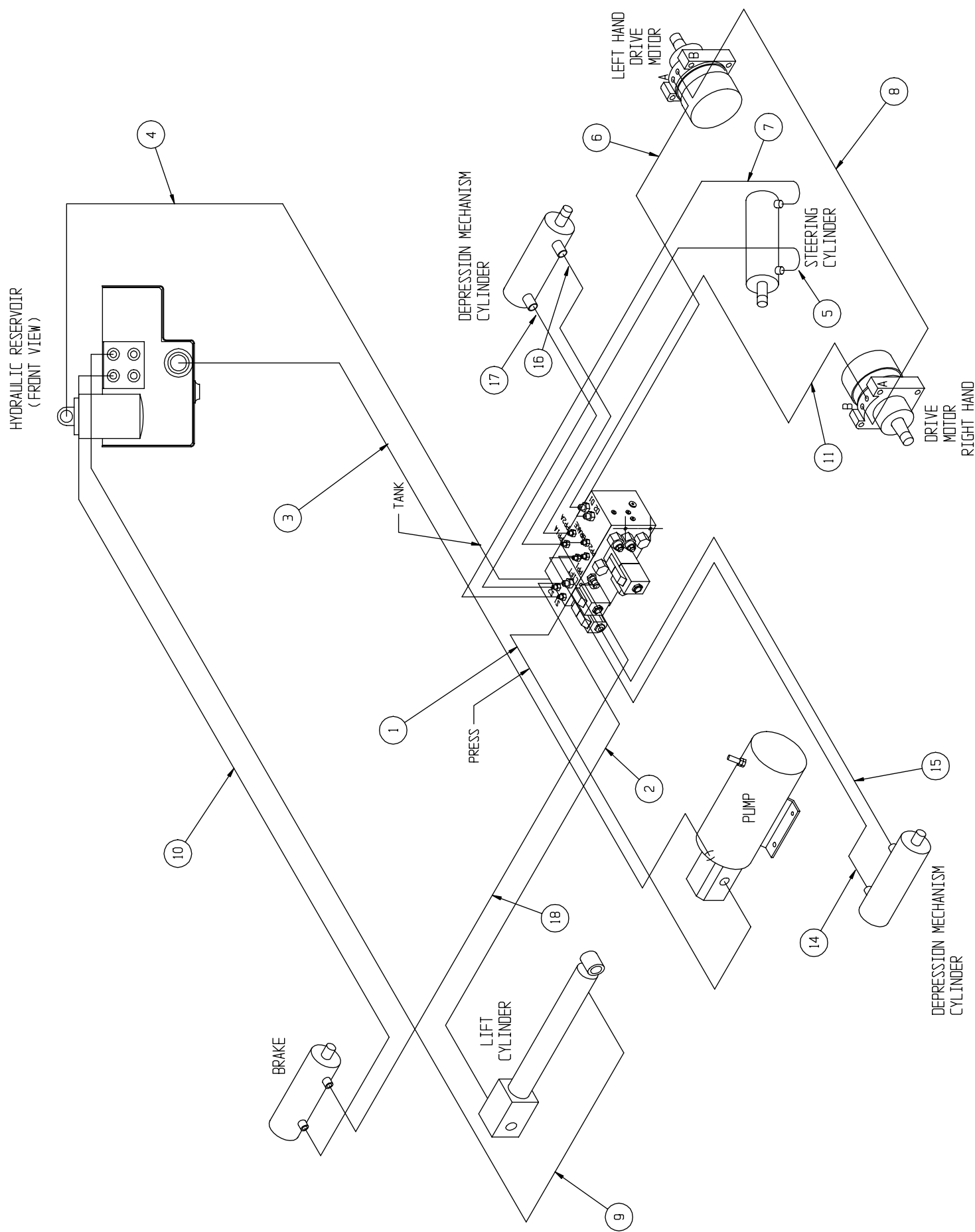


NOTES:

Hose Kit-X20N

066011-020

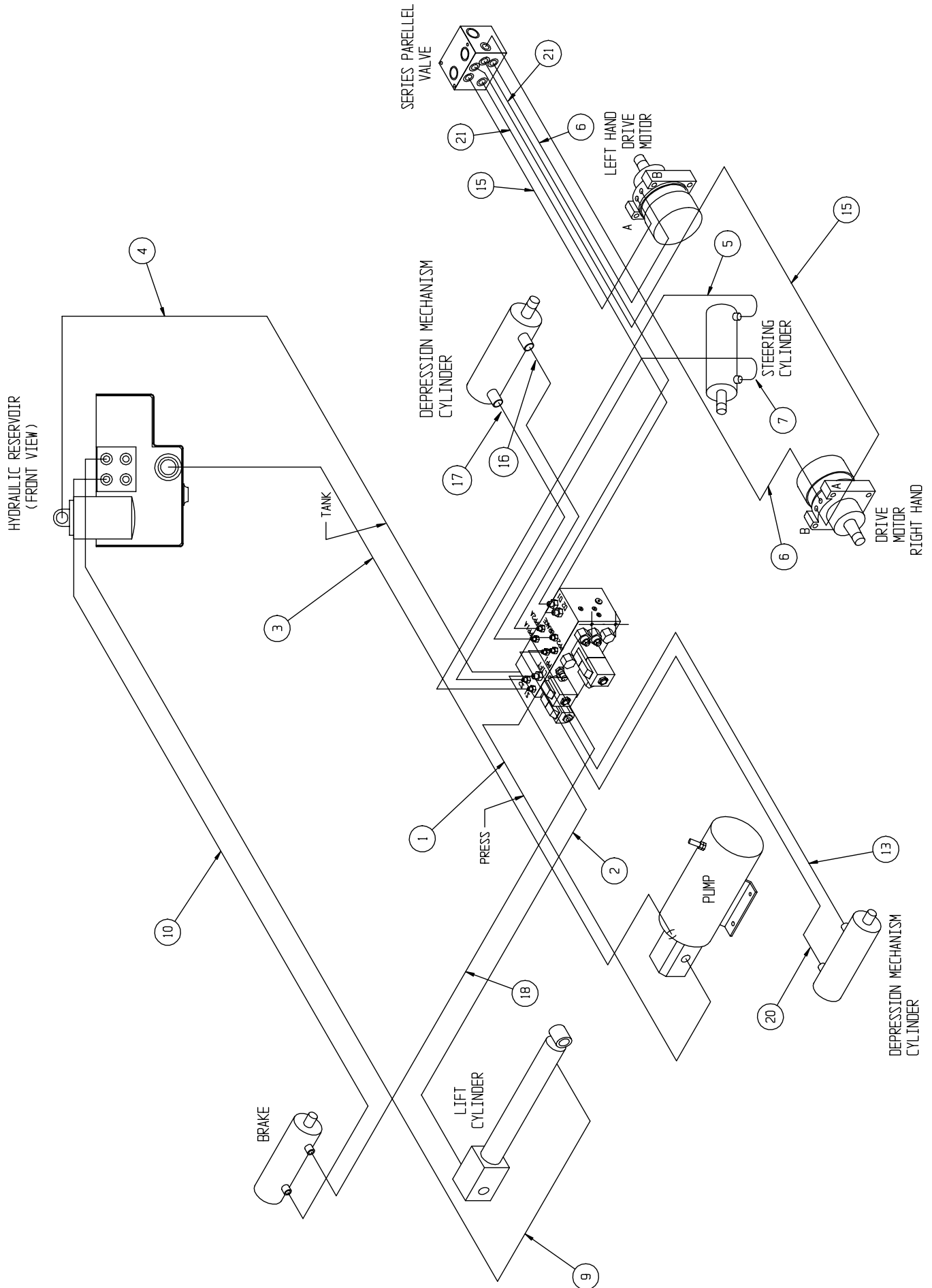
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------------|------|
| 1 | 068965-016 | HOSE ASS'Y 3/8 X 16 (6 FJX-6FJX90) | 1 |
| 2 | 068965-150 | HOSE ASS'Y 3/8 X 150 (6FJX-6FJX90) | 1 |
| 3 | 061789-011 | HOSE ASS'Y 3/4 X 11 (12 FJX-12MP) | 1 |
| 4 | 068965-012 | HOSE ASS'Y 3/8 X 12 (6FJX-6FJX90) | 1 |
| 5 | 107093-046 | HOSE ASS'Y 1/4 X 46 (6FJX-4FJX90) | 1 |
| 6 | 068965-053 | HOSE ASS'Y 3/8 X 53 (6FJX-6FJX90) | 1 |
| 7 | 107093-055 | HOSE ASS'Y 1/4 X 55 (6FJX-4FJX90) | 1 |
| 8 | 060861-005 | HOSE ASS'Y 3/8 X 45 (6 FJX-6FJX) | 1 |
| 9 | 062192-040 | HOSE ASS'Y 1/4 X 191 (6FJX-6FJX) | 1 |
| 10 | 060861-106 | HOSE ASS'Y 3/8 X 106 (6 FJX-6FJX) | 1 |
| 11 | 068965-055 | HOSE ASS'Y 3/8 X 55 (6 FJX-4FJX 90) | 1 |
| 14 | 107090-036 | HOSE ASS'Y 1/4 X 36 (4 FJX-4FJX90) | 1 |
| 15 | 107090-048 | HOSE ASS'Y 1/4 X 48 (4 FJX-4FJX90) | 1 |
| 16 | 107090-105 | HOSE ASS'Y 1/4 X 105 (4 FJX-4FJX90) | 1 |
| 17 | 107090-111 | HOSE ASS'Y 1/4 X 111 (4 FJX-4FJX90) | 1 |
| 18 | 060861-110 | HOSE ASS'Y 3/8 X 95 (6 FJX-6FJX) | 1 |



Hose Kit-X20W,X26N

066061-020

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------------|------|
| 1 | 068965-016 | HOSE ASS'Y 3/8 X 16 (6FJX-6FJX90) | 1 |
| 2 | 068965-156 | HOSE ASS'Y 3/8 X 156 (6FJX-6FJX90) | 1 |
| 3 | 061789-011 | HOSE ASS'Y 3/4 X 11 (12FJX-12MP) | 1 |
| 4 | 068965-012 | HOSE ASS'Y 3/8 X 12 (6FJX-6FJX90) | 2 |
| 5 | 107093-062 | HOSE ASS'Y 1/4 X 62 (6FJX-4FJX 90) | 1 |
| 6 | 060861-056 | HOSE ASS'Y 3/8 X 64 (6FJX-6FJX) | 2 |
| 7 | 107093-059 | HOSE ASS'Y 1/4 X 59 (6FJX-4FJX 90) | 1 |
| 9 | 066825-201 | HOSE ASS'Y 1/4 X 201 (6FJX-6FJX) | 1 |
| 10 | 066825-003 | HOSE ASS'Y 1/4 X 127 (6FJX-6FJX) | 2 |
| 13 | 107090-045 | HOSE ASS'Y 1/4 X 45 (4FJX-4FJX90) | 1 |
| 15 | 060861-070 | HOSE ASS'Y 3/8 X 62(6FJX-6FJX) | 2 |
| 16 | 107090-113 | HOSE ASS'Y 1/4 X 113 (4FJX-4FJX90) | 1 |
| 17 | 107090-121 | HOSE ASS'Y 1/4 X 121 (4FJX-4FJX) | 1 |
| 18 | 068965-110 | HOSE ASS'Y 3/8 X 110 (6FJX-6FJX90) | 1 |
| 20 | 107090-048 | HOSE ASS'Y 1/4 X 48 (4FJX-4FJX90) | 1 |
| 21 | 068965-056 | HOSE ASS'Y 3/8 X 56 (6FJX-6FJX90) | 2 |

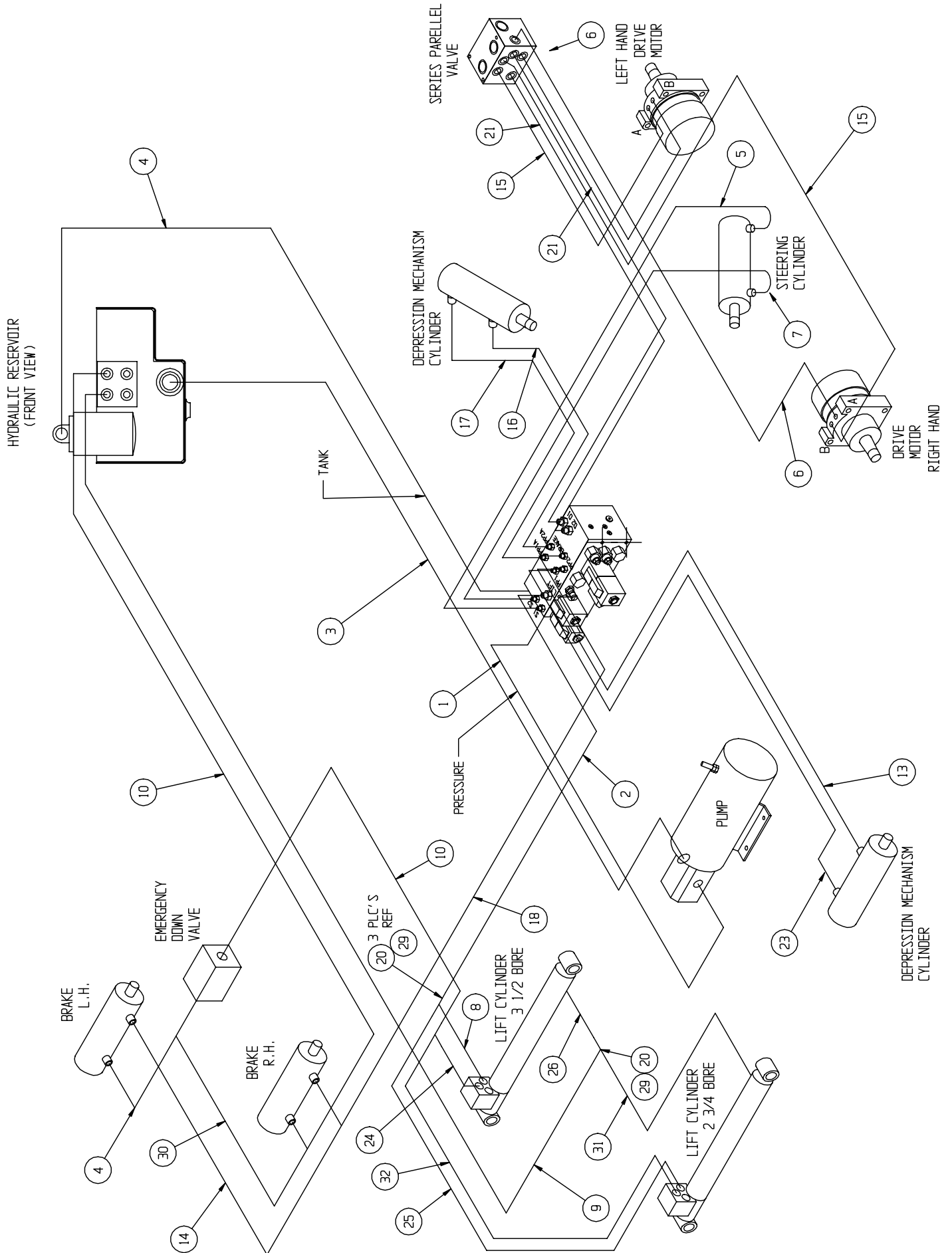


Hose Kit-X31N

066861-020

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|-------------|-------------------------------------|------|
| 1 | 068965-016 | HOSE ASS'Y 3/8 X 16 (6FJX-6FJX90) | 1 |
| 2 | 068965-082 | HOSE ASS'Y 3/8 X 82 (6FJX-6FJX90) | 1 |
| 3 | 061789-008 | HOSE ASS'Y 3/4 X 8-3/4 (12FJX-12MP) | 1 |
| 4 | 068965-018 | HOSE ASS'Y 3/8 X 18 (6FJX-6FJX90) | 2 |
| 5 | 107093-062 | HOSE ASS'Y 1/4 X 62 (6FJX-4FJX 90) | 1 |
| 6 | 060861-056 | HOSE ASS'Y 3/8 X64 (6FJX-6FJX) | 2 |
| 7 | 107093-059 | HOSE ASS'Y 1/4 X 59 (6FJX-4FJX 90) | 1 |
| 8 | 0066823-002 | HOSE ASS'Y 3/8 X 60 (6FJX-6FJX90) | 1 |
| 9 | 066825-008 | HOSE ASS'Y 1/4 X 132 (6FJX-6FJX) | 1 |
| 10 | 066825-003 | HOSE ASS'Y 1/4 X 127 (6FJX-6FJX) | 2 |
| 13 | 107090-045 | HOSE ASS'Y 1/4 X 45 (4FJX-4FJX90) | 1 |
| 14 | 060861-109 | HOSE ASS'Y 3/8 X 32 (6FJX-6FJX) | 1 |
| 15 | 060861-070 | HOSE ASS'Y 3/8 X 62 (6FJX-6FJX) | 2 |
| 16 | 107090-113 | HOSE ASS'Y 1/4 X 113 (4FJX-4FJX90) | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------------|------|
| 17 | 107090-121 | HOSE ASS'Y 1/4 X 121 (4FJX-4FJX) | 1 |
| 18 | 107093-110 | HOSE ASS'Y 1/4 X 110 (6FJX-4FJX90) | 1 |
| 20 | 020032-003 | TEE 6MJ-6MJ-6MJ | REF |
| 21 | 068965-056 | HOSE ASS'Y 3/8 X 56 (6FJX-6FJX90) | 2 |
| 23 | 107090-048 | HOSE ASS'Y 1/4 X 48 (4FJX-4FJX90) | 1 |
| 24 | 066822-001 | HOSE ASSY 1/4 X 51 (6FJX-6FJX90) | 1 |
| 25 | 066824-003 | HOSE ASS'Y 3/8 X 245 (6FJX-6FJX) | 1 |
| 26 | 066825-007 | HOSE ASS'Y 1/4 X 71 (6FJX-6FJX) | 1 |
| 29 | 011937-003 | FITTING 90° 6FJX - 6MJ | REF |
| 30 | 066825-002 | HOSE ASS'Y 1/4 X 32 (6FJX-6FJX) | 1 |
| 31 | 066825-004 | HOSE ASS'Y 1/4 X 245 (6FJX-6FJX) | 1 |
| 32 | 066825-005 | HOSE ASS'Y 1/4 X 236 (6FJX-6FJX) | 1 |

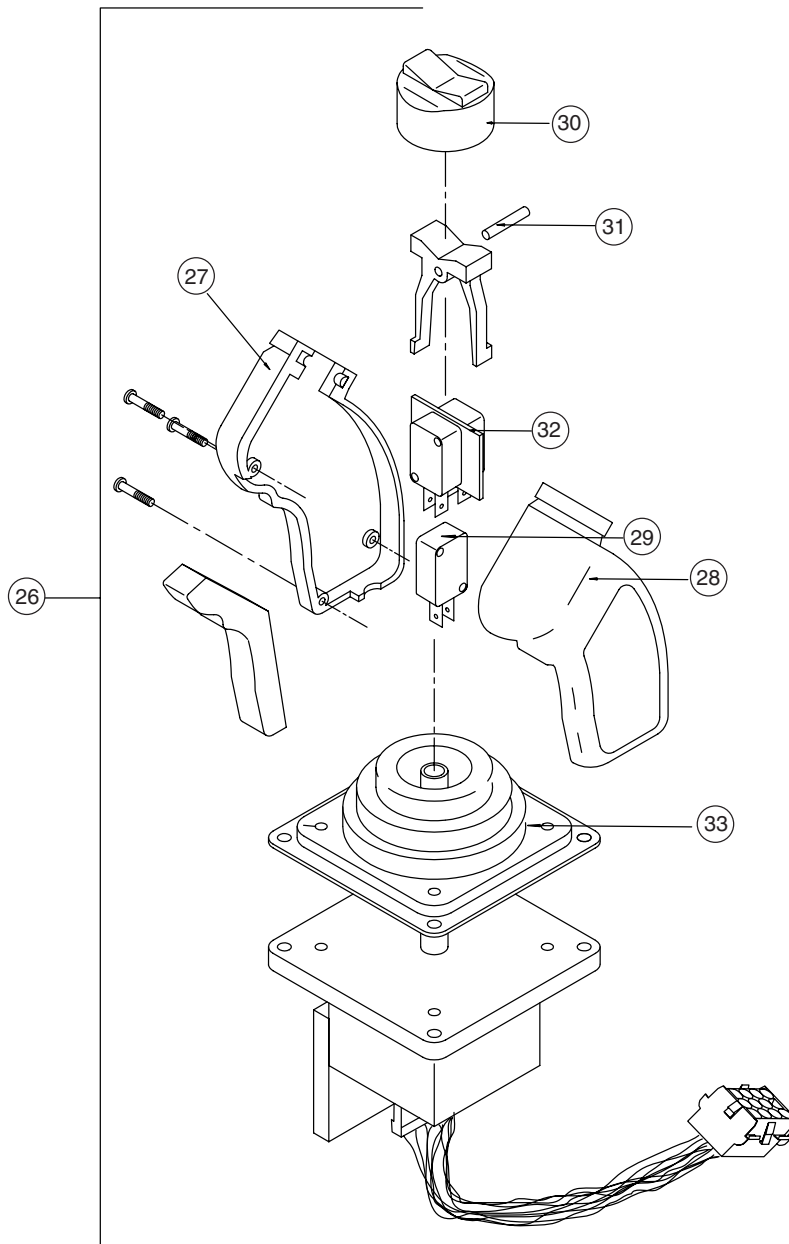


Platform Controls-X20N

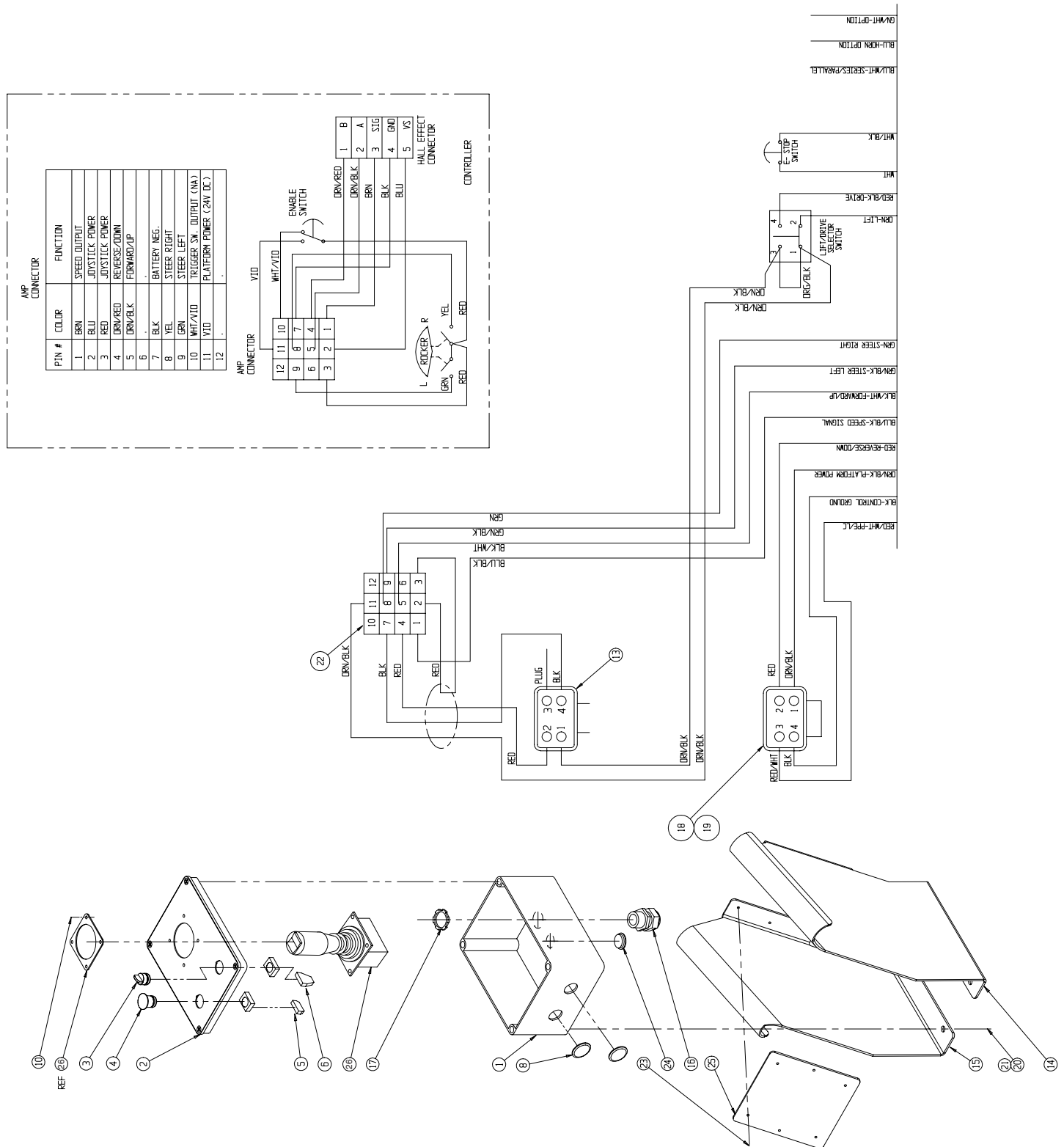
066013-022

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------|------|
| 1 | 066175-013 | ENCLOSURE BOX BODY | 1 |
| 2 | 066175-014 | ENCLOSURE BOX COVER | 1 |
| 3 | 066805-002 | SWITCH SELECTOR-2 POSITION | 1 |
| 4 | 066805-006 | SWITCH PUSH BUTTON | 1 |
| 5 | 066805-011 | CONTACT NC | 1 |
| 6 | 066805-012 | CONTACT NO - NC | 1 |
| 8 | 064462-009 | HOLE PLUG | 2 |
| 10 | 026525-008 | SCREW SLFTP #8 AB HWH X 1 | 4 |
| 13 | 101240-000 | CABLE ASSY CONTROLLER | 1 |
| 14 | 066095-010 | PANEL, CONTROLLER R.H. | 1 |
| 15 | 066094-010 | PANEL, CONTROLLER L.H. | 1 |
| 16 | 029925-010 | CONN CABLE | 1 |
| 17 | 029939-003 | LOCKNUT 3/4 | 1 |
| 18 | 067990-020 | 4 PIN RECEPTACLE | 1 |
| 19 | 067990-023 | 4 PIN WEDGE | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------|------|
| 20 | 011238-004 | WASHER 1/4 LOCK | 4 |
| 21 | 011252-004 | SCREW 1/4-20 UNC HHC X 1/2 | 4 |
| 22 | 063956-003 | CONN 12 PIN | 1 |
| 23 | 026551-007 | RIVET 1/8 DIA X 1/4-5/16 GRIP | 6 |
| 24 | 064462-007 | CAPLUG Ø7/8 | 1 |
| 25 | 066092-000 | PANEL CONTROLLER | 1 |
| 26 | 065512-000 | CONTROLLER PQ | 1 |
| 27 | 065512-016 | HANDLE HALF, RIGHT | 1 |
| 28 | 065512-017 | HANDLE HALF, LEFT | 1 |
| 29 | 063953-007 | SWITCH, INTERLOCK | 1 |
| 30 | 063953-001 | CAP, RUBBER | 1 |
| 31 | 065512-013 | ROCKER PIN | 1 |
| 32 | 065512-015 | SWITCH, STEERING | 1 |
| 33 | 065512-018 | BOOT, HANDLE | 1 |



Drawing # 1 of 2

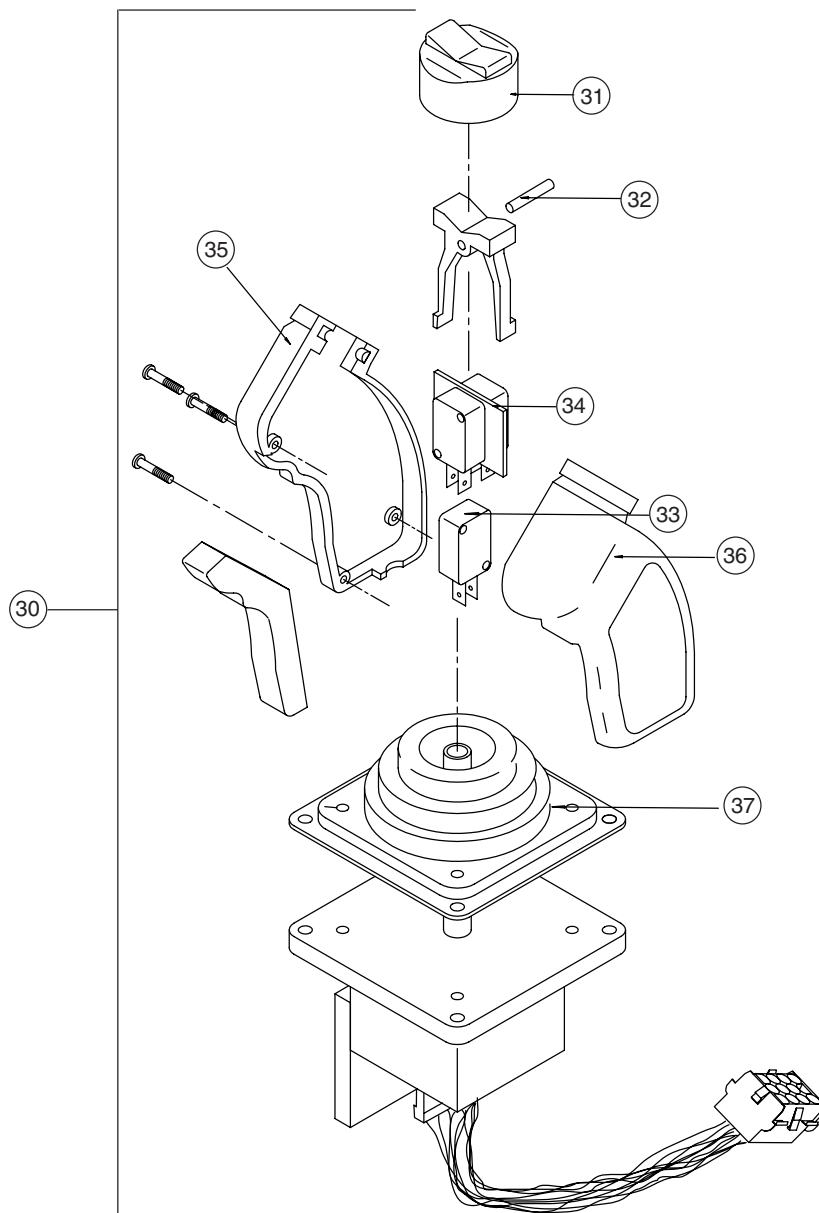


Platform Controls-X20W, X26N, X31N

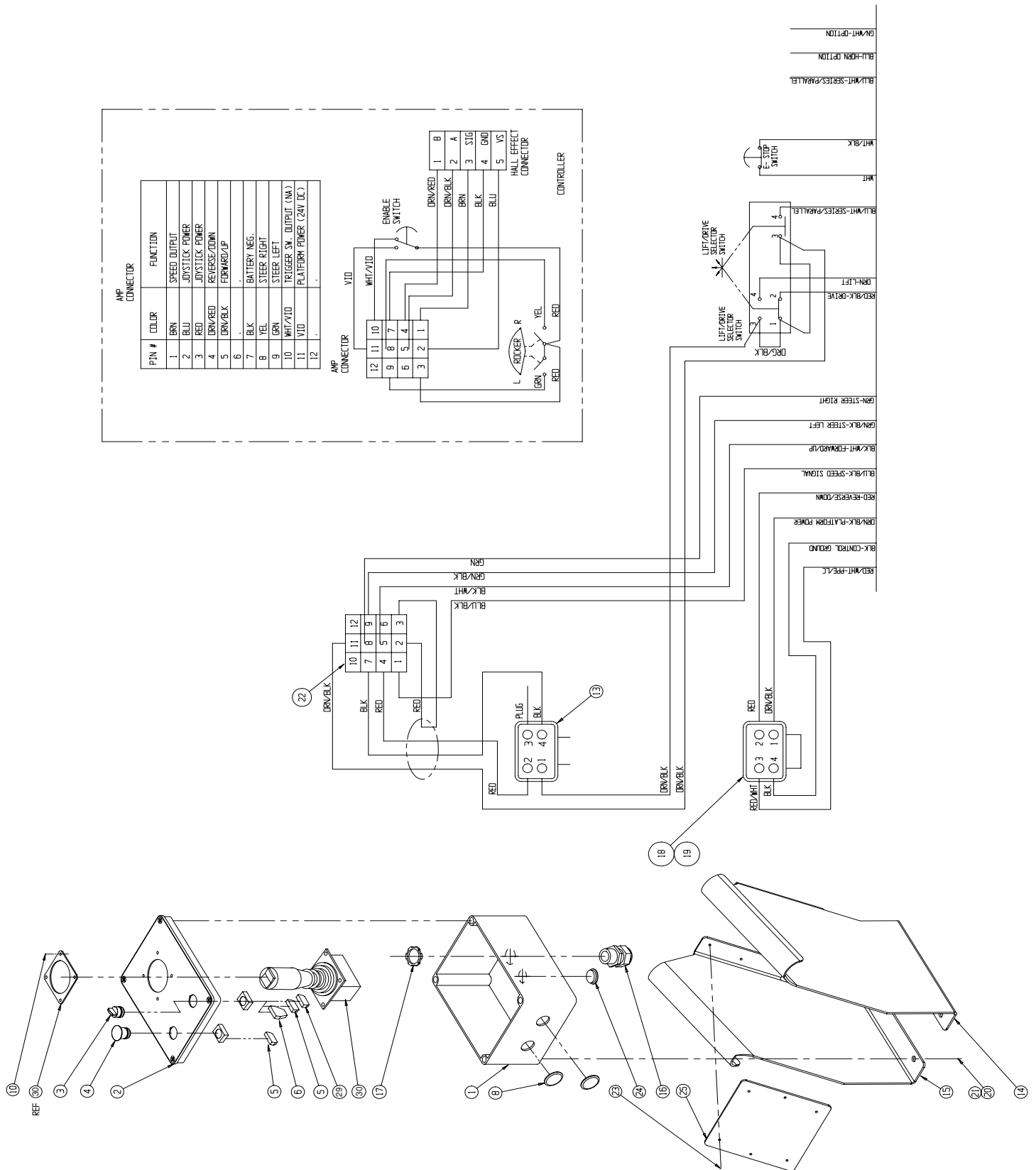
066013-024

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------|------|
| 1 | 066175-013 | ENCLOSURE BOX BODY | 1 |
| 2 | 066175-014 | ENCLOSURE BOX COVER | 1 |
| 3 | 066805-003 | SWITCH SELECTOR-3 POSITION | 1 |
| 4 | 066805-006 | SWITCH PUSH BUTTON | 1 |
| 5 | 066805-011 | CONTACT NC | 2 |
| 6 | 066805-012 | CONTACT NO - NC | 1 |
| 8 | 064462-009 | HOLE PLUG | 2 |
| 10 | 026525-008 | SCREW SLFTP #8 AB HWH X 1 | 4 |
| 13 | 101240-002 | CABLE ASSY CONTROLLER | 1 |
| 14 | 066095-010 | PANEL, CONTROLLER R.H. | 1 |
| 15 | 066094-010 | PANEL, CONTROLLER L.H. | 1 |
| 16 | 029925-010 | CONN CABLE | 1 |
| 17 | 029939-003 | LOCKNUT 3/4 | 1 |
| 18 | 067990-020 | 4 PIN RECEPTACLE | 1 |
| 19 | 067990-023 | 4 PIN WEDGE | 1 |
| 20 | 011238-004 | WASHER 1/4 LOCK | 4 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|-------------------------------|------|
| 21 | 011252-004 | SCREW 1/4-20 UNC HHC X 1/2 | 4 |
| 22 | 063956-003 | CONN 12 PIN | 1 |
| 23 | 026551-007 | RIVET 1/8 DIA X 1/4-5/16 GRIP | 6 |
| 24 | 064462-007 | CAPLUG Ø7/8 | 1 |
| 25 | 066092-000 | PANEL CONTROLLER | 1 |
| 29 | 066805-010 | CONTACT BLOCK N.O. | 1 |
| 30 | 065512-000 | CONTROLLER PQ | 1 |
| 31 | 063953-001 | CAP, RUBBER | 1 |
| 32 | 065512-013 | ROCKER PIN | |
| 33 | 063953-007 | SWITCH, INTERLOCK | 1 |
| 34 | 065512-015 | SWITCH, STEERING | 1 |
| 35 | 065512-016 | HANDLE HALF, RIGHT | 1 |
| 36 | 065512-017 | HANDLE HALF, LEFT | 1 |
| 37 | 065512-018 | BOOT, HANDLE | 1 |



Drawing # 1 of 2

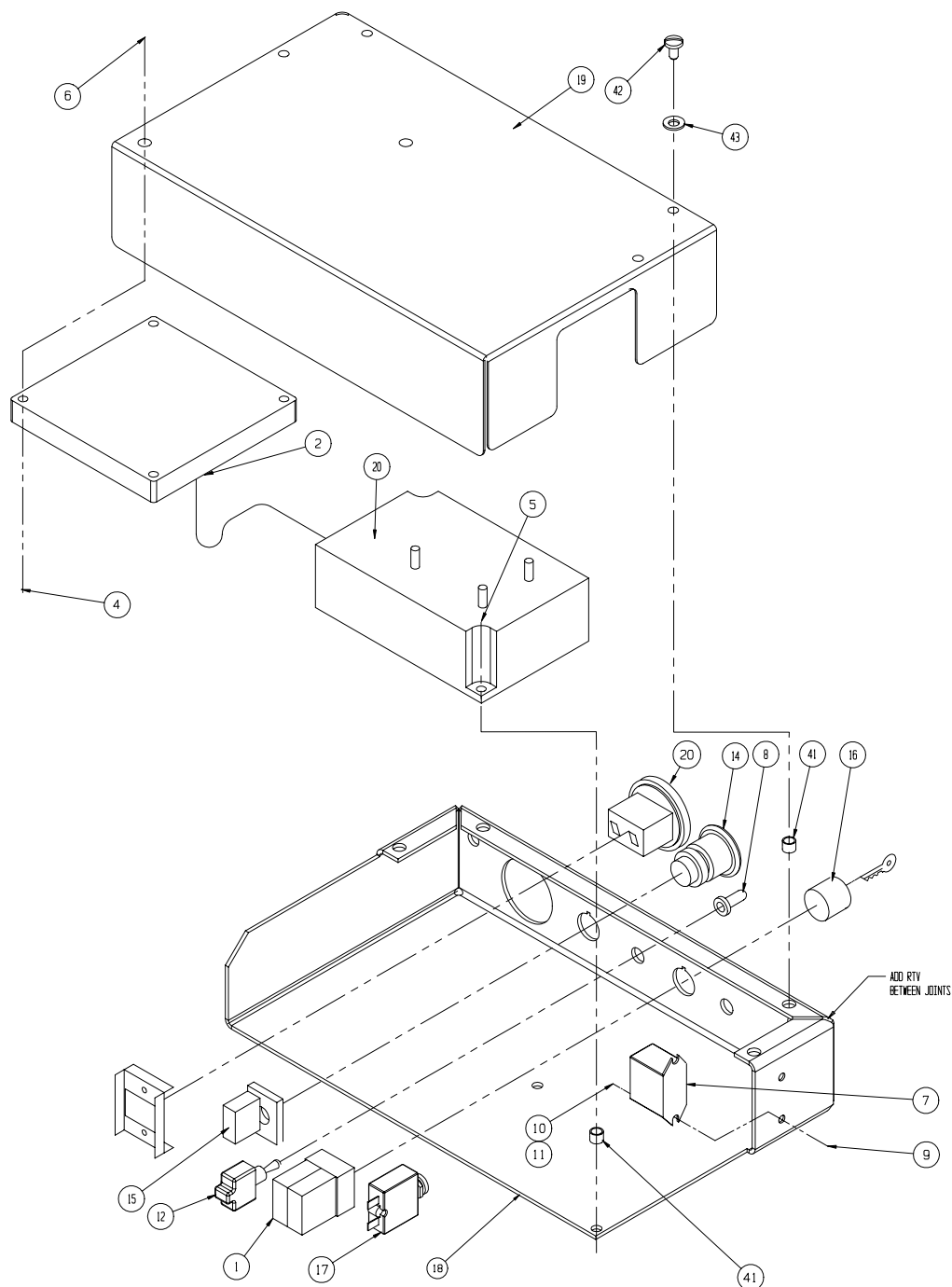


Lower Control Box Assembly

066014-020

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|------|
| 1 | 066805-010 | SWITCH CONTACT N.O. | 2 |
| 2 | 065709-001 | CIRCUIT BOARD | 1 |
| 4 | 011248-004 | NUT HEX ESNA 1/4-20 UNC | 2 |
| 5 | 011252-008 | SCREW HHC 1/4-20 UNC X 1 | 2 |
| 6 | 011252-012 | SCREW HHC 1/4-20 UNC X 1 1/2 | 2 |
| 7 | 063951-002 | RELAY 24 V | 1 |
| 8 | 029872-000 | BOOT SWITCH COVER | 1 |
| 9 | 011288-006 | SCREW PAN HD #6-32 X 3/4 | 2 |
| 10 | 011240-001 | WASHER FLAT #6 STD | 2 |
| 11 | 011248-047 | NUT 6-32 | 2 |
| 12 | 012798-001 | TOGGLE SWITCH | 1 |
| 14 | 066805-006 | SWITCH PUSH BOTTON | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 15 | 066805-011 | CONTACT BLOCK N.C. | 1 |
| 16 | 066805-004 | KEYSWITCH | 1 |
| * | 068807-010 | KEY | 1 |
| 17 | 068582-005 | CIRCUIT BRAKER | 1 |
| 18 | 066755-020 | LOWER CONTROL BOX | 1 |
| 19 | 066756-020 | PANEL, COVER | 1 |
| 20 | 065708-001 | MOTOR CONTROL | 1 |
| 21 | 015752-000 | HOURLMETER | 1 |
| 41 | 014252-004 | NUTSERT 1/4-20 | 6 |
| 42 | 011252-004 | SCREW HHC 1/4-20 X 1/2 LG | 4 |
| 43 | 011240-004 | WASHER 1/4 FLAT | 4 |

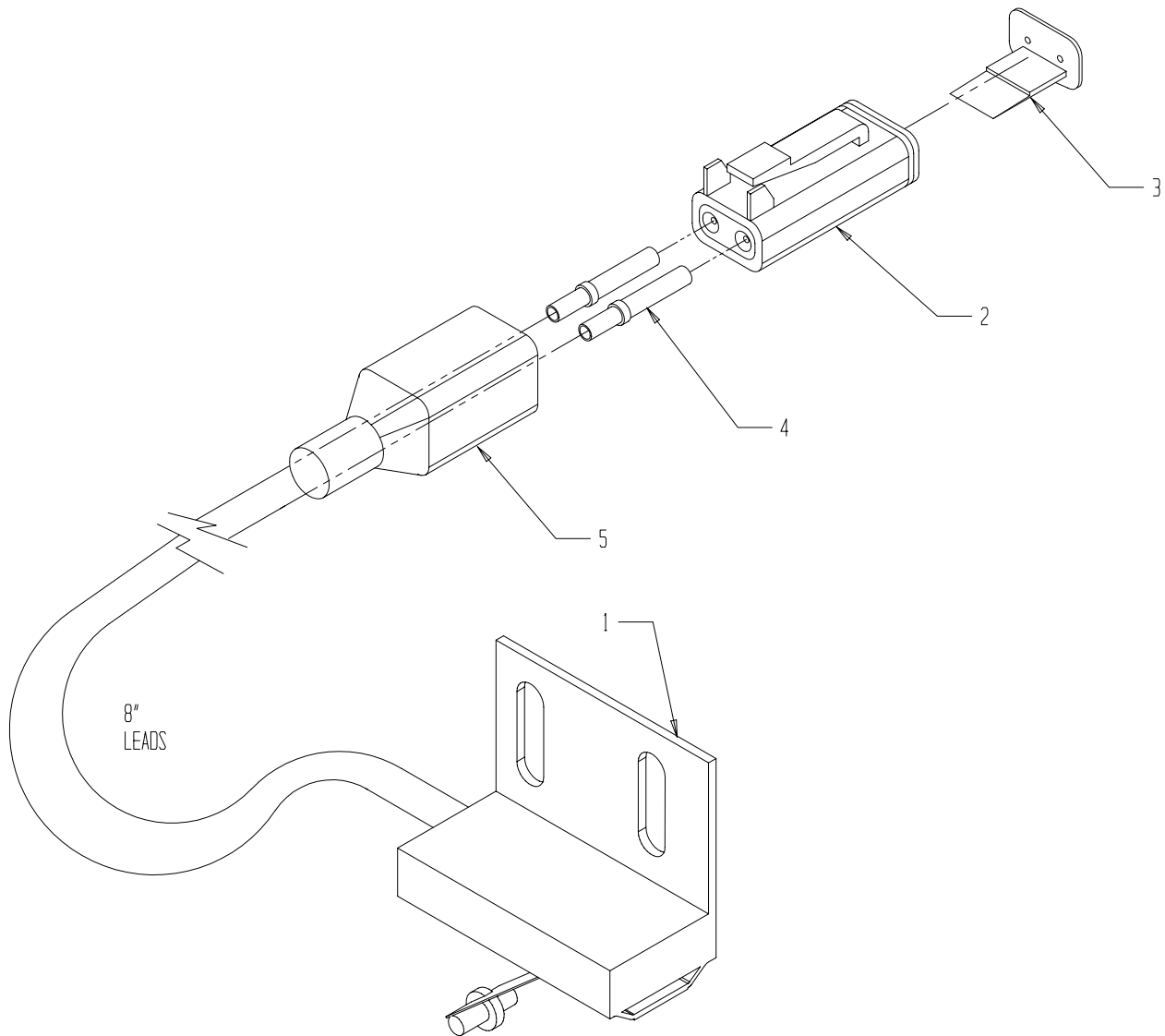


Roller Single Switch Wire Assembly

066490-020

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|--------------------------------------|------|
| 1 | 066490-000 | SWITCH ROLLER SINGLE CPI # E1257-501 | 1 |
| 2 | 067990-012 | PLUG 2 CONTACT DT 06-2S | 1 |
| 3 | 067990-011 | WEDGE W2S | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 4 | 068762-001 | CONTACT SOCKET | 2 |
| 5 | 068908-010 | BOOT DT2S-BT | 1 |

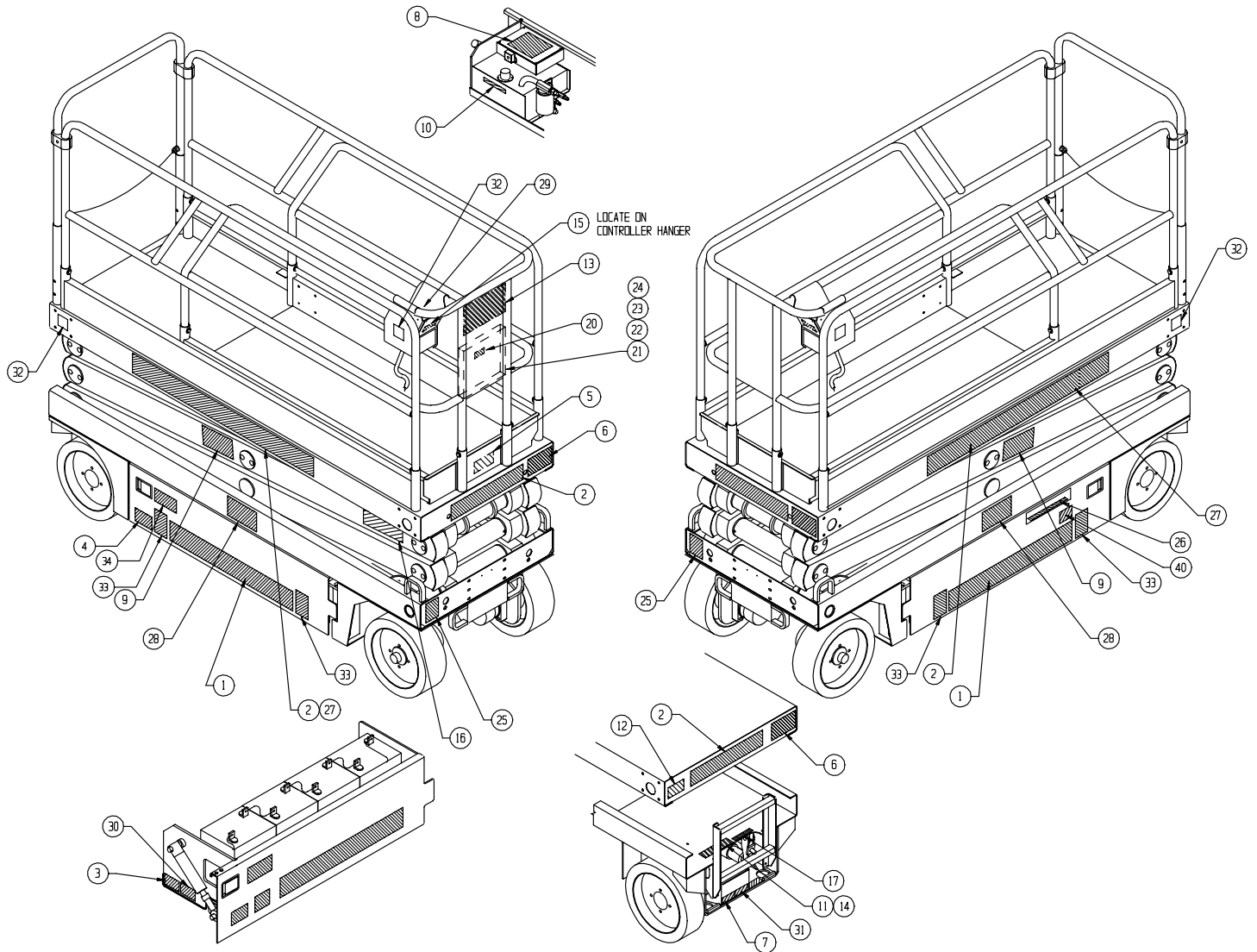


Label Kit-X20N

066010-015

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|--------------|------------------------------|------|
| 1 | 061683-006 | LABEL UPRIGHT | 2 |
| 2 | 061683-004 | LABEL UPRIGHT | 4 |
| 3 | 05221-000 | LABEL MANTAIN BATTERY | 1 |
| 4 | 066552-000 | LABEL HYDR GAS | 1 |
| 5 | 101251-000 | LABEL MAX LOAD DECK EXT | 1 |
| 6 | 101250-002 | LABEL MAX LOAD PLATFORM | 2 |
| 7 | 14222-003-99 | LABEL FORK LIFT HERE | 2 |
| 8 | 066555-000 | LABEL LIMIT SWITCHES | 1 |
| 9 | 066553-000 | LABEL WARNING | 2 |
| 10 | 060197-000 | LABEL HYDRAULIC FLUID | 1 |
| 11 | 061205-005 | LABEL NAME PLATE | 1 |
| 12 | 061220-002 | LABEL ANSI | 1 |
| 13 | 066550-000 | LABEL DANGER | 1 |
| 14 | 065368-000 | TACK | 4 |
| 15 | 066554-000 | LABEL READ INSTRUCTIONS | 1 |
| 16 | 066561-000 | LABEL SAFETY STAND | 1 |
| 17 | 066558-000 | LABEL EMER LOWER PULL HANDLE | 1 |
| 18 | 060572-003 | USER MANUAL | 1 |

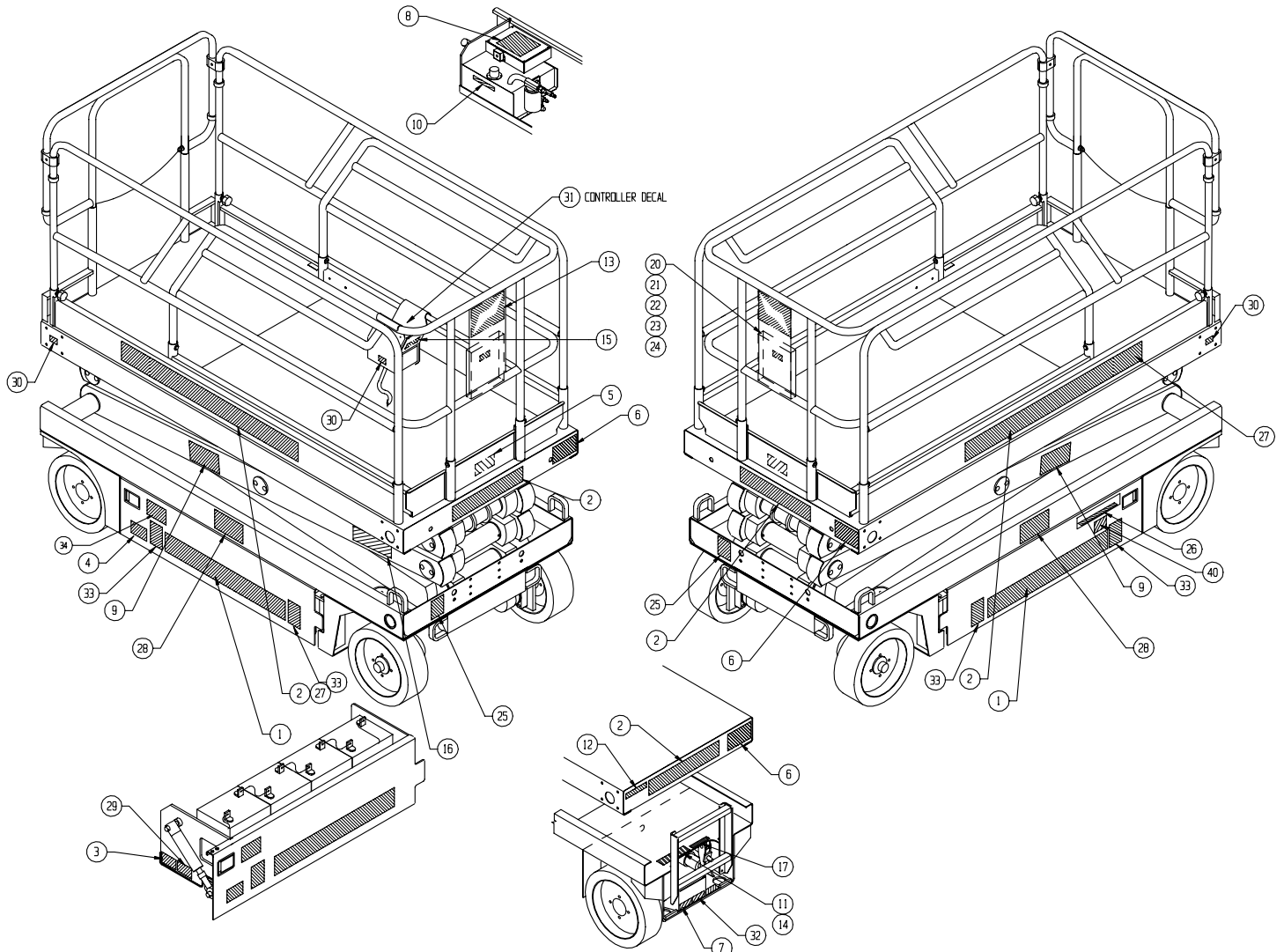
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------|------|
| 19 | 060577-004 | ANSI MANUAL | 1 |
| 20 | 010076-001 | LABEL INSTRUCTIONS | 1 |
| 21 | 010076-000 | MANUAL CASE | 1 |
| 22 | 011252-006 | SCREW HHC 1/4-20 X 3/4 LG | 2 |
| 23 | 011248-004 | NUT 1/4-20 HEX | 2 |
| 24 | 011240-004 | WASHER 1/4 FLAT | 2 |
| 25 | 066556-000 | LABEL WARNING (COLLISION) | 1 |
| 26 | 066559-000 | LABEL LOWER CONTROLS | 1 |
| 27 | 061684-018 | LABEL X 20 N | 2 |
| 28 | 061684-016 | LABEL X | 2 |
| 29 | 066560-011 | LABEL CONTROLLER | 1 |
| 30 | 062562-001 | LABEL - BATTERIES | 1 |
| 31 | 066522-000 | LABEL - BATTERY CHARGER | 1 |
| 32 | 064444-000 | LABEL - USA | 4 |
| 33 | 066556-001 | LABEL - WARNING | 4 |
| 34 | 107051-000 | LABEL - BATTERY DISCONNECT | 1 |
| 40 | 101252-004 | LABEL MAX LOAD WHEEL | 1 |



Label Kit-X20W

066060-015

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|--------------|------------------------------|------|
| 1 | 061683-006 | LABEL UPRIGHT | 2 |
| 2 | 061683-004 | LABEL UPRIGHT | 4 |
| 3 | 05221-000 | LABEL MANTAIN BATTERY | 1 |
| 4 | 066552-000 | LABEL HYDR GAS | 1 |
| 5 | 101251-000 | LABEL MAX LOAD DECK EXT. | 1 |
| 6 | 101250-003 | LABEL MAX LOAD PLATFORM | 2 |
| 7 | 14222-003-99 | LABEL FORK LIFT HERE | 2 |
| 8 | 066555-000 | LABEL LIMIT SWITCHES | 1 |
| 9 | 066553-000 | LABEL WARNING | 2 |
| 10 | 060197-000 | LABEL HYDRAULIC FLUID | 1 |
| 11 | 061205-005 | LABEL NAME PLATE | 1 |
| 12 | 061220-002 | LABEL ANSI | 1 |
| 13 | 066550-000 | LABEL DANGER | 1 |
| 14 | 065368-000 | TACK | 4 |
| 15 | 066554-000 | LABEL READ INSTRUCTIONS | 1 |
| 16 | 066561-000 | LABEL SAFETY STAND | 1 |
| 17 | 066558-000 | LABEL EMER LOWER PULL HANDLE | 1 |
| 18 | 060572-003 | USER MANUAL | 1 |
| 19 | 060577-004 | ANSI MANUAL | 1 |
| 20 | 010076-001 | LABEL INSTRUCTIONS | 1 |
| 21 | 010076-000 | MANUAL CASE | 1 |
| 22 | 011252-006 | SCREW HHC 1/4-20 X 3/4 LG | 2 |
| 23 | 011248-004 | NUT 1/4-20 HEX | 2 |
| 24 | 011240-004 | WASHER 1/4 FLAT | 2 |
| 25 | 066556-000 | LABEL WARNING (COLLISION) | 1 |
| 26 | 066559-000 | LABEL LOWER CONTROLS | 1 |
| 27 | 061684-019 | LABEL X 20 W | 2 |
| 28 | 61684-016 | LABEL X | 2 |
| 29 | 062562-001 | LABEL DANGER | 1 |
| 30 | 064444-000 | LABEL USA | 4 |
| 31 | 066560-010 | LABEL CONTROLLER | 1 |
| 32 | 066522-000 | LABEL BATTERY CHARGER | 1 |
| 33 | 066556-001 | LABEL - WARNING | 4 |
| 34 | 107051-000 | LABEL - BATTERY DISCONNECT | 1 |
| 40 | 101252-004 | LABEL MAX WHEEL LOAD | 1 |

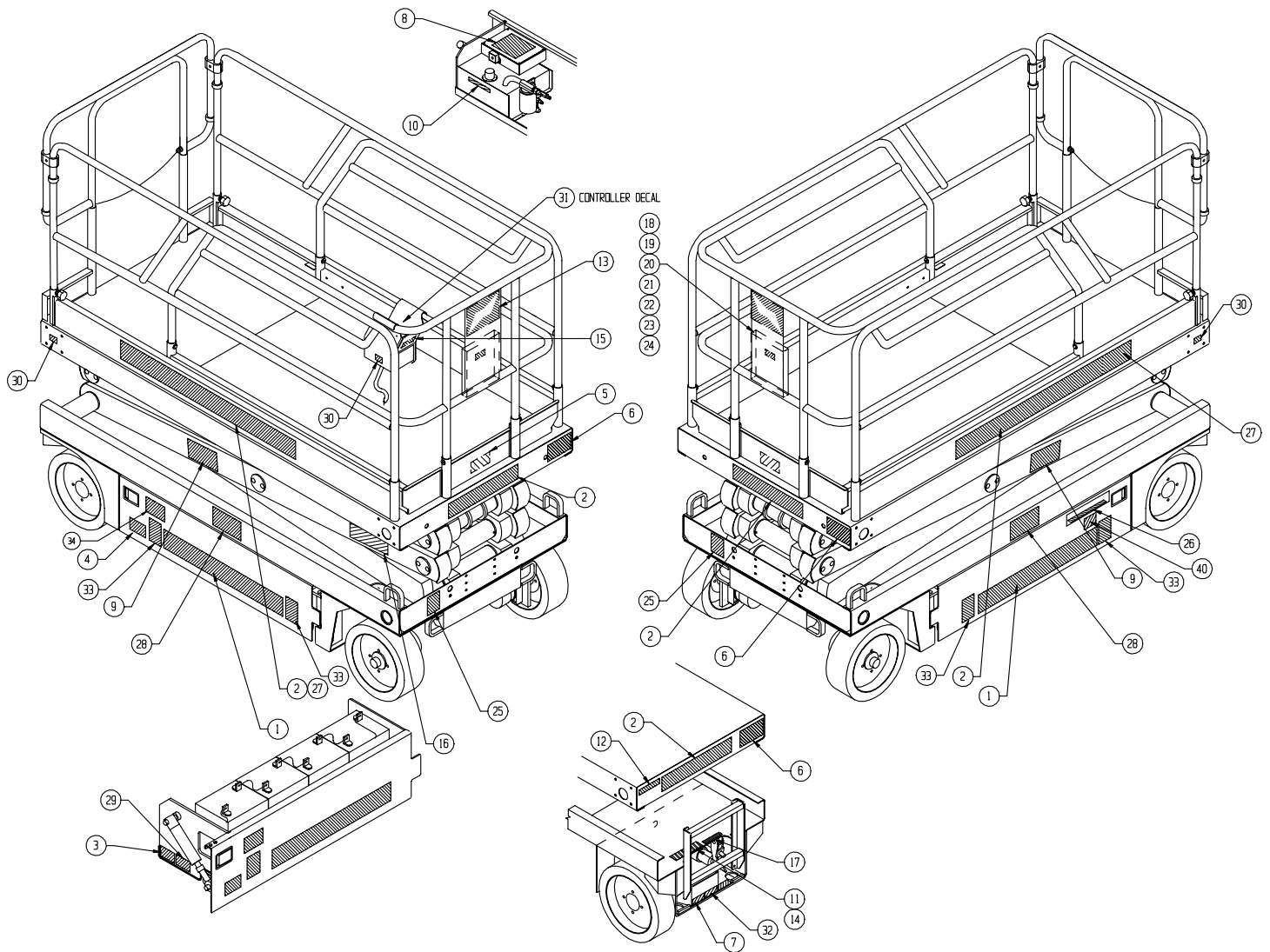


Label Kit-X26N

066110-015

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|--------------|------------------------------|------|
| 1 | 061683-006 | LABEL UPRIGHT | 2 |
| 2 | 061683-004 | LABEL UPRIGHT | 4 |
| 3 | 05221-000 | LABEL MANTAIN BATTERY | 1 |
| 4 | 066552-000 | LABEL HYDR GAS | 1 |
| 5 | 101251-000 | LABEL MAX LOAD DECK EXT. | 1 |
| 6 | 101250-004 | LABEL MAX LOAD PLATFORM | 2 |
| 7 | 14222-003-99 | LABEL FORK LIFT HERE | 2 |
| 8 | 066555-000 | LABEL LIMIT SWITCHES | 1 |
| 9 | 066553-000 | LABEL WARNING | 2 |
| 10 | 060197-000 | LABEL HYDRAULIC FLUID | 1 |
| 11 | 061205-005 | LABEL NAME PLATE | 1 |
| 12 | 061220-002 | LABEL ANSI | 1 |
| 13 | 066550-000 | LABEL DANGER | 1 |
| 14 | 065368-000 | TACK | 4 |
| 15 | 066554-000 | LABEL READ INSTRUCTIONS | 1 |
| 16 | 066561-000 | LABEL SAFETY STAND | 1 |
| 17 | 066558-000 | LABEL EMER LOWER PULL HANDLE | 1 |
| 18 | 060572-003 | USER MANUAL | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------|------|
| 19 | 060577-005 | ANSI MANUAL | 1 |
| 20 | 010076-001 | LABEL INSTRUCTIONS | 1 |
| 21 | 010076-000 | MANUAL CASE | 1 |
| 22 | 011252-006 | SCREW HHC 1/4-20 X 3/4 LG | 2 |
| 23 | 011248-004 | NUT 1/4-20 HEX | 2 |
| 24 | 011240-004 | WASHER 1/4 FLAT | 2 |
| 25 | 066556-000 | LABEL WARNING (COLLISION) | 1 |
| 26 | 066559-000 | LABEL LOWER CONTROLS | 1 |
| 27 | 061684-020 | LABEL X 26 N | 2 |
| 28 | 061684-016 | LABEL X | 2 |
| 29 | 062562-001 | LABEL DANGER | 1 |
| 30 | 064444-000 | LABEL USA | 4 |
| 31 | 066560-010 | LABEL CONTROLLER | 1 |
| 32 | 066522-000 | LABEL BATTERY CHARGER | 1 |
| 33 | 066556-001 | LABEL - WARNING | 4 |
| 34 | 107051-000 | LABEL - BATTERY DISCONNECT | 1 |
| 40 | 101252-005 | LABEL MAX LOAD WHEEL | 1 |

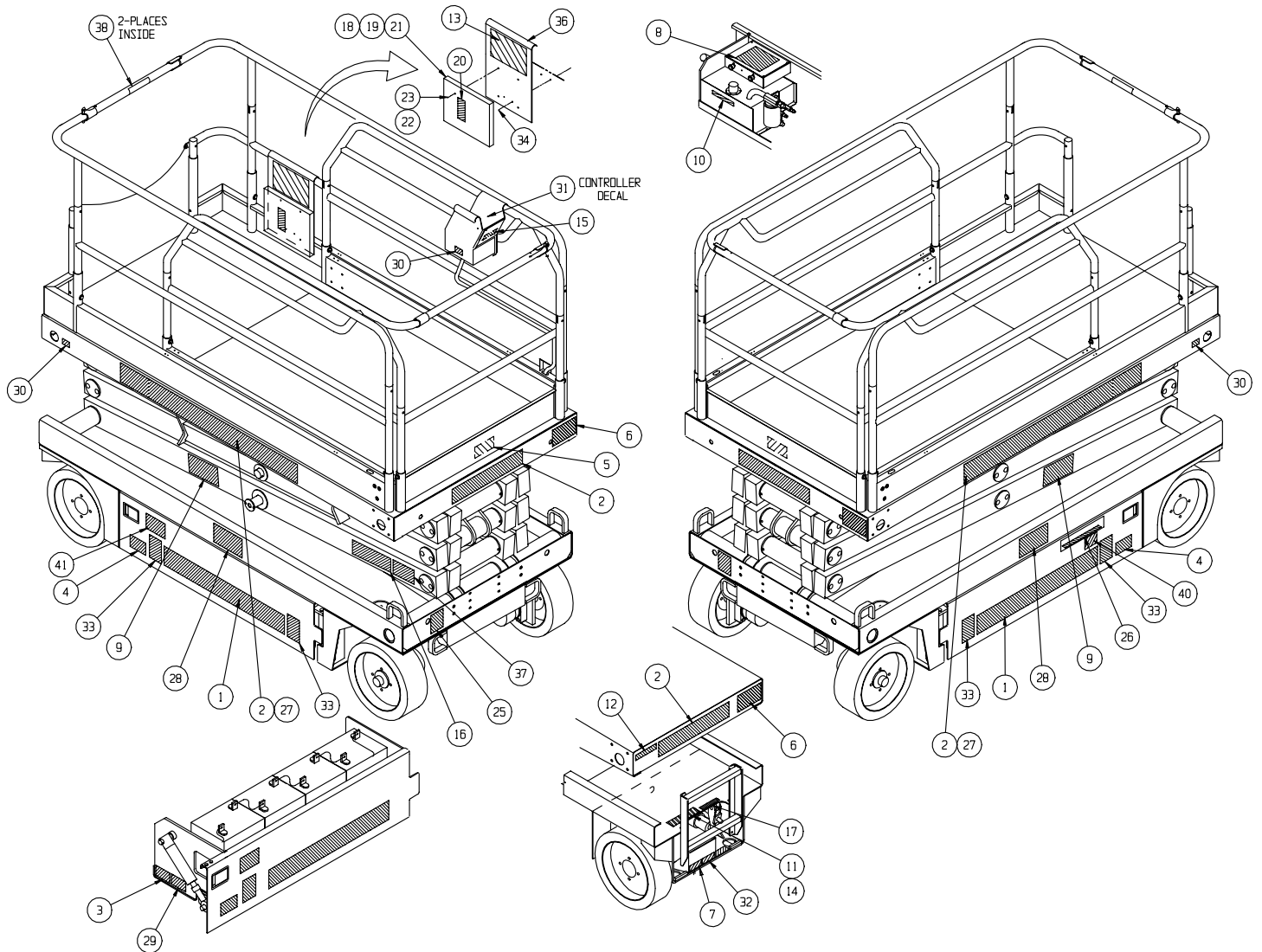


Label Kit-X31N

066860-015

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|--------------|---------------------------|------|
| 1 | 061683-006 | LABEL UPRIGHT | 2 |
| 2 | 061683-004 | LABEL UPRIGHT | 4 |
| 3 | 05221-000 | LABEL MANTAIN BATTERY | 1 |
| 4 | 066552-000 | LABEL HYDR GAS | 1 |
| 5 | 101251-000 | LABEL MAX LOAD DECK EXT. | 1 |
| 6 | 101250-005 | LABEL MAX LOAD PLATFORM | 2 |
| 7 | 14222-003-99 | LABEL FORK LIFT HERE | 2 |
| 8 | 066555-000 | LABEL LIMIT SWITCHES | 1 |
| 9 | 066553-000 | LABEL WARNING | 2 |
| 10 | 060197-000 | LABEL HYDRAULIC FLUID | 1 |
| 11 | 061205-005 | LABEL NAME PLATE | 1 |
| 12 | 061220-002 | LABEL ANSI | 1 |
| 13 | 066550-000 | LABEL DANGER | 1 |
| 14 | 065368-000 | TACK | 4 |
| 15 | 066554-000 | LABEL READ INSTRUCTIONS | 1 |
| 16 | 066561-002 | LABEL SAFETY STAND | 1 |
| 17 | 05223-003 | LABEL EMER LOWER | 1 |
| 18 | 060572-003 | USER MANUAL | 1 |
| 19 | 060577-004 | ANSI MANUAL | 1 |
| 20 | 010076-001 | LABEL INSTRUCTIONS | 1 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|--------------------------------|------|
| 21 | 010076-000 | MANUAL CASE | 1 |
| 22 | 011252-006 | SCREW HHC 1/4-20 X 3/4 LG | 2 |
| 23 | 011248-004 | NUT 1/4-20 HEX | 2 |
| 24 | 011240-004 | WASHER 1/4 FLAT | 2 |
| 25 | 066556-000 | LABEL WARNING (COLLISION) | 1 |
| 26 | 066559-000 | LABEL LOWER CONTROLS | 1 |
| 27 | 061684-025 | LABEL X 31 N | 2 |
| 28 | 61684-016 | LABEL X | 2 |
| 29 | 062562-001 | LABEL DANGER | 1 |
| 30 | 064444-000 | LABEL USA | 4 |
| 31 | 066560-010 | LABEL CONTROLLER | 1 |
| 32 | 066522-000 | LABEL BATTERY CHARGER | 1 |
| 33 | 066556-001 | LABEL - WARNING | 4 |
| 34 | 026551-005 | RIVET, 1/8 SS X .188-.250 GRIP | 2 |
| 36 | 065648-002 | MOUNT, LABEL | 1 |
| 37 | 066561-003 | LABEL CAUTION | 1 |
| 38 | 061787-001 | LABEL DANGER GUARDRAIL | 2 |
| 40 | 101252-006 | LABEL MAX LOAD WHEEL | 1 |
| 41 | 107051-000 | LABEL - BATTERY DISCONNECT | 1 |

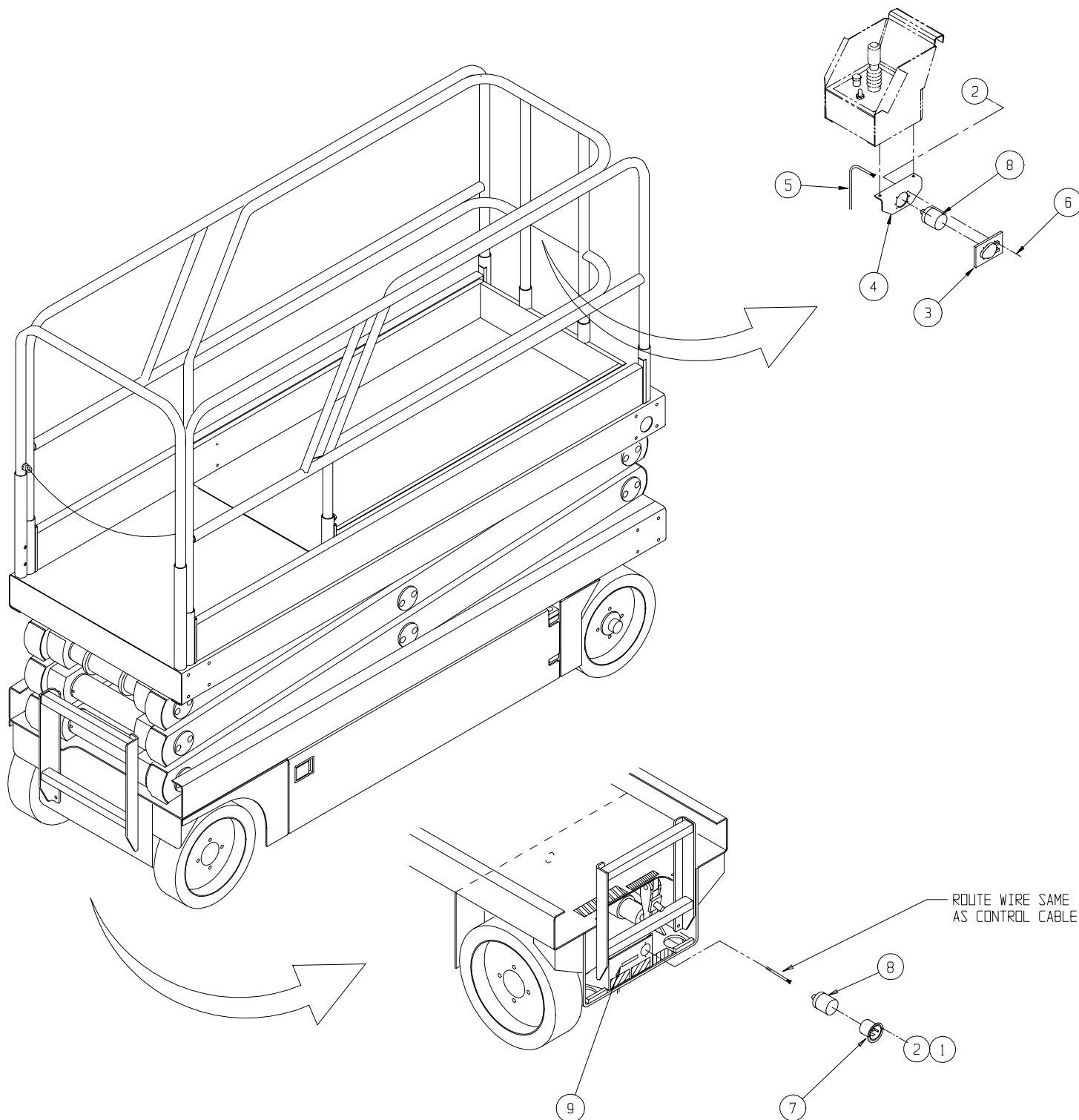


Power to Platform Option-X20, X26

066610-010

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|-----------|---------------------------|------|
| 1 | 11715-004 | SCREW, RD. HD 6-32 X 1/2 | 2 |
| 2 | 11248-047 | NUT, ESNA #6-32 | 6 |
| 3 | 08942-001 | OUTLET, HUBBELL #61CM65 | 1 |
| 4 | 66505-000 | BRACKET | 1 |
| 5 | 29495-099 | WIRE, 14GA 3 COND. | 50' |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|-----------|----------------------------|------|
| 6 | 11715-006 | SCREW TR HD 6-32 X 3/4 | 4 |
| 7 | 29961-000 | INLET PLUG, HUBBELL #5278C | 1 |
| 8 | 29961-001 | SEAL, INLET PLUG | 2 |
| 9 | 68639-000 | LABEL-POWER TO PLATFORM | 1 |

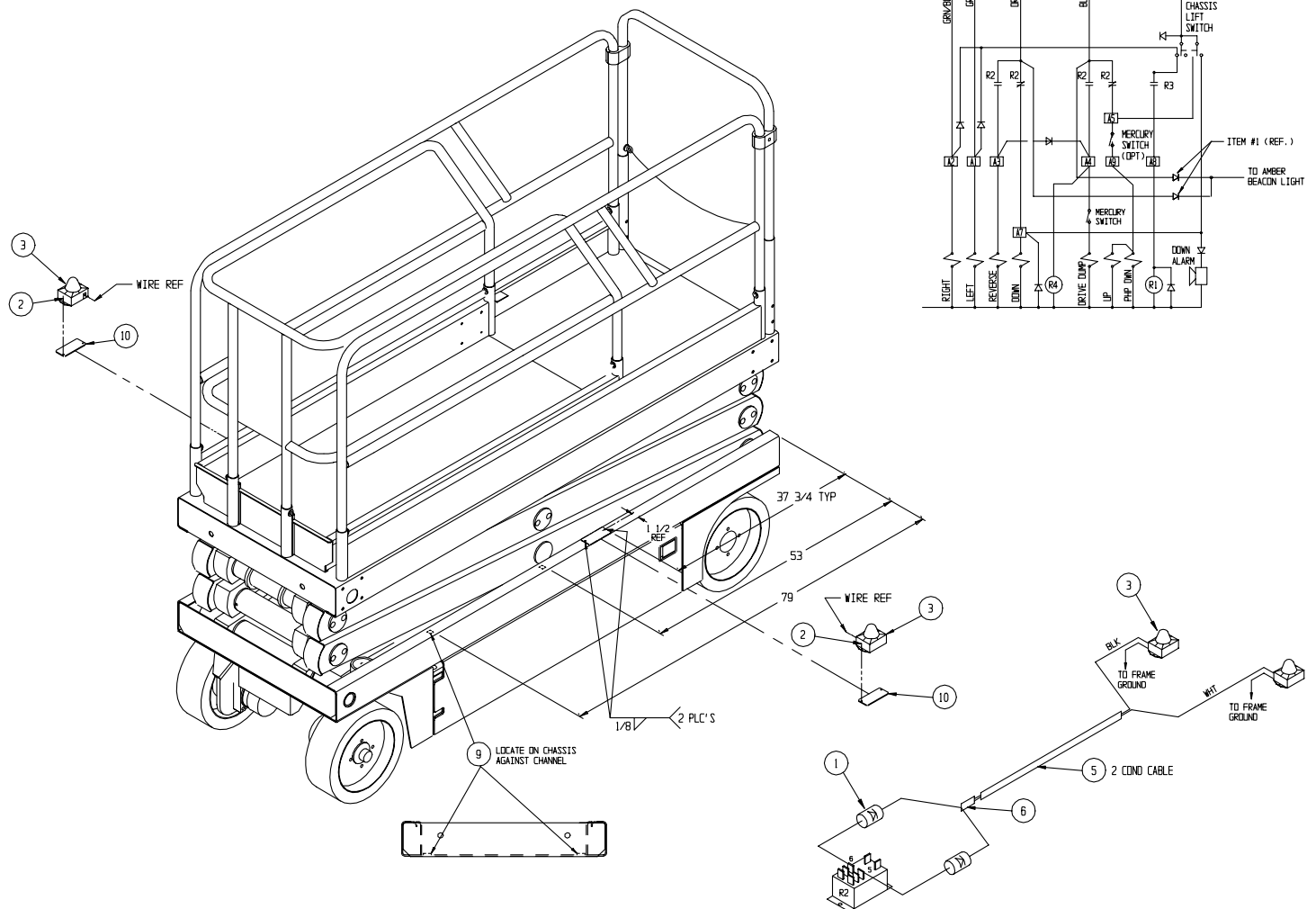


Motion Beacon Option

066611-010

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|----------------------------------|------|
| 1 | 029825-002 | DIODE | 2 |
| 2 | 011826-004 | SCREW MACH RD HD 10-32 UNF X 1/2 | 4 |
| 3 | 012848-004 | LIGHT - FLASHING | 2 |
| 5 | 029496-099 | WIRE 16 GA 2 COND CABLE | 9 ft |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 6 | 029620-003 | CONN BUTT 12 - 10 | 1 |
| 9 | 013283-002 | CABLE TIE | 2 |
| 10 | 066506-000 | BRACKET - LIGHT MOUNT | 2 |

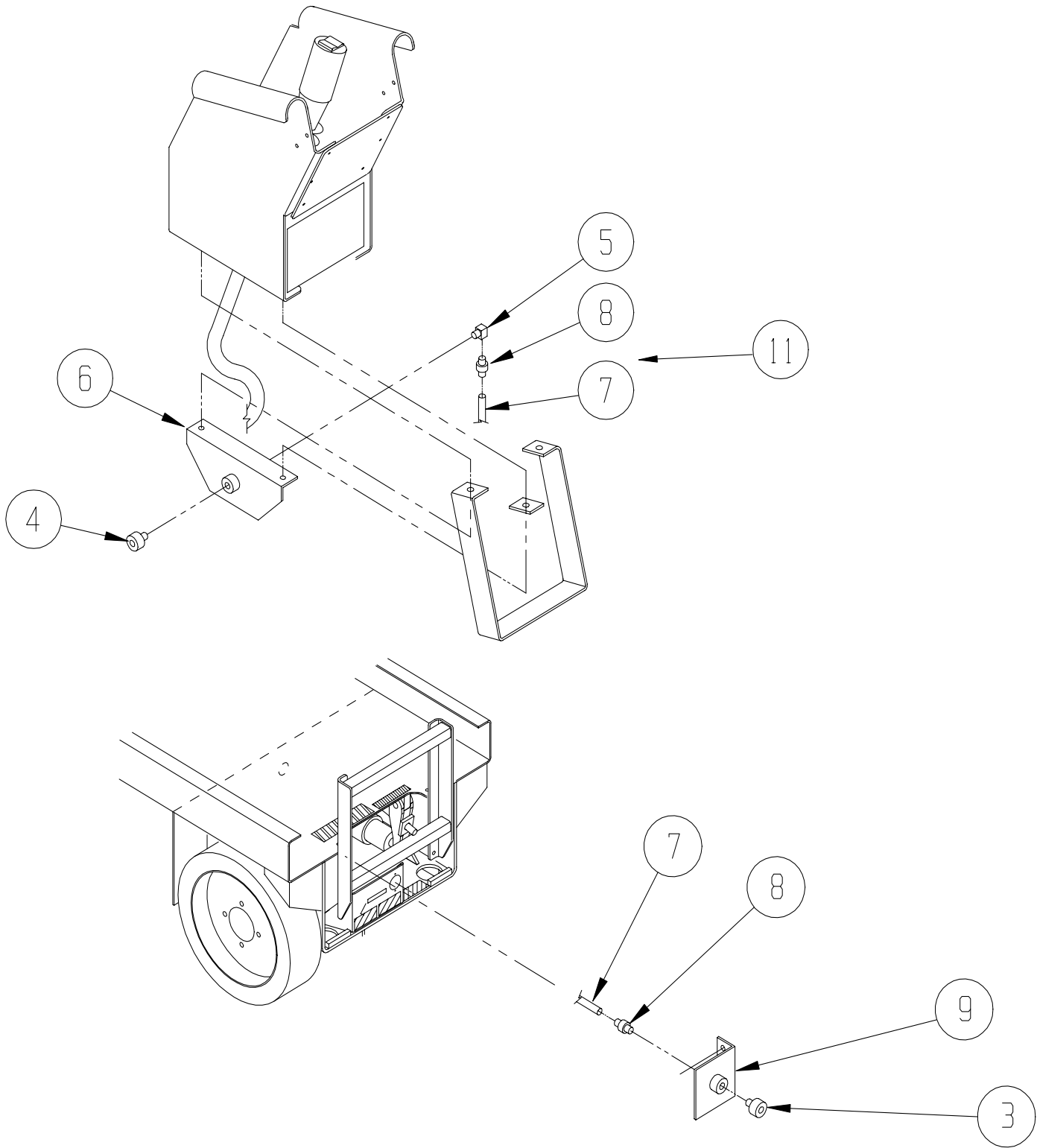


Air to Platform Option

066629-001

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 1 | 011249-003 | LOCK NUT ESNA HEX #10-32 | 2 |
| 2 | 011826-008 | SCREW RD.HD. MACH #10-32 | 2 |
| 3 | 012728-000 | COUPLING M AIR | 1 |
| 4 | 012729-003 | COUPLING M AIR | 1 |
| 5 | 011917-007 | FITTING 90 6MP-6FP | 1 |
| 6 | 063594-001 | BACKET WELDMENT | 1 |

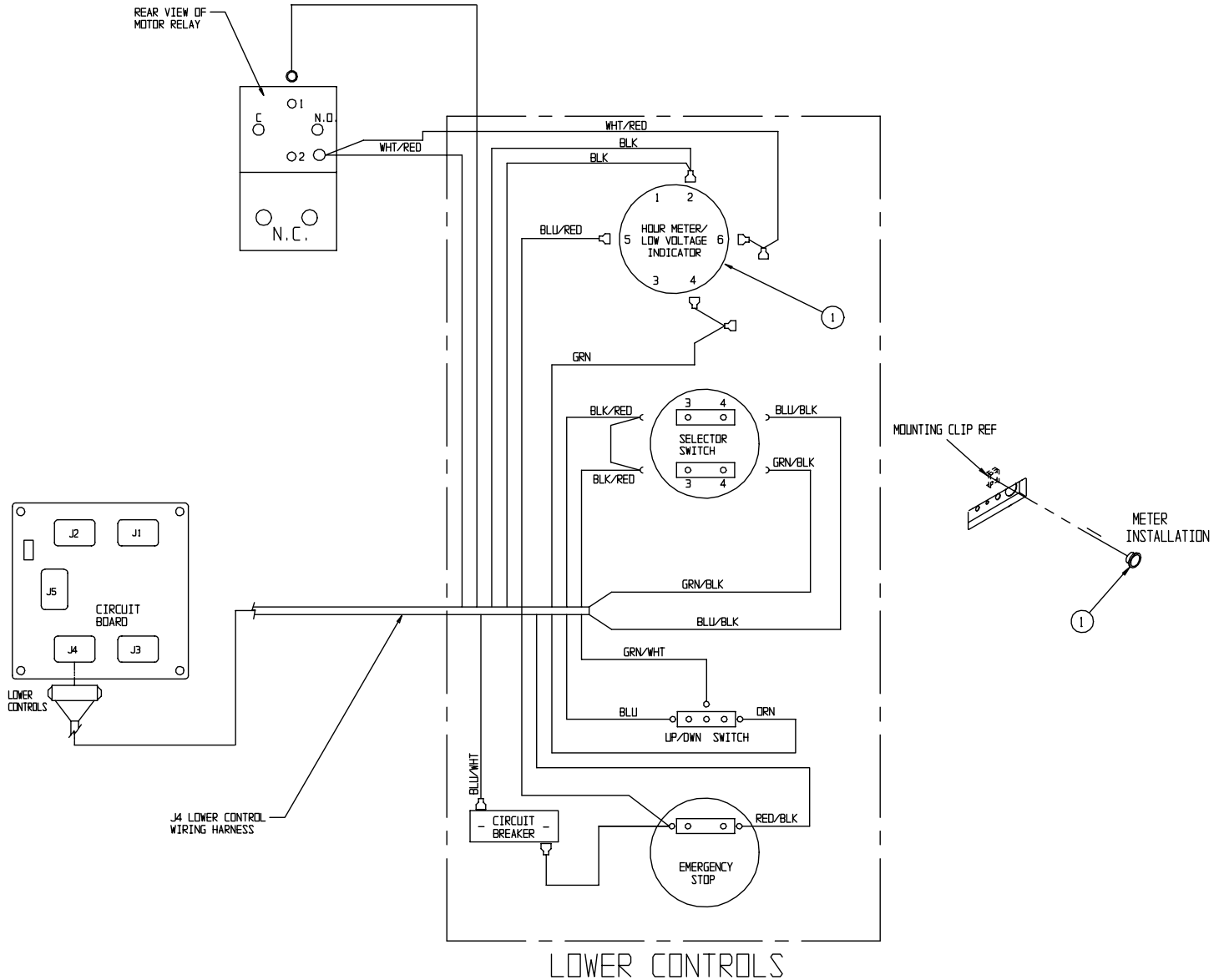
| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|-------|
| 7 | 015770-099 | HOSE 3/8 SYNPLEX 3600-06 | 50 FT |
| 8 | 064274-002 | FITTING HOSE | 2 |
| 9 | 063191-000 | BRACKET | 1 |
| 11 | 065682-000 | SPACER | 1 |



Hour Meter/Low Voltage Indicator Option

066613-020

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|------|
| 1 | 029959-000 | HR/LOW VOLTAGE INDICATOR | 1 |

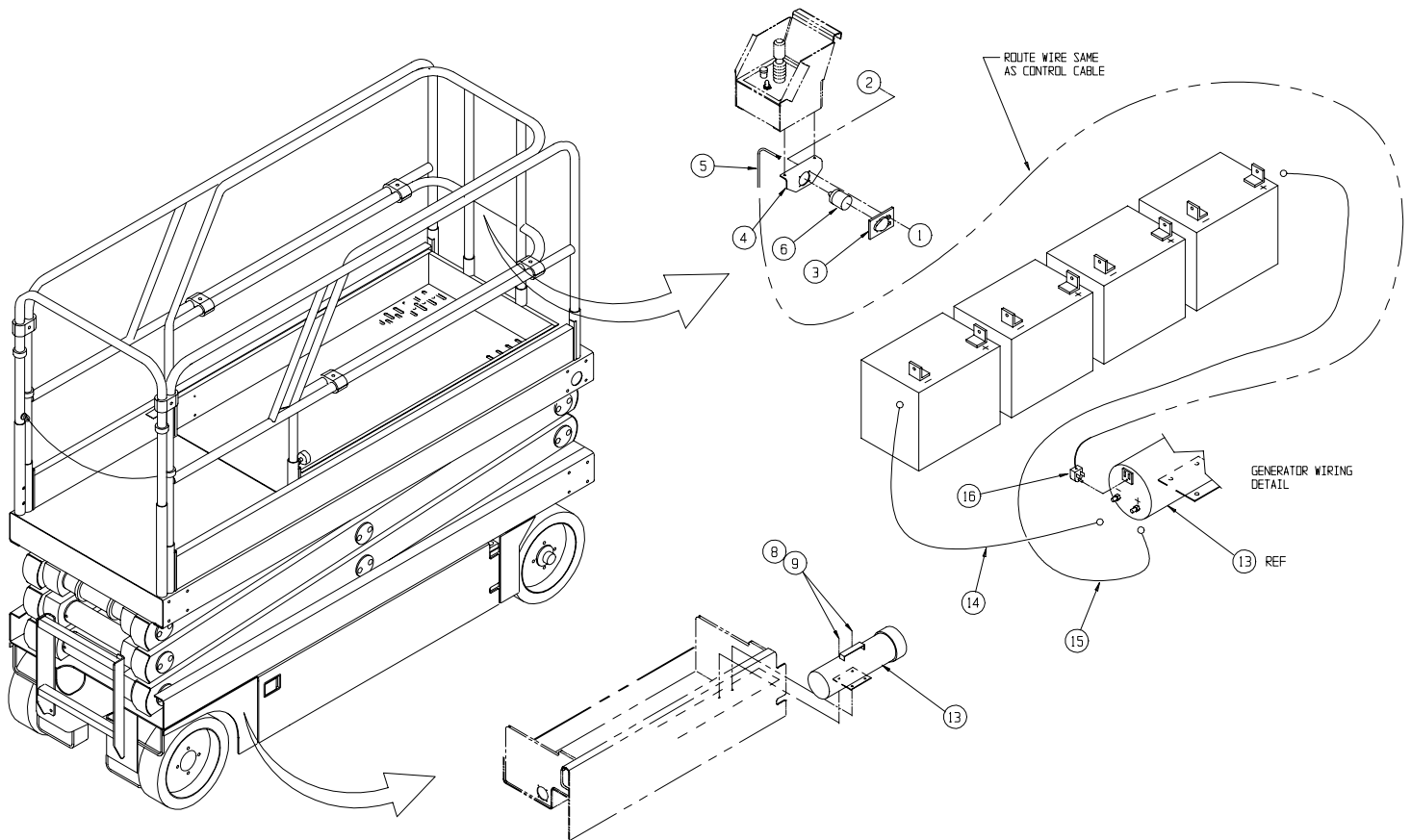


Generator Option

066615-000

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|--------------------------------|-------|
| 1 | 011715-006 | SCREW, RD. HD. #6-32 X 3/4 LG. | 4 |
| 2 | 011248-047 | NUT, ESNA #6-32 | 4 |
| 3 | 08942-001 | OUTLET | 1 |
| 4 | 066505-000 | BRACKET | 1 |
| 5 | 029495-099 | WIRE, 14GA 3 COND. | 50 FT |
| 6 | 029961-001 | SEAL, INLET PLUG | 1 |
| 8 | 011248-004 | NUT 1/4-20 UNC | 2 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|--------------------------------|------|
| 9 | 011252-008 | SCREW HHC 1/4-20 X 1 | 2 |
| 13 | 026461-000 | GENERATOR HONEYWELL #DA24A 24V | 1 |
| 14 | 064195-044 | CABLE ASSY (NEG) 44" | 1 |
| 15 | 064195-024 | CABLE ASSY (POS) 24" | 1 |
| 16 | 029938-000 | THREE PRONG PLUG - 90° | 1 |

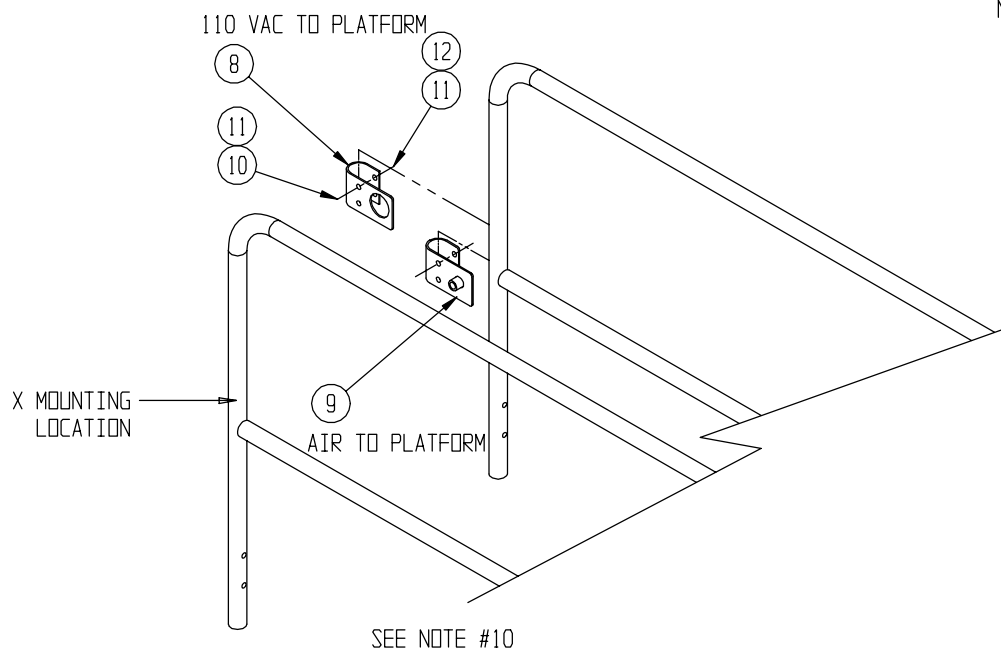
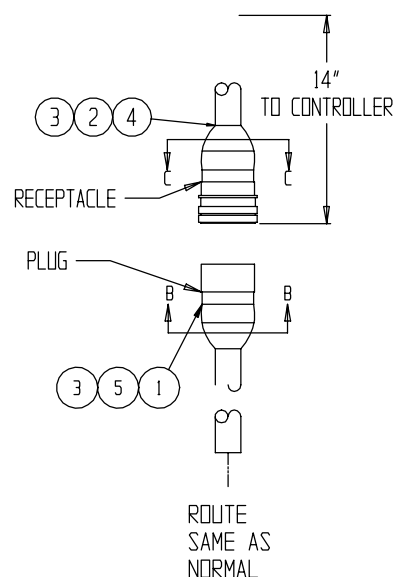


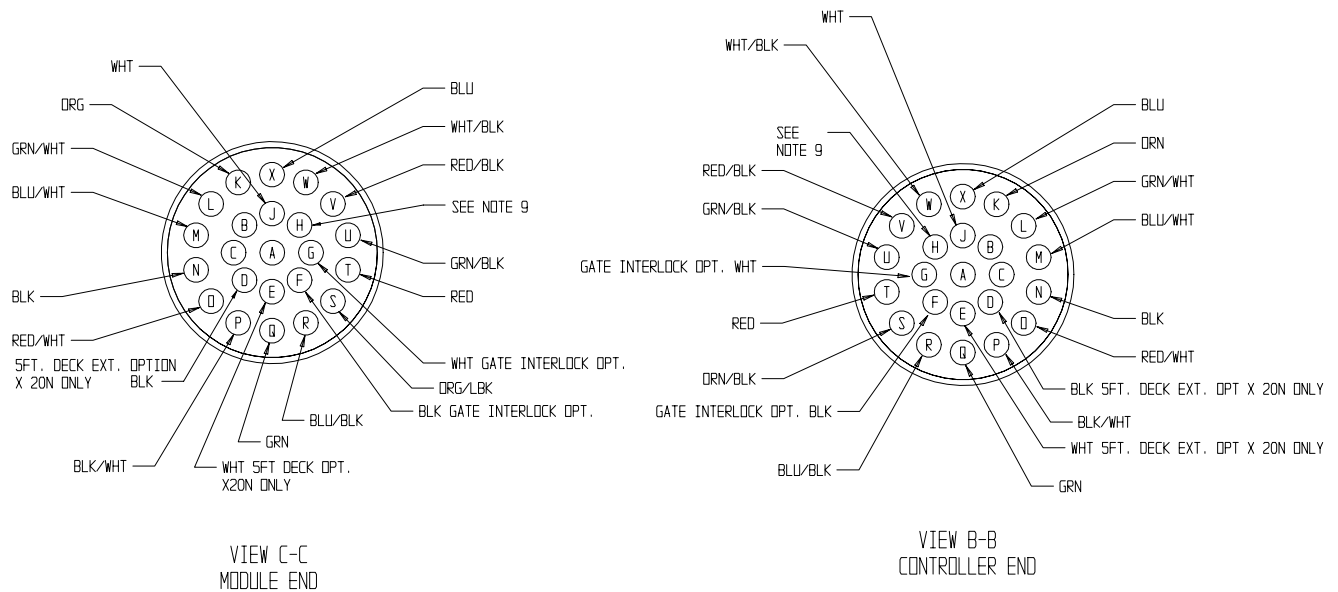
Removable Controller Option

061898-010

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|------------------------------|------|
| 1 | 065926-010 | PLUG CONNECTOR | 1 |
| 2 | 068762-000 | PIN CONTACT | 15 |
| 3 | 068764-000 | PLUG SEALING | 16 |
| 4 | 065926-015 | RECEPTACLE CONNECTOR | 1 |
| 5 | 068762-001 | SOCKET CONTACT | 15 |
| 8 | 030719-001 | 110 VAC BRACKET | 1 |
| 9 | 030719-002 | AIR BRACKET WELDMENT | 1 |
| 10 | 011254-016 | SCREW HHC GRD5 3/8-16UNC X 2 | 4 |
| 11 | 011240-006 | WASHER 3/8 STD FLAT | 4 |
| 12 | 011248-006 | NUT HEX ESNA 3/8-16 | 2 |

1. CUT OFF CONTROL CABLE 14 INCHES BELOW STRAIN RELIEF ON CONTROLLER.
2. CUT OUTER CABEL COVER OF LINKAGE CABEL BACK APPROXIMATELY 1-1/2 INCH AND STRIP APPROXIMATELY 1/4 INCH OF EACH END.
3. CRIMP SOCKETS (ITEM 5) ONTO WIRE ENDS AND INSERT INTO PLUG REF. VIEW B-B.
4. CUT OUTER CABEL COVER OF CONTROLLER END BACK APPROXIMATELY 1-1/2 INCH AND STRIP APPROXIMATELY 1/4 INCH OF EACH END.
5. SLIDE BOOT AND CLAMP ONTO CABLE.
6. CRIMP PINS (ITEM 2) ONTO WIRE ENDS AND INSERT INTO RECEPTACLE. REF. VIEW C-C.
7. CLAMP BOOT TO CONNECTOR.
8. CONNECT CONTROLLER AND TEST MACHINE FOR PROPER FUNCTION.
9. USE TERMINAL " H " OR "X" W/MOTOR CONTROL FOR HORN OPTION OR IF AUX WIRE IS REQUIRED.
10. ITEM #8 THRU 12 REQD ONLY FOR 110 VAC AND/OR AIR TO PLATFORM.



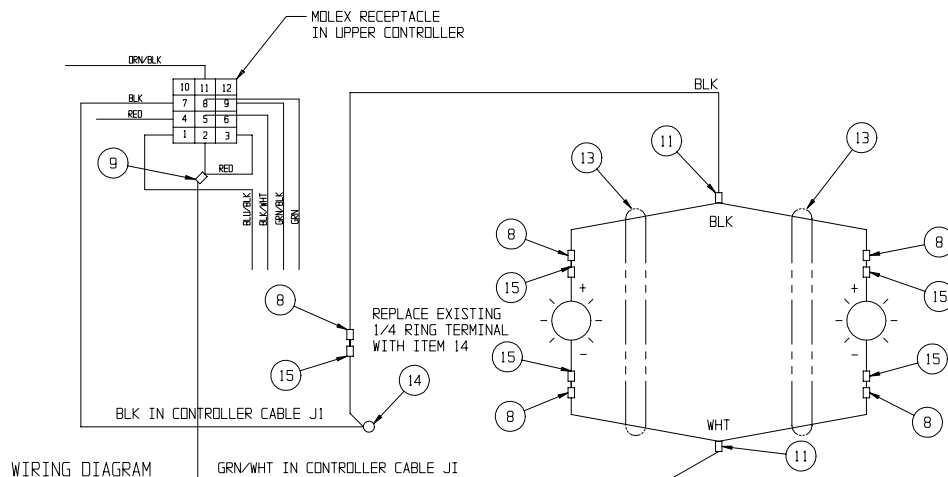
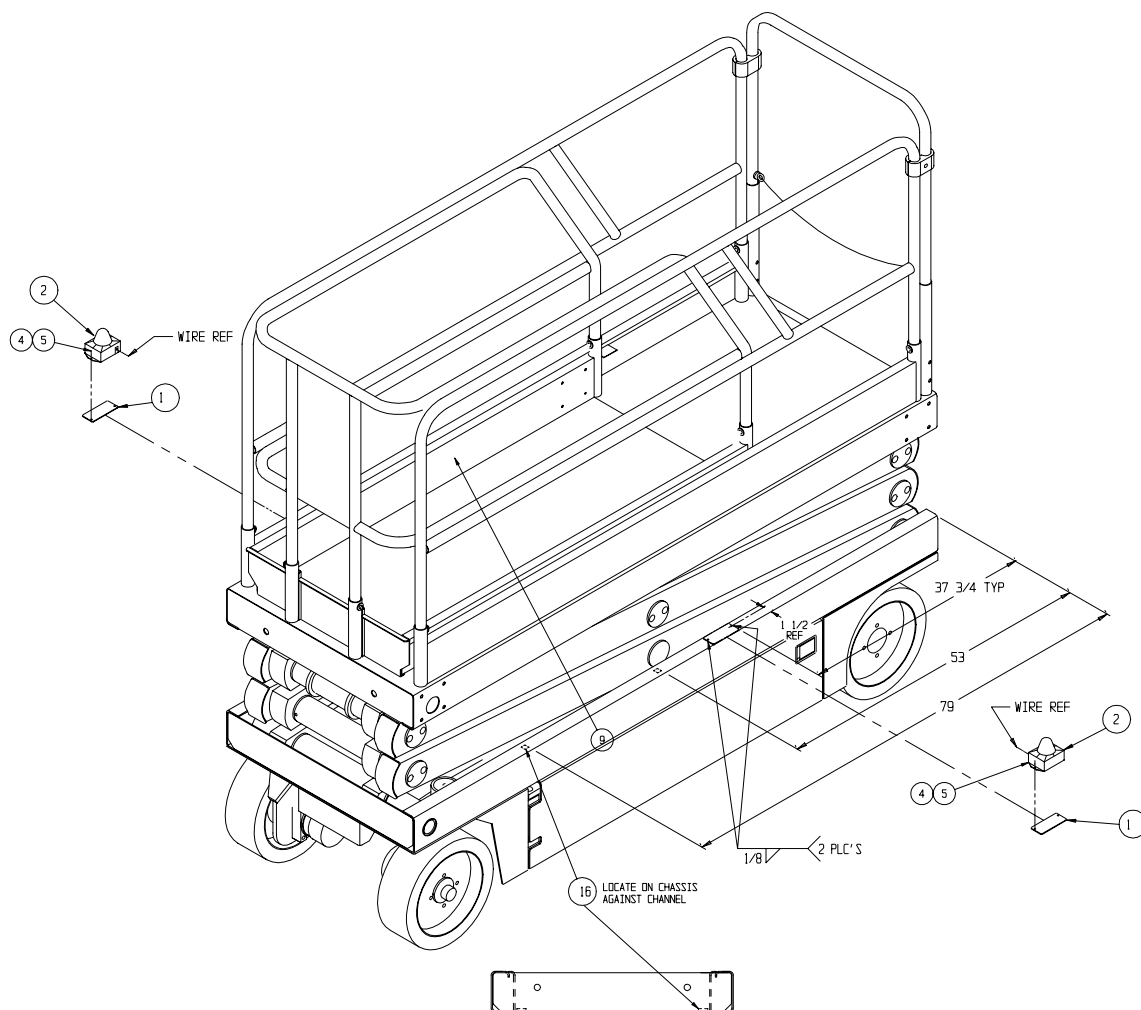


Flashing Amber Light X20, X26

066611-020

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------------------|------|
| 1 | 066506-000 | BRACKET, LIGHT MOUNT | 2 |
| 2 | 012848-004 | BEACON | 2 |
| 4 | 011249-003 | NUT, #10-32 UNF LOCK | 4 |
| 5 | 011826-004 | SCREW, #10-32 UNF RD MACHINE X 1/2 LG | 4 |
| 8 | 029931-003 | CONN 1/4 F PUSH 16-14 AWG | 5 |
| 10 | 029452-099 | WIRE, 16 AWG COPPER BLACK | 2 FT |
| 11 | 029620-003 | CONNECTOR, BUTT 12-10 GA, (YELLOW) | 2 |

| ITEM | PART NO. | PART/MATERIAL DESCRIPTION | QTY. |
|------|------------|---------------------------|-------|
| 12 | 029610-006 | CONNECTOR, FORK #6 16-14 | 1 |
| 13 | 029496-099 | CABLE 16 AWG X 2 COND | 12 FT |
| 14 | 029601-020 | CONN 1/4 F PUSH 12-10 AWG | 1 |
| 15 | 014914-001 | CONN 1/4 M PUSH 16-14 AWG | 5 |
| 16 | 013283-002 | CABLE TIE | 2 |



UpRight, Inc.
1775 Park Street
Selma, California 93662
TEL: 559/891-5200
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Call Toll Free in U.S.A.
1-800-926-LIFT

**UpRight International
Support Centre**
Innsbrukweg 114
3047 AH Rotterdam
Netherlands
TEL: +31-10-238-0000
FAX: +31-10-238-0001
Parts Tel: +31-10-490-8090
Parts Fax: +31-10-490-8099

P/N 060571-005
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