

UpRight

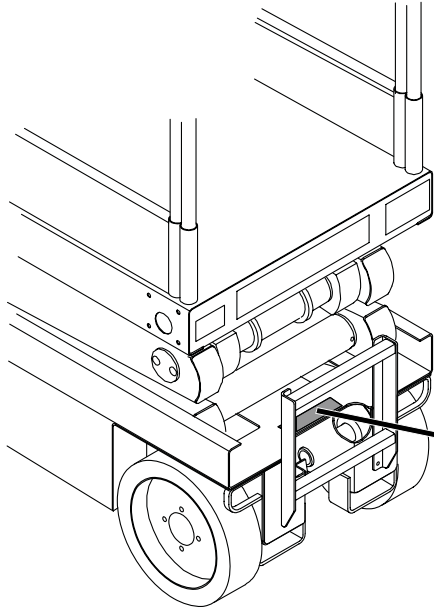


Service & Parts Manual

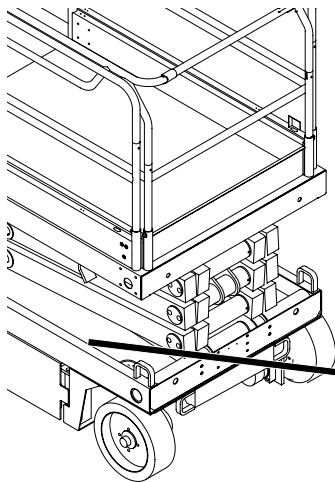
SERVICE & PARTS MANUAL

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.

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Selma, California 93662

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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.

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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

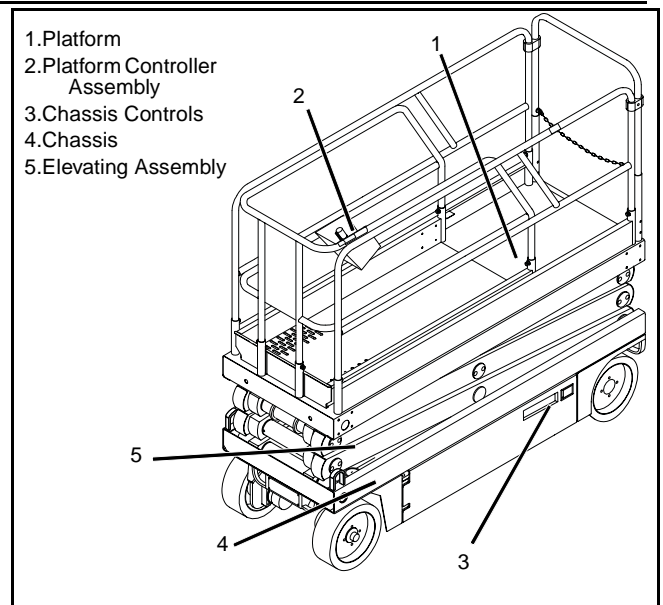
The platform has a reinforced steel floor, 43.5 inch (1.11 m) high guardrails with midrail, 6 inch (152 mm) toeboards, and an entry chain at the rear of the platform. The guardrails can be folded down for access through doors or for shipment.

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.

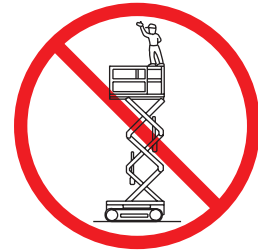
Safety Rules



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.

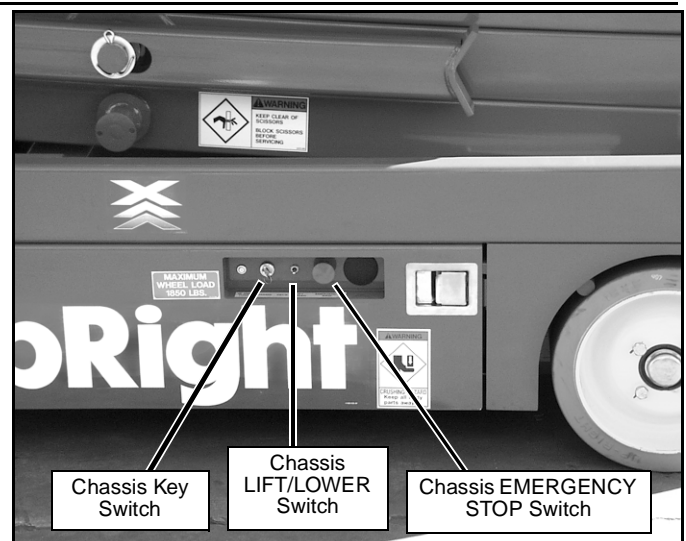


Figure 2-2: Emergency Lowering

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.

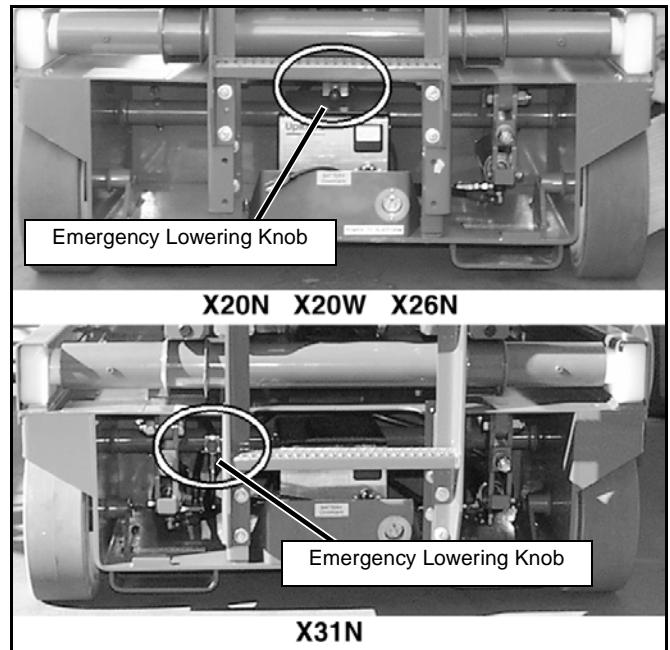
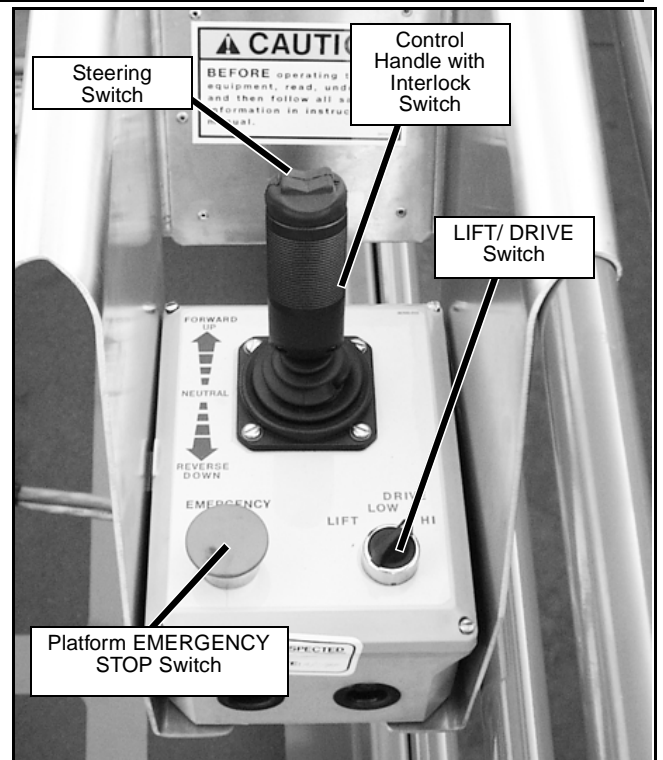


Figure 2-3: Platform Controls

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.



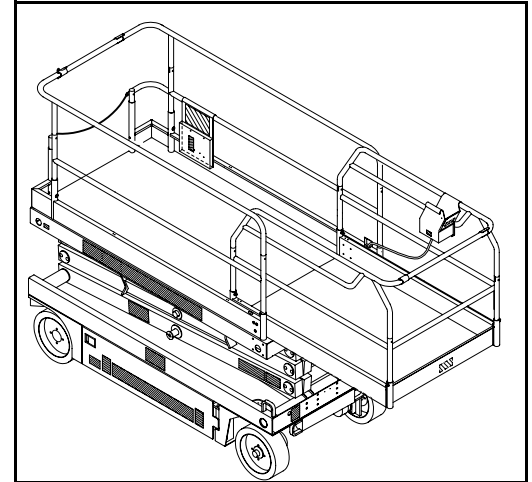
2.3 OPERATION

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 !

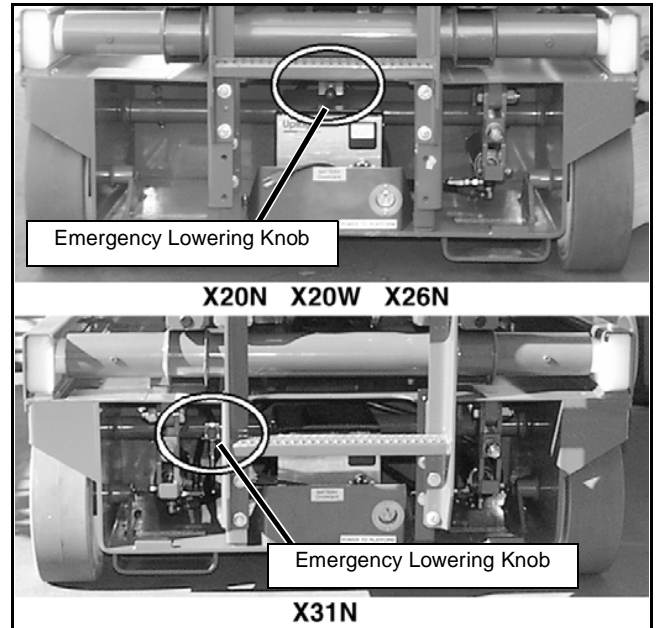
If the platform should fail to lower, **NEVER** climb down the elevating assembly.

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.

W A R N I N G

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

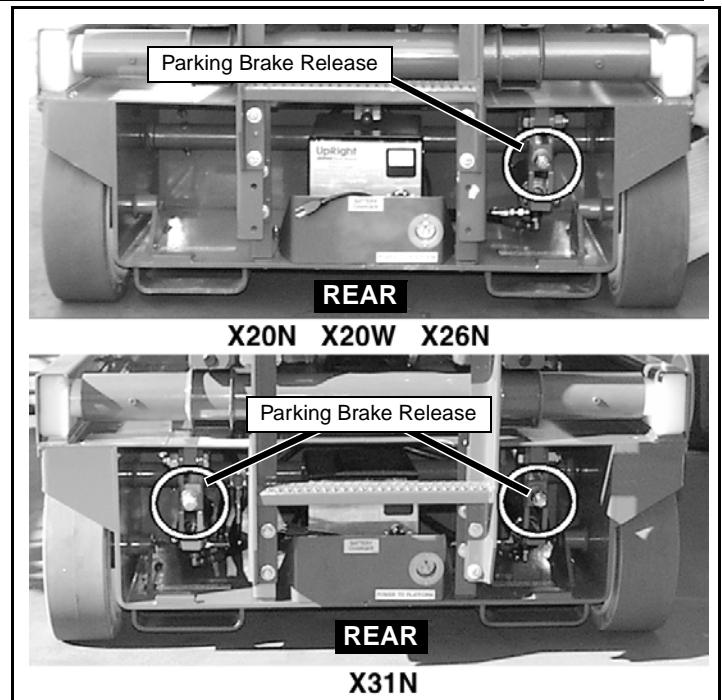
Perform the following only when the machine will not operate under its own power and it is necessary to move the machine or when winching onto a trailer to transport.

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

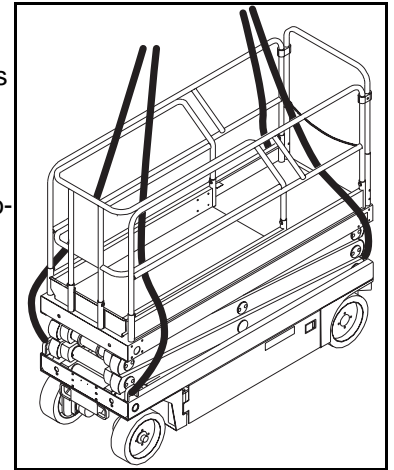
Figure 2-7: Secure Crane Straps

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 !

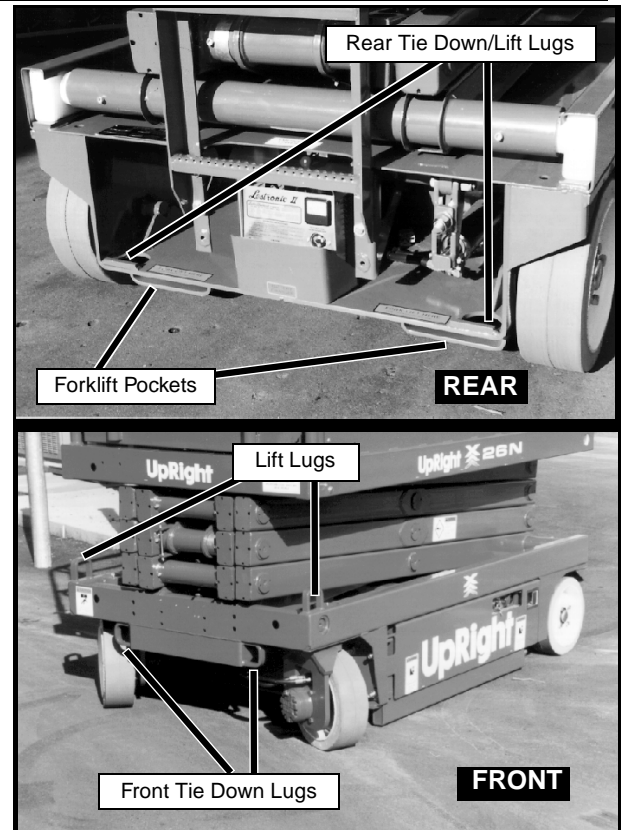
Forklifting is for transporting only.

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

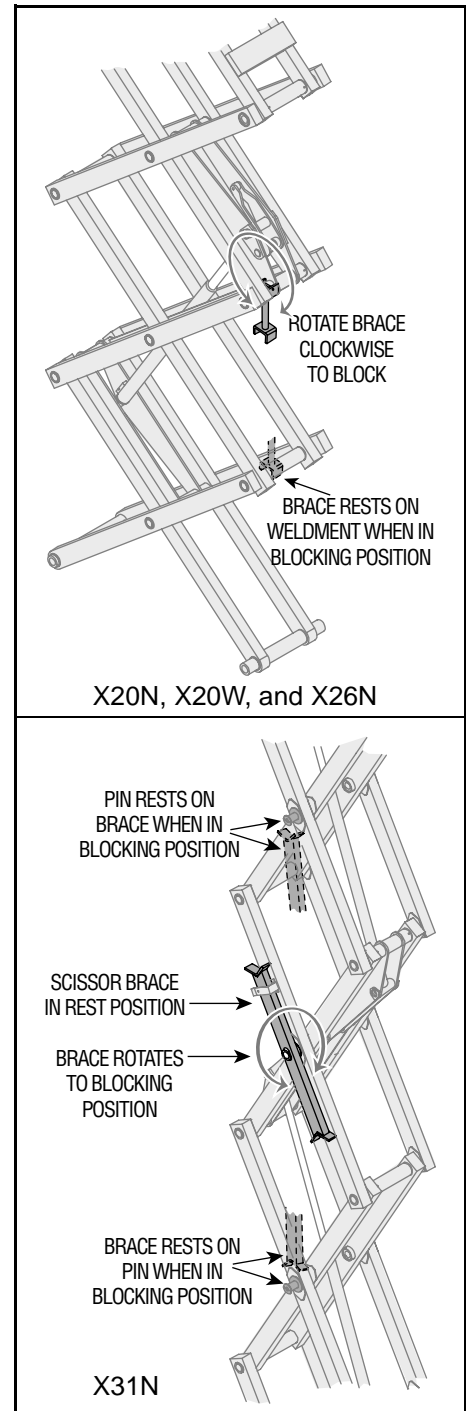
BLOCKING ELEVATING ASSEMBLY

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.

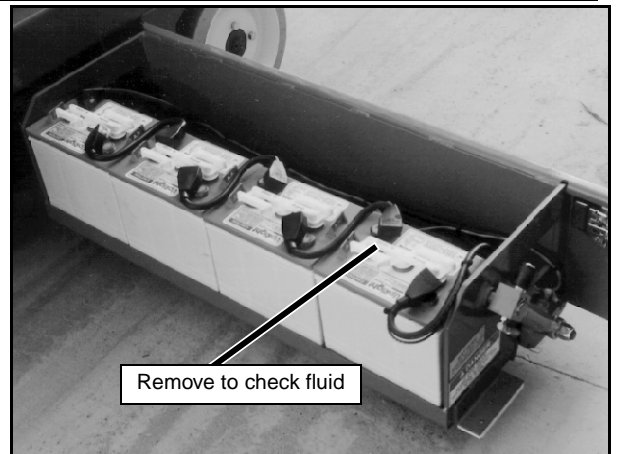
*Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. **Wash hands after handling.***

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

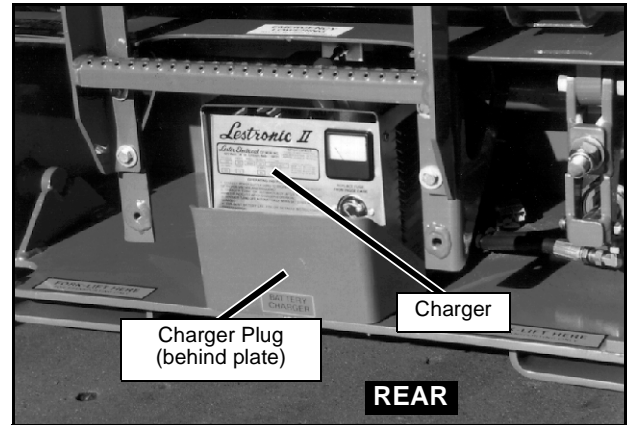
- Check the battery fluid level daily, especially if the work platform is being used in a warm, dry climate.
- If the electrolyte level is lower than 3/8 in. (10 mm) above the plates, add distilled water only. DO NOT use tap water with high mineral content, as it will shorten battery life.
- The battery 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.

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

PREVENTATIVE MAINTENANCE REPORT

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

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			

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			
	Inspect for structural cracks	Daily			
Elevating Assembly	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.

! WARNING !

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)
- Inclinometer

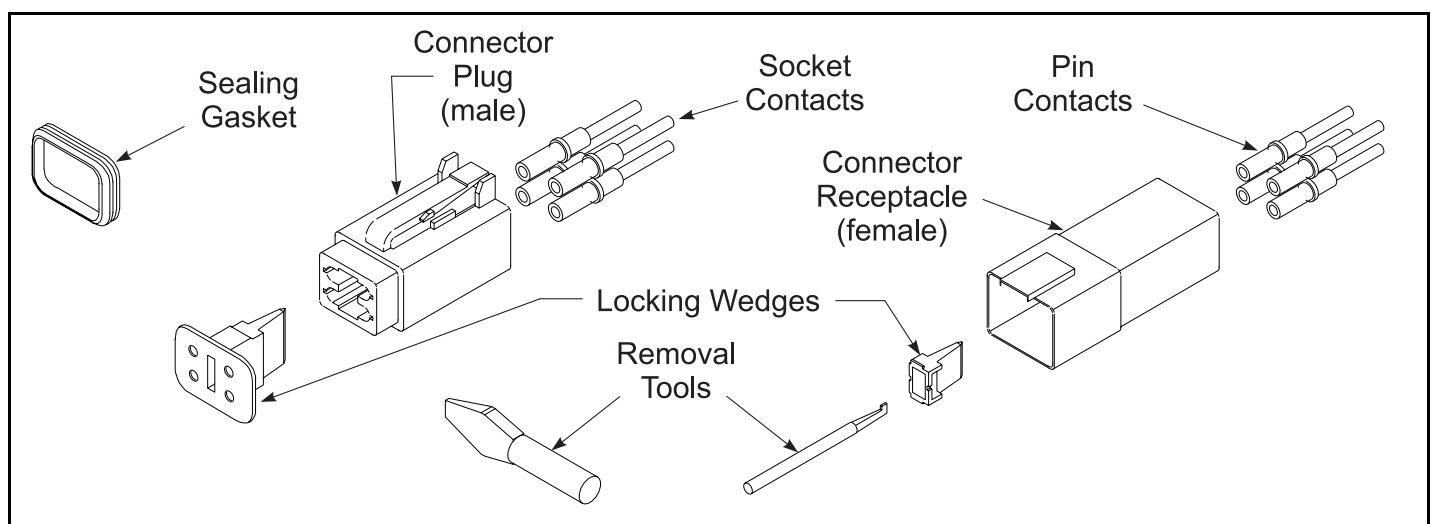
3.4 UPRIGHT CONNECTORS

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.

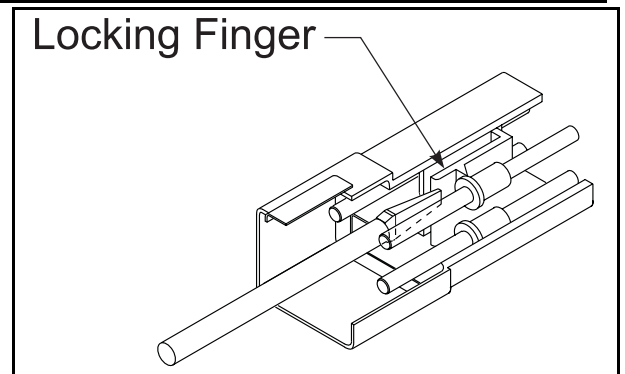
FEMALE CONNECTOR (RECEPTACLE)

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

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.

Figure 3-3: Locking Finger, UpRight Connector



CRIMPING

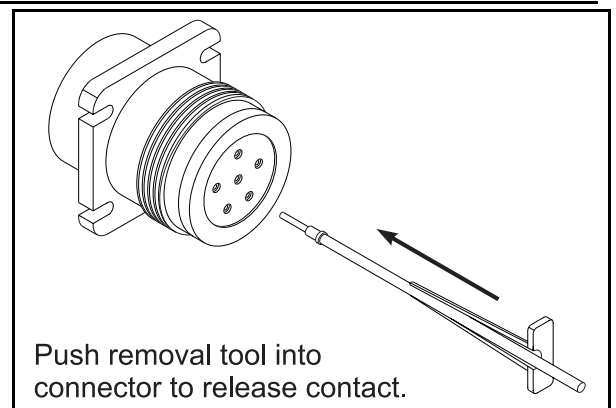
NOTE: Complete crimping instructions are included in each Field Kit.

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

Figure 3-7: Battery Charger

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.



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

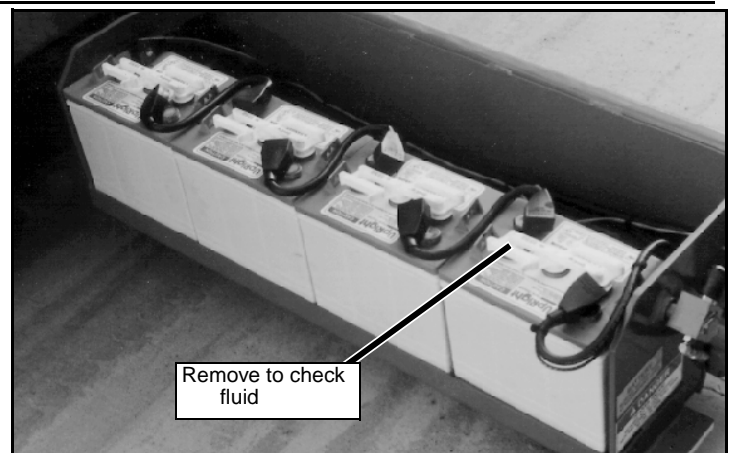
Figure 3-8: Power Module

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

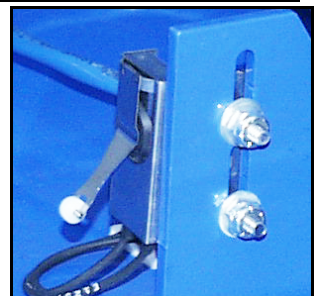
The Down Limit Switch provides power to the High Speed Circuit when the platform is completely lowered and enables the Tilt Sensor/Depression Interlock Circuit when the platform is elevated. The Down Limit Switch is located on the chassis frame at the front of the machine near the lowest pivot tube of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

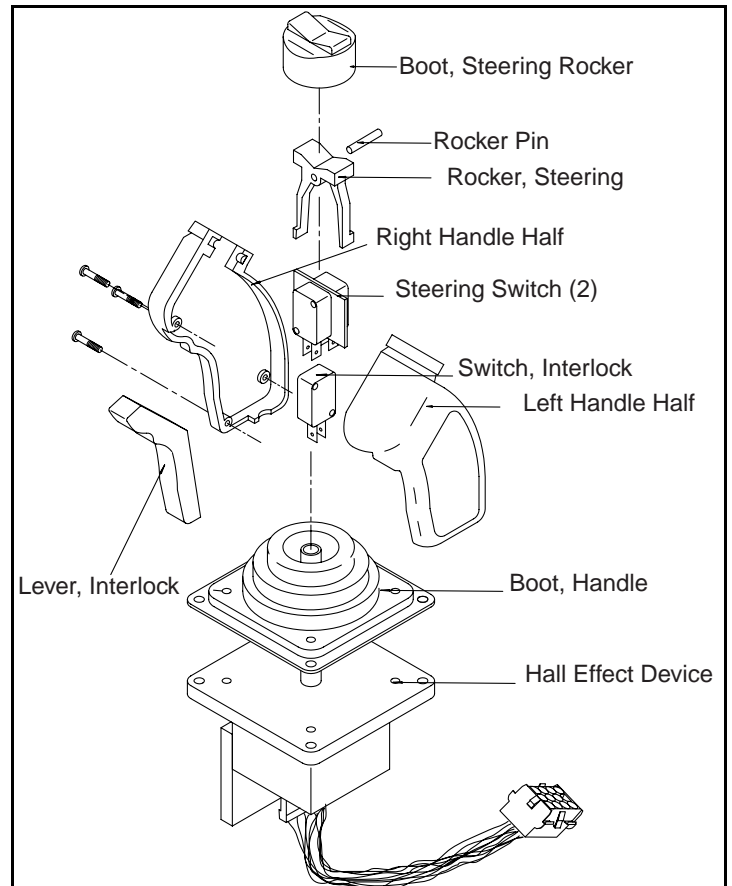
1. Disconnect the switch wires at the control module by unplugging the slide terminals.
2. Loosen the bolts securing the switch to the chassis mount just enough to allow the switch to slide. Slide the switch down.
3. Use a multimeter to check continuity in the switch. The switch contacts should be open (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.



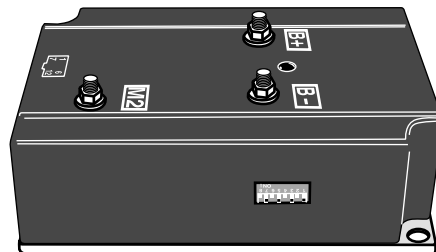
3.8 MOTOR CONTROLLER AND I/O BOARD DIP SWITCH SETTINGS

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

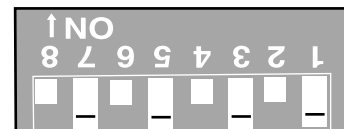
	1	2	3	4	5	6	7	8
X20N	on	off	off	on	off	on	off	on
X20W	on	on	off	on	off	off	off	on
X26/31	on	on	off	on	off	off	off	on



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

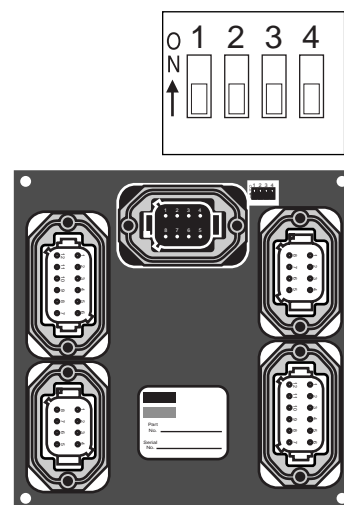
I/O BOARD

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

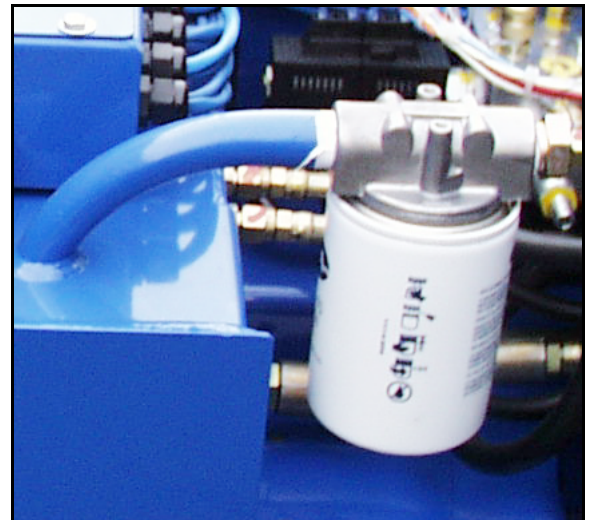
1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.

⚠ 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

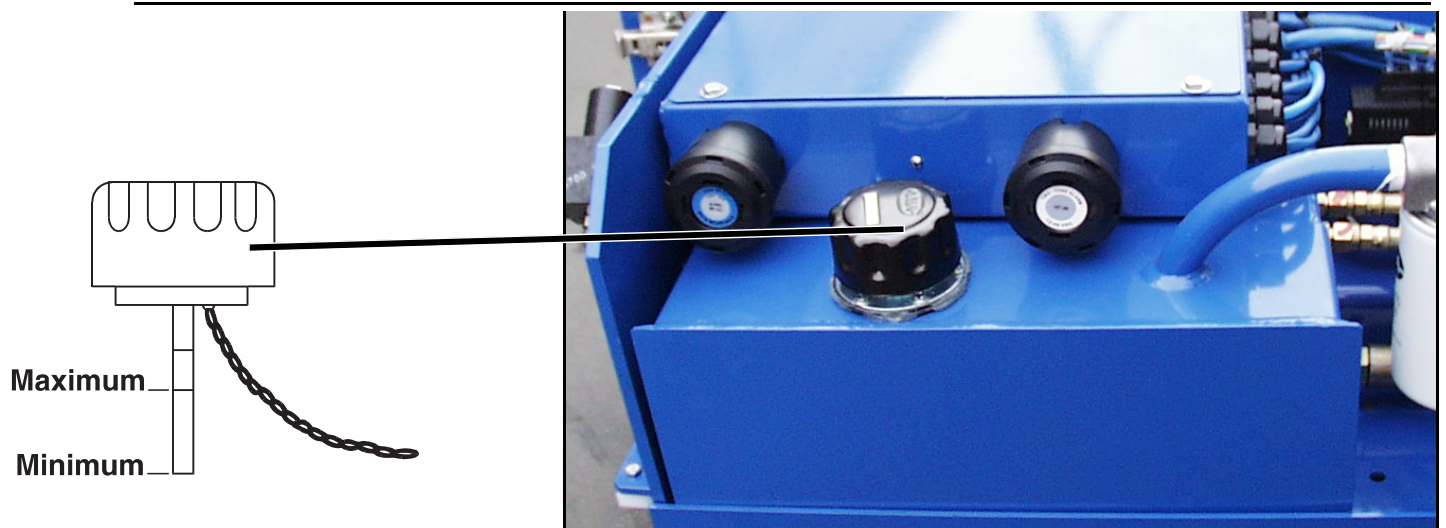
2. Provide a suitable container to catch the drained oil. Hydraulic tank has a 5 gallon (19 L) capacity.
3. Open left module door.
4. Remove the drain plug and allow all the oil to drain. Dispose of hydraulic fluid properly (contact your local oil recycler).
5. Reinstall the drain plug.
6. Unscrew the 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 !

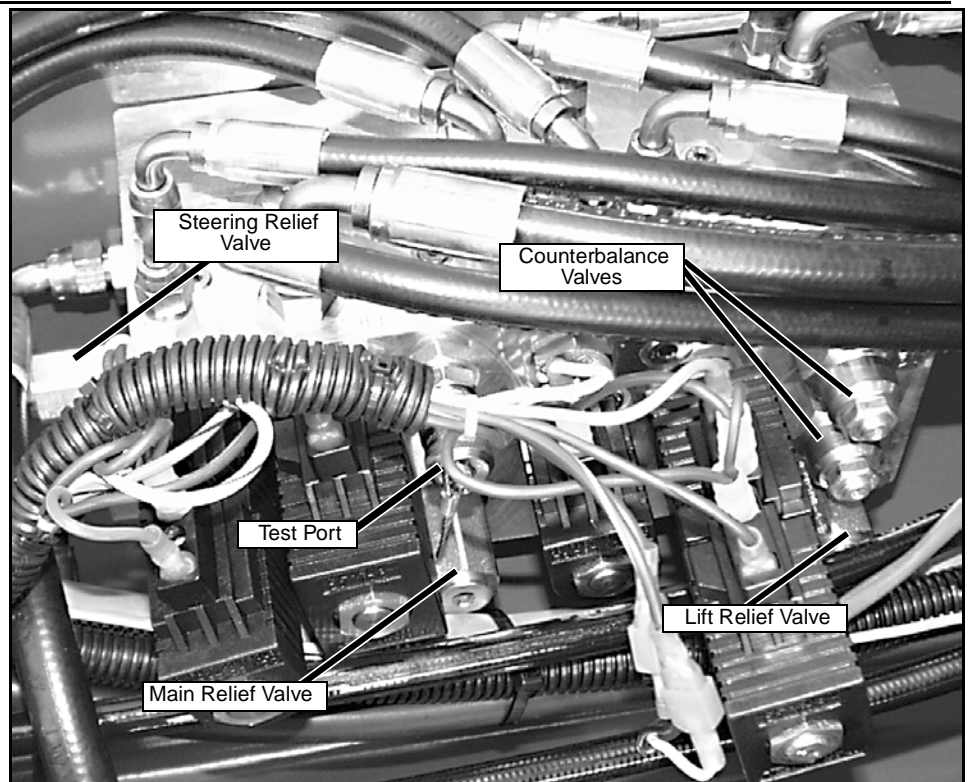
The hydraulic oil may be of sufficient temperature to cause burns. Wear safety gloves and safety glasses when handling hot oil.

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.

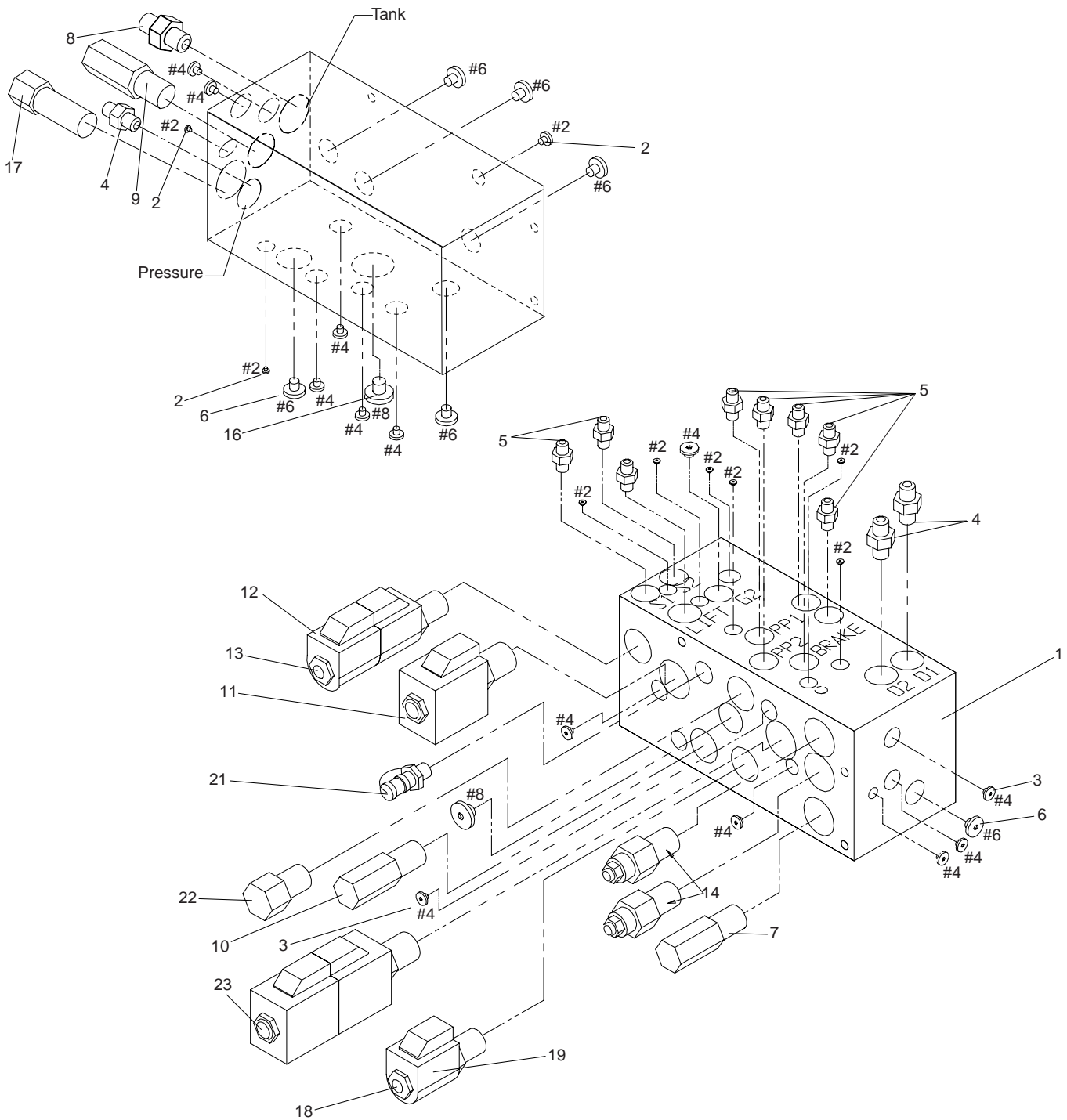
1. Install fittings and plugs.
2. Install counterbalance valves, relief valves and solenoid valves.
3. Install coils on solenoid valves.

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

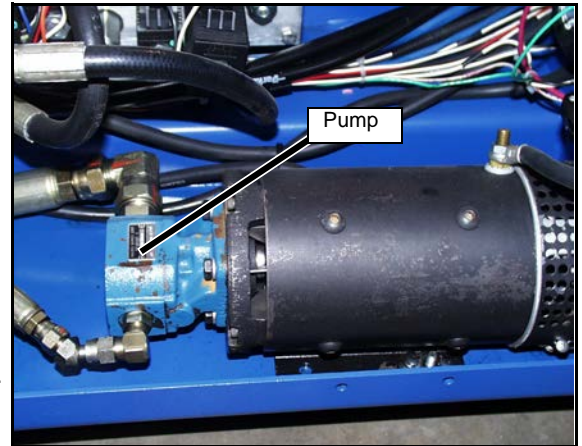
REMOVAL

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.

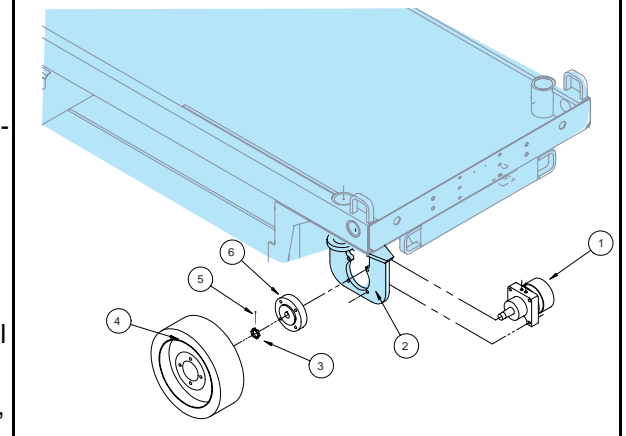
Figure 3-19: Drive Motor

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.

1. Drive Motor
2. Wheel Yoke
3. Slotted Nut

4. Wheel
5. Cotter Pin
6. Hub



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.

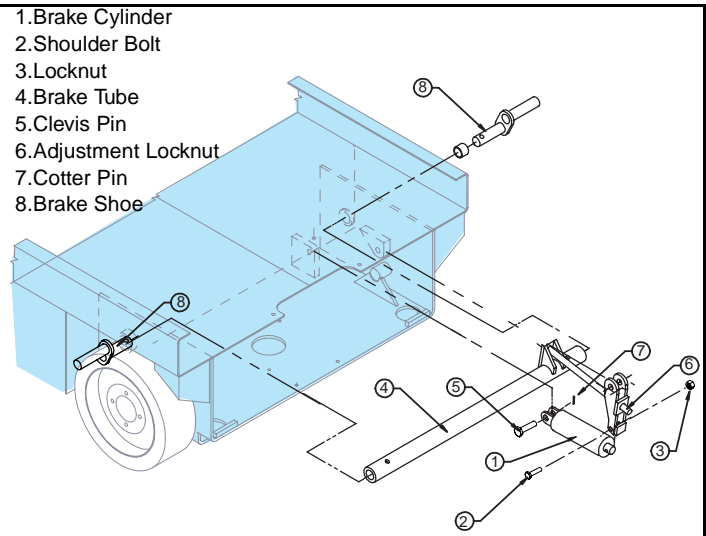


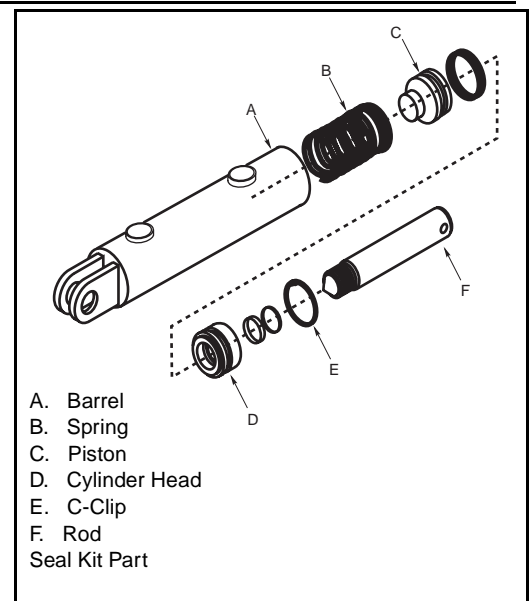
Figure 3-21: Brake Cylinder Assembly

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.

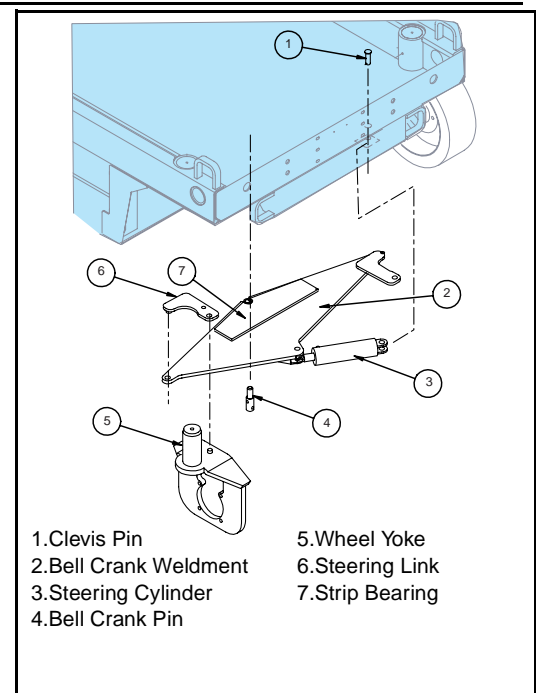
Figure 3-22: Steering Cylinder

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

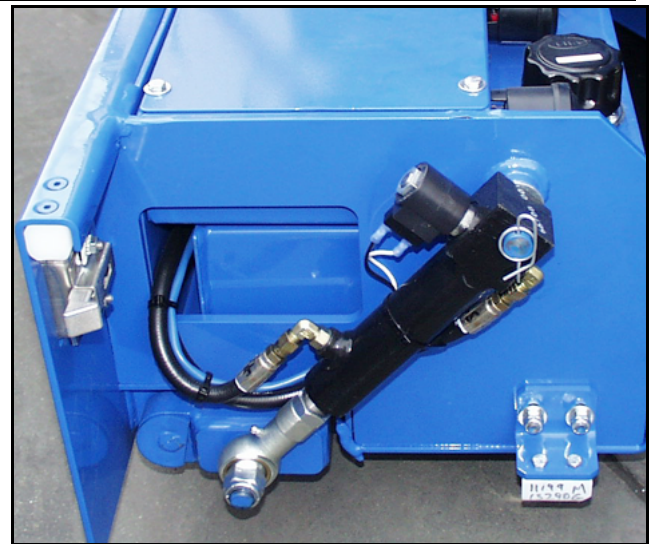
The Depression Mechanism Cylinders are located at the ends of each swing-out module.

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

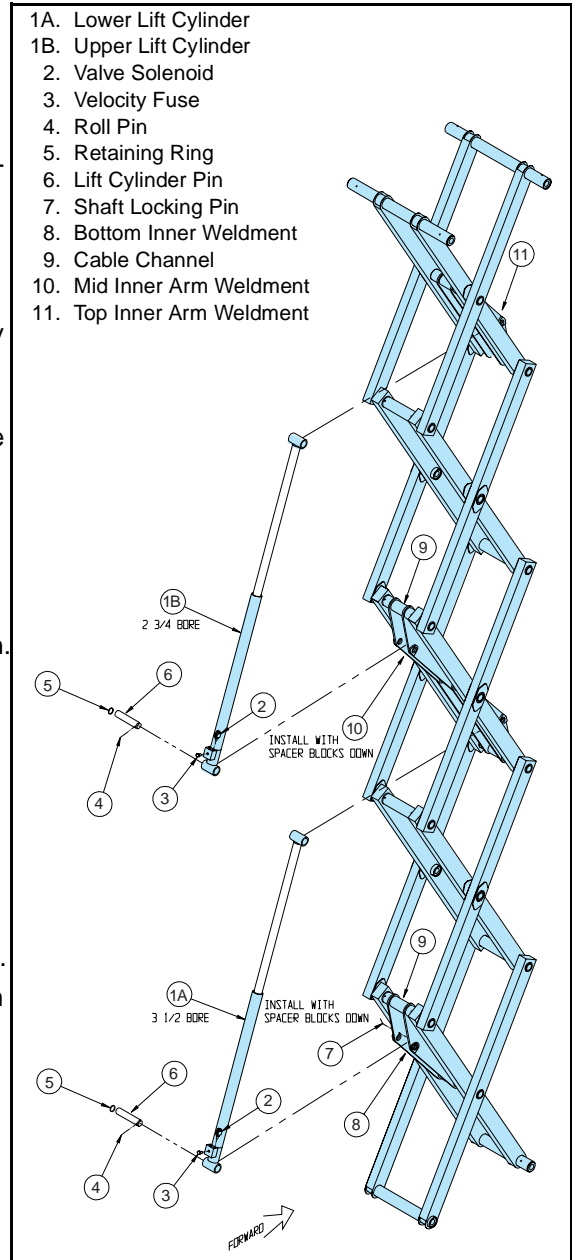
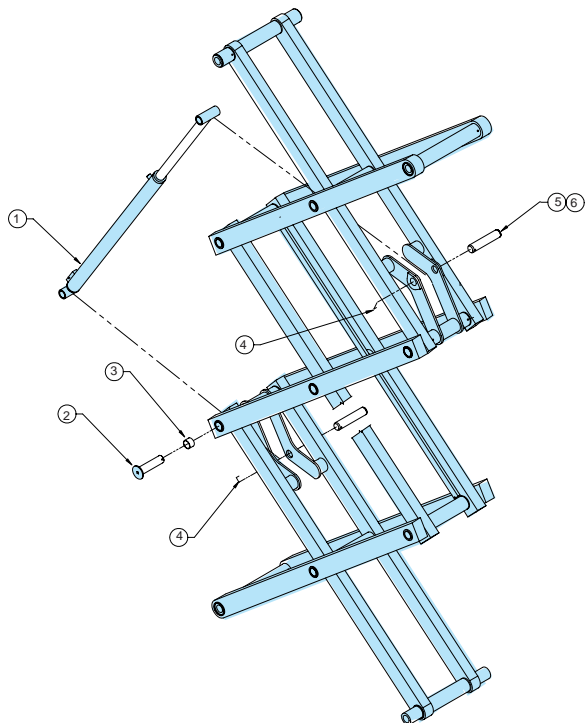


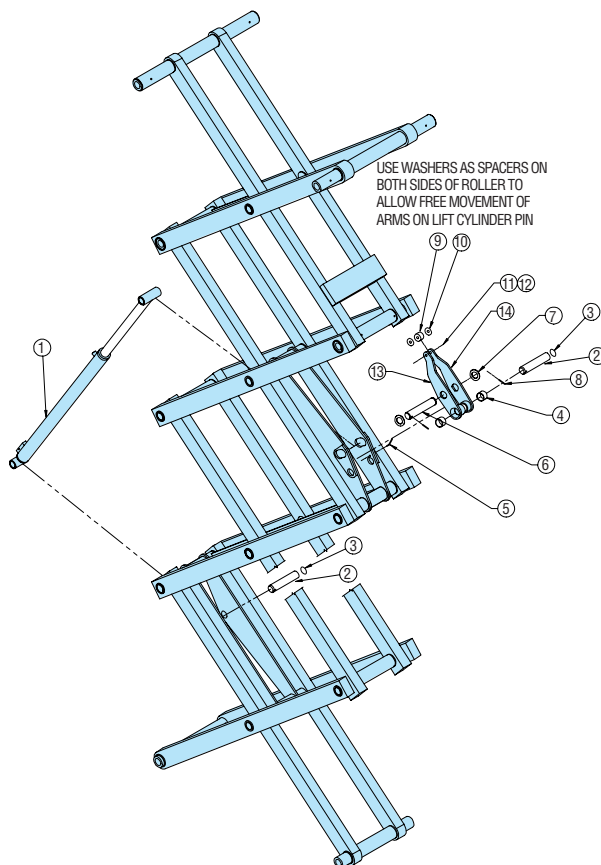
Figure 3-25: Lift Cylinder Remove and Replace

- 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



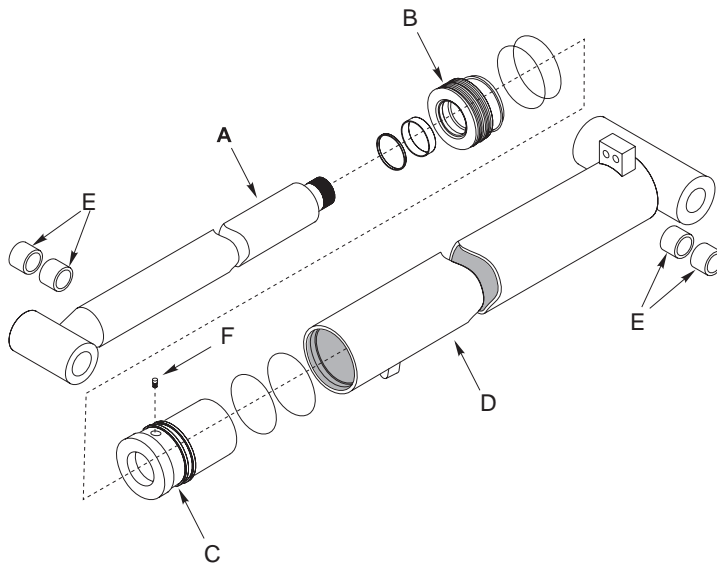
Four Section Scissor Assembly

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 Loctite #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 ¼ 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



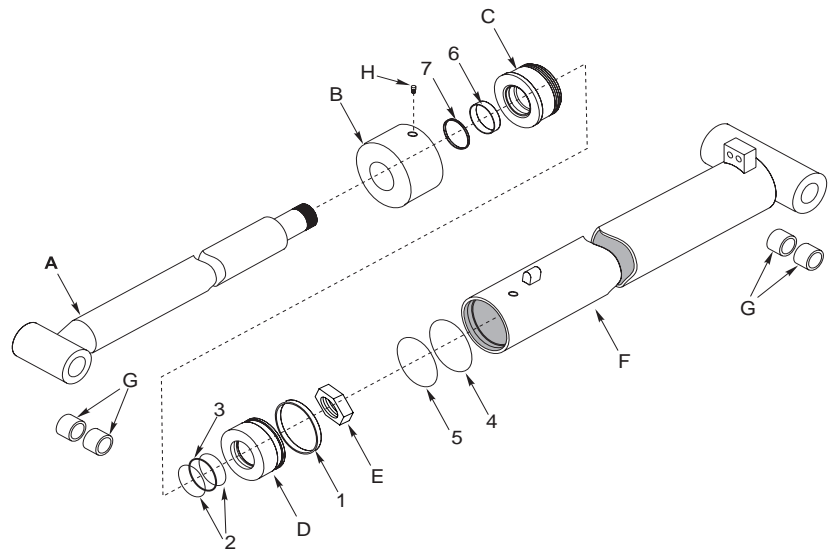
- A. Rod
 - B. Thread Cap Head
 - C. Piston
 - D. Barrel
 - E. Bronze Bushings
 - F. Set Screw
- Seal Kit Part Number 066601-010

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

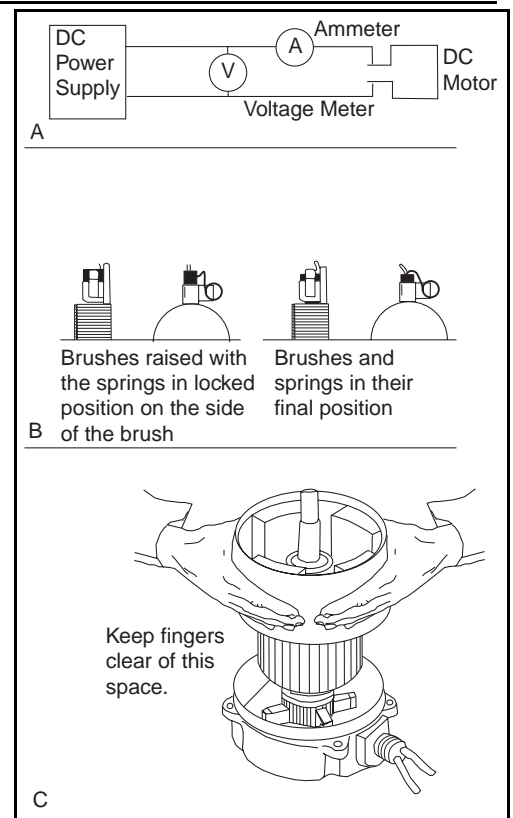
DISASSEMBLY

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

	Nominal Thread Size	SAE J429 Grade 5			SAE J429 Grade 8		
		Clamp Load	Tightening Torque		Clamp Load	Tightening Torque	
			K=.15	K=.20		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	
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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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

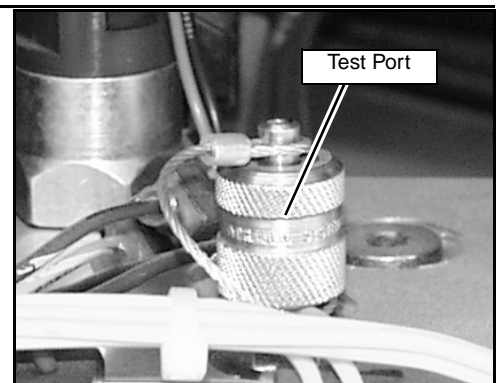
Figure 4-1: Hydraulic Test Port

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

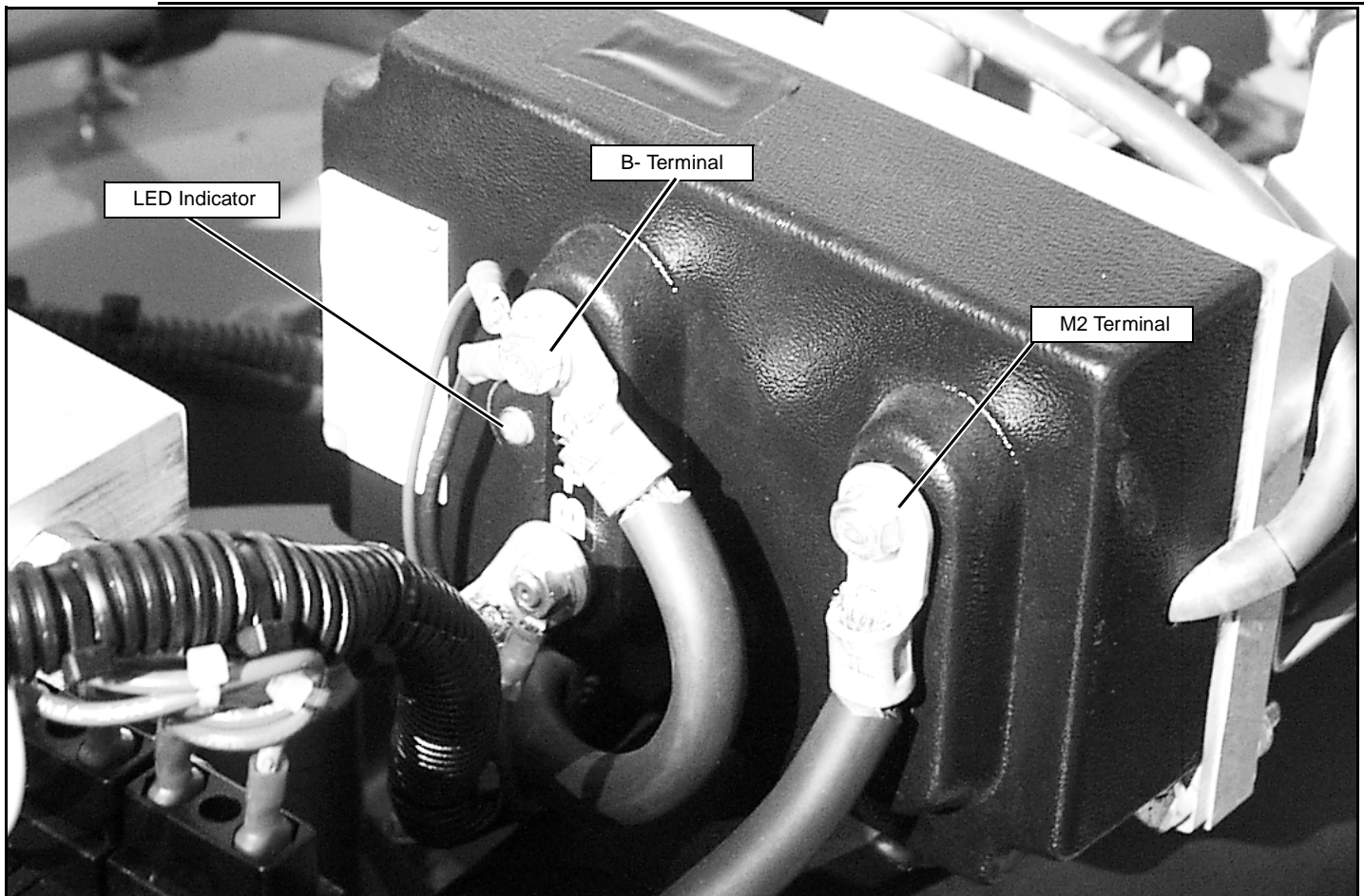
Batteries must be fully charged before troubleshooting.

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	X
Suction Strainer	X		X	X	X	X	X		X	X	X	
Return Filter	X		X	X	X	X	X		X	X	X	
Drive Motors (2)						X	X					
Pump	X		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	DOWN ALARM	BATTERY CHARGE	
	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.

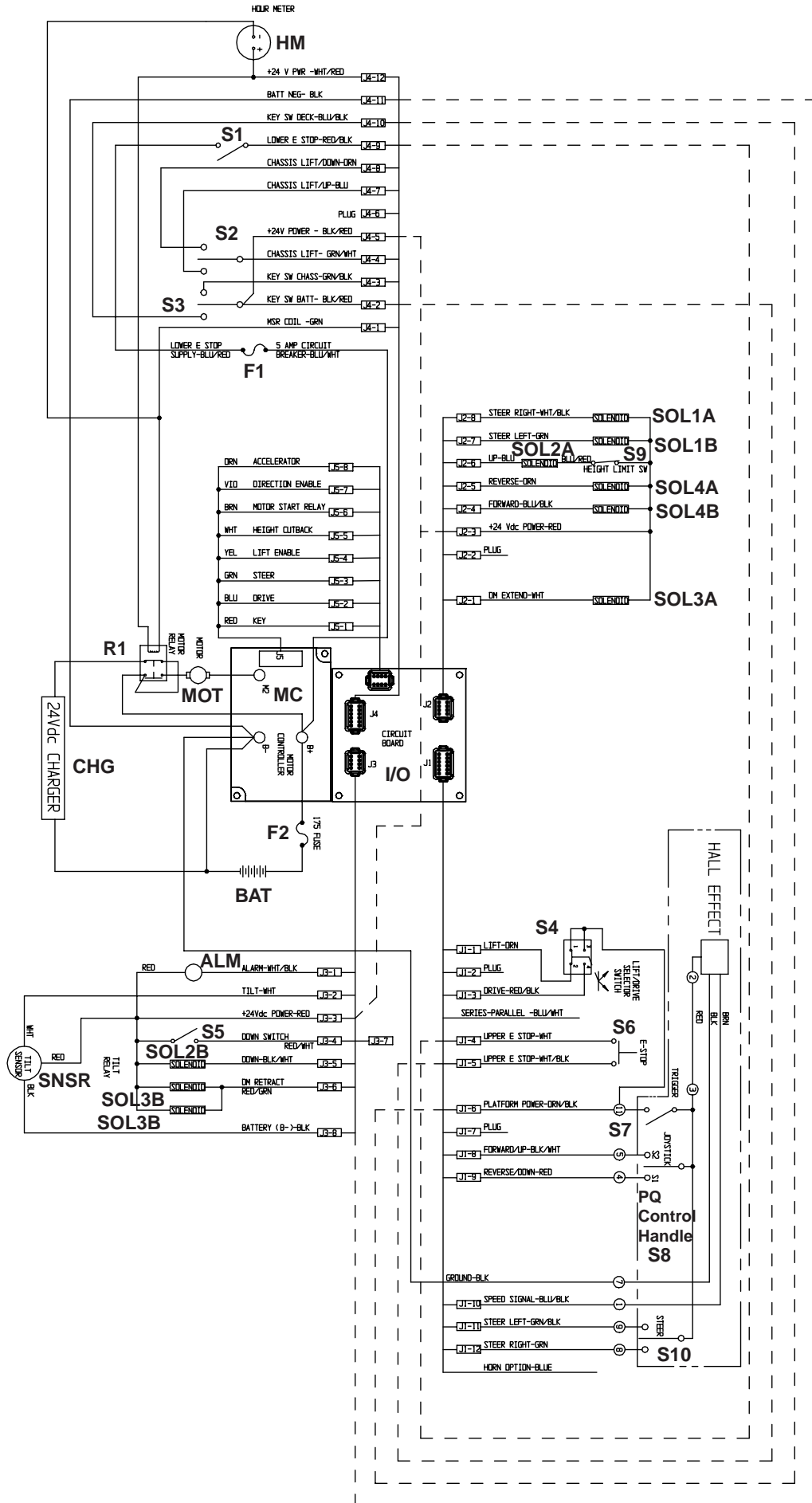
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5.2 ELECTRICAL

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

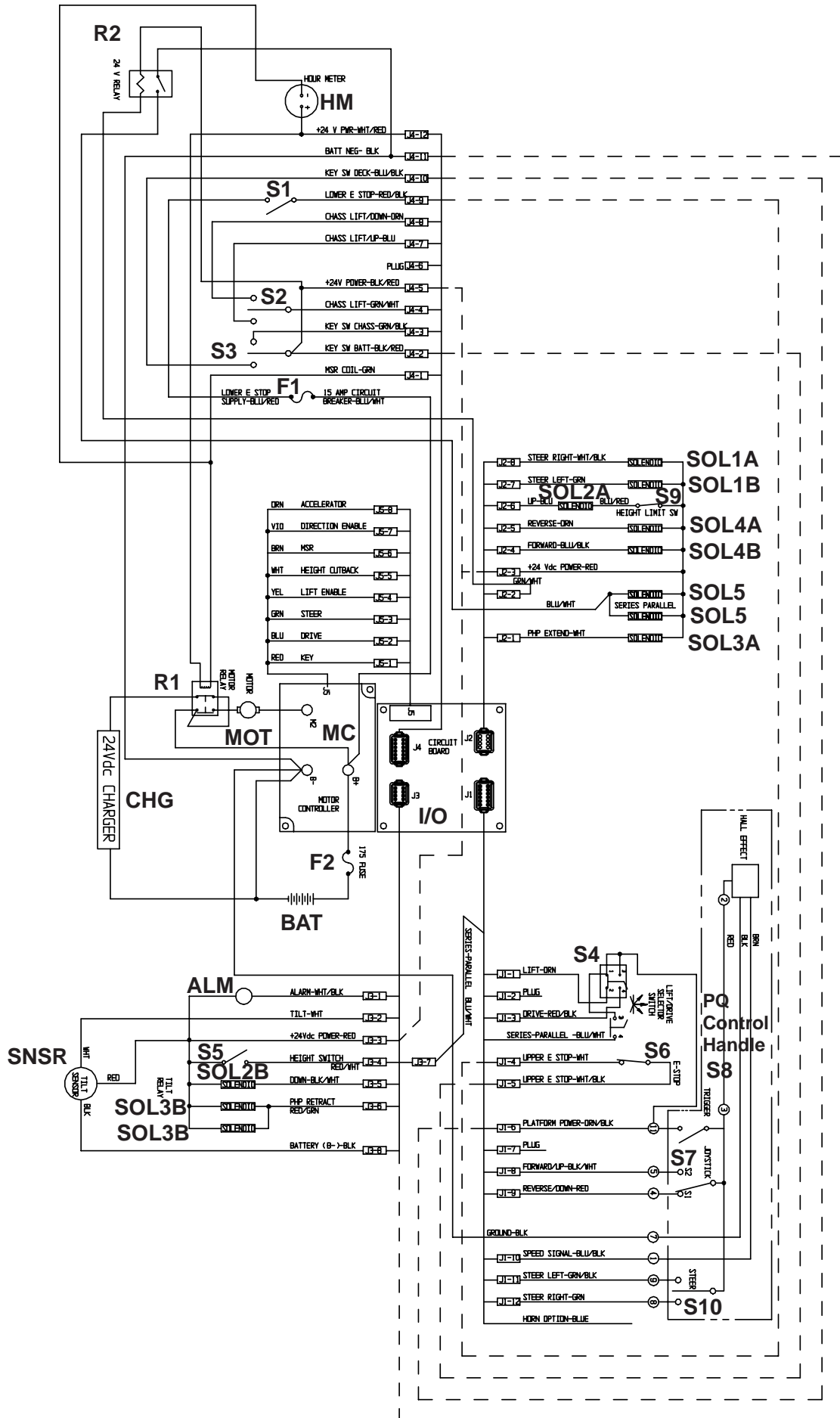


Schematics - 5.2 - Electrical

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

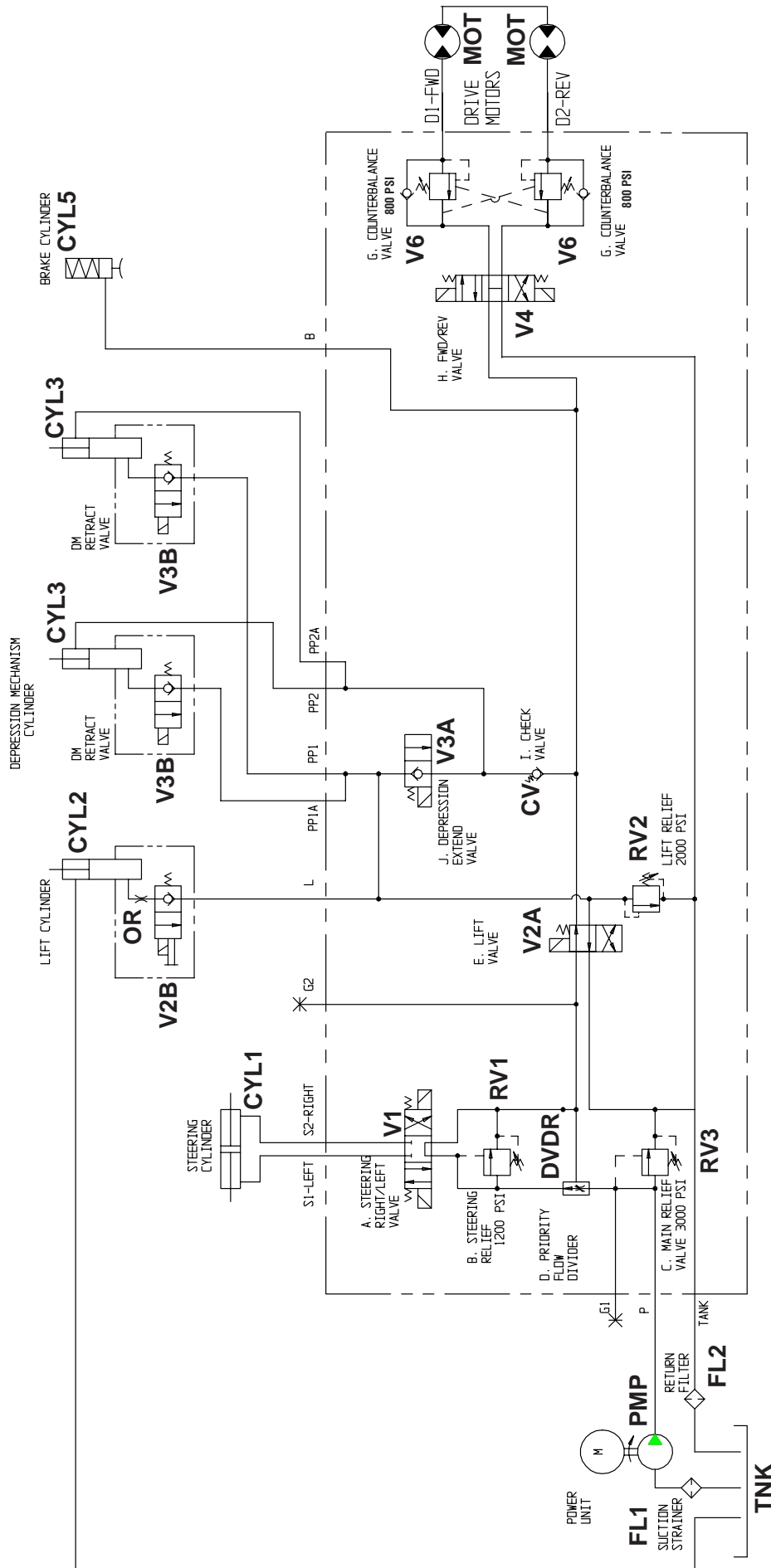
Reference Number	Name	Function	Location
S6	Platform Emergency Stop Switch	Shuts down all machine functions	Platform Controls
S7	Interlock Switch	Safety mechanism for joystick	Platform Controls
S8	PQ Control Handle	Proportionally controls the drive and lift functions	Platform Controls
S9	Height Limit 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



Schematics - 5.3 - Hydraulics

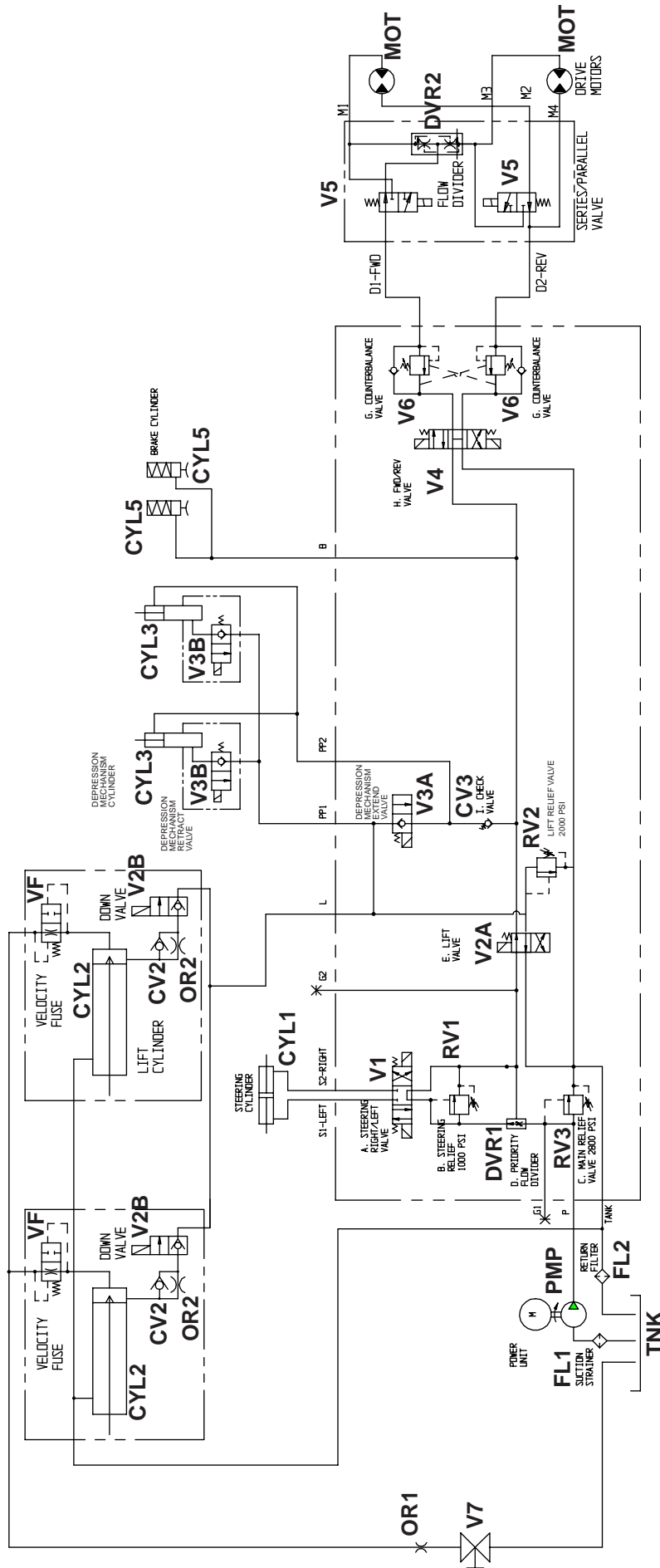
Legend: Hydraulic Schematic, X20W, X26N--066781-020

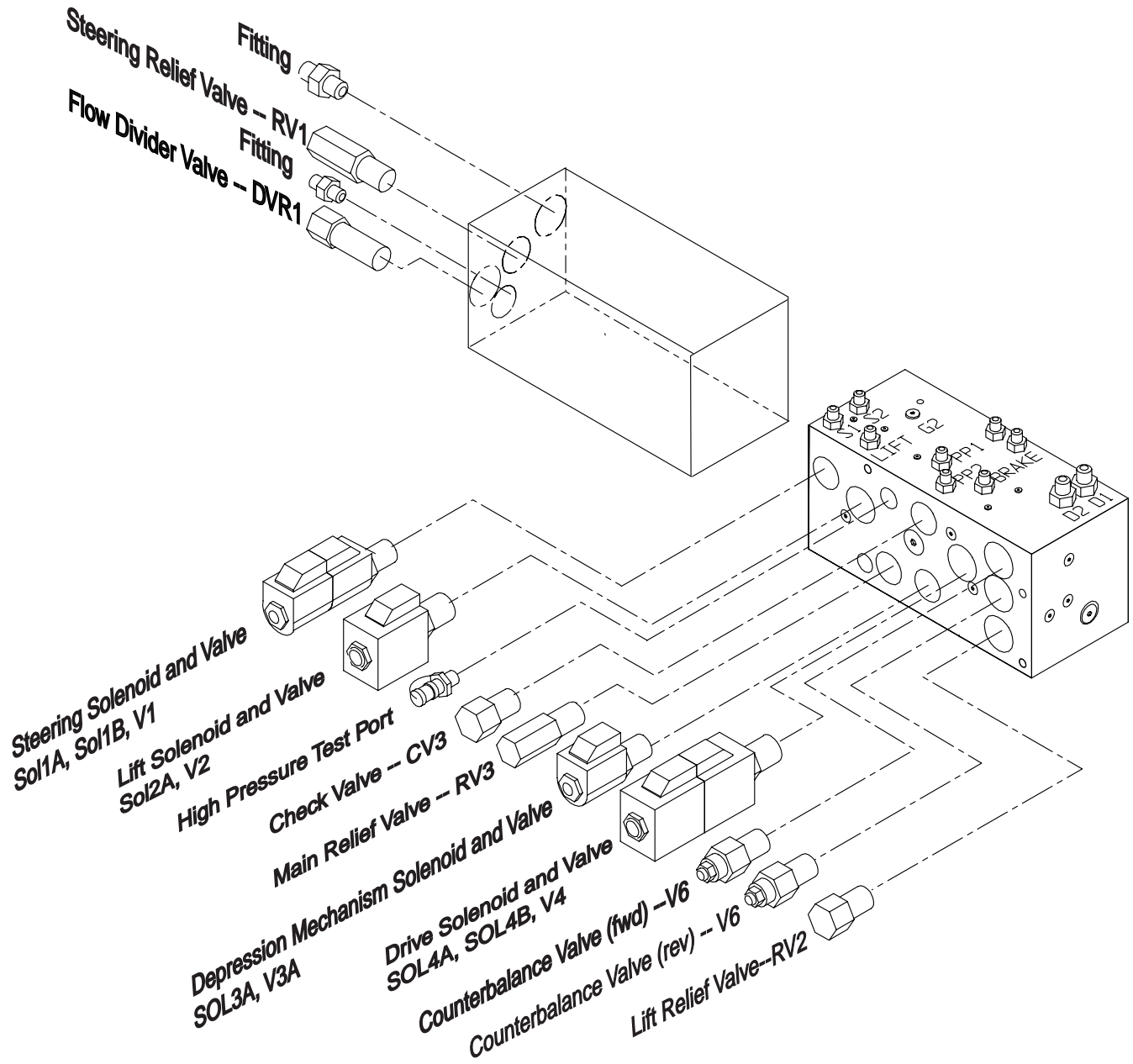
Reference number	Name	Function	Location
CV3	Check Valve	Allows Depression Mechanism to retract in drive mode	Hydraulic Manifold
CYL1	Steering Cylinder	Provides force to turn front wheels	Front of chassis above drive motors
CYL2	Lift Cylinder	Provides force to lift platform	Elevating Assembly
CYL3	Depression 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

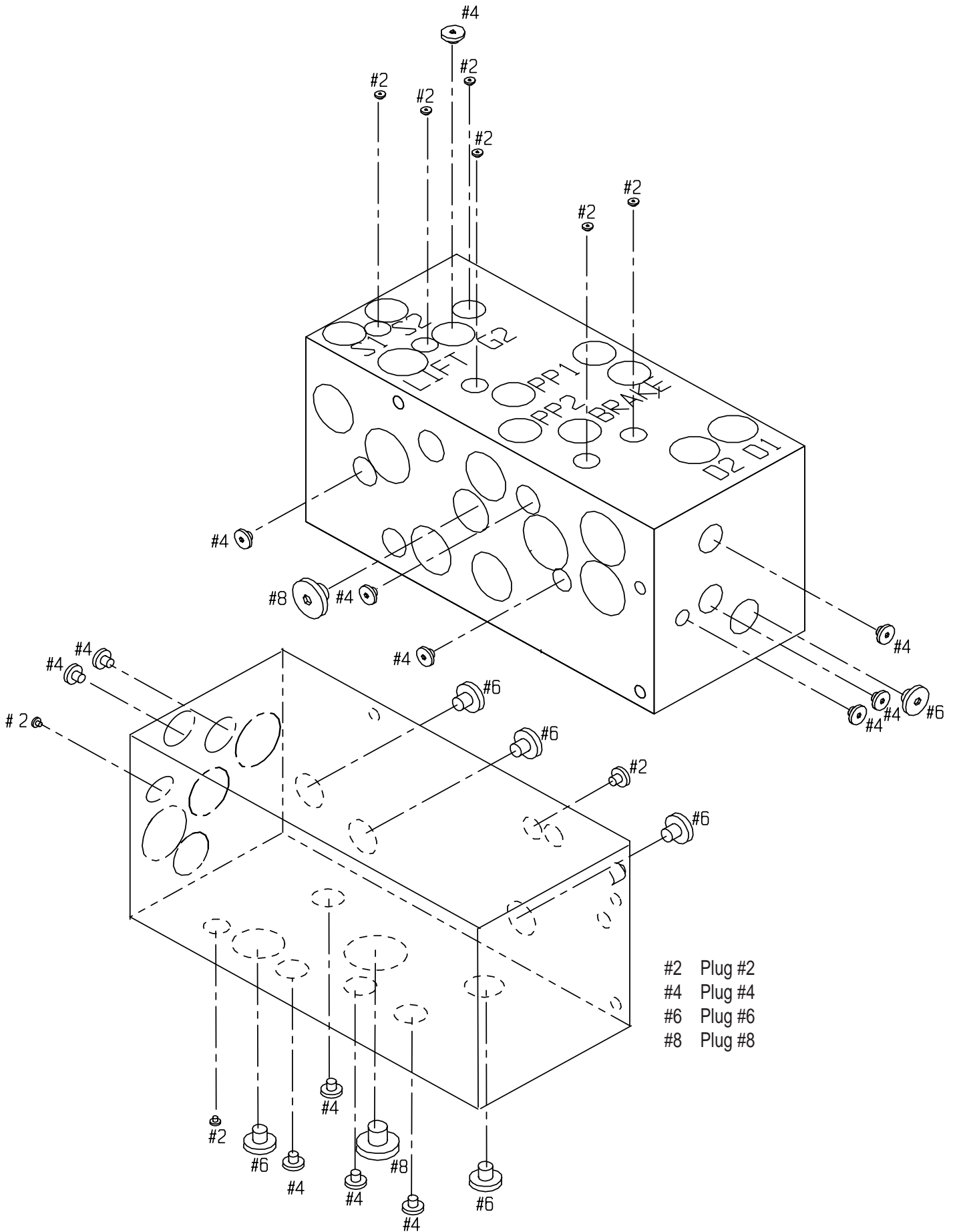
Schematics - 5.3 - Hydraulics

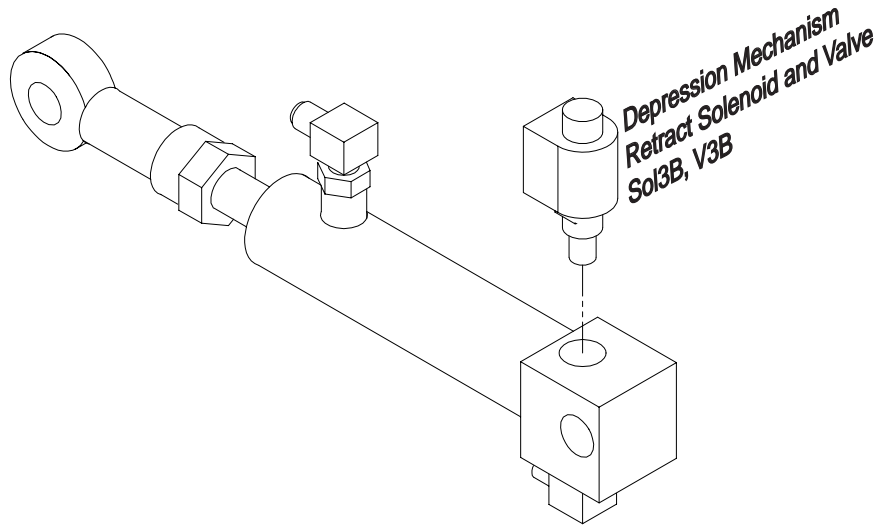
Legend: Hydraulic Schematic, X31N--066781-021

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

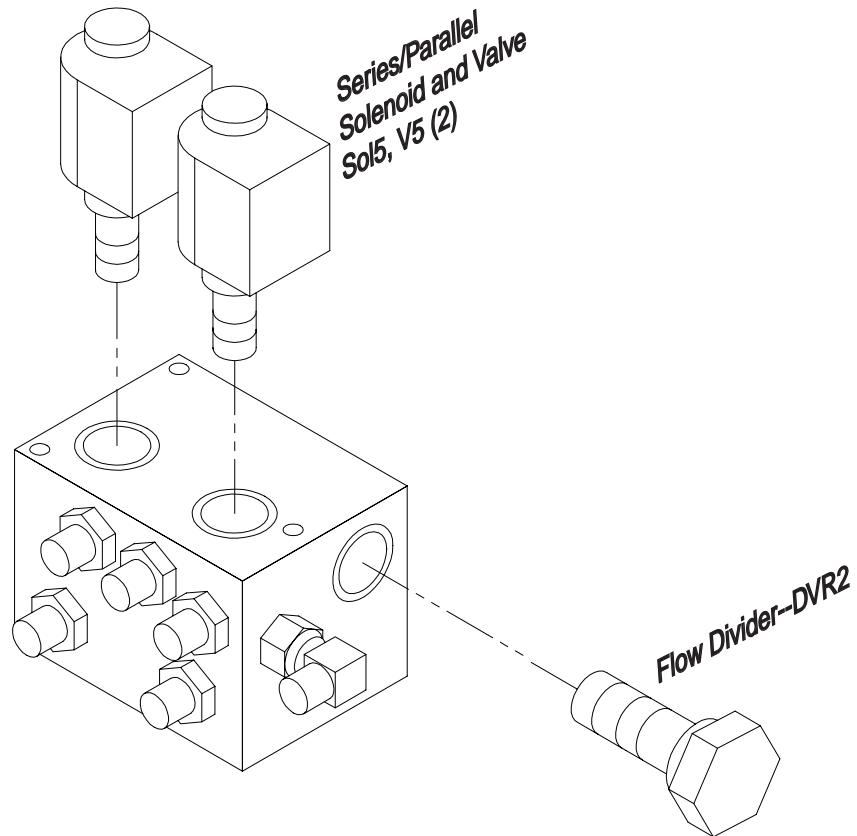








Depression Mechanism Cylinder



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.

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Illustrated Parts Breakdown - 6.1 - Introduction

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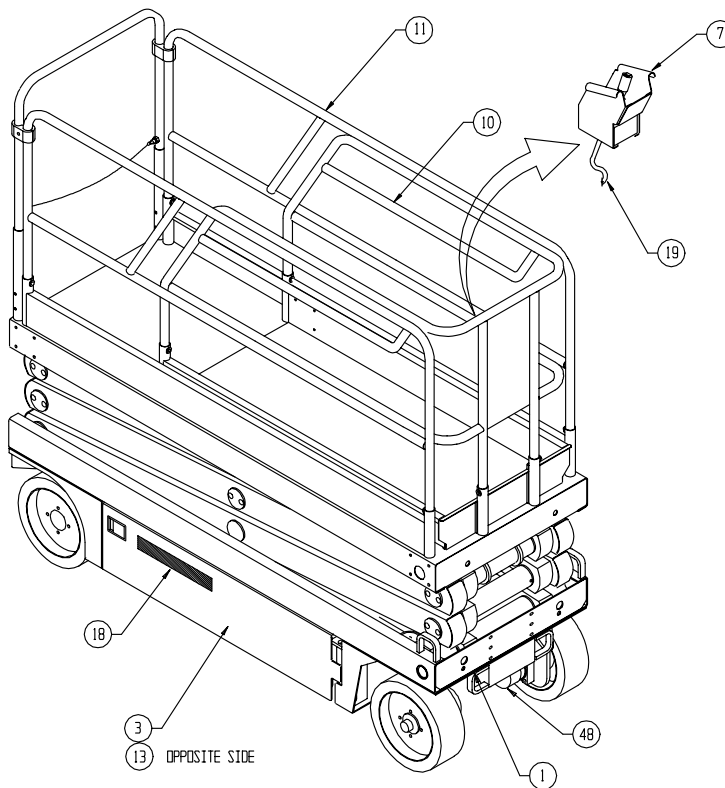
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Final Assembly-X20N

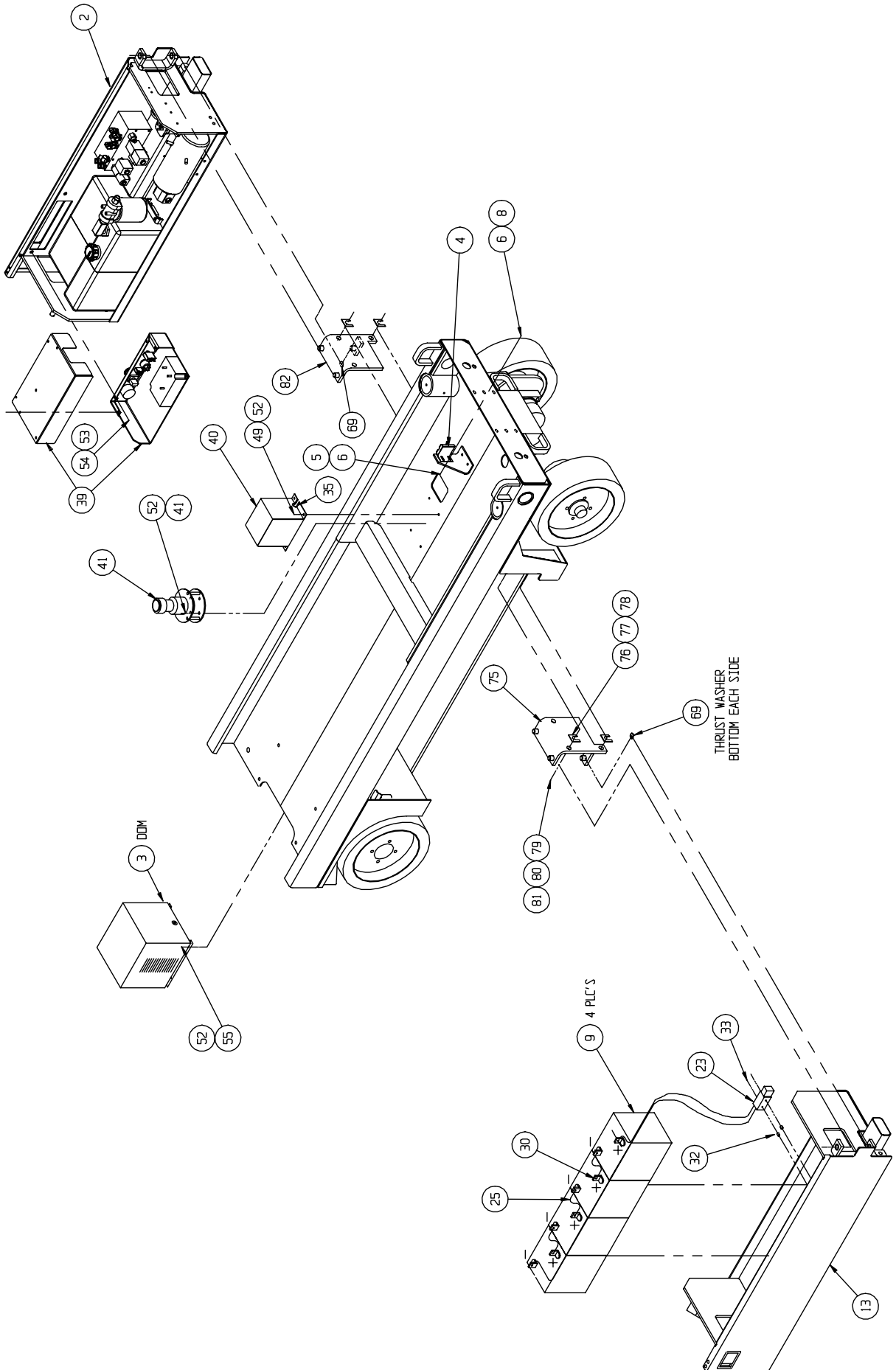
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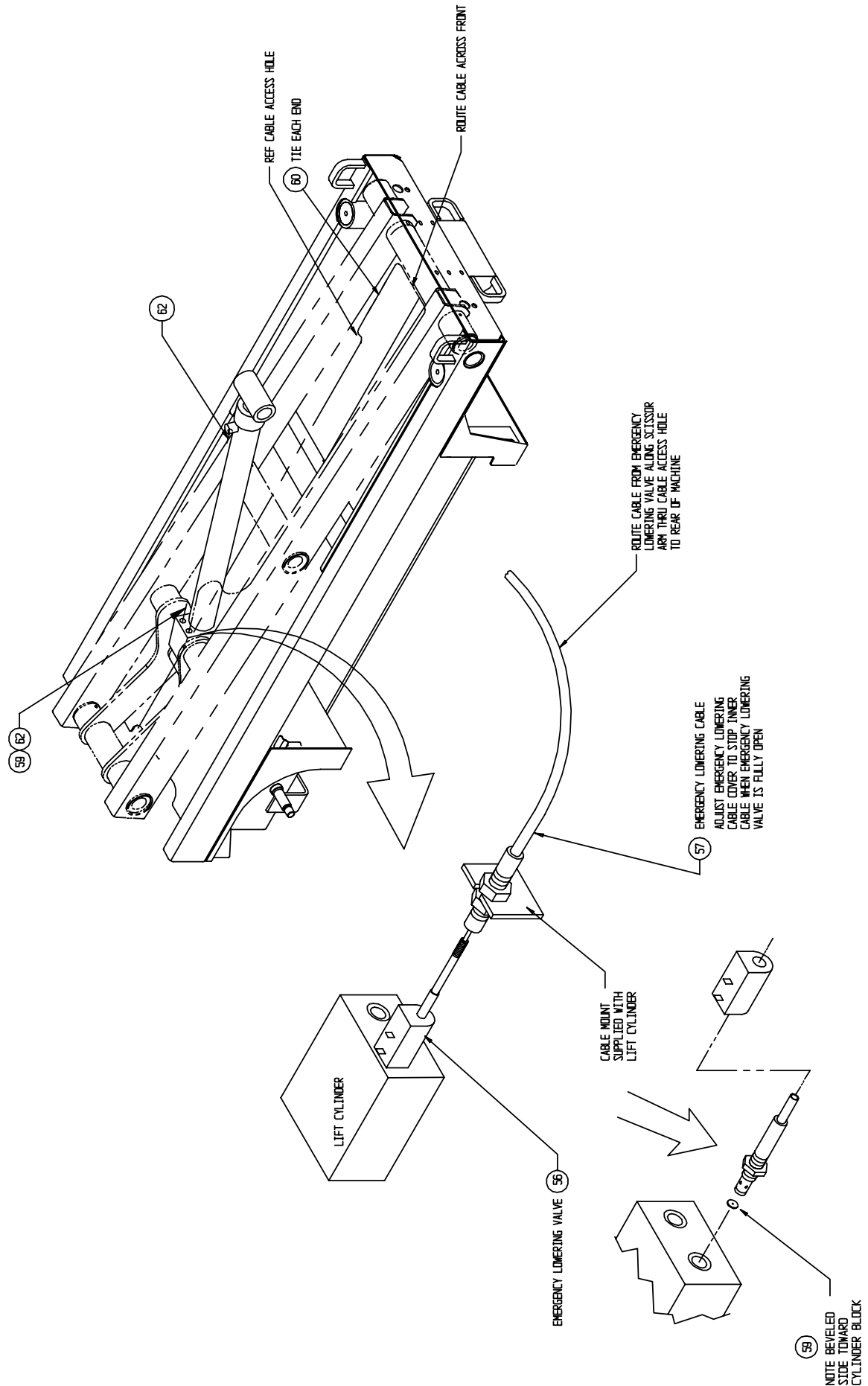
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1	066001-001	BASIC ASSY	1
2	066008-020	CONTROL MODULE	1
3	063944-011	CHARGER	1
	063944-011-R	CHARGER, RE-MANUFACTURED	1
4	066490-020	SWITCH ROLLER ASSY	1
5	011248-003	NUT HEX ESNA 10-24	2
6	011240-003	WASHER #10 STD FLAT	4
7	066013-022	CONTROLLER ASSEMBLY	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

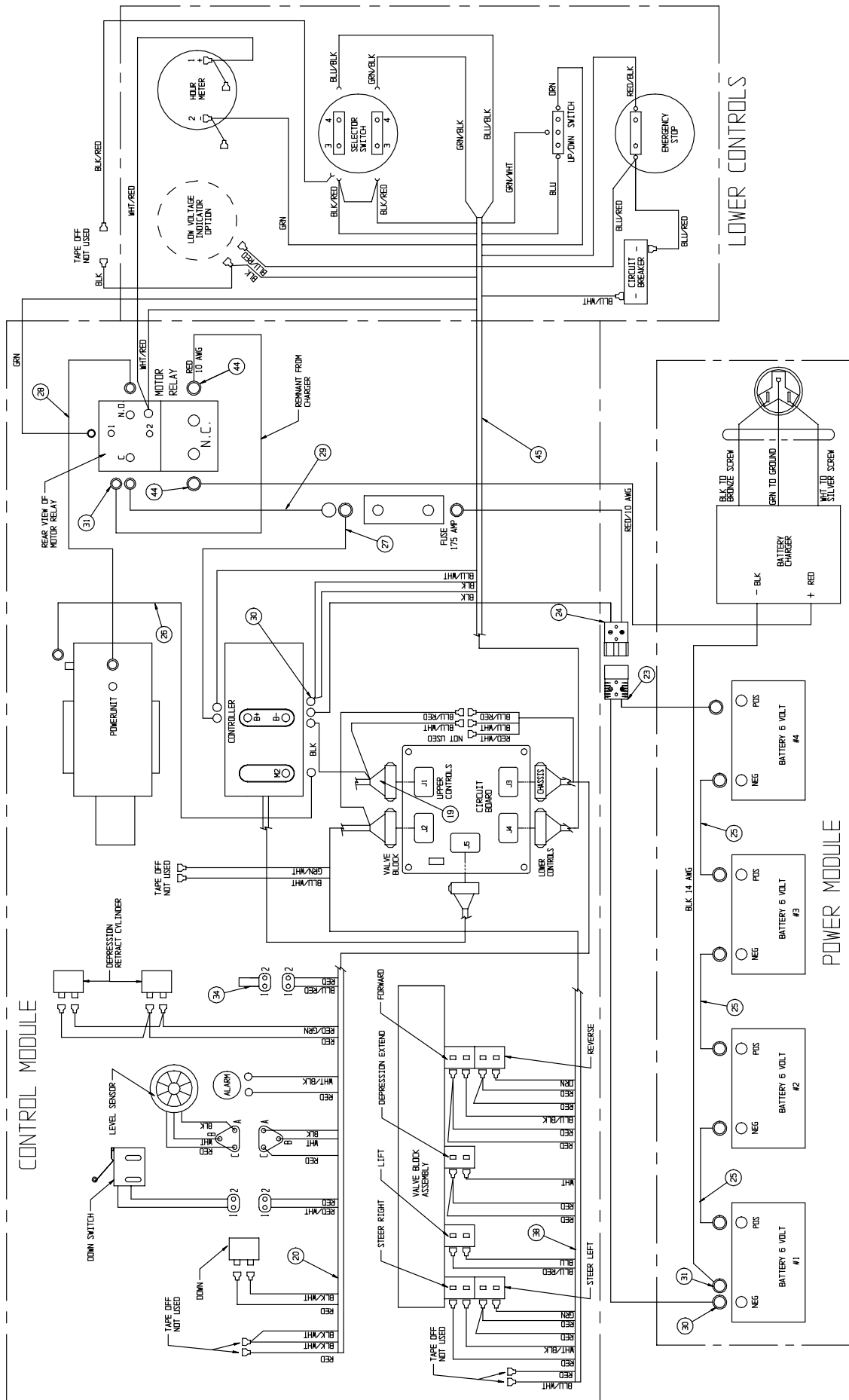
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32	014252-004	NUTSERT 1/4-20 UNC	2
33	011252-010	SCREW HHC 1/4-20 UNC X 1 1/4	2
34	063497-025	PLUG BYPASS WIRE ASSY	1
38	065942-102	CABLE ASSY VALVE BLOCK	1
39	066014-020	LOWER CONTROL ASSY	1
40	066768-000	TILT ALARM COVER WELDMENT	1
41	029945-020	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







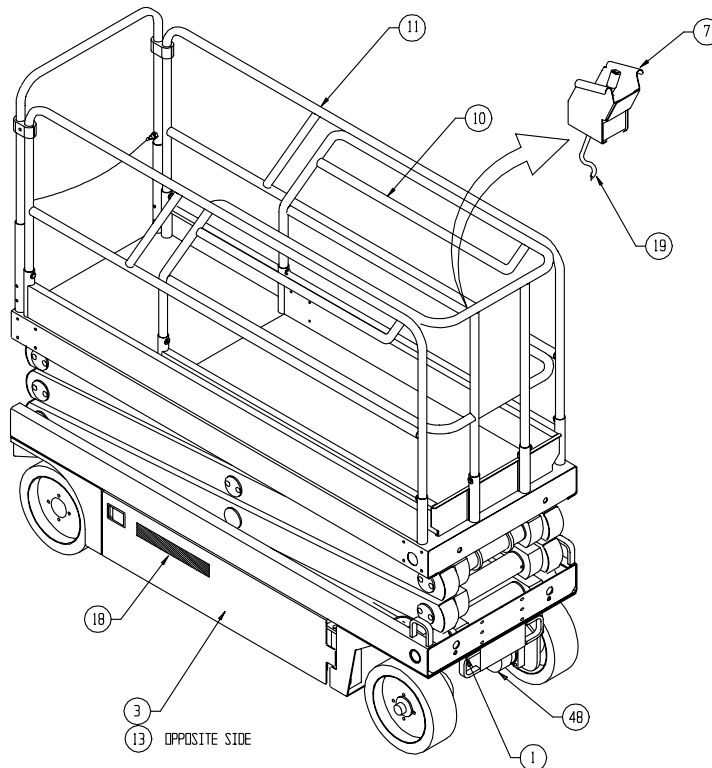
Drawing # 4 of 4

Final Assembly-X20W

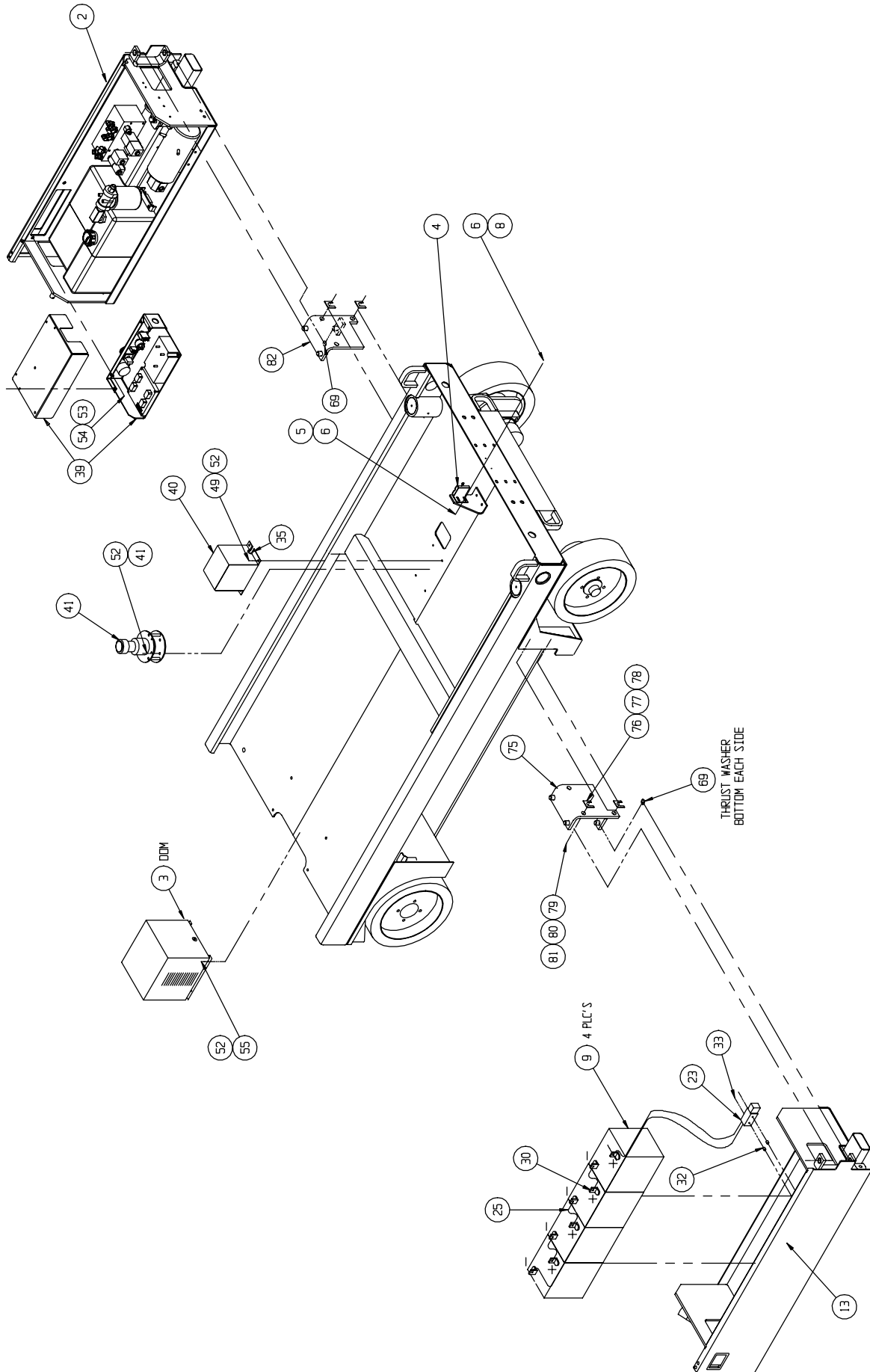
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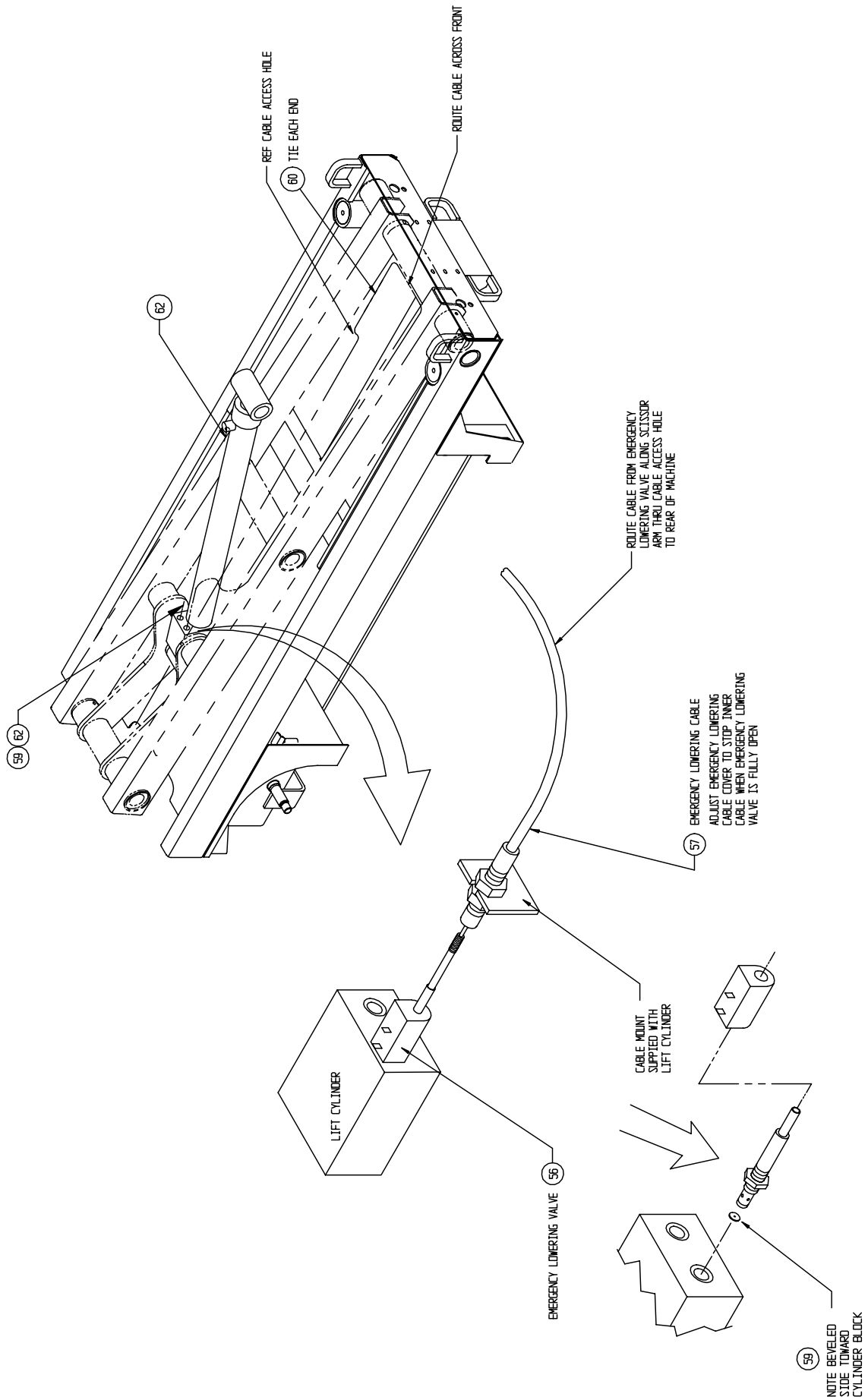
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2	066008-020	CONTROL MODULE	1
3	063944-011	CHARGER	1
	063944-011-R	CHARGER, RE-MANUFACTURED	
4	066490-020	SWITCH ROLLER ASSY	1
5	011248-003	NUT HEX ESNA 10-24	2
6	011240-003	WASHER #10 STD FLAT	4
7	066013-024	CONTROLLER ASSEMBLY	1
8	013965-006	SCREW 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

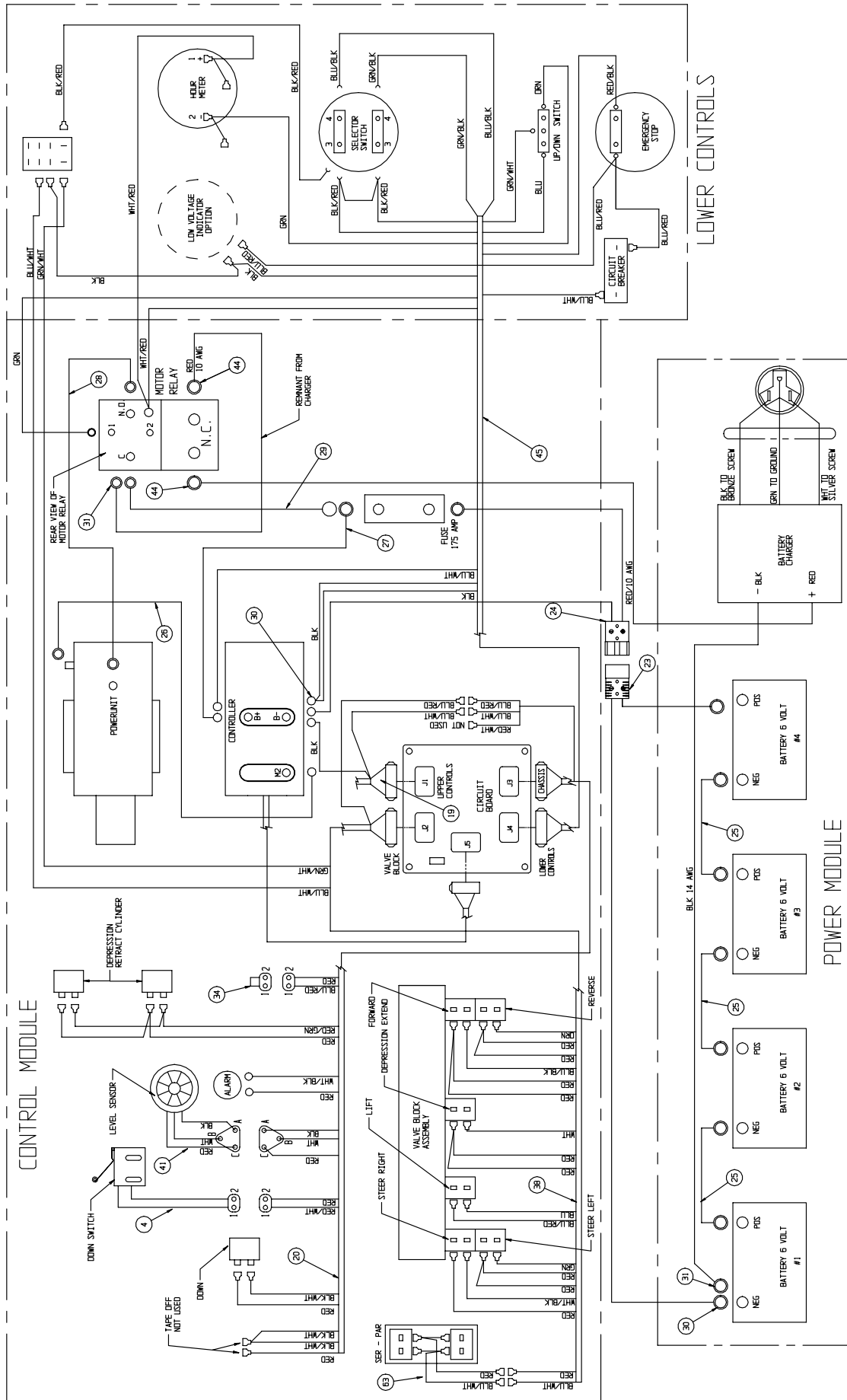
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33	011252-010	SCREW HHC 1/4-20 X 1 1/4	2
34	063497-025	PLUG BYPASS WIRE ASSY	1
38	065942-102	CABLE ASSY VALVE BLOCK	1
39	066014-020	LOWER CONTROL ASSY	1
40	066768-000	TILT ALARM COVER WELDMENT	1
41	029945-020	LEVEL SENSOR WIRE ASSY	1
44	029601-021	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







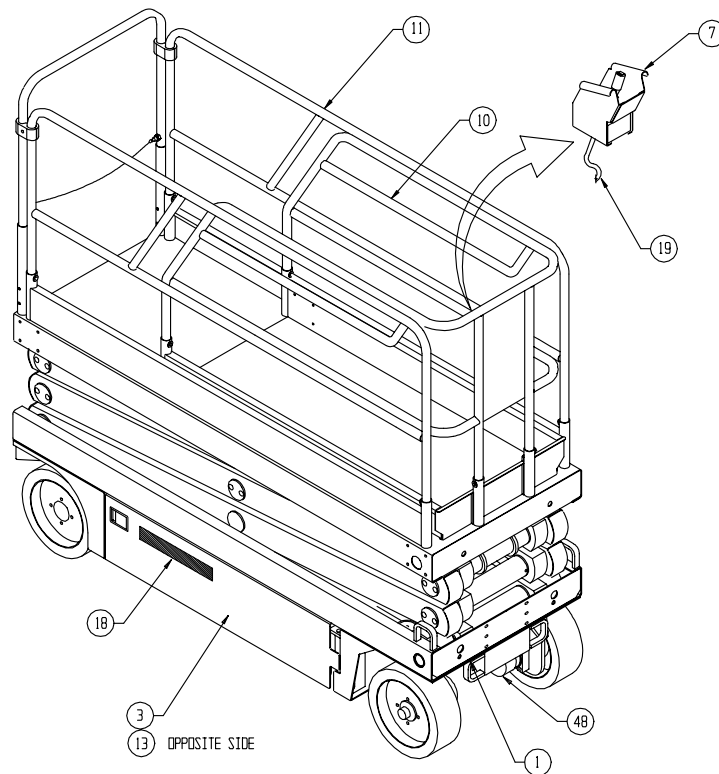
Drawing # 4 of 4

Final Assembly-X26N

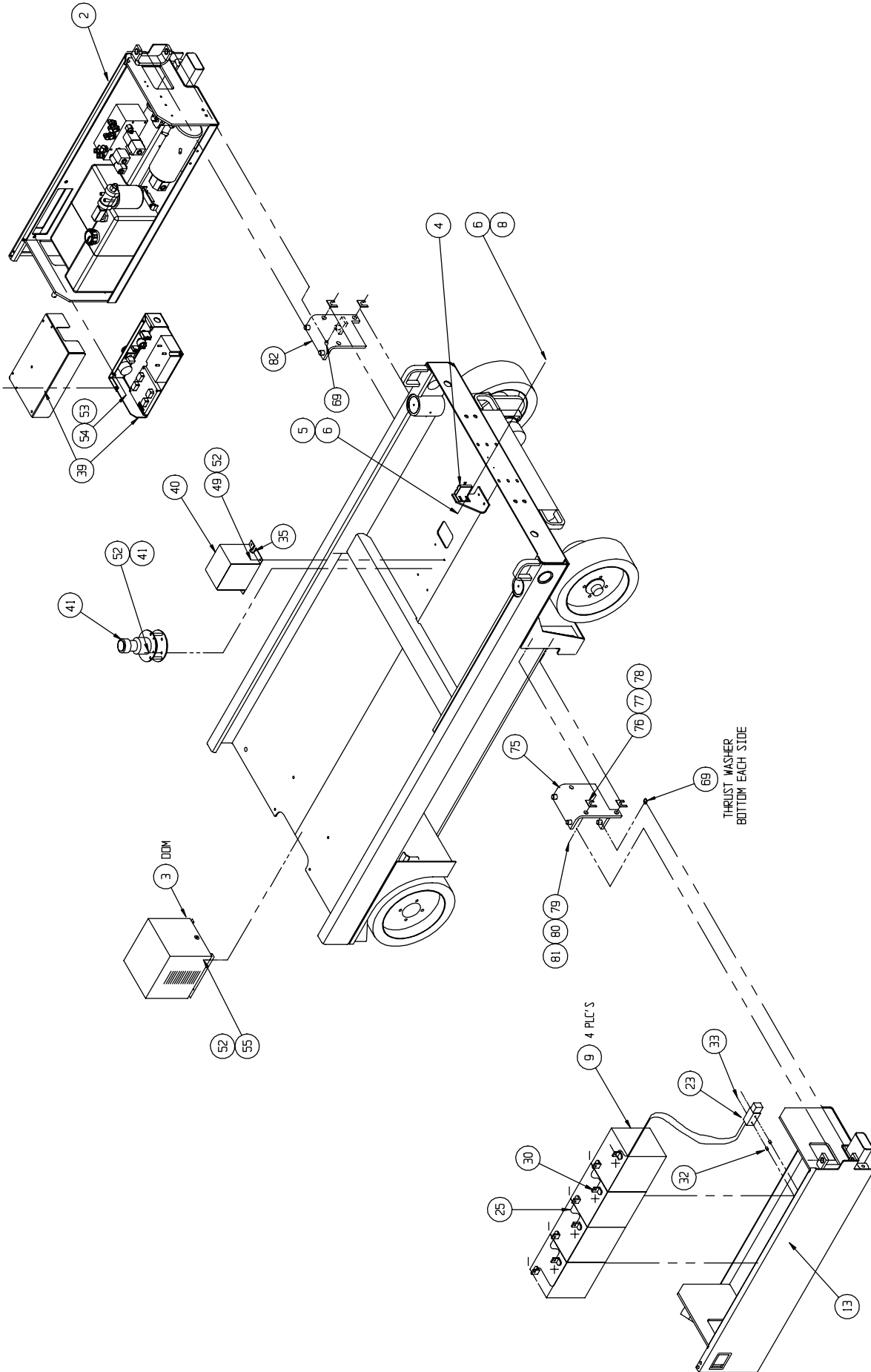
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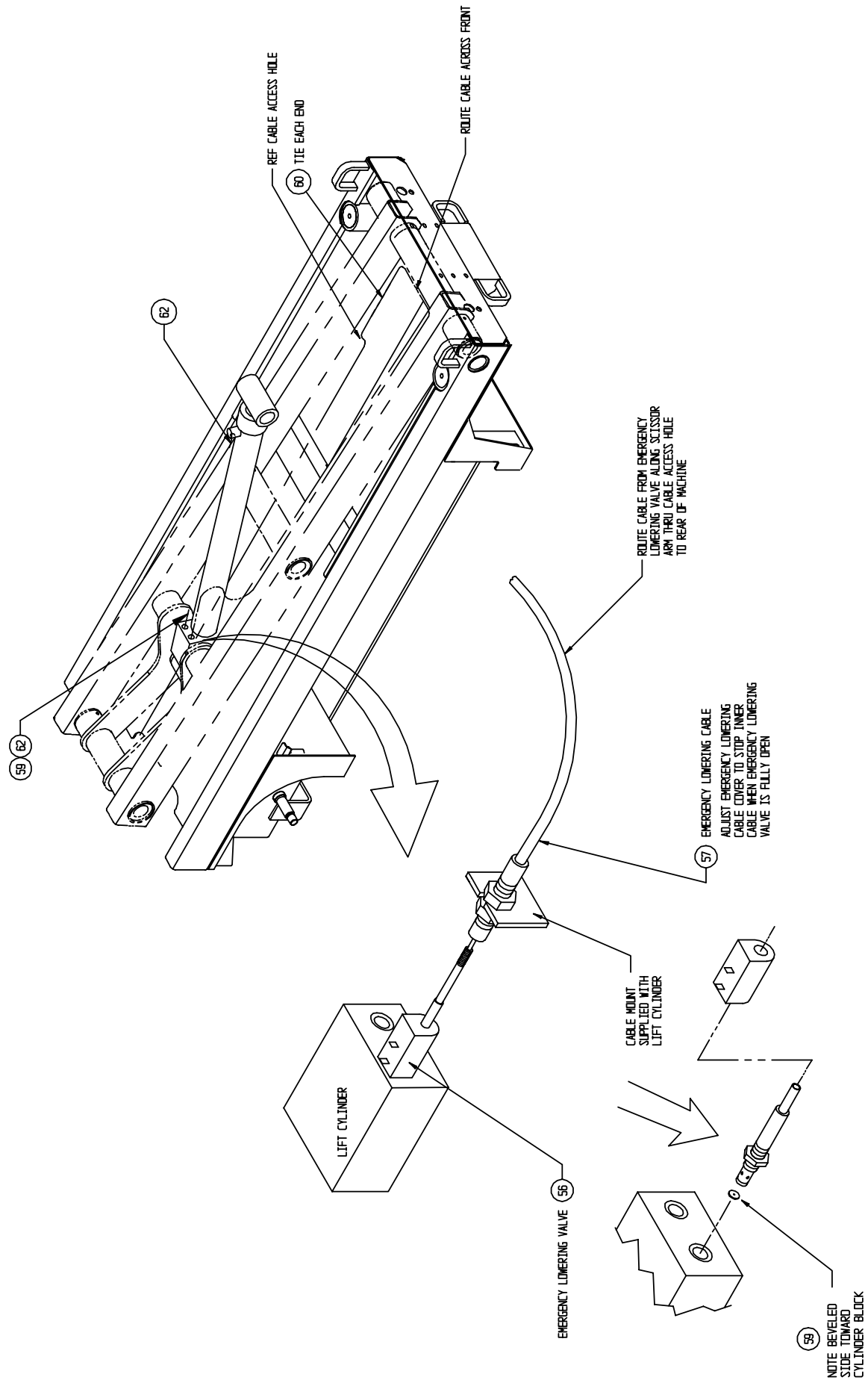
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2	066008-020	CONTROL MODULE	1
3	063944-011	CHARGER	1
	063944-011-R	CHARGER, RE-MANUFACTURED	
4	066490-020	SWITCH ROLLER ASSY	1
5	011248-003	NUT HEX ESNA 10-24	2
6	011240-003	WASHER #10 STD FLAT	4
7	066013-024	CONTROLLER ASSEMBLY	1
8	013965-006	SCREW 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

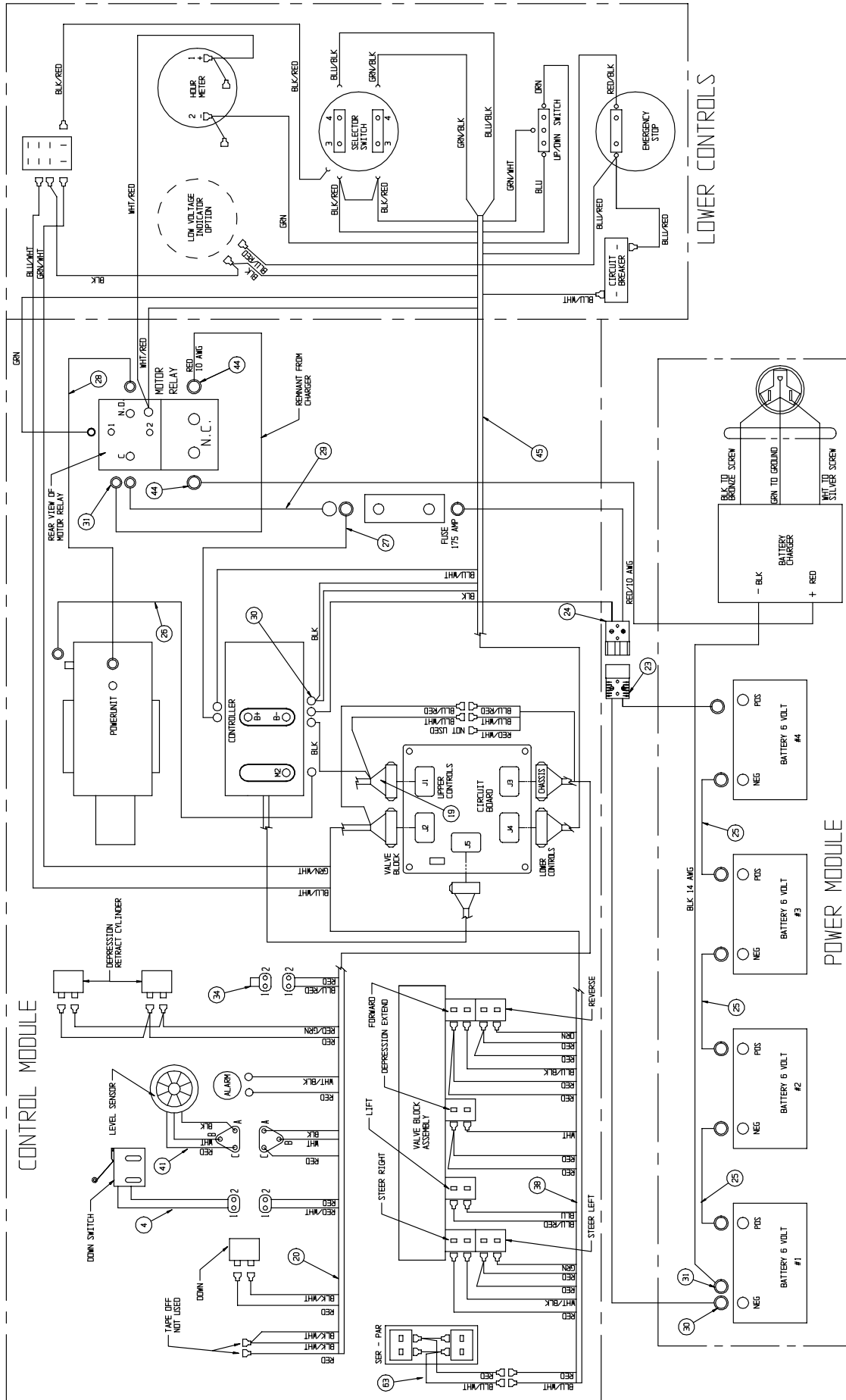
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
32	014252-001	NUTSERT 1/4-20	2
33	011252-010	SCREW HHC 1/4-20 X 1 1/4	2
34	063497-025	PLUG BYPASS WIRE ASSY	1
38	065942-102	CABLE ASSY VALVE BLOCK	1
39	066014-020	LOWER CONTROL ASSY	1
40	066768-000	TILT ALARM COVER WELDMENT	1
41	029945-020	LEVEL SENSOR WIRE 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







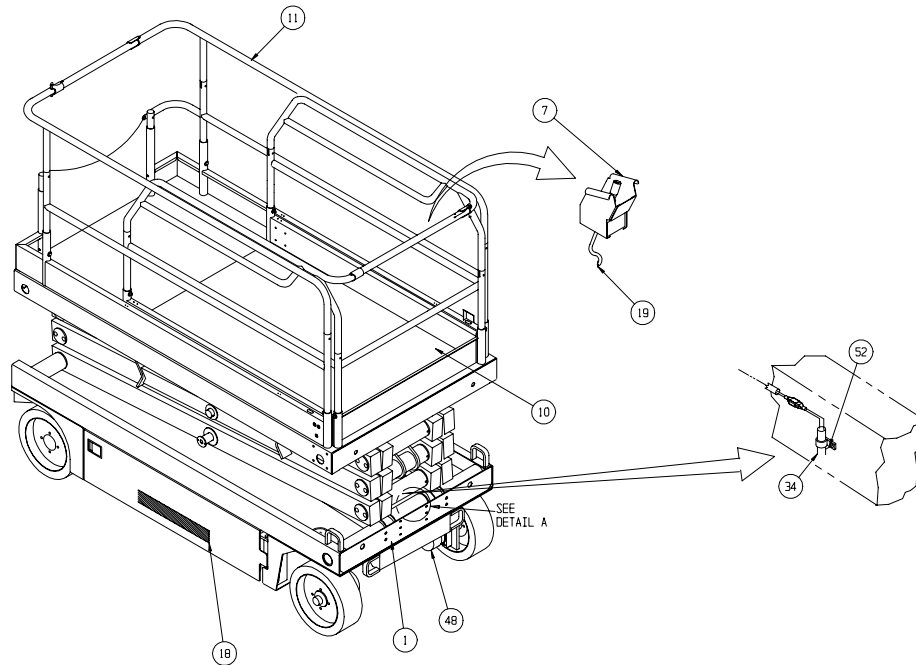
Drawing # 4 of 4

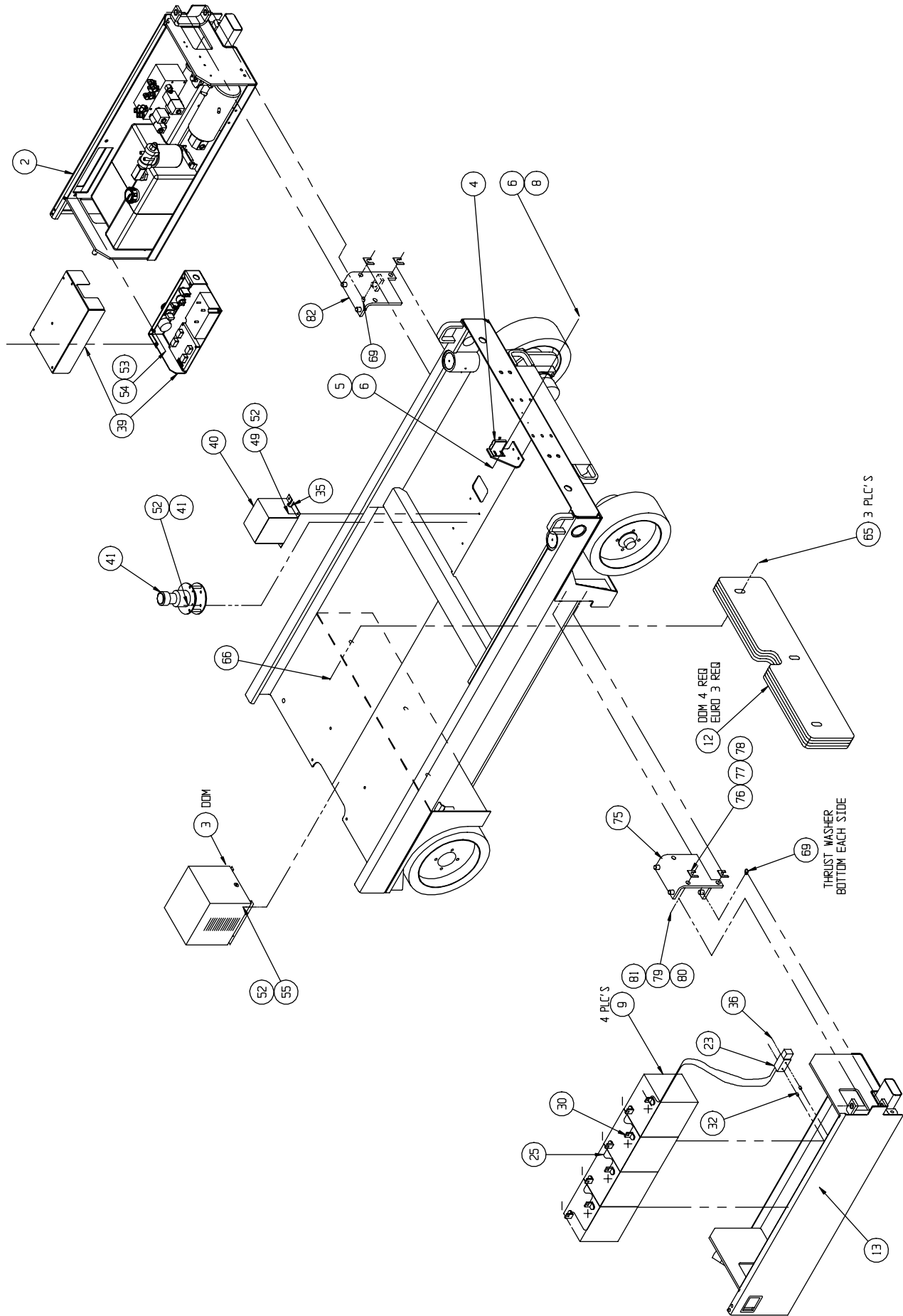
Final Assembly-X31N

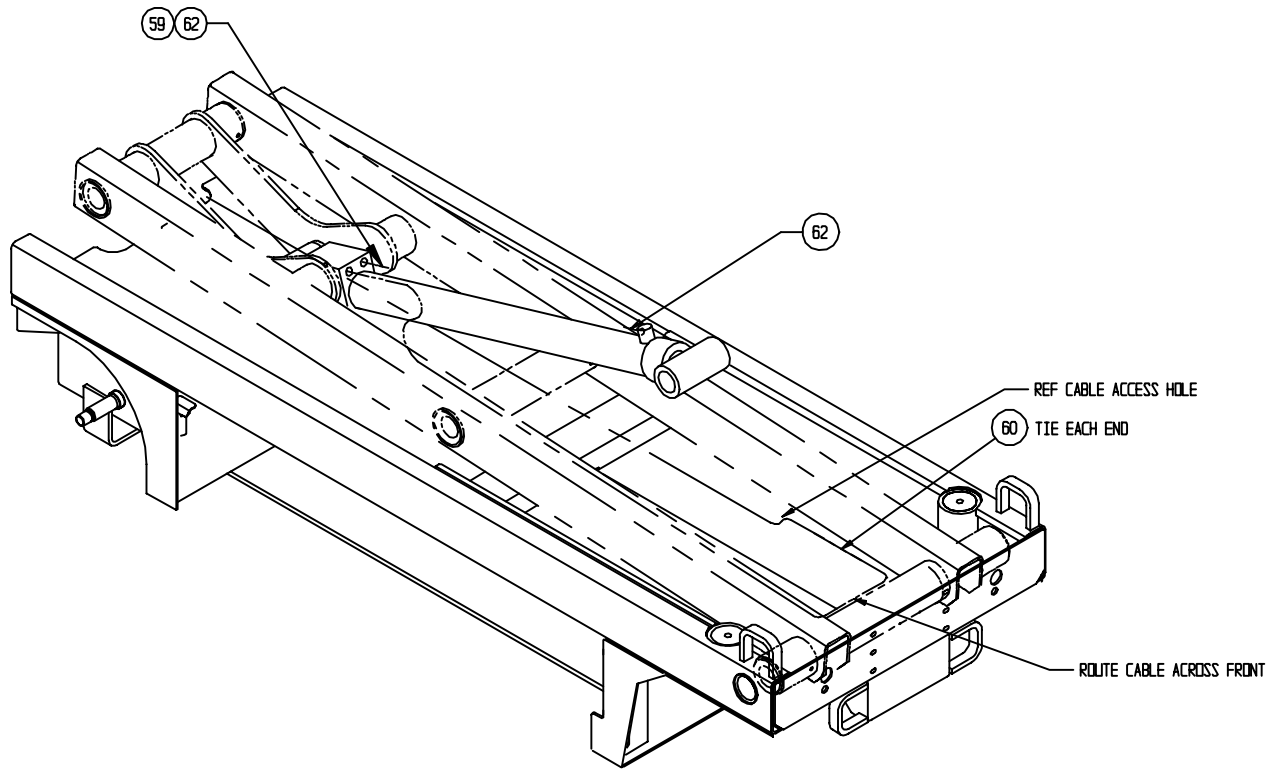
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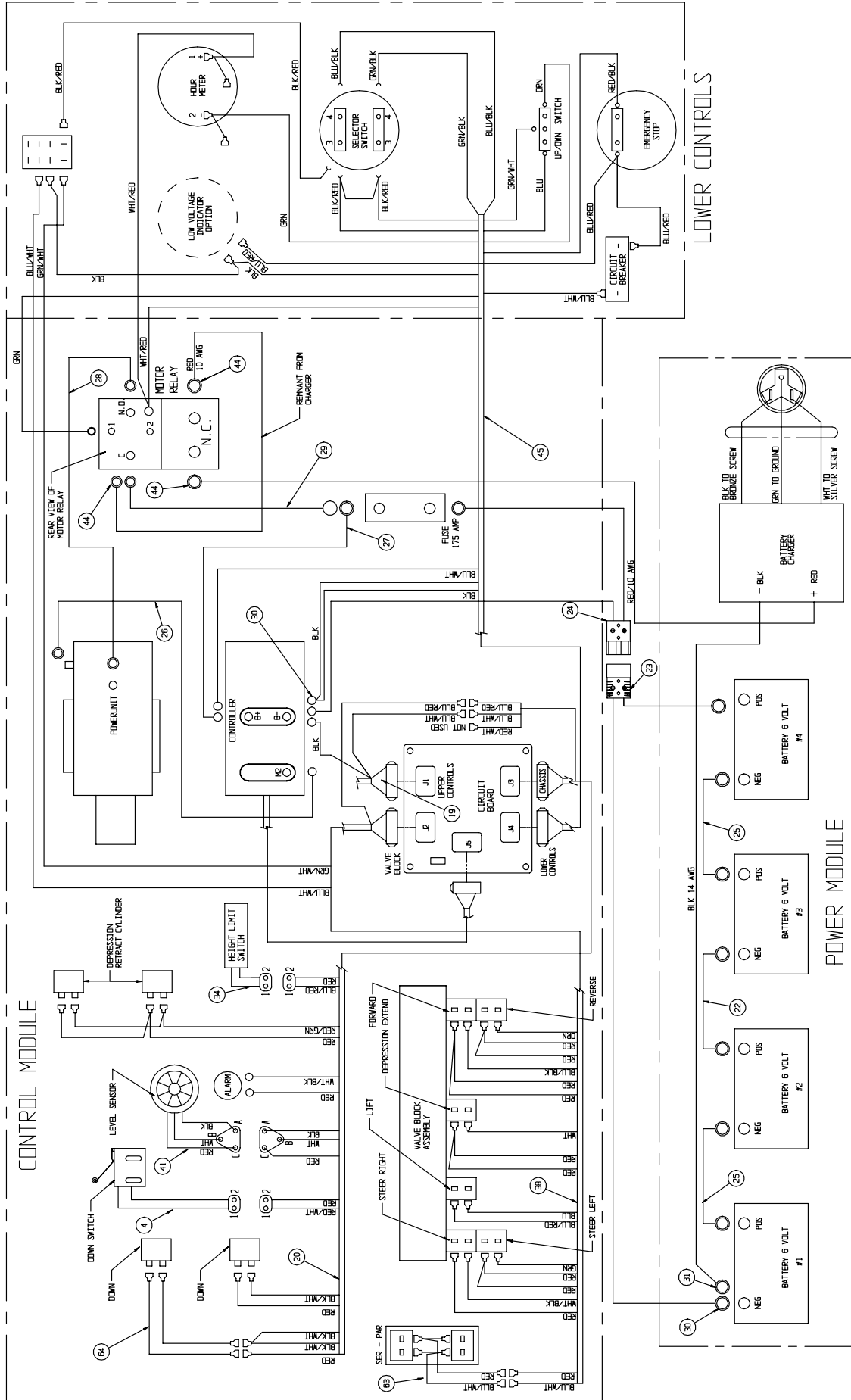
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
1	066851-000	BASIC ASSY	1
2	066008-020	CONTROL MODULE	1
3	063944-011	CHARGER	1
	063944-011-R	CHARGER, RE-MANUFACTURED	1
4	066490-020	SWITCH ROLLER ASSY	1
5	011248-003	NUT HEX ESNA 10-24	2
6	011240-003	WASHER #10 STD FLAT	4
7	066013-024	CONTROLLER ASSEMBLY	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 WELDMNT	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	WELDMNT, DOOR HINGE	1
75	066713-002	WELDMNT, 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	WELDMNT, DOOR HINGE	1
83	013283-002	CABLE MOUNT	8









Drawing # 4 of 4

Basic Assembly-X20N

066001-001

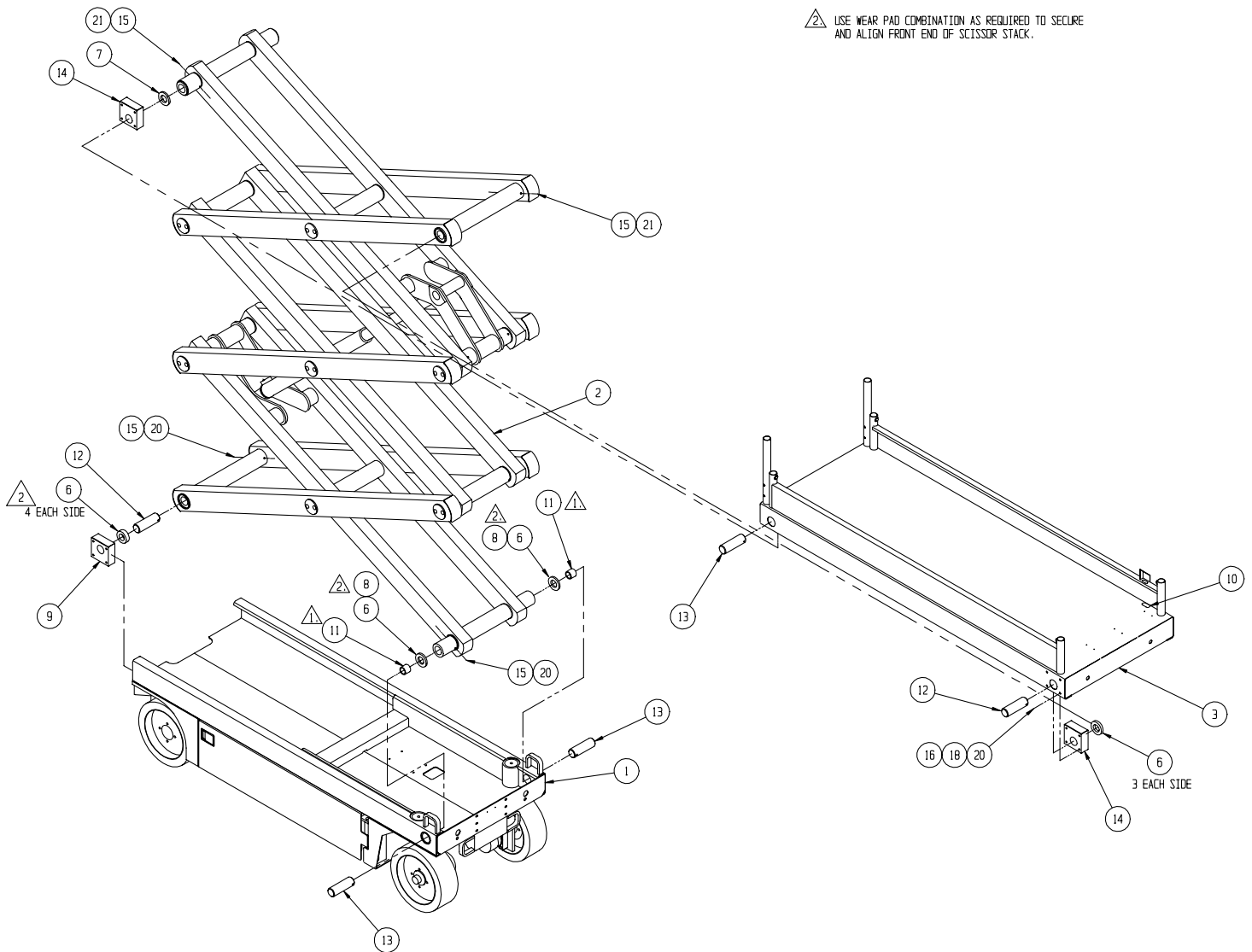
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
1	066002-010	CHASSIS ASSEMBLY	1
2	066003-000	SCISSOR ASSEMBLY	1
3	066250-010	PLATFORM WELDMENT	1
6	066189-000	WEAR PAD 1/4	16
7	066189-001	WEAR PAD 3/8	2
8	066189-004	WEAR PAD 1/8	2
9	066191-001	SLIDE BLOCK (BOTTOM)	2
10	061796-099	GROMMET	FT .63
11	066183-001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

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

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

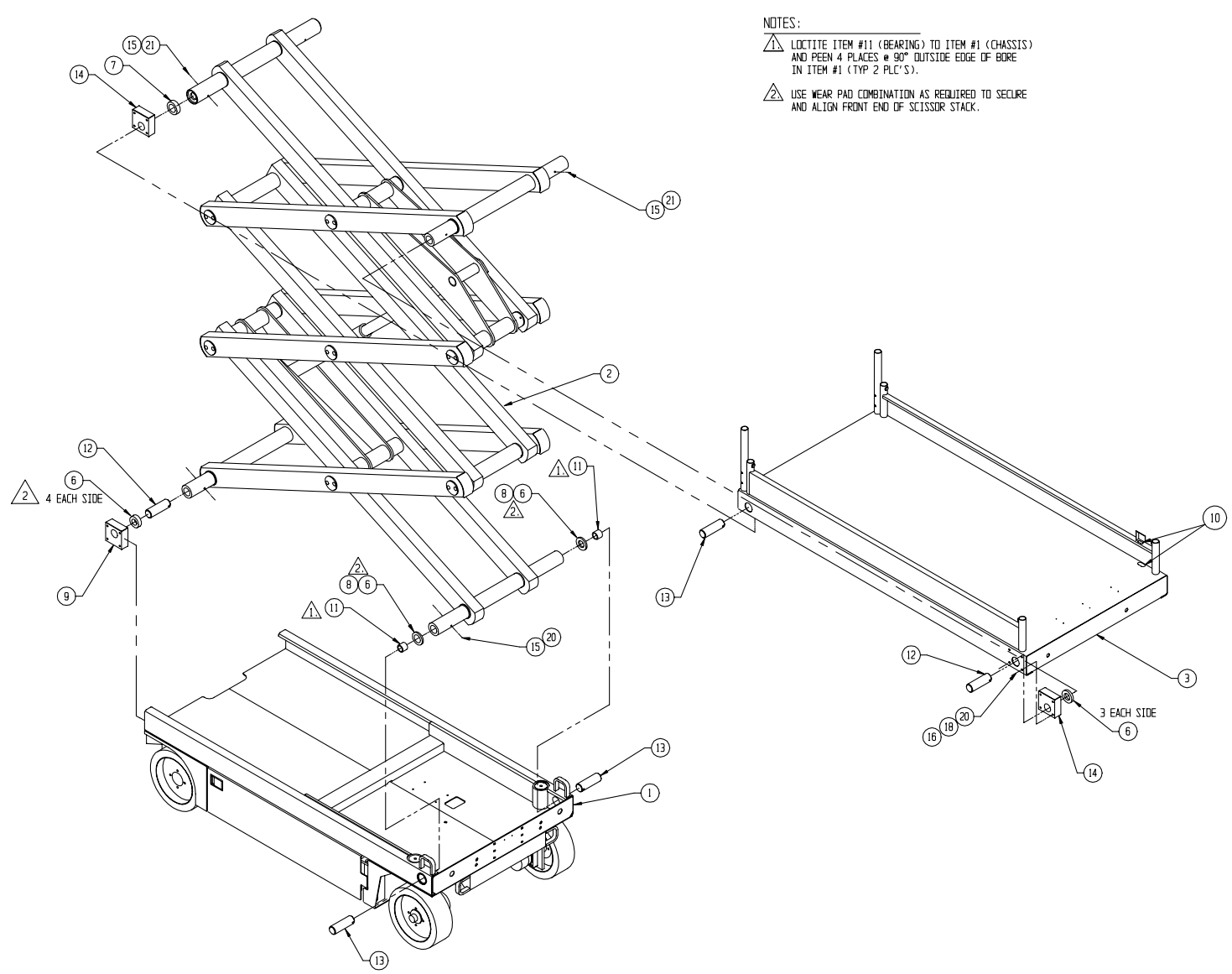


Basic Assembly-X20W

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



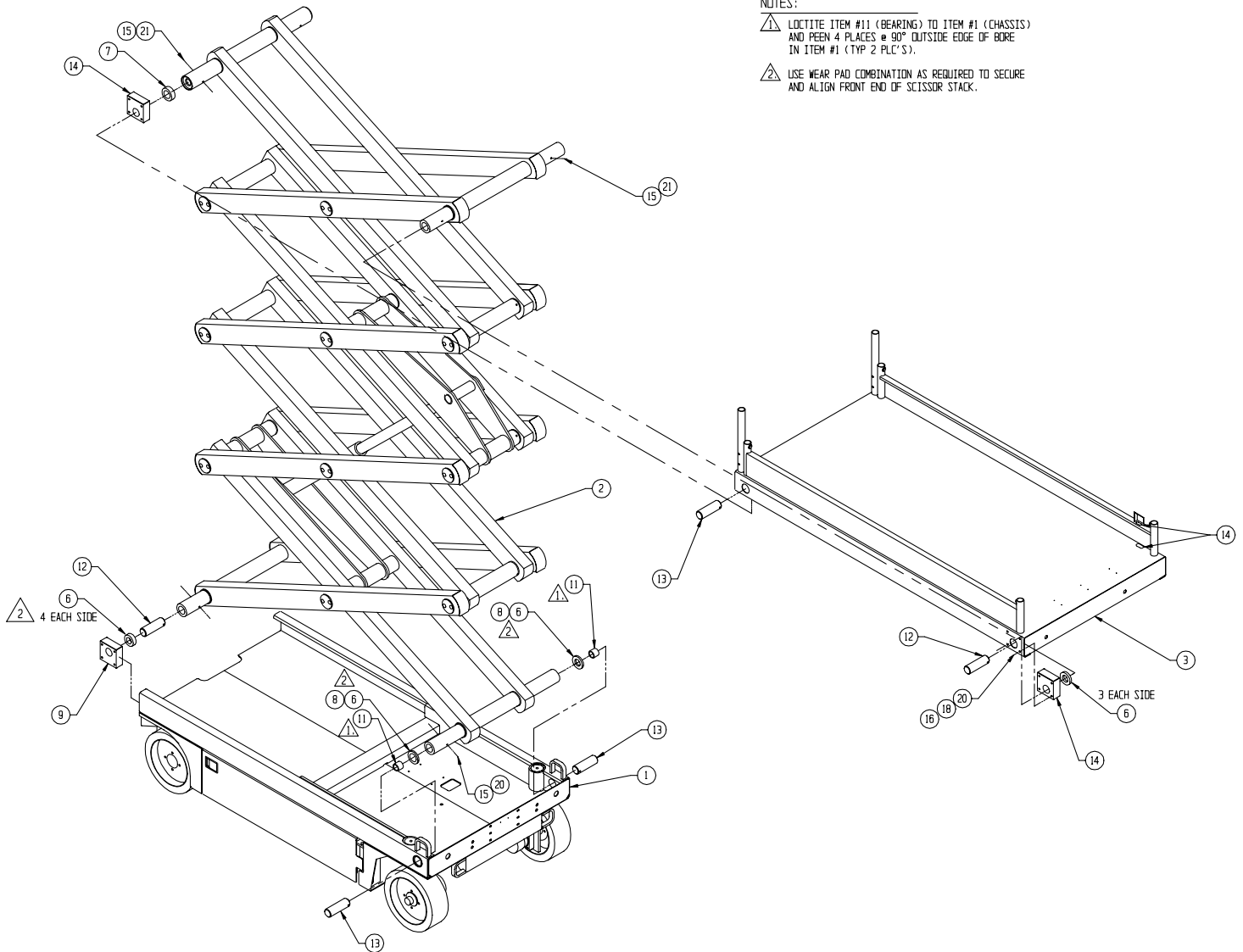
NOTES:
 ⚠️ LOCTITE ITEM #11 (BEARING) TO ITEM #1 (CHASSIS) AND PEEN 4 PLACES @ 90° OUTSIDE EDGE OF BORE IN ITEM #1 (TYP 2 PL.'S).
 ⚠️ USE WEAR PAD COMBINATION AS REQUIRED TO SECURE AND ALIGN FRONT END OF SCISSOR STACK.

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

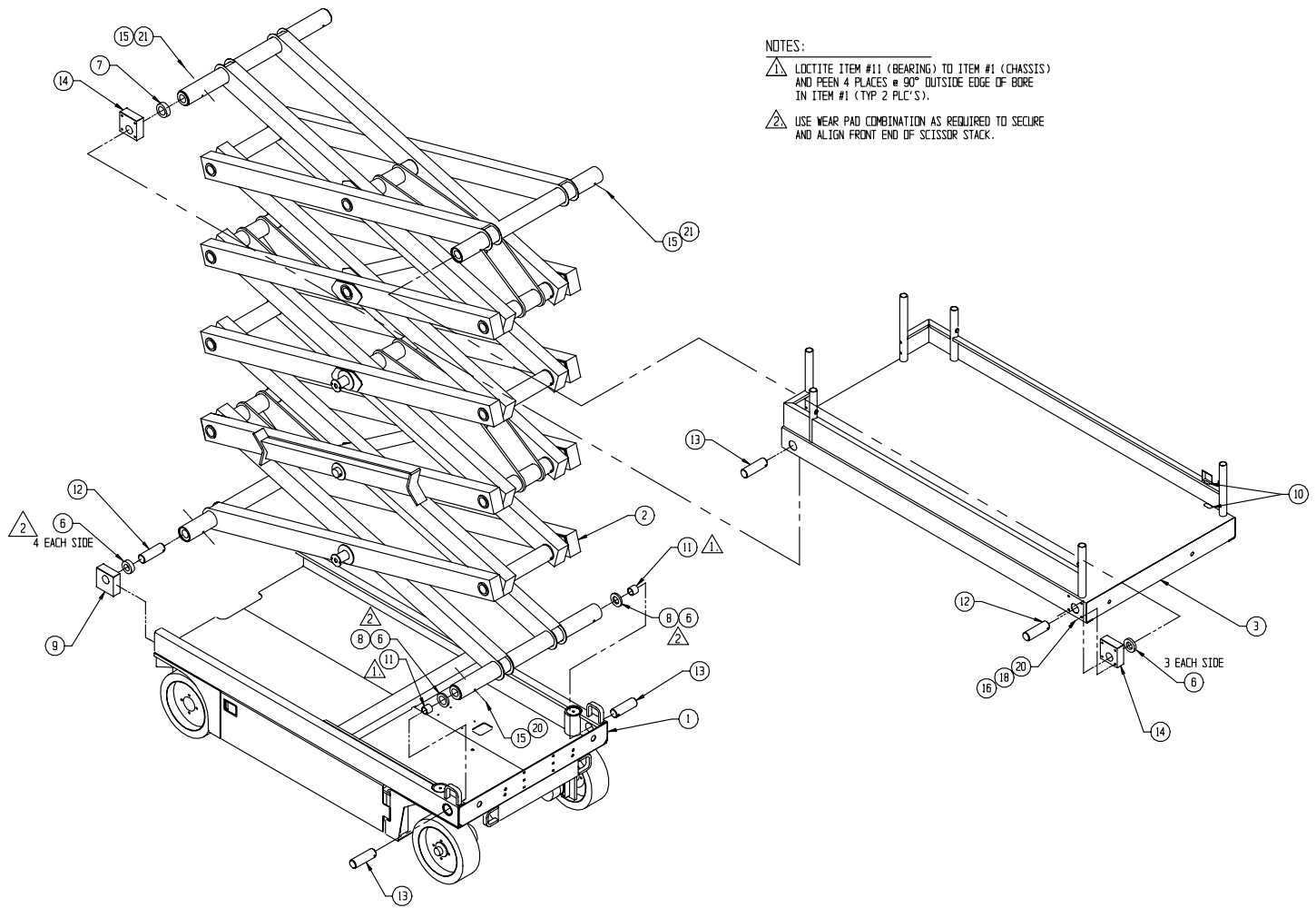


Basic Assembly-X31N

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



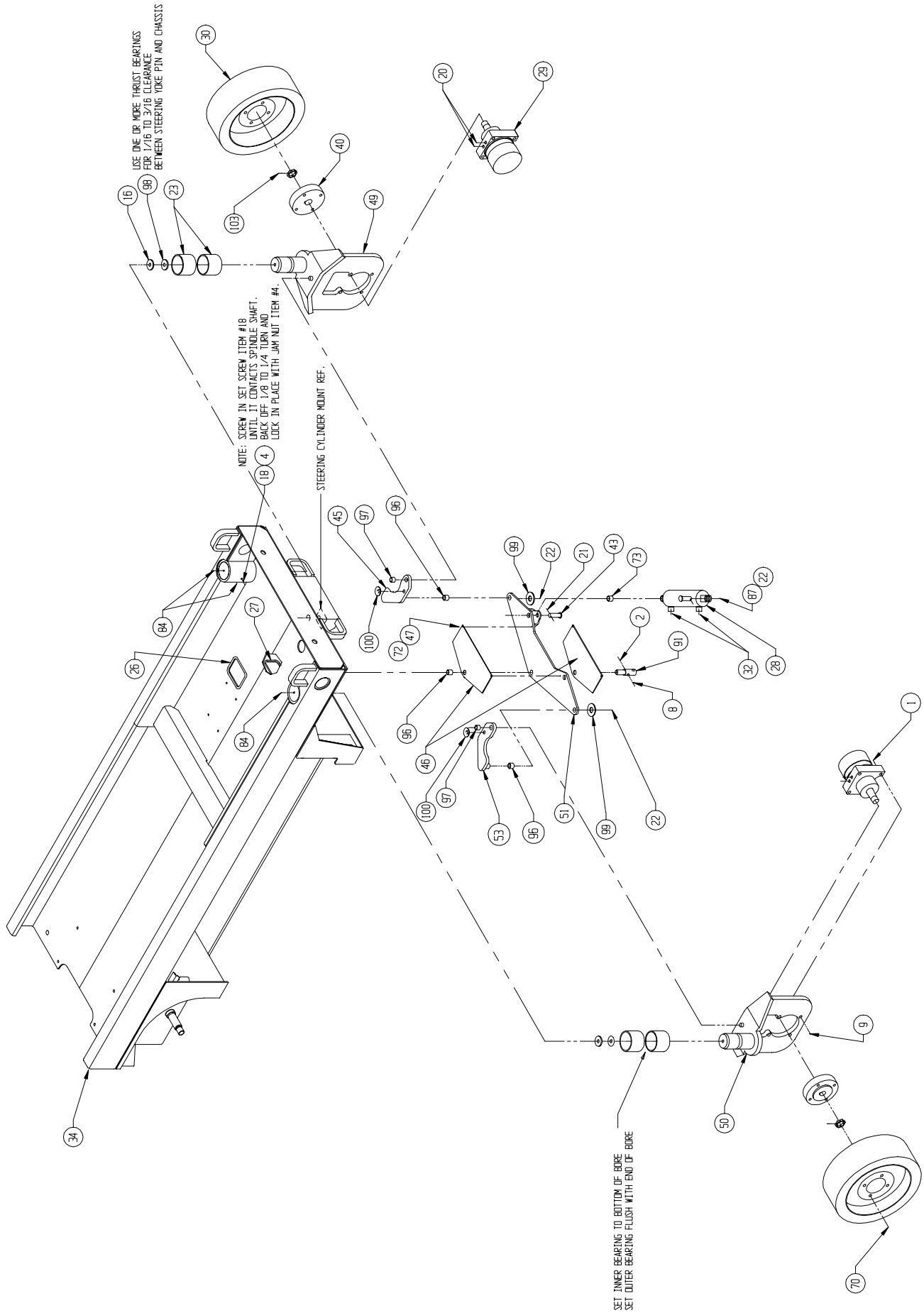
NOTES:
 1. LOCTITE ITEM #11 (BEARING) TO ITEM #1 (CHASSIS) AND PEEN 4 PLACES @ 90° OUTSIDE EDGE OF BORE IN ITEM #1 (TYP 2 PLCS).
 2. USE WEAR PAD COMBINATION AS REQUIRED TO SECURE AND ALIGN FRONT END OF SCISSOR STACK.

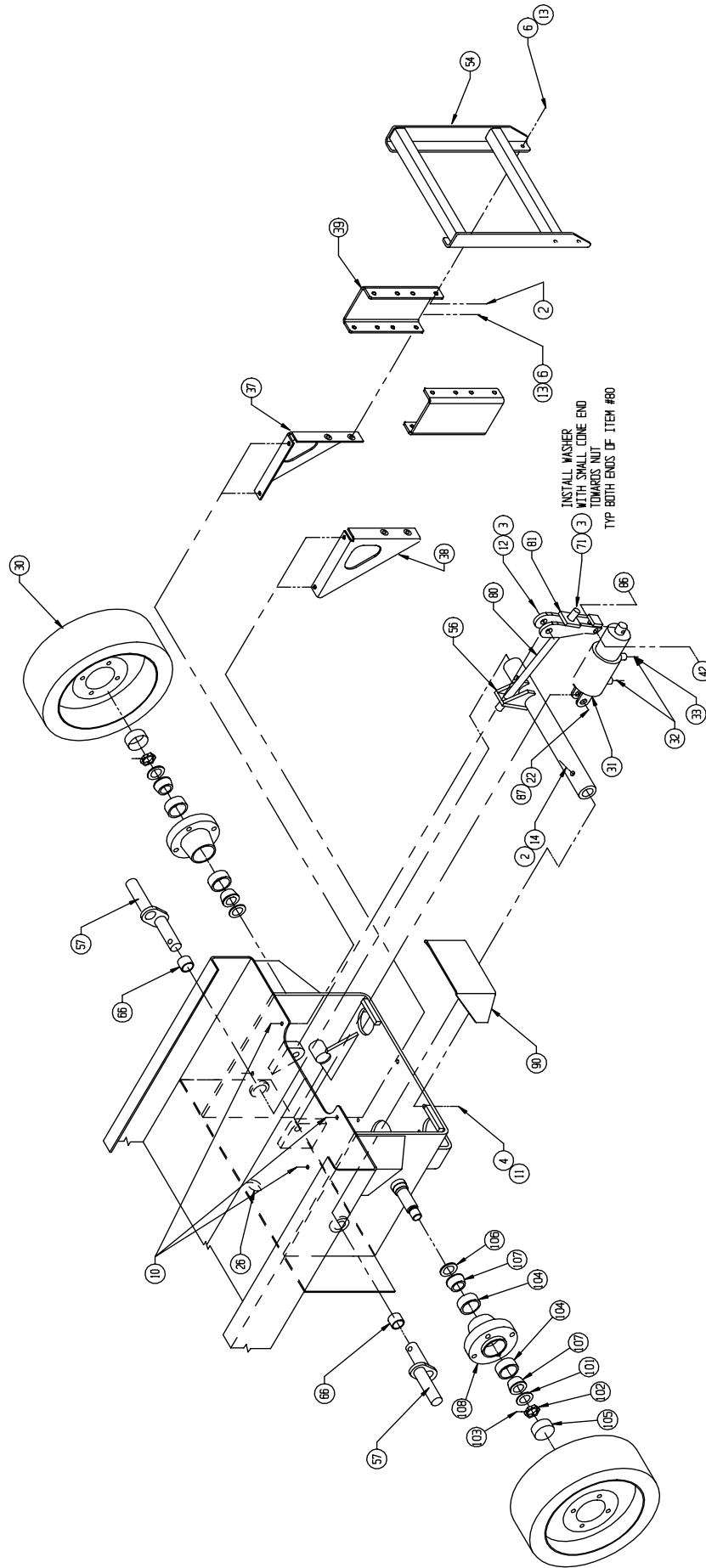
Chassis Assembly-X20N

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





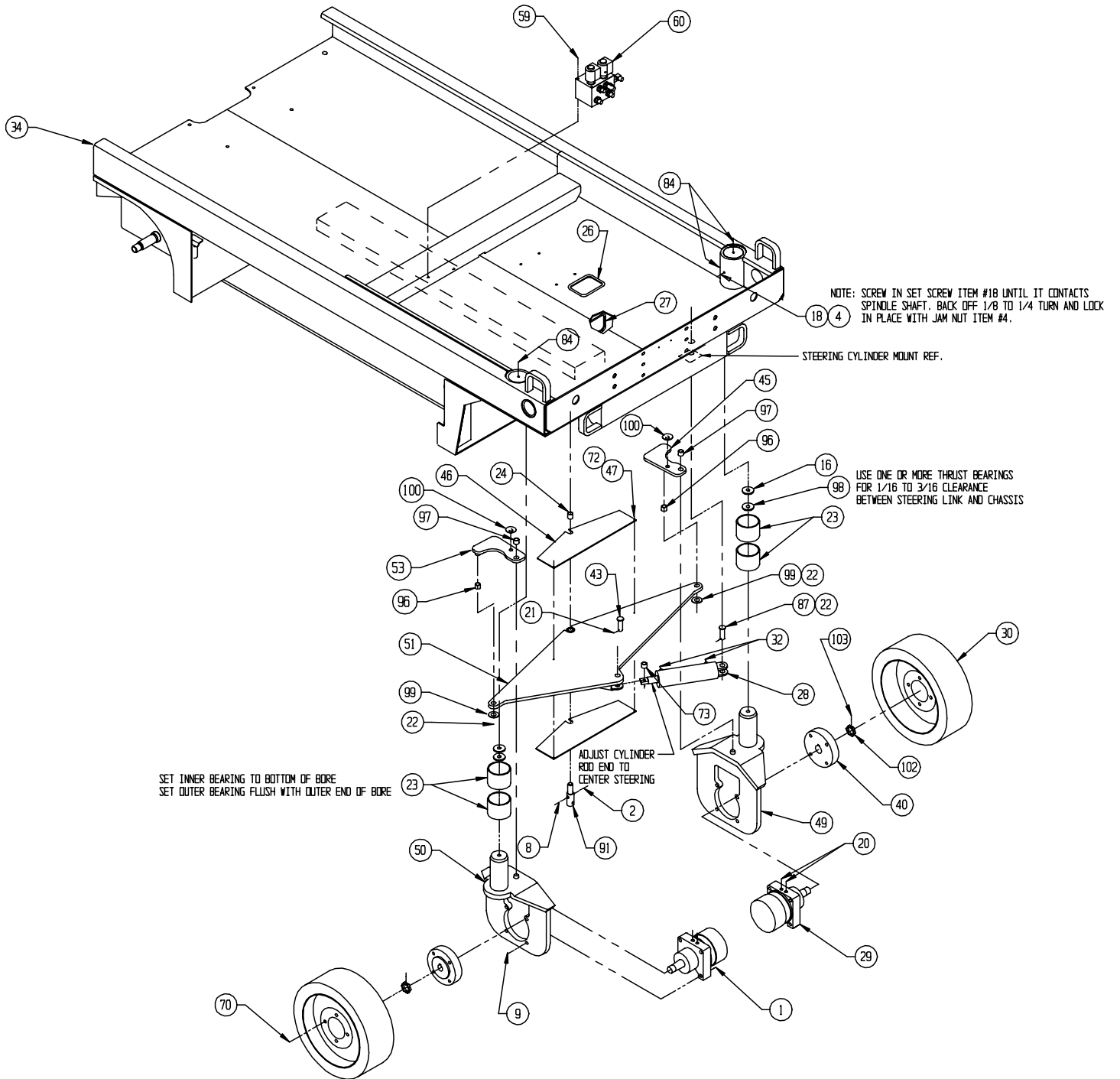
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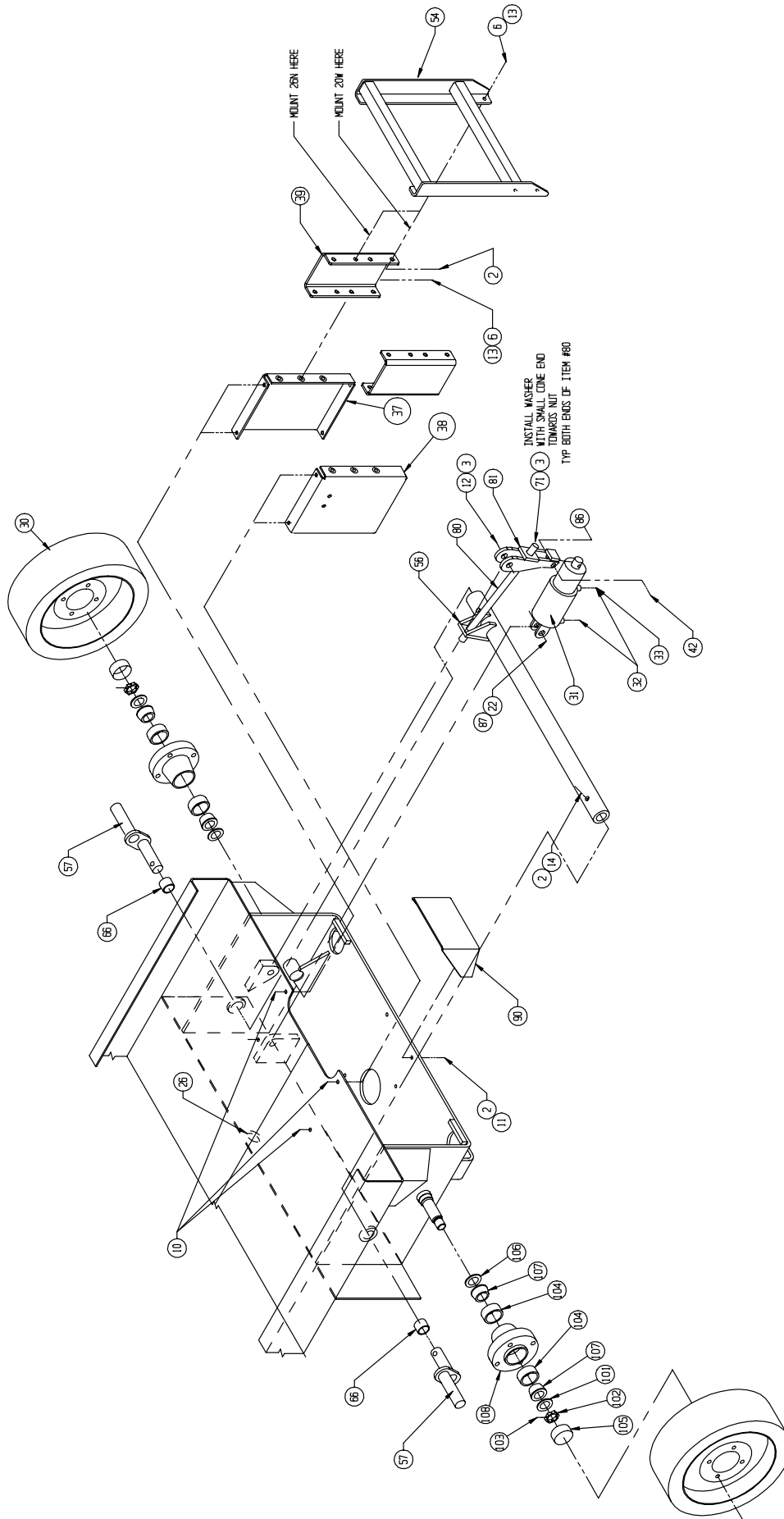
Chassis Assembly-X20W,X26N

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





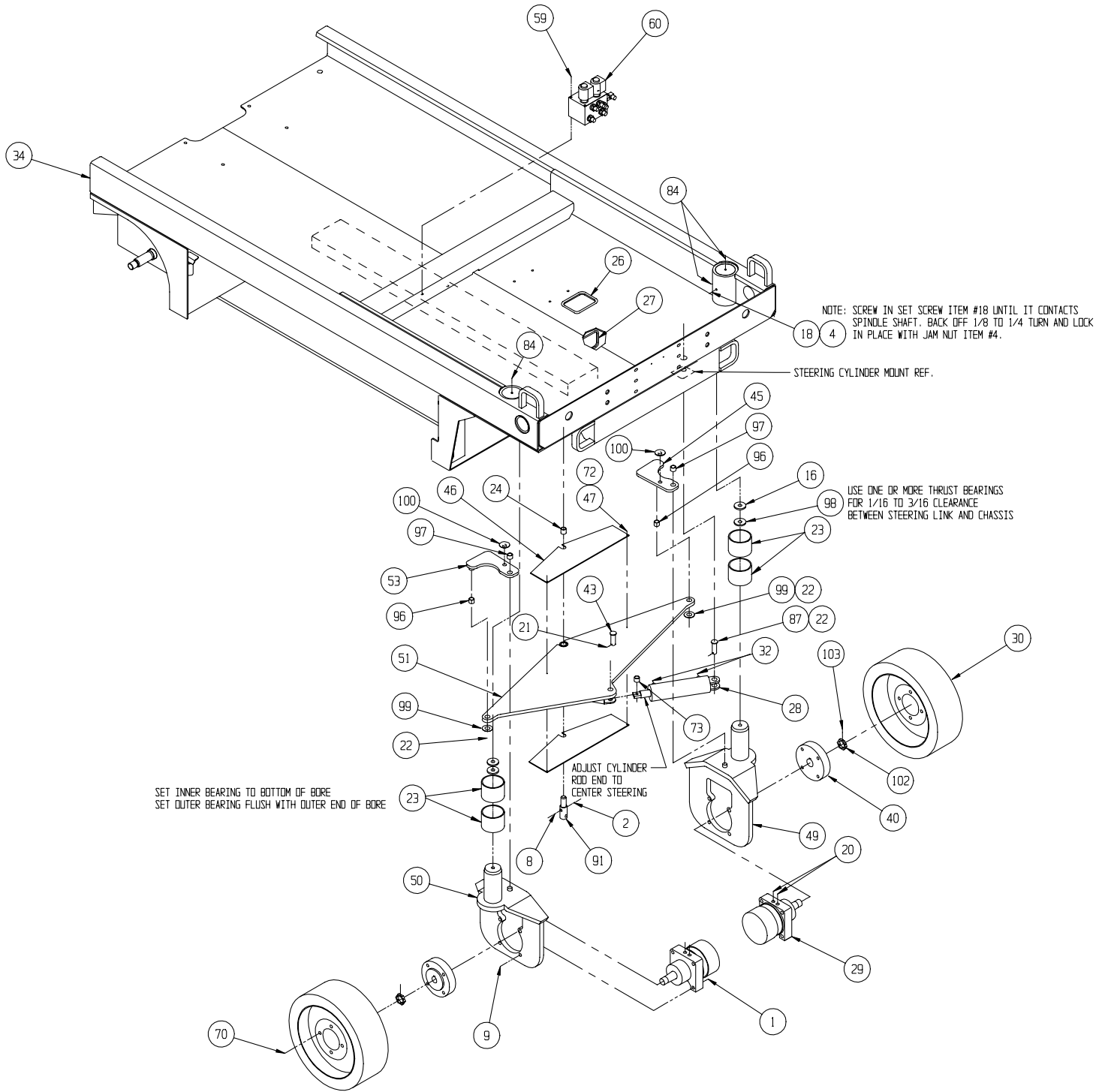
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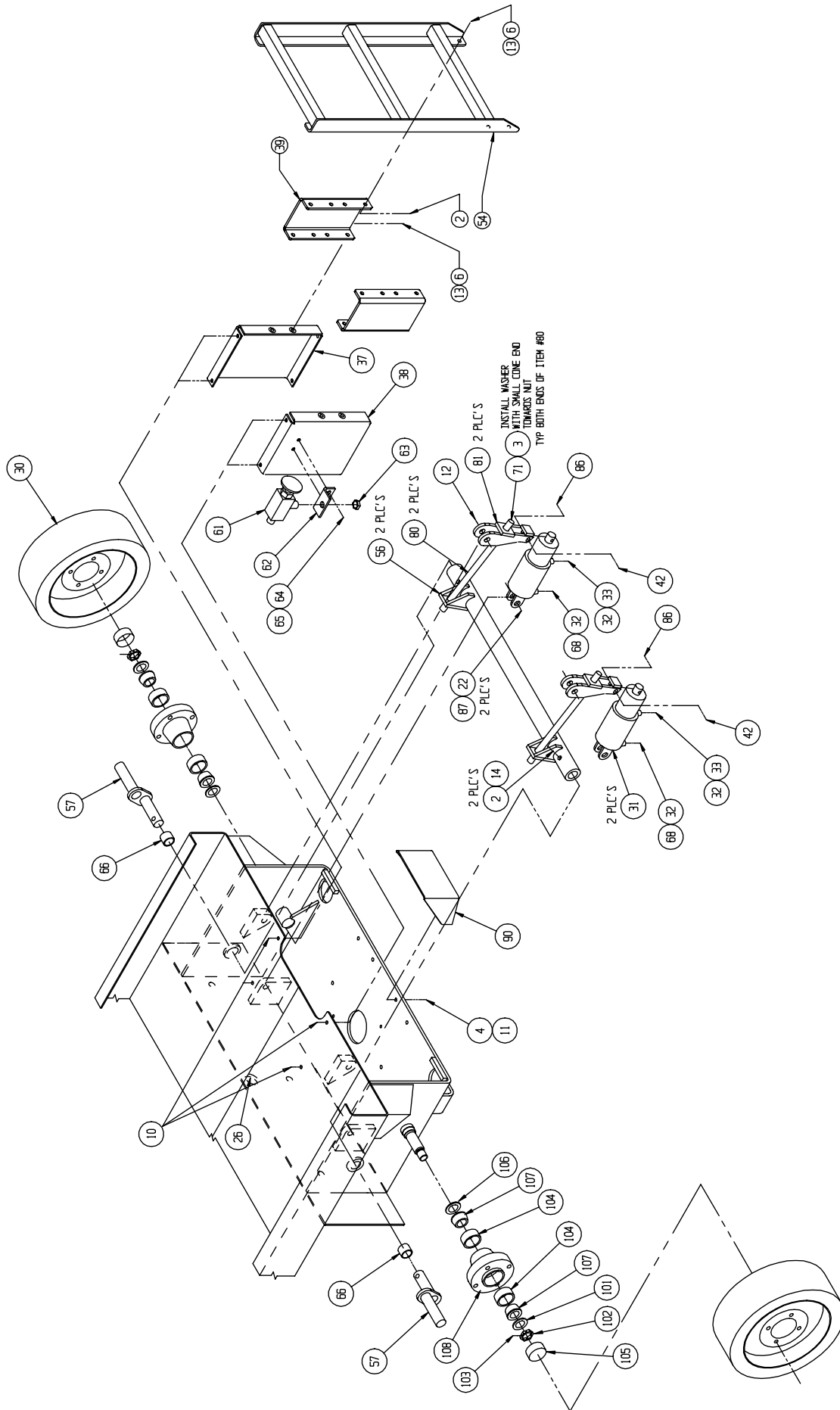
Chassis Assembly-X31N

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 6MJ 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





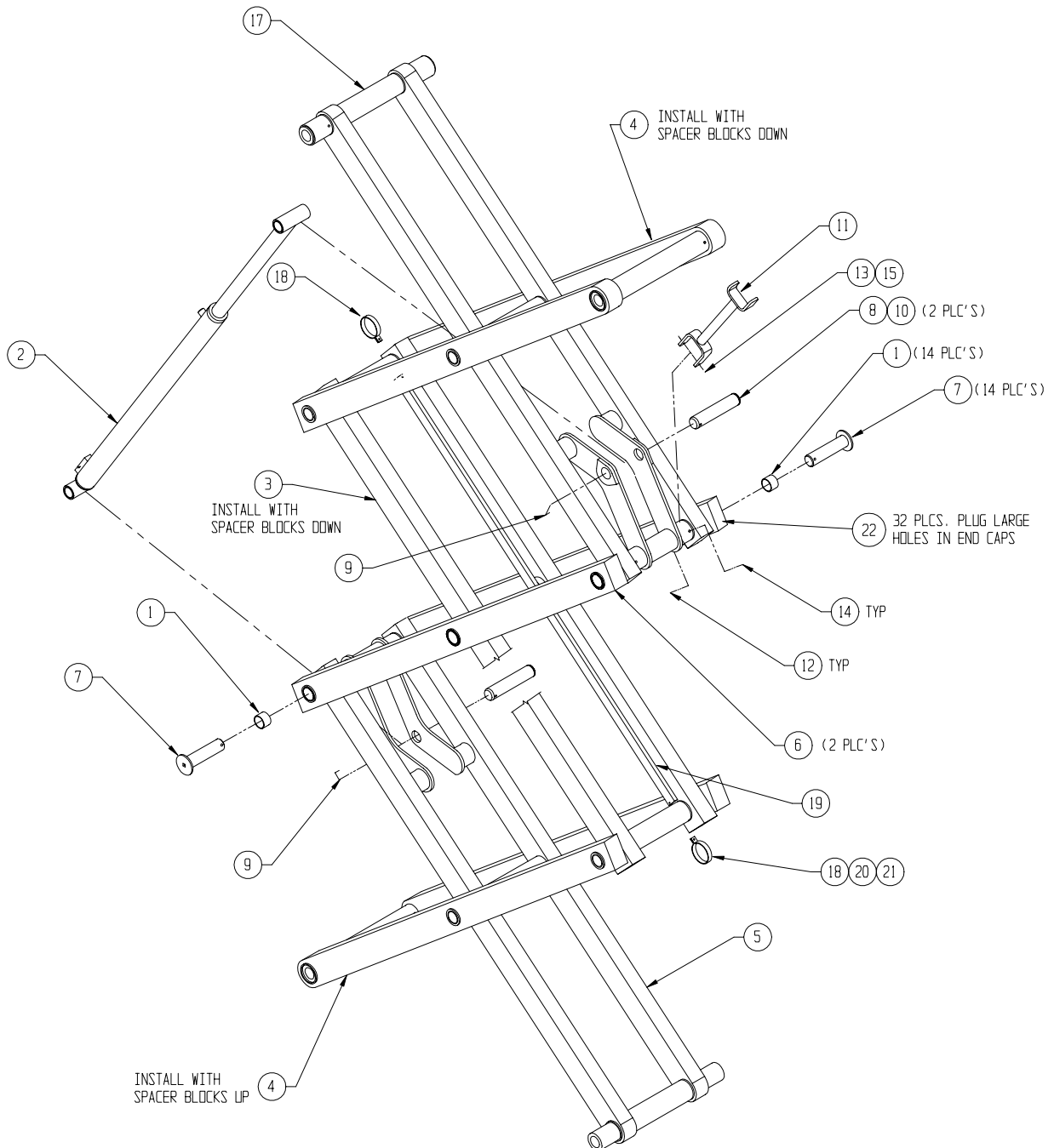
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Scissor Assembly-X20N

066003-000

ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
1	066183-000	BEARING, OILITE #EP3236-24	14
2	066168-000	LIFT CYLINDER	1
*	066168-010	SEAL KIT, LIFT CYLINDER	-
3	066201-000	WELDMENT, MID INNER TUBE	1
4	066202-000	WELDMENT, TOP & BOTTOM OUTER	2
5	066200-001	WELDMENT, BOTTOM INNER 1/4	1
6	066211-000	WELDMENT, MID OUTER	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
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

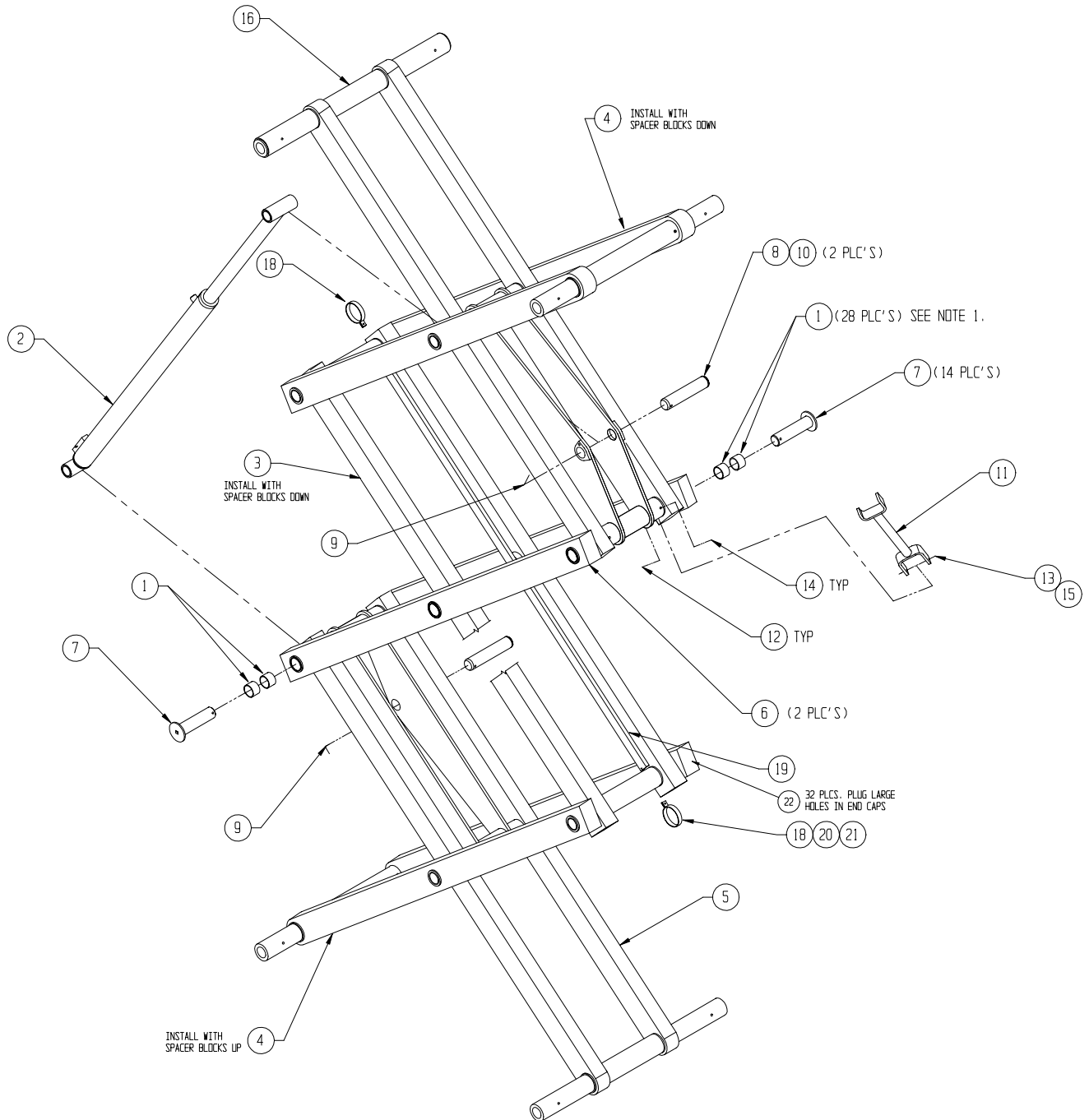


Scissor Assembly-X20W

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

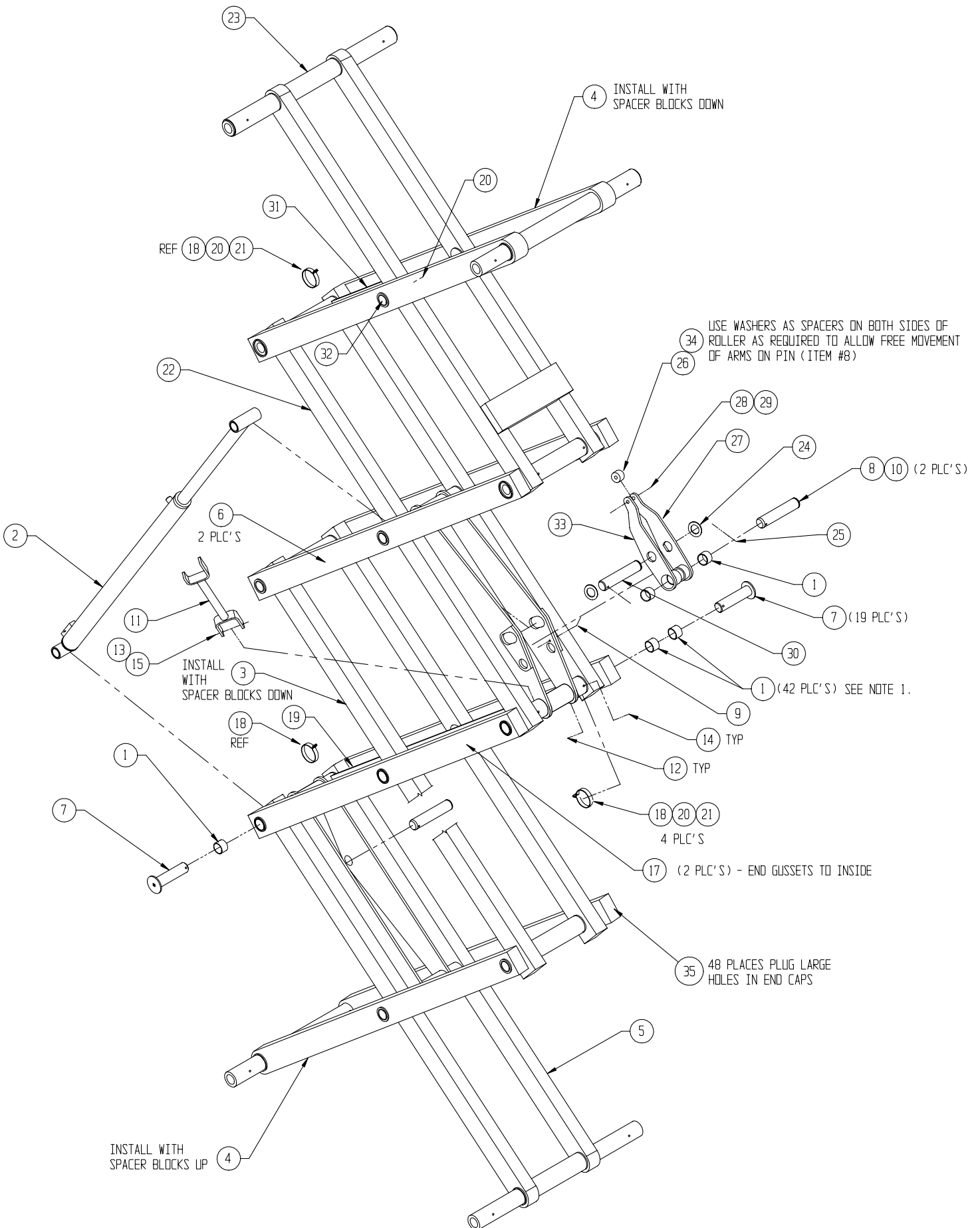
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
12	011248-005	NUT HEX 5/16-18	14
13	011248-006	NUT HEX 3/8-16	1
14	015936-023	SCREW SHOULDER 3/8-16 X 3 1/2	14
15	011254-044	SCREW HHC GR5 3/8-16 X 5-1/2	1
16	066238-003	WELDMENT, TOP ARM	1
18	066199-000	PIPE RING	2
19	066226-002	CHANNEL, CABLE	1
20	011248-004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

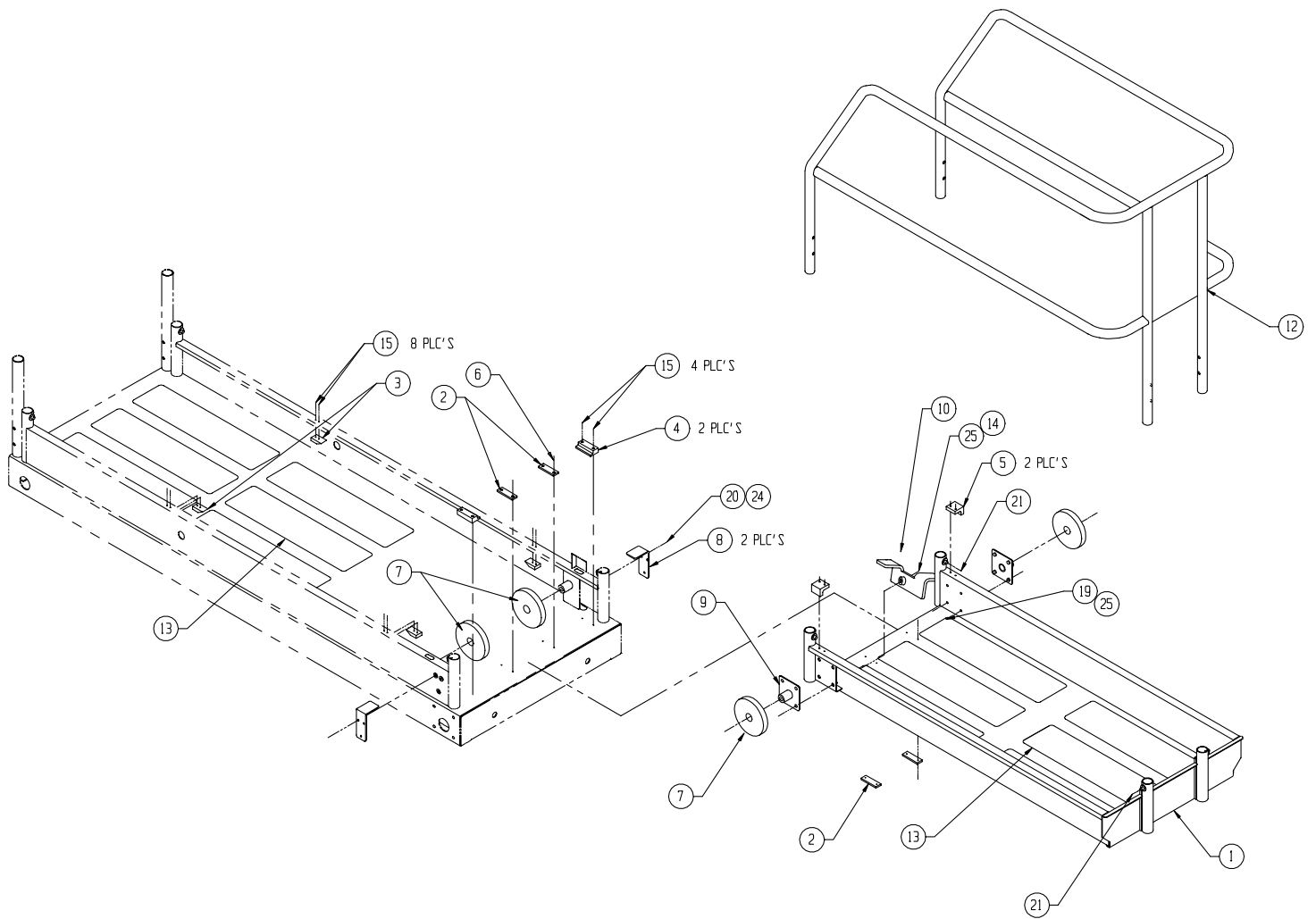
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
1	066183-000	BEARING, OILITE #EP3236-24	52
2	066601-000	LIFT CYLINDER	1
*	066601-010	SEAL KIT, LFT CYLINDER	-
3	066201-001	WELDMENT, MID INNER TUBE 1/8	2
4	066240-000	WELDMENT, TOP & BOTTOM OUTER 1/8	2
5	066238-013	WELDMENT, BOTTOM INNER 3/16	1
7	066210-000	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

Deck Extension Assembly-X20N

066006-010

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

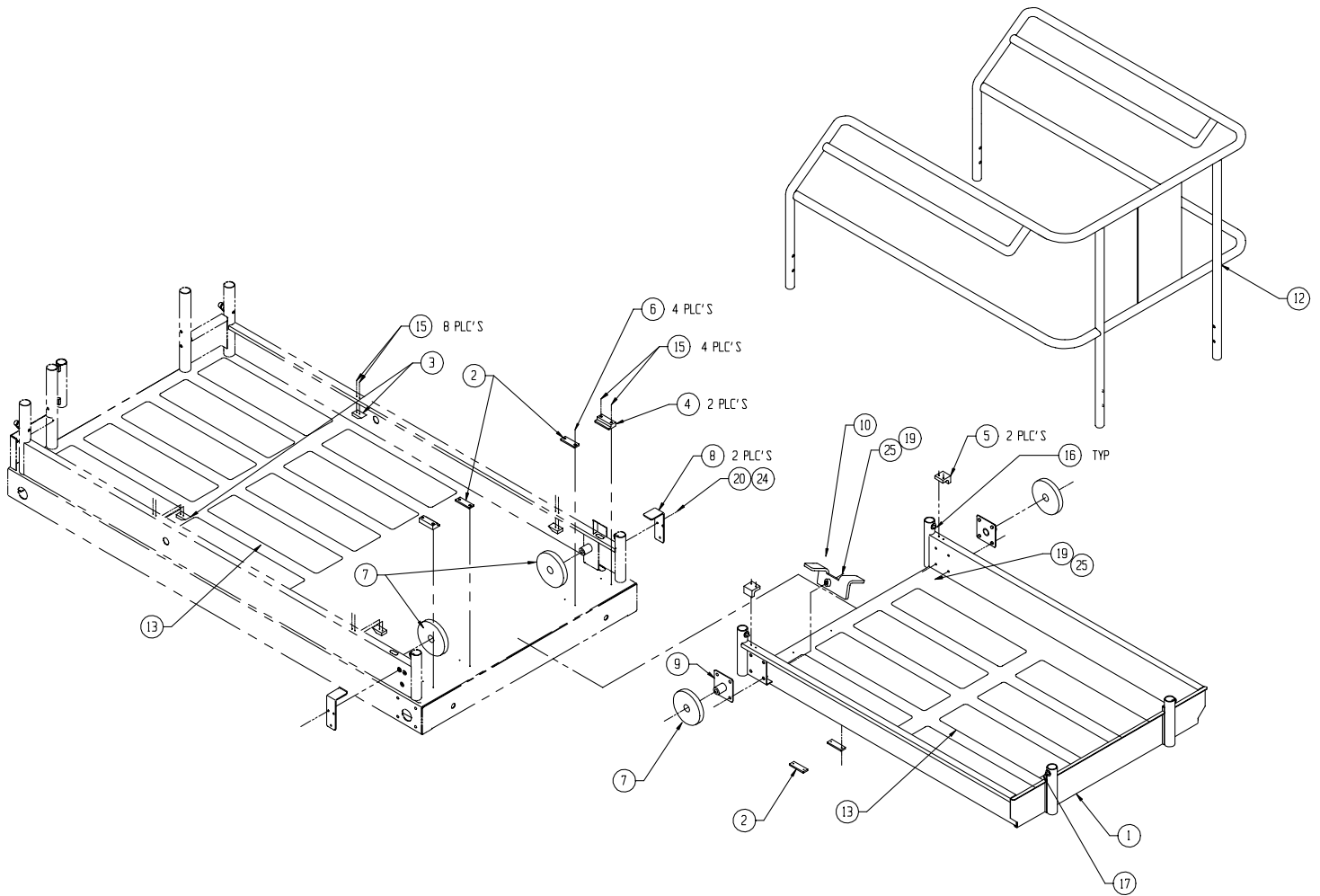


Deck Extension Assembly-X20W, X26N

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

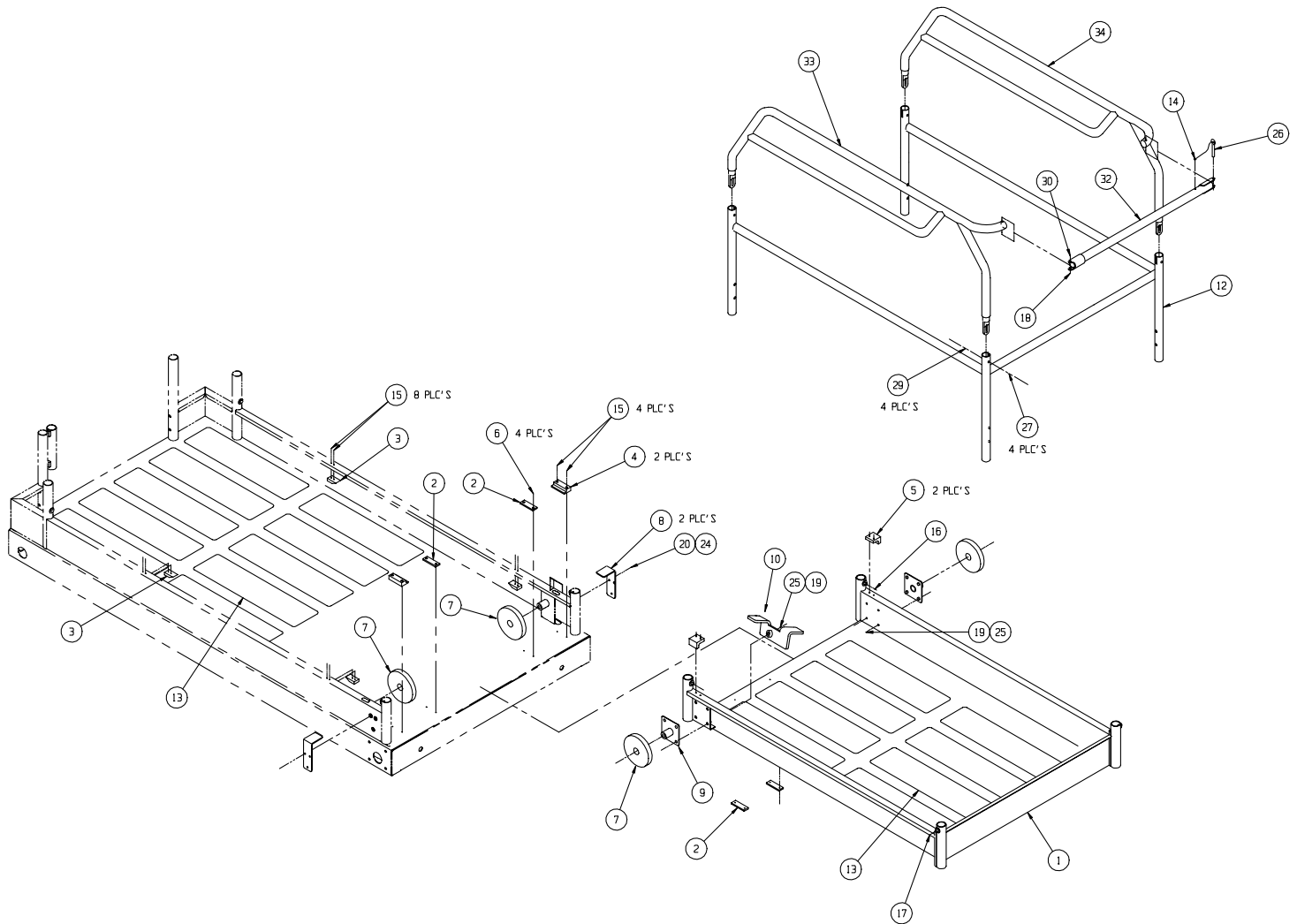


Deck Extension Assembly-X31

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

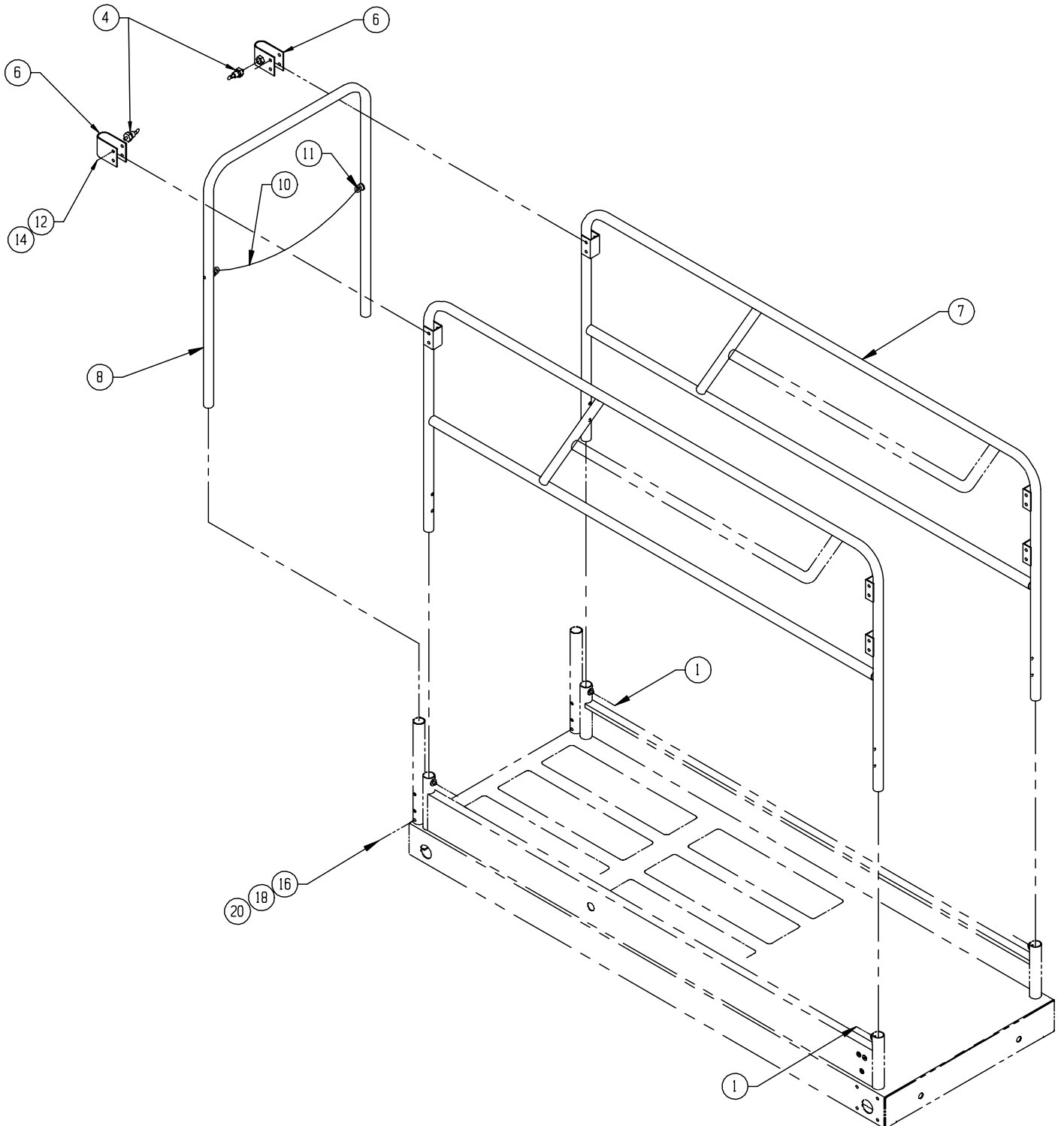


Guardrail Assembly-X20N

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

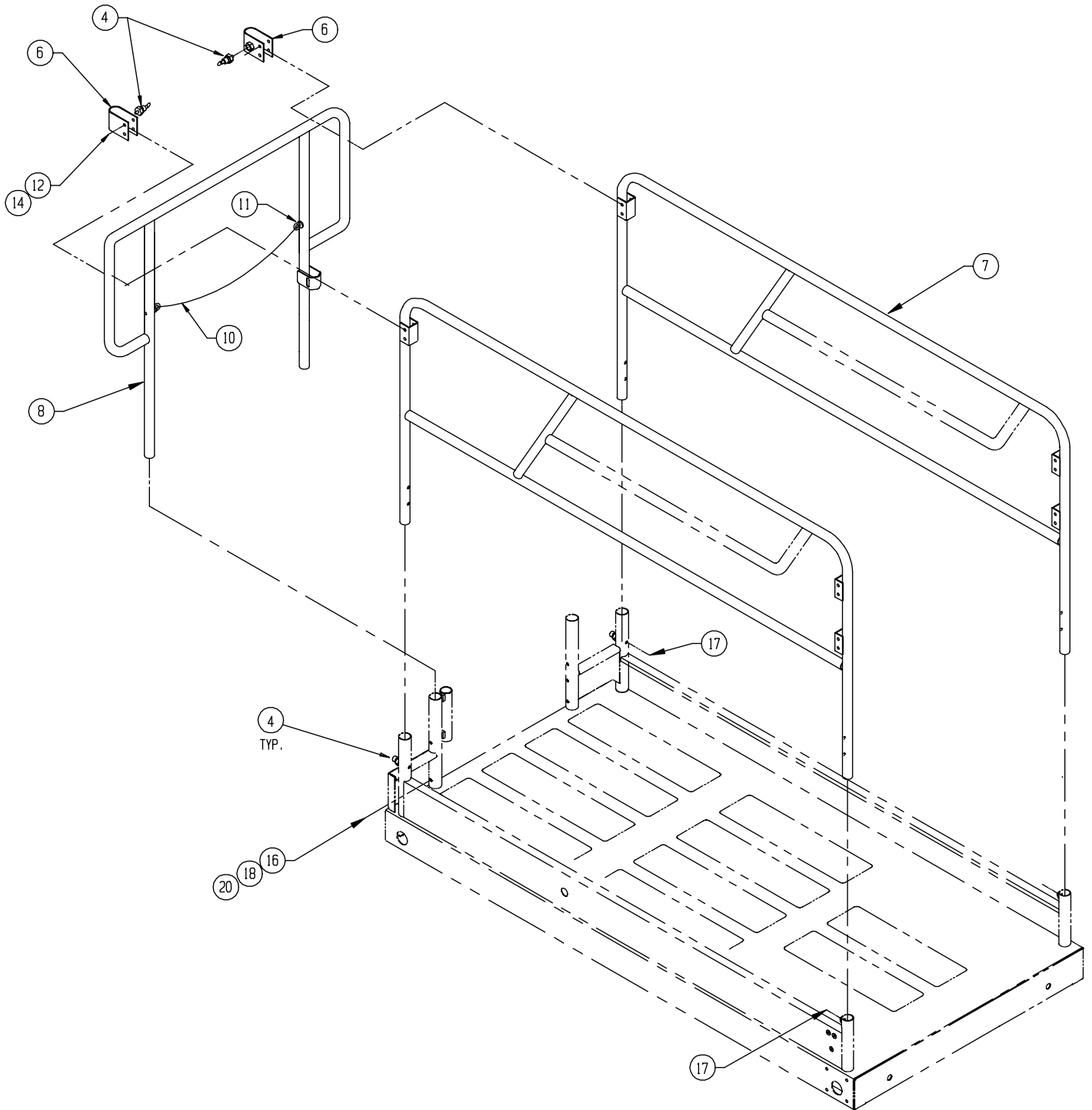


Guardrail Assembly-X20W, X26N

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

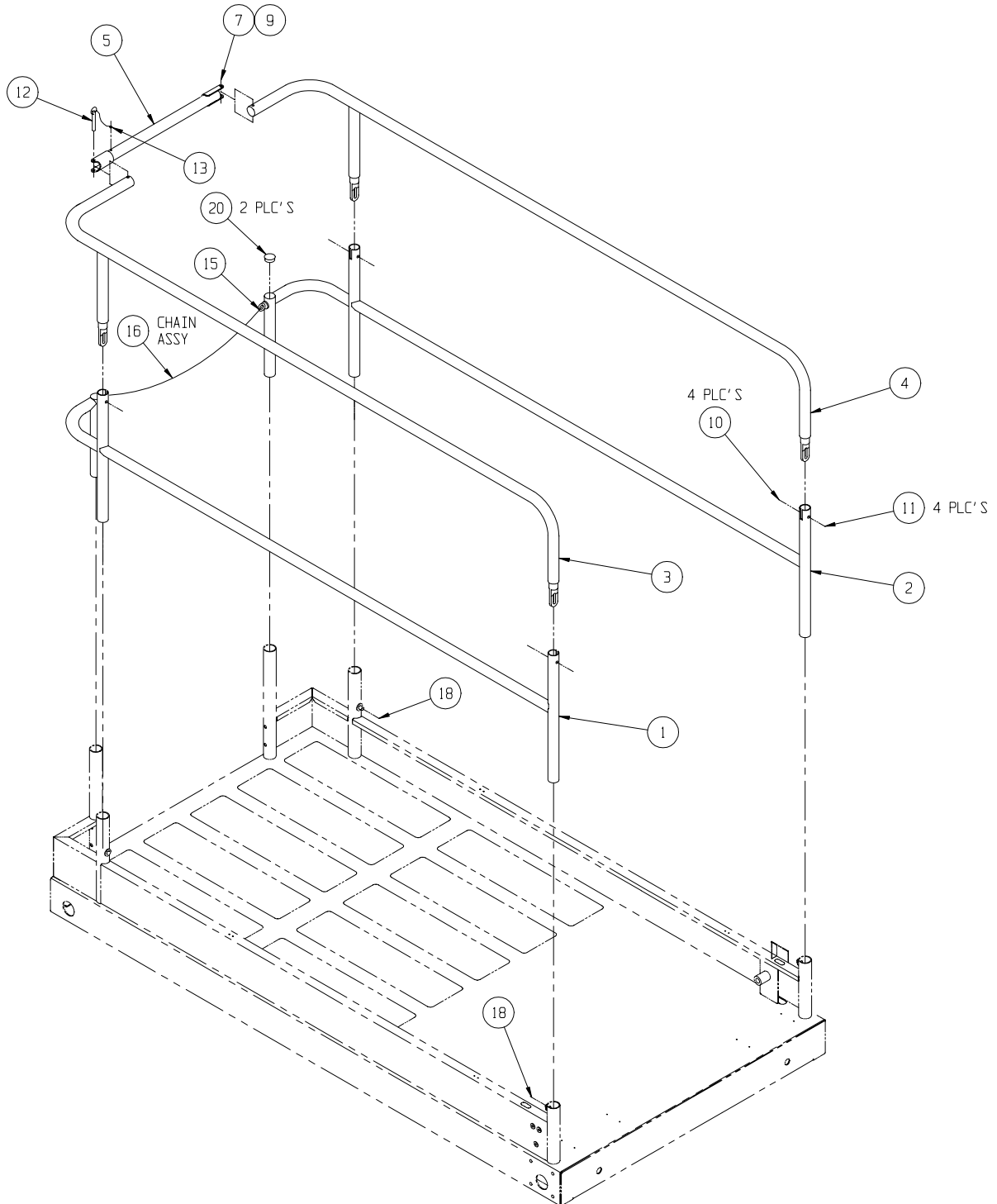


Guardrail Assembly-X31N

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

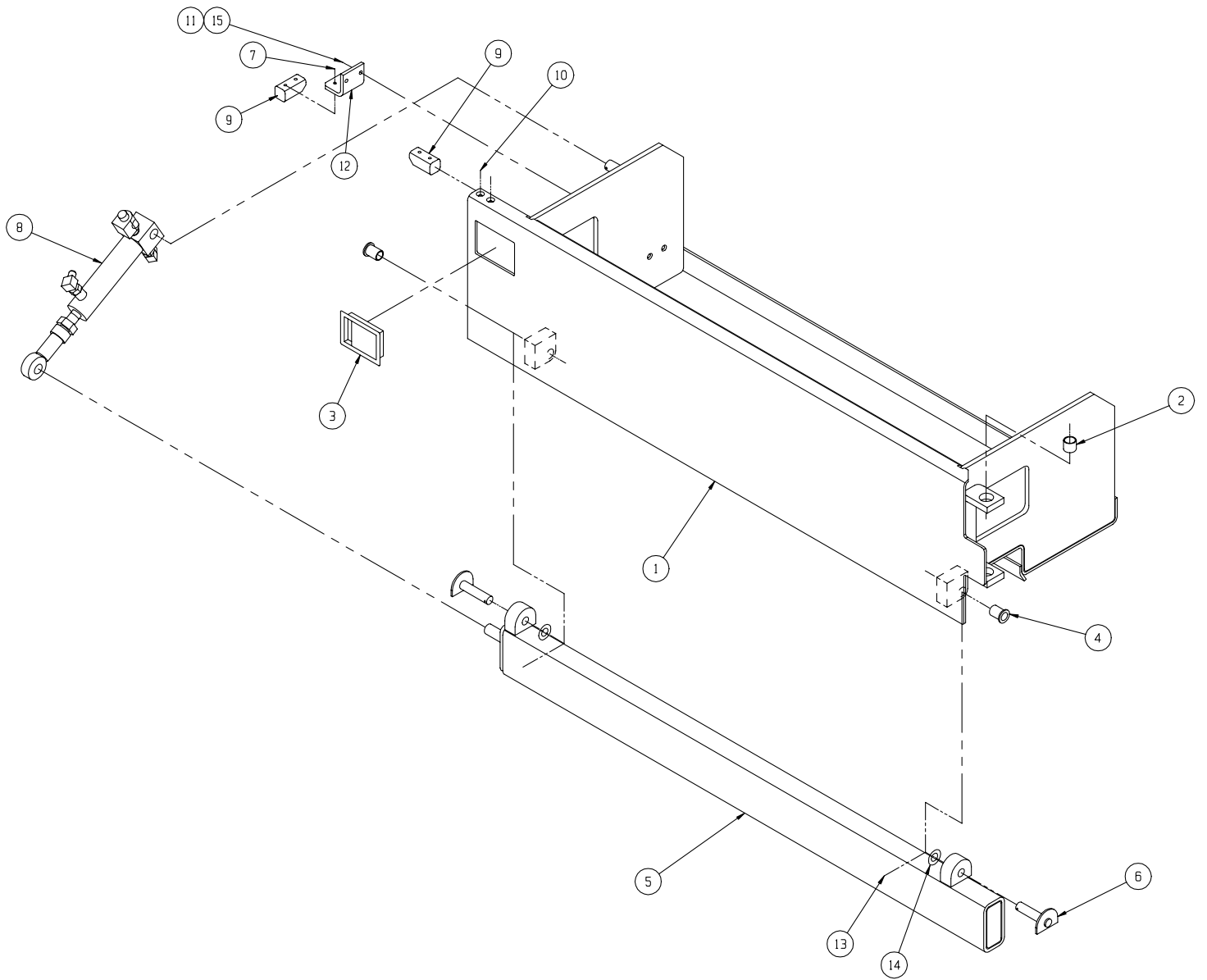


Power Module

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

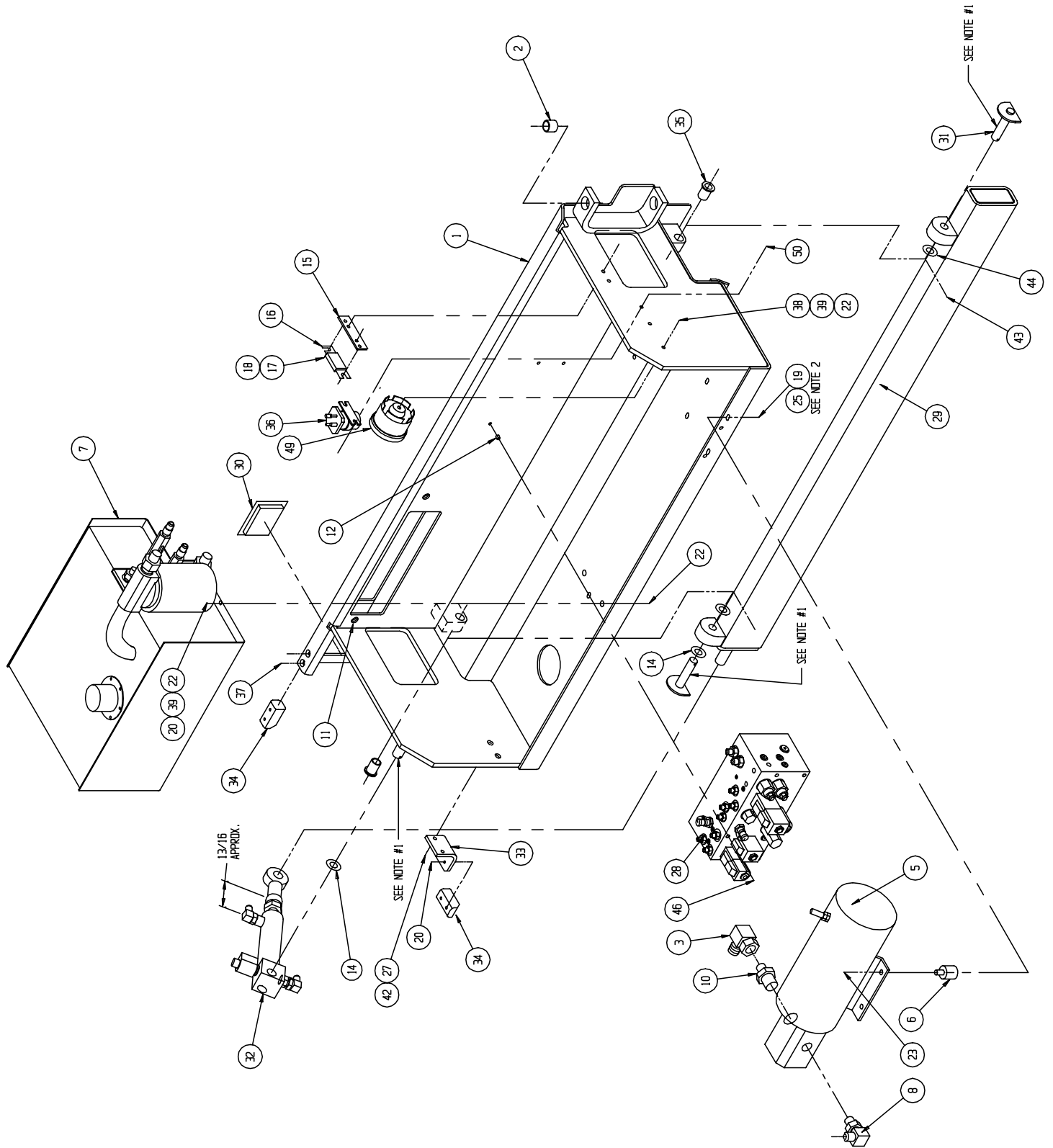


Control Module

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

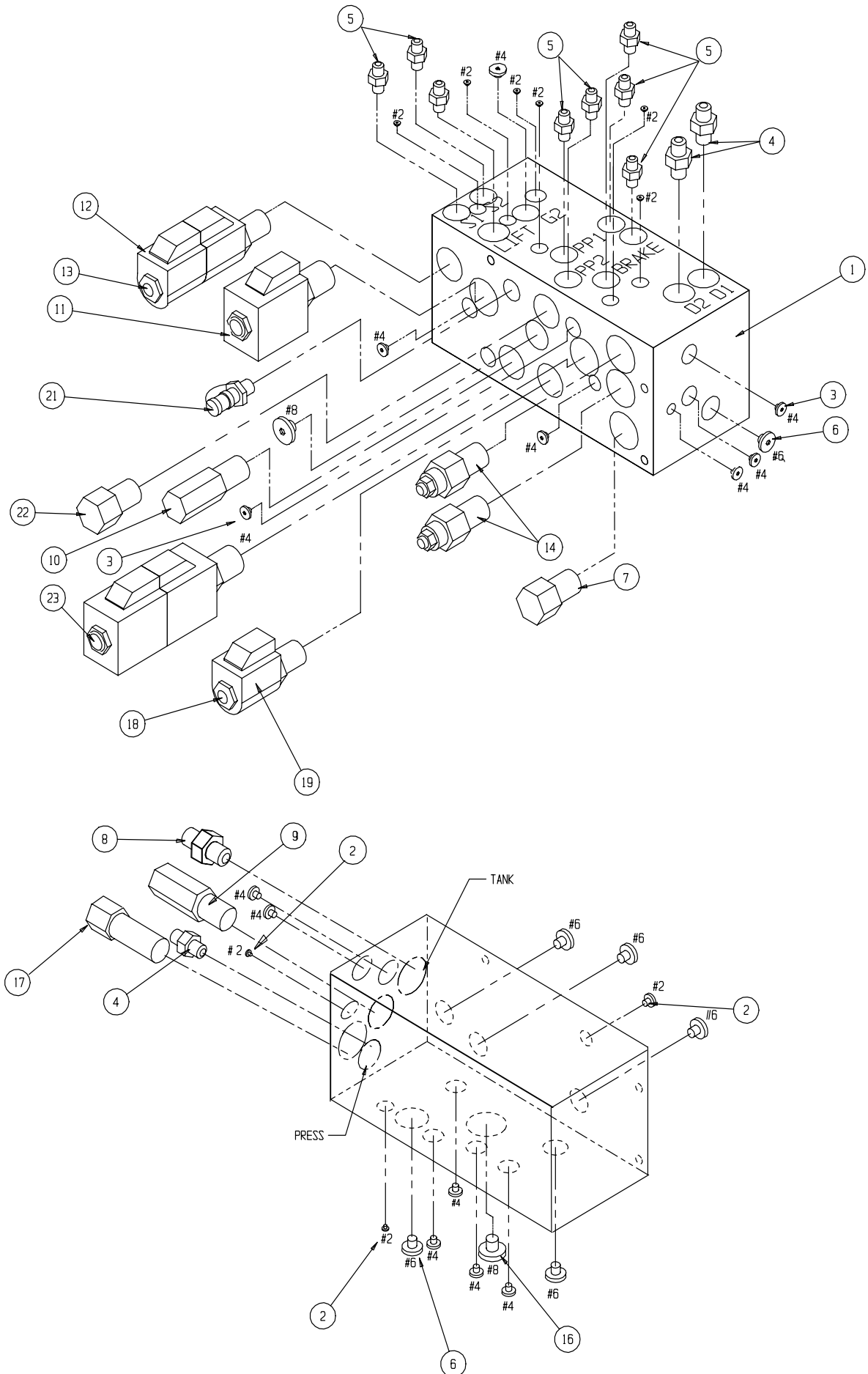
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
25	011238-005	WASHER 5/16 SPLIT LOCK	4
27	011248-006	NUT ESNA 3/8-16	2
28	101120-121	VALVE ASSEMBLY	1
29	066735-000	WELDMENT, POT HOLE TUBE	1
30	062791-002	LATCH COVER	1
31	066753-000	WELDMENT, PIVOT PIN	2
32	066803-000	CYLINDER ASSEMBLY	1
33	066342-000	ANGLE	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

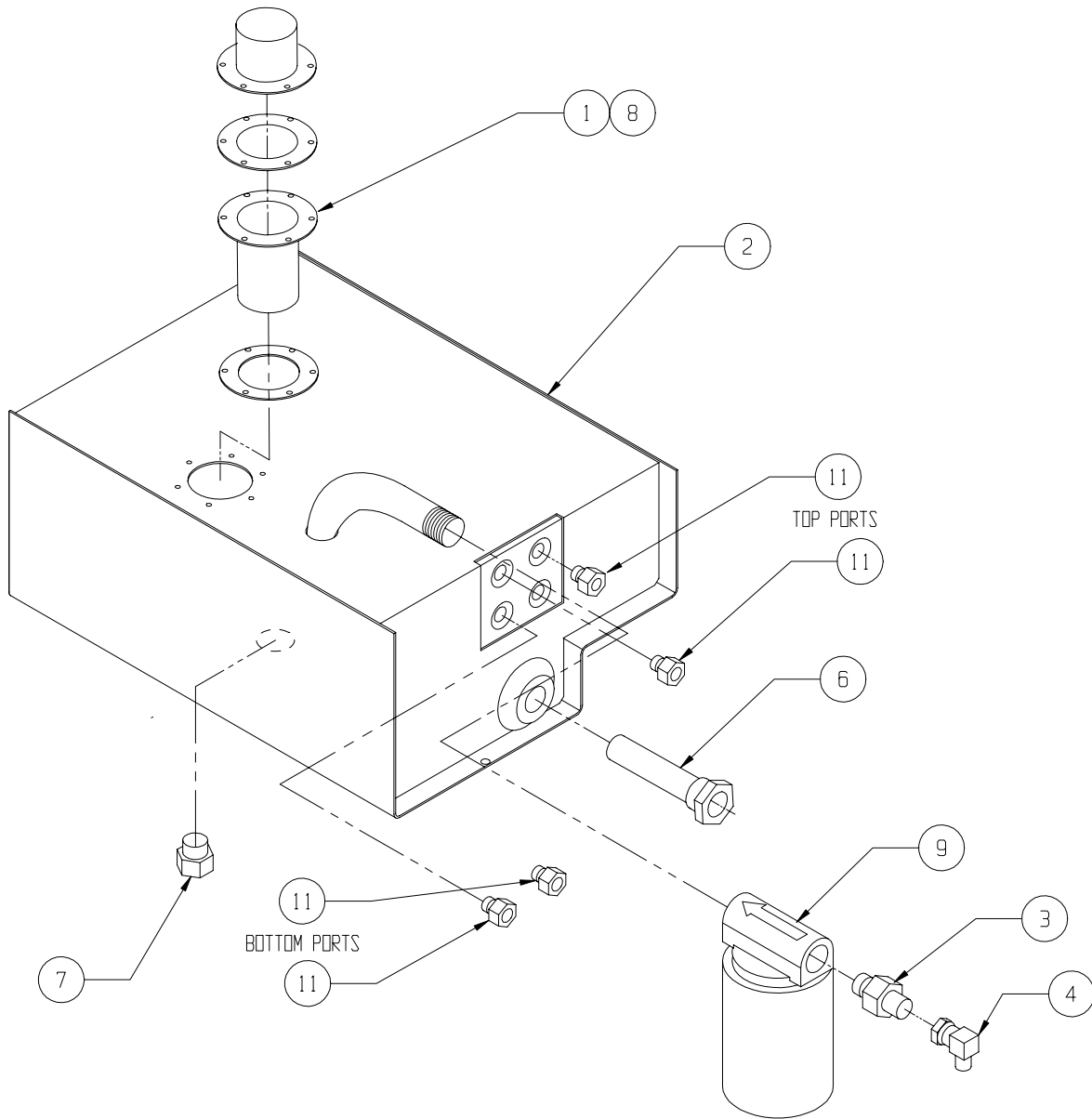


Hydraulic Reservoir Assembly

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

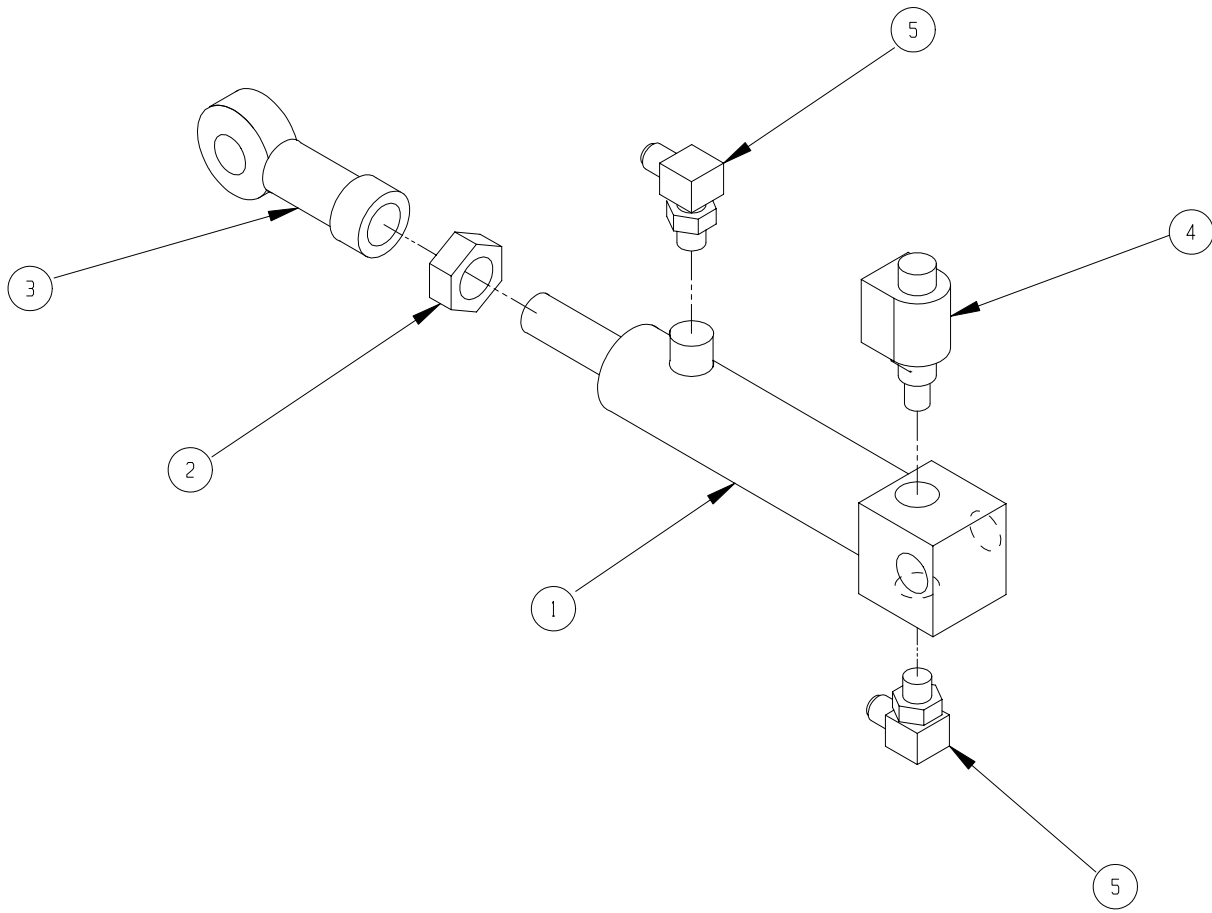
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
8	011811-006	SCREW SELF TAP 10-32 X 1/2	6
9	05154-001	FILTER	1
*	05154-002	REPLACEMENT FILTER	1
11	020021-006	FITTING PLUG 6MB	4



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

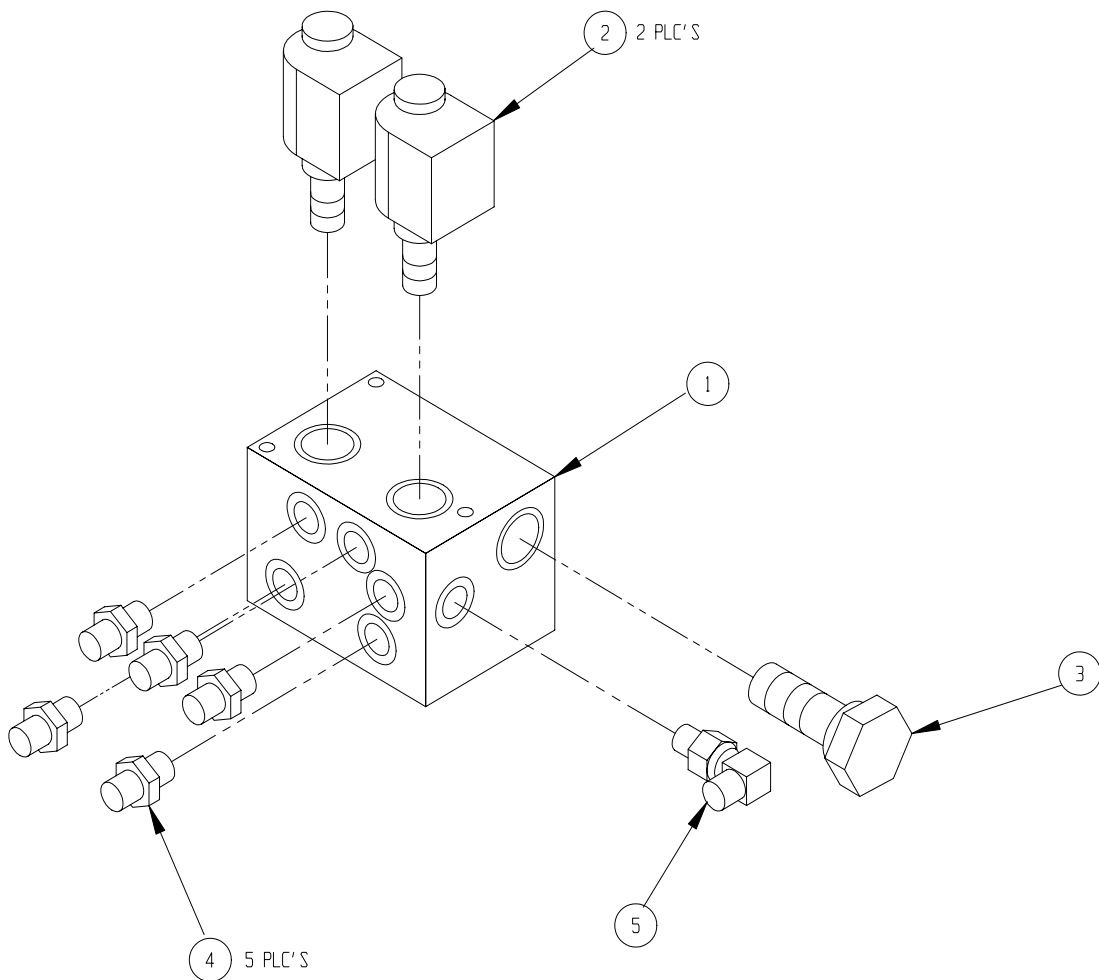


Series/Parallel Valve Assembly-X20W, X26N, X31N

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

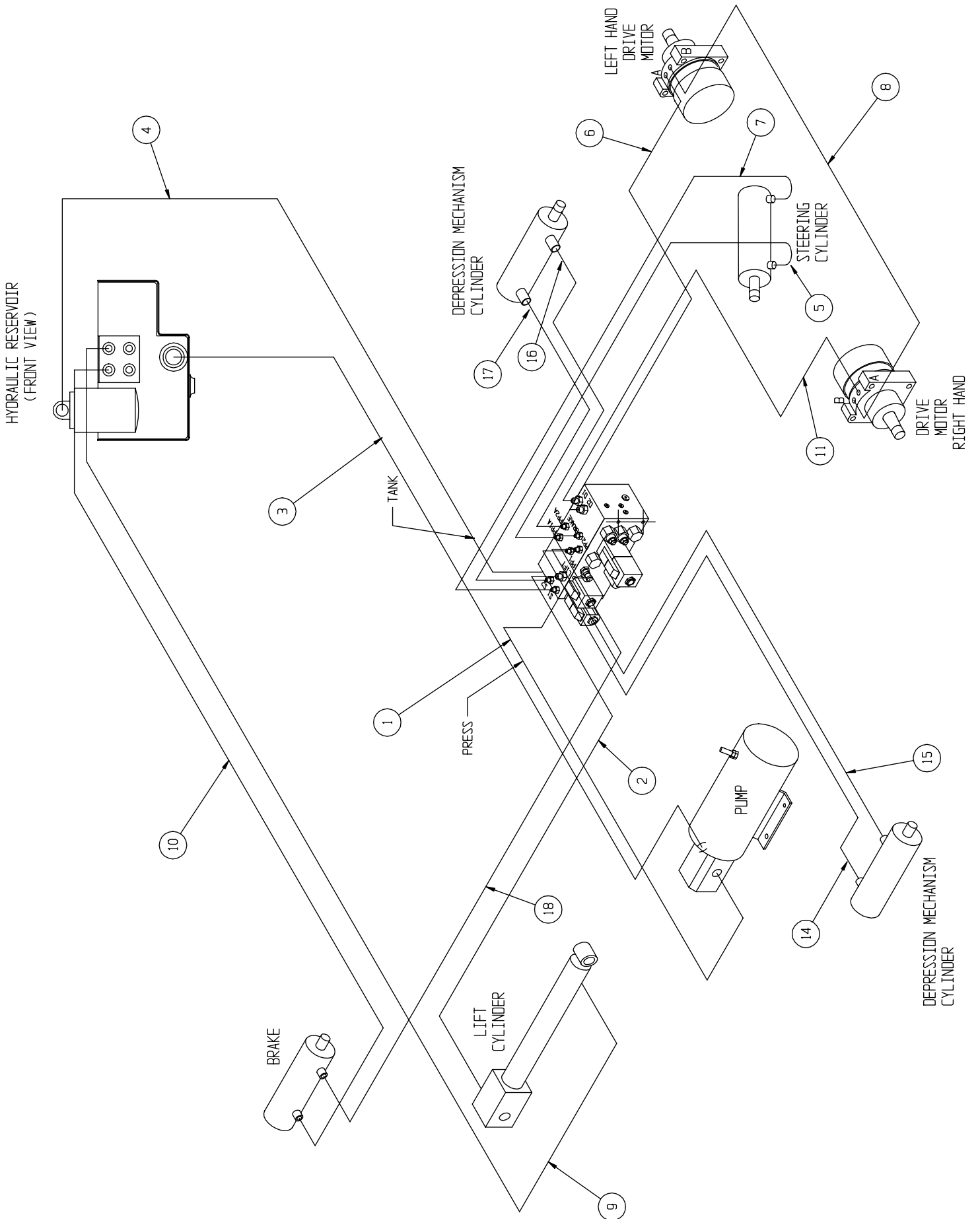


NOTES:

Hose Kit-X20N

066011-020

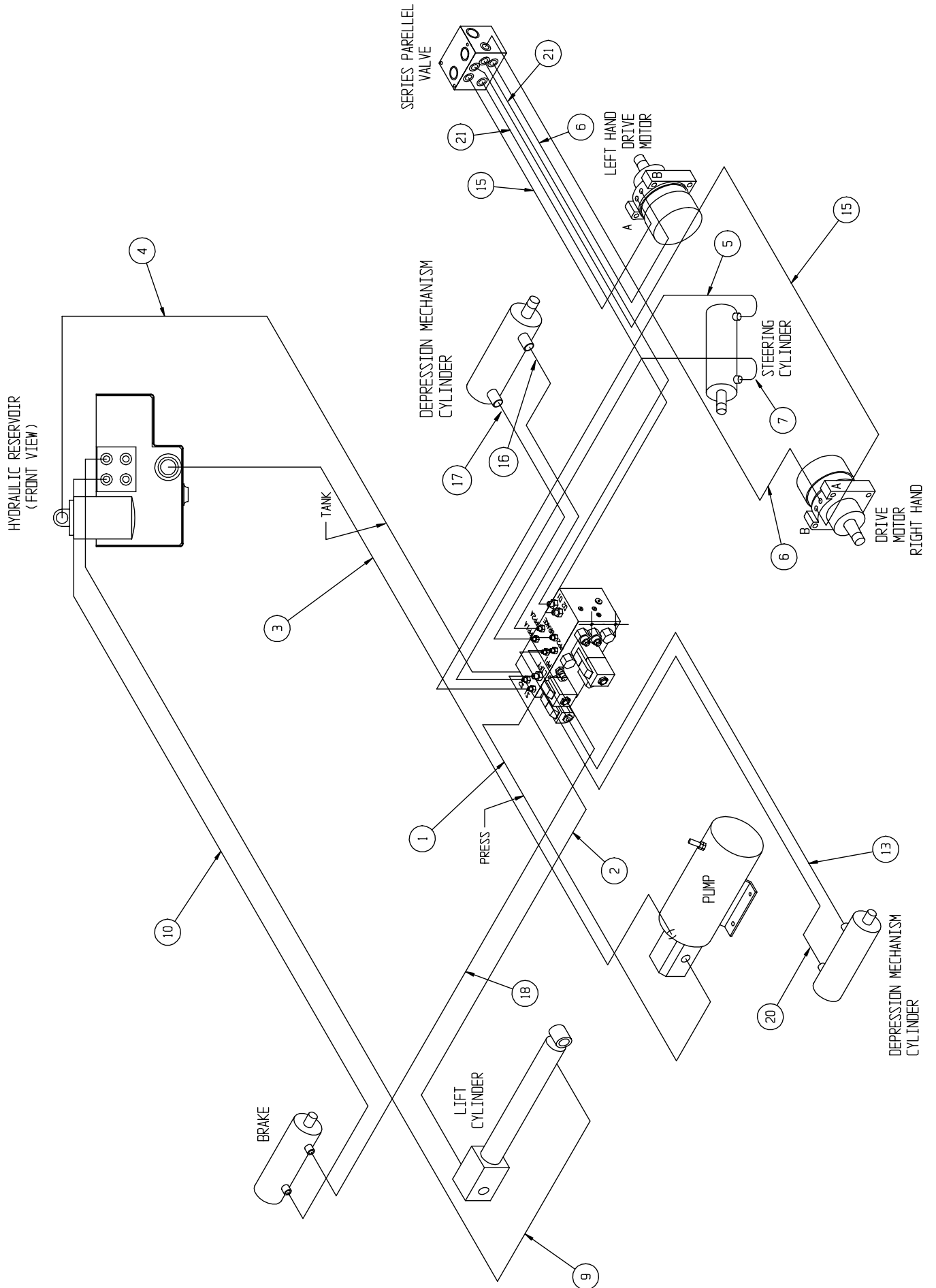
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
1	068965-016	HOSE ASS'Y 3/8 X 16 (6 FJX-6FJX90)	1
2	068965-150	HOSE ASS'Y 3/8 X 150 (6FJX-6FJX90)	1
3	061789-011	HOSE ASS'Y 3/4 X 11 (12 FJX-12MP)	1
4	068965-012	HOSE ASS'Y 3/8 X 12 (6FJX-6FJX90)	1
5	107093-046	HOSE ASS'Y 1/4 X 46 (6FJX-4FJX90)	1
6	068965-053	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

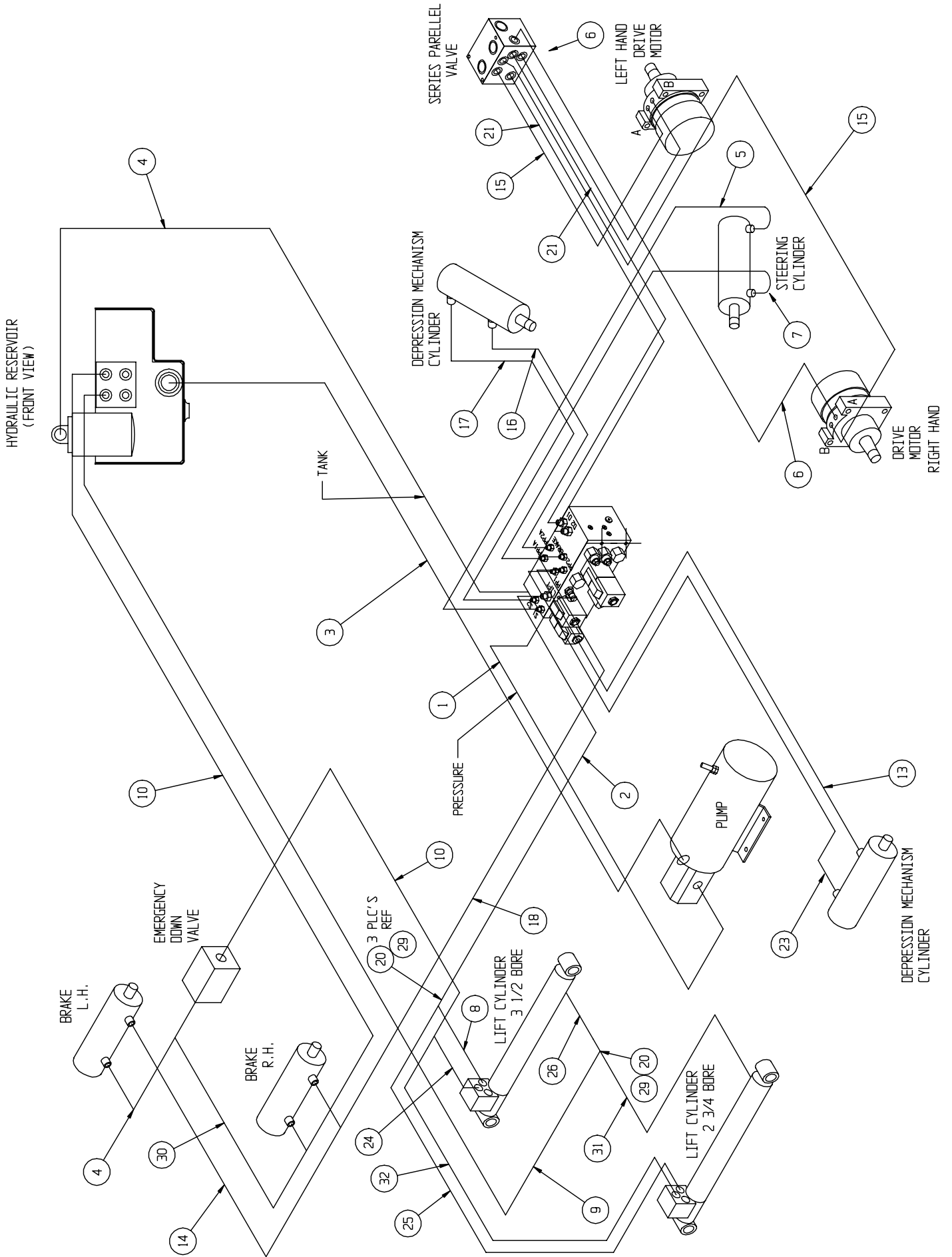


Hose Kit-X31N

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

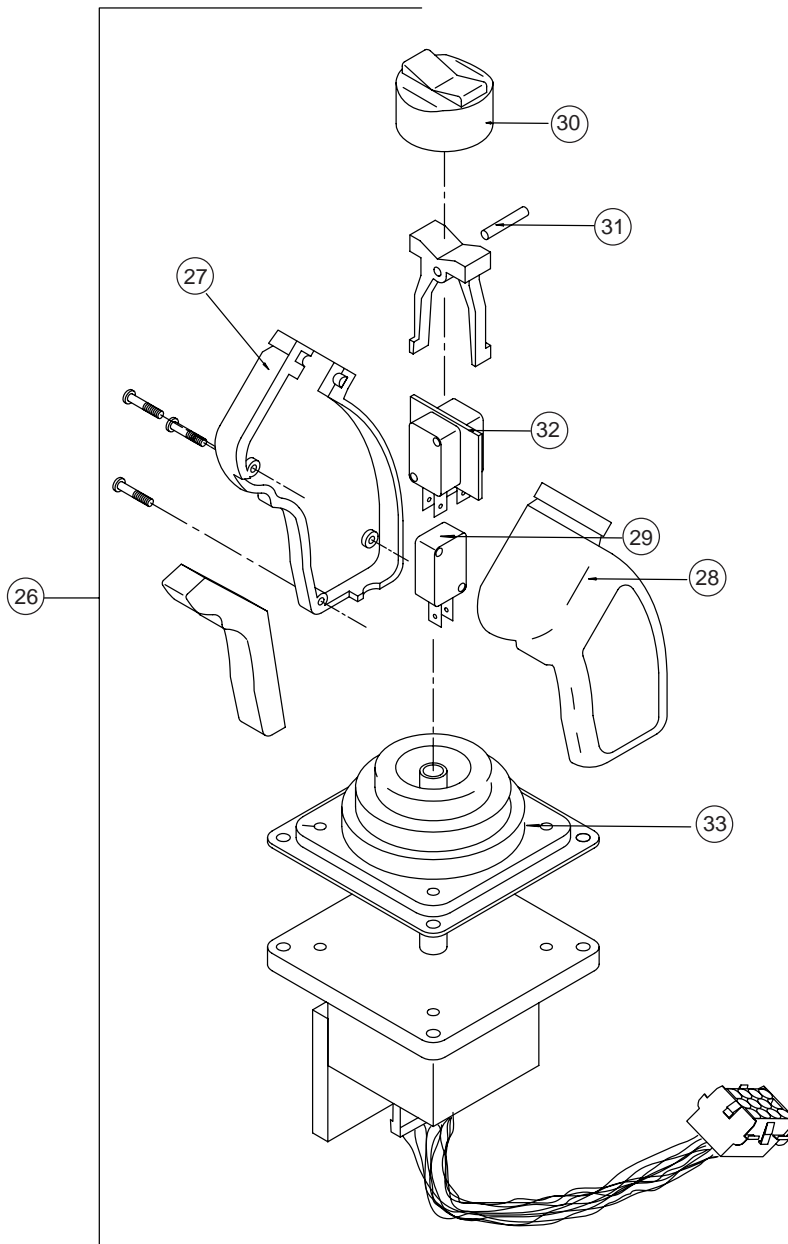


Platform Controls-X20N

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



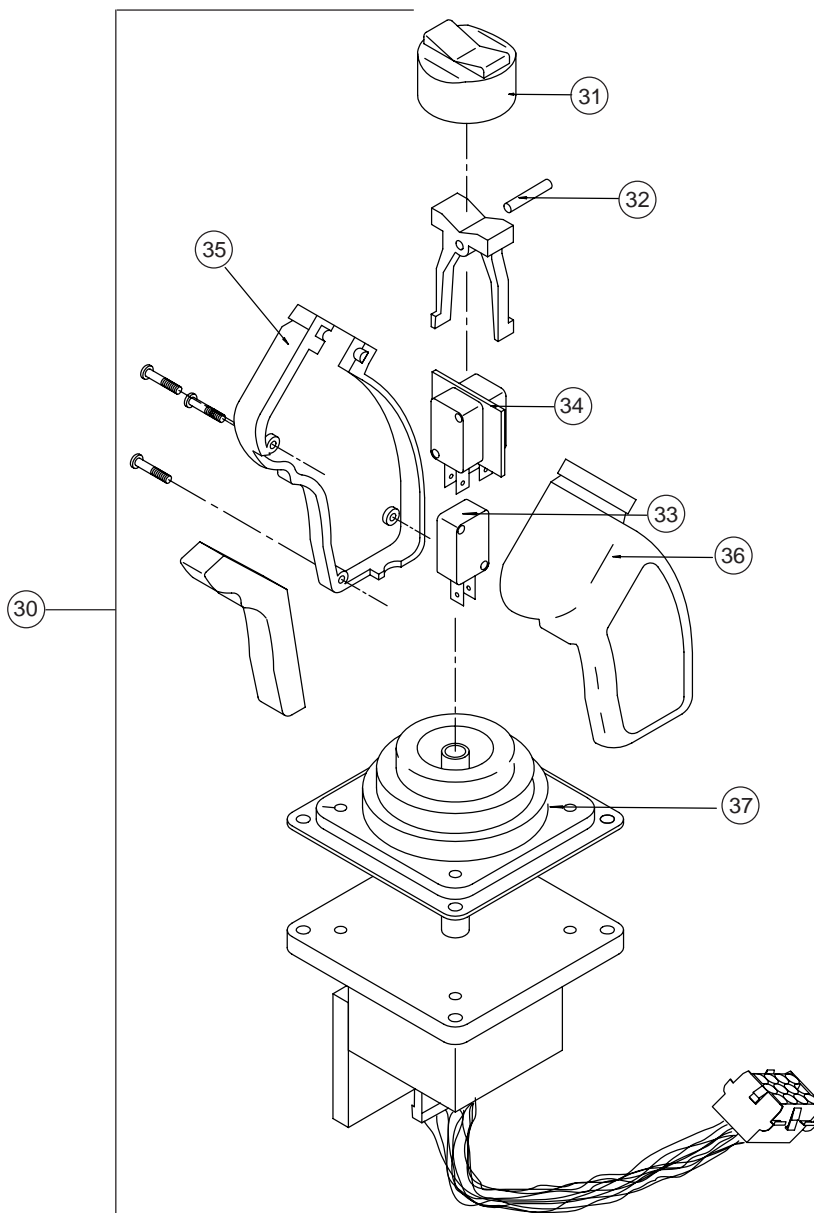
Drawing # 1 of 2

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



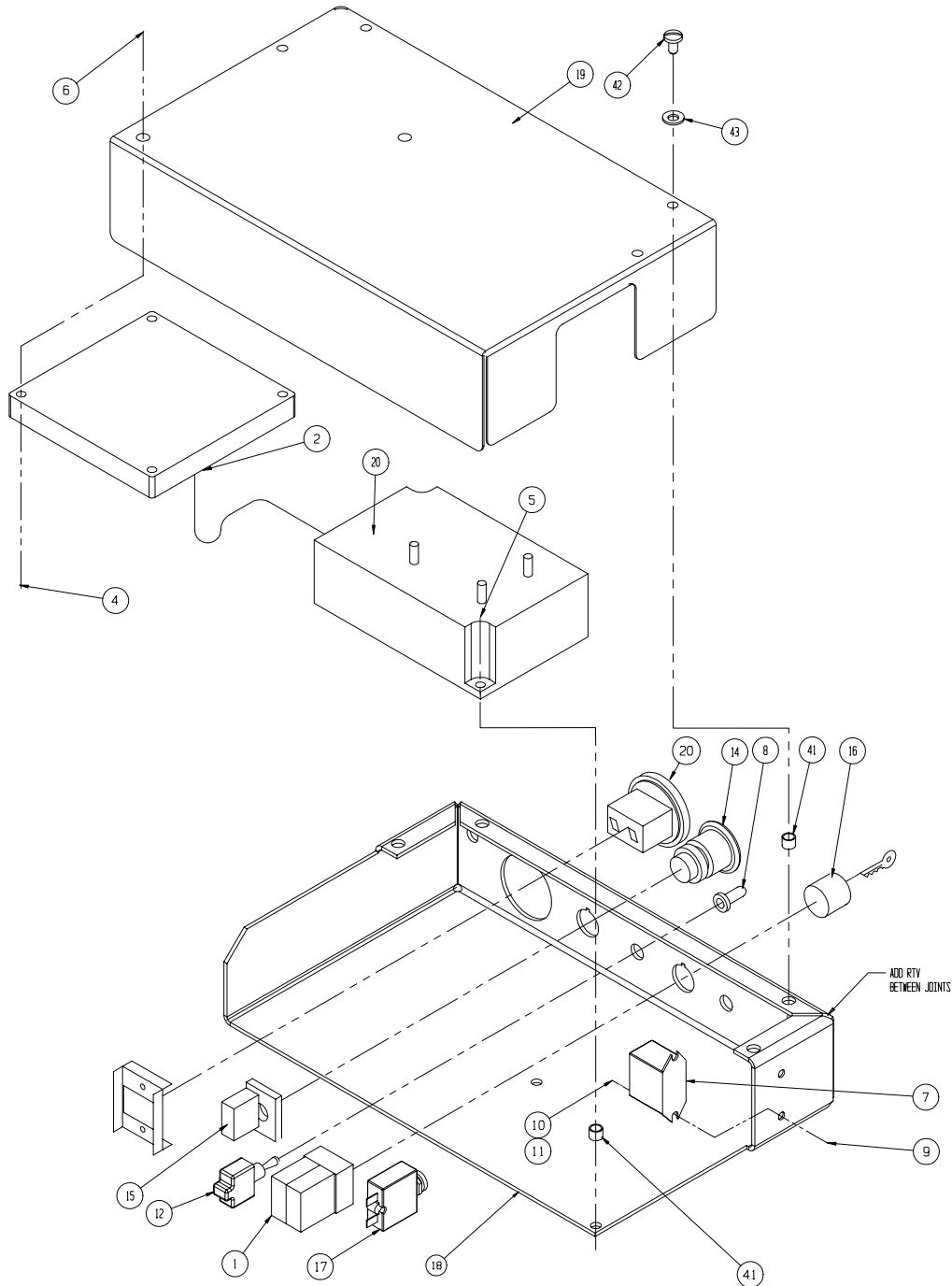
Drawing # 1 of 2

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

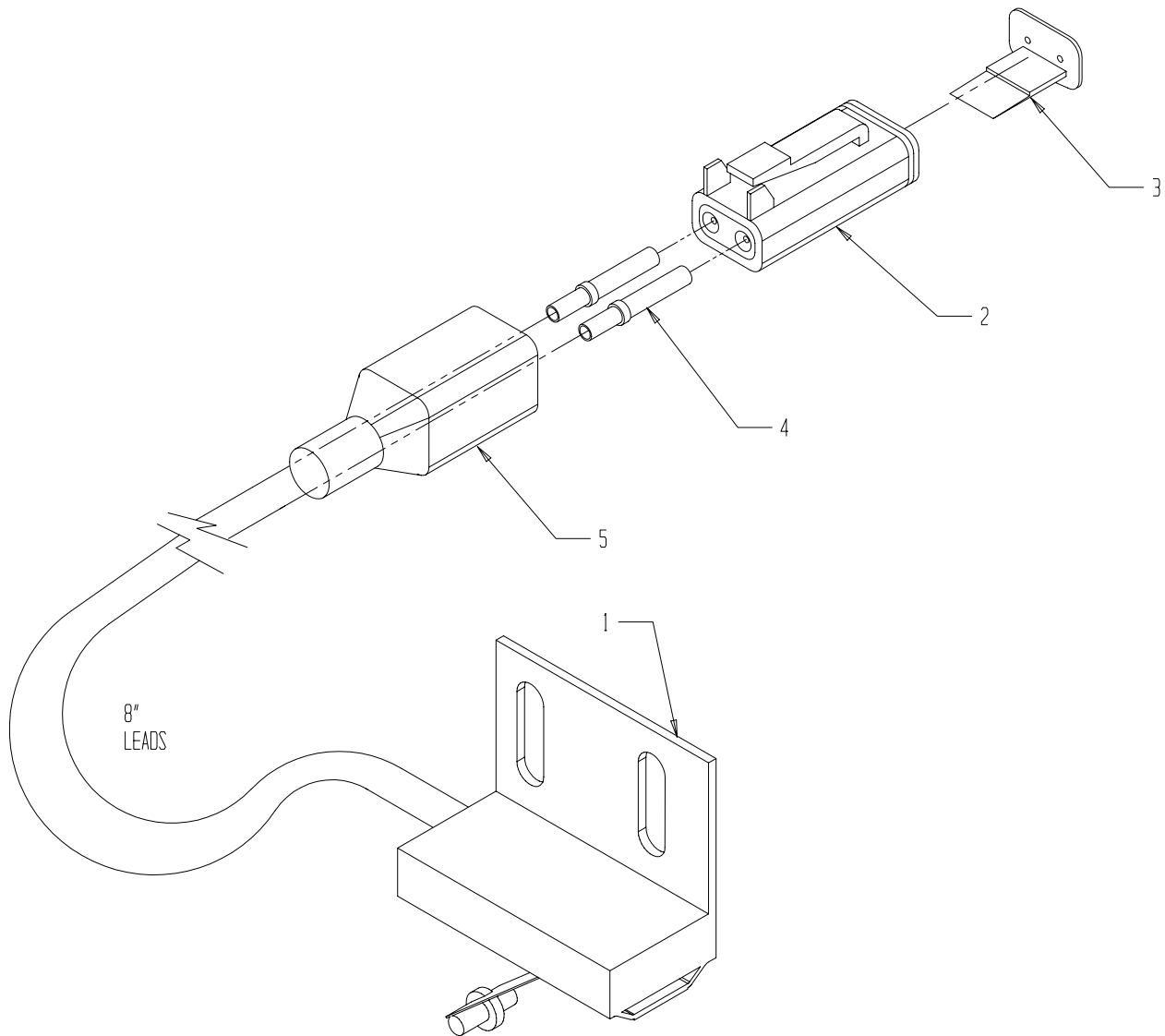


Roller Single Switch Wire Assembly

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

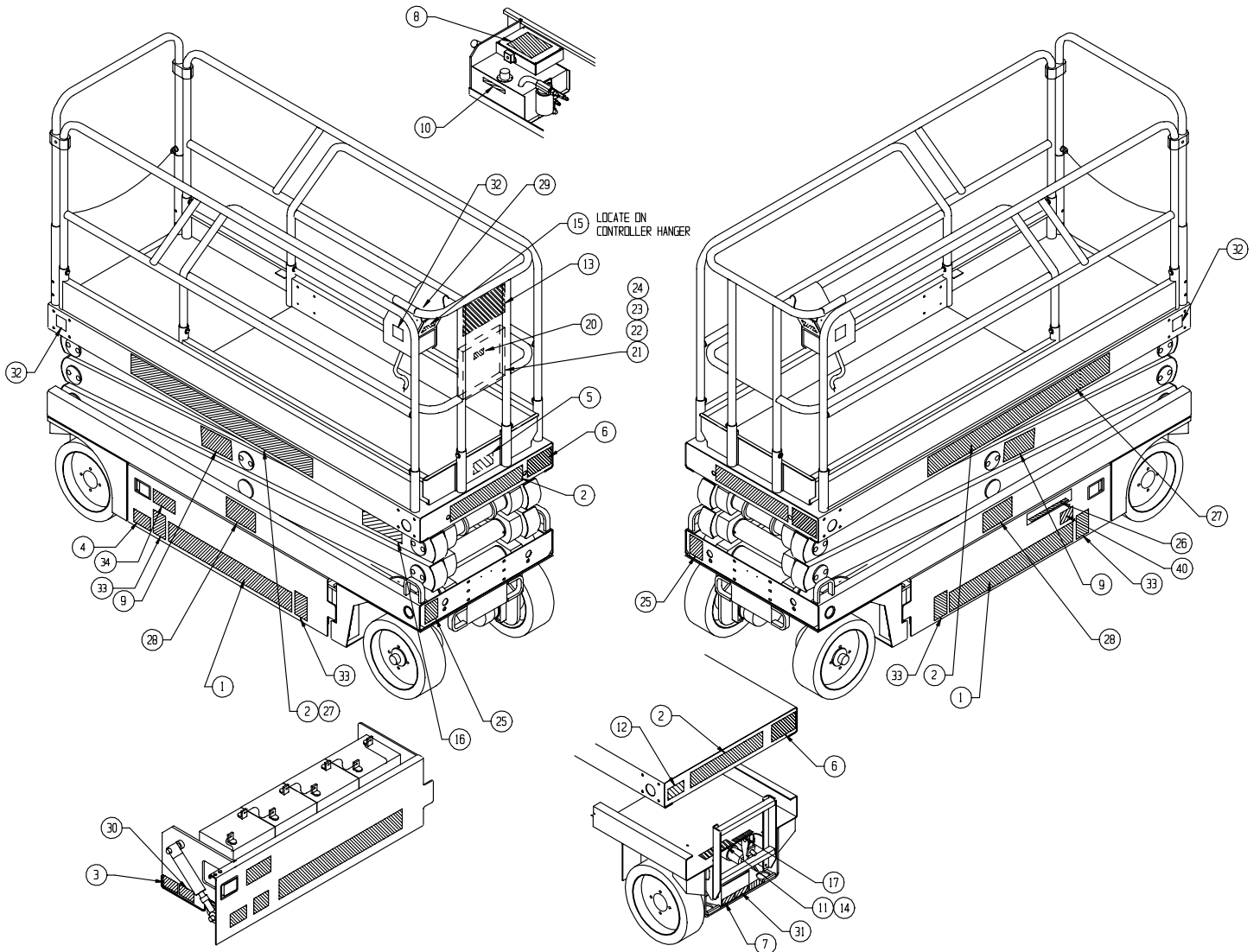


Label Kit-X20N

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

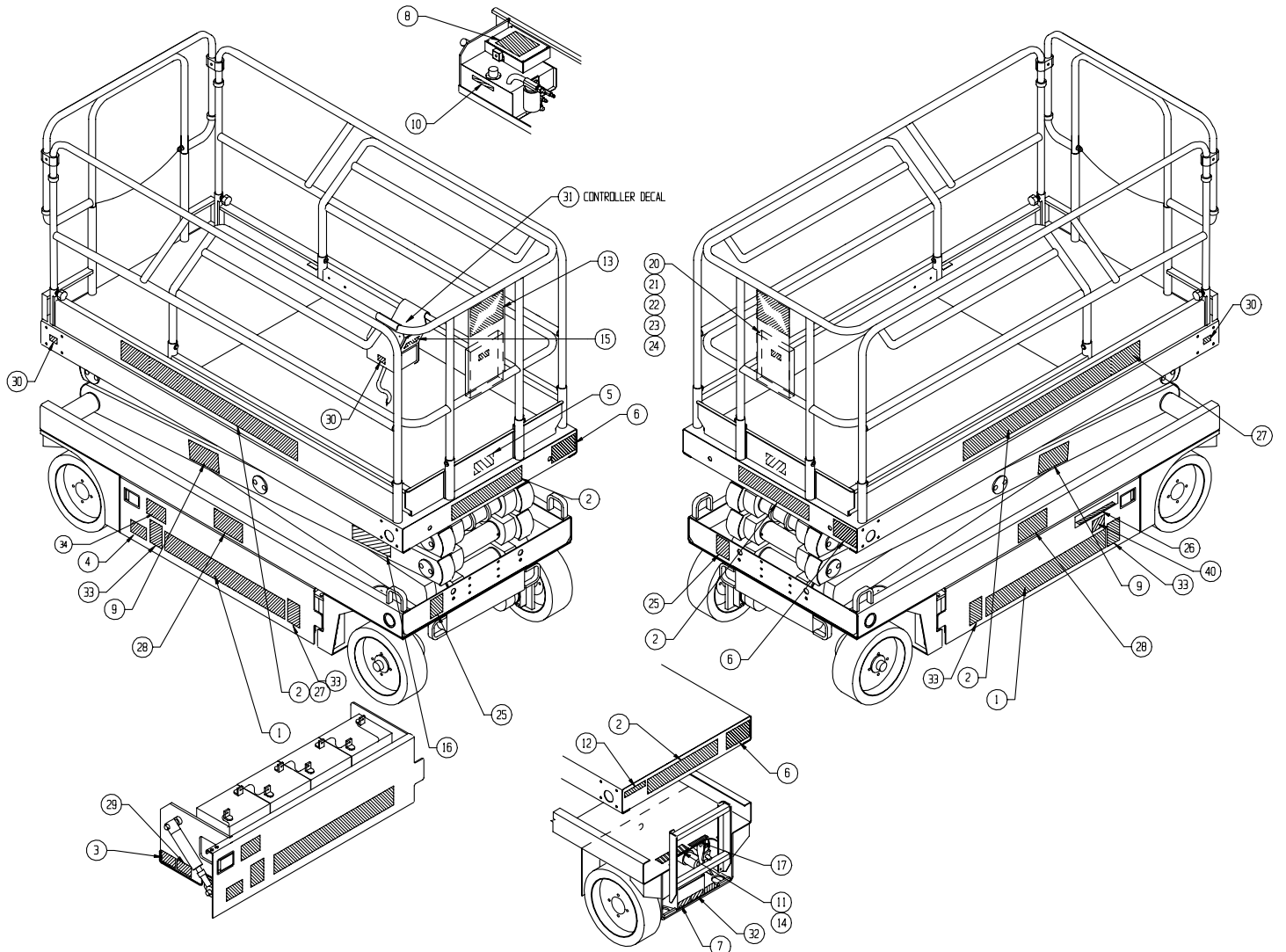
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
19	060577-004	ANSI MANUAL	1
20	010076-001	LABEL INSTRUCTIONS	1
21	010076-000	MANUAL CASE	1
22	011252-006	SCREW HHC 1/4-20 X 3/4 LG	2
23	011248-004	NUT 1/4-20 HEX	2
24	011240-004	WASHER 1/4 FLAT	2
25	066556-000	LABEL WARNING (COLLISION)	1
26	066559-000	LABEL 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

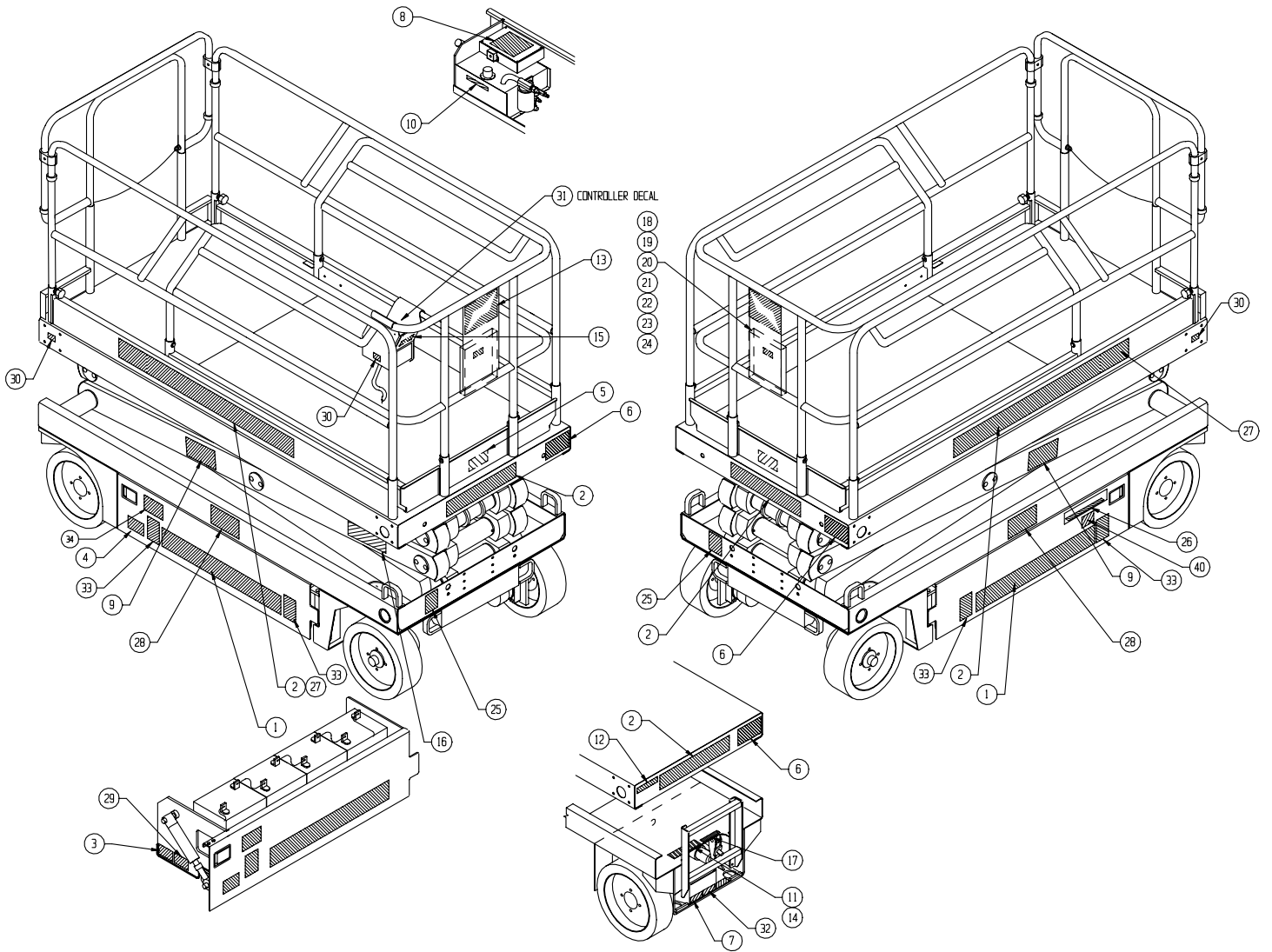


Label Kit-X26N

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

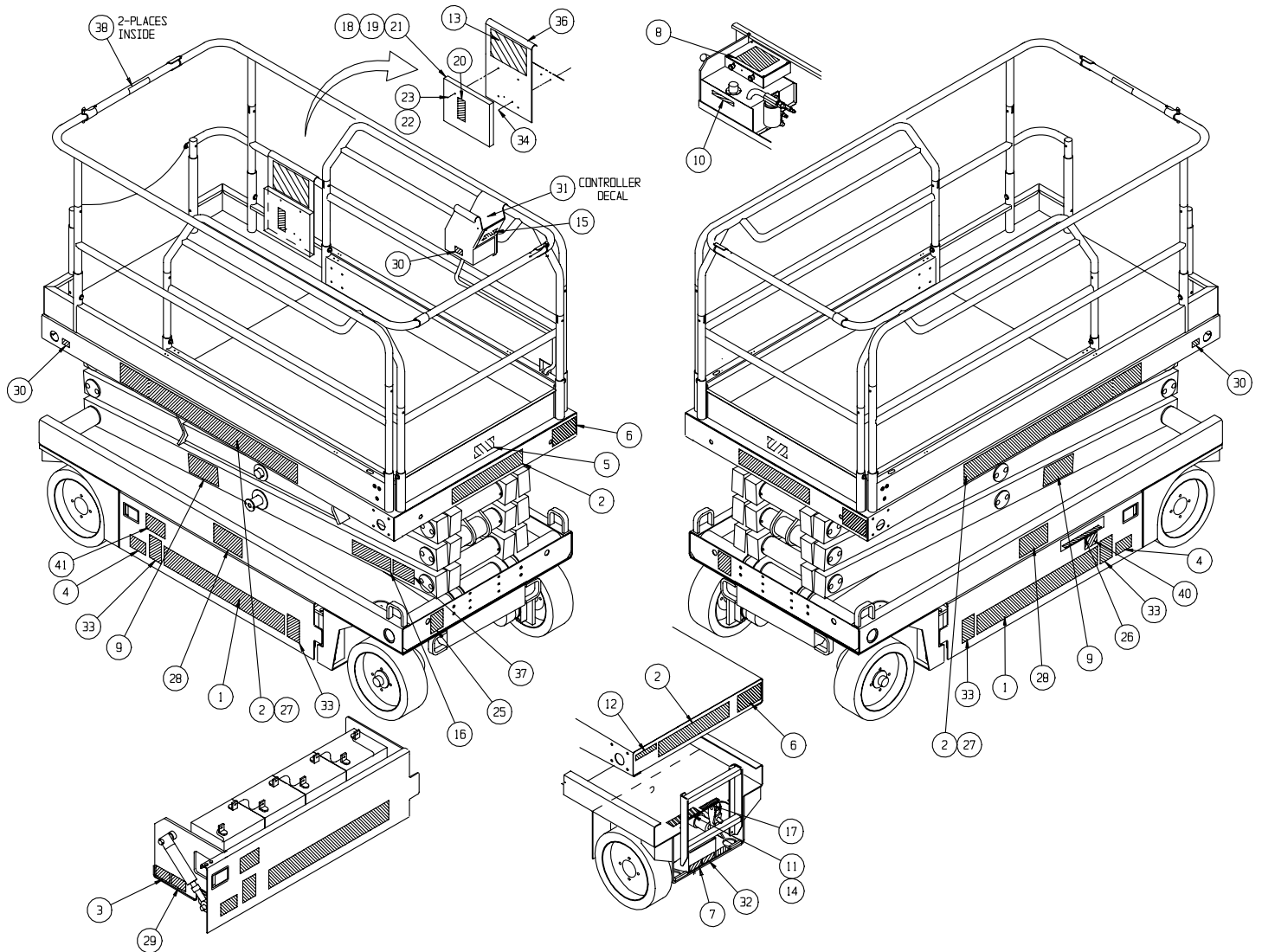


Label Kit-X31N

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

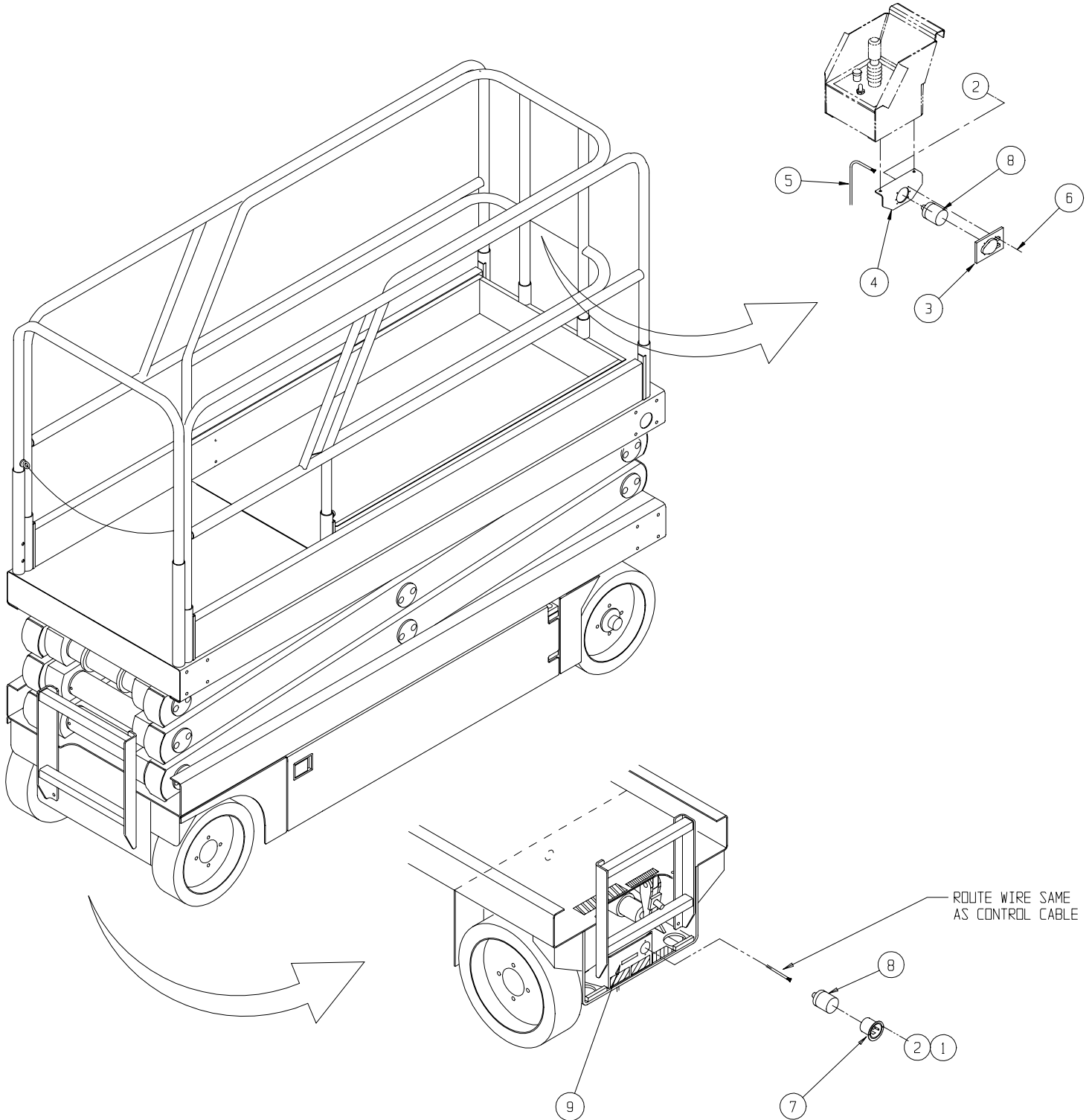


Power to Platform Option-X20, X26

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

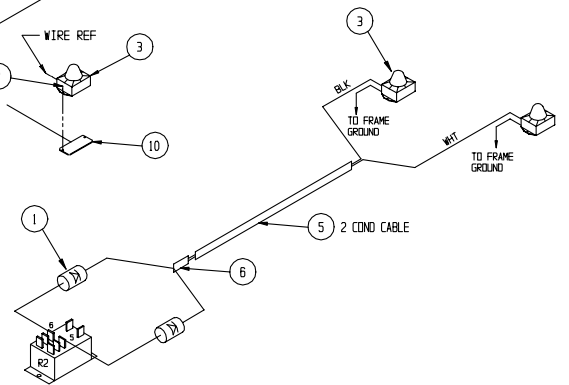
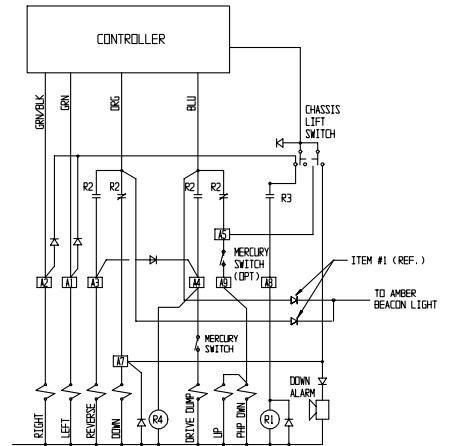
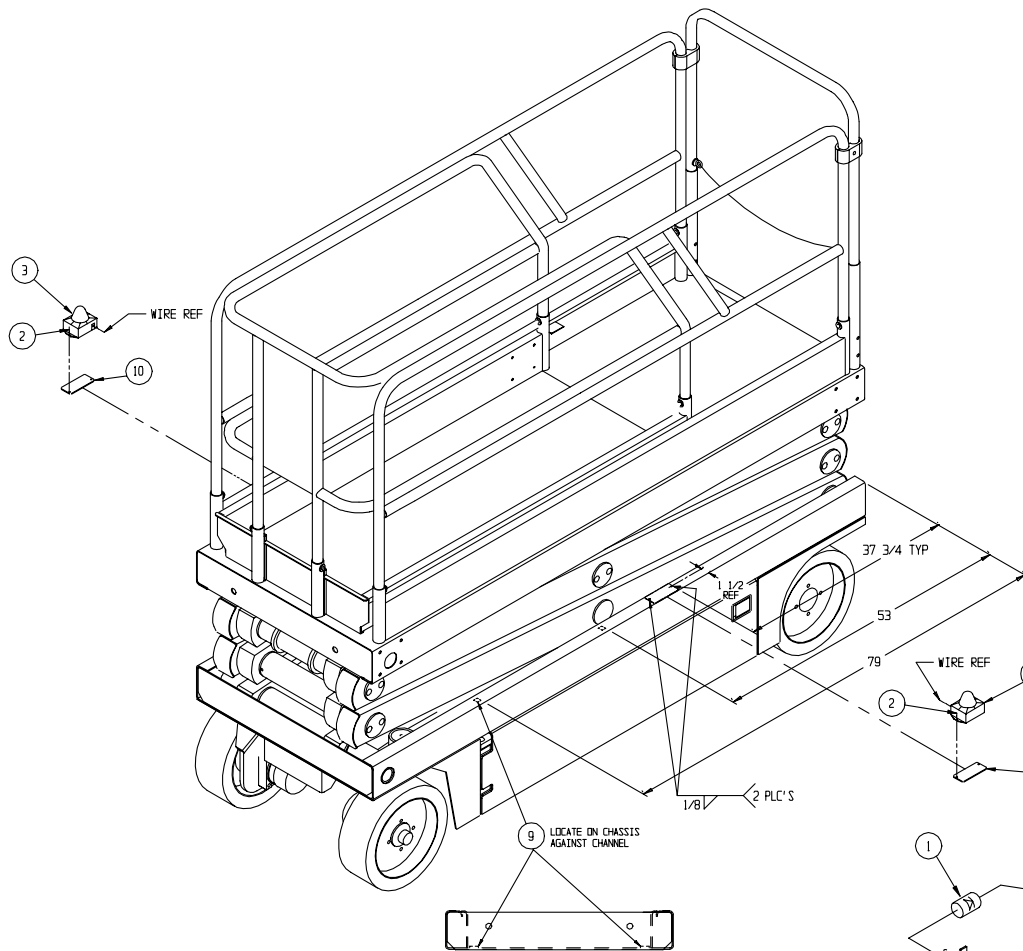


Motion Beacon Option

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

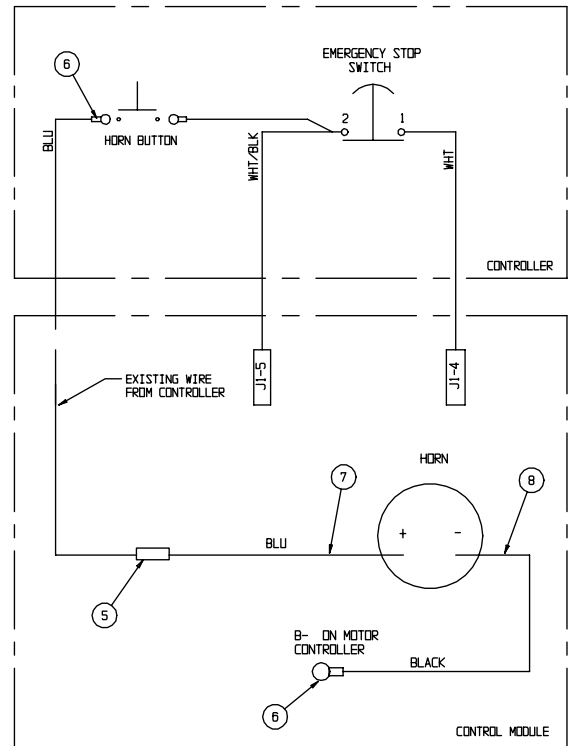
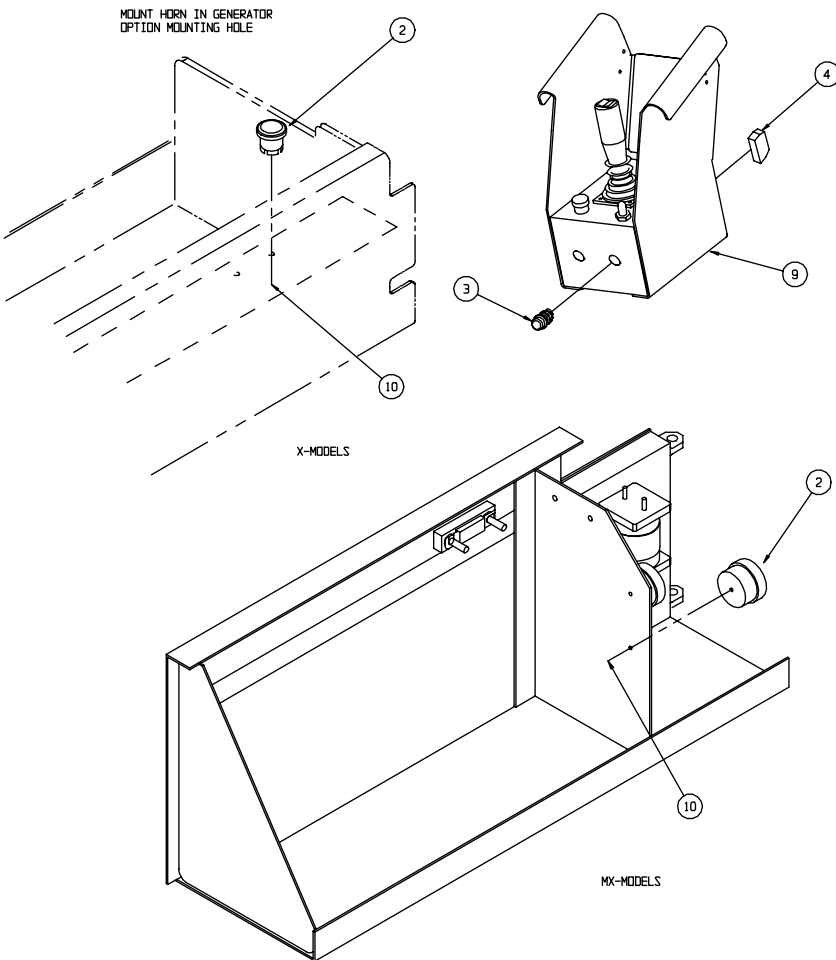


Horn Option

066614-020

ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
1	-	CONTROL MODULE ASSEMBLY	REF
2	066807-002	HORN, 24 VDC	1
3	066805-018	SWITCH, PUSH BUTTON 6E	1
4	066805-010	CONTACT BLOCK NO	1
5	029620-002	CONNECTOR, BUTT 16-14 GA	1
6	029601-013	CONNECTOR, RING TERMINAL	4

ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
7	029453-099	WIRE, 16 AWG BLUE	4 FT
8	029452-099	WIRE, 16 AWG BLACK	4 FT
9	-	CONTROLLER ASSY	REF
10	011252-006	SCREW HHC 1/4-20 X 3/4	1

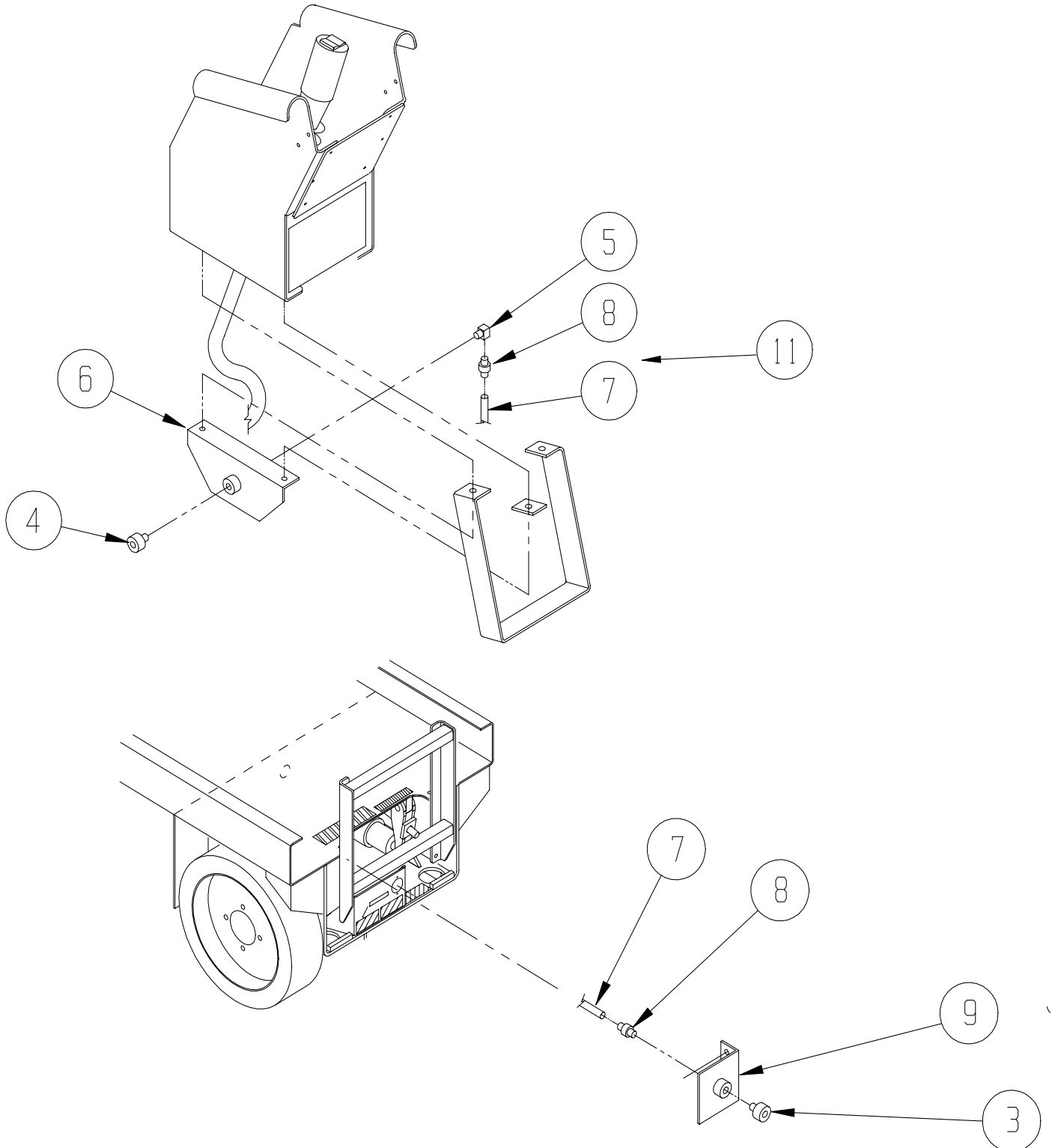


Air to Platform Option

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

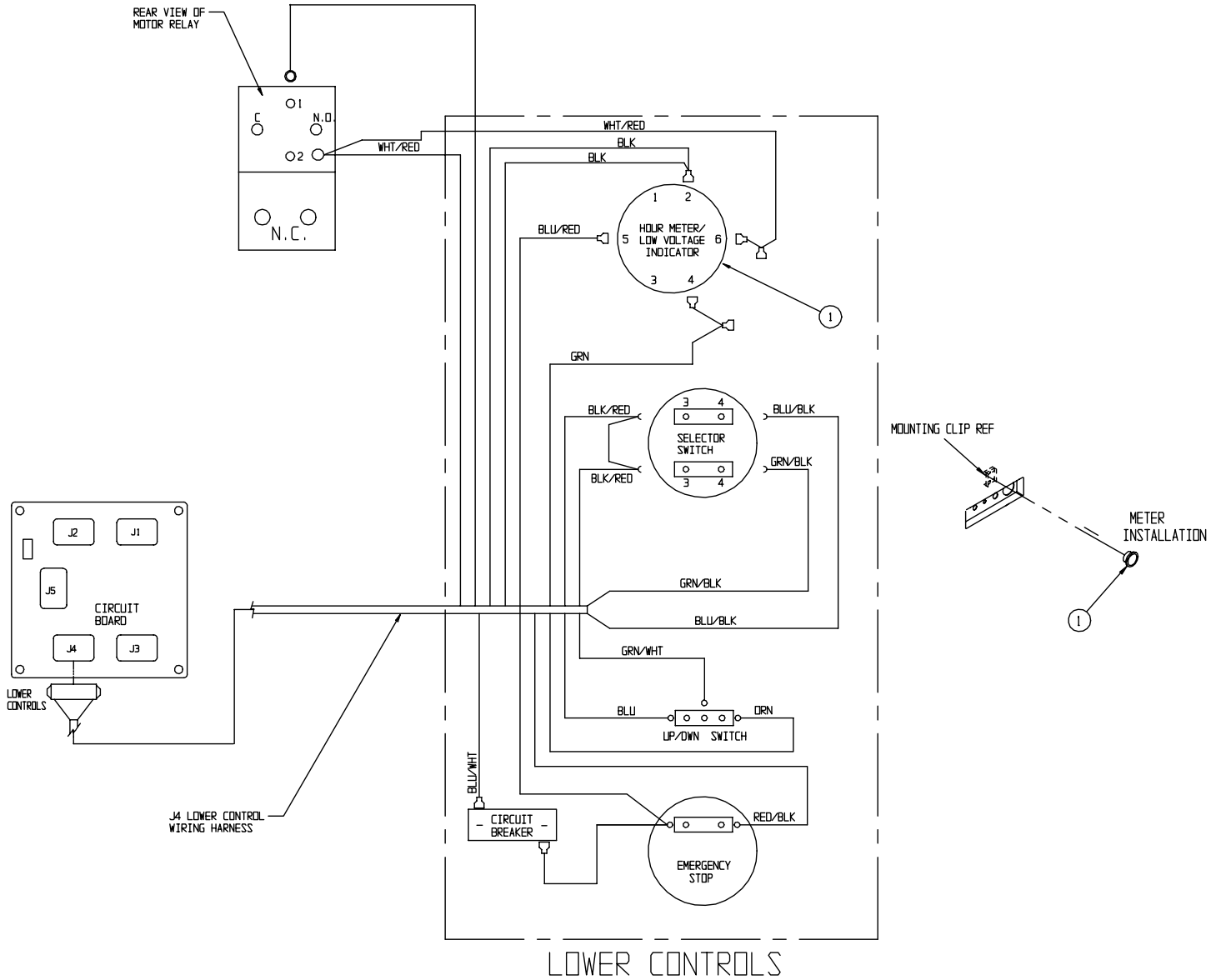
ITEM	PART NO.	PART/MATERIAL DESCRIPTION	QTY.
7	015770-099	HOSE 3/8 SYNDFLEX 3600-06	50 FT
8	064274-002	FITTING HOSE	2
9	063191-000	BRACKET	1
11	065682-000	SPACER	1



Hour Meter/Low Voltage Indicator Option

066613-020

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

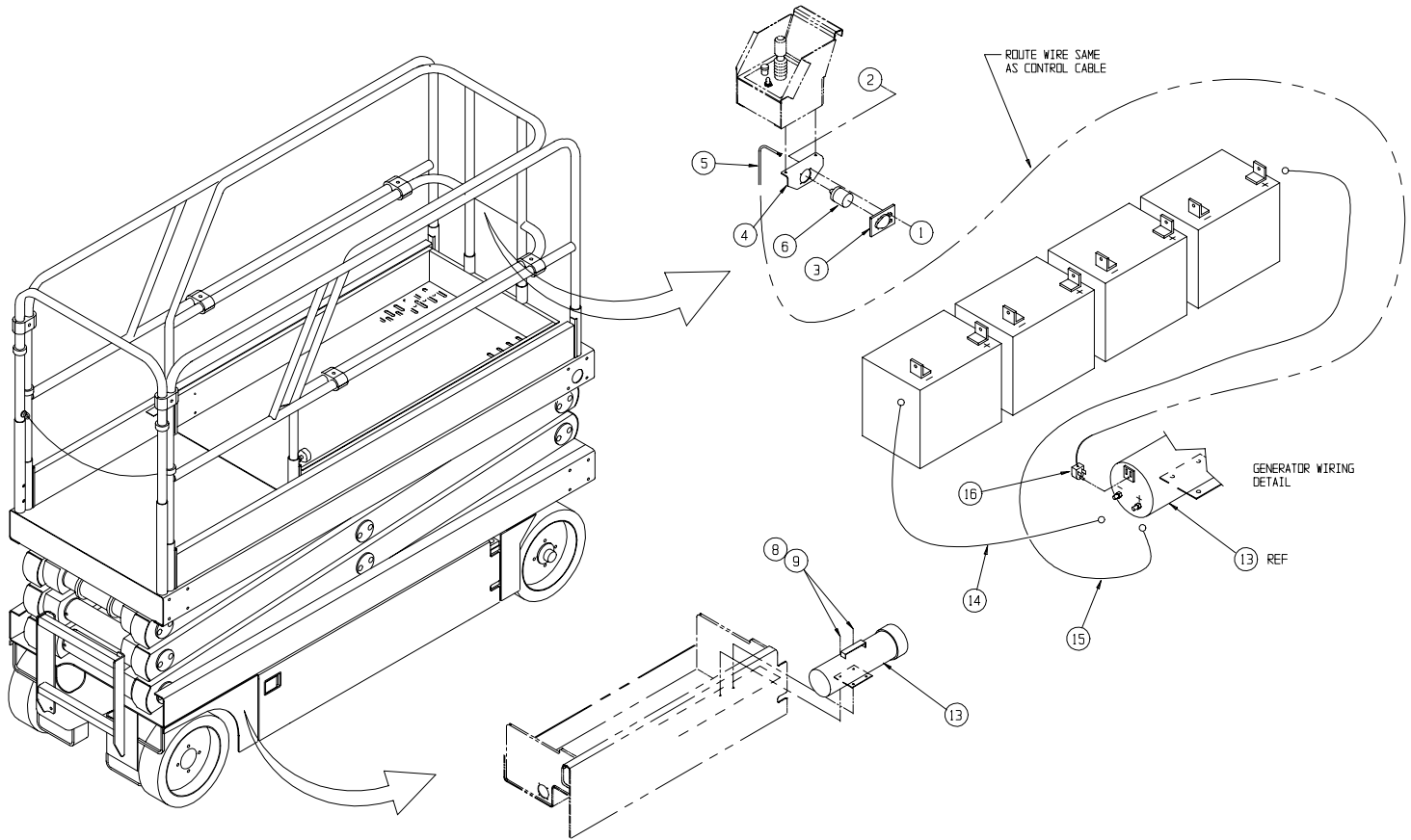


Generator Option

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



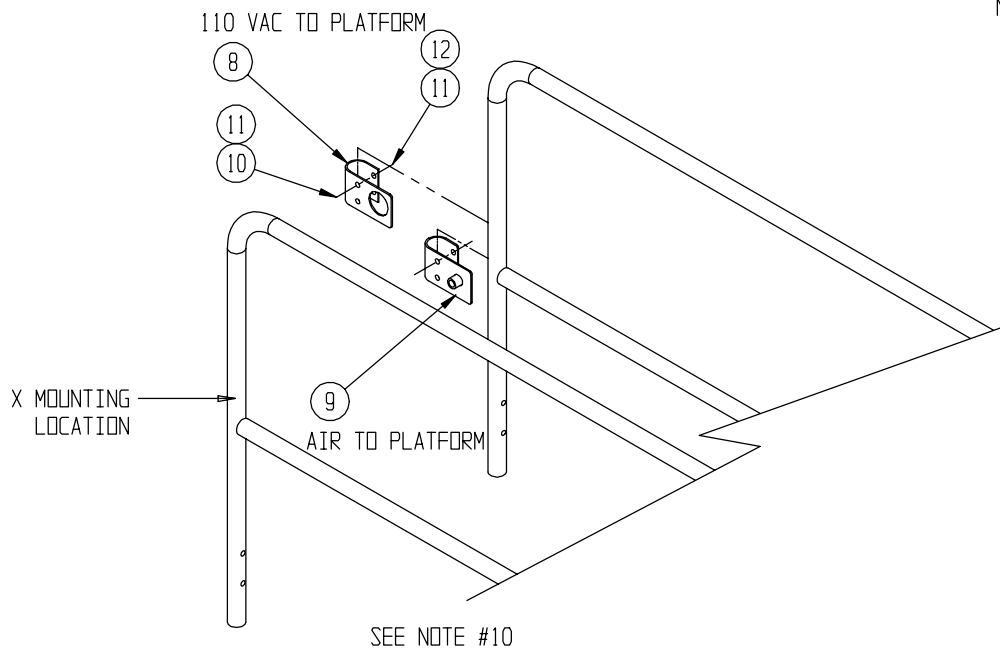
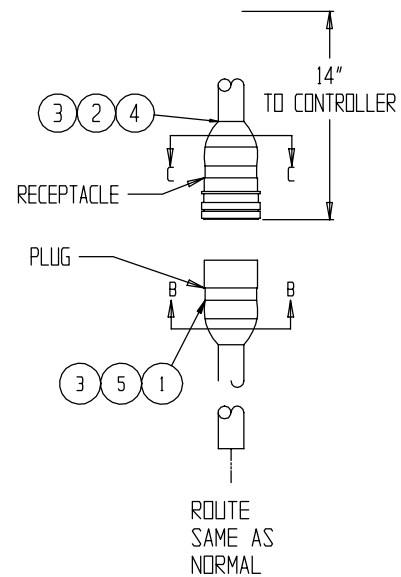
WIRE LENGTH	MACHINE
50"	26N
40"	20W
39"	20N

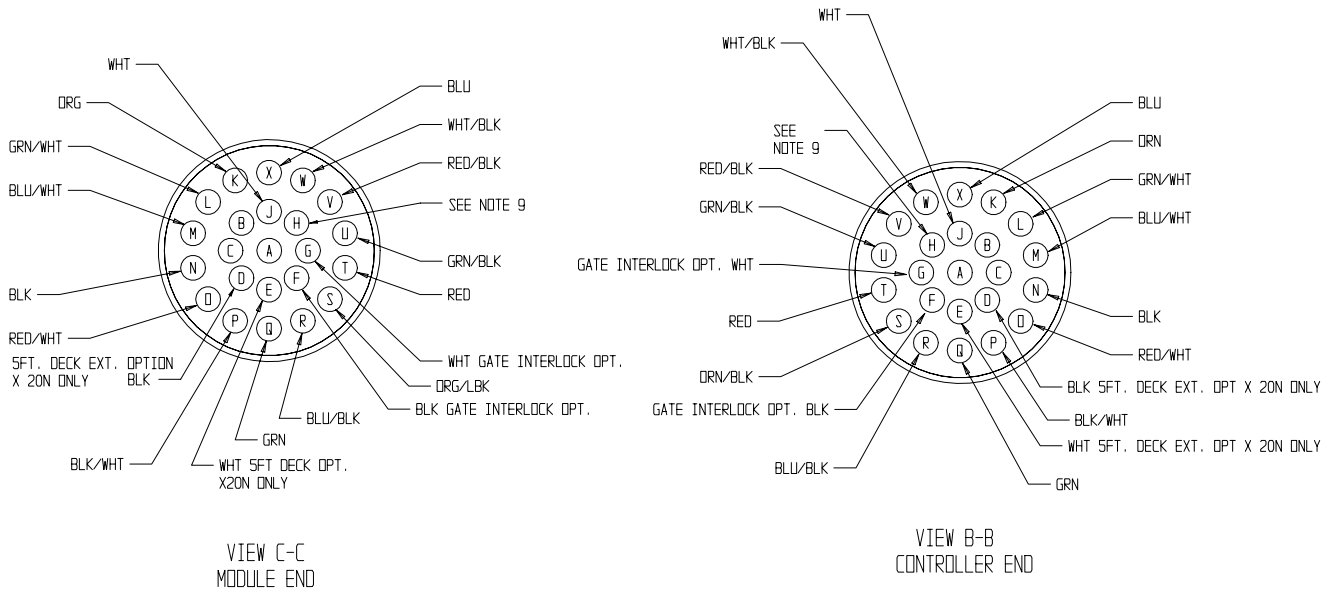
Removable Controller Option

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

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



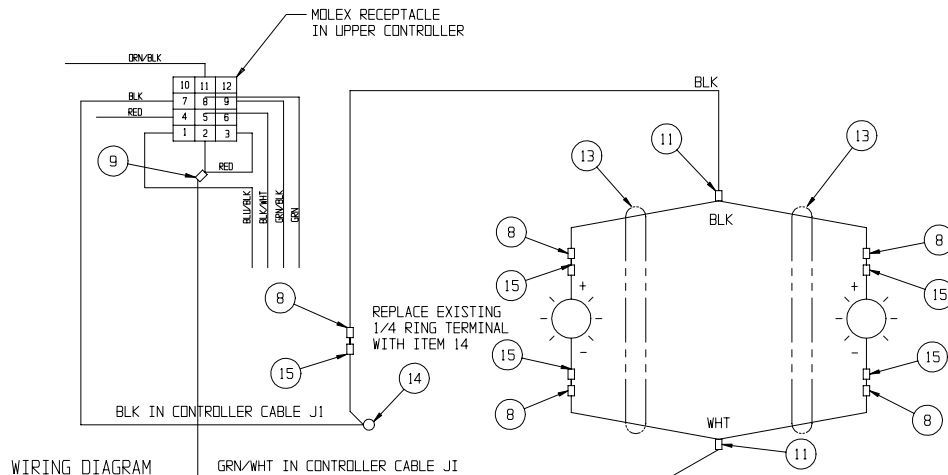
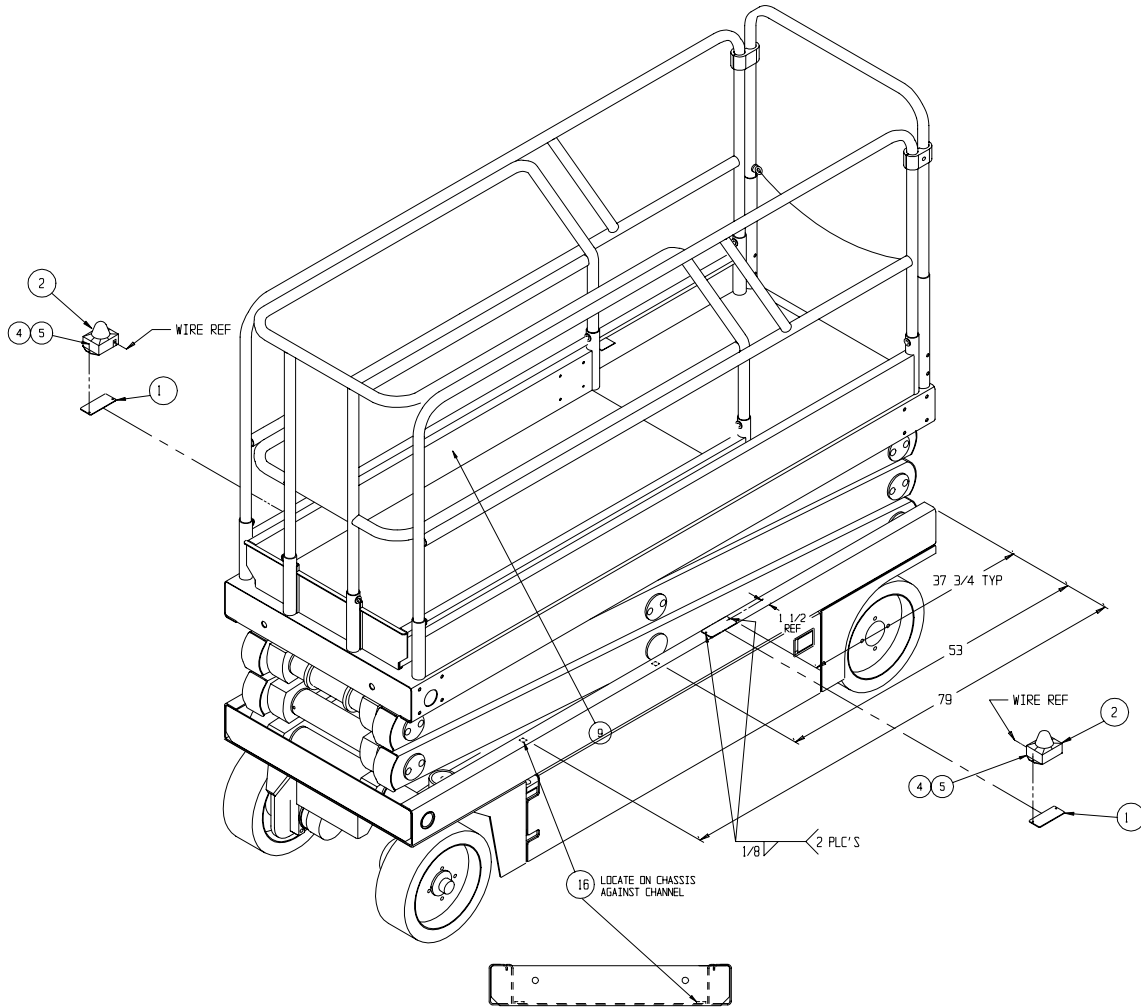


Flashing Amber Light X20, X26

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	029496-009	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



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