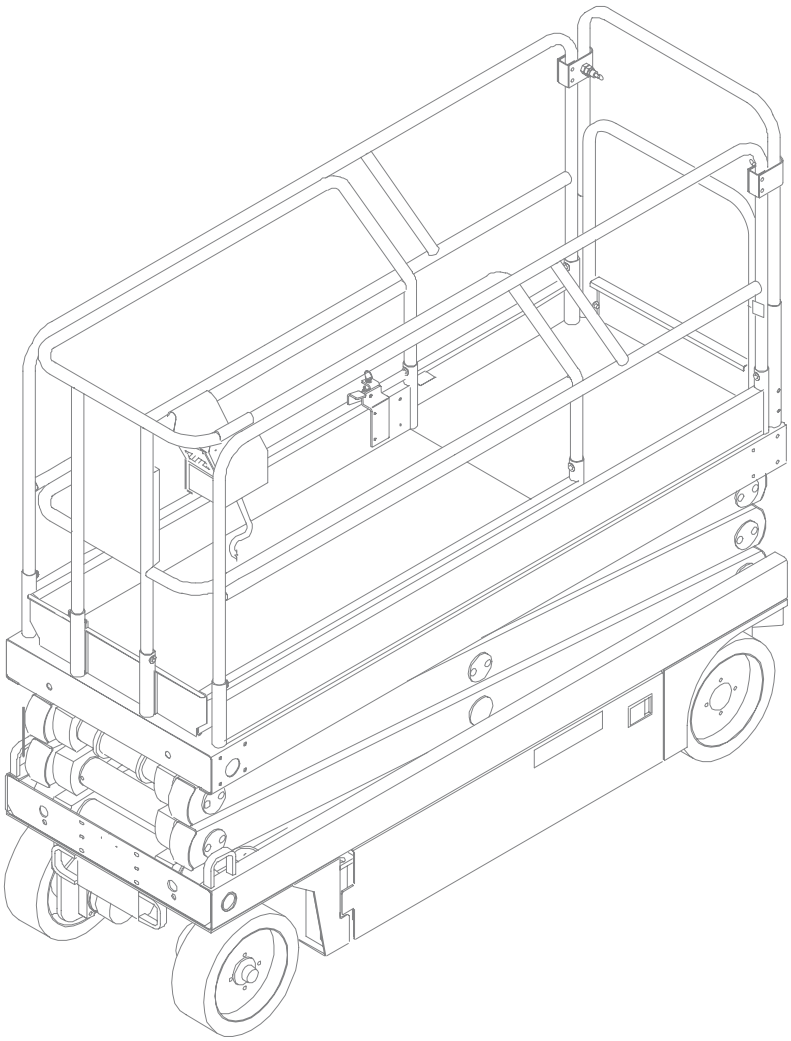
SERVICE & PARTS MANUAL

Snorkel



S2633

WORK PLATFORM

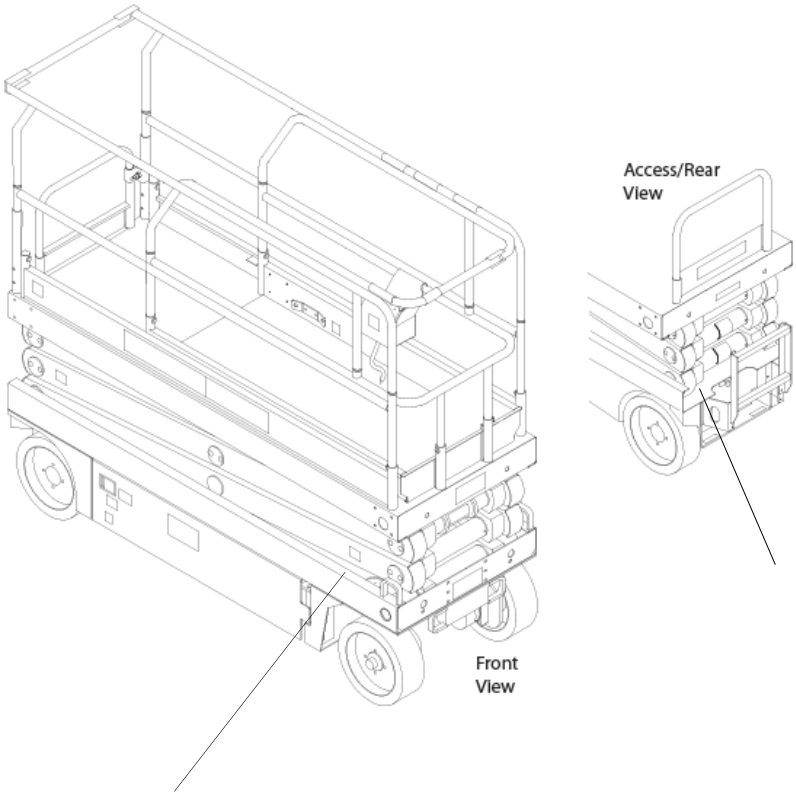
Serial Number 51119+
Manual Serial Number 500244-104

S2633

www.snorkelusa.com

English

When contacting Snorkel for service or parts information, be sure to include the MODEL and SERIAL NUMBER from the equipment Nameplate.
Should the nameplate be missing, the SERIAL NUMBER is also stamped on top of the chassis above the front axle pivot.



PART NUMBER : 508244-103

FOREWORD

HOW TO USE THIS MANUAL

This manual is divided into six sections.

SECTION 1 INTRODUCTION

General description and machine specifications.

SECTION 2 OPERATION AND SPECIFICATION

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.

⚠ 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 **Snorkel,** might be done, or of the possible hazardous consequences of each conceivable way, nor could **Snorkel,** investigate all such ways.*

*Anyone using service procedures or tools, whether or not recommended by **Snorkel,** must satisfy themselves thoroughly that neither personal safety nor machine safety will be jeopardized.*

Section 1

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 **Snorkel**.

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: S2633

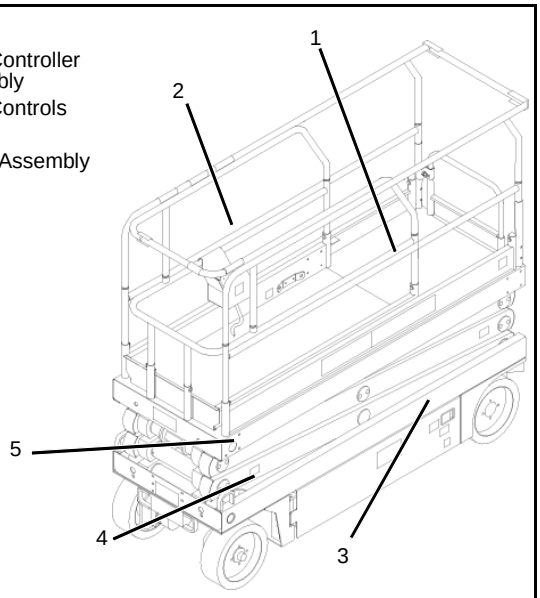
PLATFORM

The platform has a reinforced steel floor, 1.1m (43.5 inch) high guardrails with midrail, 152 mm (6 inch) 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.

1.Platform
2.Platform Controller Assembly
3.Chassis Controls
4.Chassis
5.Elevating Assembly



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 S2633 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.

⚠ DANGER ⚠

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.

WARNING

All personnel shall carefully read, understand and follow all safety rules and operating instructions before operating or performing maintenance on any UpRight Powered Access work platform.

Safety Rules

Electrocution Hazard	Tip Over Hazard	Collision Hazard	Fall Hazard
			
THIS MACHINE IS NOT INSULATED!	**NEVER** operate the boom or drive with the platform elevated unless on firm, level surface.	**NEVER** position the machine without first checking for overhead obstructions or other hazards.	**NEVER** climb, stand or sit on the platform guardrails or midrail.

USE OF THE AERIAL WORK PLATFORM: This aerial work platform is intended to lift persons and his tools as well as the material used for the job. It is designed for repair and assembly jobs and assignments at overhead workplaces (ceilings, cranes, buildings etc) All other uses of the aerial work platform are prohibited!

THIS AERIAL WORK PLATFORM IS NOT INSULATED! For this reason it is imperative to keep a safe distance from live parts of electrical equipment!

Exceeding the specified permissible maximum load **is prohibited!** See “Platform Capacity” on page 5 for details.

The use and operation of the aerial work platform as a lifting tool or a crane **is prohibited!**

This machine is designed for **INDOOR USE ONLY!**

DISTRIBUTE all platform loads evenly on the platform.

NEVER operate the machine without first surveying the work area for surface hazards.

Holes, drop-offs, bumps, curbs, and debris etc. should **ALWAYS be AVOIDED!**

OPERATE machine only on surfaces capable of supporting wheel loads.

IN CASE OF EMERGENCY push Emergency Stop Switch to deactivate all powered functions.

IF ALARM SOUNDS while platform is elevated, STOP, carefully lower platform. Move machine to a firm, level surface.

Climbing up the railing of the platform, standing on or stepping from the platform onto buildings, steel or prefab concrete structures, etc., **is prohibited!**

Dismantling the entry gate or other railing components **is prohibited!** Always make certain that the entry gate is closed and securely locked!

It is prohibited to keep the entry gate in an open position when the platform is raised!

To extend the height or the range by placing of ladders, scaffolds or similar devices on the platform **is prohibited!**

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

INSPECT the machine thoroughly for cracked welds, loose or missing hardware, hydraulic leaks, loose wire connections, and damaged cables or hoses before using.

VERIFY that all labels are in place and legible before using.

NEVER use a machine that is damaged, not functioning properly, or has damaged or missing labels.

To bypass any safety equipment **is prohibited** and presents a danger for the persons on the aerial work platform and in its working range.

NEVER charge batteries near sparks or open flame. Charging batteries emit explosive hydrogen gas.

Modifications to the aerial work platform **are prohibited** or permissible only at the approval by UpRight.

AFTER USE, secure the work platform from unauthorized use by turning the Keyswitch OFF and removing key.

CONTENTS

PAGE

1 INTRODUCTION

This manual covers the **S2633** Work Platform.

Figure 1: Manual Storage Information

The manual MUST be stored in the box provided in the machine cage, AT ALL TIMES.

All Operators must read, understand and follow all safety rules and operating instructions before attempting to operate the machine.

SPECIAL INFORMATION

DANGER

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

WARNING

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

CAUTION

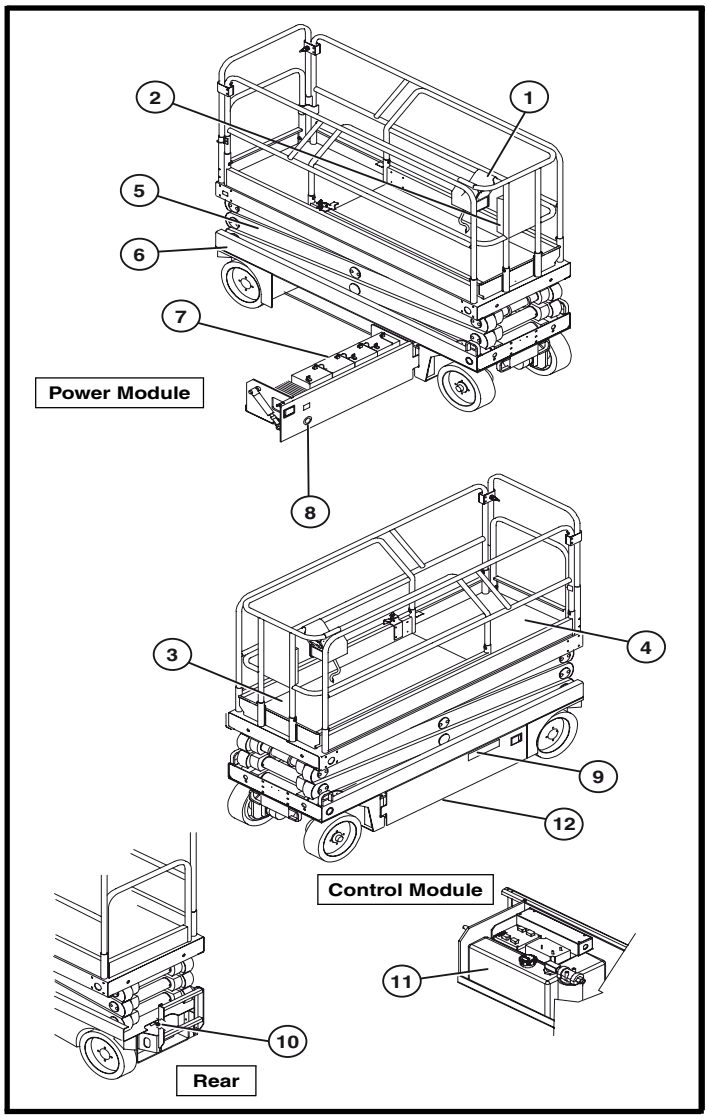
Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

2 GENERAL DESCRIPTION

⚠ DANGER ⚠

DO NOT use the machine if all guardrails are not properly in place and secured.

Figure 2: S2633



1. Platfo rm Controls
2. Manual Case
3. Platform Extension
4. Platform
5. Elevating Assembly
6. Chassis
7. Batteries
8. Charger Outlet Plug
9. Chassis Controls
10. Emergency Lowering Valve Knob
11. Hydraulic Fluid Reservoir
12. Pothole Support Rails (not visible when machine is Stowed – in raised Drive position see fig 5 page 10

3 SPECIAL LIMITATIONS

DANGER

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

Elevating the Work Platform is limited to **firm, level surfaces ONLY.**

DANGER

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.

PLATFORM CAPACITY

The maximum capacity for the MACHINE, including occupants is determined by model and options, and is listed in “Specifications” on page 20.

DANGER

DO NOT exceed the maximum platform capacity or the platform occupancy limits for this machine.

MANUAL FORCE

Manual force is the force applied by the occupants to objects such as walls or other structures outside the work platform. The maximum allowable manual force is limited to 200 N (**45 lbs.**) of force per preson, with a maximum of 400 N (**90 lbs.**) for two or more occupants.

DANGER

DO NOT exceed the maximum amount of manual force for this machine.

LIFT OVERLOAD ALARM

All models include a feature that alerts the operator when the platform load is exceeded. If the alarm sounds during the lift function, lower the platform and reduce the platform load.

DANGER

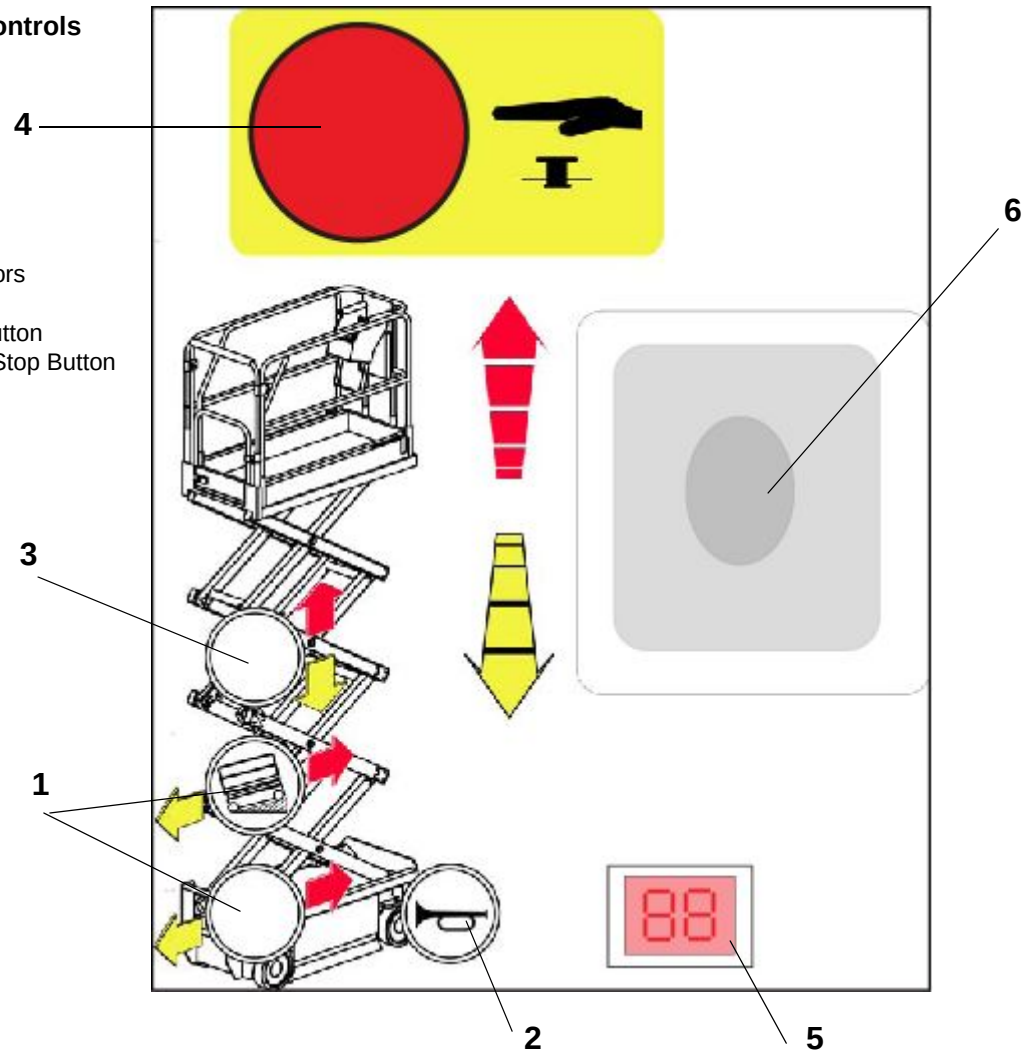
NEVER operate the machine with a platform load greater than the rated capacity and never in wind conditions that exceed the maximum allowable for this machine (Beaufort 4). Refer wind chart on page 7

4 CONTROLS AND INDICATORS

The operator shall know the location of each control and indicator and have a thorough knowledge of the function and operation of each before attempting to operate the unit.

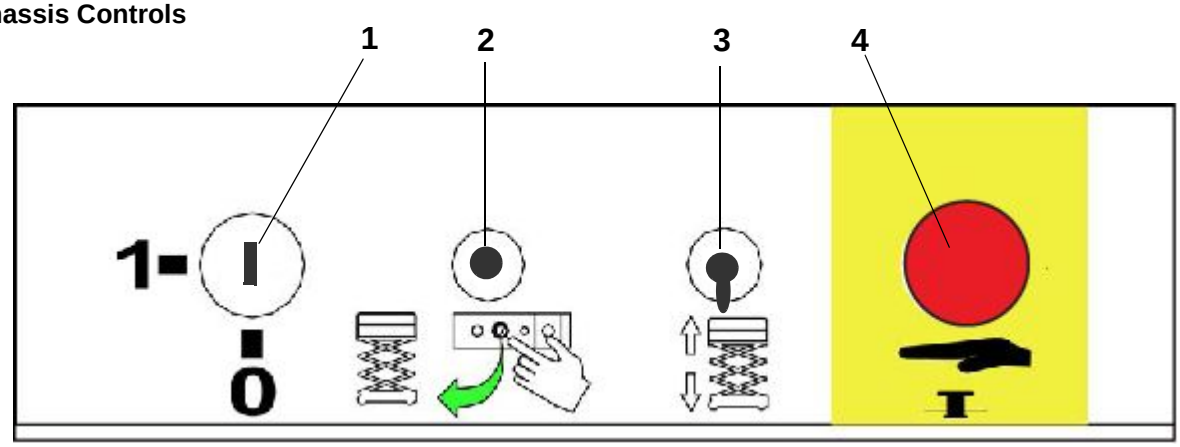
Figure 3: Controls and Indicators

Platform Controls



1 Drive Selectors
2. Horn Button
3. Lift/Lower Button
4. Emergency Stop Button
5. Display
6. Joystick

Chassis Controls



1. Keyswitch
2. Enable Button
3. Toggle Switch (Up & Down)
4. Emergency Stop Button

5 PRE-OPERATION SAFETY INSPECTION

NOTE: Carefully read, understand and follow all safety rules, operating instructions, labels, and National Safety Instructions/Requirements. Perform the following steps each day before use.

1. Open modules and inspect for damage, fluid leaks or missing parts.
2. Check the level of the hydraulic fluid with the platform fully lowered. See “Hydraulic Fluid” on page 16. Add recommended hydraulic fluid if necessary. See “Specifications” on page 21.
3. Check that fluid level in the batteries is correct. See “Battery Maintenance” on page 17.
4. Verify that the batteries are charged.
5. Check that the A.C. extension cord has been disconnected from the charger plug.
6. Check that all guardrails are properly in place and secured.
7. Inspect the machine thoroughly for cracked welds, loose or missing hardware, hydraulic leaks, damaged cables or hoses, loose wire connections and wheel bolts.

Note S2633 operates in Maximum Wind conditions equivalent to Beaufort 4

TABLE OF WIND SPEED/VELOCITY

BEAUFORT CONDITIONS 3 -7

Beaufort Number	Average Wind Speed-km/h	Wind Velocity m/sec	Description	Conditions
3	17	4.5	Gentle Breeze	Leaves & Twigs in constant motion, flags wave
4	24	6.7	Moderate Breeze	Dust & Loose paper raise. Small Branches begin to sway.
5	35	9.7	Fresh Breeze	Small Trees Sway, Waves apparent in ponds
6	44	12.5	Strong Breeze	Large Branches in motion. Whistling Heard in overhead wires. Umbrella use is difficult
7	56	15.5	Near Gale	Whole trees in motion. Effort to walk against the wind.

If in doubt always check wind conditions before machine use.

Note that wind speeds vary considerable at higher levels.

6 SYSTEM FUNCTION INSPECTION

NOTE: Refer to Figure 3 for the locations of various controls and indicators.

WARNING

STAND CLEAR of the work platform while performing the following checks.

Before operating the work platform, survey the work area for surface hazards such as holes, drop-offs, bumps and debris.

Check in **ALL** directions, including above the work platform, for obstructions and electrical conductors.

Protect the control console cable from possible damage while performing checks.

1. Move the machine, if necessary, to an unobstructed area to allow for full elevation.
2. Twist and pull the Chassis Emergency Stop button to the ON position.
3. Twist and pull the Platform Emergency Stop button to the ON position.
4. Turn and hold the Chassis Key Switch to the ON position. Push the Chassis Lift/Lower Switch to the UP position and raise the platform approximately 2,1 m (7 feet).
5. BLOCK THE ELEVATING ASSEMBLY AS DESCRIBED ON page 15.
6. Visually inspect the elevating assembly, lift cylinder, cables, and hoses for cracked welds and structural damage, loose hardware, hydraulic leaks, loose wire connections, and erratic operation. Check for missing or loose parts.
7. Verify that the Pothole Support Rails have rotated into position under the machine.
8. REMOVE THE SCISSOR BRACE AS DESCRIBED ON page 15.
9. Push the Chassis Lift/Lower Switch to the UP position and fully elevate the platform.
10. Partially lower the platform by pushing Chassis Lift/Lower Switch to LOWER, and check for proper operation of the audible lowering alarm.
11. Open the Emergency Lowering Valve (see Figure 5) by pulling the knob out to check for proper operation. When the platform is lowered, release the knob.
12. Push the Chassis Emergency Stop Switch to check for proper operation. All machine functions should be disabled. Pull out the Chassis Emergency Stop Switch to resume.
13. Check that the route is clear of obstacles (persons, obstructions, holes, and drop-offs, bumps and debris), is level, and is capable of supporting the wheel loads.
14. Mount the platform and properly close the entrance.
15. Mount the platform and select DRIVE mode.

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

16. While engaging the Interlock Switch, move the Control Handle to FORWARD, then REVERSE, to check for speed control.
17. Push the Steering Switch RIGHT, then LEFT, to check for steering control.
18. Select LIFT mode. Grasp the Control Handle, engaging the Interlock Switch, and push it forward to check platform lift controls. Raise the platform to full elevation.
19. Pull back on the Control Handle. The platform should descend and the audible lowering alarm should sound.
20. Push the Platform Emergency Stop Switch to check for proper operation. All machine functions should be disabled. Pull out the Platform Emergency Stop Switch to resume.

7 OPERATION

Before operating the work platform, ensure that the Pre-Operation Safety Inspection and System Function Inspection have been completed and that any deficiencies have been corrected.

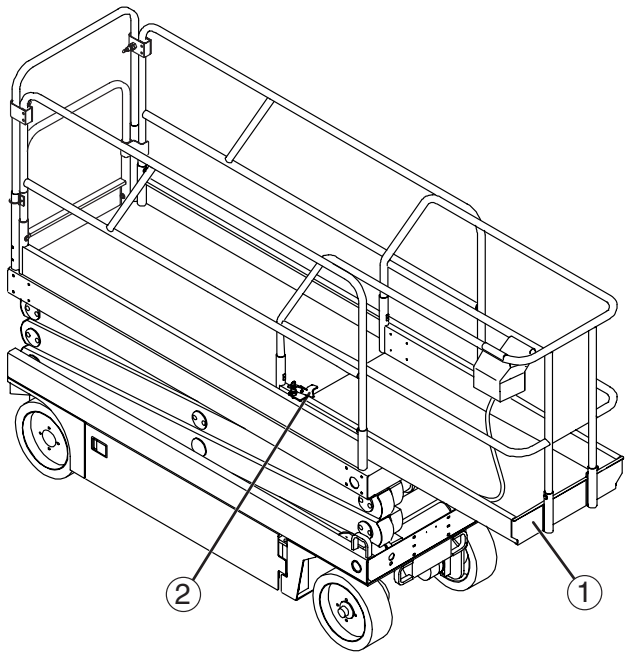
NOTE: Never operate a damaged or malfunctioning machine.

The operator must be thoroughly trained on this machine.

PLATFORM EXTENSION

1. Mount the platform and properly close and secure 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.

Figure 4: Platform Extension



1. Platform Extension
2. Foot Lever (deck lock) assembly)

TRAVEL WITH THE PLATFORM LOWERED

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

NOTE: Choose between standard drive and extra torque depending on the gradient.

7. 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 centre the Control Handle is moved.

STEERING

1. Turn the Lift/Drive Switch to DRIVE.
2. While engaging the Interlock Switch, push the Steering Switch to the RIGHT or LEFT to turn the wheels in the desired direction. Observe the tires while manoeuvring 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. Locate a firm, level surface.
2. Select LIFT mode.
3. While engaging the Interlock Switch, push the Control Handle FORWARD.
4. If the machine is not level the level sensor alarm will sound and the machine will not lift or drive.
5. If the level sensor alarm sounds the platform must be lowered and the machine moved to a firm, level surface before attempting to elevate the platform.

NOTE: The Pothole Support Rails will deploy automatically as the platform elevates and will remain deployed when traveling in the Elevated position refer fig 5. They will automatically retract when the platform has been lowered completely and machine is about to be driven refer fig 2 & 4.

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 surface hazards such as holes, drop-offs, bumps, curbs, or debris.
2. Check that the route is level, and is capable of supporting the wheel loads.
3. Check clearances above, below, and to the sides of platform.
4. Select DRIVE mode.
5. 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 centre the Control Handle is moved.
6. If the machine is not level the level sensor alarm will sound and the machine will not lift or drive.
7. If the level sensor alarm sounds the platform must be lowered and the machine moved to a firm, level surface before attempting to elevate the platform.

LOWERING THE PLATFORM

1. Select LIFT mode.
2. Check around the base of the platform to ensure that no one is in contact with the machine. Engage the Interlock Switch and pull back on the Control Handle to lower the platform.
3. The platform will stop when it reaches the pre-determined safety cutout height. Inspect around the machine to ensure no one is in contact with the machine. After a four-second time delay, lower the platform as in step 2.

Fig 5:Travel With Scissors Elevated

Pothole Protection Rails Lowered

EMERGENCY LOWERING

⚠ WARNING ⚠

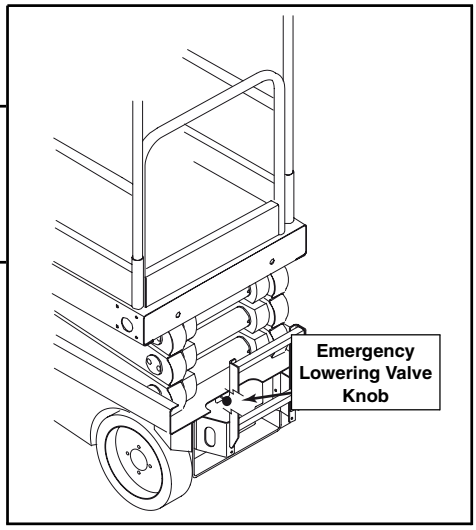
If the platform should fail to lower, **NEVER** climb down the scissor assembly.

A second operative should operate the Emergency Lowering Valve Knob while keeping clear of the scissor assembly.

The Emergency Lowering Valve Knob is located at the rear of the machine, behind the ladder.

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.

Figure 5: Emergency Lowering Knob

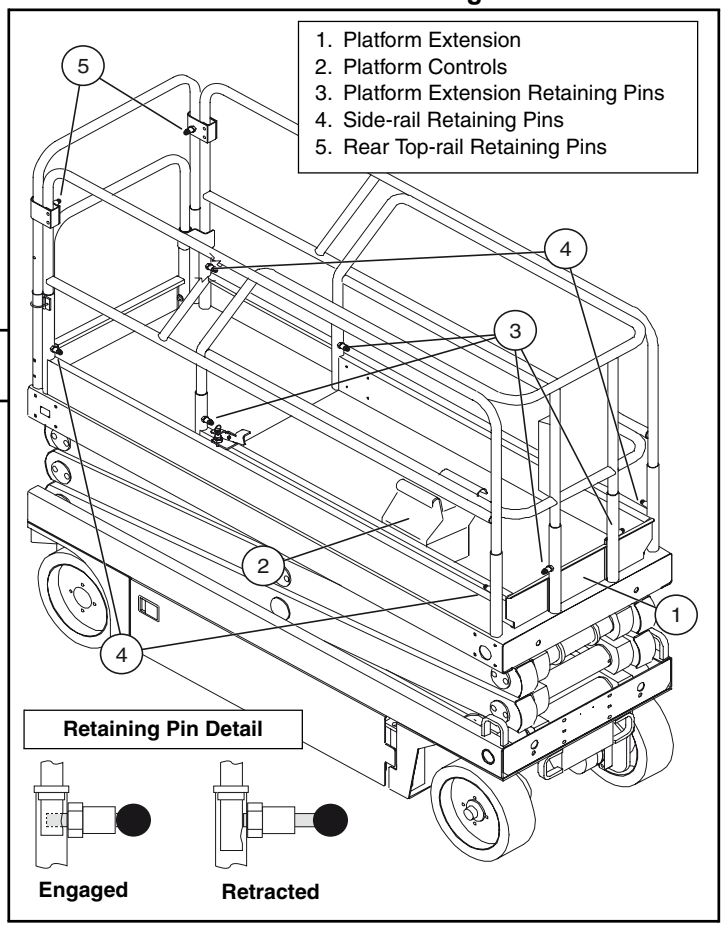


GUARDRAILS

The guardrails may be lowered for the purpose of passing through a standard doorway.

Guardrails must be returned to proper position before using the machine.

Figure 6: Guardrails



WARNING

DO NOT use the machine if all guardrails are not properly in place and secured.

LOWERING PROCEDURE

1. Ensure that the platform extension is fully retracted and the deck lock pin is engaged

   (see “Platform Extension” on page 9).
2. Place the Platform Controls on the deck of the platform extension.
3. Lower the platform extension guardrail;
   a. Pull to retract the retaining pins.
   b. As the retaining pin is pulled, the rail will drop slightly and hold the pin in the retracted position.
   c. Hold the mid-rail with one hand as you retract the final retaining pin.

CAUTION

The guardrail could drop suddenly when the final retaining pin is retracted. Keep hands away from the slide tubes to prevent injury.

   d. Push down on the platform extension guardrail to lower it completely.
   e. The retaining pins will remain in the retracted position.
4. Lower the side guardrails and rear guardrail as a single unit;
   • Repeat steps 3a through 3c.
5. Lower the rear top-rail;
   • Pull the two retaining pins and lower the rear top-rail completely.

RAISING PROCEDURE

1. Raise the side guardrails and rear guardrail as one unit;
   • Pull up on the side guardrails and raise them until all the retaining pins engage.
2. Raise the rear top-rail;
   • Pull up on the rear top-rail until the retaining pins engage.
3. Raise the platform extension guardrail;
   • Pull up on the platform extension guardrail and raise it until all the retaining pins engage.
4. Hang the controller on the platform extension guardrail.

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 transport vehicle (see “Transporting the Machine”).

⚠ WARNING ⚠

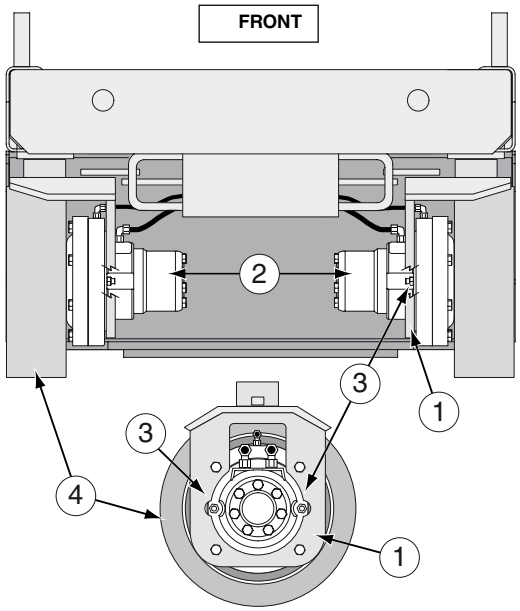
NEVER winch or move the machine faster than 0,3 m/sec. (**1 ft./sec.**).

NEVER operate the machine with the parking brakes released. Serious injury or damage could result.

DO NOT release the parking brakes if the machine is on a slope.

The parking brakes are integral to the drive motors. Each drive motor has two brake release screws. Release and engage the parking brakes one wheel at a time. Turn the brake release screws in stages (½ turn at a time) to prevent possible binding of the brake mechanism.

Figure 7: Parking Brake Release



1. Motor Mount
2. Drive Motor
3. Brake Release Nut
4. Wheel

RELEASE THE PARKING BRAKE

The front wheel motors each have two brake release nuts.

IMPORTANT: Turn the nuts alternately in ½ turn increments to insure uniform adjustment and prevent binding.

1. Chock the rear wheels to prevent the machine from rolling.
2. Using a 5mm Allen Key, remove the two G1/8 plugs from the motor body turning counter-clockwise.
3. Using a 5mm Allen Key turn the inner G1/8 plug as far as possible in a clockwise direction.
4. The brake is released.

⚠ CAUTION ⚠

To avoid confusion, the outer plugs should not b

ENGAGE THE PARKING BRAKE

1. Chock the rear wheels to prevent the machine from rolling.
2. Using a 5mm Allen Key turn the inner G1/8 plug as far as possible in the counter-clockwise direction.
3. Fit the two outer G1/8 plugs then, using the 5mm Allen Key, screw in clockwise until tight.

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 Chassis Key Switch to OFF and remove the key to prevent unauthorized operation.

8 TRANSPORTING THE MACHINE

Always use a transport vehicle when moving a machine to a work site. Towing the machine over long distances will damage the machine and void the warranty.

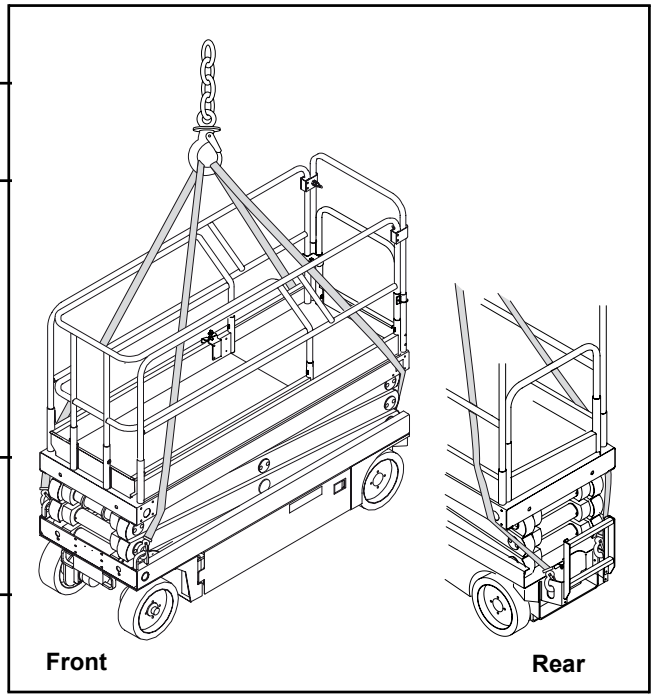
LIFTING BY CRANE

⚠ DANGER ⚠

See specifications for the weight of the machine and be certain that the crane is of adequate capacity to lift the machine.

Secure straps to chassis tie down/lifting points only (see Figure 8).

Figure 8: Secure Crane Straps



MOVING BY FORKLIFT

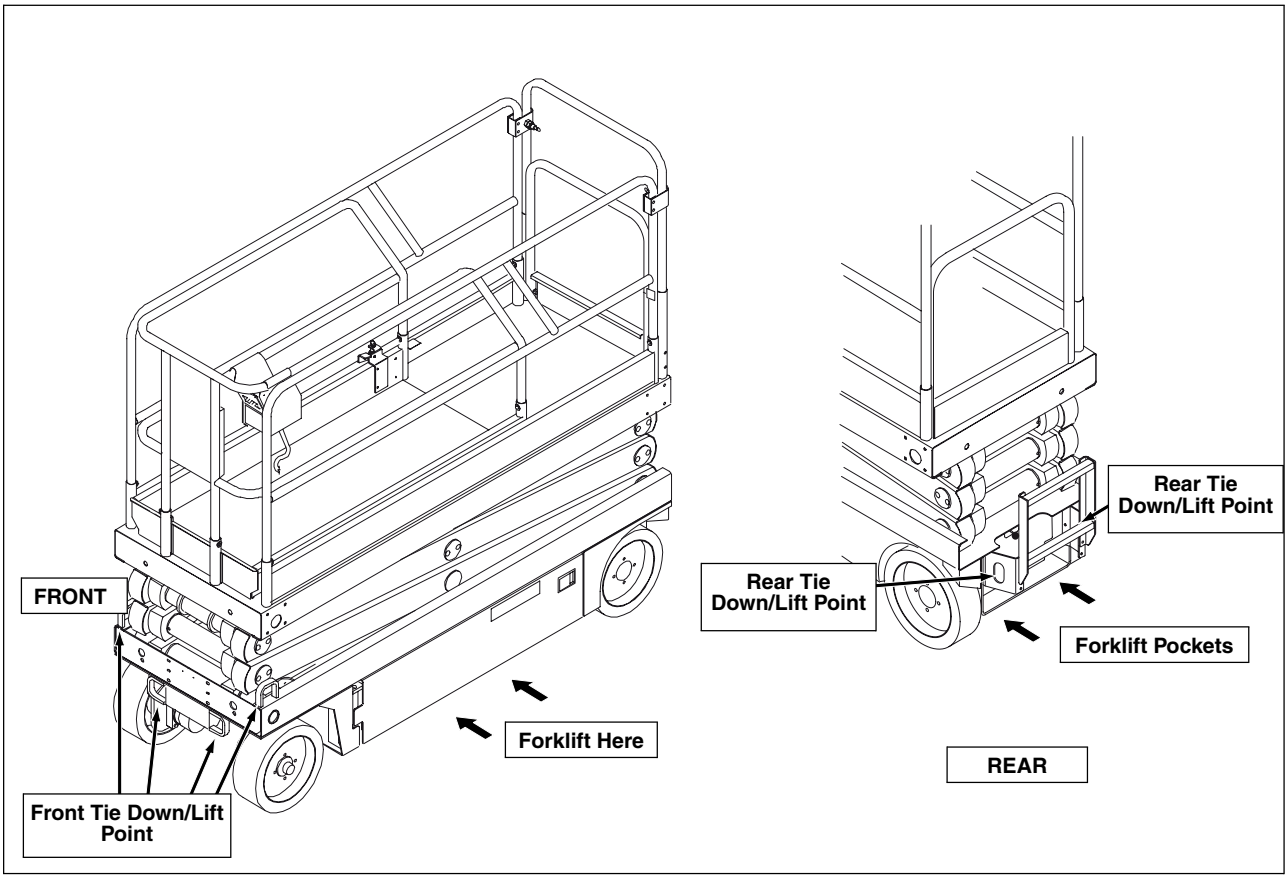
⚠ DANGER ⚠

Fork-lifting is for transport only.

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

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. (see Figure 9).

Figure 9: Tie Down and Lift Points



DRIVING OR WINCHING ONTO A TRUCK OR TRAILER

WARNING

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

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

1. Loading the machine onto the truck or trailer;

A. To ***Drive*** the machine onto the transport vehicle:
- Turn the Lift/Drive Switch to DRIVE LOW (hi-torque mode) and drive the machine up the ramp and into transport position.
- Set the wheels straight and turn off the machine.
- Chock the wheels.

B. To ***Winch*** the machine onto the transport vehicle:
- Drive the machine up to the ramp.
- Attach the winch cable to the tie down/lifting points.
- Release the parking brakes (refer to “Parking Brake Release” on page 12).
- Winch the machine into transport position
- Chock the wheels.
- Re-engage the parking brakes.

2. Secure the machine to the transport vehicle with chains or straps of adequate load capacity attached to the chassis tie down/lifting points (refer to Figure 8).

CAUTION

Overtightening chains or straps attached to the Tie Down points may result in damage to the machine.

9 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 the brace.

BLOCKING THE ELEVATING ASSEMBLY

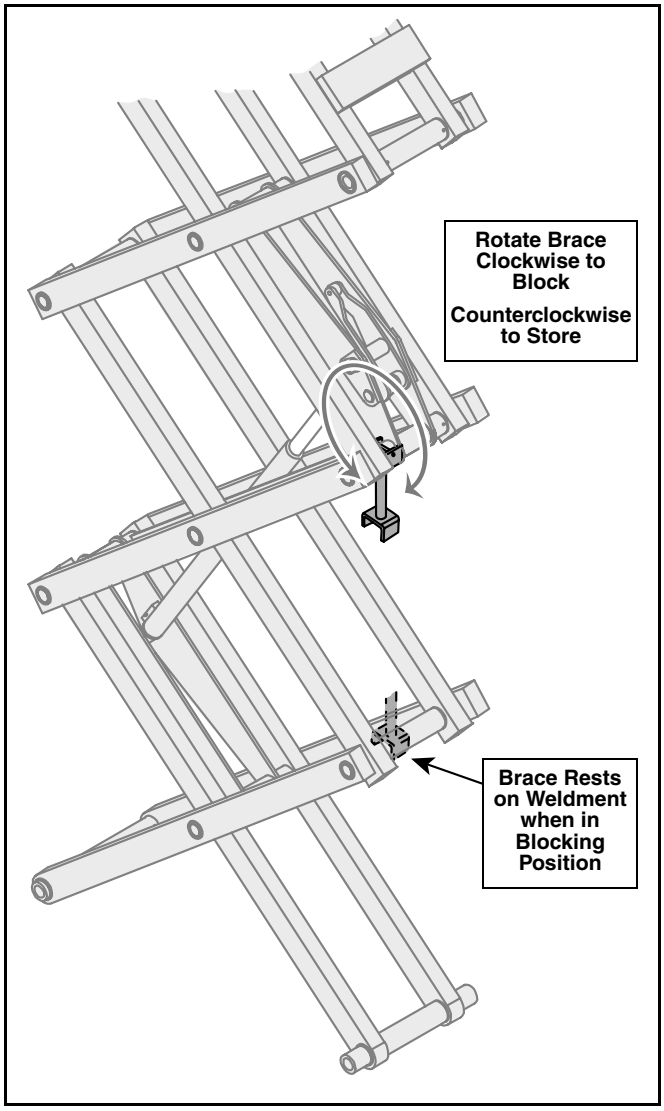
SCISSOR BRACE INSTALLATION

1. Park the machine 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. From the 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. 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.

SCISSOR BRACE STORAGE

1. Using the Chassis Controls, gradually elevate the platform until the scissor brace is clear.
2. Rotate the scissor brace outward and upward over its mounting point until it rests in the stowed position.
3. Lower the platform by pushing the Chassis Lift/Lower Switch to LOWER to completely lower the platform.

Figure 10: Scissor Brace



LEVEL SENSOR

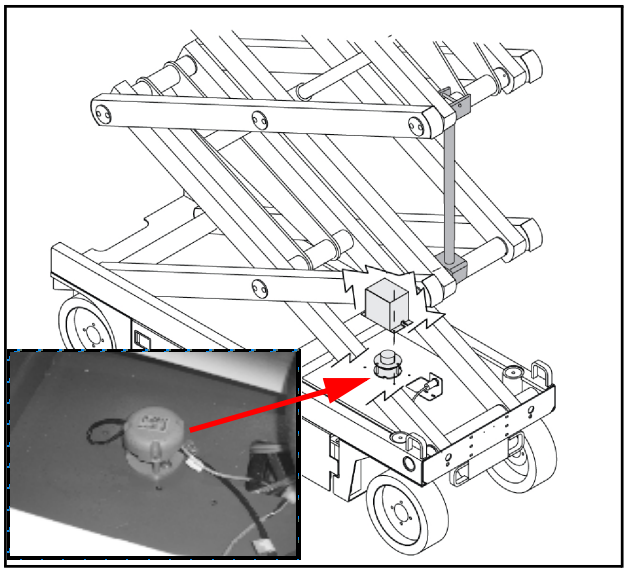
WARNING

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 the brace.

The Level Sensor Is located on the chassis between the scissor sections and is covered with a protective metal box.

Figure 10: Level Sensor



The Level Sensor is located on the chassis of the machine

These units are sealed and pre-set and require no recalibration or adjustment.

HYDRAULIC FLUID

The hydraulic fluid reservoir is located in the cont

Figure 12: Hydraulic Fluid Reservoir and Dipstick

NOTE: Never add fluid if the platform is elevated.

CHECK HYDRAULIC FLUID

1. Make sure that the platform is fully lowered.
2. Open the chassis door.
3. Remove the filler cap from the hydraulic fluid reservoir.
4. Check the fluid level on the dipstick on the filler cap.
5. Add the appropriate fluid to bring the level to the FULL mark. See “Specifications” on page 21.

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

Always replace batteries with Snorkel batteries or manufacturer approved replacements weighing 30 kg (**66 lbs.**) each.

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

BATTERY CHARGING

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

⚠ WARNING ⚠

Charge the batteries in a well ventilated area.

Do not charge the batteries when the machine is near a source of sparks or flames.

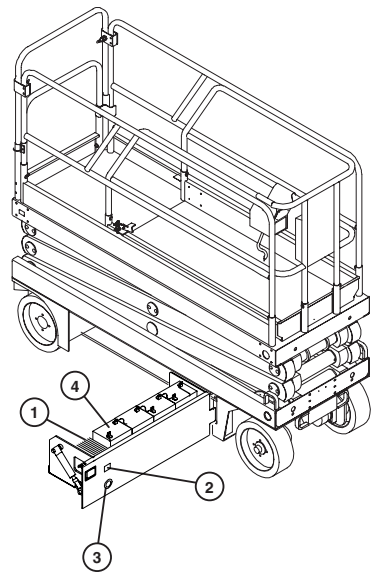
Permanent damage to the batteries will result if the batteries are not immediately recharged after discharging.

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

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

Keep the charger dry.

Figure 13: Battery Charger



1. Battery Charger
2. Charge Indicator
3. Charger Plug
4. Batteries

1. Check the battery fluid level. If the battery fluid level is lower than 10 mm ($^{3}/_{8}$ **in.**) above the plates add distilled water only.
2. Connect an appropriate extension cord to the charger outlet plug in the left module door. Plug the extension cord into a properly grounded outlet of proper voltage and frequency.
3. The charger turns on automatically after a short delay. The LED charge indicator will illuminate. After completion of the charge cycle the LED will blink, indicating that the charger is in a continuing maintenance mode. DO NOT leave the charger plugged in for more than 48 hours, as permanent damage to the batteries may occur.

NOTE: The battery charger circuit must be used with a GFI (Ground Fault Interrupt) outlet.

NOTE: DO NOT operate the machine while the charger is plugged in.

DAILY INSPECTION AND MAINTENANCE SCHEDULE

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 prolong the life of all systems. Perform the inspection and maintenance items daily. Inspection and maintenance shall be performed by personnel who are trained and familiar with mechanical and electrical procedures.

! WARNING !

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.

DAILY PREVENTATIVE MAINTENANCE CHECK LIST

The daily preventative maintenance checklist has been designed for machine service and maintenance. Please photocopy the Daily Preventative Maintenance Checklist and use the checklist when inspecting the machine.

MAINTENANCE TABLE KEY

Y = Yes/Acceptable

N = No/Not Acceptable

R = Repaired/Acceptable

MAINTENANCE REPORT

Date:

Owner:

Model No:

Serial No:

Serviced By: _____

COMPONENT	INSPECTION OR SERVICES	Y	N	R
Battery	Check electrolyte level.			
	Check battery cable condition.			
Chassis	Check hoses for pinch or rubbing points.			
	Check welds for cracks.			
Control Cable	Check the exterior of the cable for pinching, binding or wear.			
Controller	Check switch operation.			
Drive Motors	Check for operation and leaks.			
Elevating Assembly	Inspect for structural cracks.			
Emergency Lowering System	Operate the emergency lowering valve and check for serviceability.			
Entire Unit	Check for and repair collision damage.			
Hydraulic Fluid	Check fluid level.			
Hydraulic Pump	Check for hose fitting leaks.			
Hydraulic System	Check for leaks.			
Labels	Check for peeling, missing, or unreadable labels & replace.			
Platform Deck and Rails	Check welds for cracks.			
Platform Deck and Rails	Check condition of deck.			
Tires and Wheels	Check for damage.			

10 SPECIFICATIONS

ITEM	S2633
Platform Size	
Platform Extension In	0,71 m x 2,21 m [**28 in. x 87 in.**]
Platform Extension Out	0,71 m x 3,20 m [**28 in. x 126 in.**]
Max. Platform Capacity	
Standard	340 kg [**750 lbs.**]
on Extension	110 kg [**250 lbs.**]
Max. No. of occupants	
Standard (total)	3 People Indoors / 1 Person Outdoors (Max Wind Speed 7m/s)
on Extension	1 person
Maximum Wheel Load	818 kg [**1,800 lbs.**]
Maximum Chassis Inclination	2.0° side/side – 2.0° front/rear
Height	
Working Height	9,93 m [**32.5 ft.**]
Max. Platform Height	7,93 m [**26 ft.**]
Min. Platform Height	1,09 m [**43 in.**]
Dimensions	
Weight	2358 kg [**5200 lbs.**]
Overal Width	0,82 m [**32.5 in.**]
Overal Height	2,19 m [**86 in.**]
Overal Height, Rails Lowered	1,99 m [**78.25 in.**]
Overal Length, Extension In	2,35 m [**92.5 in.**]
Overal Length, Extension Out	3,26 m [**128.5 in.**]
Drivable Height	7,93 m [**26 ft.**]
Drive Speed	
Platform Lowered	0 to 3,2 km/h [**0 to 2.0 mph**]
Platform Raised	0 to 0,8 km/h [**0 to 0.50 mph**]
Energy Source	24 Volt Battery Pack (4, 6 Volt 235Ah Batteries, min. wt. 30 kg [**66 lbs.**] each)
Motor	24 Volt 4 Horse Power DC Electric Motor
System Voltage	24 Volt DC
Battery Charger	25 A, 110/220 VAC
Hydraulic Reservoir Capacity	15 L [**4 US Gallons**]
Maximum Hydraulic Pressure	207 bar [**3000 psi**]
Hydraulic Fluid	
Normal Temperature (0° C [**>32° F**])	ISO #32
Low Temperature (0° C [**<32° F**])	ISO #32
Extreme Temperature (-17° C [**<0° F**])	ISO #15
Lift System	One Single Stage Lift Cylinder
Lift Speed	Lift, 42 sec./Lower 40 sec.
Control System	Proportional Control Handle with Interlock Switch, Rotary Lift/Drive Switch, and Red Mushroom Emergency Stop Switch
Drive System	Dual Front Wheel Hydraulic Motors
Tyres	381 mm [**15 in.**] Diameter Solid Rubber, non-marking
Parking Brake	Dual Spring Applied, Hydraulic Release
Turning Radius	203 mm [**8 in.**] Inside
Maximum Gradeability	14° [**25%**]
Wheel Base	1,9 m [**74.75 in.**]
Guardrails	1,1 m [**43.25 in.**] High
Toe Boards	152 mm [**6 in.**]
Ground Clearance	89 mm [**3.5 in.**]

Sound Power Level 69dBA.
Max Wind speed for this machine is Beaufort wind force 4(refer page 7)

Specifications are subject to change without notice. Hot weather or heavy use may affect performance. Refer to the Service Manual for complete parts and service information.

Meets or exceeds all applicable CE and machinery directive requirements MD98/37/EC.

ANSI DECALS

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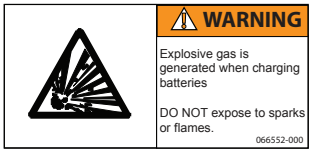
3 

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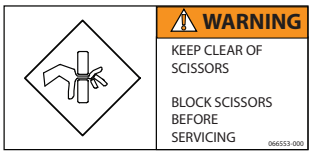
4 

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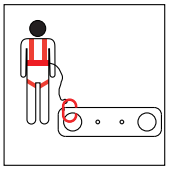
9 
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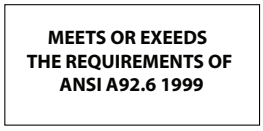
10 

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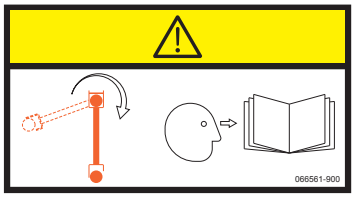
12 

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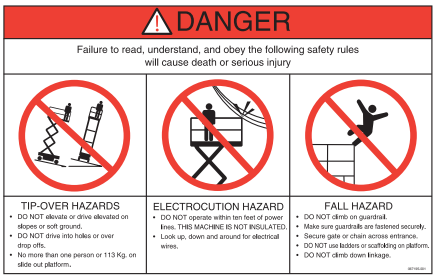
23 

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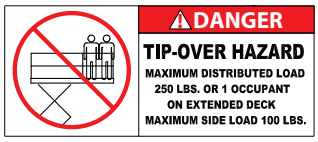
24 

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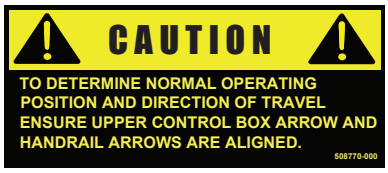
25 

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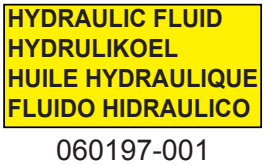
29 

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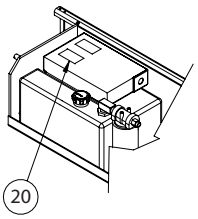
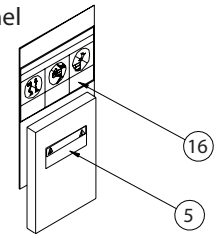
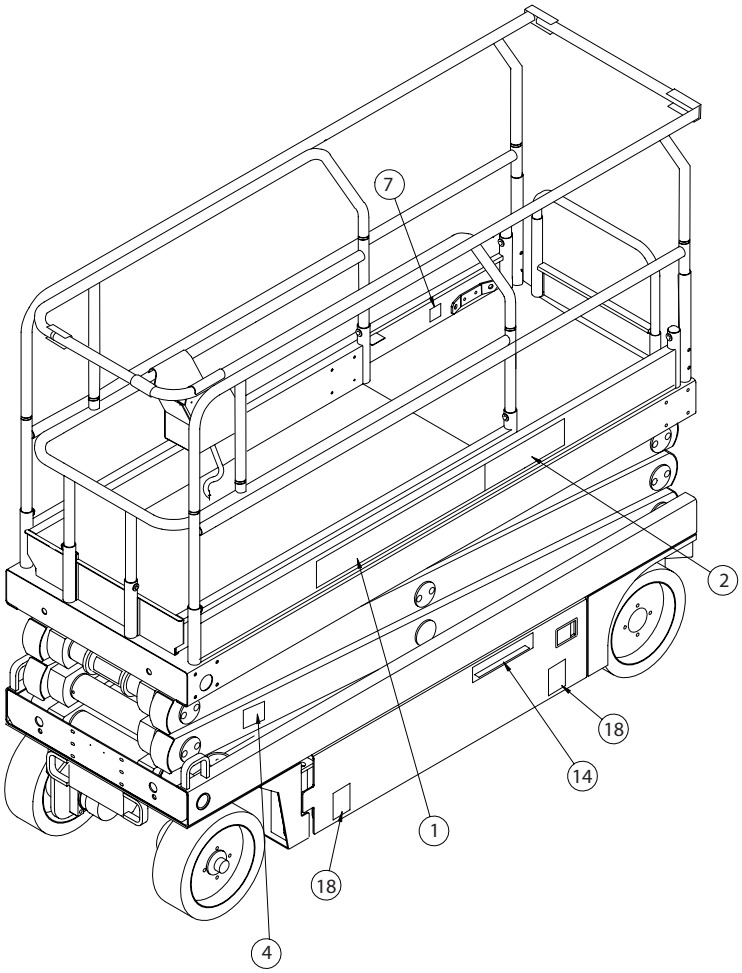
CE DECALS

Control Module

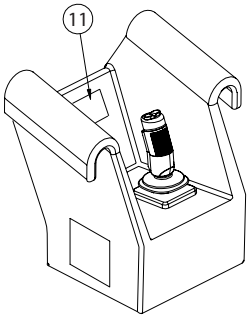


Front Panel

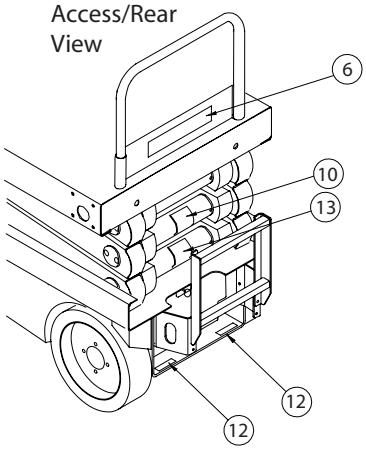


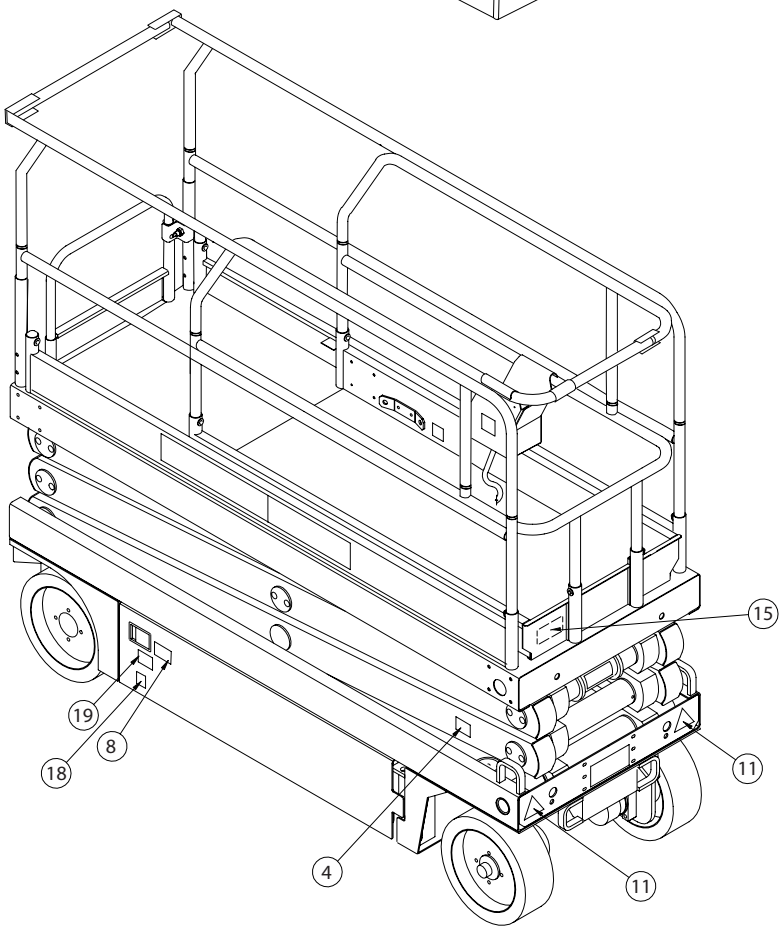


Upper Control Box

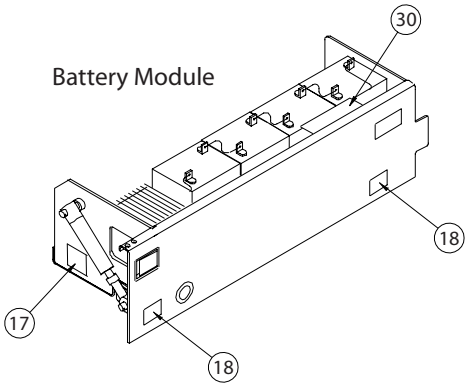


Access/Rear View





Battery Module



Section 3

SERVICE AND REPAIR

INTRODUCTION

This section contains instructions for the maintenance of the Work Platform.

Refer to the General Information section for information relevant to all **Snorkel** work platforms.

Referring to the Operator Manual 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.

⚠ 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.

⚠ DANGER ⚠

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

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

TABLE OF CONTENTS

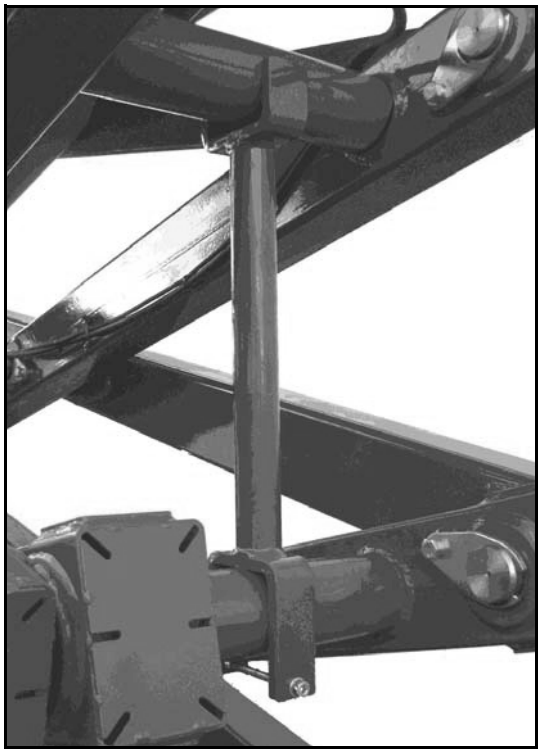
3-1 Supporting Elevating Assembly

⚠ WARNING ⚠

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

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

Figure 3-1: Elevating Assembly Brace



Installation

1. Park the machine 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 maintenance brace can be rotated to the vertical position.
6. From the rear of the machine, lift the maintenance brace from its stowed position. Rotate upward and outward, then down until it is hanging vertically below its attachment point.
7. Lower the platform by pushing the Chassis Lift/Lower Switch to LOWER and gradually lower the platform until the maintenance brace is supporting the platform.

Removal

1. Using the Chassis Controls, gradually elevate the platform until the maintenance brace is clear.
2. Rotate the maintenance brace outward and upward over its attachment point until it rests in the stowed position.
3. Lower the platform by pushing the Chassis Lift/Lower Switch to LOWER to completely lower the platform.

3-2 Preventative Maintenance

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

⚠ WARNING ⚠

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

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

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

3-3 Preventative Maintenance Check List

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: _____

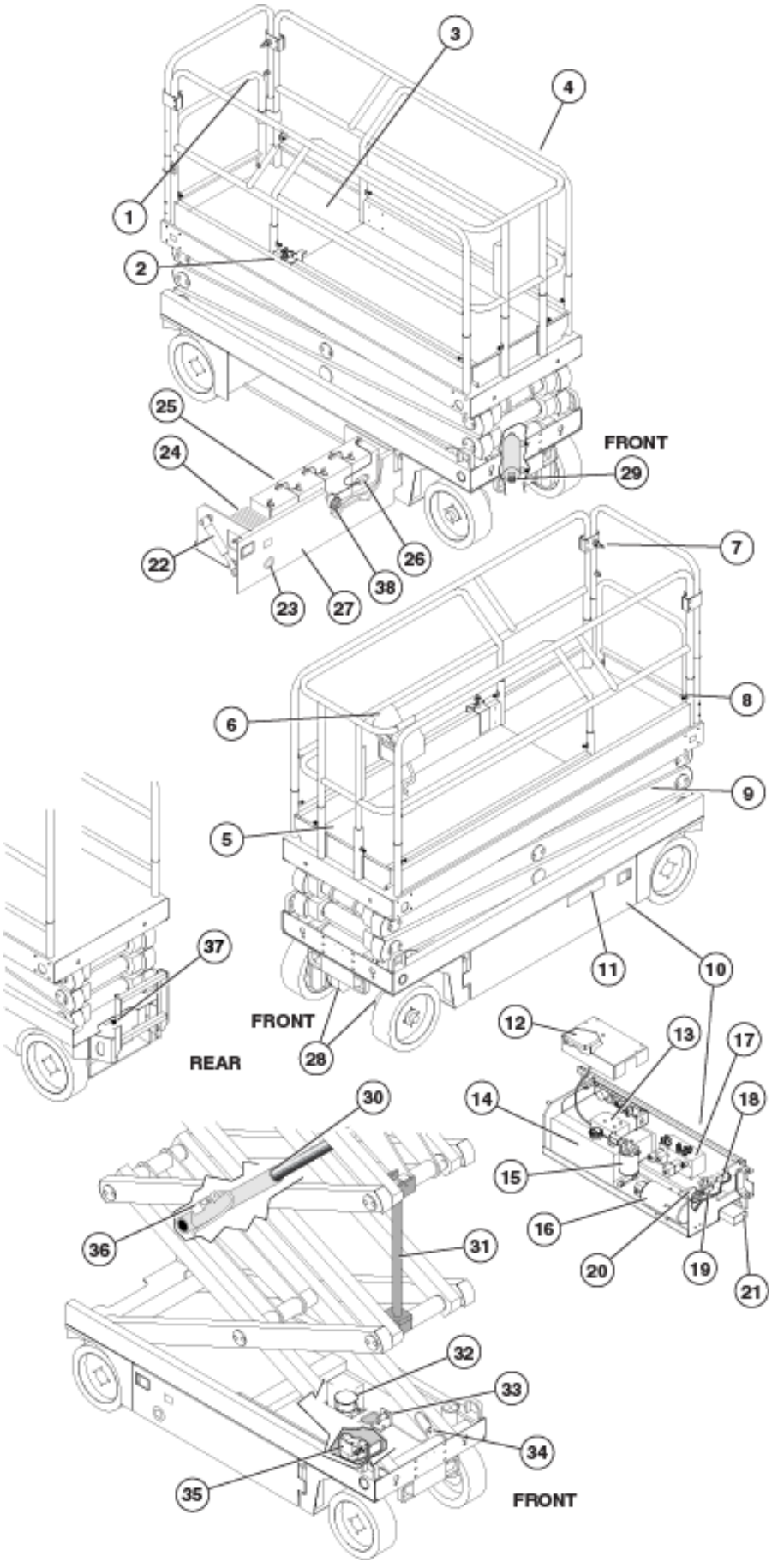
COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Battery System	Check electrolyte level	Daily			
	Check battery cable condition	Daily			
	Charge batteries	Daily			
	Check charger condition & operation	Daily			
	Check specific gravity	6m			
	Clean exterior	6m			
	Clean terminals	6m			
Hydraulic Oil*	Check 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			
Drive Motors	Check for operation and leaks	Daily			
Emergency Down	Check procedure for Emergency Down	Daily			
Hydraulic Pump	Check for fitting leaks	Daily			
	Wipe clean	30d			
	Check for leaks at mating surfaces	30d			
	Check mounting bolts for proper torque	6m			
Controller	Check condition & operation	Daily			
Platform Deck & Rails	Check fasteners for proper torque	Daily			
	Check welds for cracks	Daily			
	Check condition of deck	Daily			
	Check entry way closure	Daily			

COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Elevating Assembly	Inspect for external damage, dents, loose rivets or cracks	Daily			
	Check welds for cracks	Daily			
	Lubricate	30d			
Chassis	Check cables for pinch or rubbing points	Daily			
	Check welds for cracks	Daily			
	Check component mounting for proper torque	6m			
Lift Cylinder	Check for leaks	Daily			
	Check for proper torque	6m			
Entire Unit	Perform pre-operation inspection	Daily			
	Check for and repair collision damage	Daily			
	Lubricate	30d			
	Check fasteners for proper torque	6m			
	Check for corrosion; remove and repaint	6m			
Labels	Check for peeling, missing, or unreadable labels & replace	Daily			
Wheels	Check for loose components	Daily			
Steering System	Oil pivot pins	30d			
	Oil king pins	30d			
	Check steering cylinder for leaks	30d			
	Check hardware & fittings for proper torque	6m			
	Check Wheel Yoke Securing Bolt and Nut	30d			

*** NOTE: Use ISO #46 during summer and ISO #32 during winter.**

3-4 PARTS LOCATION

Figure 3-2: Parts Location



1. Entry Gate
2. Deck Lock Assembly
3. Work Platform
4. Fold Down Guardrails
5. Platform Extension
6. Platform Controls
7. Rear Guardrail Retaining Pin
8. Guardrail Retaining Pin
9. Elevating Assembly
10. Control Module
11. Chassis Controls
12. Circuit Board
13. Motor Controller
14. Hydraulic Fluid Reservoir
15. Hydraulic Fluid Filter
16. Hydraulic Pump and Motor
17. Main Valve Manifold
18. 175 AMP Fuse, Overload Protection
19. Solenoid, Motor Relay
20. Audible Alarm
21. Depression Mechanism
22. Depression Mechanism Cylinder
23. Battery Charger Plug
24. Battery Charger
25. Battery Pack
26. Cable Connector
27. Power Module
28. Drive Motors
29. Steering Cylinder
30. Lift Cylinder
31. Maintenance Brace
32. Level Sensor
33. Proximity Switch
34. Height Limit Switch
35. Series Parallel Valve
36. Emergency Lowering Valve
37. Emergency Lowering Valve Knob
38. Horn

3-5 General Lubrication

NOTE: Apply grease to each grease fitting

Figure 3-3: ***Steering Lubrication Points***

There are four lubrication points on the machine steering system - two on each steering pivot (see Figure).

Lubricate the steering pivots every 125 hours or three months.

1. Deploy the maintenance brace (see “Blocking the Elevating Assembly”).
2. Clean the grease fittings and surrounding area.
3. Using multipurpose grease in a grease gun, pump the grease into the fitting until grease just begins to appear at the edges of the pivot.
4. Wipe off any excess grease.

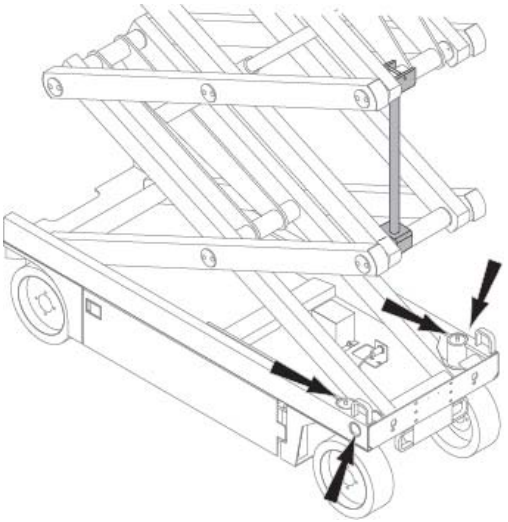
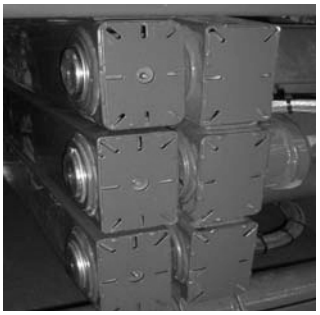


Figure 3-4: Lift Ram & Scissor Pin Lubrication Points



3-6 Batteries

The batteries are located in a slide-out tray in the rear of the machine. Electrical Energy for the motor is supplied by four 6 volt batteries wired in series for 24 volts DC. Correct care and maintenance of the batteries and motor will ensure maximum performance from the work platform.

CAUTION

If battery water level is not maintained, batteries will not fully charge, creating a low discharge rate.

⚠ WARNING ⚠

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

Always wear safety glasses when working with batteries.

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

Always replace batteries with ***Snorkel*** *batteries or manufacturer approved replacements.*

Before disconnecting the battery negative (-) lead, make sure all switches are OFF. If ON, a spark will occur at the ground terminal which could cause an explosion if hydrogen gas or fuel vapors are present.

BATTERY MAINTENANCE

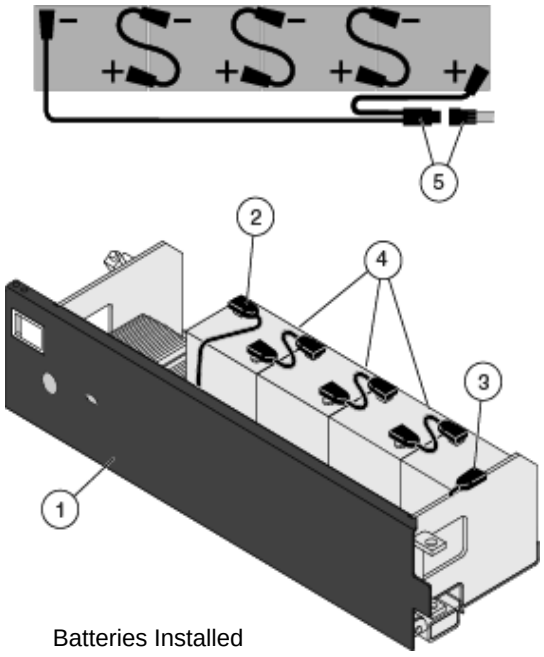
Refer to the *Operation Manual* included in this Service Manual for specific maintenance and charging instructions.

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.

BATTERY REPLACEMENT

Battery cables must be installed as shown in the Battery Cable Installation Diagram.

Figure 3-5: Battery Cable Installation Diagram



Batteries Installed

1. Turn the Chassis Key Switch to the OFF position and push the Chassis and Platform Emergency Stop Switches down to the OFF position.

NOTE: If switches are ON, a spark will occur at the ground terminal which could cause an explosion if hydrogen gas or fuel vapors are present.

2. Open the power module.
3. Disconnect battery pack connector.
4. Disconnect the battery negative (–) lead.

IMPORTANT: Disconnect the battery negative (–) lead first.

5. Disconnect the remaining battery leads.
6. Lift the batteries out of the module.

INSTALLATION

IMPORTANT: Connect the battery negative (–) lead last.

1. Verify that the Chassis Key Switch and the Chassis and Platform Emergency Stop Switches are in the OFF position.
2. Place the batteries into the power module.
3. Connect the battery to battery leads.
4. Connect the battery positive (+) lead.
5. Connect the battery negative (–) lead.
6. Connect the battery pack connector.

3-7 Safety Ancillary Equipment

Proximity Switch

Figure 3-6: Proximity Switch

The Proximity Switch cuts power to the High Speed Drive when the platform is elevated.

The switch is located on the left side of the chassis at the rear of the machine.

No adjustment of the switch should be necessary.

Level Sensor

Figure 3-7: Level Sensor

The Level Sensor is located on the chassis of the machine

These units are sealed and pre-set and require no recalibration or adjustment.

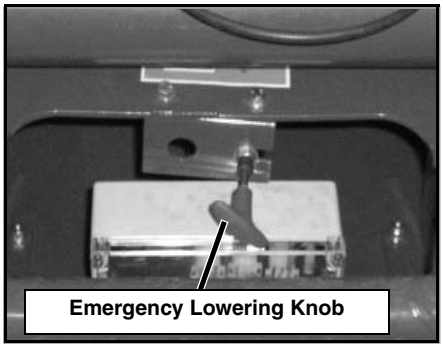
Emergency Lowering

⚠ WARNING ⚠

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

Stand clear of the elevating assembly while operating the Emergency Lowering Valve Knob.

Figure 3-8: Emergency Lowering Knob



The Emergency Lowering Valve is mounted on the base of the lift cylinder. The cable is routed;

- from the valve,
- along the elevating assembly tube to the front of the machine,
- through the cable access hole to the rear of the machine.

Repair

1. Deploy the maintenance brace (see “Blocking the Elevating Assembly”).
2. Inspect the cable. Replace if damaged.
3. Inspect the valve. Replace if damaged.
4. Check for and clear any blockage in the orifice. Install the orifice with the beveled side toward the cylinder block.
5. Adjust the valve. At the cable mount, adjust the cable cover to stop the inner cable when the valve is fully open.
6. Store the maintenance brace and lower the platform.

3-8 HYDRAULICS

HYDRAULIC OIL TANK AND FILTER

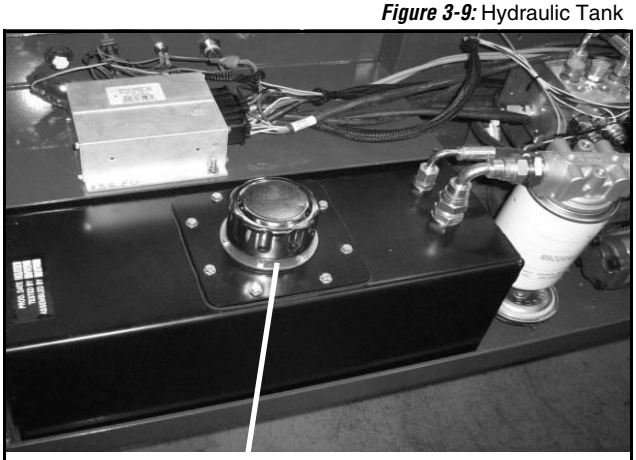
FLUID LEVEL

Check the fluid level daily.

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

NOTE: Drain plug underneath tank

Figure 3-9: Hydraulic Tank



Filler Cap

OIL AND FILTER REPLACEMENT

Replace the filter every 250 hours or six months.

1. Unscrew the filter from the filter assembly.
2. Apply a thin film of clean hydraulic fluid to the gasket of the replacement filter.
3. Screw the replacement filter onto the filter head until gasket makes contact then turn filter ¾ of a turn.

⚠ CAUTION ⚠

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

FLUID REPLACEMENT

Replace the hydraulic fluid every 1000 hours or two years.

1. Operate the machine for 10-15 minutes to bring the hydraulic fluid up to normal operating temperature.
2. Provide a suitable container to catch the drained fluid.
   - Hydraulic reservoir capacity: 15 L (**4 U.S. gal**).
3. Open the control module door.
4. Remove the drain plug and allow all the fluid to drain. Dispose of hydraulic fluid properly (contact your local fluid recycler).
5. Install the drain plug.
6. Fill the hydraulic reservoir with the appropriate hydraulic fluid until the fluid is up to the full mark on the dipstick.

- Refer to “Specifications” at the end of the *Operator Manual* included in this Service Manual to identify the proper fluid for your conditions.

FLUID OUTLET SCREEN

Clean or replace the outlet screen at the same time that the fluid is changed.

1. Drain the fluid (see “Fluid Replacement”).
2. Disconnect and plug the outlet hose to prevent foreign material from entering the hose.
3. Remove the suction screen. Clean or replace as necessary.
4. Install the suction screen.
5. Fill the hydraulic reservoir (see “Fluid Replacement”).

HYDRAULIC PUMP

The Hydraulic Pump is located in the Power Module, and is mounted on the rear of the motor.

REMOVAL

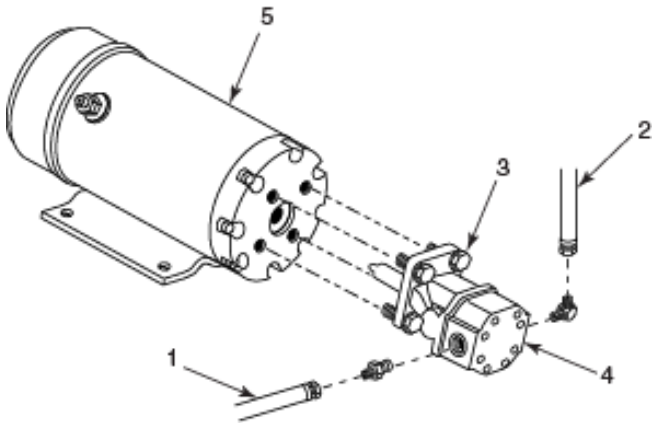
NOTE: If the hydraulic tank has not been drained, suitable means for plugging the hoses should be provided to prevent excessive fluid loss.

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 crisscross pattern, torque each capscrew a little at a time until all capscrews are torqued to 27N-m (**20 ft-lbs**).
3. Unplug and reconnect the hydraulic hoses.
4. Check the oil level in the hydraulic tank before operating the work platform.

Figure 3-10: Hydraulic Pump Assembly

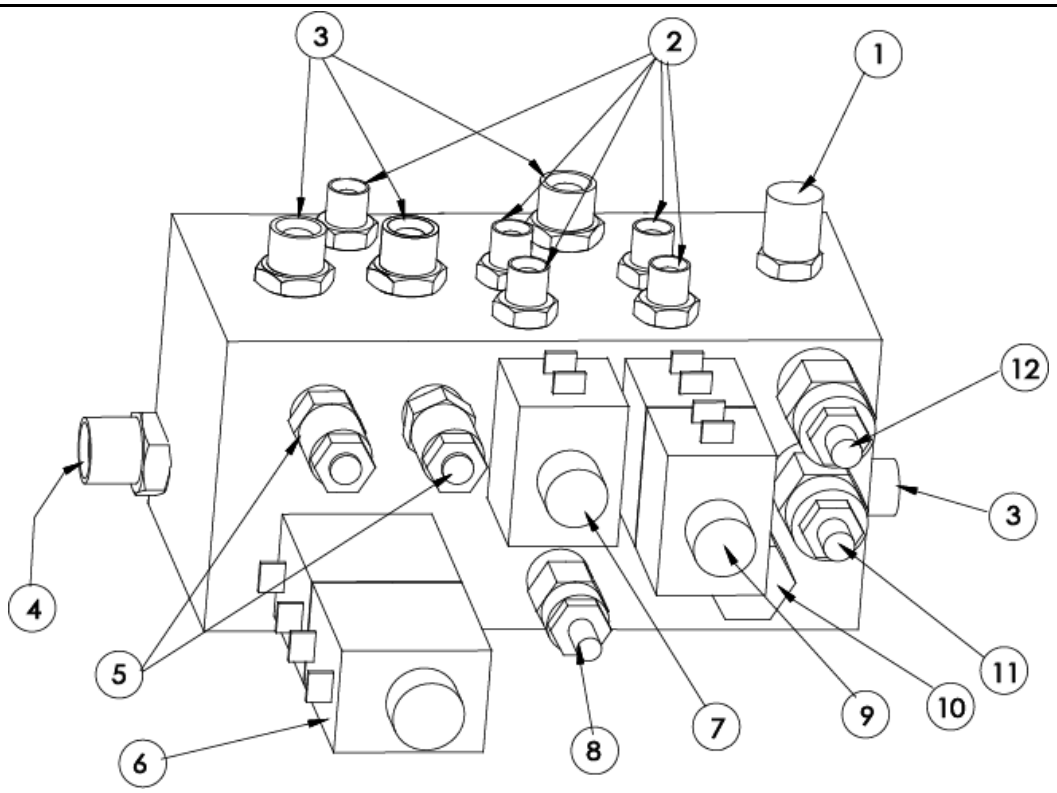


1. Inlet Hose
2. Outlet Hose
3. Capscrew
4. Pump Assembly
5. Electric Motor

Main Hydraulic Manifold

Though it is not necessary to remove the manifold to perform all maintenance procedures, a determination should be made prior to beginning as to whether or not the manifold should be removed before maintenance procedures begin.

Figure 3-11: Valve Location



1 TEST PORT1
2 FITTING, 1/4” - 1/4” MALE/MALE
3 FITTING, 3/8” - 3/8” MALE/MALE
4 FITTING, 1/2” - 1/2” (MALE/MALE)
5 CROSS LINE RELIEF VALVE (DRIVE)
6 VALVE, SOLENOID (DRIVE)
7 VALVE, SOLENOID (DRIVE/LIFT)
8 PRESSURE RELIEF (MAIN LIFT)
9 VALVE, SOLENOID (STEERING)
10 FLOW RESTRICTOR (STEERING)
11 RELIEF VALVE (STEERING)
12 RELIEF VALVE (MAIN RELIEF)

Figure 3-12:

Setting Hydraulic Manifold Pressures

⚠ WARNING ⚠

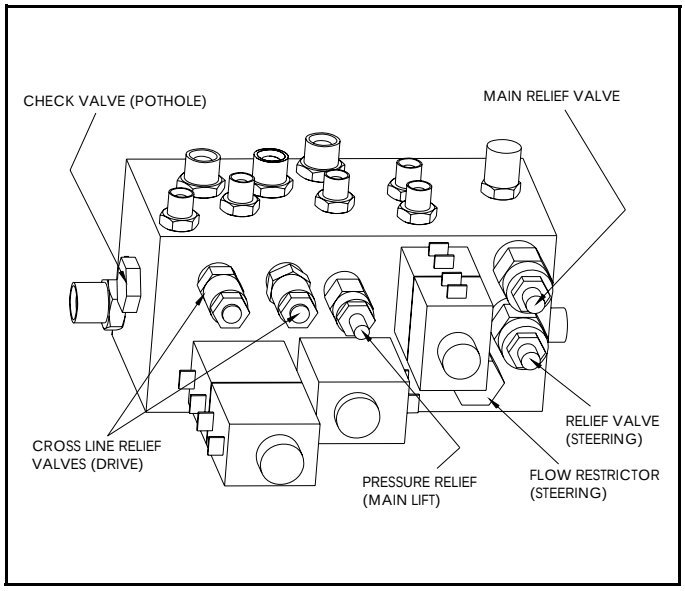
The hydraulic oil may be of sufficient temperature to cause burns. Wear safety gloves and safety glasses when handling hot oil.

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.

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

Main Relief Valve

Figure 3-13: Hydraulic Manifold with Valves



1. Operate the hydraulic system 10 to 15 minutes to warm the oil.
2. Remove the cap or loosen the locknut on the Main Relief Valve.
3. Install a 0-207 bar (**0-3000 psi**) pressure gauge to the gauge port.
4. Turn the Chassis Keyswitch to CHASSIS and elevate the machine fully.
5. While holding the Chassis Lift Switch to the UP position, adjust the Main Relief Valve until the pressure gauge reads 165 bar (**2400 psi**).
6. Release the Chassis Lift Switch.
7. Replace the cap, or tighten the locknut on the Lift Relief Valve, and torque to 8N-m (**6 ft-lbs**).
8. Lower the platform.

Counterbalance Valves

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.
2. Remove the gauge port cap and install the pressure gauge assembly.
3. Lift work platform and block front wheels off ground.
4. Loosen the locknuts on Counterbalance Valves.
5. With the machine fully powered up depress the **DRIVE** button on the upper control box, 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 83 bar (**1200 psi**).
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 83 bar (**1200 psi**).
9. Check the settings by slowly moving the Control Lever **FORWARD**, then **REVERSE**, checking the gauge to ensure pressures are properly set. Re-adjust as needed.
10. Tighten locknuts on valves to 8N-m (**6 ft-lbs**). Remove blocks and lower work platform to ground.
11. Reconnect the red Control Cable wire to terminal #9.
12. Remove the gauge from the gauge port and re-install cap.
13. Check for proper operation of the drive system and brake.

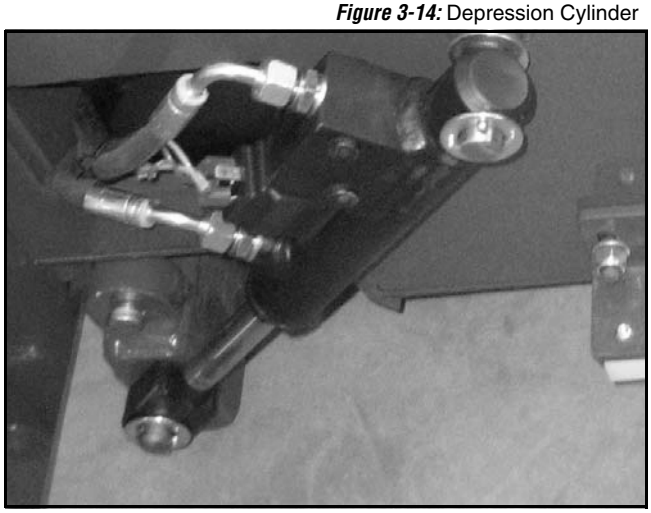
Steering Relief Valves

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

3-9 CYLINDERS

DEPRESSION CYLINDER

Figure 3-14: Depression Cylinder



REMOVAL

1. Mark and disconnect the hose assemblies from the cylinder fittings and immediately cap the openings to prevent foreign material from entering.
2. Place a support under the depression guard.
3. Remove the circlips from the pivot pins.
4. Remove the pivot pins while supporting the cylinder.
5. Remove the cylinder.

REPAIR

DISASSEMBLY

1. Unscrew the head cap from the barrel, removing the head cap, piston, and shaft assembly from the barrel tube.
2. Unscrew the piston.
3. Remove all rod wipers, U-cups, O-rings, and backup rings from the headcap, and discard.
4. Remove the piston ring and O-ring 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 headcaps 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 headcaps.
2. Install the headcap onto the shaft.
3. Install the new piston rings and O-ring on the piston. Re-install the piston.
4. Lubricate the piston seal with clean hydraulic fluid and install the shaft assembly in the cylinder barrel.
5. Install the head cap into the cylinder barrel, and tighten the head caps.

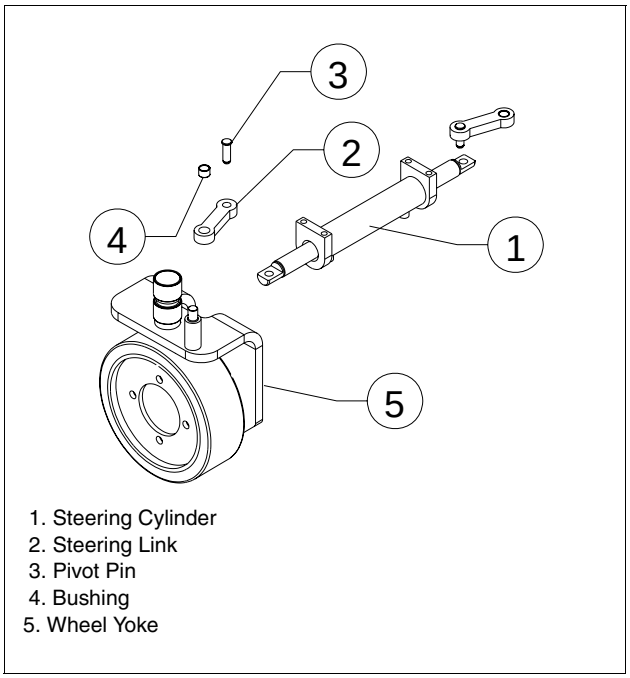
INSTALLATION

Installation is reverse of removal.

STEERING CYLINDER

REMOVAL

Figure 3-15: Steering Cylinder Mount Assemblt



1. Steering Cylinder
2. Steering Link
3. Pivot Pin
4. Bushing
5. Wheel Yoke

1. Mark and disconnect the hose assemblies from the cylinder fittings and immediately cap the openings to prevent foreign material from entering.
2. Remove the cotter pins from the pivot pins.
3. Remove the pivot pins while supporting the cylinder. Remove the cylinder.

REPAIR

DISASSEMBLY

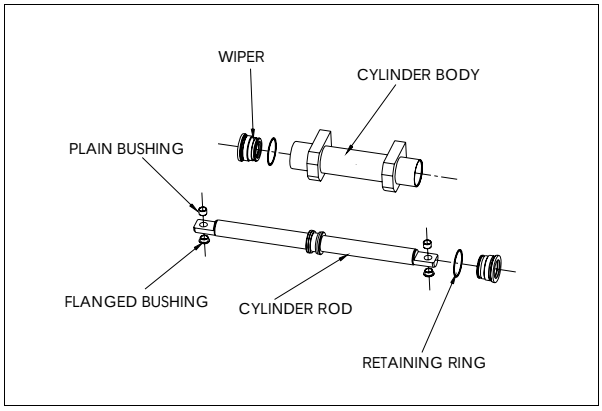
1. Unscrew the head cap from the barrel, removing the head cap, piston, and shaft assembly from the barrel tube.
2. Unscrew the piston.
3. Remove all rod wipers, U-cups, O-rings, and backup rings from the headcap, and discard.
4. Remove the piston ring and O-ring from the piston, and discard.

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 headcaps for scoring or excessive wear.
5. Inspect the surface of the shaft for scoring or excessive wear.

ASSEMBLY

Figure 3-16: Steering Cylinder Assembly



1. Lubricate and install new rod wiper, U-cup, O-ring, and backup ring on the headcaps.
2. Install the headcap onto the shaft.
3. Install the new piston rings and O-ring on the piston. Re-install the piston.
4. Lubricate the piston seal with clean hydraulic fluid and install the shaft assembly in the cylinder barrel.

Install the head cap into the cylinder barrel, and tighten the head caps.

INSTALLATION

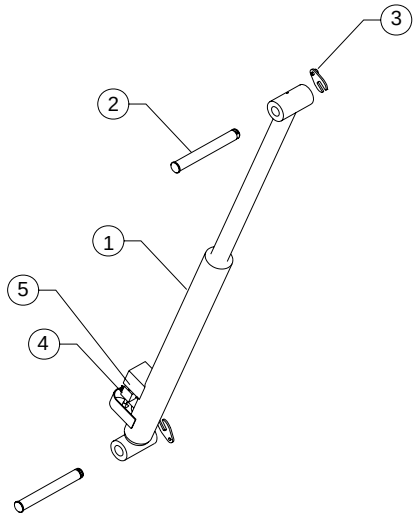
1. Position the cylinder assembly in the chassis and insert pivot pins and secure with new cotter pins.
2. Connect the hose assemblies to the fittings.
3. Operate the steering circuit several times throughout its entire range of travel to expel trapped air and check for leaks.

LIFT CYLINDER

REMOVAL

1. Provide a suitable container to catch the hydraulic fluid, then disconnect the hydraulic hoses. Immediately plug hoses to prevent foreign material from entering.
2. Remove emergency lowering valve cable and down valve wires from the emergency lowering/down valve.
3. Remove the cable bracket from the lift cylinder.
4. Remove capscrews and locknuts securing lift cylinder pivot pins.
5. Remove lower pivot pin and 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 cylinder.

Figure 3-17: Lift Cyminder Assembly



1. Lift Cylinder
2. Pivot Pit
3. Capscrew and Lockplate
4. Solenoid, Emergency Down
5. Hose Connections

REPAIR

Refer to Pothole / Steering Cylinder Repair on previous page.

INSTALLATION

1. Coat both pivot pins with anti-seize compound.
2. Attach a suitable hoisting device and sling to the cylinder. Carefully position cylinder in the elevating assembly, and install the upper pivot pin.
3. Install the capscrew and locknut.
4. Carefully lift the cylinder and align the lower mount, and install the pivot pin. Install the capscrew and locknut securing the pivot pin.
5. Install the cable bracket. Connect the emergency lowering valve cable and down valve wires.
6. Unplug hydraulic hoses and attach to the cylinder.
7. Replace hydraulic fluid removed from lift cylinder.
8. Test with weight at rated Platform load to check system operation. Check for leaks

3-10 Drive Motors

Removal

1. Use a 1000Kg (**one ton**) capacity jack to raise the front of the machine. Position blocks under the machine to prevent the work platform from falling if the jack fails.
2. Block the rear wheels to prevent the machine from rolling.
3. Remove the cotter pin, nut, and washer.
4. Remove the wheel.

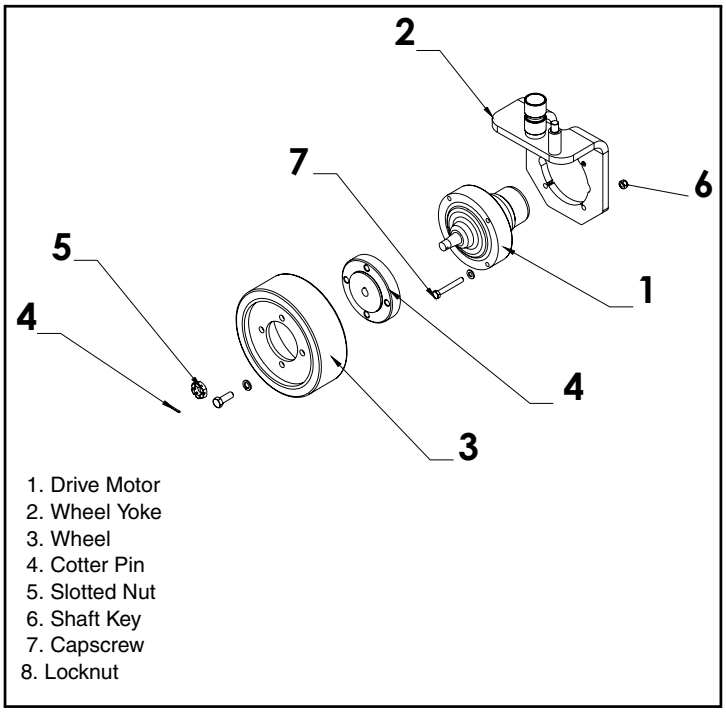
NOTE: Before disconnecting hoses, thoroughly clean off all outside dirt around fittings. (After disconnecting hoses and before removing from vehicle, IMMEDIATELY plug port holes.)

5. Tag, disconnect and plug the hose assemblies to prevent foreign material from entering.
6. Support the drive motor/wheel yoke assembly and remove the retaining ring at the top of the wheel yoke pivot. Remove the drive motor/wheel assembly from the machine.
7. Remove the locknuts, flat washers, capscrews and drive motor from the wheel yoke.

Installation

1. Position the drive motor in the wheel yoke and secure with capscrews, flat washers and locknuts.
2. Install the drive motor/wheel yoke assembly into the pivot bearing along with the lower thrust washer, thrust bushing, and retaining ring.
3. To ensure that the Wheel Yoke Assembly does not fall out of the Chassis when the vehicle is lifted off the ground fit a 3/8"UNC nut and a 1 1/4" long bolt, screw nut onto bolt until 6mm from bolt head. Hand screw bolt into Chassis thread and tighten until bolt hits inner pin groove. Loosen bolt by a HALF turn of the bolt head. Whilst still holding bolt head with either ratchet socket or spanner turn down the nut till it hits Chassis outer casing and then tighten using a 9/16" spanner until nut is tight to outer material.This is to lock the bolt in position.
4. Align the steer pin with the hole in the steering link.
5. Remove the plugs from the hose assemblies and connect to the drive motor.
6. Install the shaft key, wheel, washer and slotted nut. Torque the locknut to 102 N-m (**75 ft-lbs**). Install a new cotter pin. **DO NOT** back-off the nut to install cotter pin.
7. Remove blocks, lower the jack and remove. Operate the drive system and check for leaks.

Figure 3-18: Drive Motor Assembly



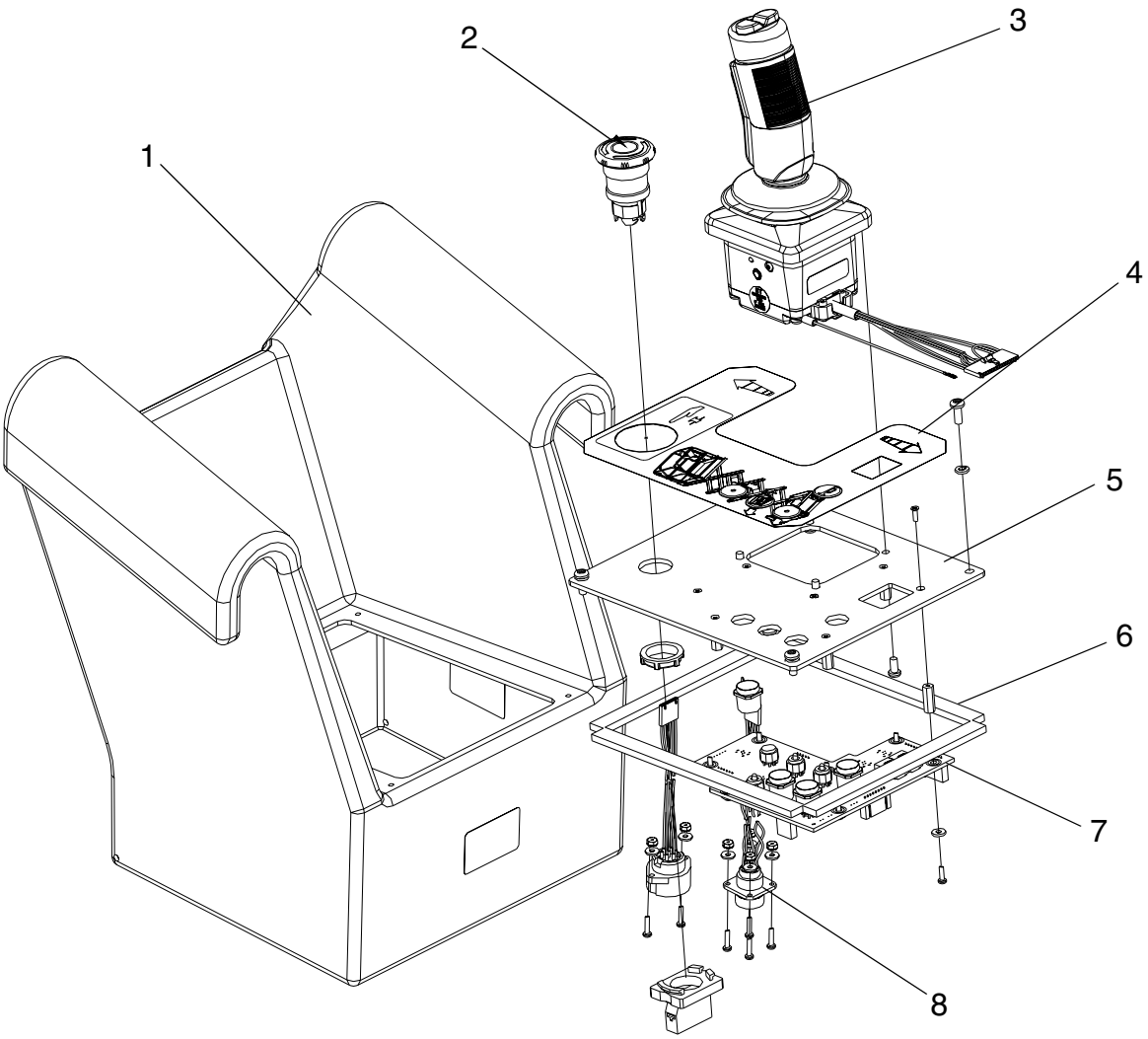
1. Drive Motor
2. Wheel Yoke
3. Wheel
4. Cotter Pin
5. Slotted Nut
6. Shaft Key
7. Capscrew
8. Locknut

3-11 Controls

Platform Controls

The Proportional Controller can be disassembled to replace defective switches. See the Parts Manual for replacement part numbers.

Figure 3-19: Platform Control Box

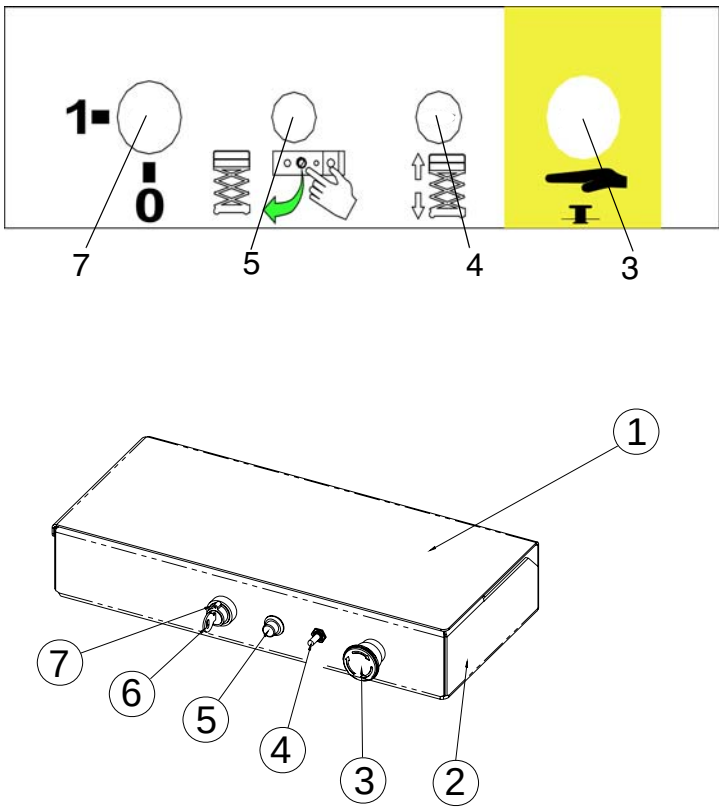


1. Control Box
2. Emergency Stop
3. Joystick
4. Decal
5. Mounting Plate
6. Box Seal
7. Circuit Board
8. Socket, Main Harness

CHASSIS CONTROLS

The chassis control assembly is mounted on the inside of the chassis door, to the left of the Hydraulic tank.

Figure 3-20: Lower Control Box



1. LCB Box Lid
2. LCB Box
3. Emergency Stop
4. Toggle Switch
5. Enable Button
6. Key
7. Key Switch

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 Snorkel Work Platforms.

Table: 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 Snorkel **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: Torque Specifications for SAE Fasteners

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

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

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

	Grade 8.8			Grade 10.9			Grade 12.9		
Nominal Thread Size	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: Torque Specifications for Metric Fasteners, SI Units

	Grade 8.8			Grade 10.9			Grade 12.9		
Nominal Thread Size	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	25,230	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

Section 4

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 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 and booms are supported by a crane capable of supporting the load.

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

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

ADJUSTMENT PROCEDURES

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 gauge.

4.3 TROUBLESHOOTING GUIDE

TROUBLE	PROBABLE CAUSE	REMEDY
All functions inoperable, electric motor does not start.	1. Blown electric motor fuse	Check 160 amp electric motor fuse. Replace if blown.
	2. Faulty battery charger.	Check the voltage output of the battery charger. If less than 24 VDC,
	3. Faulty battery(ies).	After completely charging batteries, test each battery. Replace as
	4. Loose or broken battery lead.	Check continuity of all battery and motor leads. Replace if necessary.
	5. Emergency Stop switch(es) failed open.	With emergency stop switch in the ON position, check continuity
	6. Blown control fuse	Check 7A circuit control fuse. Replace if blown.
All functions inoperable. Electric motor starts when control is actuated.	1. Oil level in hydraulic reservoir is low.	Check hydraulic fluid level, top off as required.
	2. Faulty hydraulic pump.	Check pressure and delivery of the hydraulic pump. Replace if
Platform will not elevate or elevates slowly.	1. Emergency Lowering valve open.	Close emergency down valve.
	2. Platform overloaded.	Observe maximum load rating. (see Operation section of this manual)
	3. Faulty controller at upper controls.	Check functionality of controller. Replace if faulty.
	4. Blown control fuse	Check 7A circuit contrrol fuse. Replace if blown.
	5. Battery level low. Check for fault code 68	Check Battery Voltage. Charge if necessary.
Platform drifts down after being elevated	1. Emergency lowering valve open.	Ensure that emergency lowering valve is completely closed. Replace
	2. Leaking piston seals in lift cylinders	Check for leakage at cylinder return line, replace seals if necessary.

FAULT CODES INTRODUCTION

The X-Series is equipped with a fault detection system, if you have a faulty component, bad electrical connection or start up error a fault code will be displayed on the read out located on the upper control box.

For fault codes 01 - 39 the following procedure should be followed.

Ensure that no selector buttons are depressed.

Ensure that the deadman switch on the joystick is not held.

Ensure that the joystick is in neutral.

Ensure that the steer rocker is not activated.

Ensure that toggle switch is in neutral.

Then re-cycle power, do this by pushing and releasing the emergency stop button. If the fault code is still displayed you may have a faulty upper or lower control box, consult the error code list to identify the problem component and replace if necessary.

For fault codes 54 - 68 the following procedure should be followed.

1. Check the fault code list to identify the problem component.

2. Ensure that the wiring harness is connected, secure, in good condition and fully intact.

3. Ensure that the problem component is receiving electrical signal, consult the schematics in section 6 of this manual to identify the ECU output and harness test points.

4. If no ECU output is present replace the ECU.

5. If ECU output is present but no signal is reaching the component replace the wiring harness.

6. If signal is reaching the component but the component is not functioning replace the component (refer to section 7 of this manual for part number information).

4.5 FAULT CODES

01 – System initialization error
02 – System communication error
22 – Platform Left Turn Switch ON at power-up
23 – Platform Right Turn Switch ON at power-up
25 – Platform Hi-Drive Switch ON at power-up
27 – Platform Lo-Drive Switch ON at power-up
28 – Platform Lift Switch ON at power-up
29 – Platform Joystick Enable Switch ON at power-up
31 – Platform Joystick not in neutral at power-up
32 – Lower Control Up/DownToggle ON at power-up
39 – Lower Control Enable Switch ON at power-up

51 – Hi Speed / Low Speed Coil fault
54 – Pothole Retract Coil fault
55 – Lift Up Coil fault
56 – Lift Down Coil fault
59 – Steer Right Coil fault
61 – Steer Left Coil fault
66 – Forward Coil fault
67 – Reverse Coil fault

68 – Low Battery fault

4-6 ELECTRIC

Table 4-1: Electrical Troubleshooting Table

Component / Function	Lower Controls	Upper Controls	Drive Forward	Drive Reverse	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
5 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			
ECU	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			
Chassis Emergency Stop Switch	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Chassis Key Switch	X	X	X	X	X	X	X	X	X	X	X	X	X	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						
PQ Control Handle		X	X	X		X	X								
Height Limit Switch						X									
Platform Steering Switch								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									
Down Solenoid							X								
Reverse Solenoid				X											
Forward Solenoid			X												

4-7 HYDRAULIC

Table 4-2: Hydraulic Troubleshooting Table

Component / Function	Lift Platform	Lower Platform	Steer Right	Steer Left	Drive Forward	Drive Reverse	Creep	Depression Mechanism Extend	Depression Mechanism Retract	Brakes
Check Valve										
Steering Cylinder										
Lift Cylinder										
Depression Mechanism Cylinder										
Brake Cylinder										
Suction Strainer										
Return Filter										
Drive Motors (2)										
Pump										
Main Relief Valve										
Steering Relief Valve										
Lift Relief Valve										
Tank										
Steering Right/Left Valve										
Lift Valve										
Down/Emergency Lowering Valve										
Forward/Reverse Valve										
Counterbalance Valve										

Notes :

Section 5

SCHEMATICS

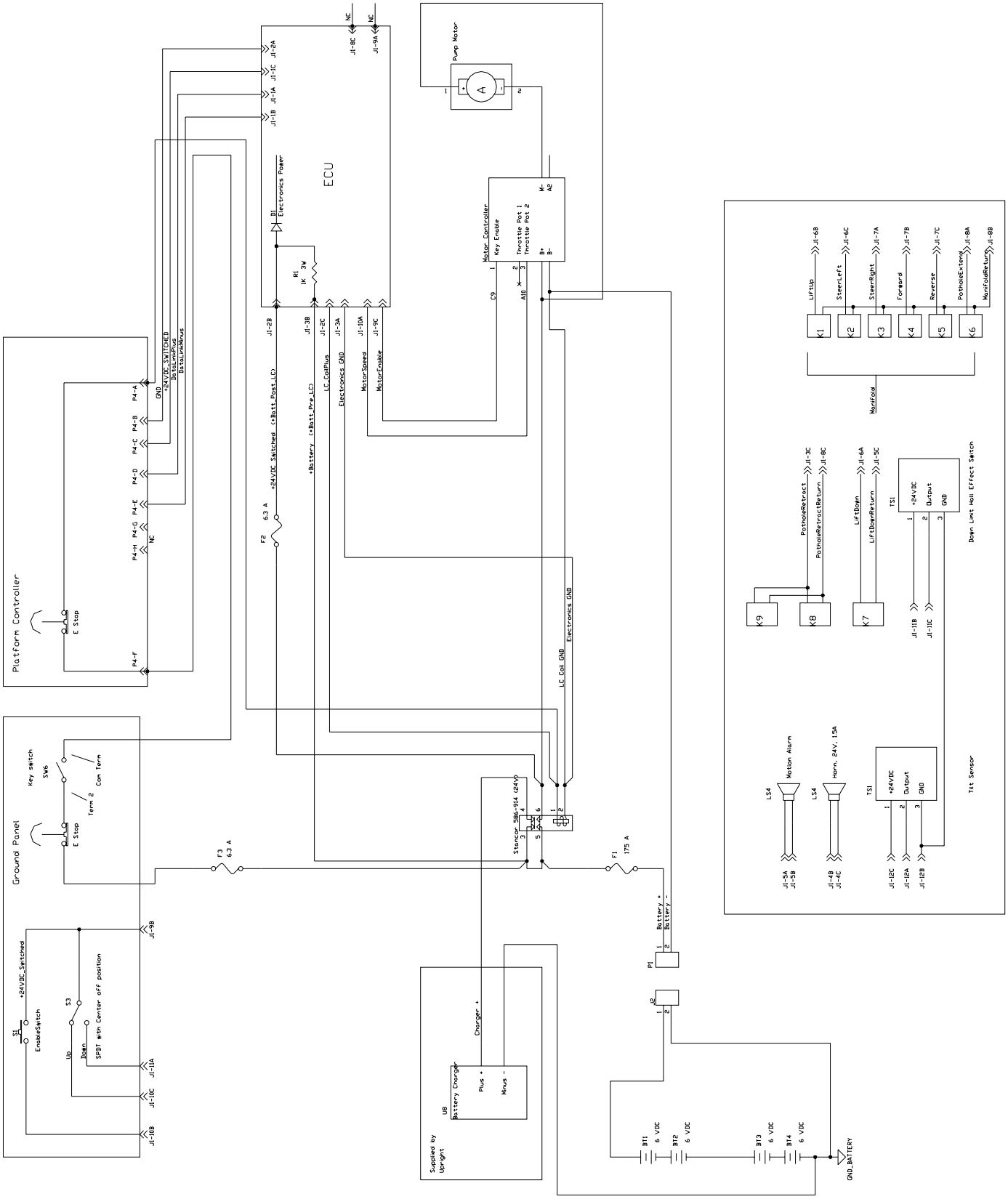
5.1 INTRODUCTION

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

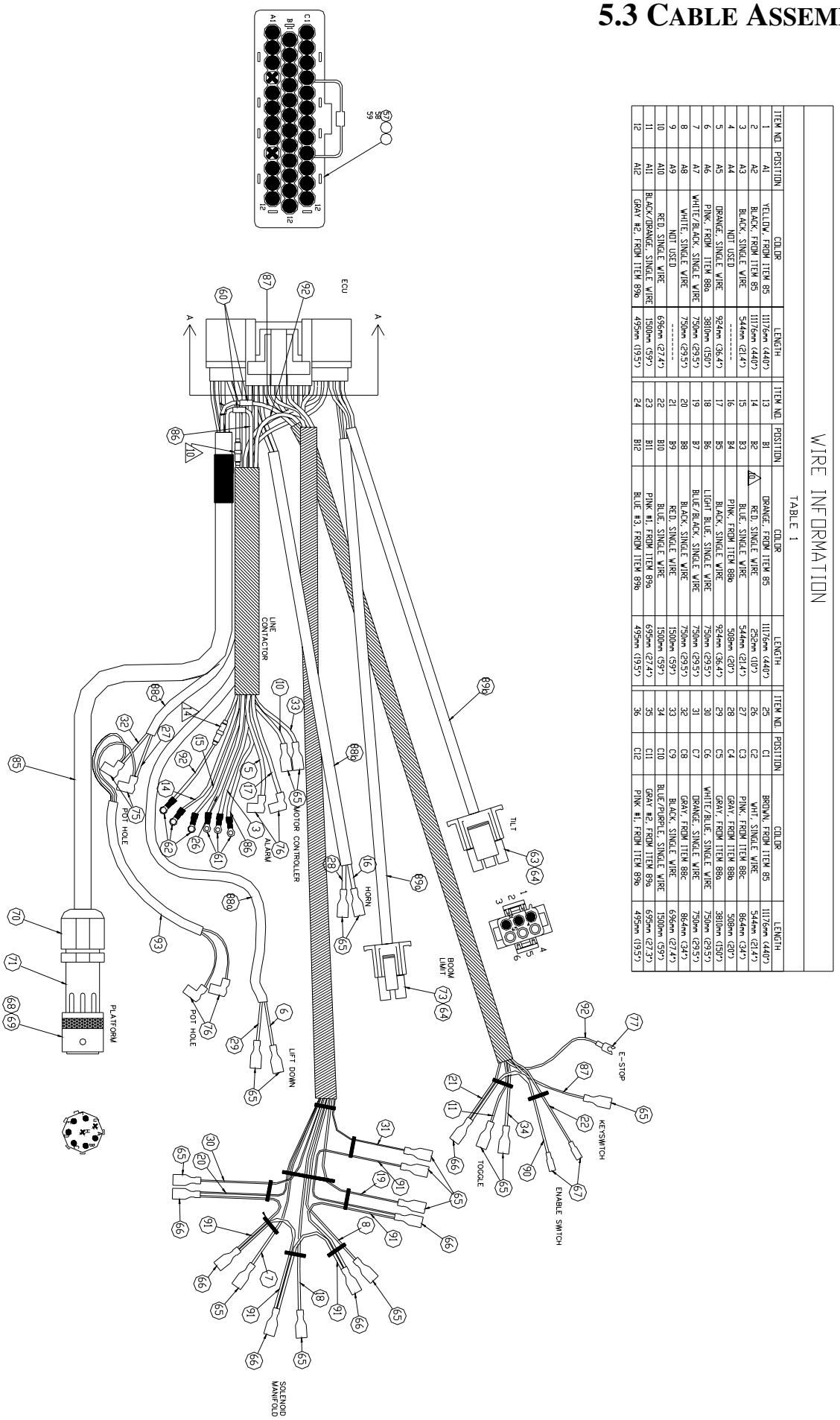
The diagrams are to be used in conjunction with the information in ***Section 4.*** They allow understanding of the makeup and functions of the systems for checking, tracing, and faultfinding during troubleshooting analysis.

CONTENTS

5.2 ELECTRIC


ECU
Platform Controller
Ground Panel
Pump Motor
Motor Controller
Manifold
LiftUp
SteerLeft
SteerRight
Forward
Reverse
PotholeExtend
ManifoldReturn
PotholeRetract
LiftDown
Down Limit Hall Effect Switch
Tilt Sensor
Motion Alarm
Horn, 24V, 1.5A
Battery Charger
Supplied by Upright
Key switch
E Stop
Battery +
Battery -
GND_BATTERY
Electronics GND
LC Coil GND
+24VDC_Switched
EnableSwitch
SPDT with Center off position

5.3 CABLE ASSEMBLY

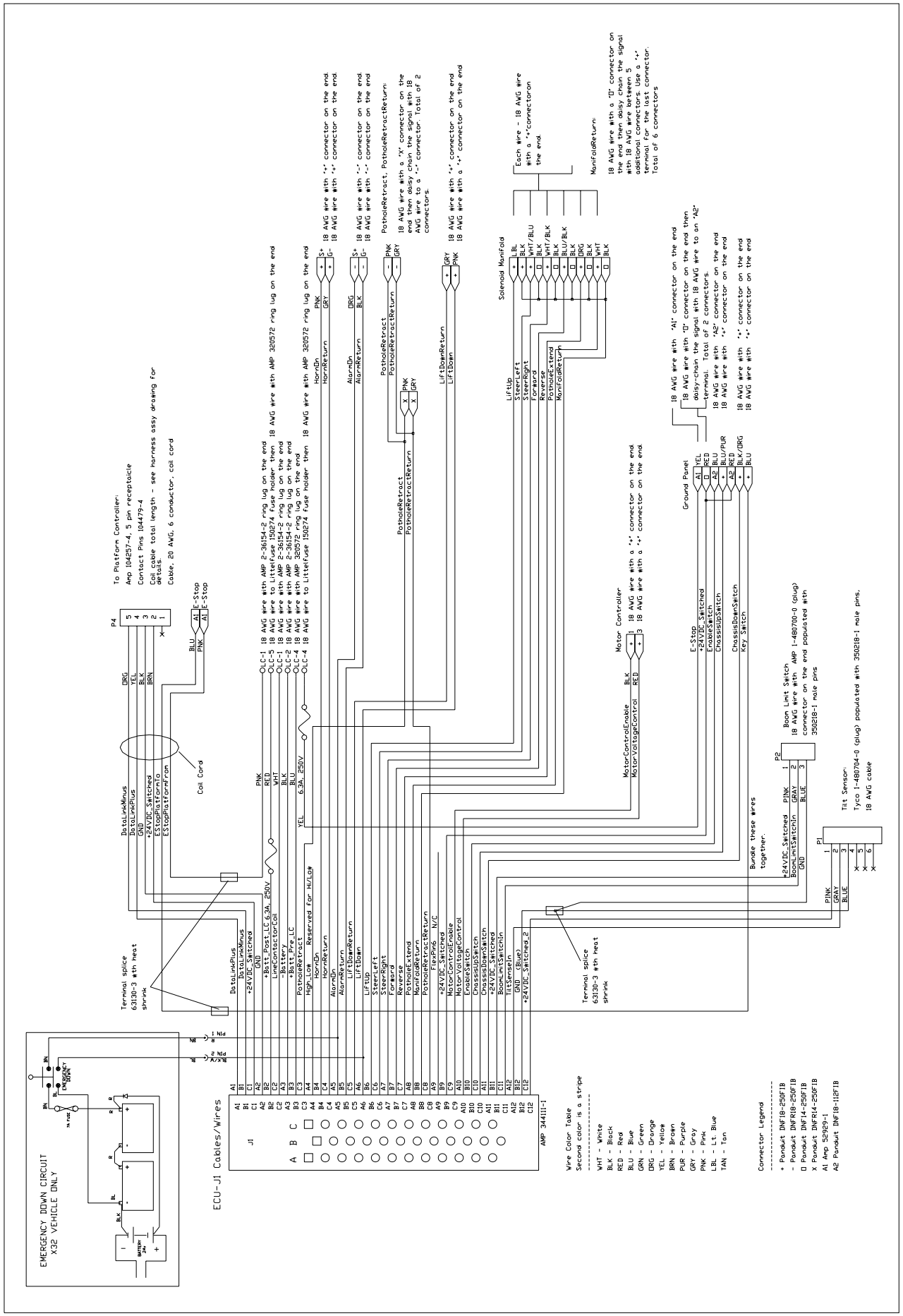


WIRE INFORMATION

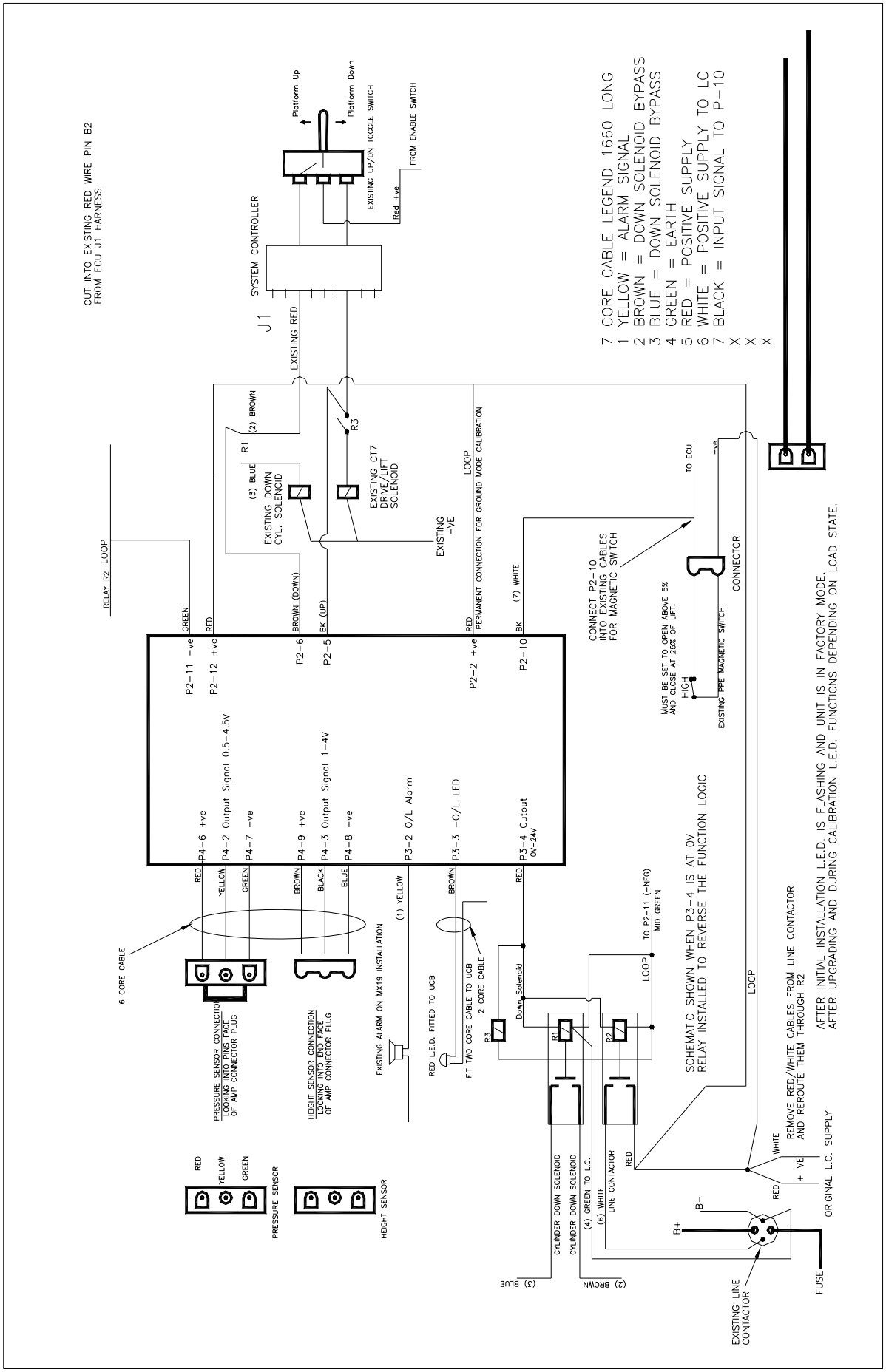
TABLE 1

ITEM NO.	POSITION	COLOR	LENGTH
1	A1	YELLOW, FROM ITEM 85	1117mm (440")
2	A2	BLACK, FROM ITEM 85	1117mm (440")
3	A3	BLACK, SINGLE WIRE	544mm (21.4")
4	A4	NOT USED	--------
5	A5	ORANGE, SINGLE WIRE	924mm (36.4")
6	A6	PINK, FROM ITEM 88a	3810mm (150")
7	A7	WHITE/BLACK, SINGLE WIRE	750mm (29.5")
8	A8	WHITE, SINGLE WIRE	750mm (29.5")
9	A9	NOT USED	--------
10	A10	RED, SINGLE WIRE	696mm (27.4")
11	A11	BLACK/ORANGE, SINGLE WIRE	1500mm (59")
12	A12	GRAY #2, FROM ITEM 89b	495mm (19.5")
13	B1	ORANGE, FROM ITEM 85	1117mm (440")
14	B2	RED, SINGLE WIRE	252mm (10")
15	B3	BLUE, SINGLE WIRE	544mm (21.4")
16	B4	PINK, FROM ITEM 88b	508mm (20")
17	B5	BLACK, SINGLE WIRE	924mm (36.4")
18	B6	LIGHT BLUE, SINGLE WIRE	750mm (29.5")
19	B7	BLUE/BLACK, SINGLE WIRE	750mm (29.5")
20	B8	BLACK, SINGLE WIRE	750mm (29.5")
21	B9	RED, SINGLE WIRE	1500mm (59")
22	B10	BLUE, SINGLE WIRE	695mm (27.4")
23	B11	PINK #1, FROM ITEM 89a	695mm (27.4")
24	B12	BLUE #3, FROM ITEM 89b	495mm (19.5")
25	C1	BROWN, FROM ITEM 85	1117mm (440")
26	C2	WHT, SINGLE WIRE	544mm (21.4")
27	C3	PINK, FROM ITEM 88c	864mm (34")
28	C4	GRAY, FROM ITEM 88a	508mm (20")
29	C5	GRAY, FROM ITEM 88a	3810mm (150")
30	C6	WHITE/BLUE, SINGLE WIRE	750mm (29.5")
31	C7	ORANGE, SINGLE WIRE	750mm (29.5")
32	C8	GRAY, FROM ITEM 88c	864mm (34")
33	C9	BLACK, SINGLE WIRE	696mm (27.4")
34	C10	BLUE/PURPLE, SINGLE WIRE	1500mm (59")
35	C11	GRAY #2, FROM ITEM 89a	695mm (27.3")
36	C12	PINK #1, FROM ITEM 89b	495mm (19.5")

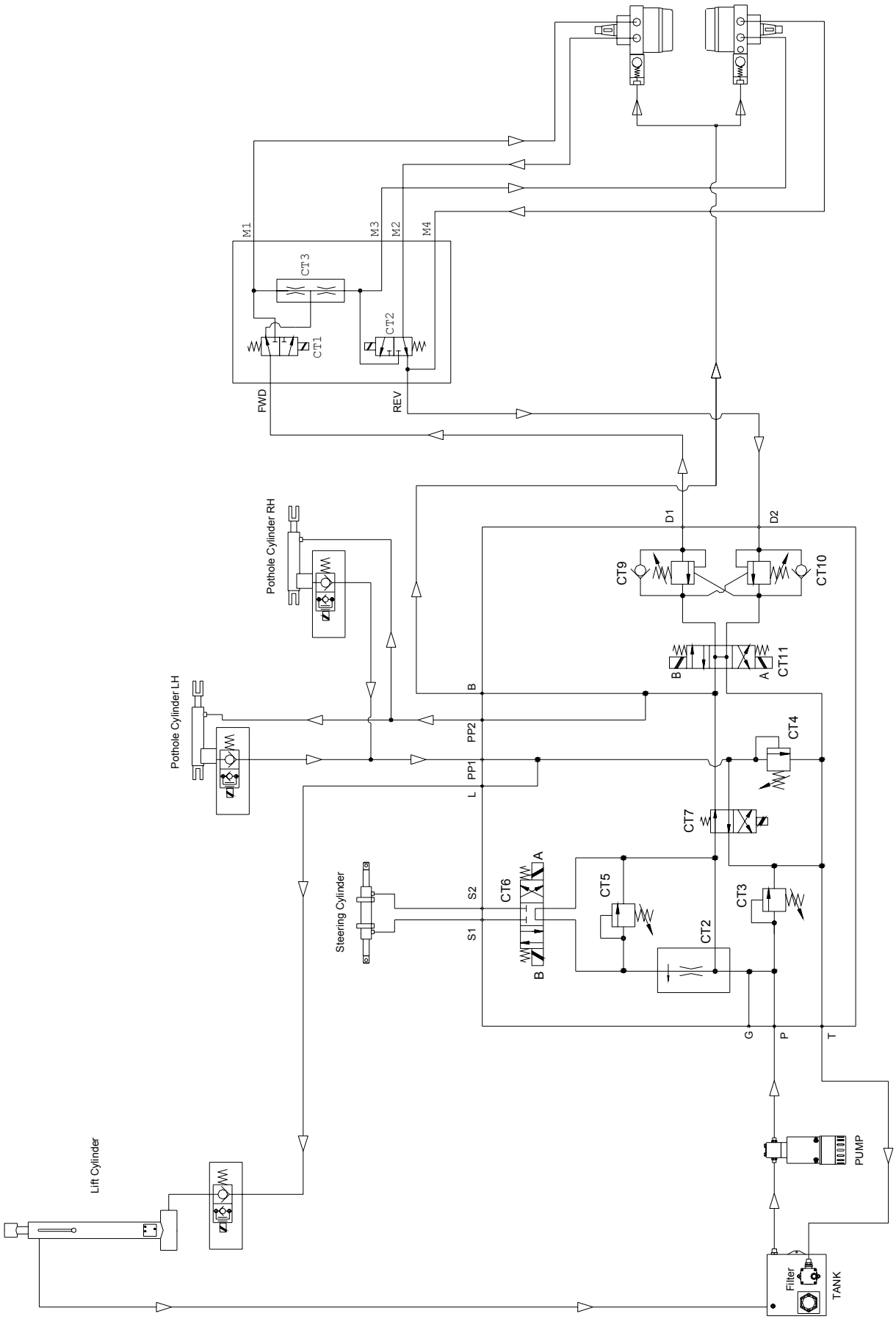
5.4 J1 CABLE SCHEMATIC



5.5 OVERLOAD SCHEMATIC



:5.6 Hydraulic Schematic



SECTION 6

ILLUSTRATED PARTS LIST

INTRODUCTION

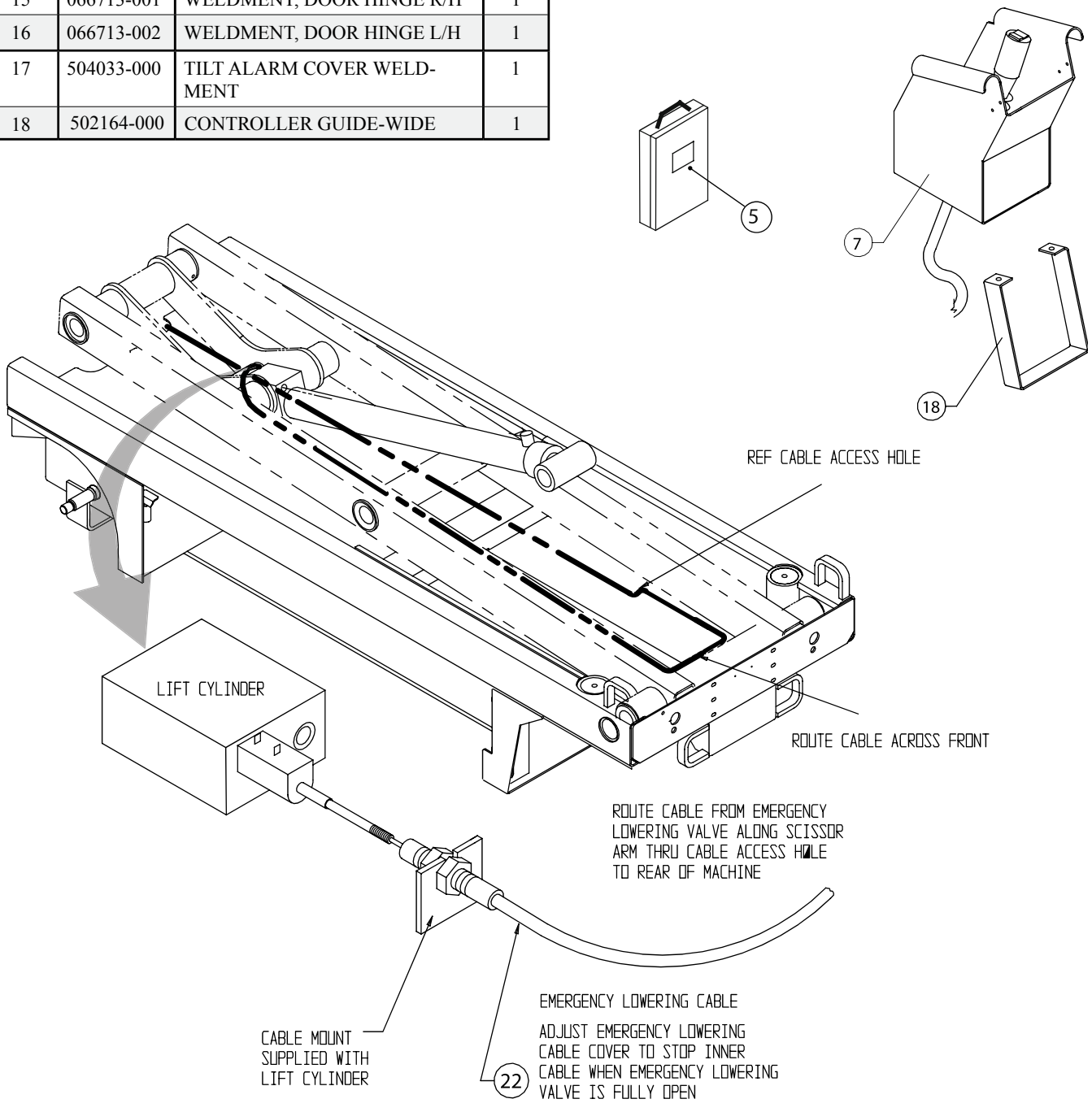
This section lists and illustrates the replaceable assemblies and parts of the S2633 Work Platform as manufactured by Snorkel.
Each parts list contains the component parts for that assembly indented to show relationship where applicable.

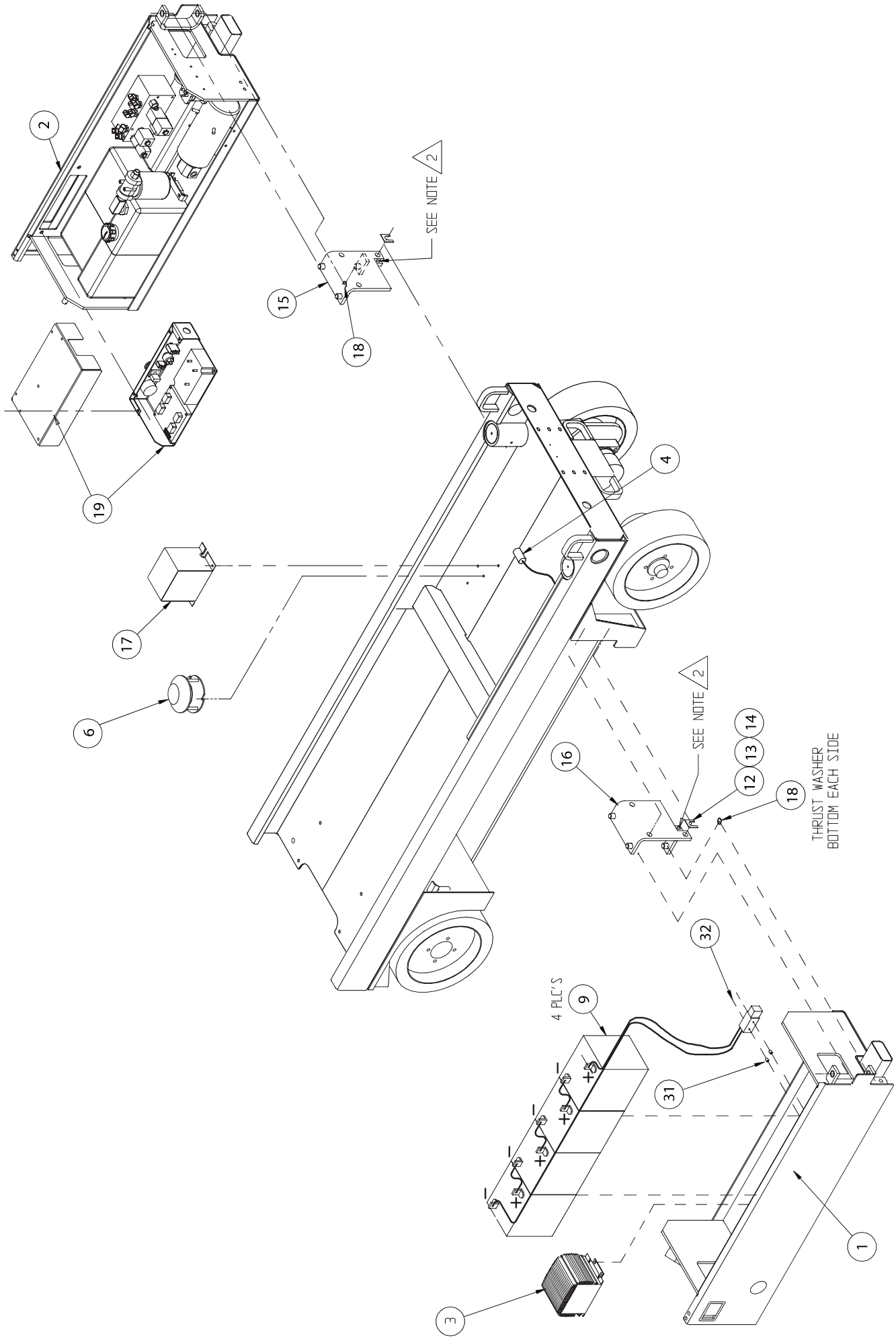
TABLE OF CONTENTS	PAGE

BASIC ASSEMBLY

Item	Part	Description	Qty.
1	066309-011	POWER MODULE	1
2	066310-026	CONTROL MODULE	1
3	069199-001	CHARGER	1
4	501425-000	SWITCH - PROXIMITY	1
5	010076-000	MANUAL CASE	1
6	505566-001	LEVEL SENSOR	1
7	066250-026	CONTROLLER ASSEMBLY	1
9	501074-000	BATTERY 6 V	4
10	066251-026	EXTENSION DECK	1
11	066250-026	PLATFORM/GUARDRAIL ASSY	1
12	066762-000	SHIM 20GA	A/R
13	066763-000	SHIM 16GA	A/R
14	066764-001	SHIM 12GA	A/R
15	066713-001	WELDMENT, DOOR HINGE R/H	1
16	066713-002	WELDMENT, DOOR HINGE L/H	1
17	504033-000	TILT ALARM COVER WELD-MENT	1
18	502164-000	CONTROLLER GUIDE-WIDE	1

Item	Part	Description	Qty.
19	504348-000	LOWER CONTROL ASSY	1
20	065943-102	WIRE HARNESS ASSY J3	1
21	066623-020	LIFT OVERLOAD ALARM	1
22	504160-001	LOWERING CABLE	1
23			
24	101182-008	CABLE ASSY W/ CONNECTOR	1
25	500996-000	HARNESS ASSY	1
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	029601-039	CONN RING 5/16 10-12	2

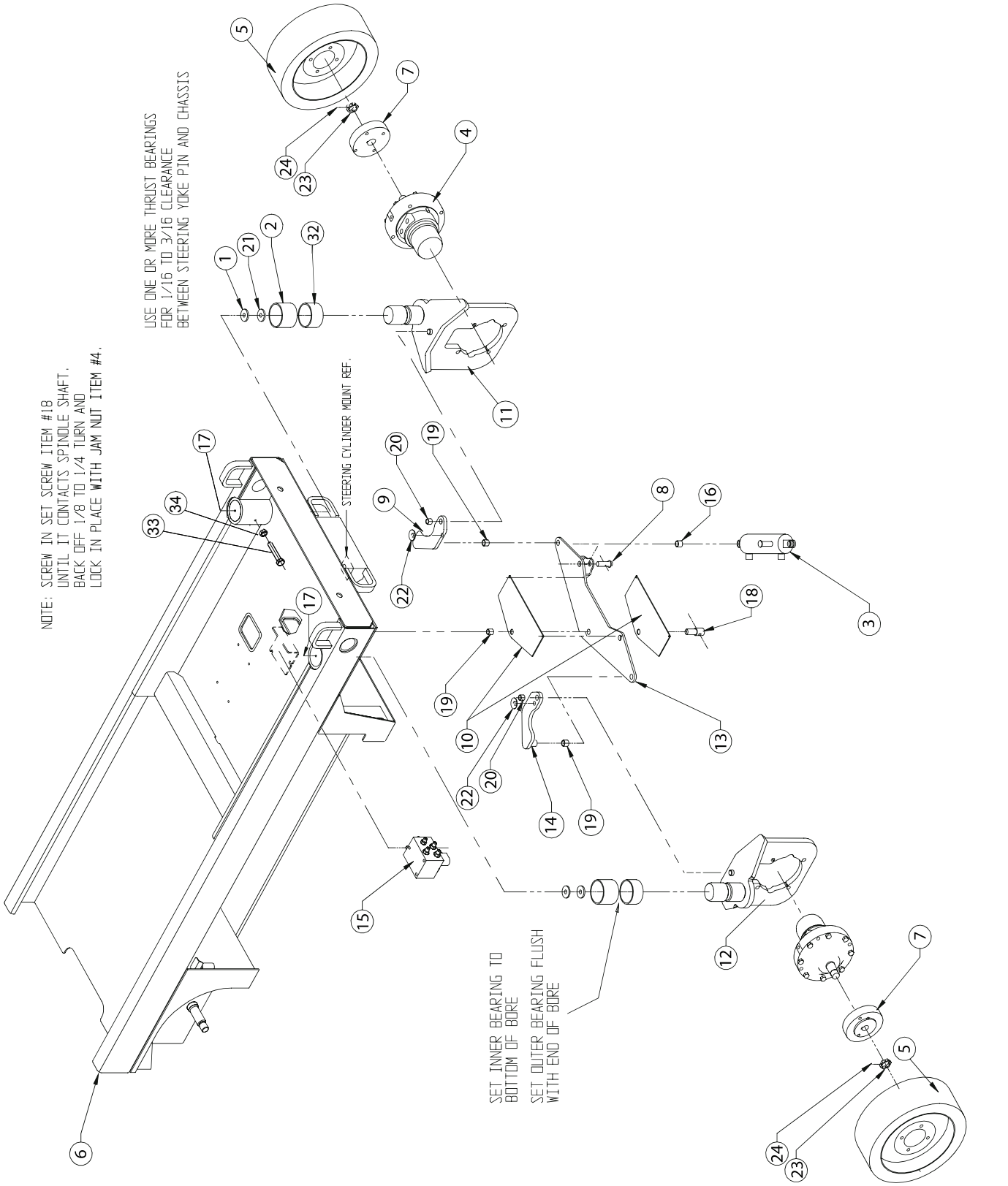



2
SEE NOTE 2
15
18
19
4
17
6
SEE NOTE 2
16
12
13
14
18
THRUST WASHER
BOTTOM EACH SIDE
32
4 PLC'S
9
31
1
3

CHASSIS ASSSEMBLY (FRONT)

Item	Part	Description	Qty.
1	505042-000	BEARING	2
2	504144-001	BEARING	2
3	504148-001	STEERING CYINDER	1
4	114055-002	MOTOR - HYDRAULIC	2
5	502170-000	WHEEL & TYRE	4
6	066869-000	CHASSIS	1
7	502171-000	HUB - FRONT	2

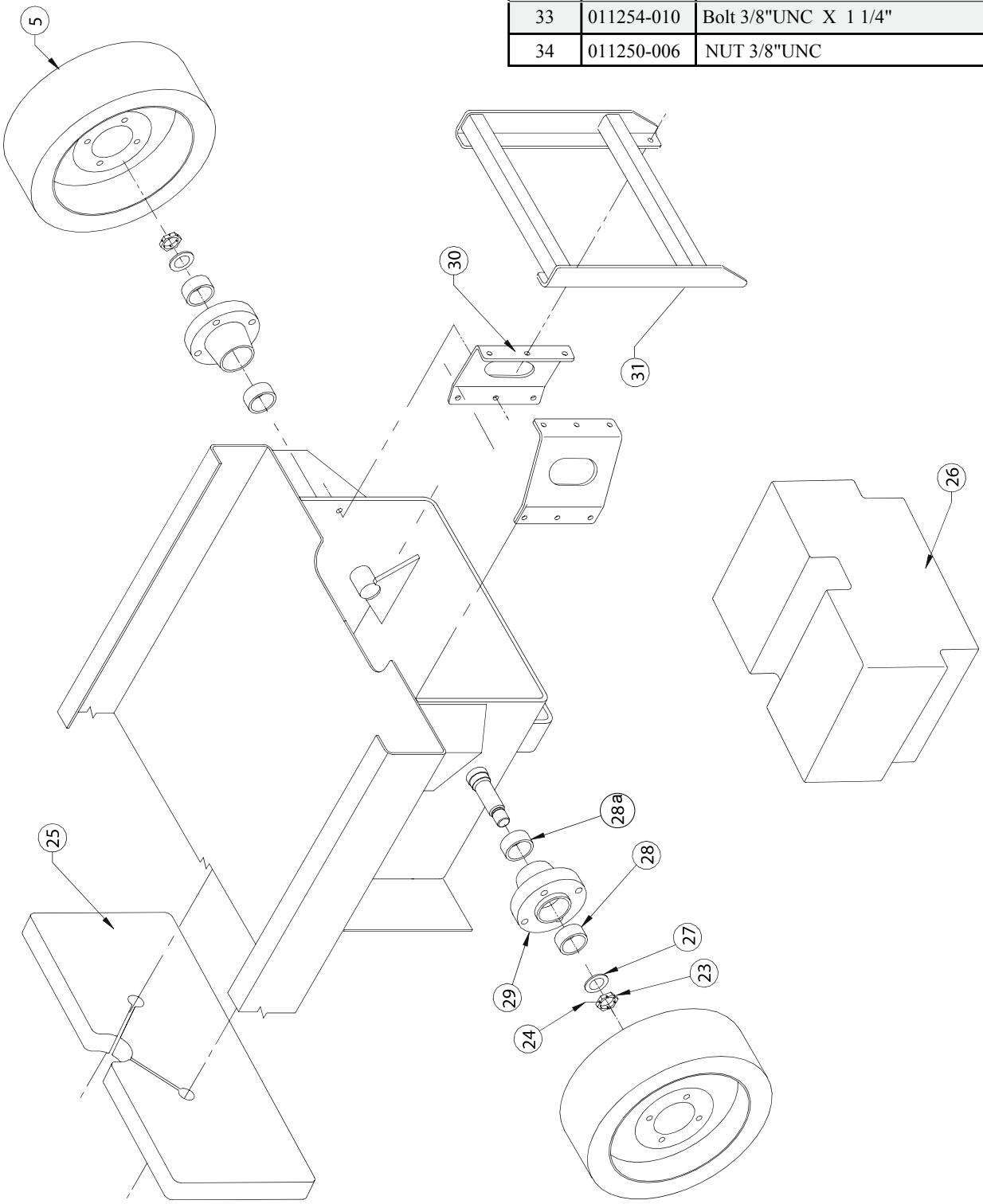
Item	Part	Description	Qty.
8	504153-001	PIN 5/8	2
9	066159-001	L/H STEERING LINK	1
10	504150-000	BEARING	2
11	114057-000	L/H STEERING ANGLE	1
12	114058-000	R/H STEERING ANGLE	1
13	066313-001	BELL CRANK	1
14	066307-001	R/H STEERING LINK	1



CHASSIS ASSSEMBLY (REAR)

Item	Part	Description	Qty.
15	504151-000	VALVE ASSEMBLY	1
16	062642-001	BEARING GARLOCK 10DU12	1
17	058819-000	M6 GREASE NIPPLE	4
18	504154-000	PIN - BELL CRANK	1
19	503673-000	BUSH 12DU08	3
20	503673-000	BUSH 12DU06	2
21	510668-000	SPACER	2
22	504155-001	STEERING LINK - SLIDE PAD	2
23	503755-000	CASTLE NUT	4

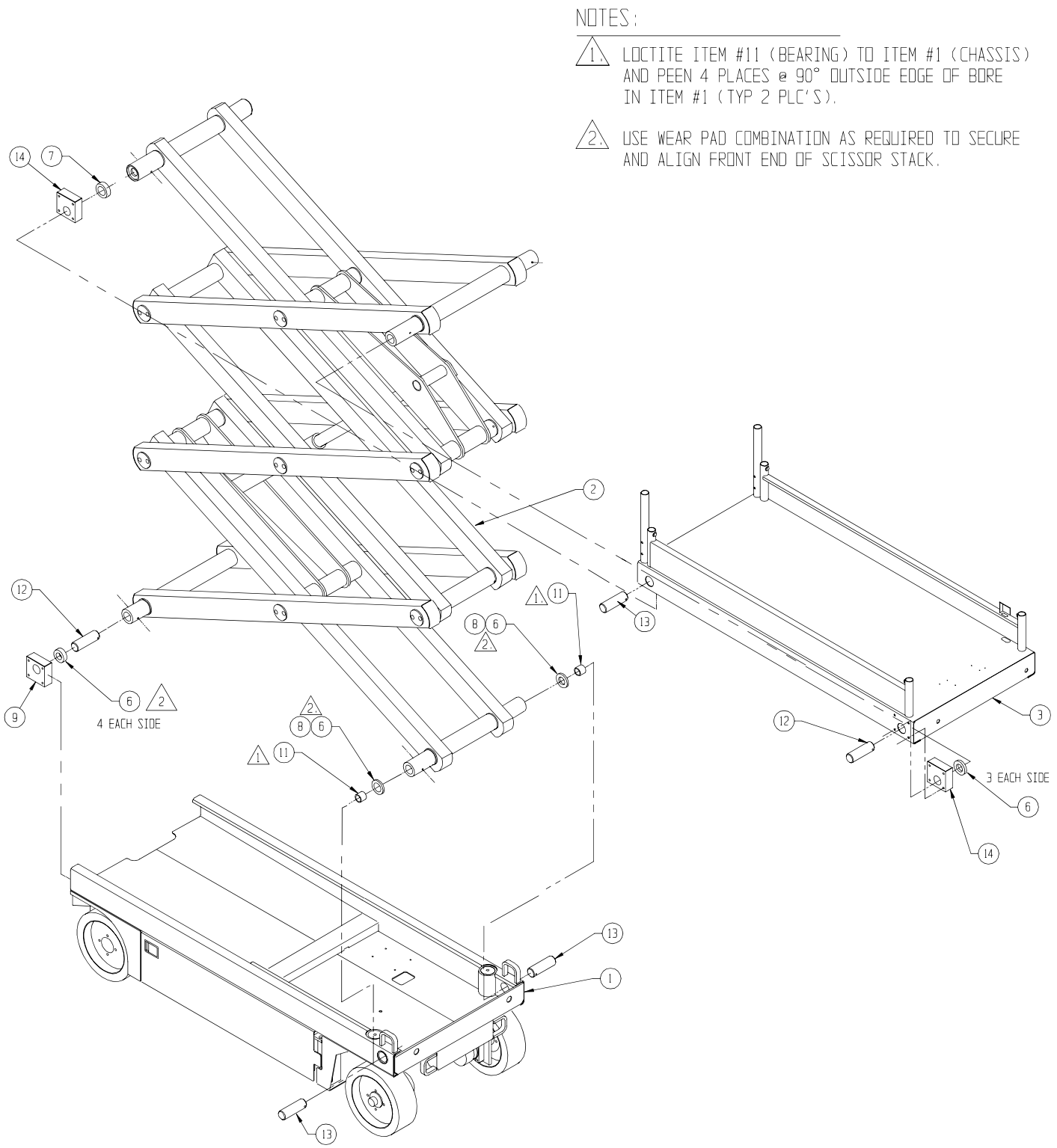
Item	Part	Description	Qty.
24	502152-000	COTTER PIN	4
25	066865-100	COUNTERWEIGHT - R-BULKHD	1
26	066866-000	COUNTERWEIGHT CASTING	1
27	502097-000	FLAT WASHER ASTM	2
28	504157-001	CUP BEARING With Seal	4
28a	504157-000	CUP BEARING	4
29	502171-003	HUB - REAR	2
30	066862-000	LADDER MOUNTING BRACKET	2
31	066307-001	WELDMENT - LADDER	1
32	510672-000	OLITE BUSH (small)	2
33	011254-010	Bolt 3/8"UNC X 1 1/4"	2
34	011250-006	NUT 3/8"UNC	2



CHASSIS SCISSOR & DECK ASSSEMBLY

Item	Part	Description	Qty.
1	504001-011	CHASSIS ASSEMBLY	1
2	114200-001	SCISSOR ASSEMBLY	1
3	504003-011	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	504125-003	SLIDE BLOCK (BOTTOM)	2

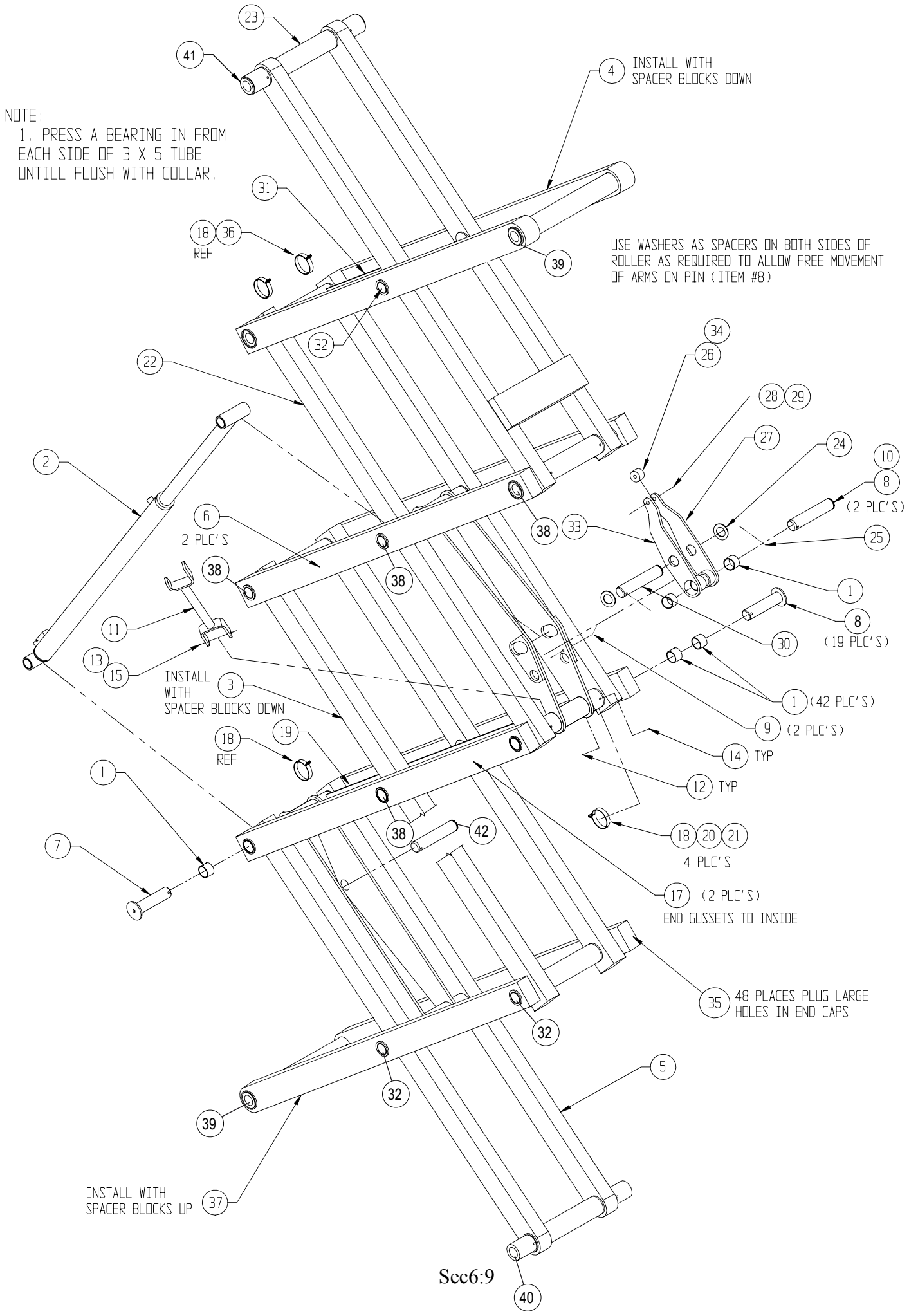
Item	Part	Description	Qty.
11	066183-001	BEARING EAGLE PICHER #323632	2
12	504186-000	MOUNTING PIN	4
13	504186-003	MOUNTING PIN	2
14	504125-000	SLIDE BLOCK	4



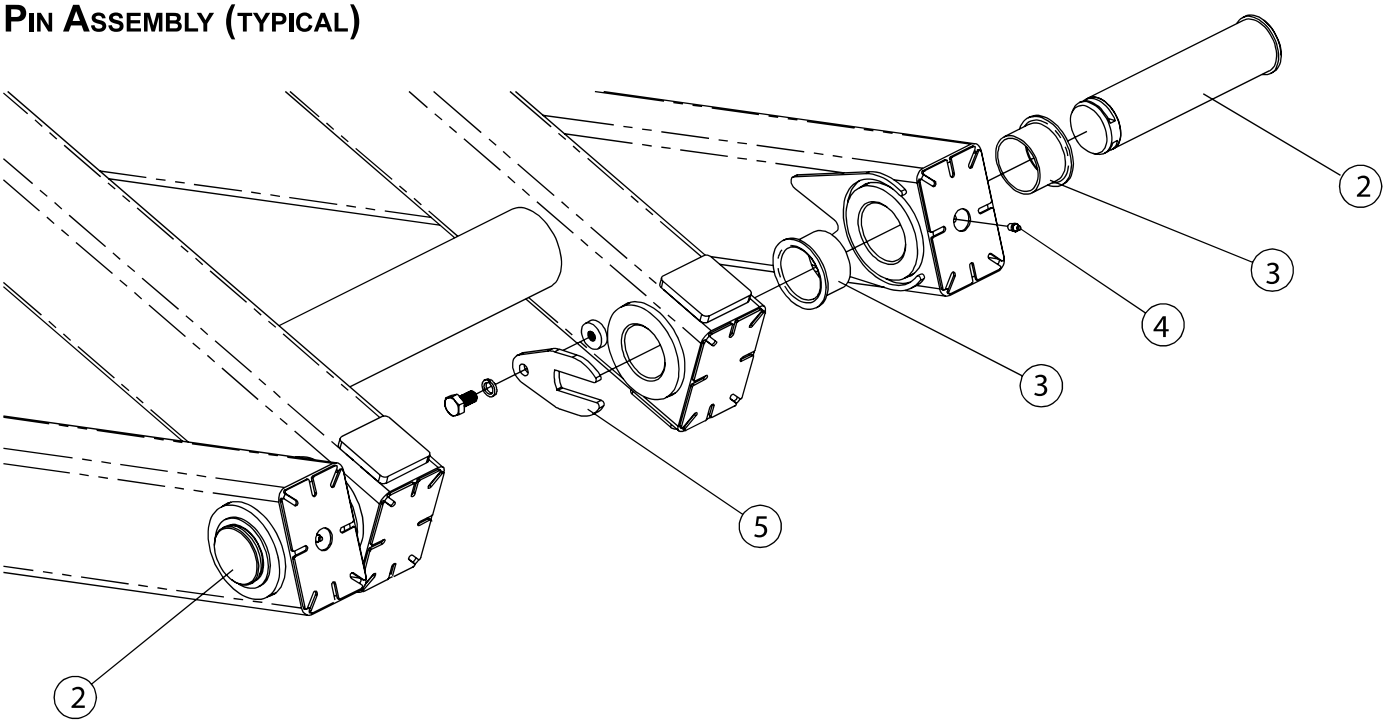
NOTES:

SCISSOR ASSEMBLY 114200-001

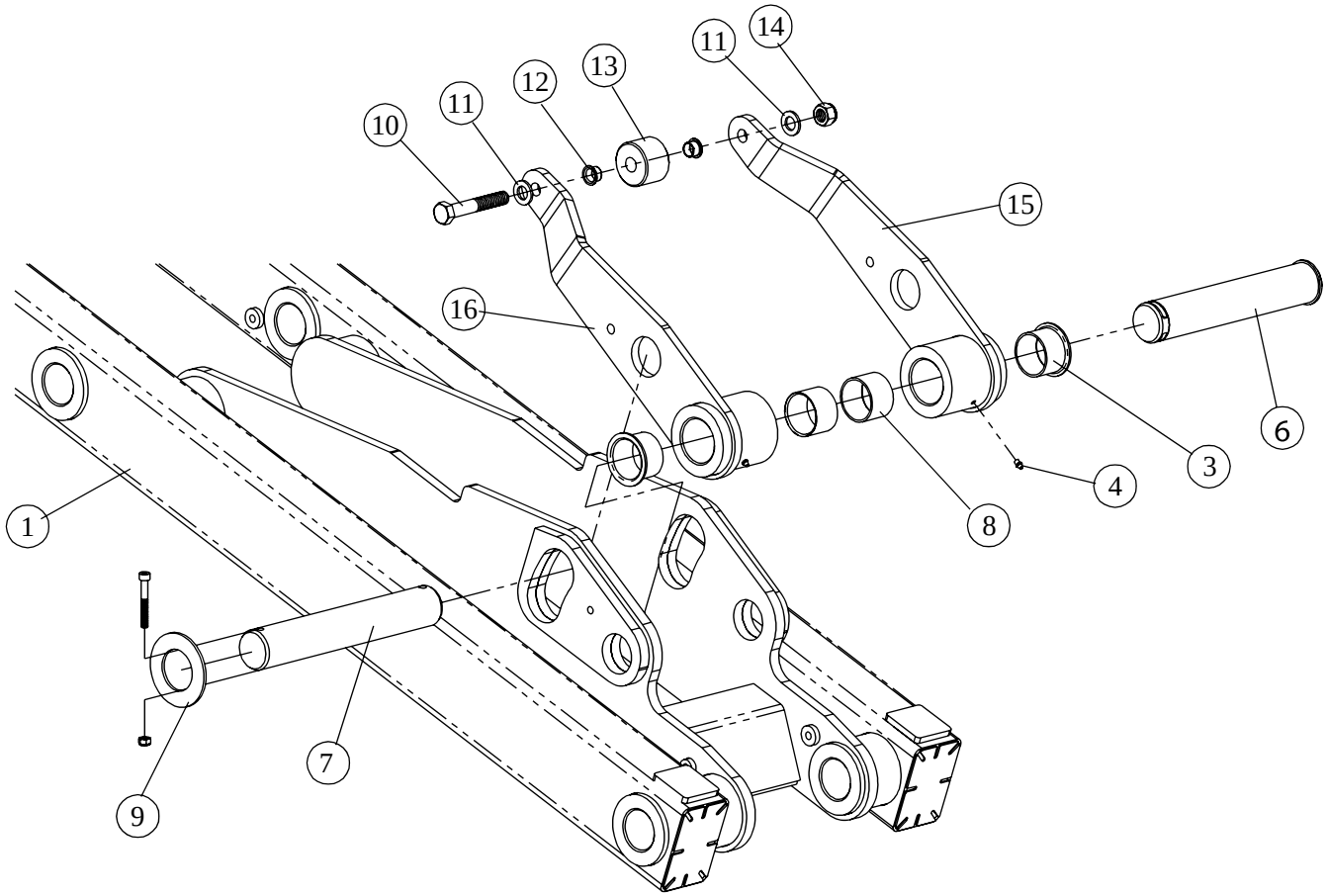
Item	Part	Description	Qty.
1	066183-001	BEARING, OILITE #EP3236-24	42
2	504129-001	LIFT CYLINDER (504129-002 - ANSI)	1
-	504129-010	SEAL KIT, LIFT CYLINDER	REF
3	504104-000	WELDMENT, MID INNER TUBE 1/8	1
4	114201-002	WELDMENT, TOP/BOTOM OUTER	2
5	114202-001	WELDMENT, BOTTOM INNER 3/16	1
6	504103-000	WELDMENT, MID OUTER 1/4	2
7	504122-003	WELDMENT, PIVOT PIN	2
8	504122-001	PIN, LIFT CYLINDER	3
9	501187-000	PIN, SHAFT LOCKING	2
10	011764-032	RET RING TRUARC #5100-200	2
11	114203-001	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	504103-001	WELDMENT, MID OUTER ARM 1/8	2
18	504046-000	PIPE RING	4
19	504029-000	CHANNEL, CABLE 2.025m)	1
20	011248-004	NUT HEX 1/4-20	4
21	011252-008	SCREW HHC GR5 1/4-20 X 1	4
22	504108-002	WELDMENT, MID INNER ARM 3/16	1
23	114203-001	WELDMENT, TOP INNER ARM 1/8	1
24	011239-032	WASHER 2 DIA ASTM	2
25	011740-024	ROLL PIN 1/2 X 3	2
26	065367-001	BEARING TORRINGTON #YCRS32	1
27	504176-002	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	504123-000	PIN, LIFT CYLINDER	1
31	503790-001	CHANNEL, CABLE (1.054m)	1
32	504122-006	WELDMENT, PIVOT PIN	8
33	504176-003	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
36	013919-006	HOSE CLAMP	1
38	504122-004	PIVOT PIN	8
39	504186-000	PIVOT PIN	4
40	504186-003	PIVOT PIN	2
41	504186-002	PIVOT PIN	2
42	504122-014	PIVOT PIN	1


NOTE:
1. PRESS A BEARING IN FROM EACH SIDE OF 3 X 5 TUBE UNTILL FLUSH WITH COLLAR.
INSTALL WITH SPACER BLOCKS DOWN
USE WASHERS AS SPACERS ON BOTH SIDES OF ROLLER AS REQUIRED TO ALLOW FREE MOVEMENT OF ARMS ON PIN (ITEM #8)
18 36 REF
6 2 PLC'S
8 (2 PLC'S)
8 (19 PLC'S)
1 (42 PLC'S)
9 (2 PLC'S)
14 TYP
12 TYP
18 20 21 4 PLC'S
17 (2 PLC'S) END GUSSETS TO INSIDE
35 48 PLACES PLUG LARGE HOLES IN END CAPS
INSTALL WITH SPACER BLOCKS UP
INSTALL WITH SPACER BLOCKS DOWN
18 19 REF

PIN ASSEMBLY (TYPICAL)



SCISSOR LIFT ASSIST ASSEMBLY

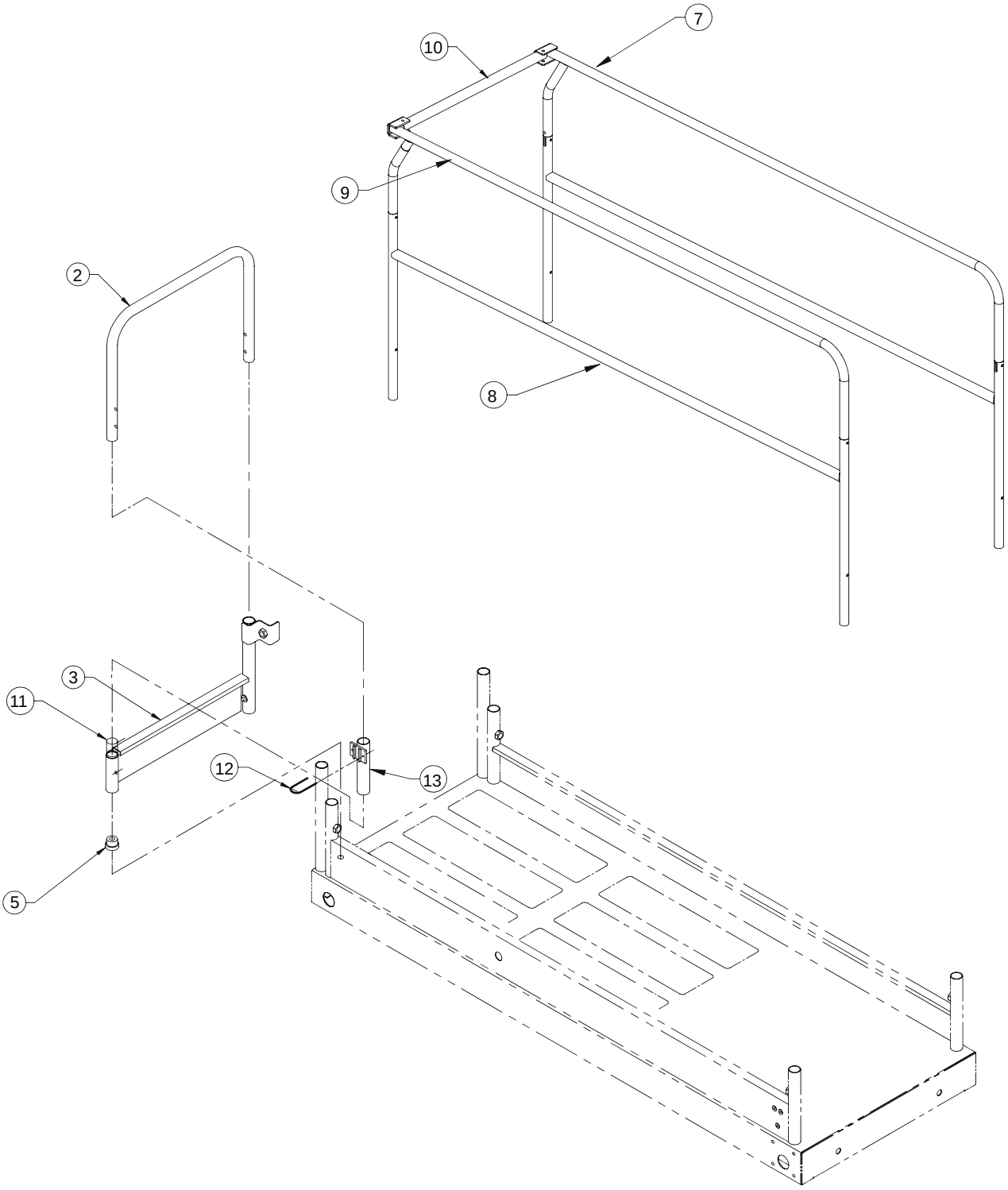


Item	Part	Description	Qty.
1	504108-002	SCISSOR WELDMENT - INNER, CYLINER	1
2	504122-003	PIVOT PIN - STANDARD LONG	4
3	504120-000	FLANGED BUSHING, 50mm	60
4	057048-000	GREASE NIPPLE, M6	16
5	504187-000	PIN LOCK PLATE	30
6	504122-001	PIVOT PIN - STANDARD, MEDIUM	3
7	504123-000	PIVOT PIN - CYLINDER ROD	1
8	504120-001	PLAIN BUSH, 50mm	2
9	504189-001	WASHER, M48 X 4mm THICK	2
10	056687-100	HEX HEAD BOLT, M16 X 100mm	1
11	056069-016	WASHER, M16	2
12	501449-000	FLANGED BUSHING, 16mm	2
13	504177-000	ROLLER, TORSION ARM	1
14	056066-016	NYLOCK NUT, M16	1
15	504176-002	WELDMENT, TORSION ARM (LHS)	1
16	504176-003	WELDMENT, TORSION ARM (RHS)	1

MAIN DECK ASSEMBLY

Item	Part	Description	Qty.
2	066480-000	GATE	1
3	066497-026	WELDMENT, GATE KICKRAIL	1
5	066441-000	PIVOT, GATE	1
7	505300-017	WELDMENT UPPER R/H	1
8	505300-012	GUARDRAIL MID	2
9	505300-015	WELDMENT UPPER L/H	1

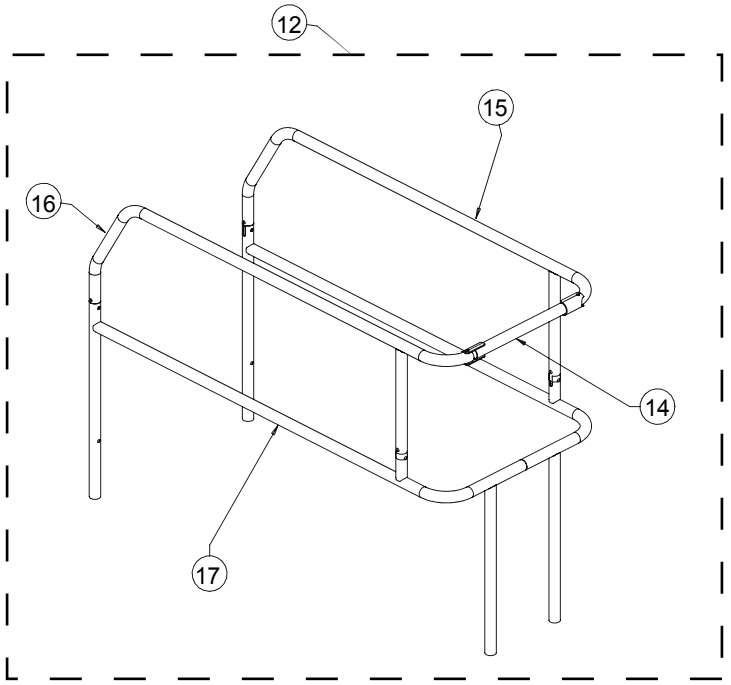
Item	Part	Description	Qty.
10	505300-010	SWING BAR	1
11	502204-001	TORSION SPRING	1
12	027899-000	U BOLT	1
13	066519-000	WELDMENT, GATE HINGE	1

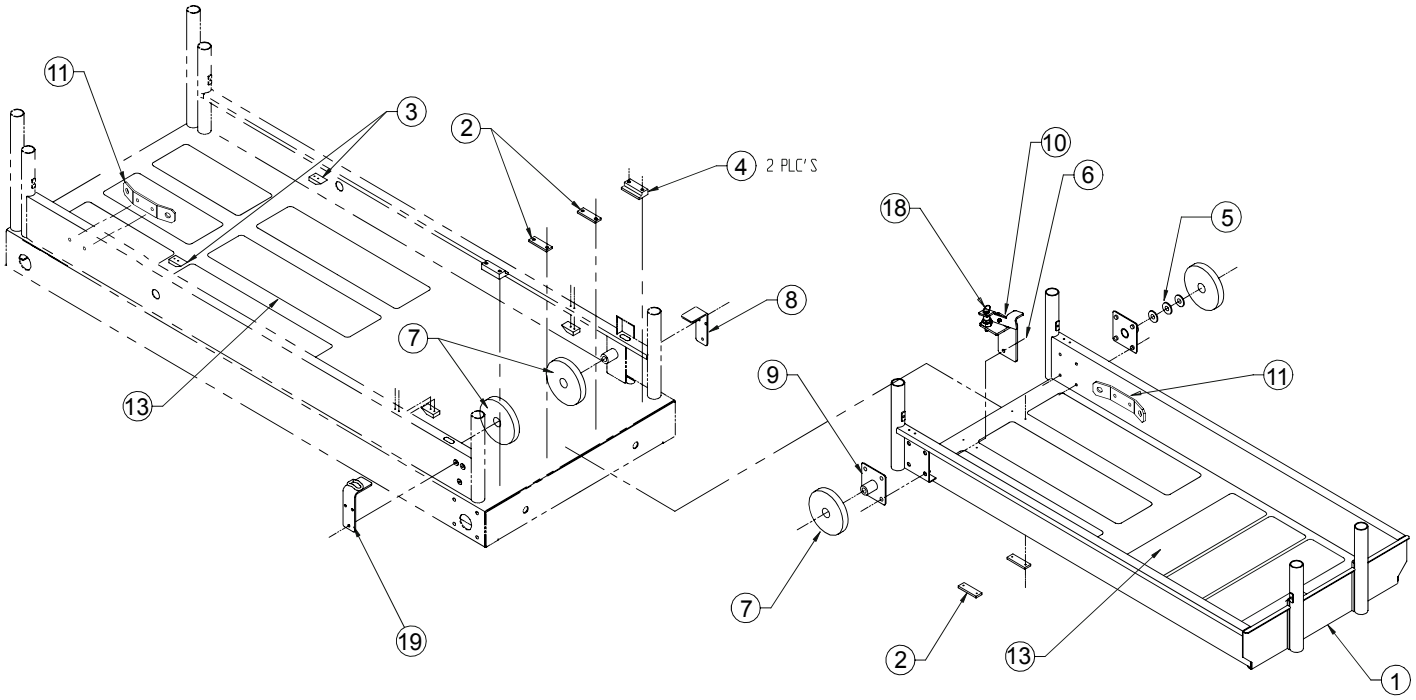


EXTENSION DECK ASSEMBLY

Item	Part	Description	Qty.
1	066251-026	WELDMENT DECK EXT.	1
2	502148-000	WEAR PAD	4
3	502129-000	STOP	4
4	502131-000	WEAR PAD	2
5	502097-000	WASHER SAE 1 1/4 PLATED	6
6	502145-000	LEVER BRACKET	1
7	502132-001	PLATFORM ROLLER	4
8	504138-000	BRACKET	1
9	504021-000	WELDMENT ROLLER MOUNT	2
10	502141-000	DECKLOCK ASSY-SLIDEOUT	1
11	057094-001	HARNESS HARDPOINT	2
12	066260-026	WELDMENT EXT. RAIL ASSY	1
13	027966-005	SAFETY WALK 6 X 24	12
14	505300-006	SWING BAR	1

Item	Part	Description	Qty.
15	505300-010	EX-DECK UPPER L/H RAIL	1
16	505300-008	EX-DECK UPPER R/H RAIL	1
17	505300-000	EX-DECK LOWER RAIL	1
18	003570-005	PULL PIN WITH KEY RING	1
19	504138-000	BRACKET WELDMENT	1

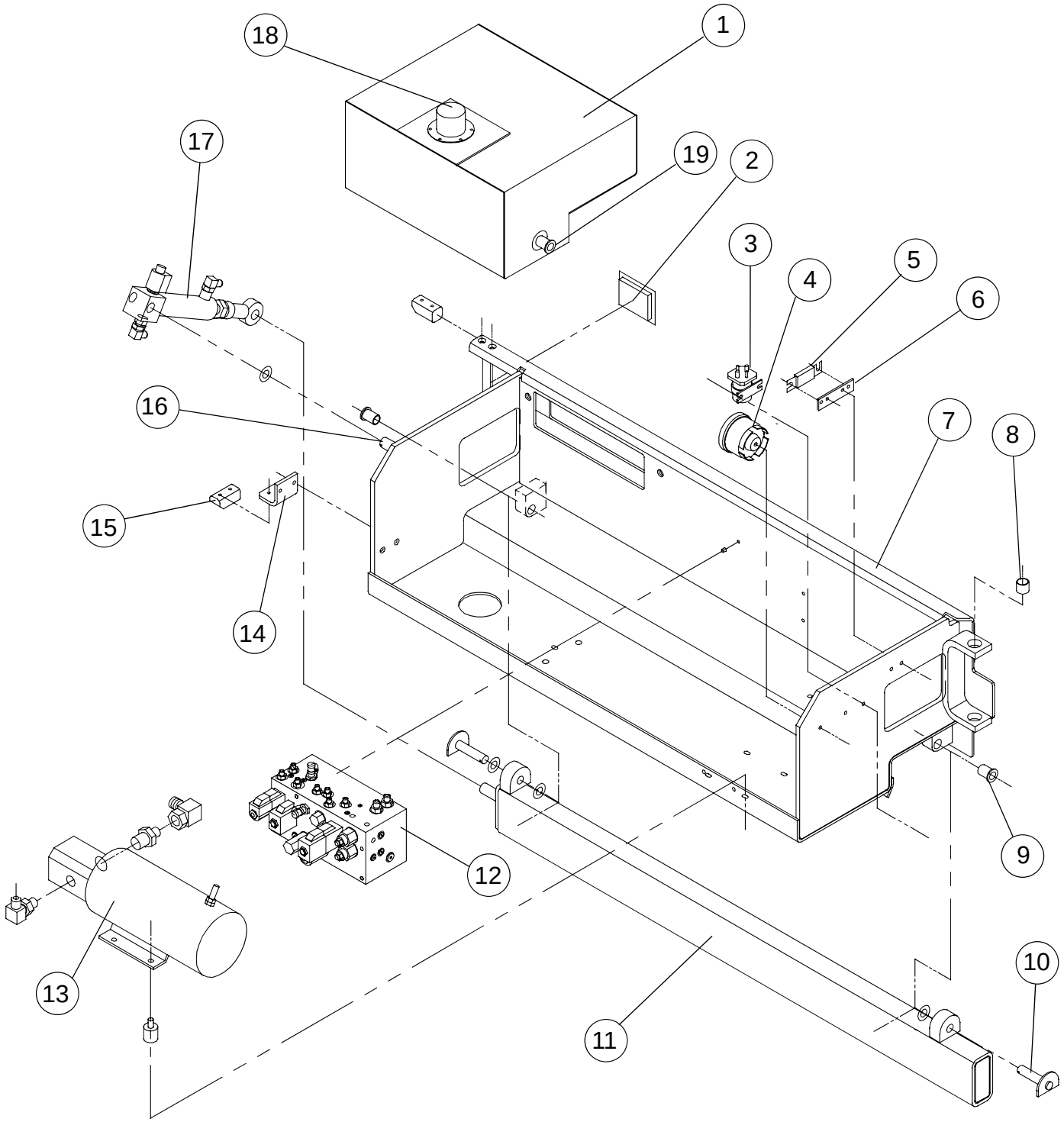




CONTROL MODULE ASSEMBLY

Item	Part	Description	Qty.
1	504128-001	HYDRAULIC TANK	1
2	062791-002	LATCH	1
3	502588-000	ALARM	1
4	502489-000	LINE CONTACTOR	1
5	510066-000	MAIN FUSE	1
6	510065-000	MOUNTING PLATE, FUSE	1
7	066310-026	WDMENT, CONTROL MODULE	1
8	504126-000	BUSHING, MODULE HINGE	2
9	504135-000	BUSHING, POTHOLE PIVOT	2
10	504153-001	PIVOT PIN, POTHOLE WDMENT	2

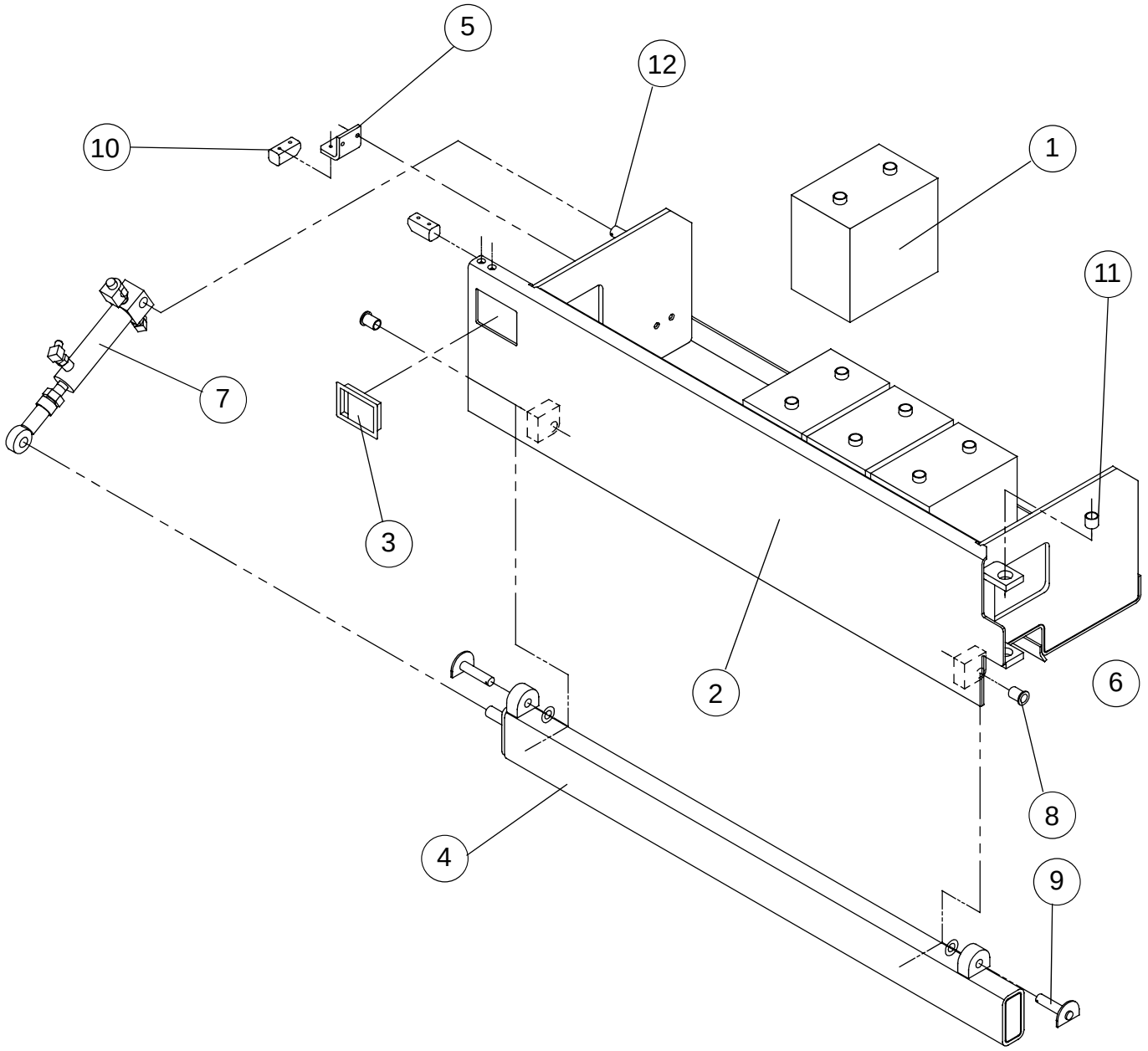
Item	Part	Description	Qty.
11	066735-001	WELDMENT, POTHOLE	1
12	503800-001	MAIN MANIFOLD BLOCK	1
13	504536-000	PUMP ASSEMBLY	1
14	504133-000	BRACKET, GUIDE PAD ANGLE	1
15	504134-000	GUIDE PAD	1
16	502152-000	SPLIT PIN	1
17	504132-000	HYD CYLINDER, POTHOLE	1
18	057534-000	FILLER, & DIPSTICK (CAP)	1
19	058359-000	SUCTION FILTER	1



POWER MODULE ASSEMBLY

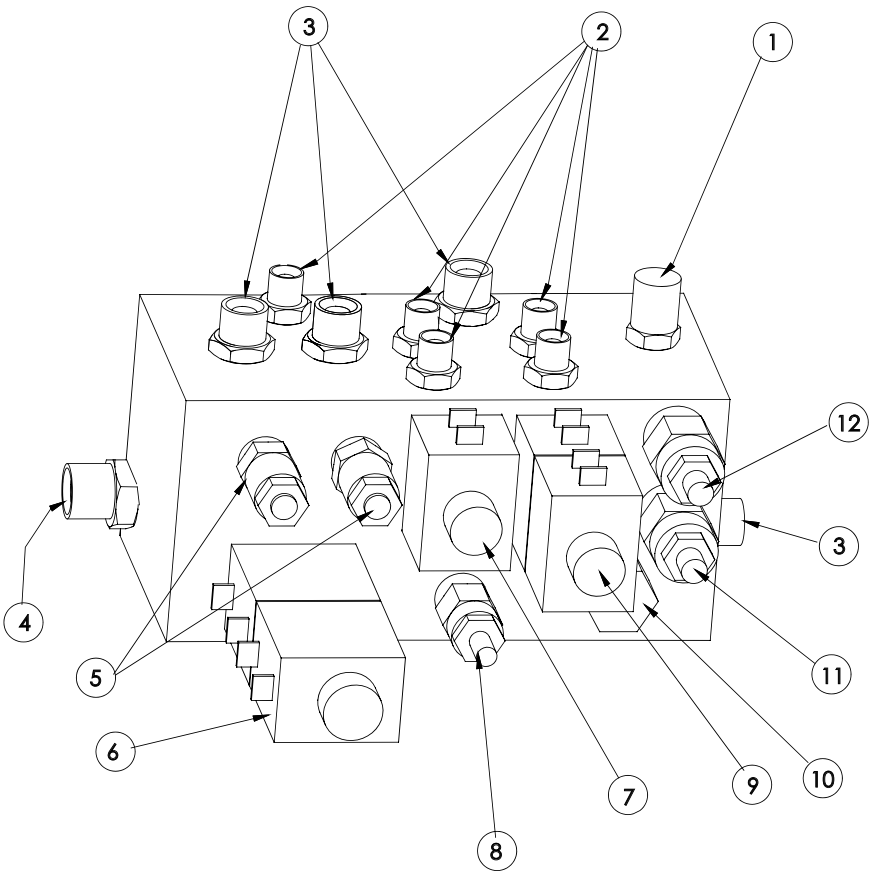
Item	Part	Description	Qty.
1	501074-000	BATTERY	4
2	066309-011	WELDMENT, DOOR MODULE	1
3	062791-002	LATCH	1
4	066735-001	WELDMENT, POTHOLE	1
5	504133-000	BRACKET, GUIDE PAD ANGLE	1
6	066713-002	HINGE	1
7	504132-000	HYDRAULIC CYLINDER, POT-HOLE	1

Item	Part	Description	Qty.
8	504135-000	BUSHING, POTHOLE PIVOT	2
9	504153-001	PIVOT PIN, POTHOLE	2
10	504134-000	GUIDE PAD	2
11	504126-000	BUSHING, MODULE PIVOT	2
12	502152-000	SPLIT PIN	1



HYDRAULIC MANIFOLD ASSEMBLY 503800-001

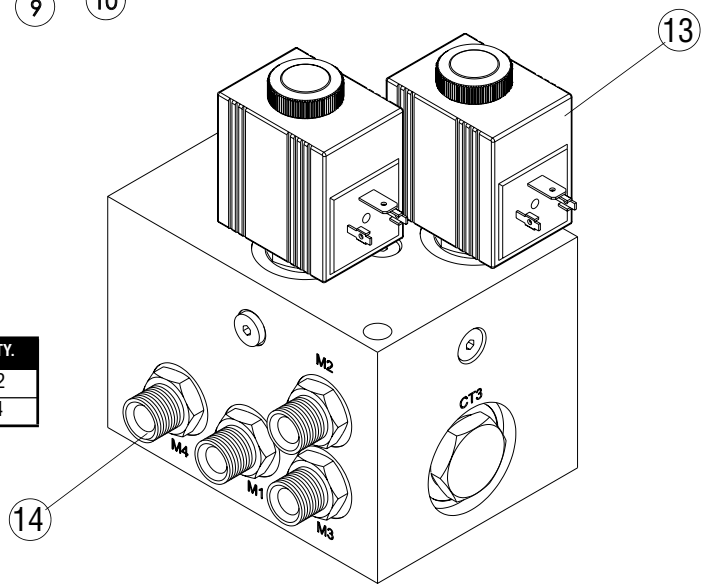
Item	Part	Description	Qty.
1		TEST PORT	1
2	058358-000	FITTING, 1/4" - 1/4" MALE/MALE	5
3	057122-000	FITTING, 3/8" - 3/8" MALE/MALE	4
4	057377-000	FITTING, 1/2" - 1/2" (MALE/MALE)	1
5	503803-000	CROSS LINE RELIEF VALVE (DRIVE)	1
6	503804-000	VALVE, SOLENOID (DRIVE)	1
7	503805-000	VALVE, SOLENOID (DRIVE/LIFT)	1
8	503807-000	PRESSURE RELIEF (MAIN LIFT)	1
9	503808-000	VALVE, SOLENOID (STEERING)	1
10	503809-000	FLOW RESTRICTOR (STEERING)	1
11	058728-000	RELIEF VALVE (STEERING)	1
12	503810-000	RELIEF VALVE (MAIN RELIEF)	1



Hydraulic Block (Series / Parallel)

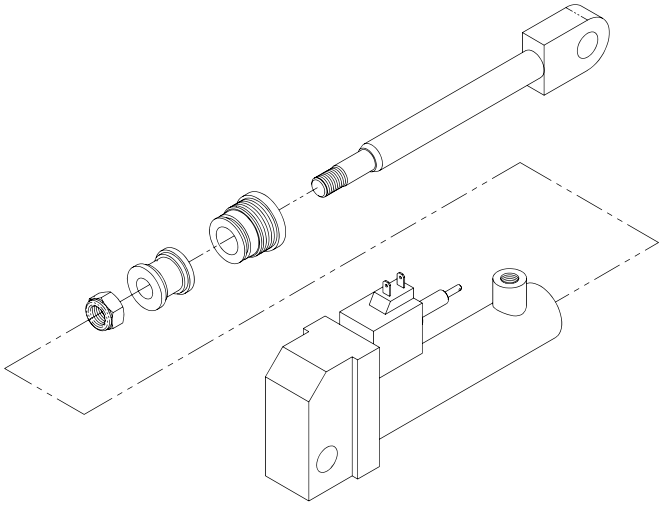
504151-000

Item	Part	Description	QTY.
13	500303-000	SOLENOID COIL 18V	2
14	057122-000	HYDRAULIC FITTING, 3/8 X 3/8 MALE MALE	4



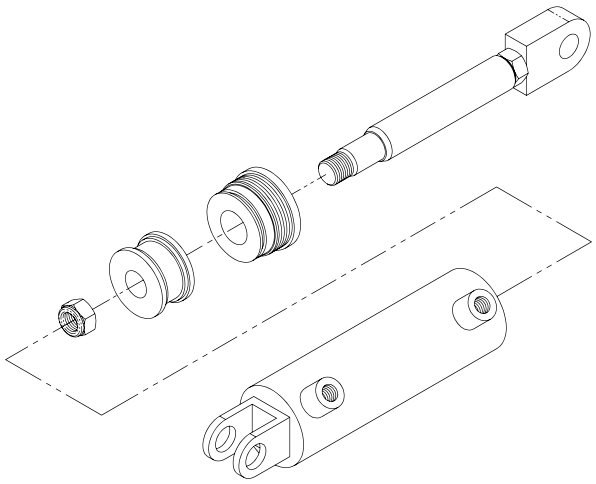
POTHOLE CYLINDER ASSEMBLY
504132-000

Part	Description	Qty.
504132-010	SEAL KIT	REF



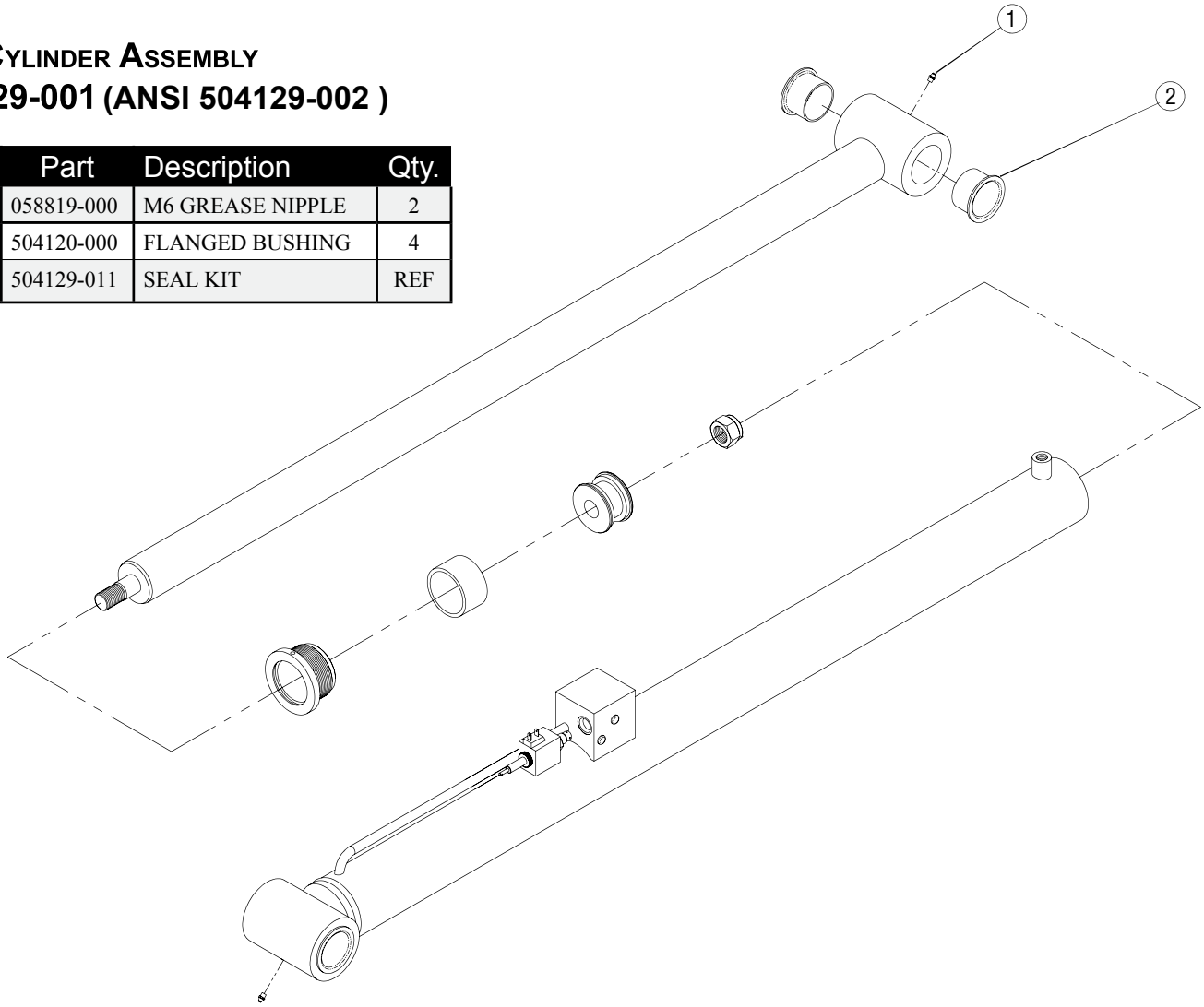
STEERING CYLINDER ASSEMBLY
504148-001

Part	Description	Qty.
504148-011	SEAL KIT	REF



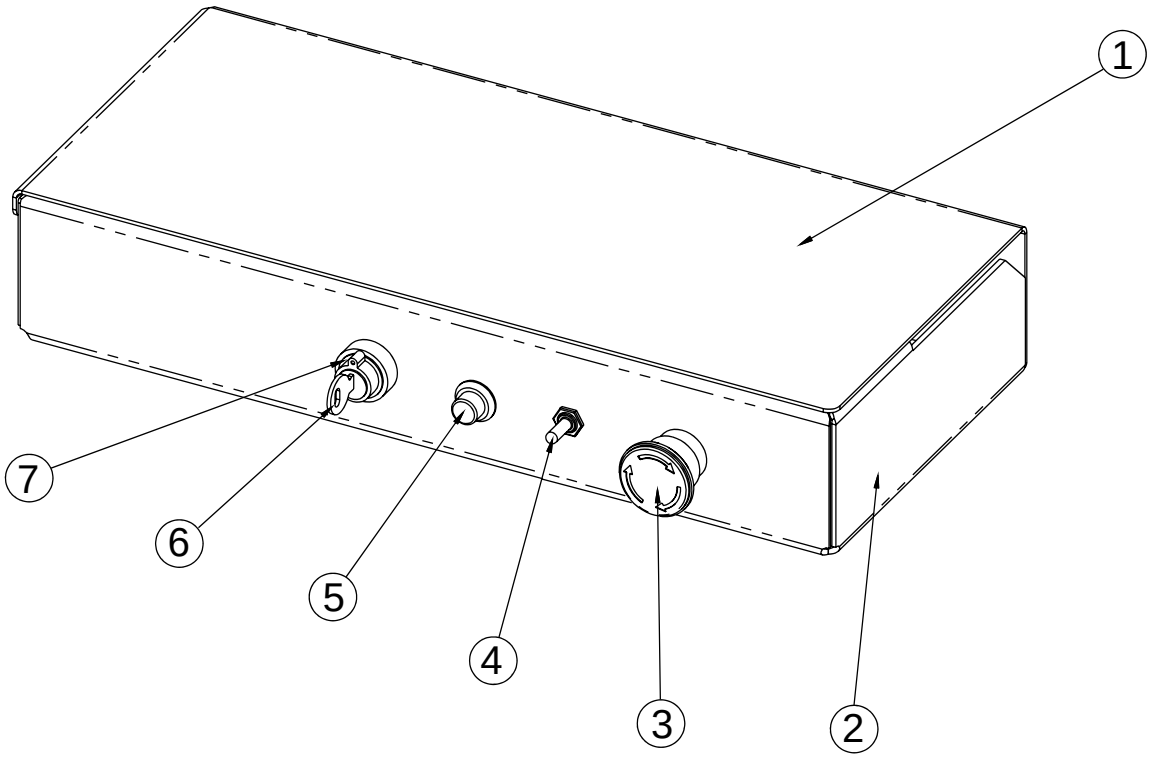
LIFT CYLINDER ASSEMBLY
504129-001 (ANSI 504129-002)

Item	Part	Description	Qty.
1	058819-000	M6 GREASE NIPPLE	2
2	504120-000	FLANGED BUSHING	4
	504129-011	SEAL KIT	REF



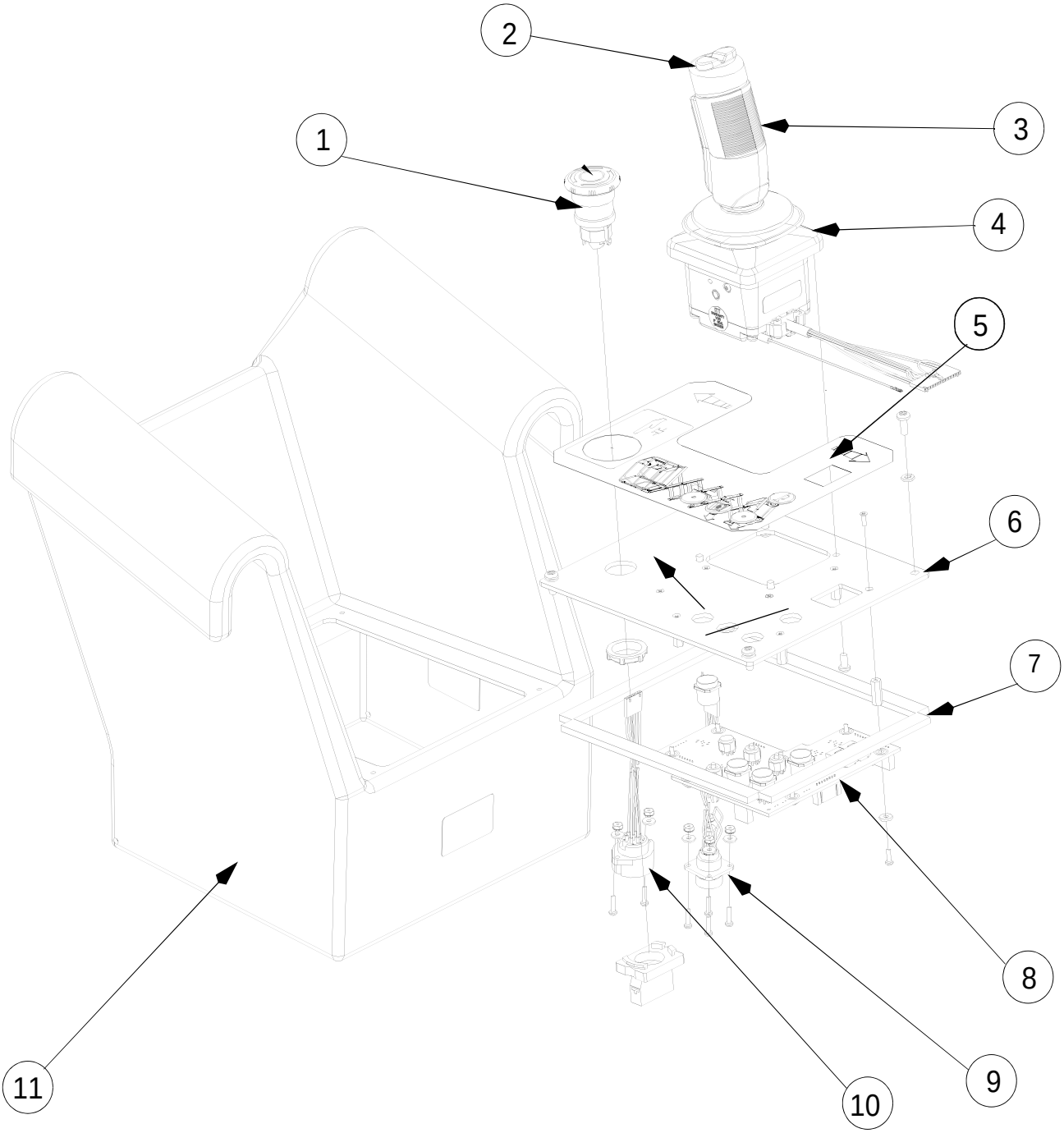
LOWER CONTROL BOX ASSEMBLY

Item	Part	Description	Qty.
1	504141-001	COVER, LOWER CONTROL BOX	1
2	504142-000	BOX, LOWER CONTROL BOX	1
3	501867-000	EMERGENCY STOP BUTTON	1
4	502251-000	TOGGLE SWITCH	1
5	502250-000	ENABLE BUTTON	1
6	501866-000	KEY	1
7	501866-001	KEY SWITCH	1

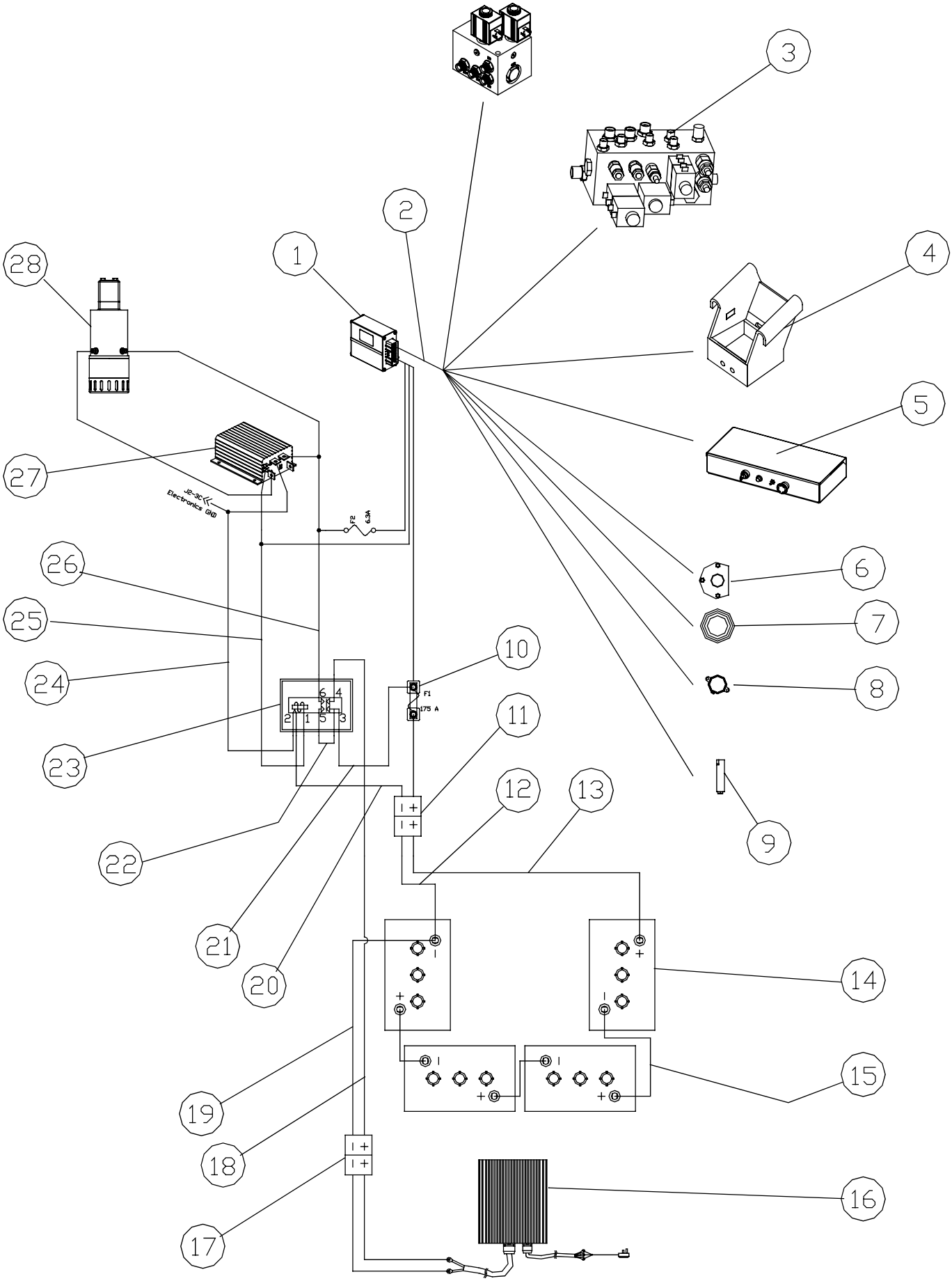


UPPER CONTROL BOX ASSEMBLY 504349-000

Item	Part	Description	Qty.
1	501867-000	EMERGENCY STOP BUTTON	1
2	501882-002	RUBBER BOOT, STEERING	1
3	501882-000	JOYSTICK	1
4	501882-001	RUBBER BOOT, JOYSTICK	1
5	502486-000	DECAL	1
6	501592-000	MOUNTING PLATE	1
7	502591-000	SEAL	1
8	502453-000	CIRCUIT BOARD	1
9	502587-001	SOCKET, MAIN HARNESS	1
10	502605-000	SOCKET, OVERLOAD	1
11	502496-000	UCB, BOX ONLY	1



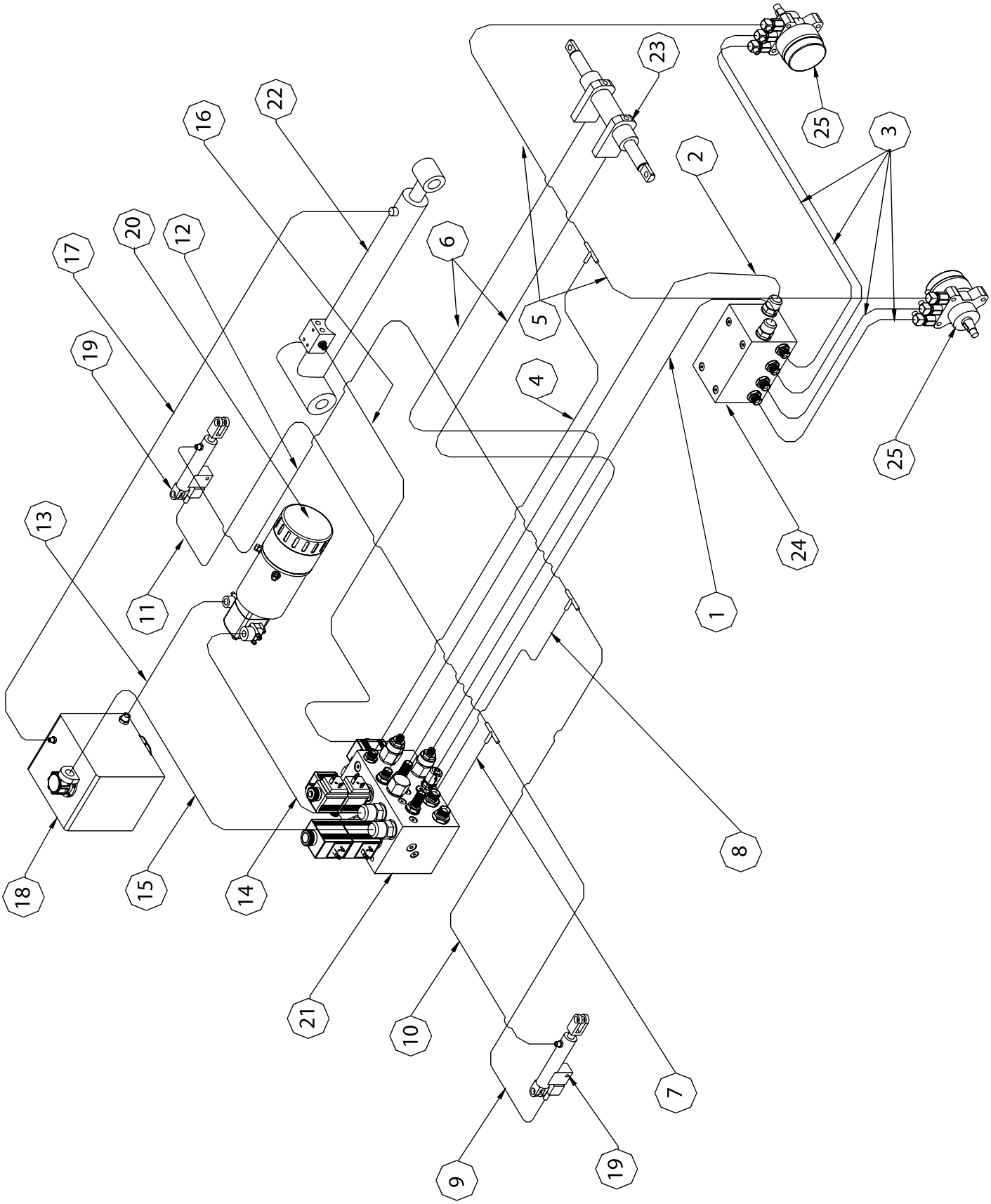
ELECTRICAL ASSEMBLY



ELECTRICAL ASSEMBLY

Item	Part	Description	Qty.
1	502483-000	ECU	1
2	502531-000	J1 HARNESS	1
3	503800-001	MAIN MANIFOLD BLOCK	1
4	504349-000	UPPER CONTROLS	1
5	505006-000	LOWER CONTROLS	1
6	505566-001	TILT SENSOR	1
7	501868-000	HORN	1
8	502588-000	ALARM	1
9	505072-000	PROXIMITY SENSOR	1
10	502494-000	FUSE	1
11	058937-000	BATTERY DISCONNECT PLUG	1
12	502594-000	HARNESS, BATTERY DISCONNECT - BATT (-)	1
13	502595-000	HARNESS, BATTERY DISCONNECT - BATT (+)	1
14	501074-000	BATTERY	4
15	502596-000	HARNESS, BATTERY INTERCONNECT	3
16	069199-001	CHARGER	1
17	058783-000	CHARGER DISCONNECT PLUG	1
18	502597-000	HARNESS, CHARGER DISCONNECT (+) - LINE CON4	1
19	502598-000	HARNESS, CHARGER DISCONNECT (-) - BATT (-)	1
20	502599-000	HARNESS, CHARGER DISCONNECT (-) - LINE CON2	1
21	502600-000	LINE CONTACTOR 3 - FUSE	1
22	502601-000	LINE CONTACTOR 5 - LINE CONTACTOR 3	1
23	502489-000	LINE CONTACTOR	1
24	502602-000	LINE CONTACTOR 2 - MOTOR CONT B-	1
25	502603-000	LINE CONTACTOR 1 - MOTOR CONT ENABLE	1
26	502604-000	LINE CONTACTOR 6 - PUMP MOTOR	1
27	502492-000	MOTOR CONTROLLER	1
28	504536-000	PUMP MOTOR	1

HYDRAULIC ASSEMBLY

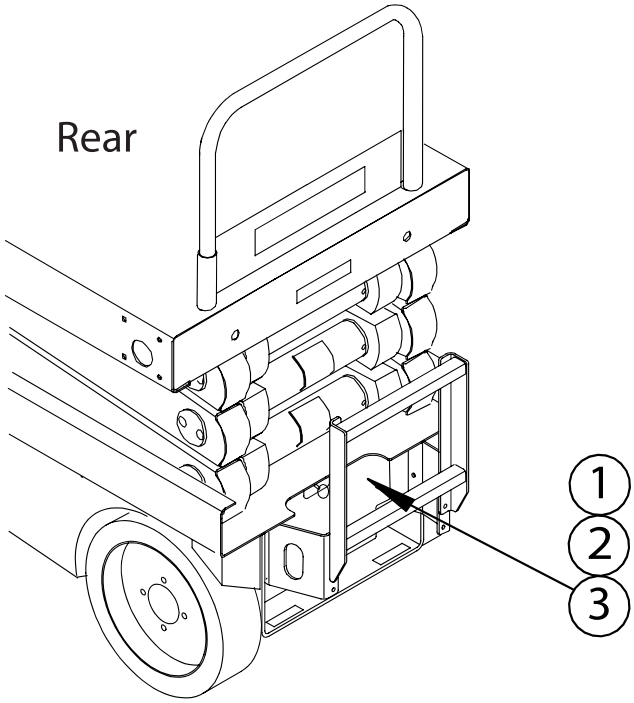


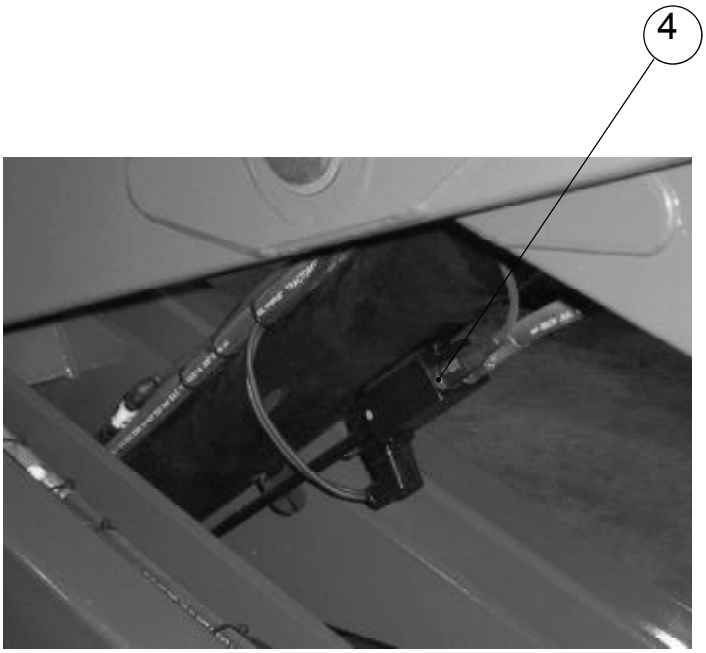
HYDRAULIC ASSEMBLY

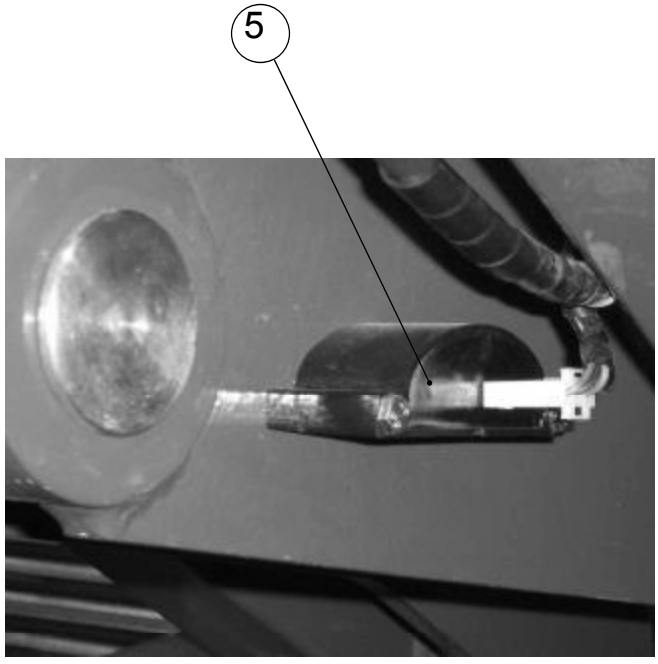
Item	Part	Description	Qty.
1	509420-000	HYDRAULIC HOSE, BLOCK - SERIES/PARA BLOCK	1
2	509421-000	HYDRAULIC HOSE, BLOCK D2 - SERIES/PARA D2	1
3	509416-000	HYDRAULIC HOSE,SERIES/PARA BLOCK - MOTORS	4
4	509417-000	HYDRAULIC HOSE, BLOCK - BRAKE TEE	1
5	509422-000	HYDRAULIC HOSE, BRAKE TEE - MOTORS	2
6	509423-000	HYDRAULIC HOSE, BLOCK - STEERING CYLINDER	2
7	509424-000	HYDRAULIC HOSE, BLOCK - POTHOLE TEE	1
8	509425-000	HYDRAULIC HOSE, BLOCK - POTHOLE TEE	1
9	509418-000	HYDRAULIC HOSE, TEE (RHS) - POTHOLE CYL	1
10	509427-000	HYDRAULIC HOSE, TEE (RHS) - POTHOLE CYL	1
11	509419-000	HYDRAULIC HOSE, TEE (LHS) - POTHOLE CYL	1
12	509426-000	HYDRAULIC HOSE, TEE (LHS) - POTHOLE CYL	1
13	509428-000	HYDRAULIC HOSE, TANK - PUMP (SUCTION)	1
14	509429-000	HYDRAULIC HOSE, PUMP - BLOCK (PRESSURE)	1
15	509430-000	HYDRAULIC HOSE,BLOCK - FILTER (RETURN)	1
16	509431-000	HYDRAULIC HOSE, MANIFOLD - LIFT CYLINDER	1
17	509432-000	HYDRAULIC HOSE, LIFT CYLINDER DRAIN	1
18	504128-001	HYDRAULIC TANK	1
19	504132-000	HYDRAULIC CYLINDER (POTHOLE)	2
20	504536-000	PUMP ASSEMBLY	1
21	503800-001	BLOCK, MAIN MANIFOLD	1
22	504129-001	HYDRAULIC CYLINDER, LIFT	1
23	504148-001	HYDRAULIC CYLINDER, STEER	1
24	504151-000	HYDRAULIC BLOCK, SERIES / PARALLEL	1
25	114055-002	MOTOR, HYDRAULIC	2

OVERLOAD ASSEMBLY

Item	Part	Description	Qty.
1	503950-001	MOUNTING PLATE, ELECTRICAL BOX	1
2	504561-002	MOUNTING PLATE, CIRCUIT BOARD	1
3	504558-000	CIRCUIT BOARD	1
4	504560-000	PRESSURE TRANSDUCER	1
5	504559-000	ANGLE TRANSDUCER	1



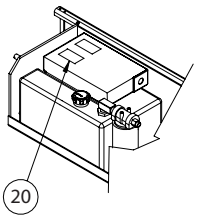




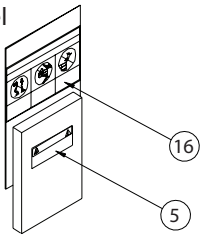
NOTES:

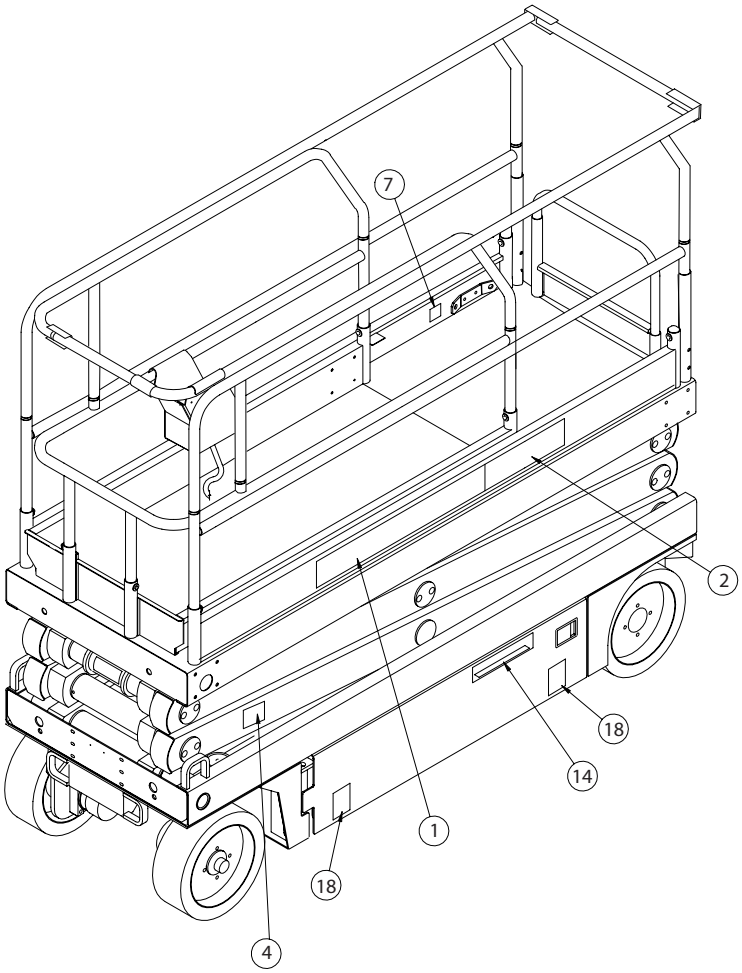
CE DECALS

Control Module

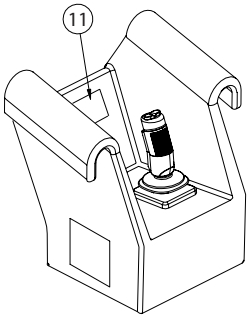


Front Panel

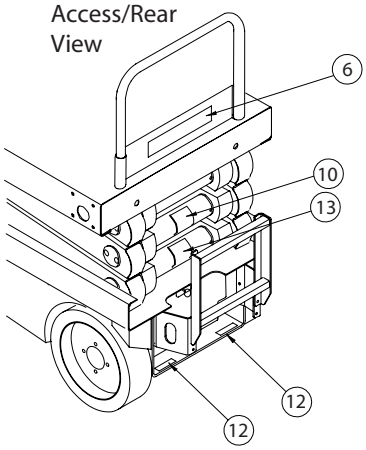


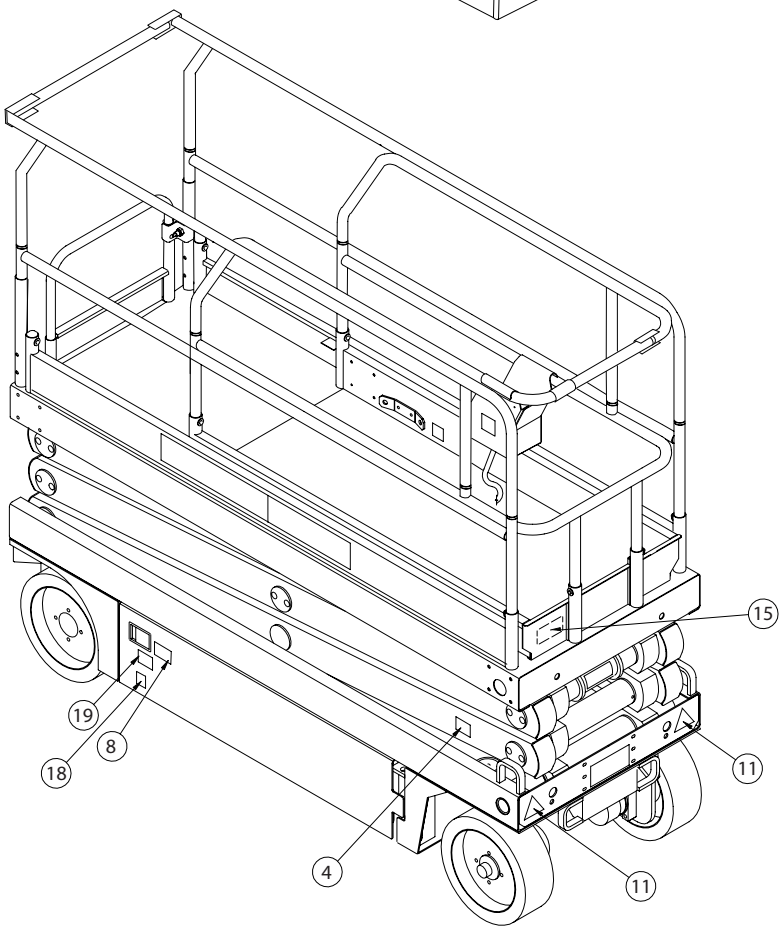


Upper Control Box

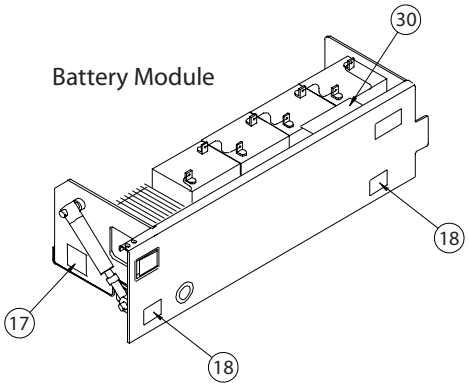


Access/Rear View





Battery Module



CE DECALS

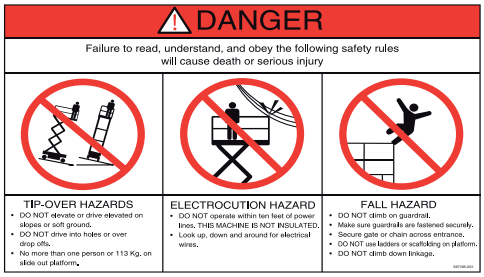
596295-000 x2

508339-000 x2

9

066556-900 x2

16



067195-001

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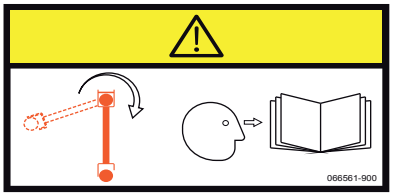
101210-000

10



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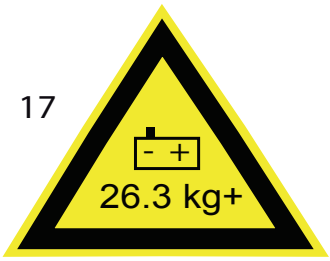

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503724-000 x2

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18

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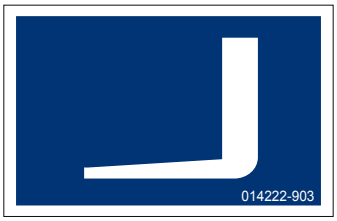

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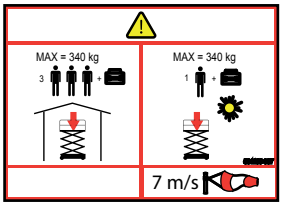

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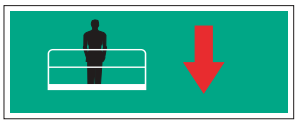

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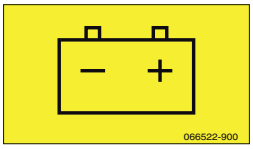

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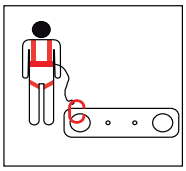

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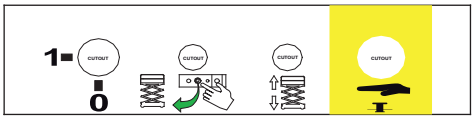

503721-000

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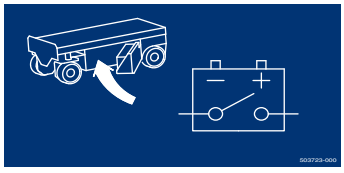
HYDRAULIC FLUID
HYDRULIKOEL
HUILE HYDRAULIQUE
FLUIDO HIDRAULICO

060197-001

8



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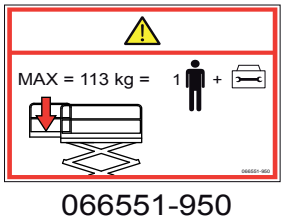


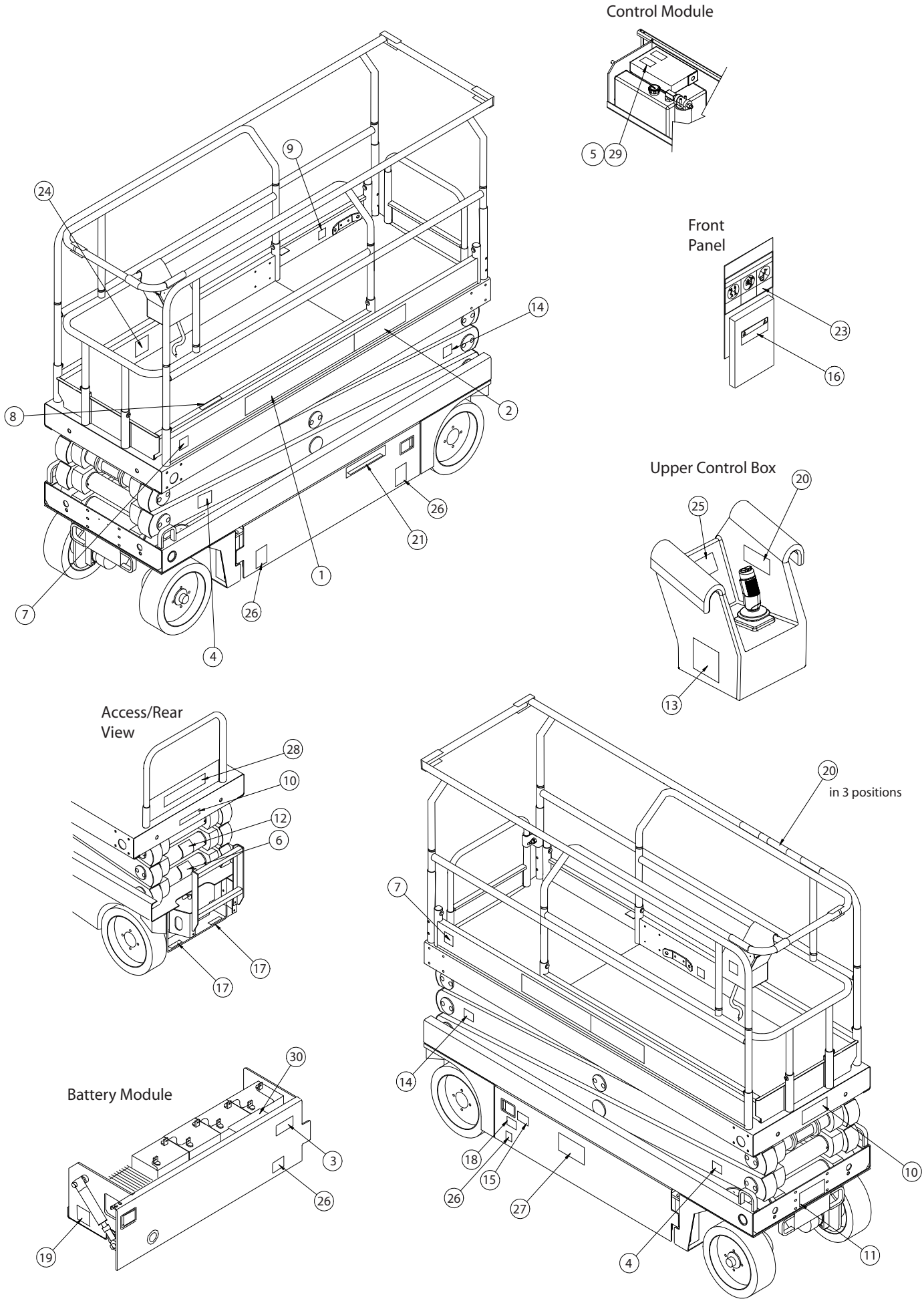
066551-950

21

BATTERY
MAINTAIN BATTERY FLUID
AT RECOMENDED LEVEL

005221-000

ANSI DECALS


Control Module
5
29
Front
Panel
23
16
9
24
14
8
2
26
21
1
7
26
4
Upper Control Box
20
25
13
Access/Rear
View
28
10
12
6
17
17
20
in 3 positions
7
14
18
15
26
27
4
10
11
30
Battery Module
3
26
19

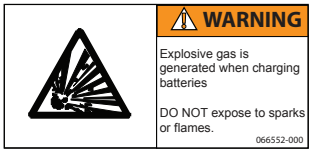
ANSI DECALS

1


596295-000 x2

2


508339-000 x2

3


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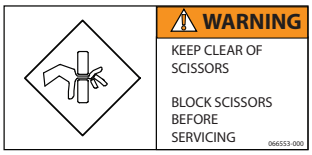

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066555-000

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066558-000

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101250-005 x2

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068639-000

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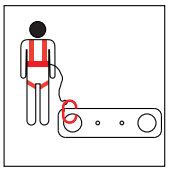
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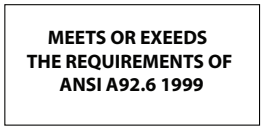

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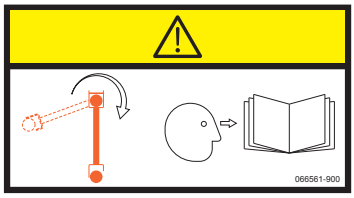

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300699

14


101252-005

15


107051-000

16


10076-001

17


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062562-001

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21


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22


066554-000

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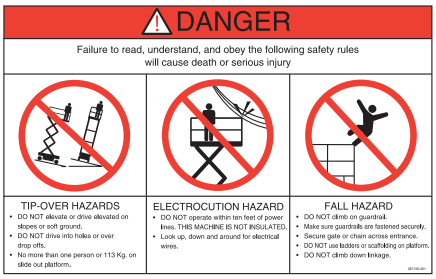

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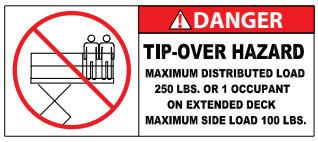

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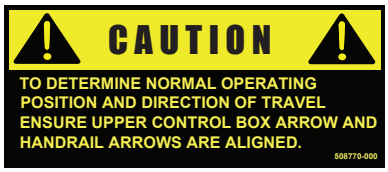

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508772-000

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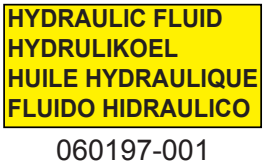

060197-001

30


005221-000

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P.O. Box 1160
St. Joseph, MO 64502-1160 USA

TEL: + 1-800-255-0317

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