snorkel

S3010E

CE

PARTS & SERVICE MANUAL

Part Number 514226-200
October 2014

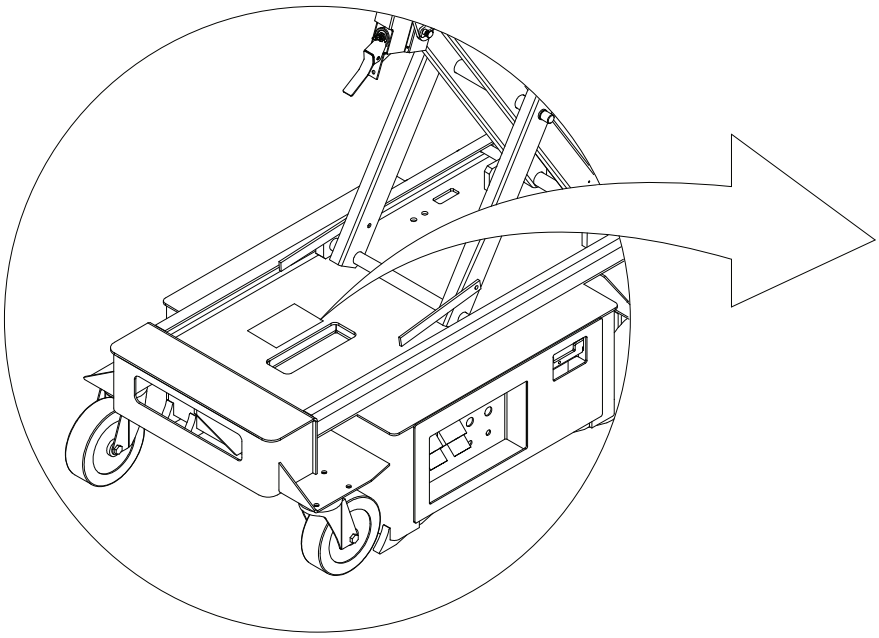
Serial Number 000000 and after

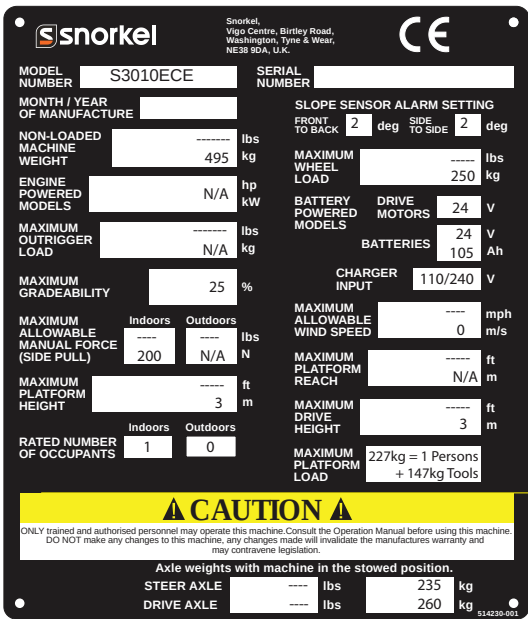
GENERAL INFORMATION

REPAIR PARTS

S3010E

NOTE: When contacting SNORKEL for service or parts information, be sure to include the MODEL and SERIAL NUMBERS from the equipment nameplate. Please find the NAMEPLATE location below.





S3010E SEVICE AND PARTS MANUAL

FOREWORD

HOW TO USE THIS MANUAL

This manual is divided into six sections.

INTRODUCTION

General description and machine specifications.

OPERATION AND SPECIFICATIONS

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

SERVICE AND REPAIR

Preventative maintenance and service information.

TROUBLESHOOTING

Causes and solutions to typical problems.

SCHEMATICS

Schematics and valve block diagram with description and location of components. Large schematic drawings may be located in the back of the manual.

ILLUSTRATED PARTS BREAKDOWN

Complete parts lists with illustrations. Large parts drawings may be located in the back of the manual.

WASTE REMOVAL AND DISPOSAL

Flow chart explaining the correct method of hazardous waste disposal.

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.

NOTE: Gives helpful information.

WORKSHOP PROCEDURES

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

⚠ CAUTION ⚠

Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. Note that this manual does contain warnings and cautions against some specific service methods that 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. When in doubt, contact your local distributor or Snorkel.

INTRODUCTION

INTRODUCTION

PURPOSE

The purpose of this service and parts manual is to provide instructions and illustrations for the operation and maintenance of the S3010E manufactured by Snorkel

SCOPE

The manual includes procedures for proper operation, maintenance, adjustment, and repair of the S3010E as well as recommended maintenance schedules and troubleshooting.

GENERAL DESCRIPTION

The S3010E consists of the platform, controller, elevating assembly, power / control module, and chassis.

⚠ WARNING ⚠

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

⚠ WARNING ⚠

DO NOT make any alterations which might affect stability, strength or performance without the manufacturers consent.

Figure 1-1: S3010E Work Platform

PLATFORM

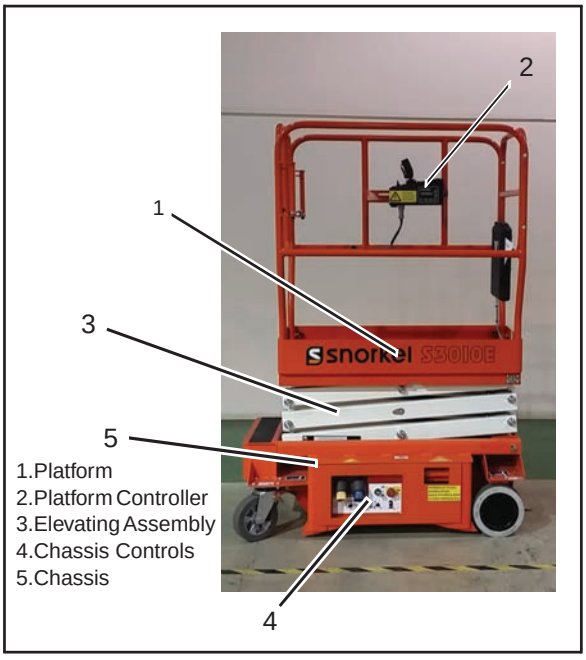
The platform has a reinforced steel floor, 1.11 m (43.75 inch) high guardrails with midrail, 6 inch (152 mm) toeboards, and an entrance gate at the front of the platform.

PLATFORM CONTROLLER

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

ELEVATING ASSEMBLY

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



CHASSIS

The chassis is a structural frame that supports all the components of the S3010E work platform. The platform is raised and lowered using a scissors mechanism. Lift is achieved using a single stage cylinder.

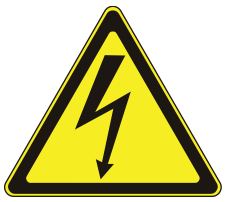
PURPOSE OF EQUIPMENT

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.

SAFETY RULES

⚠Warning

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

Electrocution Hazard	Tip Over Hazard	Collision Hazard	Fall Hazard	Trapping/Crushing Hazard
				
THIS MACHINE IS NOT INSULATED!	**NEVER** elevate the platform or drive the machine while elevated unless the machine is on a firm, level surface.	**NEVER** position the platform without first checking for overhead obstructions or other hazards.	**NEVER** climb, stand, or sit on platform guardrails or midrail.	Beware of crushing hazard when holding handrails while the platform is moving in close proximity to other objects.

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, roof structures, buildings etc.). Uses or alterations to the aerial work platform must be approved by **SNORKEL**.

THIS AERIAL WORK PLATFORM IS NOT INSULATED! For this reason it is imperative to keep a safe distance from live parts of electrical equipment! Do not get closer than the minimum distance recommended by National Regulation.

Exceeding the specified permissible maximum load **is prohibited!** See “Platform Capacity” on page 18 for details.

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

NEVER exceed the manual force allowed for this machine. See “Manual Force” on page 18 for details.

DISTRIBUTE all platform loads evenly on the platform.

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

OPERATE machine only on surfaces capable of supporting wheel loads.

NEVER operate the machine outdoors or indoors when wind speeds exceed 0 m/s (0 mph).

Do not operate the aerial platform in windy or gusty conditions. Do not add anything to or take anything into the aerial platform that will increase the wind loading such as billboards, banners, flags, etc.

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!

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 **SNORKEL**.

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

The driving of MEWP’s on the public highway is subject to national traffic regulations.

Certain inherent risks remain in the operation of this machine despite utilizing proper design practices and safeguarding.

Care must be taken to ensure that the machines meets the requirements of stability during use, transportation, assembly, dismantling when out of service, testing, or foreseeable breakdowns.

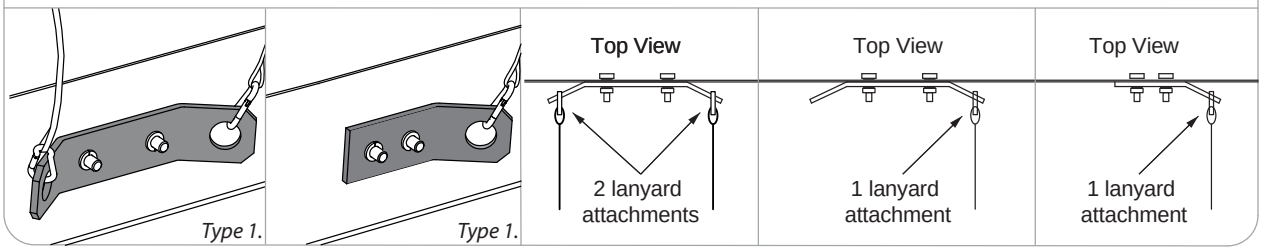
In the event of an accident or breakdown see “Emergency Lowering” on page 12, do not operate the aerial platform if it is damaged or not functioning properly. Qualified maintenance personnel must correct the problem before putting the aerial platform back into service.

Harness attachment points are provided in the platform and the manufacturer recommends the usage of a fall restraint harness, especially where required by national safety regulations.

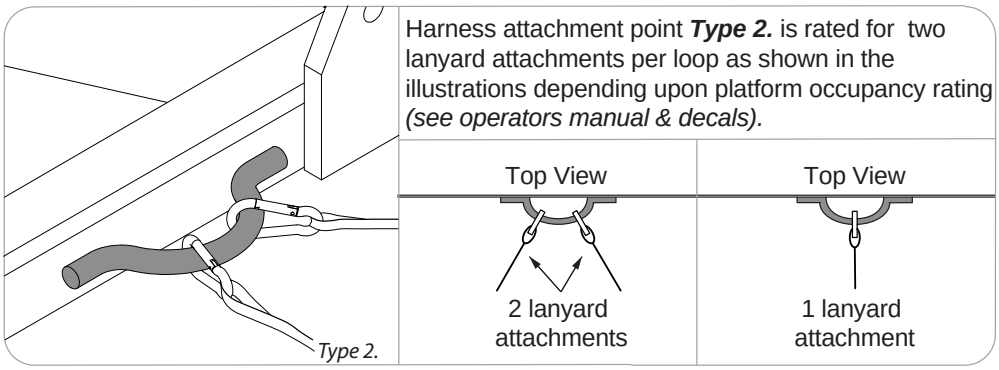
All harness attachment points on SNORKEL vehicles have been tested with a force of 3,650 lbs (16.3 KN) per person.

See below examples of harness attachment points used on SNORKEL vehicles with their corrosponding rating;

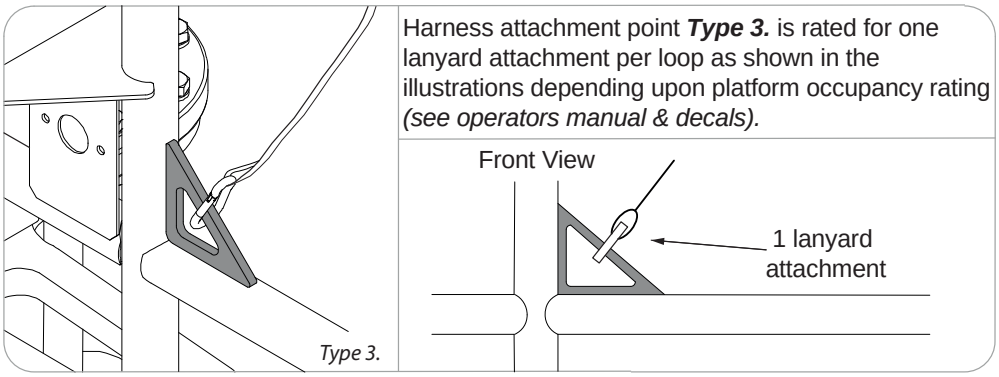
Harness attachment point ***Type 1.*** is rated for one lanyard attachment per loop as shown in the illustrations depending upon platform occupancy rating *(see operators manual & decals).*



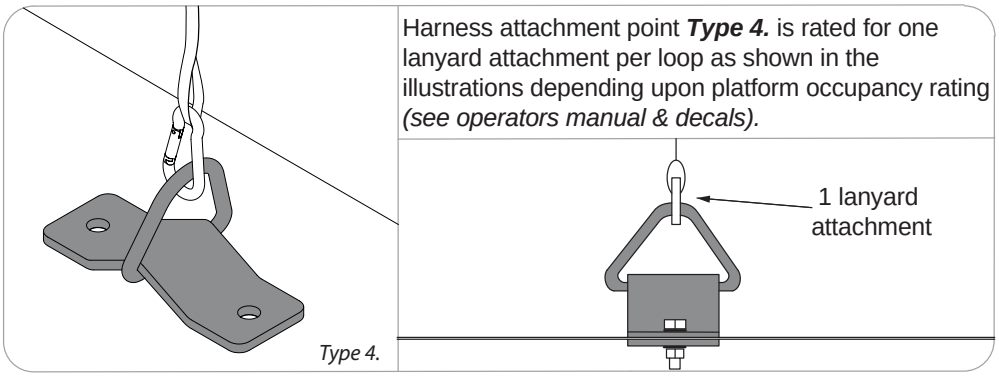
Harness attachment point ***Type 2.*** is rated for two lanyard attachments per loop as shown in the illustrations depending upon platform occupancy rating *(see operators manual & decals).*



Harness attachment point ***Type 3.*** is rated for one lanyard attachment per loop as shown in the illustrations depending upon platform occupancy rating *(see operators manual & decals).*



Harness attachment point ***Type 4.*** is rated for one lanyard attachment per loop as shown in the illustrations depending upon platform occupancy rating *(see operators manual & decals).*



NOTE: There can be more harness attachment points per machine than the maximum number of occupants allowed in a platform. Refer to the platform decal & specifications table listed in the operators manual for the correct occupancy rating before use.

Introduction

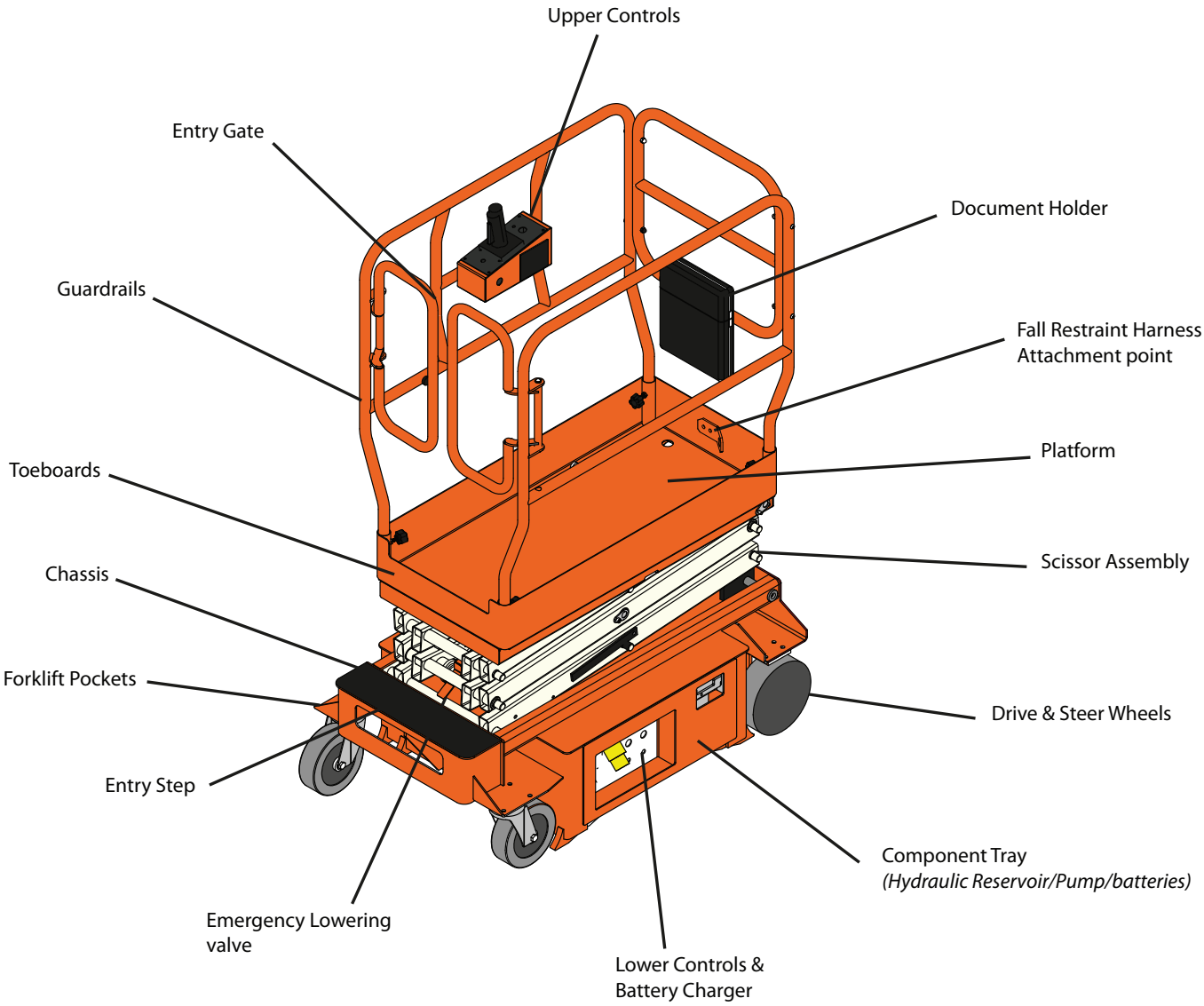
This manual covers the S3010E Aerial Work Platforms.

This manual must be stored on the machine at all times.

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

When contacting SNORKEL for service or parts information, be sure to include the MODEL and SERIAL NUMBERS from the equipment nameplate. Should the nameplate be missing, the SERIAL NUMBER is also stamped on the front of the chassis.

Component Identification



Special Limitations

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

One person and tools may occupy the platform when the machine is indoors only. The maximum platform capacity for the aerial platform is stated in the “Specifications” on page 18.

⚠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.

In zero wind conditions the maximum allowable manual force is limited to 200 N (45 lb).

⚠Danger

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

Drive/Lift Level Sensor Interlock

The aerial platform drive and lift functions are interlocked through a level sensor system. The drive/lift level sensor interlock operates when the platform is elevated approximately 1.5 m (5′).

If the chassis is tilted more than 2 degrees side-to-side or more than 2 degrees front-to-rear while the platform is elevated, the drive and lift functions will not operate and an alarm will sound.

Lower the platform and drive to a level surface when the drive/lift level sensor alarm sounds.

The drive/lift level sensor system is for added protection and does not justify operating on anything other than firm, flat, level surfaces.

Lowering Alarm

When the joystick is moved out of neutral to lower the platform, the alarm emits a loud beeping sound to warn personnel in the work area to stand clear.

⚠Danger

Pinch points exist on the scissors structure. Death or serious injury will result if the scissors structure lowers onto personnel within the scissors arms or under the raised platform. Stand clear while raising and lowering the platform.

Be careful when lowering the platform. Keep hands and fingers away from the scissors structures components.

Lowering Interrupt

When the platform is lowered to about 1.5 m (5′) lowering stops. The platform will not lower for three seconds regardless of the control position to allow personnel to clear the area of the scissors before the platform completely lowers.

Center the control in neutral to reset the lowering function, then continue to lower the platform.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not exceed the capacity values indicated on the platform rating placard.

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 machine.

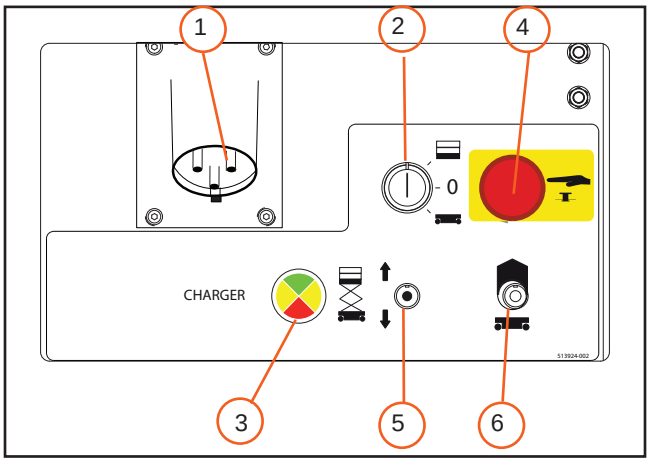


Figure 1 – Lower Controls and Indicators

1. Battery charging point
2. Control selector switch
3. Battery Charge indicator
4. Emergency stop button
5. Platform raise/lower switch
6. Ground Operation switch

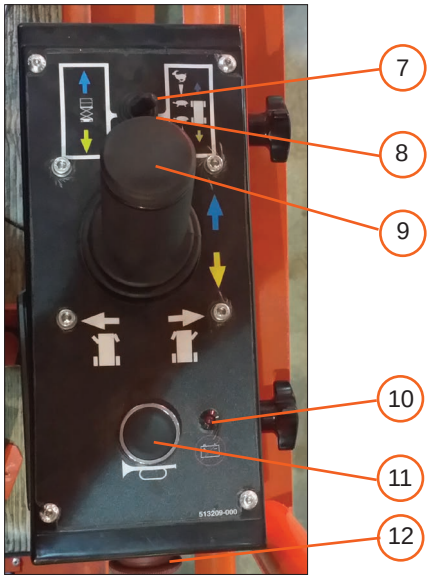


Figure 2 – Upper Controls and Indicators

7. Drive/lift selector switch
8. Enable trigger (Front of Joystick)
9. Joystick
10. Low battery indicator
11. Horn button
12. Emergency stop button

⚠Danger

Pinch points may exist between moving components. Death or serious injury will result from becoming trapped between components, buildings, structures, or other obstacles. Make sure all personnel stand clear while operating the aerial platform.

- Controls to position the platform are located on the lower control panel on the chassis and on the upper control panel in the platform.

- Controls to drive the aerial platform are located on the upper control panel only.

Lower Controls

The lower controls (refer to Figure 1) are located on the left side of the chassis. Only platform functions can be operated from the lower controls.

The following are located on the lower control panel:

- Emergency stop button
- Control selector switch
- Ground operation switch
- Platform raise/lower switch

Emergency Stop Button

The emergency stop is a two-position red push button.

- Push the button inward to disconnect power to all control circuits.

- Pull the button outward to restore power.

Control Selector Switch

Insert the key into the control selector switch.

- Turn the switch to the lower controls position to operate aerial platform functions from the lower controls. The upper controls will not operate while the control selector is in the lower position.

- Turn the switch to the upper controls position to operate the aerial platform functions from the upper controls.

- In the center position, aerial platform functions will not operate from the lower or upper controls.

Ground Operation Switch

The ground operation switch prevents platform movement if the platform raise/lower switch is accidentally moved. This switch is spring returned to the off position.

Hold the ground operation switch upward continually to operate the machine from the lower controls.

Platform Raise/Lower Switch
The platform raise/lower switch is used to raise or lower the platform. The switch is spring returned to the center off position.

- Hold the switch upward to raise the platform.
- Hold the switch downward to lower the platform.
- An alarm will sound as the platform lowers.

Upper Controls

The upper controls (refer to Figure 2) are located on the control panel at the platform. Platform and drive functions can be operated from the upper controls.

⚠Warning

The potential for an accident increases from improperly driving or steering the aerial platform. Death or serious injury could result from such accidents.

The following controls are located on the upper control panel:

- Emergency stop button
- Drive/lift selector switch
- Joystick to control platform lift, drive, and steer
- Horn button
- Enable Trigger

Emergency Stop Button
The emergency stop is a two-position, red push button on the front of the upper control panel.

- Push the button inward to disconnect power from all control circuits at the upper controls.
- Twist the button clockwise to restore power.

Push the button in when the upper controls are not in use to help protect against unintentional platform operation.

Drive/Lift Selector Switch
The drive/lift selector switch is used to select either machine drive or lift functions. Both functions can not be operated at the same time.

- Place the drive/lift selector switch in the drive position to drive the aerial platform using the joystick. The platform will not raise or lower while driving.
- Place the drive/lift selector switch in the lift position to raise and lower the platform using the joystick.

Joystick
Use the joystick to operate the following functions:

- Aerial platform steering
- Aerial platform drive and speed
- Platform raise/lower and speed

Movement of the joystick in a given direction produces a corresponding movement of the aerial platform. The steering and drive functions may be operated separately or simultaneously.

Horn Button
The horn button is on the top of the upper control panel.

Press the button to sound the horn.

Enable Trigger
The trigger prevents accidental operation of the machine from the upper controls and must be held in to operate the machine.

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 the tray and inspect for damage, fluid leaks or missing parts.

2. Check the level of the hydraulic fluid with the platform fully lowered. The fluid level must be within the minimum and maximum level indicated on the dipstick which can be found on the bottom of the filling cap. Add recommended hydraulic fluid if necessary. See “Specifications” on page 18.

3. Check that the fluid level in the batteries is correct. See “Battery Maintenance” on page 15.

4. Verify that the batteries are charged.

5. Check that the AC extension cord has been disconnected from the outlet on the side of the chassis.

6. Check that all guardrails are in place and all fasteners are properly tightened.

7. Inspect the machine thoroughly for cracked welds and structural damage, loose or missing hardware, hydraulic leaks, damaged control cable and loose wire connections.

System Function Inspection

Refer to “Controls and Indicators” on page 6 for the locations of various controls and indicators.

⚠Warning

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

Before operating the machine, 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.

1. Move the machine, if necessary, to an unobstructed area to allow for full elevation.
2. Pull the Lower Control Emergency Stop Switch to the ON position.
3. Turn the Upper Control Emergency Stop Switch clockwise to the ON position.
4. Visually inspect the scissors structure, lift cylinder, and hoses for cracked welds and structural damage, loose hardware, hydraulic leaks, loose wire connections, and erratic operation. Check for missing or loose parts.
5. Hold the ground operation switch upward. Test each machine function from the lower control station (refer to Figure 1).
6. Test the emergency lowering system for proper operation.
7. Push the Lower Control Emergency Stop Button to check for proper operation. All machine functions should be disabled. Pull the Lower Control Emergency Stop Button outward to resume.
8. Enter the platform and close the gate.
9. Check that the route is clear of obstacles (persons, obstructions, debris), is level, and is capable of supporting the wheel loads.
10. Test each machine function from the upper control station by engaging the interlock and operating the function controls (refer to Figure 2).
11. Push the Upper Control Emergency Stop Button to check for proper operation. All platform control functions should be disabled. Turn the Upper Control Emergency Stop Button clockwise to resume.

Operation
The aerial platform may be operated from either the lower or upper controls.

⚠Danger
The aerial platform is not electrically insulated. Death or serious injury will result from contact with, or inadequate clearance from, an energized conductor. Do not go closer than the minimum safe approach distance as defined by national safety regulations.

Pinch points may exist between moving components. Death or serious injury will result from becoming trapped between components, buildings, structures, or other obstacles. Make sure there is sufficient clearance around the machine before moving the chassis or platform. Allow sufficient room and time to stop movement to avoid contact with structures or other hazards.

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Operate the aerial platform on a firm, flat, level surface. Avoid travel speeds and/or rough terrain that could cause sudden changes in platform position. Do not drive or position the aerial platform for elevated use near any drop-off, hole, slope, soft or uneven ground, or other tip-over hazard. Do not raise the platform in wind speeds above 0 m/s (0 mph).

The platform rated work load is the total weight of the personnel and equipment that may be lifted in the platform.

The work loads are stated on the platform rating placard at the entrance to the platform and page 18 of this manual.

⚠Danger
The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not exceed the capacity values indicated on the platform rating placard.

Capacity values indicate the rated lifting capacity and do not indicate aerial platform stability.

The operator bears ultimate responsibility for ensuring that the aerial platform is properly set up for the particular conditions encountered.

Preparing for Operation
Use the following procedure to prepare the aerial platform for operation:

1. Perform a pre-operation safety and system function inspection.

2. Close and latch the component tray.

Lower Controls
Only the platform raise and lower functions may be operated from the lower controls. The lower controls may be used for initial set up of the aerial platform, and for testing and inspection.

Use the following procedure to raise or lower the platform using the lower controls.

1. Pull the emergency stop button outward (refer to Figure 1).

2. Insert the key into the control selector switch and turn the switch to the lower controls position.

3. Hold the ground operation switch upward. Hold the platform raise/lower toggle switch up to raise the platform and down to lower it.

4. Release the toggle switch to stop movement.

Upper Controls
The upper controls may be used for driving and positioning the aerial platform while on the job.

Before operating the upper controls, properly set up the aerial platform as described under Preparing for Operation.

⚠Warning
The potential for an accident increases from improperly driving or steering the aerial platform. Death or serious injury could result from such accidents. Make sure the upper control panel is facing the front of the platform, attached to the guardrail, and inside the platform rails.

Use the following procedure to operate the aerial platform from the upper controls:

1. From the lower controls, pull the emergency stop button outward (refer to Figure 1).

2. Insert the key into the control selector switch and turn the switch to the upper controls position.

Note
The upper controls will not operate while the control selector is in the lower position.

3. Enter the platform and secure the gate.

4. From the upper controls, turn the emergency stop button clockwise to the on position (refer to Figure 2).

5. The aerial platform may be driven and the platform may be raised and lowered from the upper controls.

Platform

Use care when entering and exiting the platform to avoid slipping and/or falling. Securely close the safety gate when the platform is occupied.

Raising and Lowering

The raise speed is proportional to the joystick position. The further the joystick is moved, the faster the platform raises. There is only one lowering speed.

1. Place the drive/lift selector switch (refer to Figure 2) in the lift position.

2. Squeeze the trigger on the joystick.

   - To raise the platform, slowly push the joystick forward until the desired height is reached.

   - To lower the platform, pull the joystick backward.

Lowering Interrupt

When the platform is lowered to about 1.5 m (5′) lowering stops. The platform will not lower for three seconds regardless of the joystick position.

Center the joystick in neutral to reset the lowering function, then continue to lower the platform.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not exceed the capacity values indicated on the platform rating placard.

Driving and Steering

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not drive an elevated aerial platform on soft, uneven, or sloping surfaces. Do not drive on grades that exceed 0 percent.

⚠Warning

Death or serious injury could result from improperly driving or steering the aerial platform. Read and understand the information in this manual and on the placards and decals on the machine before operating the aerial platform on the job.

Use the following procedure to operate the drive and steer functions.

1. Place the drive/lift selector switch (refer to Figure 2) in the drive position.

2. Squeeze the trigger on the joystick.

3. Push the drive joystick forward to move the chassis forward. Pull the joystick backward to move the chassis backward. The drive speed is proportional to the joystick position.

4. To stop drive motion, return the joystick to neutral.

Note
To make an emergency stop push the emergency stop button inward to apply the parking brakes.

5. To steer to the right, hold the joystick to the right. To steer to the left, hold the joystick to the left.

Drive Speeds

The drive speed is proportional to the joystick position. The further the joystick is moved, the faster the travel speed.

Always slow down before traveling over rough terrain or surfaces.

Drive speed ranges are interlocked through limit switches that sense the platform position.

- When the platform is elevated below approximately 1.5 m (5′) the aerial platform may be driven within the full range of drive speeds.
- When the platform is elevated above 1.5 m (5′) only the slowest drive speed will work.

⚠Warning

The potential for an accident increases when safety devices do not function properly. Death or serious injury could result from such accidents. Do not alter, disable, or override any safety device.

Do not use the aerial platform if it drives faster than 0.6 km/h (0.4 mph), which is 5.3 m (7′ 7″) in 30 seconds, when elevated above 1.5 m (5′).

Drive/Lift Level Sensor Interlock

When the platform is elevated above 1.5 m (5′), lift and drive functions are interlocked through a level sensor system. If the chassis is tilted more than 2 degrees side-to-side or front-to-rear, platform raise and drive functions are disabled and an alarm sounds when those controls are activated.

If the drive/lift level sensor interlock shuts off the platform raise and drive functions, lower the platform and drive to a level surface.

Component Tray

Batteries and hydraulic components are enclosed in the component tray on the left side of the chassis.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury can result from a tip-over accident. Do not open the tray when the platform is raised more than 2.4 m (8′).

To open the tray, lift up on the latch and pull the tray open.

Emergency Lowering

Use the following procedure to operate the emergency lowering system.

⚠Warning

The potential for an accident increases when safety devices do not function properly. Death or serious injury can result from such accidents. Immediately push the emergency stop button inward to disable the control system before using the emergency lowering system in the event of an emergency.

1. Immediately push the emergency stop button inward to disable the control system in the event of an emergency.
2. Make sure there is nothing in the way to obstruct the platform when it lowers.
   - Push downward on the lever to lower the platform (refer to Fgure 3).
3. Make certain the lever/handle is fully released and the emergency lowering valve is fully closed before operating the aerial platform.

Figure 3 – Emergency Lowering Control

Transporting the Machine

Preparing for Transportation

Use the following procedure to prepare the aerial platform for transportation.

1. Remove any unnecessary tools, materials, or other loose objects from the platform.
2. Close and latch the component tray.

Transporting

The aerial platform may be moved on a transport vehicle. Depending on the particular situation, the aerial platform may be lifted with a forklift, driven, winched, or hoisted onto a vehicle such as a truck or trailer. Lifting with a forklift is the preferred method.

The equipment used to load, unload, and transport the aerial platform must have adequate capacity. The empty vehicle weight is listed in “Specifications” on page 18 and is stamped on the serial number placard.

The user assumes all responsibility for:

- Choosing the proper method of transportation.
- Choosing the proper selection and use of transportation and tie-down devices.
- Making sure the equipment used is capable of supporting the weight of the aerial platform.
- Making sure all manufacturer’s instructions and warnings, regulations and safety rules of their employer, the DOT, and/or any other state or federal law are followed.

Lifting With a Forklift

Use the following procedure to lift the aerial platform with a forklift.

1. Properly stow the aerial platform.
2. Remove all personnel, tools, materials, or other loose objects from the platform.
3. Insert the forklift forks into the pockets on the side of the machine.

⚠Caution

Lifting the aerial platform with the forklift forks positioned improperly can produce enough force to damage machine components. When lifting the machine with a forklift, only use the designated lift points.

4. Do not raise the aerial platform higher than necessary to transport it. Drive the forklift slowly and carefully when transporting the aerial platform.

Winching

Use a winch to load and unload the aerial platform on ramps that exceed the machine gradeability specification. A winch may also be used when poor traction, uneven surfaces, or stepped ramp transition make driving hazardous.

Use the following procedure to winch the aerial platform onto the transport vehicle.

1. Position the transport vehicle so the aerial platform will not roll forward after it is loaded.
2. Remove any unnecessary tools, materials, or other loose objects from the platform.
3. Drive the machine to the foot of the loading ramp with the front wheels nearest the ramp. Make sure the machine is centered with the ramps and that the wheels are straight.
4. Properly stow the aerial platform.
5. Chock the wheels to prevent uncontrolled motion of the aerial platform.
6. Insert the winch line through the folk lift points on the front of the chassis.

Note: this machine is not fitted with a brake release, to release the wheels while winching the machine needs to be fully opperational with the joystick in the forward position.

7. From the lower controls, pull the emergency stop button outward.
8. Place the Control Selector Switch upward in the upper controls position.

Note
The upper controls will not operate while the control selector is in the lower position.

9. Enter the platform and close the gate.
10. From the upper controls, pull the emergency stop button outward.
11. Remove the wheel chocks and use the joystick and winch together to position the aerial platform on the transport vehicle.

⚠Warning

Damage to the aerial platform and/or drive system may occur if the joystick is not held in the forward position while the winching process is being carried out .

Driving

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not drive on ramps that exceed 25 percent grade, or where conditions of the ramp could cause driving to be hazardous.

Drive the aerial platform onto the transport vehicle if a winch is not available and the ramp incline is within the grade capability of the aerial platform.

Use the following procedure to drive the aerial platform onto the transport vehicle.

1. Position the transport vehicle so the aerial platform will not roll forward after it is loaded.
2. Chock the vehicle wheels so it cannot roll away from the ramp while the aerial platform is loaded.
3. Remove any unnecessary tools, materials, or other loose objects from the platform.
4. Fully lower the platform.
5. Drive the aerial platform to the foot of the loading ramp with the front wheels nearest the ramp. Make sure the aerial platform is centered with the ramps and that the steering wheels are straight.
6. Drive the aerial platform on or off the transport vehicle in a straight line through the grade transitions with minimal turning.

Hoisting

Use suitable straps through the fork lift channels and a suitable fixture to keep the straps clear of the guardrails when hoisting the aerial platform. Machine damage can occur if the sling is attached anywhere else.

⚠Warning

The potential for an accident increases when the aerial platform is lifted using improper equipment and/or lifting techniques. Death or serious injury could result from such accidents. Use proper equipment and lifting techniques when lifting the aerial platform.

Know the weight of the aerial platform and the capacity of the lifting devices before hoisting.

- Lifting devices include the hoist or crane, chains, straps, cables, hooks, sheaves, shackles, slings, and other hardware used to support the machine.
- The empty vehicle weight is stamped on the serial number placard and is listed in the machine specifications on page 2-18.

The user assumes all responsibility for:

- Making sure the equipment used is capable of supporting the weight of the aerial platform.
- Making sure all manufacturer's instructions and warnings, regulations and safety rules of their employer and/or any state or federal law are followed.

Maintenance

⚠Warning

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

Hydraulic Fluid
The hydraulic fluid reservoir is located in the component tray. Refer to Figure 4.

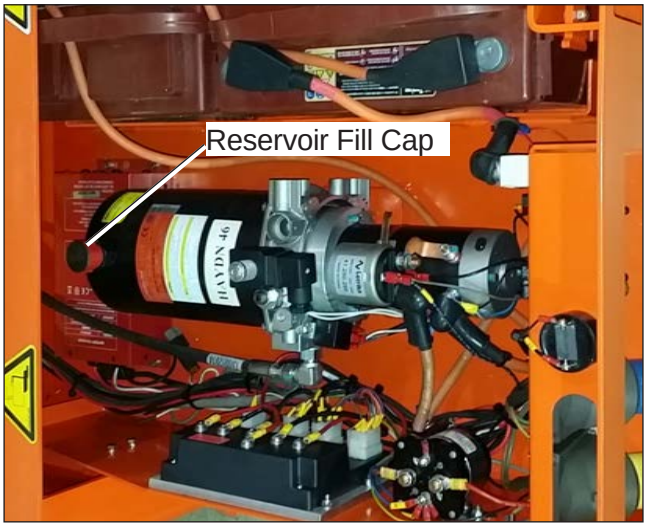


Figure 4 – Component Tray

Note
Never add fluid if the platform is elevated.

Check Hydraulic Fluid

1. Make sure that the platform is fully lowered.
2. Visually check that the fluid level is within the minimum and maximum levels indicated on the dipstick located on the bottom of the filler cap.
3. If necessary, add fluid of the proper type. Replace the cap making sure it is tightly in place. Refer to “Specifications” page 18.

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 manufacturer approved replacements.

- Check the battery fluid level daily, especially if the machine is being used in a warm, dry climate.
- If electrolyte level is lower than 6 mm (¼″) above the plates add distilled water only. DO NOT use tap water with high mineral content, as it will shorten battery life.
- Keep the terminals and tops of the batteries clean.
- Refer to the Service Manual to extend battery life and for complete service instructions.

Note
Battery type may vary on machines, some batteries supplied in machines may be “Maintenance Free” and will not require fluid level inspection.

⚠Warning

Always use manufacturer approved replacement parts.

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 disconnect the cables from the batteries when the charger is operating.

Keep the charger dry.

1. At the lower controls, turn the control selector switch to the off position.
2. Open the component tray to access the batteries. Remove the caps from each battery.
3. Visually check the battery fluid level making sure the level is within 6 mm (¼″) of the bottom of the filler neck inside each hole. If needed, add distilled water.

Note
Battery type may vary on machines, some batteries supplied in machines may be “Maintenance Free” and will not require fluid level inspection.

4. Tightly replace the caps on each battery and replace and latch the battery tray covers.
5. Plug the battery charger into a properly grounded outlet (100-240 volt AC, 50/60 Hz) using a 3 conductor, 1.5 mm (12 gauge) or larger extension cord. The extension cord must be as short as possible and in good electrical condition.

Note
The aerial platform will not operate while the battery charger is plugged in.

6. Visually inspect the battery charge indicator for proper charging rate. The LED's are visible on the battery tray.

   - AC Power On (Blue) – indicates that AC power is applied to the charger.
   - Charge Status (Yellow) – blinks until the batteries are 80% charged and then remains solid from 80% to 100% charge.
   - Complete Charge (Green) – lights solid when the batteries are fully charged.
   - Fault (Red) – lights solid when there is a battery fault and blinks when there is a charger fault.

7. Leave the battery charger plugged in until it shuts itself off.

Note
If the charging cycle exceeds 16 hours without the batteries being fully recharged, unplug the charger and have the batteries checked.

8. After the battery charger turns itself off, it is not necessary to immediately unplug the extension cord from the battery charger. The charger will monitor the charge state of the batteries and recharge them if the voltage drops off.

9. Slide the component tray open to access the batteries. Remove the caps from each battery.

10. Visually check the battery fluid level making sure the level is within 6 mm (¼″) of the bottom of the filler neck inside each hole. If needed, add distilled water.

11. Tightly replace the caps on each battery and close and latch the component tray.

Note
Battery type may vary on machines, some batteries supplied in machines may be "Maintenance Free" and will not require fluid level inspection.

Inspection and Maintenance Schedule

⚠Caution

Frequency and extent of periodic examinations may depend on national regulations.

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. The inspection and maintenance schedule should be performed at the specified intervals and after prolonged periods of storage before returning the machine to service. 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 scissors structure whenever it is necessary to perform maintenance while the platform is elevated.

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.

Daily Preventative Maintenance Checklist

Preventative Maintenance Report

Date: _____ Serial No: _____

Owner: _____ Serviced By: _____

Model No: _____

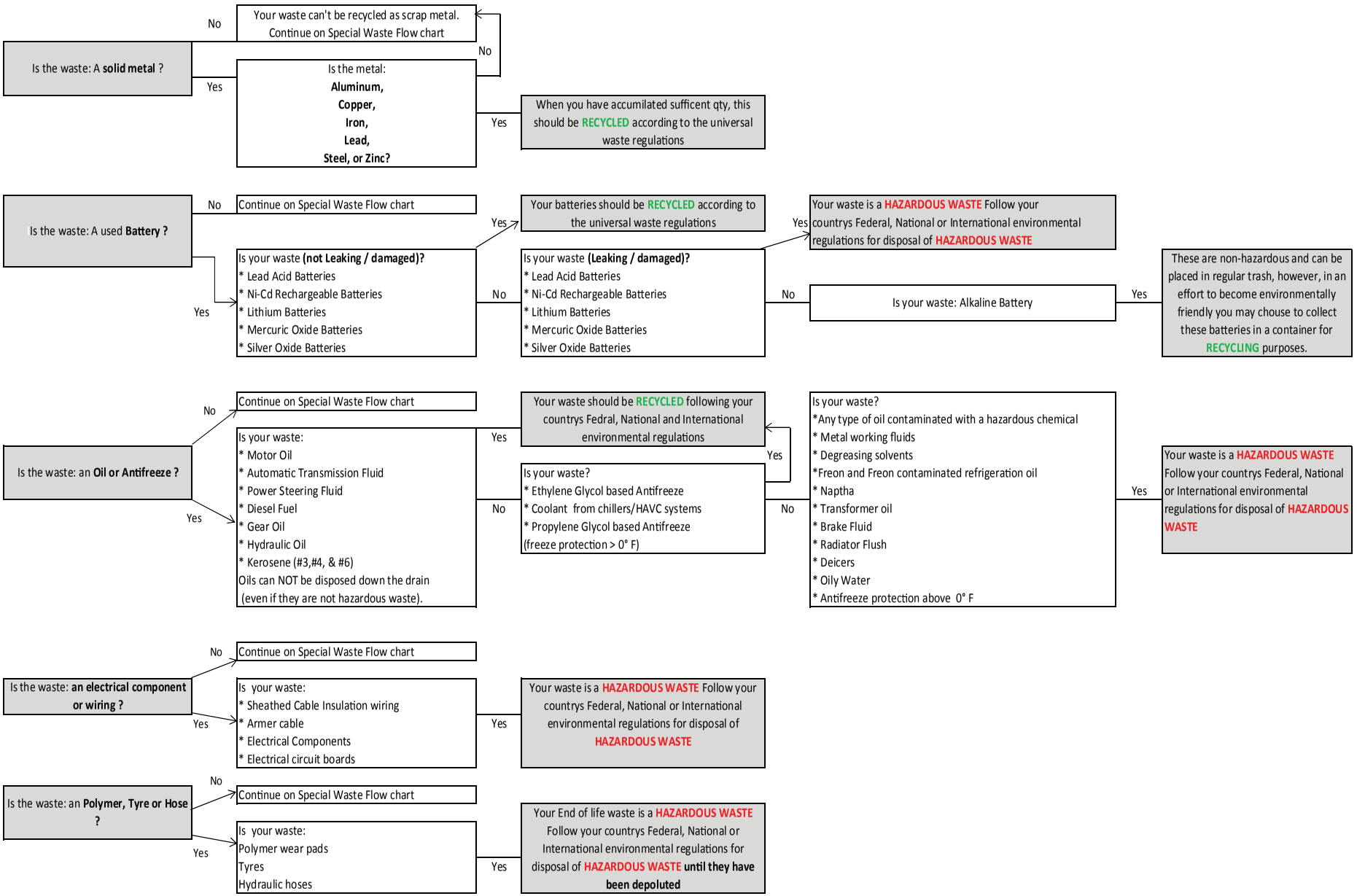
Item	Inspect For	Y	N	R
Operator's Manual	In manual holder, all pages readable and intact			
Electrical System				
Battery fluid level	Proper level			
Battery terminals	Clean, connectors tight			
Battery charger	Proper operation			
Cables and wiring harness	No wear or physical damage			
Hydraulic System				
Fluid level	Between full and add marks with platform stowed			
Hoses, tubes and fittings	No leaks, all fittings tight			
Tires and Wheels	Good condition			
Lower Control Station				
Operating controls	Proper operation			
Emergency stop	Shuts off lower controls/proper operation			
Lowering alarm and interrupt	Sounds when platform lowers/proper operation			
Emergency Lowering	Proper operation			
Safety Prop	No damage or deformation			
Flashing Light	Proper operation			
Structures				
Weldments – Chassis, platform, etc.	Welds intact, no damage or deformation or corrosion.			
Slide blocks	In place, no damage or deformation			
Fasteners	In place, tight, and no damage			
Scissor and Cylinder Pins	Securely in place, no damage or corrosion.			
Upper Control Station				
Guardrail system	Welds intact, no damage or deformation or corrosion.			
	All fasteners in place, no loose or missing parts			
Brakes	Proper operation			
Operating controls	Proper operation			
Emergency stop	Shuts off upper controls			
Lowering alarm and interrupt	Sounds when platform lowers/proper operation			
Horn	Sounds when activated			
Placards and Decals	In place and readable			

Maintenance Table Key: Y = Yes/Acceptable, N = No/Not Acceptable, R = Repaired/Acceptable

General Specifications – S3010E	
Aerial Platform	
Working height	5 m (16.5′)
Maximum platform height	3.0 m (10′)
Turning radius	
Inside	0 cm (0″)
Outside	1.45 m (4′ 9″)
Wheelbase	1 m (39″)
Ground clearance	6 cm (2.4″)
Maximum wheel load	250 kg (551 lbs)
Maximum ground pressure	11.4 kg/cm² (160 psi)
Weight EVW Approximate	495 kg (1,091 lbs)
Stowed width	77 cm (30″)
Stowed length	1.26 m (48.5″)
Stowed height	1.82 m (5′ 11″)
Platform	
Dimensions	
Main	45 cm x 102 cm (17.7″ x 40″)
Guardrail height	110 cm (43”)
Toeboard height	15.2 cm (6″)
Rated work load	227 kg (500 lb)
Maximum number of occupants	1 indoors
Maximum manual force	200N (45lb)
Function Speed	
Platform raise	12 to 20 seconds
Platform lower	20 to 26 seconds
High Drive	
Platform lower than 1.8 m (6 feet)	
	0 to 3.2 km/h (0 to 2 mph)
Low Drive	
Platform higher than 1.8 m (6 feet)	
	0 to 0.6 km/h (0 to 0.4 mph)
Drive System	
Standard	Two-wheel drive
Gradeability	25%
Maximum drive height	3.0 m (10′)

Drive/Lift Level Sensor Interlock	
Side-to-side	2 degrees
Front-to-rear	2 degrees
Tires	Non-marking solid rubber
Electrical System	
Voltage	24 V DC negative chassis ground
Source	Two - 12 V 105 amp hour batteries
Fluid recommended	distilled water
Charger	30 amp
Hydraulic System	
Maximum pressure	19,305 kPa (2,800 psi)
Reservoir capacity	3.78 l (1 US gal)
System capacity	3.78 l (1 US gal)
Maximum operating temperature	71°C (160°F)
Hydraulic fluid recommended	
Above -13°C (10°F)	ISO #46
Below -13°C (10°F)	ISO #32
Below -17°C (0°F)	ISO #15
Ambient Air Temperature Operating Range	
Celsius	-20°C to 50°C
Maximum Wind Speed	
Gust or steady	0 m/s (0 mph)
Vibration	Less than 0.5 m/sec ²
Sound Pressure Level	
At work station	< 68 dB(A)

End of Life Waste Advice Chart :



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.*

Installation

1. Park the Work Platform on firm level ground.
2. Verify Platform Emergency Stop Switch is ON.
3. Switch the Key switch to chassis. control.
4. Hold the Ground Operation Switch up and push the Chassis Lift/Lower toggle switch UP to elevate Platform approximately 1.2m (4 feet).
5. Fold down both safety props as shown in figure 3-1.
6. Hold the Ground Operation Switch and push Chassis Lift/Lower toggle Switch to DOWN position and gradually lower Platform until the safety props rest against the Chassis end plate.

Figure 3-1: Supporting Elevating Assembly

Removal

1. Hold the Ground Operation Switch and push Chassis Lift/Lower toggle Switch to UP to gradually raise Platform until the safety props are free to move.
2. Fold the safety props back up.
3. Hold the Ground Operation Switch and push Chassis Lift/Lower toggle Switch to DOWN position and completely lower Platform.

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 photocopy the following page and use the table as a checklist when inspecting the machine for service.

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: _____

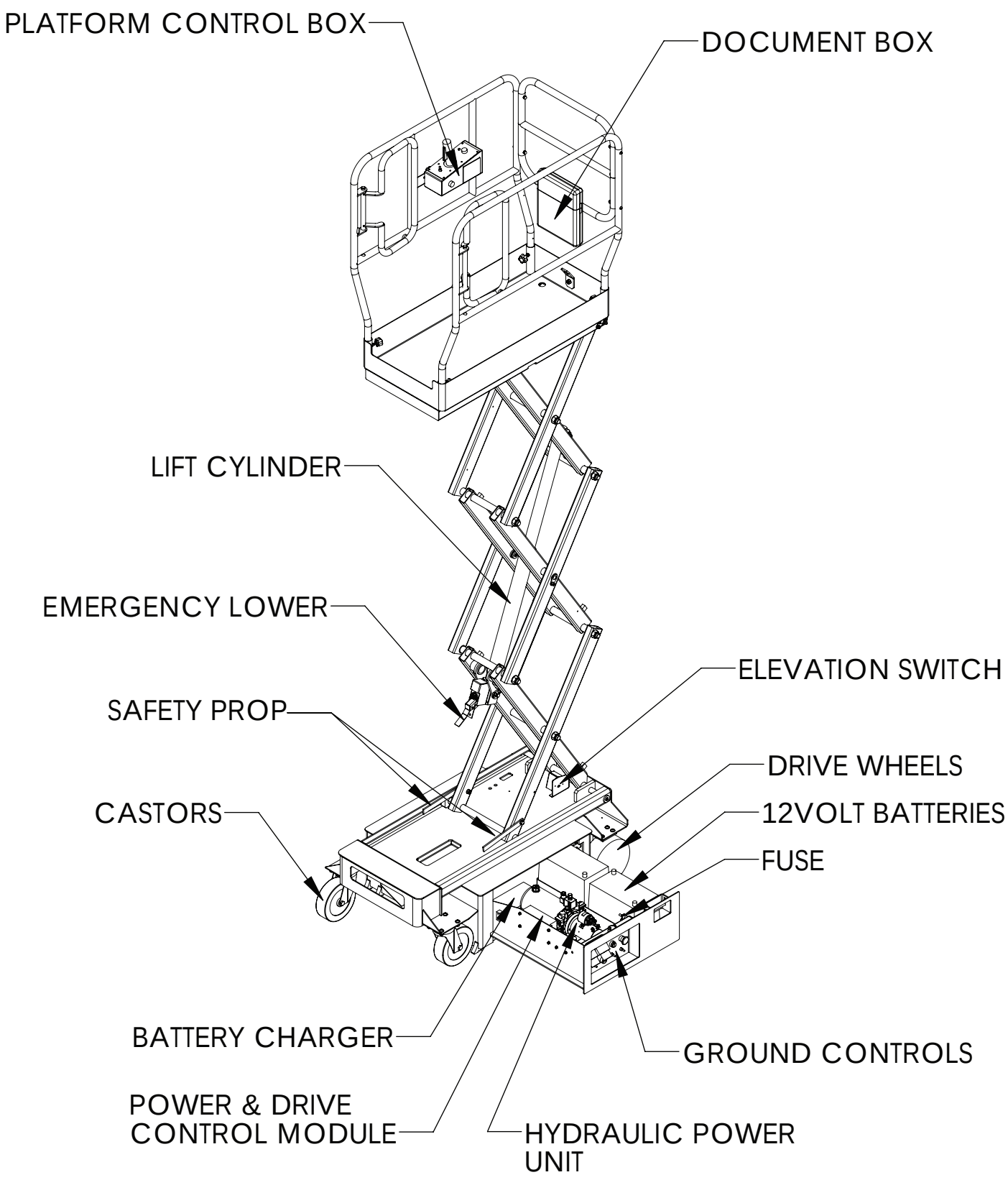
COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Battery System	Check electrolyte level	Daily			
	Check battery cable condition	Daily			
	Charge batteries	Daily			
	Check charger condition & operation	Daily			
	Check specific gravity	6m			
	Clean exterior	6m			
	Clean terminals	6m			
Hydraulic Oil*	Check oil level	Daily			
	Change Filter	2y			
	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			
Harness Anchor Point	Check fasteners are secure, check for cracks,damage or corrosion	Daily			

COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Elevating Assembly	Inspect for external damage, dents, loose rivets or cracks	Daily			
	Check Scissor slide blocks for wear	6m			
	Check stack limit switch operation	Daily			
	Lubricate Scissor slide channels	6m			
	Check Scissor and Lift Cylinder pins are securely in place with no damage or corrosion	Daily			
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 Check Bearings for Oil	Daily 3m			

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

PARTS LOCATION

Figure 3-2: Parts Location



3-5 General Lubrication

Scissor Slide Blocks and Channels:

Approved Lubricant :
Interflon Fin Lube TF

The use of Interflon Fin Lube is recommended as it dries to prevent dirt contamination of lubricated parts unlike other greases and gives excellent long lasting protection against wear.

The use of other types of 'heavy' grease are therefore not recommended.

Application:
Aerosol, Brush or Mist Application.

Lubricant should be applied as a extremely thin coating around the visible edges of the Nylon Pads and along the Chassis and Platform slide channels.
It is recommended that the Nylon slide pads are cleaned and the Fin Lube TF reapplied at six monthly intervals and/or 12 monthly routine Inspection / Service.

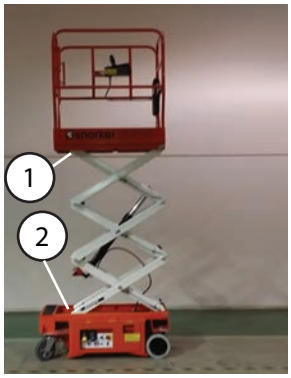
Platform/Chassis Nylon Pad Lubrication :

Approved Lubricant :
Interflon Fin Lube TF

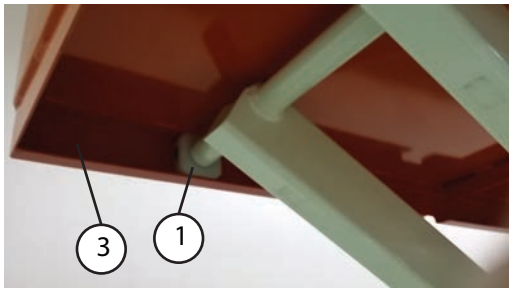
Application:

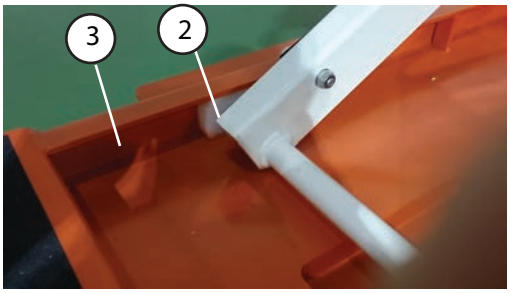
1. From the lower controls, raise the platform and block the elevating assembly (see Figure 3-1: "Supporting Elevating Assembly," on page 3-3).
2. Clean Nylon Pads and Channels first with an organic or Alkaline quick drying cleaning agent.
3. Shake container gently before use. Provide adequate ventilation.
4. Spray a mist of Fin Lube TF sparingly onto each of the Nylon Pads and along the Nylon Pad channel.
5. With a clean paper towel /cloth spread the Fin Lube TF along Nylon Pad channel removing superfluous lubricant.
   Note: Fin lube TF works at its optimum with a thin layer rather than a thick layer. Do not use too much.
6. From the lower controls, remove block and lower the platform (see Figure 3-1: "Supporting Elevating Assembly," on page 3-3).

Nylon Pad Lubrication (Fin Lube)



1. Platform pad location
2. Chassis pad location
3. Nylon Pad channel





3-6 BATTERIES

Electrical Energy for the motors is supplied by two 12 volt batteries wired in series for 24 volts DC. Proper care and maintenance of the batteries and motor will ensure maximum performance from the work platform.

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 REPLACEMENT

The batteries are located in a slide-out tray in the side of the machine. There are two 12 volt batteries wired in series for 24 volts DC. Battery cables must be installed as shown in the Battery Cable Installation Diagram.

BATTERY MAINTENANCE

Refer to *Section 1: General Information* for complete battery maintenance instructions.

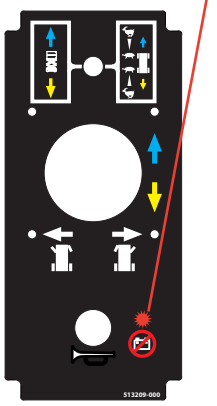
If Battery Discharge warning Light Illuminates (Fig 3-4), recharge batteries fully.

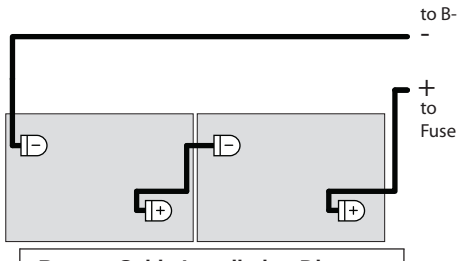
Refer to the *Operation Manual* included in this Service Manual for specific maintenance and charging instructions.

Figure 3-4: Battery Cables

Batteries Installed

Battery Discharge warning Light





Battery Cable Installation Diagram

HYDRAULICS

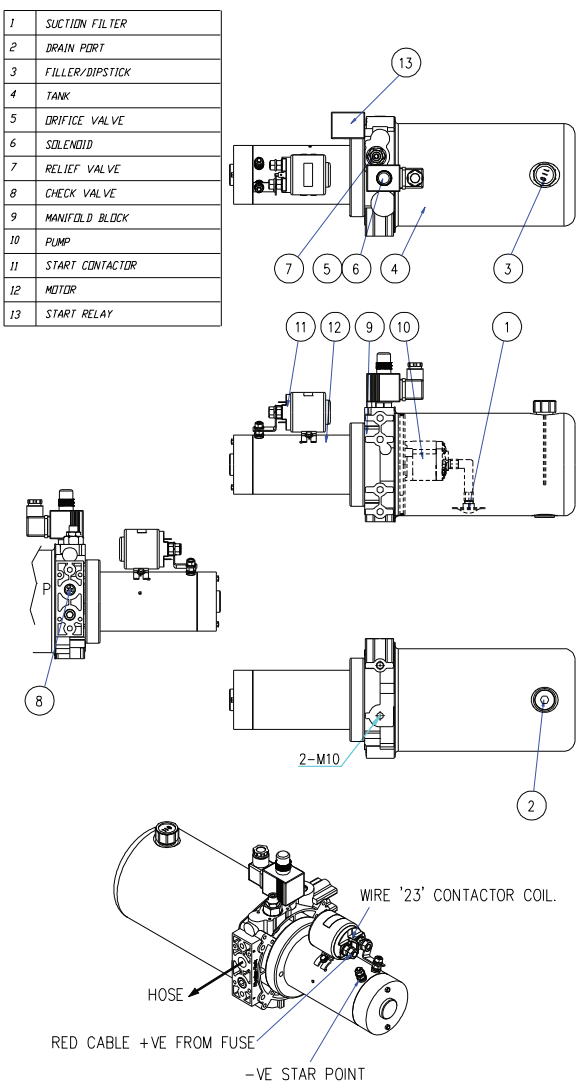
HYDRAULIC / POWERPACK OIL TANK AND FILTER

FLUID LEVEL

With Platform fully lowered, oil should be visible between Max /Min lines on the Dipstick, if not, fill the tank.

DO NOT fill above the Max line when the platform is elevated.

Figure 3-5: Hydraulic Power Pack and Filter



OIL AND FILTER REPLACEMENT

1. Operate the work platform for 10-15 minutes to bring the hydraulic oil up to normal operating temperature.
2. Open module drawer.
3. Disconnect the cables as indicated in Fig 3.5, take care to note where to re-connect when re-fitting the Power Pack.
4. Disconnect and plug the hydraulic hose from the Power Pack Manifold Block.
5. Remove the two M10 Bolts from underneath the Manifold Block and remove the Power Pack.
6. Drain the Tank and separate it from the Manifold Block by removing the four fixing bolts.
7. Remove and clean the Suction Filter in cleaning solvent and blow dry with filtered compressed air.
8. Re-assemble and re-fit the Power Pack as a reverse of sections 3 to 6, replacing the 'O' ring seal between the Tank and the Block.
9. Fill the hydraulic reservoir with hydraulic oil until the oil comes up just past the Min line. Hydraulic tank has a 7,2 liter (1.9 US gallon) capacity.

⚠ CAUTION ⚠

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

HYDRAULIC PUMP

The Hydraulic Pump is located inside the Power Pack Tank mounted to the rear of the Manifold Block. To remove and replace the pump follow the instructions in the previous section to gain access to the Pump and unbolt it from the Manifold Block.

Figure 3-6: Hydraulic Pump

Emergency Down Valve

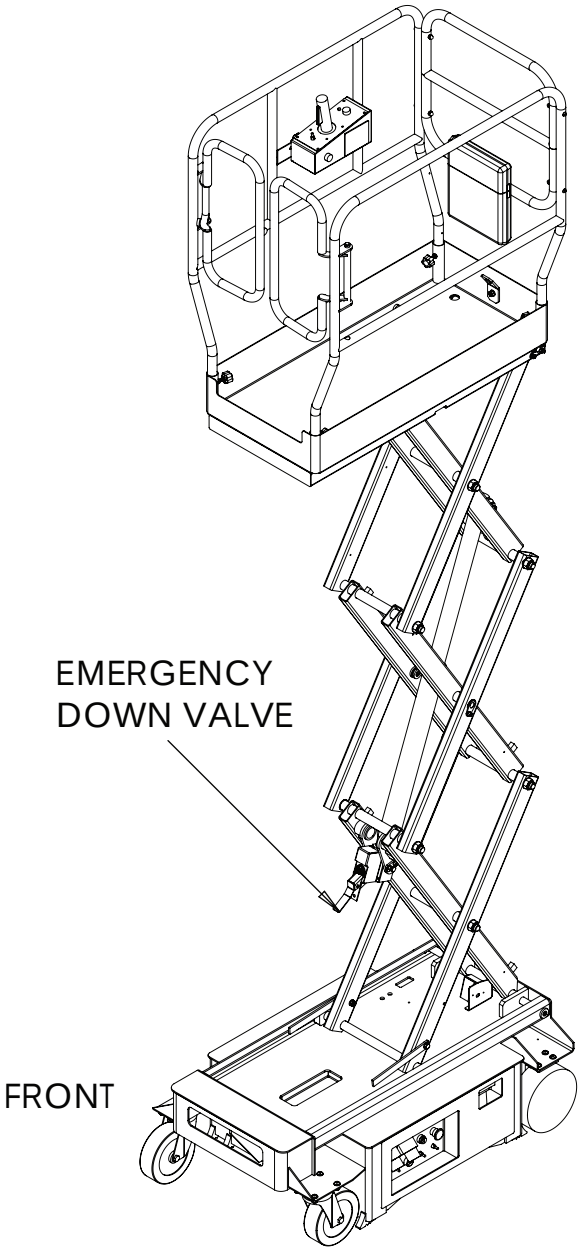
The Emergency Down Valve is located at the front of the machine.

Push the lever down to activate.

⚠ WARNING ⚠

The potential for an accident increases when safety devices do not function properly. Death or serious injury can result from such accidents. Immediately push the emergency stop button inward to disable the control system before using the emergency lowering system in the event of an emergency.

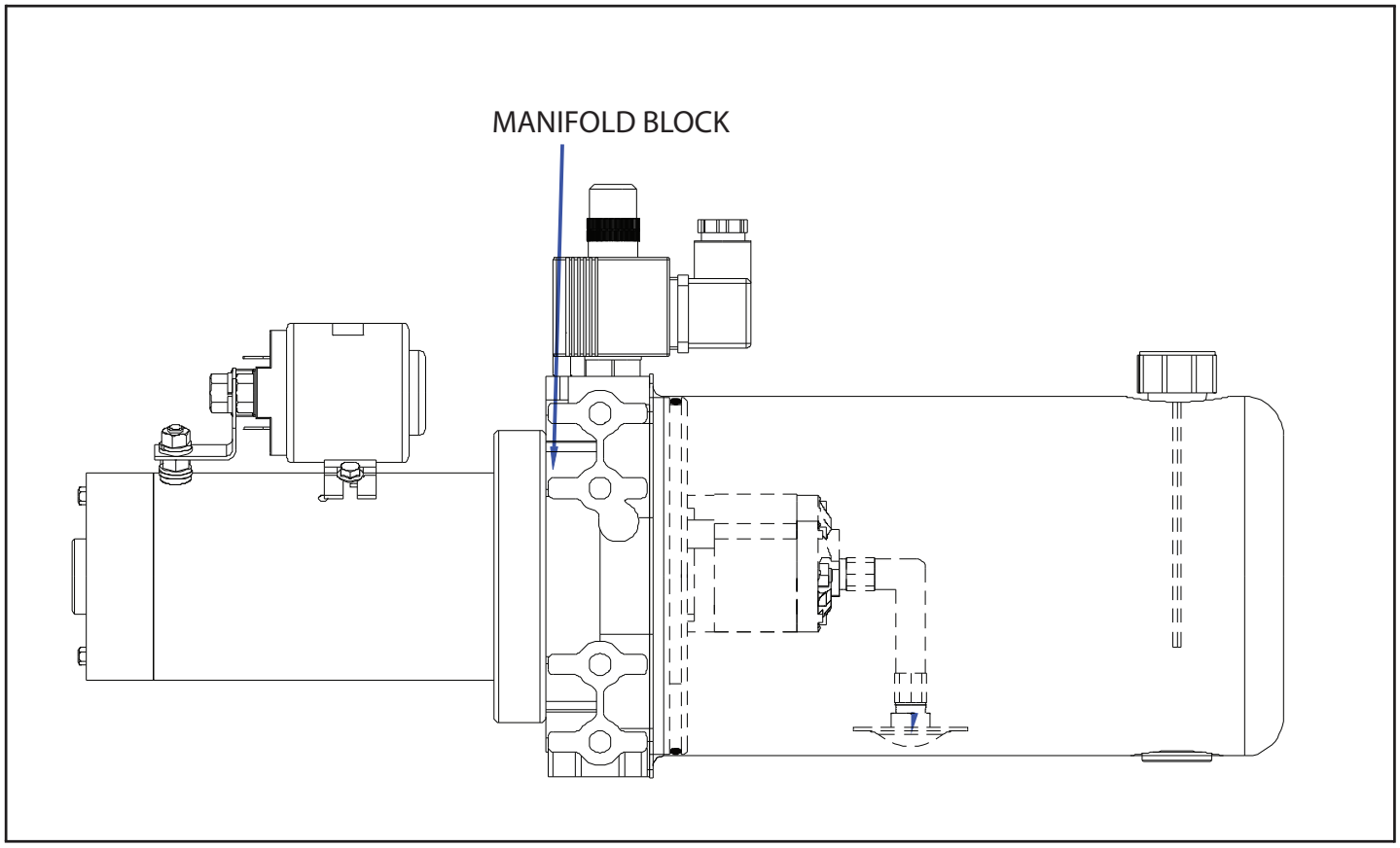
Note: Make certain the lever is fully released and the emergency lowering valve is fully closed before operating the aerial platform.



Main Hydraulic Manifold

The Hydraulic Manifold Block is part of the Power Pack module. Refer to Figure 3-8 and Page 3-9 for details.

Figure 3-8: Hydraulic Manifold Block



Setting Hydraulic Manifold Pressures

⚠ WARNING ⚠

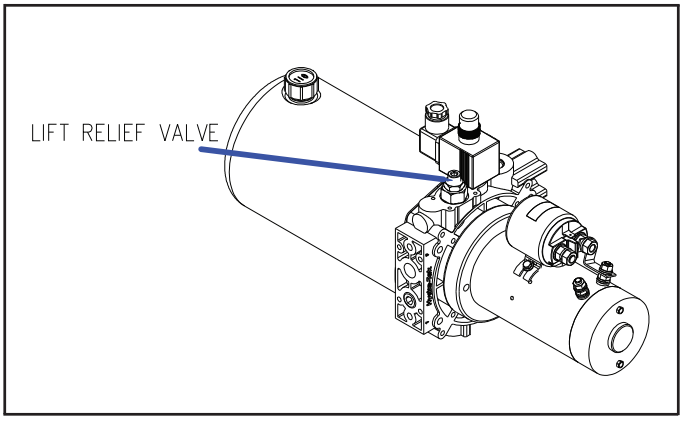
The hydraulic oil may be of sufficient temperature to cause burns. Wear safety gloves and safety glasses when handling hot oil.

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

Lift Relief Valve

Figure 3-9: Lift Relief Valve



1. Operate the hydraulic system 10 to 15 minutes to warm the oil.
2. Loosen the locknut on the Lift Relief Valve,refer to Figure 3-9.
3. Place 250kg in the platform.
4. Turn the Chassis Keyswitch to CHASSIS and hold the Ground Operation switch and Chassis lift switch in the UP position.
5. Adjust the lift relief valve out until the platform stops lifting then slowly back in until it just starts to lift.
6. Release the Chassis Lift Switch.
7. Tighten the locknut on the Lift Relief Valve, and torque to 8N-m(6 ft-lbs) and replace the Cap.
8. Lower the platform.

3-8 Cylinders

Lift cylinder

Removal

1. Raise the platform and support it using both safety props, see page 3-3.
2. Provide a suitable container to catch the hydraulic fluid, then disconnect the hose and immediately plug the hose to prevent foreign material from entering.
3. Remove the down valve cable from the emergency lower/down valve solenoid.
4. Remove the retaining rings securing the lift cylinder pivot pins
5. Support the lift cylinder using a suitable hoisting device and carefully remove the pivot pins and remove the cylinder.

Repair / Disassembly

1. Unscrew the head cap from the cylinder barrel & remove the head cap, piston and shaft assembly from the barrel tube.
2. Unscrew the piston from the shaft.
3. Remove the wiper, gland & 'o' ring from the head cap and discard.
4. Remove the guide rings 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 head cap for scoring or excessive wear.
5. Inspect the surface of the shaft for scoring or excessive wear.

Assembly

1. Lubricate and install new wiper, gland and 'o' ring to the head cap.
2. Install the head cap onto the shaft.
3. Lubricate and install new guide rings to the piston & re-install the piston onto the shaft.
4. Install the shaft assembly into the cylinder barrel and tighten the head cap.

Installation

1. Installation is the reverse of removal.
2. Be sure to operate the lift cylinder several times over it's full cycle to expel any trapped air and check for leaks.

3-9 Elevation Switch Setting

To ensure correct setting /adjustment of the stack elevation limit switches follow this procedure.

⚠ WARNING ⚠

Never perform service on the work platform in the elevating assembly area while the platform is elevated without first blocking the elevating assembly by correctly positioning both stack scissor safety props, refer props, refer to section 3-1.

1. In order to correctly set the limit switches you need access to ezcal diagnostics, this can either be done using the ezcal display mounted on the side of the platform control box (press and hold 'esc' untill the display shows 'help:press enter' then scroll right to 'diagnostics' and press 'enter') or by using a handheld ezcal diagnostic tool plugged into the 4-way rs232 input on the ts100 controller.

2. In diagnostics mode scroll right to inputs and press enter.

3. Now scroll right to p12-9, this is the output from stack limit switch s1, with the machine stowed p12-9 should display 'on'.

4. Now scroll right to p15-11 this is the output from stack limit switch s2, with the machine stowed p15-11 should display 'on'.

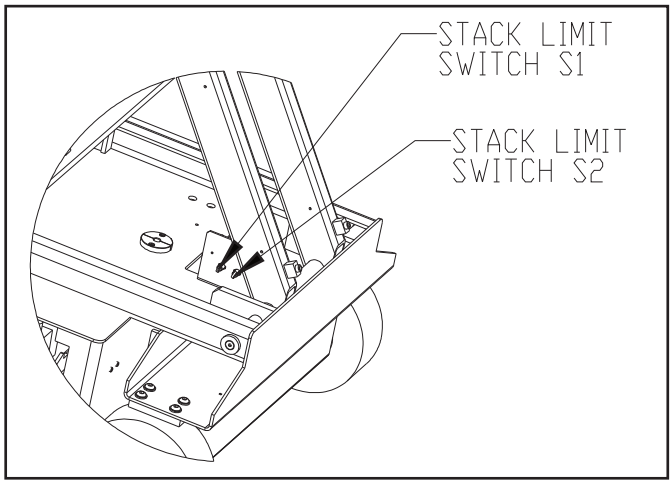
5. Now raise the machine until the strike plate on the scissor stack comes off the roller on stack limit switch 1 but is still on the roller on stack limit switch s2, p12-9 should now display 'off' and p15-11 should still display 'on'.

Note: it's important that when raising the platform s1 should open before s2, refer to figure 3-11.

6. Now raise the machine until the strike plate on the scissor stack comes off the roller on stack limit switch s2 as well, p12-9 should now display 'off' and p15-11 should also display 'off'.

If neccesary adjust the position of the limit switches to ensure they switch in the correct sequence as above, ensure that the stack scissor safety props are correctly deployed before working in the scissor stack area.

Figure 3-11 : S3010E Limit Switches



Tilt Sensor

Tilt Sensor Switch

The tilt sensor is incorporated in the TS100 Control Module, the switch is activated if machine is tilted by greater than 2 ° in either direction and either elevation switch is open, this results in a continuous audible alarm and all movement disabled.The only way to clear this alarm is to return the machine below 2 ° or bring the Platform down to close the Switches.
The settings of this limit is preset at the factory and should on no account be adjusted.

Setting The Tilt Sensor To Zero

⚠ WARNING ⚠

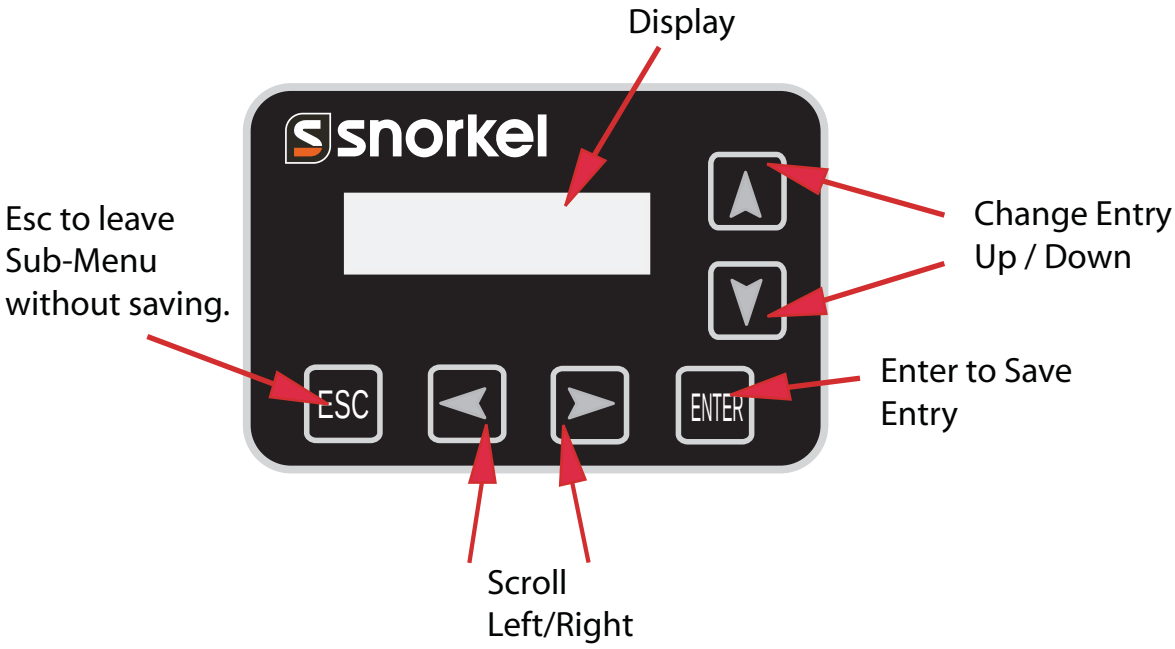
If the TS100 control module is replaced and/or moved within the machine for any reason the tilt sensor must be reset for zero° using the following procedure. Failure to do so could result in serious injury or death.

To follow this procedure you need to switch the Ezcal display in the Upper Control Box into “Calibration mode”.

1. Place the machine on a firm level surface , ≤ 0.25 °
2. Use a Gauge to confirm that the front and rear of the chassis are level to within +/- 0.25 ° in both directions
3. Switch the machine on, press and hold Esc for 5 seconds until “Ezlift Menu” Appears.
4. Scroll to access level.(Enter)
5. Enter code 2222 for access level 2 .(Enter)
6. Scroll to setups.(Enter)
7. Scroll to tilt setups . (Enter)
8. Calibrate level. (Enter)
9. Enter for yes.

To confirm calibration has worked switch the machine of then back on again.

10. Scroll to Diagnostics. (Enter)
11. System. (Enter)
12. Scroll to tilt, both readings should be below 0.2 ° if not repeat from 3.

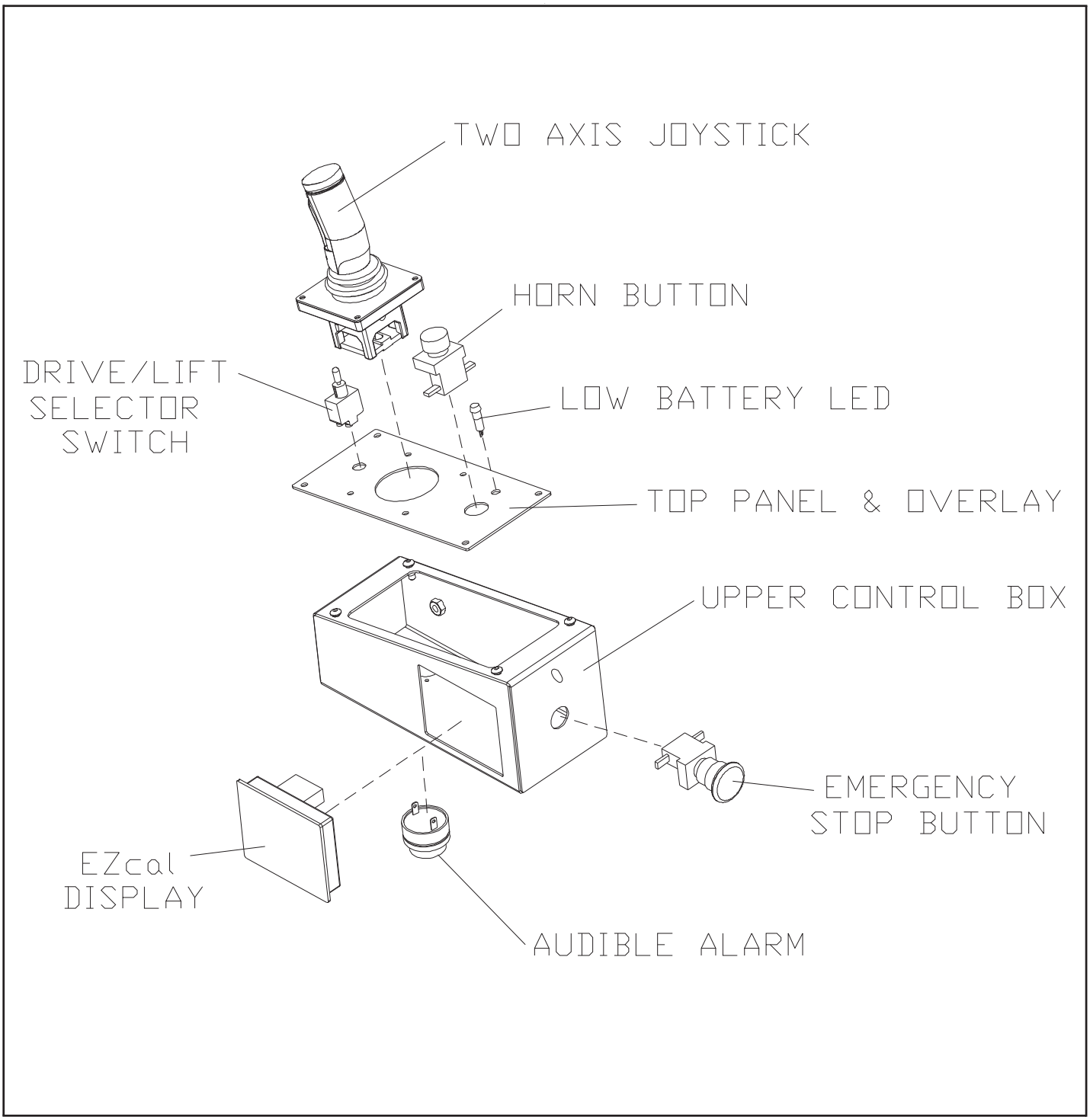


Controls

Platform Controls

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

Figure 3-19: Upper Controls

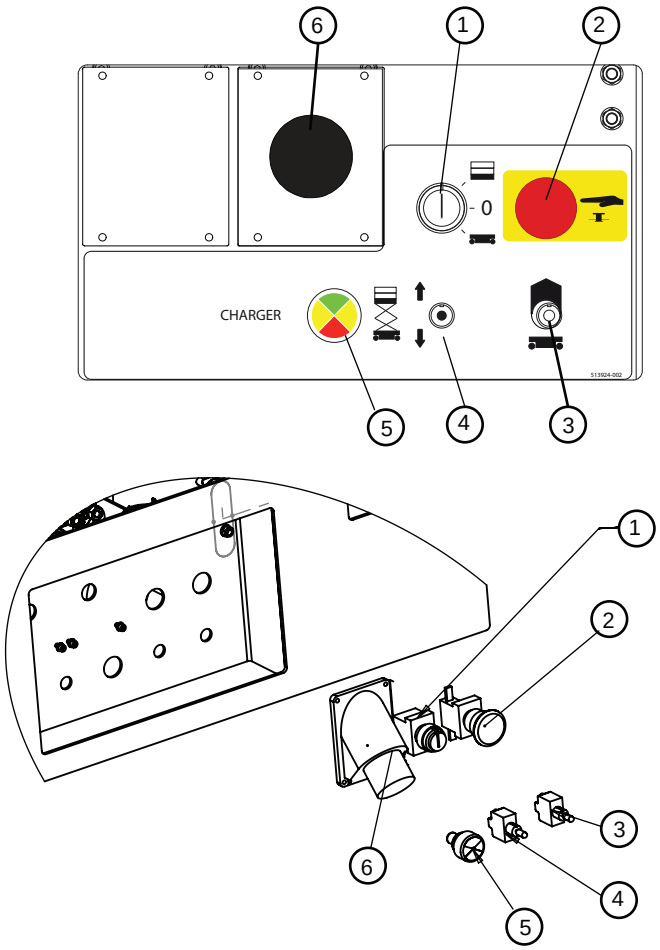


Chassis Controls

The chassis control assembly is mounted on the inside of the chassis drawer.

Figure 3-20: Chassis Controls

Right Side Door



1. KEYSWITCH
2. EMERGENCY STOP
3. GROUND OPERATION SWITCH (ENABLE)
4. TOGGLE SWITCH (RAISE/LOWER)
5. CHARGING STATE INDICATOR
6. CHARGER INPUT

TROUBLESHOOTING

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.

⚠ 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.

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 S3010E 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.

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.

DIAGNOSTICS USING EZCAL DISPLAY

The EZcal Display can be switched into calibration mode to become an invaluable tool when troubleshooting on this machine.
Switch the machine on, press and hold Esc for 5 seconds until “Ezlift menu” is displayed then select diagnostics, the following menu’s are available:

1. SYSTEM – MODE : Platform or Ground Controls selected.
SUPPLY : Displays battery voltage, should be above 18v when the machine is not running.
VALVE SUPPLY : ON or OFF
MOTOR V : Supply voltage to motor (0v when motor not running.
MOTOR I : Supply current to motor (0A when motor not running
TEMPERATURE: Control temperature in °c, should be below 60.
TILT : Displays tilt angle of the machine in X and Y direction, both should be below 2°.
TILTED : YES or NO

The remaining submenu’s in SYSTEM are not applicable to this machine.

2. PLATFORM - Checks the function of the switches and joystick functions in the platform controller.
3. GROUND - Checks the function of the switches in the ground controller.
4. INPUTS - Displays the condition of all inputs to the TS100, see the following table and the circuit diagram on page 5.2 for a list of I/0’s.
5. ANALOG - Displays the condition of all analog inputs from the TS100.
6. OUTPUTS - Displays the condition of all outputs from the TS100.

TS100 INPUT/OUTPUTS

NOTE: I/P IS INPUT TO TS100, O/P IS OUTPUT FROM TS100.

I/O PORT	DESCRIPTION	LINKED TO/FROM
P9-1	RAISE O/P	To Pump Coil and Pump Motor Contactor
-2	LOWER O/P	To Lift Cylinder Solenoid
-3	BRAKE RELEASE O/P (PLATFORM MODE)	To Motor Brakes
-5	DRIVE CONTACTOR O/P (PLATFORM MODE)	To Line Contactor Coil
-6	ALARM O/P	To buzzer in tray
-7	BEACON	To Armguard beacons +ve.
P12-1	GROUNDMODE I/P	From Mode Selector Switch
-4	RAISE I/P (GROUNDMODE)	From Toggle Switch
-5	LOWER I/P (GROUNDMODE)	From Toggle Switch
-8	ELEVATION SWITCH SUPPLY	To Elevation Switch
-9	ELEVATION SWITCH S1 I/P	From Elevation Switch S1
-10	O/LOAD - NOT USED.	
-12	O/LOAD - NOT USED.	
P15-1	PLATFROM MODE I/P	From Platform E/Stop
-2	DRIVE SELECT I/P	From Drive/Lift Select Switch
-3	LIFT SELECT I/P	From Drive/Lift Select Switch
-4	LIMP MODE, LOWSIDE O/P	To low bat warning led in UCB
-5	TRIGGER PRE-ARM	Not Used
-6	TRIGGER I/P	From Joystick
-11	ELEVATION SWITCH S2 I/P	From Elevation Switch S2
-12	JOYSTICK HALL EFFECT +5V SUPPLY	To Joystick
-13	JOYSTICK I/P - RAISE/LOWER & FWD/REV	From Joystick
-14	JOYSTICK I/P - STEER	From Joystick
-15	JOYSTICK GROUND	To Joystick

REPLACING THE TS100 CONTROL MODULE

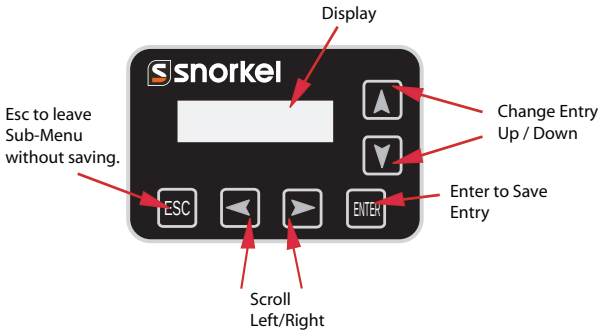
If for any reason you have to replace the TS100 control module it is important that you complete the following procedures:

⚠ WARNING ⚠

If the TS100 control module is replaced and/or moved within the machine for any reason the tilt sensor must be reset for zero ° using the following procedure.
Failure to do so could result in serious injury or death.

To follow this procedure you need to switch the Ezcal display in the upper Control box into “calibration mode”.

1. Place the machine on a firm level surface , ≤ 0.25 °
2. Use a Gauge to confirm that the front and rear of the chassis are level to within +/- 0.25 ° in both directions
3. Switch the machine on and press and hold Esc for 5 Seconds until “Ezlift Menu” is displayed.
4. Scroll to access level.(Enter)
5. Enter code 2222 for access level 2 .(Enter)
6. Scroll to setups.(Enter)
7. Change defaults. (Enter)
8. Select Part Number = 1 (Enter)
9. Scroll to model. (Enter)
10. Select Model = 4 (Enter followed by ESC)
11. Scroll to tilt setups . (Enter)
12. Calibrate level. (Enter)
13. Enter for yes.



To confirm calibration has worked switch the machine of then back on again.

14. Scroll to Diagnostics. (Enter)
15. System. (Enter)
16. Scroll to tilt, both readings should be below 0.2 ° if not repeat from 5.

TROUBLESHOOTING TABLES

The next step is to refer to the Troubleshooting charts in Tables.

Refer to Hydraulics Section for detailed Troubleshooting information on the Pump/Motor Controller.

Read and understand the Principles of Operation before commencing any trouble shooting.

⚠ WARNING ⚠

RISK of SERIOUS INJURY.

Ensure that the work platform is resting on a firm, level surface.

The elevating assembly must be supported by an overhead hoist when troubleshooting and servicing the electrical/hydraulic system.

TROUBLESHOOTING GUIDE

TROUBLE	PROBABLE CAUSE	POSSIBLE SOLUTION
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
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. Battery level low.	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.

ELECTRIC

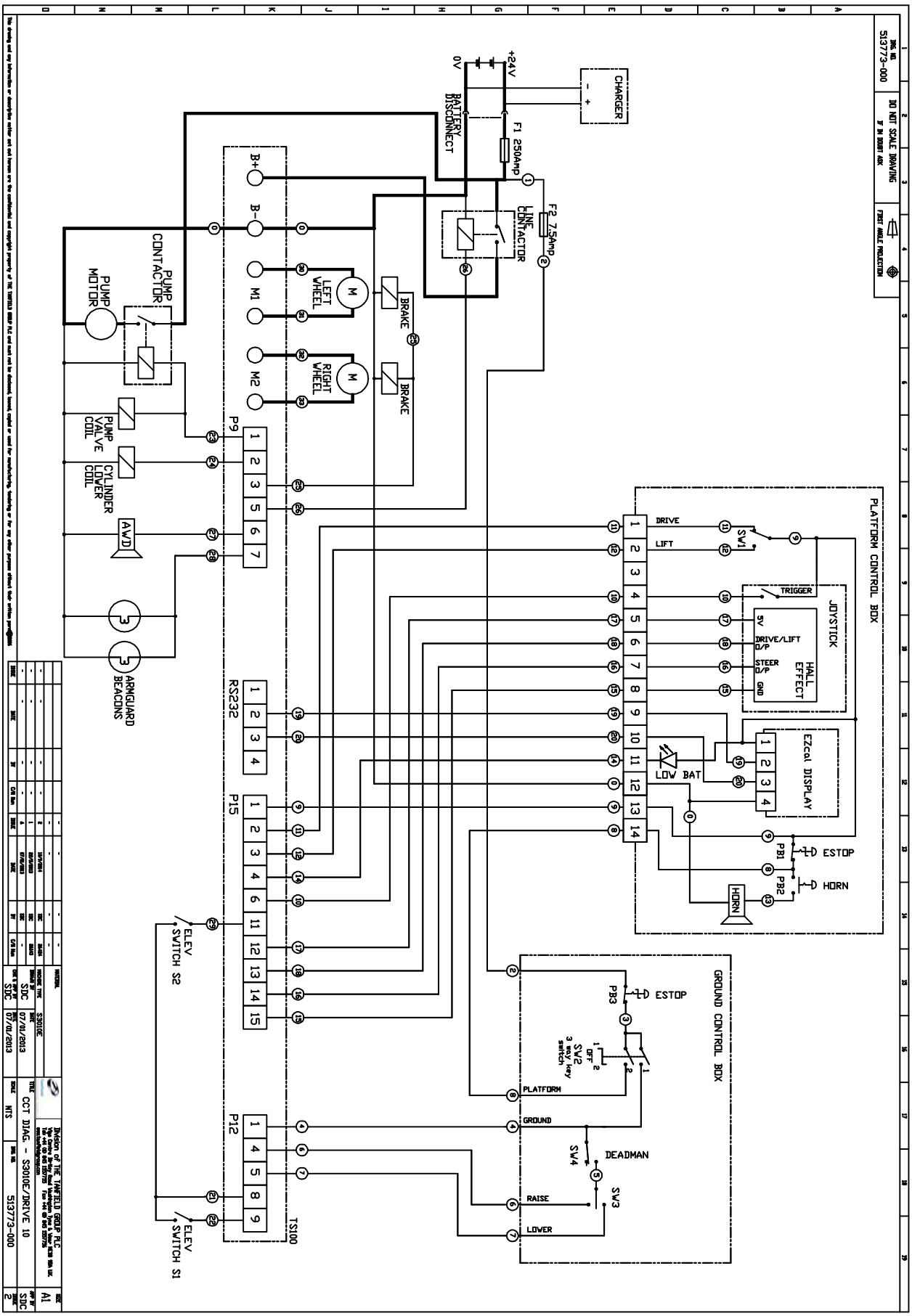
Component / Function	Lower Controls	Upper Controls	Raise Platform	Lower Platform	Brakes	Tilt Alarm	Down Alarm	Battery Charge
Alarm								
Batteries	X	X	X	X	X	X	X	
Battery Charger								X
175 AMP Fuse	X	X	X	X	X			
TS100 Controller	X	X	X	X	X	X	X	
Motor			X	X	X			
Chassis Emergency Stop Switch	X	X	X	X	X	X	X	
Chassis Key Switch	X	X	X	X	X	X	X	
Platform Emergency Stop Switch	X	X	X	X	X	X	X	
Elevation Switch		X	X	X				
Platform Lift Solenoid			X					
Down Solenoid				X				

HYDRAULIC

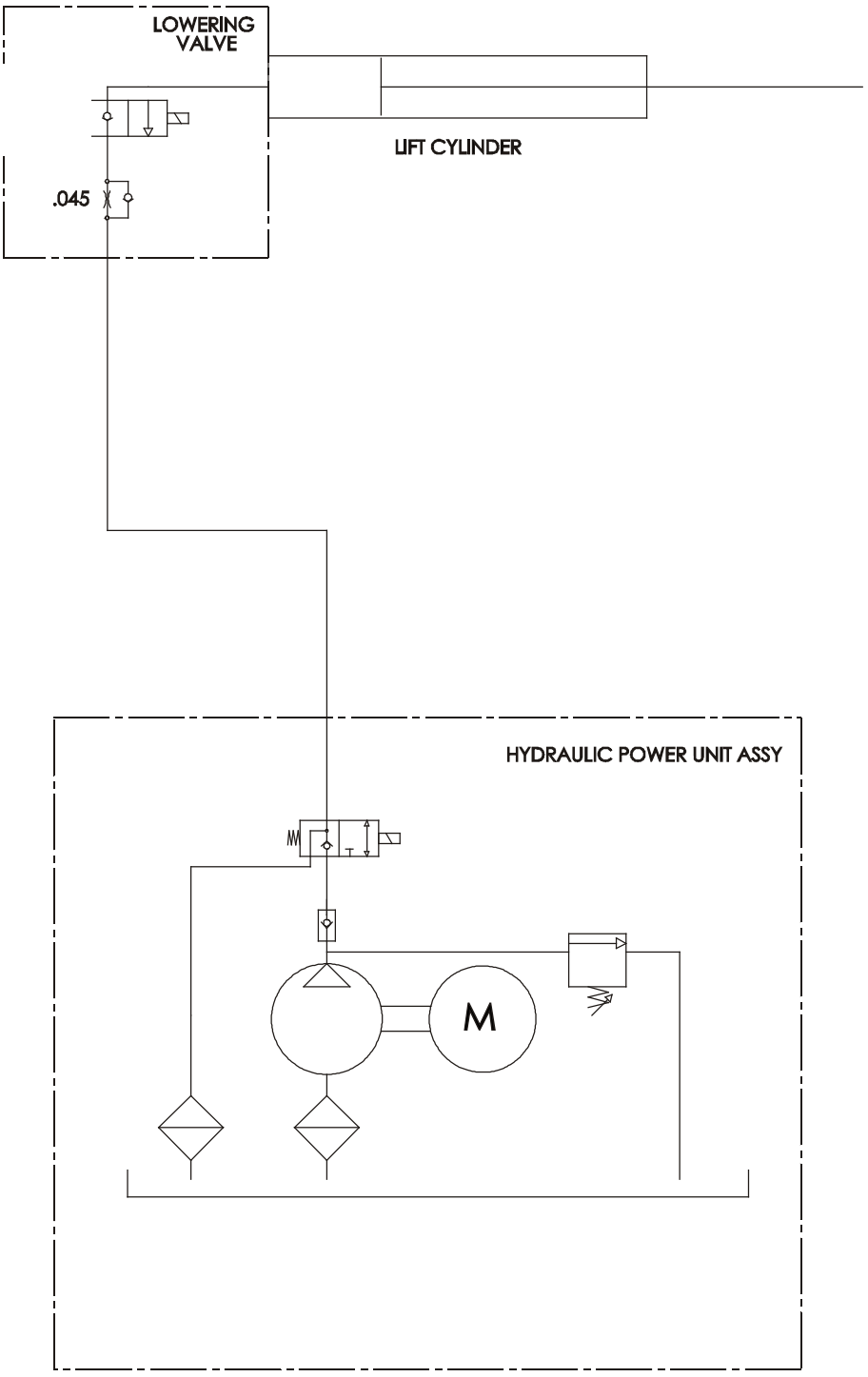
Component / Function	Lift Platform	Lower Platform
Check Valve		
Lift Cylinder--CYL1	X	
Suction Strainer	X	
Return Filter	X	
Pump	X	
Main Relief Valve	X	
Lift Relief Valve	X	
Tank		
Lift Valve	X	
Down/Emergency Lowering Valve		X

Notes :

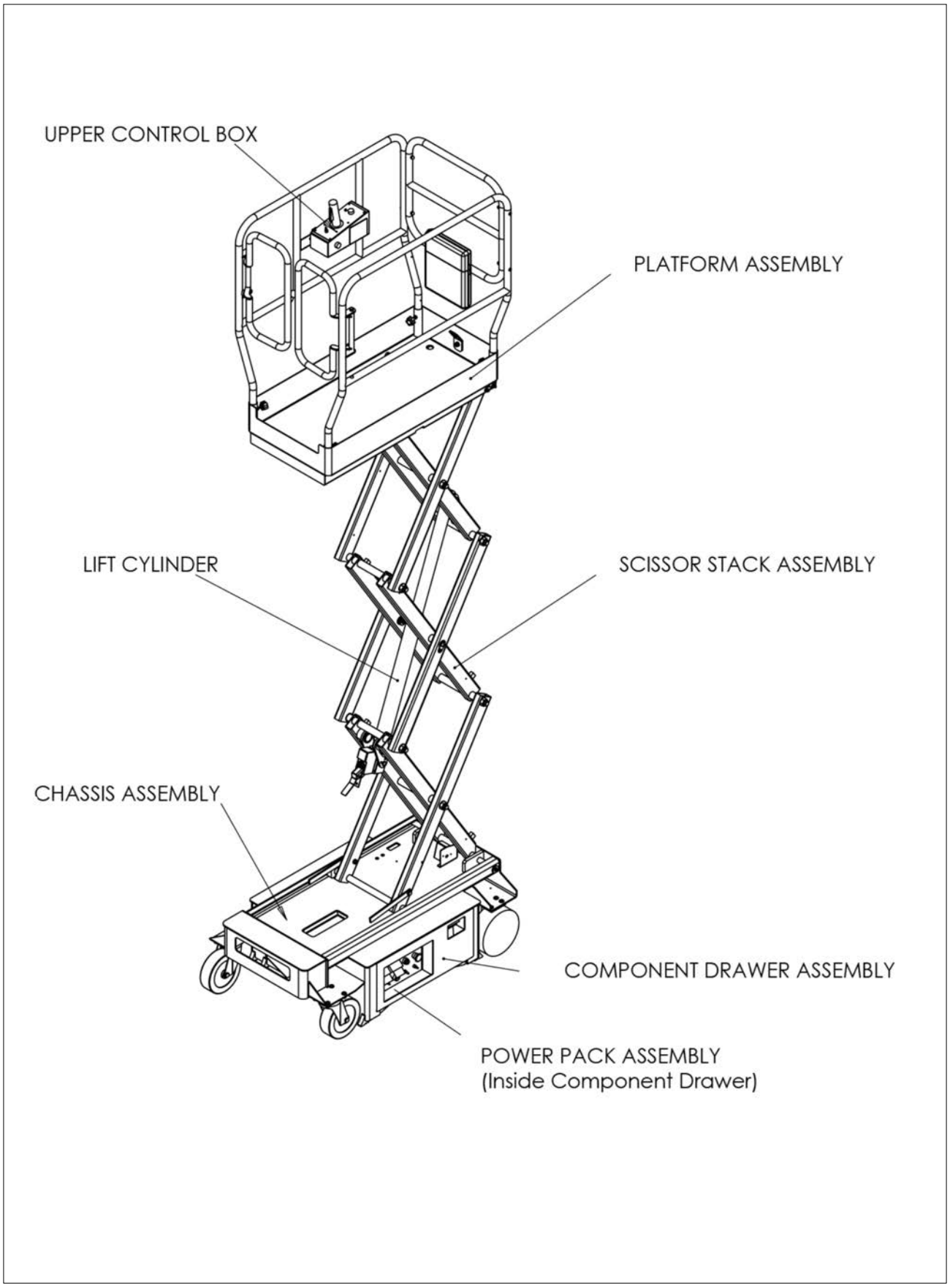
ELECTRIC


DWG NO
513773-000
DO NOT SCALE DRAWING
IF IN DOUBT ASK
FIRST ANGLE PROJECTION
+24V
0V
BATTERY DISCONNECT
CHARGER
F1 250Amp
F2 75Amp
LINE CONTACTOR
B+
B-
M1
M2
LEFT WHEEL
RIGHT WHEEL
BRAKE
BRAKE
PUMP CONTACTOR
PUMP MOTOR
PUMP VALVE COIL
CYLINDER LOWER COIL
AWD
ARMGUARD BEACONS
P9
RS232
P15
P12
TS100
ELEV SWITCH S2
ELEV SWITCH S1
PLATFORM CONTROL BOX
DRIVE
LIFT
SW1
TRIGGER
JOYSTICK
5V
DRIVE/LIFT O/P
STEER O/P
GND
HALL EFFECT
EZcal DISPLAY
LOW BAT
PB1
ESTOP
PB2
HORN
HORN
GROUND CONTROL BOX
PB3
ESTOP
SW2
3 way key switch
OFF
PLATFORM
GROUND
SW4
DEADMAN
SW3
RAISE
LOWER
MATERIAL
S3010E
DATE
07/01/2013
SCALE
NTS
TITLE
CCT DIAG. - S3010E/DRIVE 10
DWG NO
513773-000
SIZE
A1
SHEET
2
THE TAWFIELD GROUP PLC

HYDRAULIC SCHEMATIC



REPAIR PARTS

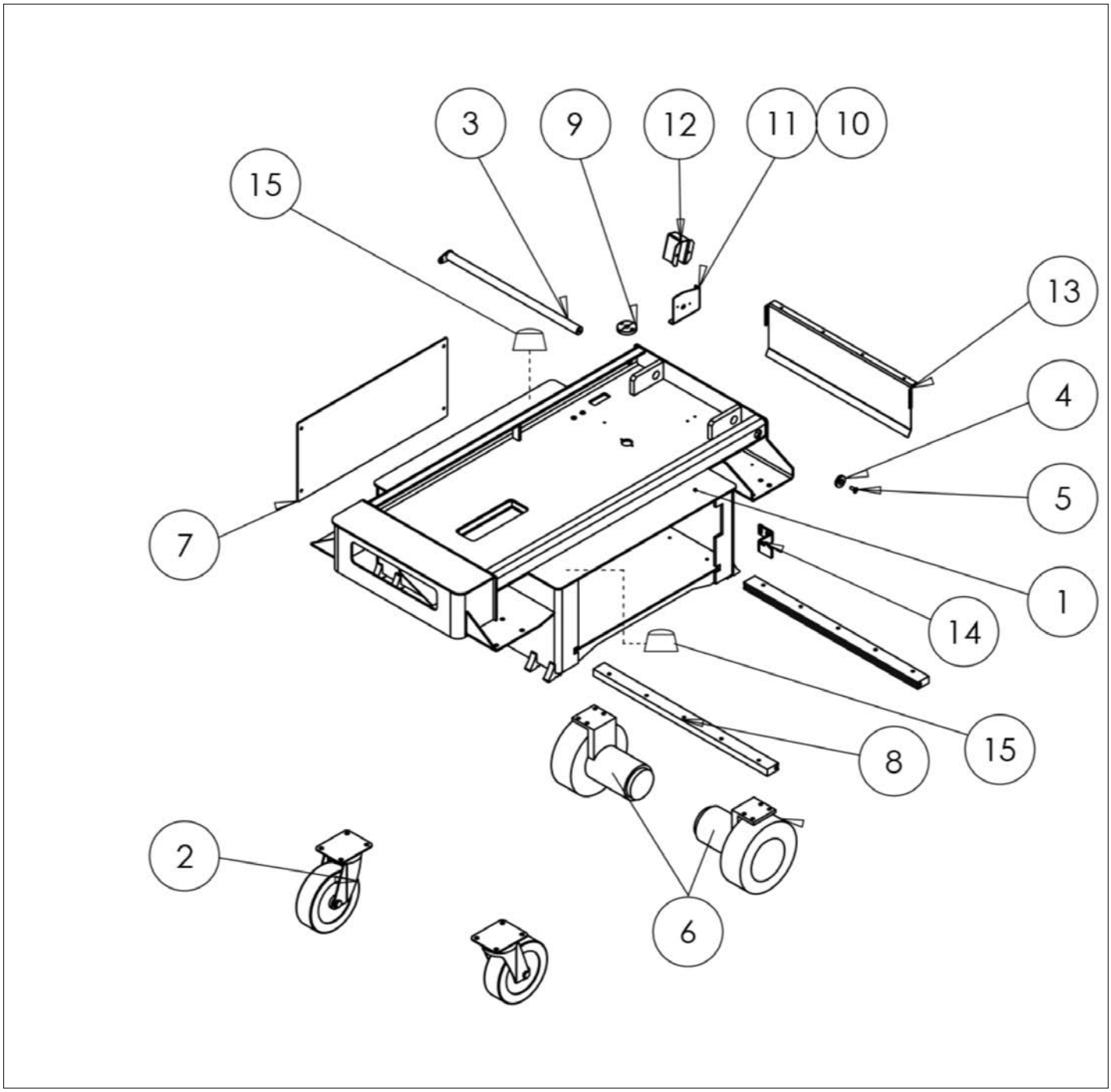


アイテム	部品番号	名前	数量	UOM
1	REF	CHASSIS	1	EA
2	REF	PLATFORM ASSEMBLY	1	EA
3	REF	COMP ONENT TRAY	1	EA
4	REF	SCISSOR STACK ASSEMBLY	1	EA
5	REF	UPPER CONTROL BOX	1	EA
6	REF	LIFT CYLINDER	1	EA
7	REF	POWER PACK ASSEMBLY	1	EA

REPAIR PARTS

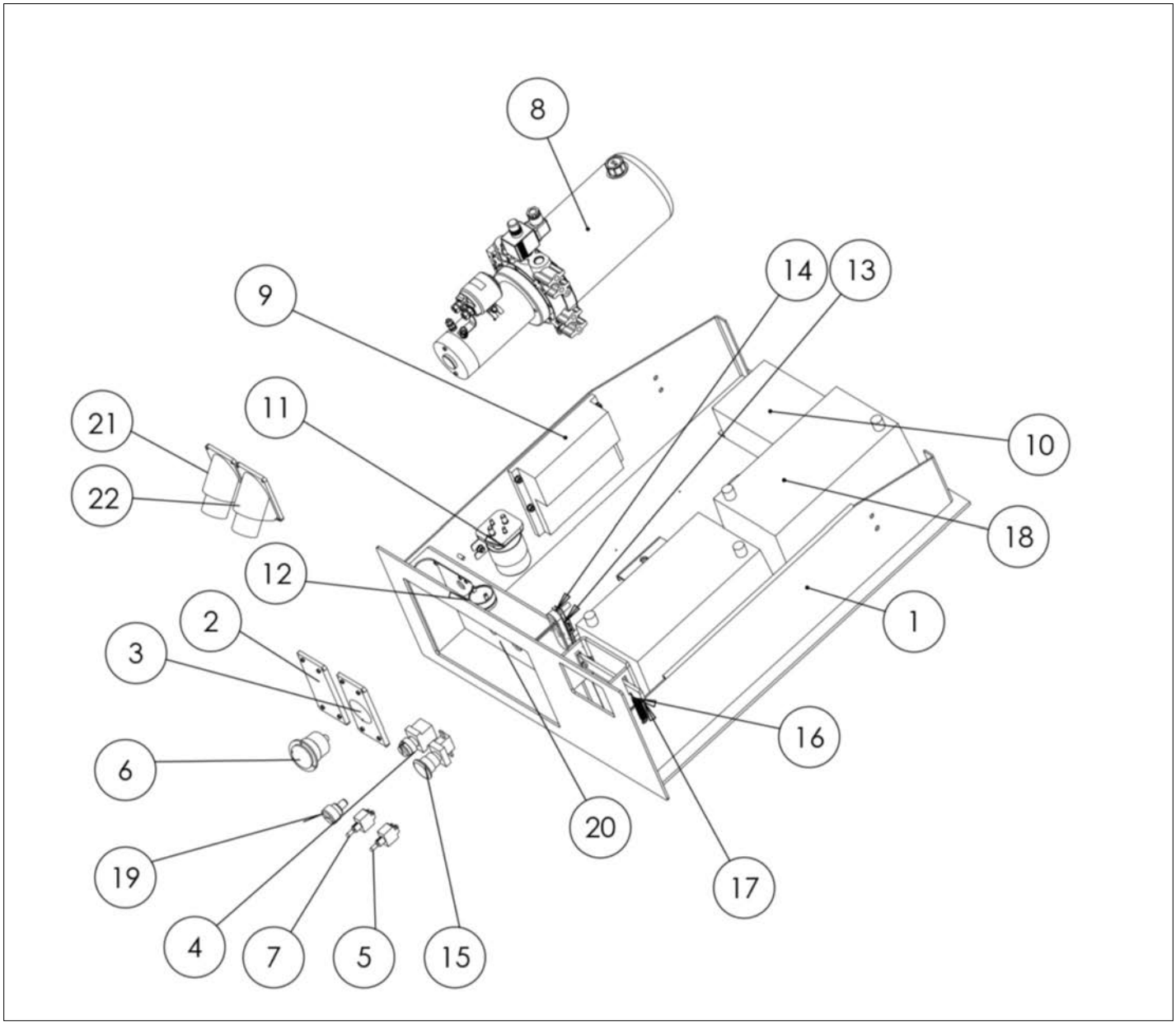
アイテム	部品番号	名前	数量	UOM
*	512370-000	HOSE KIT		EA
1	514018-000	FTG, 3/8 BSP Male - 4 ORFS , POS 90Deg	1	EA
2	512372-000	FTG, -6 ORB, -4 ORFS POS 90	1	EA
3	513803-000	HOSE, HYDRAULIC, -4 -4F -4F 95 100R17	1	EA

REPAIR PARTS



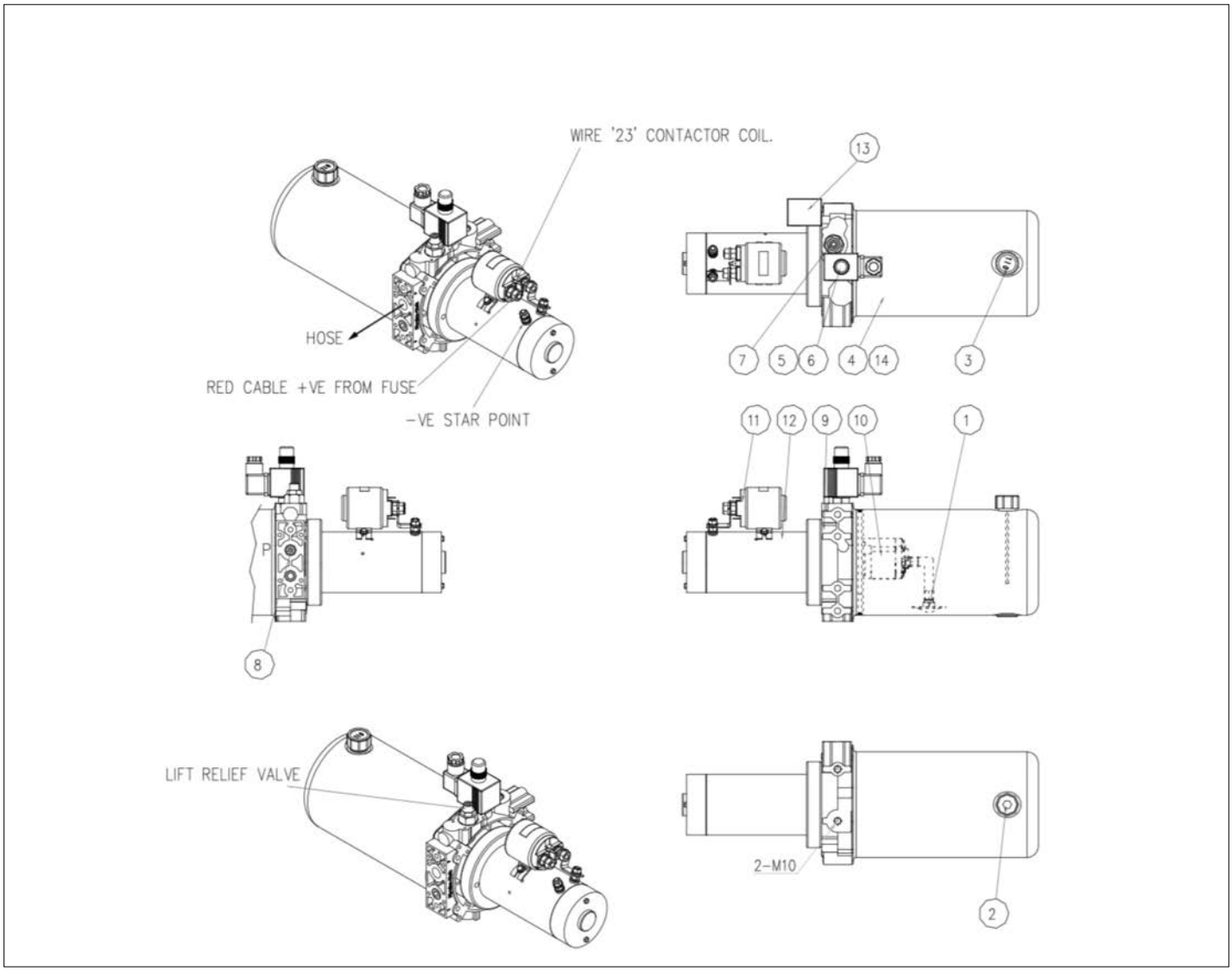
アイテム	部品番号	名前	数量	UOM
1	512398-000	BASE SUB ASSY	1	EA
2	0120663	WHEEL ASSY SWIVEL CASTOR	2	EA
3	0120682	WELDMENT PIN	1	EA
4	0120560	KEEPER PIN	1	EA
5	058510-020	M8 x 20 SOCKET HD CTS SCREW - 12.9	1	EA
6	0120623	ASSY WHEEL MOTOR DRIVE10	2	EA
7	512399-000	CHASSIS SIDE COVER PLATE	1	EA
8	513144-000	SLIDE	2	EA
9	512329-000	HYDRAULIC HOSE SECURING BUSH	1	EA
10	0120806	ELEVATION SWITCH	2	EA
11	514308-000	ELEVATION SWITCH BRACKET	1	EA
12	514309-000	ELEVATION SWITCH COVER	1	EA
13	513928-000	COVER, DRIVE MOTORS	1	EA
14	513916-000	LATCH	1	EA
15	564136	BEACON (Optional)	2	EA
16	0120623_1	DRIVE WHEEL,D10FM,GREY RUBBER	2	EA

REPAIR PARTS



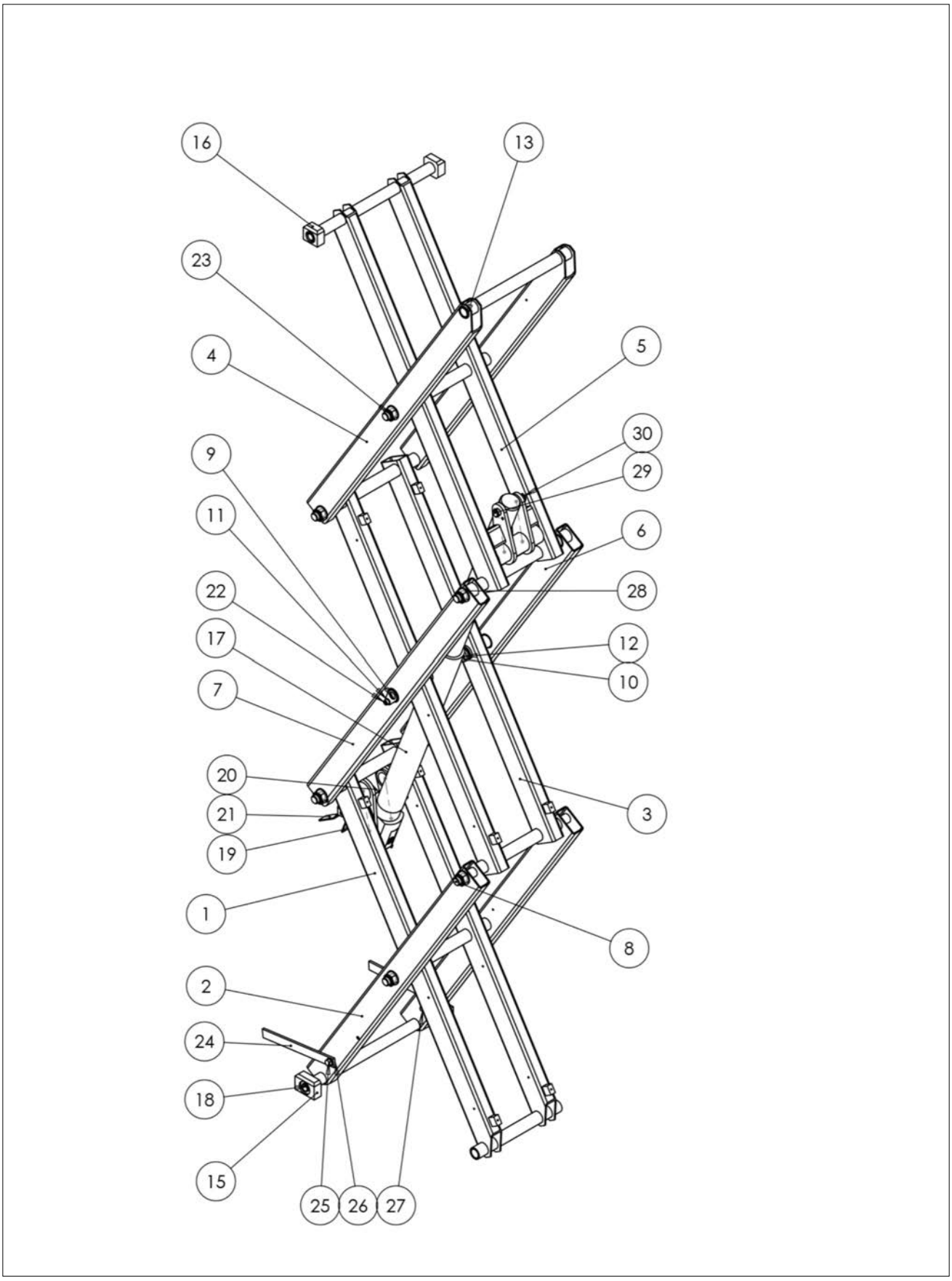
アイテム	部品番号	名前	数量	UOM
1	513904-000	COMPONENT DRAWER	1	EA
2	514320-000	BLANKING PLATE	1	EA
3	514321-000	CHARGER INLET PLATE(ANSI)	1	EA
3	514325-000	CHARGER INLET PLATE(AUS)	1	EA
4	512543-000	3 POS'N KEY SWITCH - STAYPUT	1	EA
5	3020080	TOGGLE SWITCH	1	EA
6	3069521	INLET FLANGE	1	EA
Not Shown	3069542	FRONT COVER FOR 3069521	1	EA
7	3020016	Switch, Toggle - Honeywell INTI-7	1	EA
8	6029656	POWER PACK ASSEMBLY, SERIAL BREAK END #S3010-01-000038	1	EA
9	3030172	PG TS100	1	EA
10	513755-000	BATTERY CHARGER	1	EA
11	3087787	CONTACTOR 24V SEALED	1	EA
12	502588-000	ALARM, ECCO BEEPING 6-28VDC	1	EA
13	446076	FUSE, 250 AMP, REPLACEMENT	1	EA
14	446086	Fuse Block	1	EA
15	3028810	PUSH/PULL EMERGENCY STOP	1	EA
16	505113-000	SPRING	1	EA
17	513915-000	LATCH	1	EA
18	3050002	BATTERY 12V	2	EA
19	501575-000	BATTERY CHARGER INDICATOR	1	EA
20	513924-001	OVERLAY(CE)	1	EA
20	513924-002	OVERLAY(ANSI/AUS)	1	EA
21	0120801	CHARGER PLUG YELLOW (CE)	1	EA
22	0120802	CHARGER PLUG BLUE(CE)	1	EA

REPAIR PARTS



アイテム	部品番号	名前	数量	UOM
*	6029656	POWER PACK ASSEMBLY, SERIAL BREAK END #S3010-01-000038		EA
*	514706-000	POWER PACK ASSEMBLY, SERIAL BREAK START #S3010-01-000038		EA
1	514021-001	SUCTION FILTER		EA
2	514021-002	DRAIN PORT		EA
3	514021-003	FILLER/DIPSTICK		EA
4	514021-004	TANK		EA
5	514021-005	ORIFICE VALVE		EA
6	514021-006	SOLENOID		EA
7	514021-007	RELIEF VALVE		EA
8	514021-008	CHECK VALVE		EA
9	514021-009	MANIFOLD BLOCK		EA
10	514021-010	PUMP		EA
11	514021-011	START CONTACTOR		EA
12	514021-012	MOTOR Break end #S3010-01-000038		EA
12	514706-001	MOTOR Break start #S3010-01-000038		EA
13	514021-013	START RELAY		EA
14	514021-014	O' RING SEAL		EA

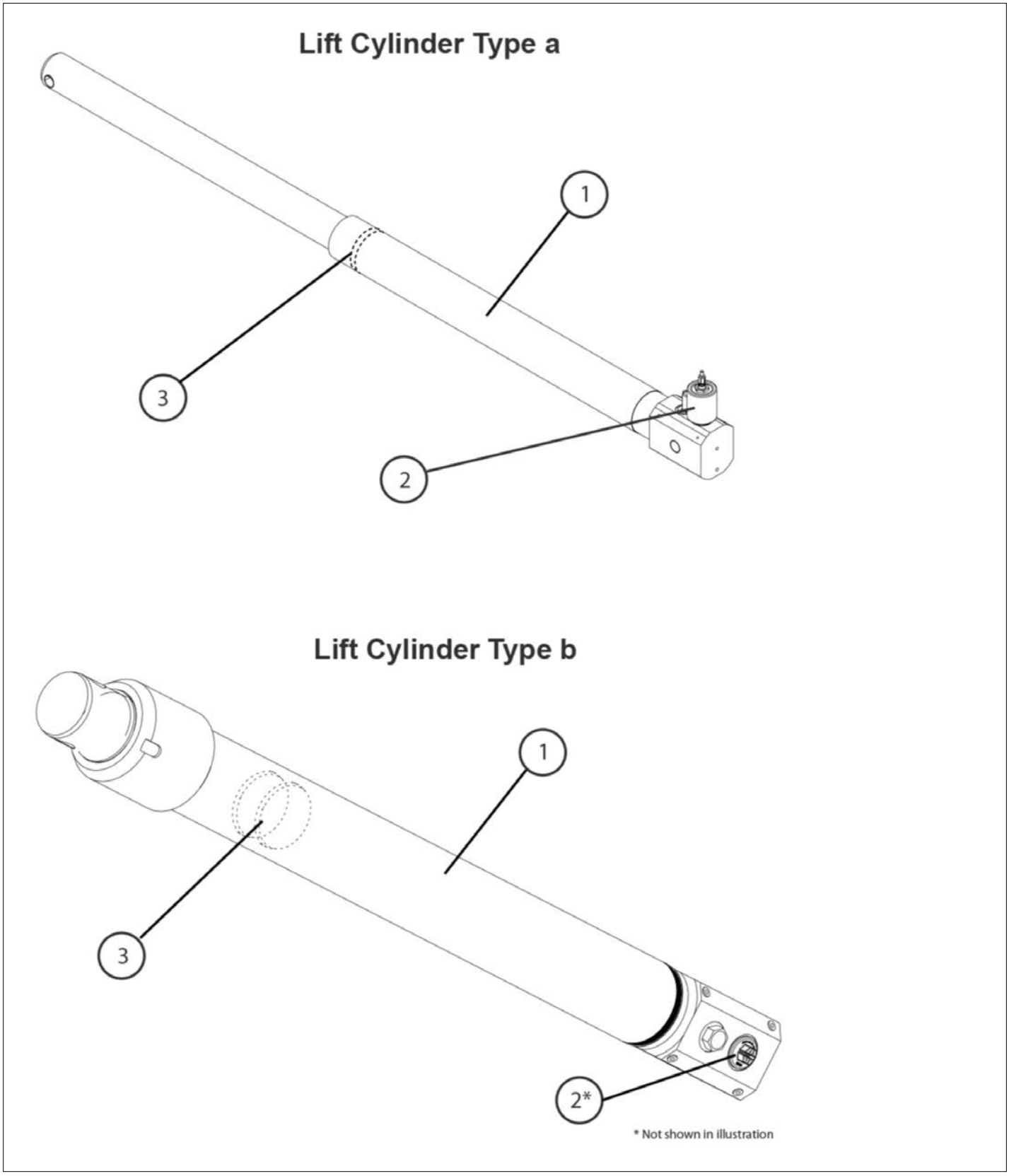
REPAIR PARTS



アイテム	部品番号	名前	数量	UOM
1	0120525	WELDMENT IST INNER ARM	1	EA
2	0120519	WELDMENT 1ST OUTER ARM	1	EA
3	0120548	WELDMENT 2ND INNER ARM	1	EA
4	0120549	WELDMENT 3RD OUTER ARM	1	EA
5	0120539	WELDMENT 3RD INNER ARM	1	EA
6	0120553	WLDNT TUBE 2ND OUTER ARM RH PUSH10	1	EA
7	0120554	WLDNT TUBE 2ND OUTER ARM LH - PUSH10	1	EA
8	0120557	WELDMENT PIN	6	EA
9	0120559	WELDMENT PIN	2	EA
10	0120560	KEEPER PIN	2	EA
11	056021-008	Washer SpringWasher DIN127B M8	8	EA
12	058510-020	M8 x 20 SOCKET HD CTS SCREW - 12.9	2	EA
13	2509723	BRG 25mm ID X 28mm OD X 30mm LG	14	EA
14	2509724	BRG 25mm ID X 28mm OD X 40mm LG	2	EA
15	0120616	BLOCK SLIDE	2	EA
16	0120612	BLOCK SLIDE	2	EA
17	0120658	LIFT CYLINDER (Type a)	1	EA
17	513064-000	LIFT CYLINDER (Type b)	1	EA
18	057577-000	dia.20 EXTERNAL CIRCLIP	4	EA
19	1360088	WLDMT, PIVOT BRKT BLEED DOWN	1	EA
20	0120786	COVER COIL	1	EA
21	0120820	WLDMT BLEED DOWN LEVER	1	EA
22	056059-020	CAPSCREW, M8 X 1.25 X 20MM	8	EA
23	056066-022	M22 X 2.5 Steel-Insert Hex Locknut	6	EA
24	0120813	SAFETY PROP, POPUP	2	EA

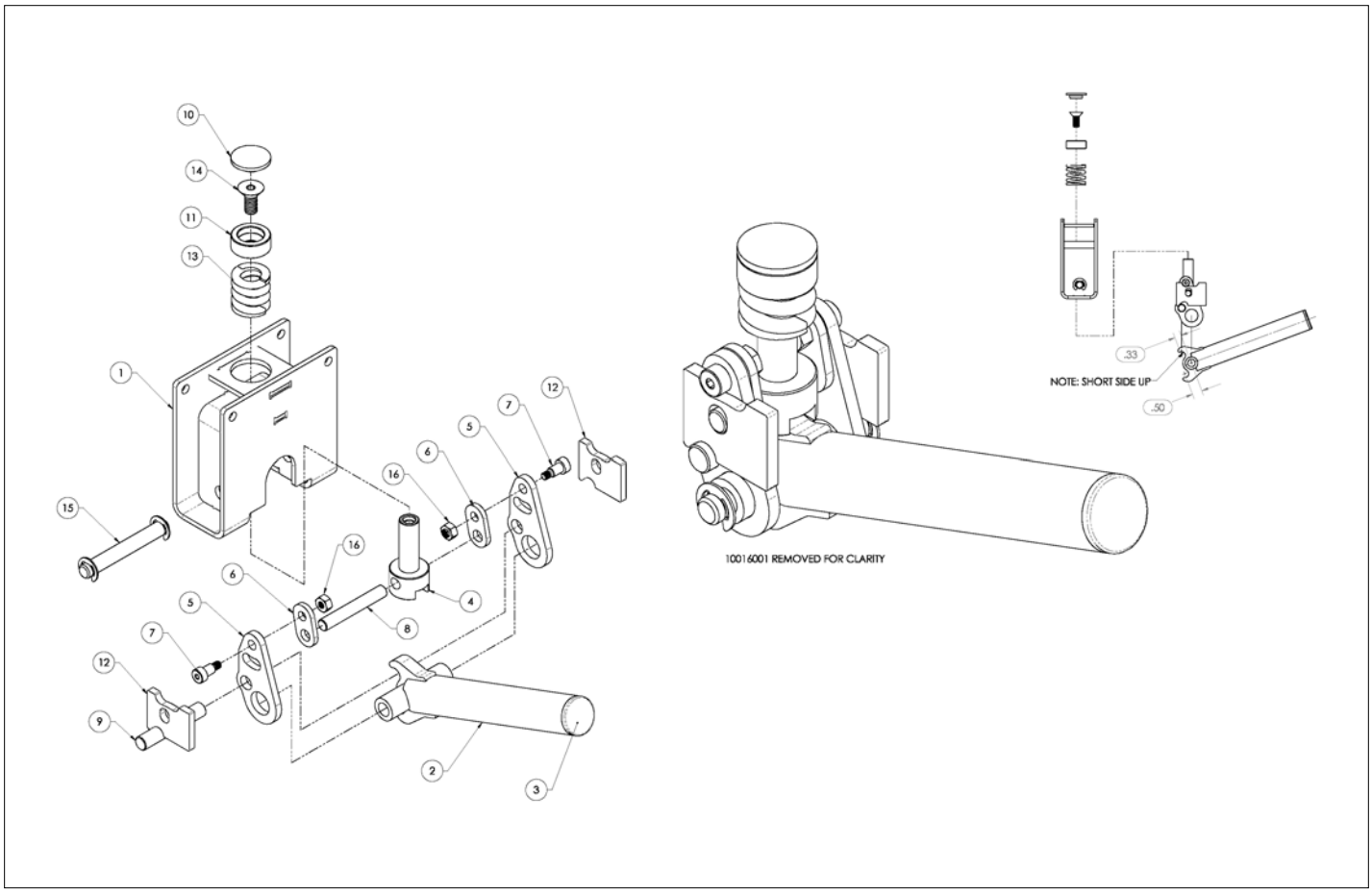
アイテム	部品番号	名前	数量	UOM
25	058509-065	M10 x 65 HEX. HD. BOLT - 8.8	2	EA
26	056069-010	Washer, SteelFlatWasher DIN125A M10 ZincPlated	6	EA
27	056064-010	Nut NylockNut DIN985 M10 10.0	2	EA
28	056069-022	M22 WASHER - GRADE 8	6	EA
29	0120660	PIN CYLINDER MOUNT	2	EA
30	513297-000	dia.18 EXTERNAL CIRCLIP	4	EA

REPAIR PARTS



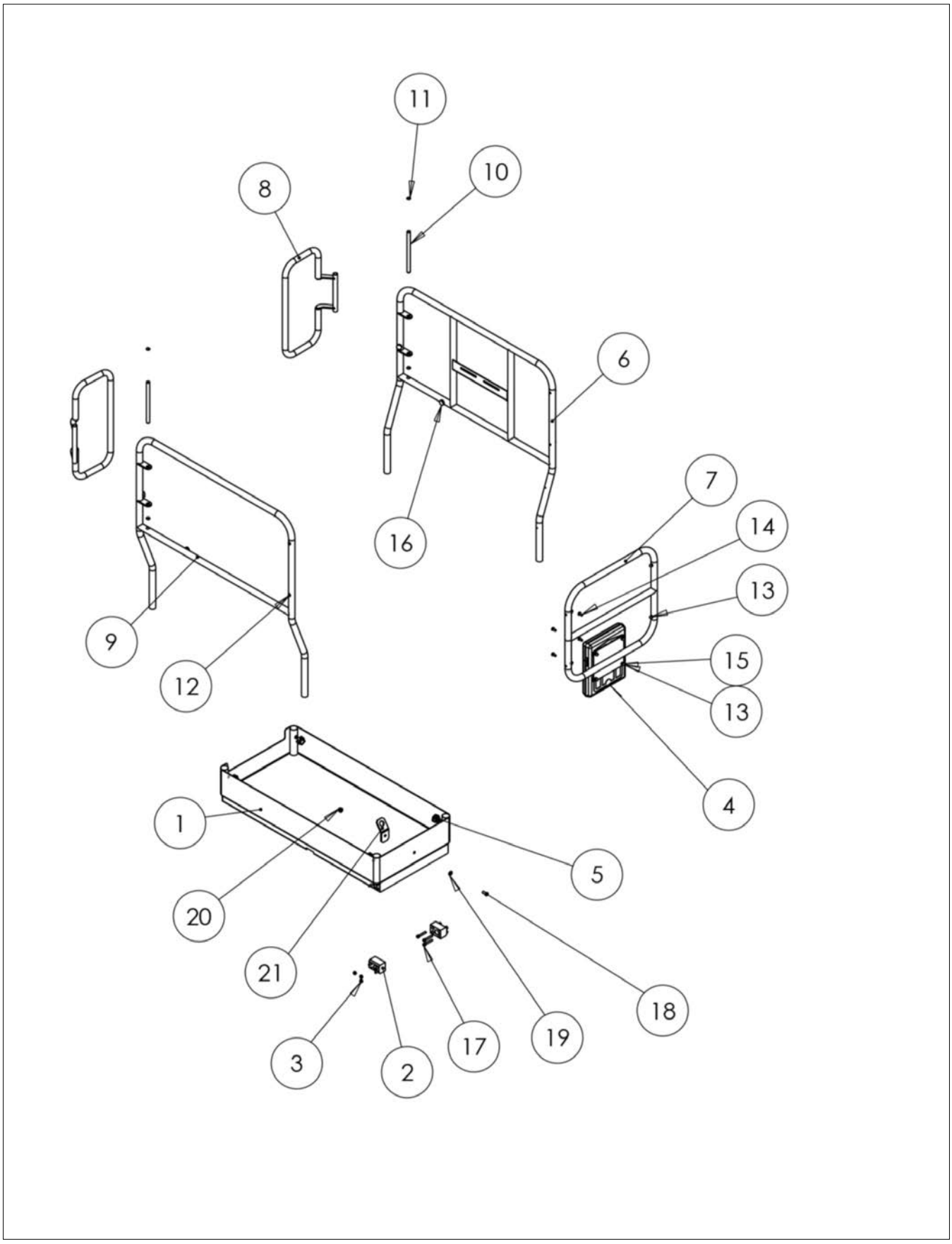
アイテム	部品番号	名前	数量	UOM
1	0120658	LIFT CYLINDER (Type a)	1	EA
1	513064-000	LIFT CYLINDER (Type b)	1	EA
2	513917-000	SOLENOID VALVE	1	EA
3	514022-000	SEAL KIT (Type a)	1	EA
3	513064-010	SEAL KIT (Type b)	1	EA

REPAIR PARTS



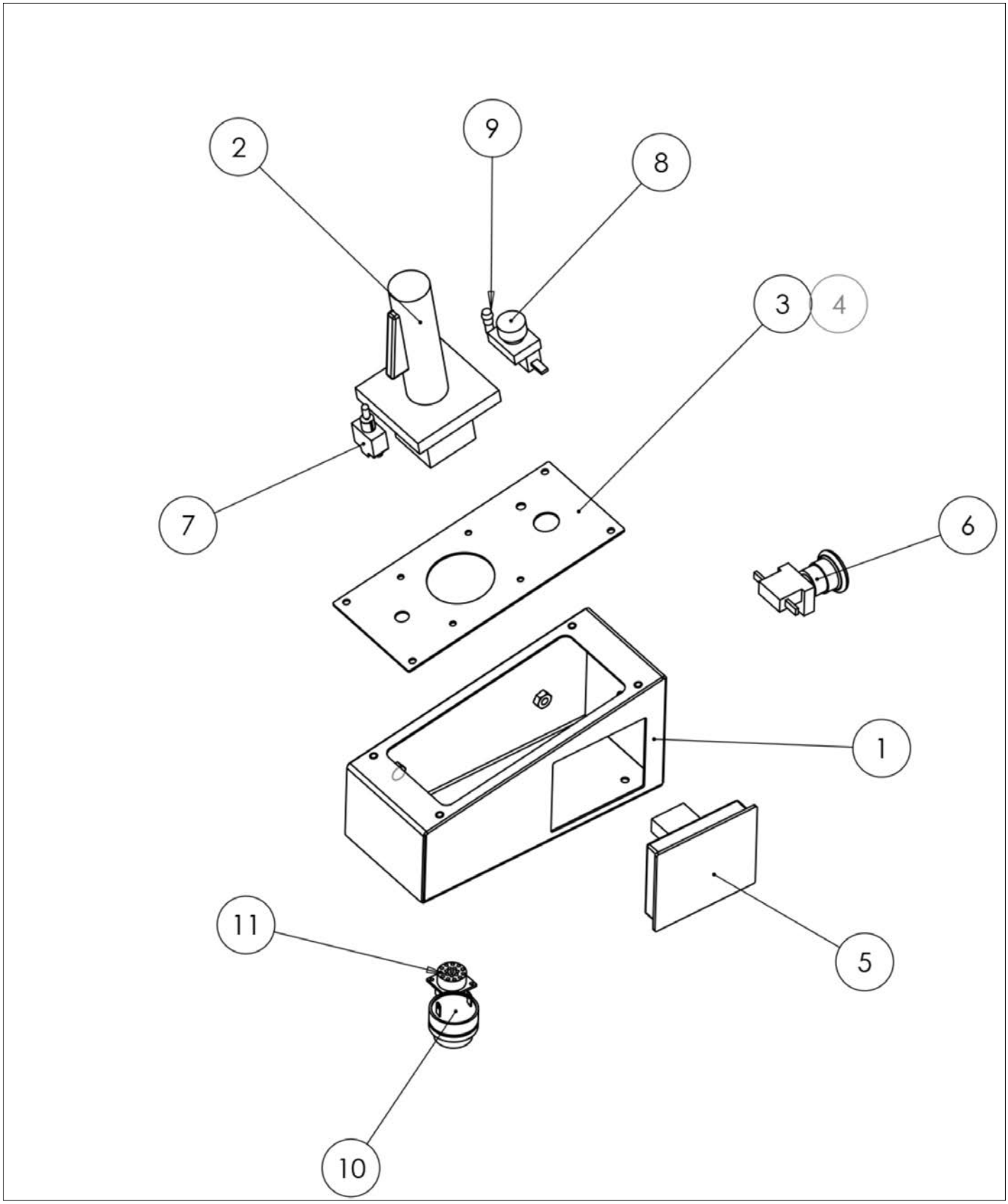
アイテム	部品番号	名前	数量	UOM
-	10016000D	EXTENSION LOCK ASSEMBLY		EA
1	10016001	WELD, EXT LOCK MT	1	EA
2	10016002	WELD, EXT LOCK HANDLE	1	EA
3	5563451	PLUG TUBING 1.00 X .095	1	EA
4	10016009	EXT LOCK PLUNGER	1	EA
5	10016010	PLATE, EXT LOCK ROCKER	2	EA
6	10016011	PLATE, EXT LOCK LINK	2	EA
7	10016017	SHOULDER BOLT, 1/4 OD x 22/64L	2	EA
8	10016012	PIN, EXT LOCK PLUNGER	1	EA
9	10016013	PIN, EXT LOCK ROT	1	EA
10	5569973	SLIDE PAD, STICK ON OCTOBER 2017 AND BEFORE	1	EA
11	10016014	FRICTION PAD HOLDER	1	EA
12	10016015	PLATE, EXT LOCK VERT GUIDE	2	EA
13	10016016	SPRING, COMPRESSION, 1" OD x 0	1	EA
14	10016018	SCREW, FLATHEAD, 5/16-18 x 0.7	1	EA
15	10016019	PIN, CLEVIS, 3/8 DIA x 2.5 USA	1	EA
16	10000493	LOCKNUT, 10-32 FLEX-TOP EXPAND	2	EA

REPAIR PARTS



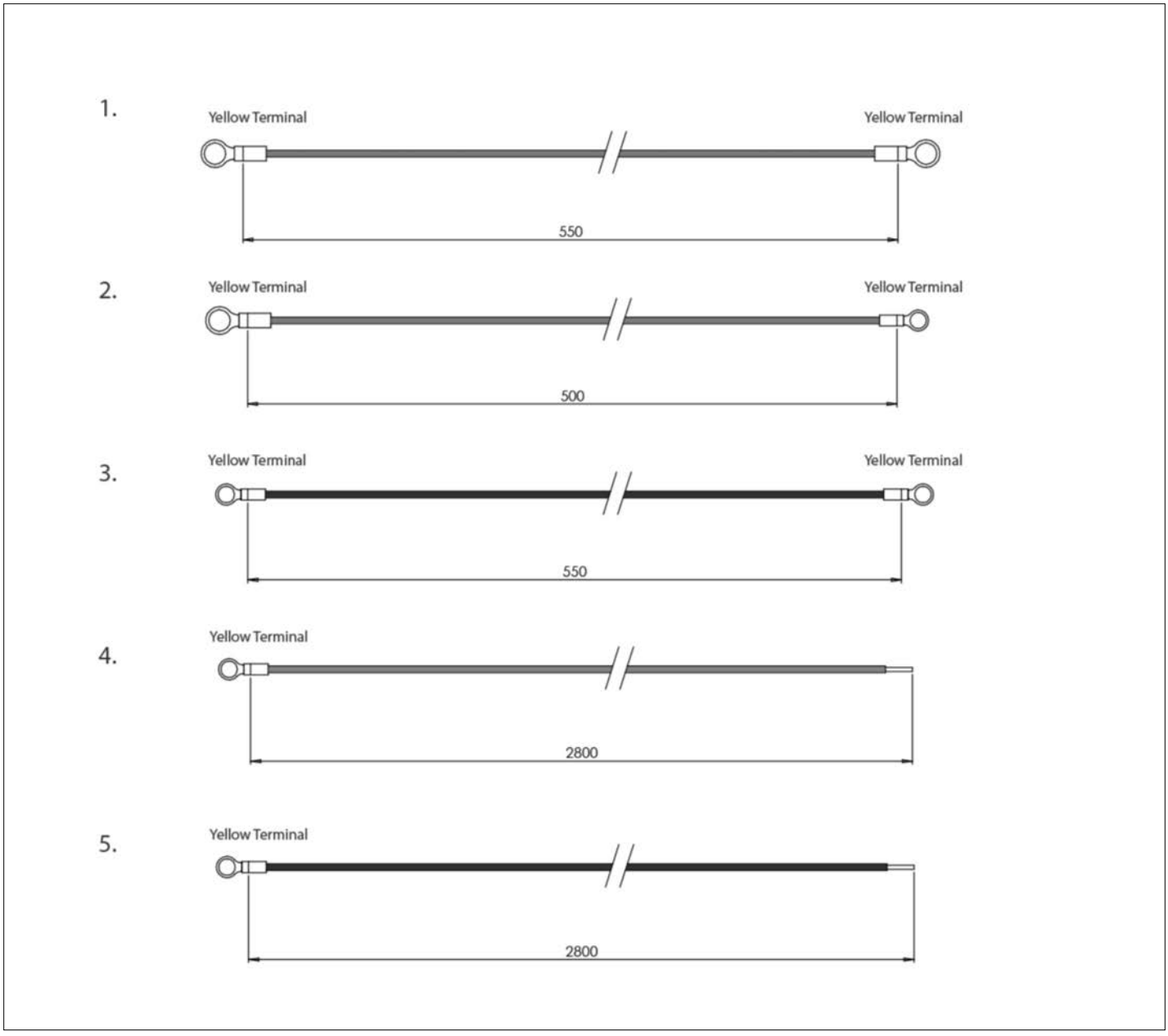
アイテム	部品番号	名前	数量	UOM
1	513794-000	WLDMT DECK PUSH	1	EA
2	0120772	BLOCK	2	EA
3	056066-008	NUT NYLOCKNUT DIN985 M8 8.0 ZP	6	EA
4	010076-000	Manual Enclosure	1	EA
5	5563251	M8 THREADED KNOB	4	EA
6	513918-000	WLDMT, HAND RAIL, RIGHT	1	EA
7	513920-000	WLDMT, HAND RAIL, REAR	1	EA
8	513921-000	WLDMT, SWING GATE	2	EA
9	513919-000	WLDMT, HAND RAIL, LEFT	1	EA
10	0120825	PIN, SALOON DOOR	2	EA
11	5592001	SNAP RING .625 EXT HD	4	EA
12	056059-020	CAPSCREW, M8 X 1.25 X 20MM	4	EA
13	512346-008	METRIC ACORN NUT M8 X 1.25 ZINC PLTD	8	EA
14	058503-016	HHCS M8 x 1.25 x 16 G8.8 ISO 4017_DIN 933	4	EA
15	056021-008	Washer SpringWasher DIN127B M8	4	EA
16	0120731	BUMPER	4	EA
17	058503-050	M8 x 50 SOCKET Hd.CAP SCREW GR 12.9	6	EA
18	501258-025	BOLT, SKTBULCAPSCREW DIN927 M	1	EA
19	056069-010	Washer, SteelFlatWasher DIN125A M10 ZincPlated	2	EA
20	056064-010	Nut NylockNut DIN985 M10 10.0	1	EA
21	057094-002	HARNESS HARDPOINT BRACKET	1	EA

REPAIR PARTS



アイテム	部品番号	名前	数量	UOM
Not Shown	514428-000	UPPER CONTROL BOX ASSY (CE / ANSI)	1	EA
Not Shown	514428-001	UPPER CONTROL BOX ASSY (AUSTRALIAN)	1	EA
1	513922-000	UPPER CONTROL BOX	1	EA
2	515755-000	JOYSTICK	1	EA
3	513208-000	UCB PANEL	1	EA
4	513209-001	UCB Overlay	1	EA
5	3087803	EZCal Panel - Trionics	1	EA
6	3028810	PUSH/PULL EMERGENCY STOP	1	EA
7	3020047	Switch, Toggle - Honeywell INTI-3	1	EA
7	3020016	Switch, Toggle - Honeywell INTI-7	1	EA
8	510542-000	PUSHBUTTON BLACK C/W 1 N/O CON	1	EA
9	510528-000	LED RED	1	EA
10	502588-000	ALARM, ECCO BEEPING 6-28VDC	1	EA
11	512360-000	19WAY CHASSIS SOCKET	1	EA

REPAIR PARTS

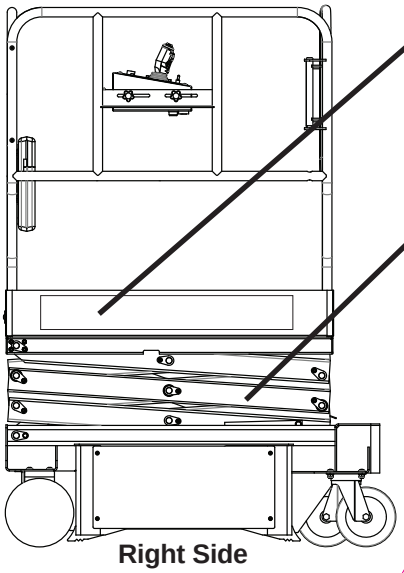


アイテム	部品番号	名前	数量	UOM
----	513776-000	Platform Control Loom	1	EA
----	513777-000	Ground Control Loom	1	EA
----	513795-000	Battery Cable - Live	1	EA
----	513796-000	Battery Cable - Negative	1	EA
----	513797-000	Pump to Fuse Cable	1	EA
----	513798-000	Battery Cable - Link	1	EA
1	513800-001	CABLE ASSEMBLY 550mm	1	EA
2	513800-002	CABLE ASSEMBLY 500mm	1	EA
3	513800-003	CABLE ASSEMBLY 550mm	1	EA
4	513800-004	CABLE ASSEMBLY 2800mm	2	EA
5	513800-005	CABLE ASSEMBLY 2800mm	2	EA

Label Kit CE - 513869-000 1 of 2

snorkel S3010E

514227-000 (Seperate from 513869-000)



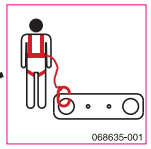
Right Side

514191-010

514364-001

514360-000

514360-000



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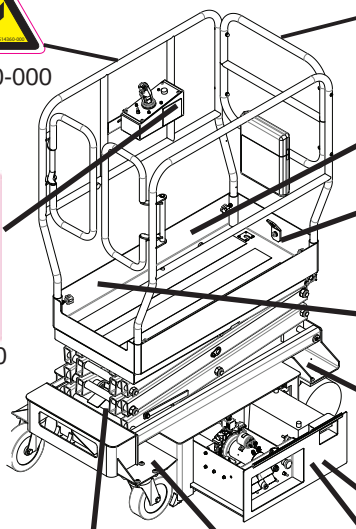
514359-000



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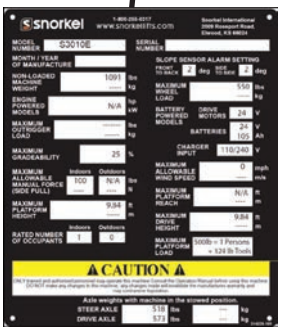
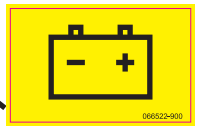


014222-903

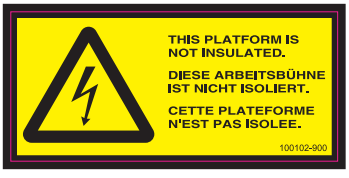
513871-000



066522-900

014222-903

513871-000

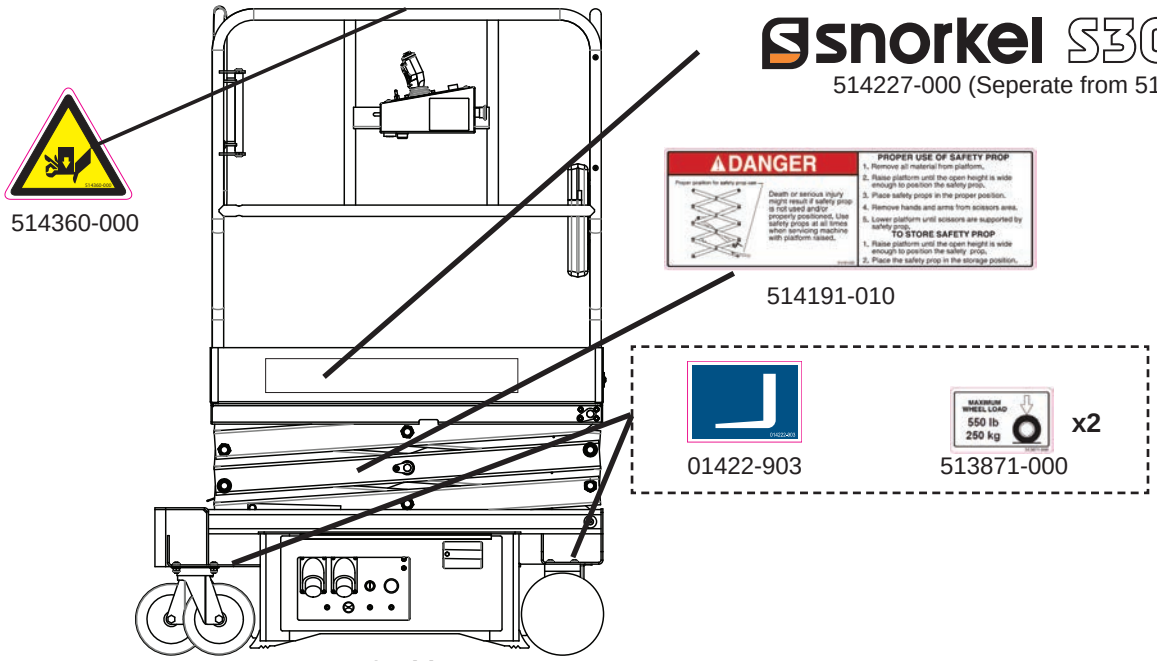


100102-000

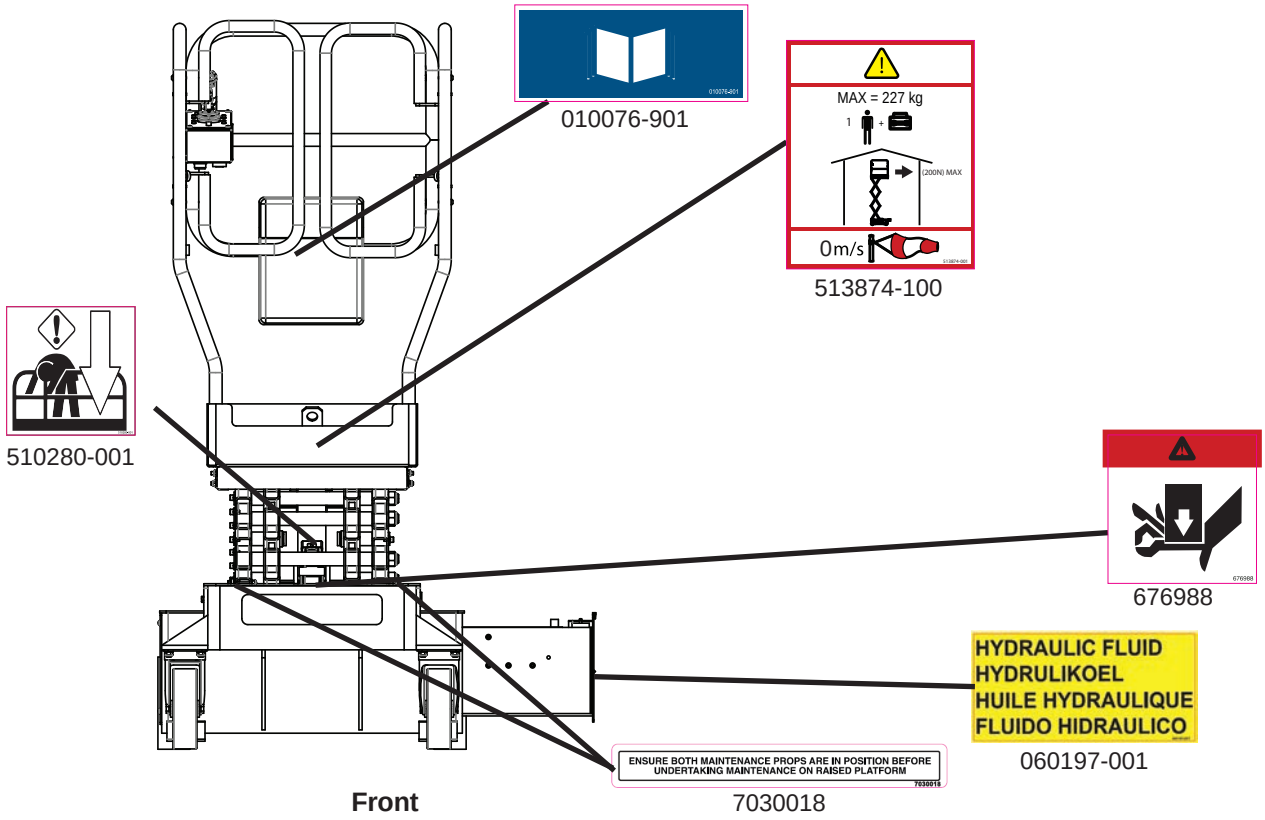
Label Kit CE - 513869-000 2 of 2

snorkel S3010E

514227-000 (Seperate from 513869-000)



Left Side

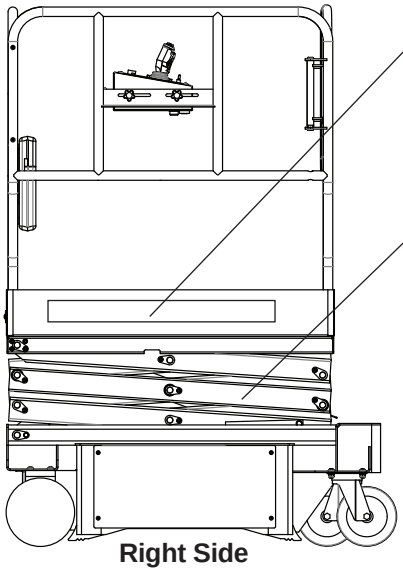


Front

Label Kit ANSI - 513869-100 1 of 2

snorkel S3010E

514227-000 (Seperate from 513869-100)

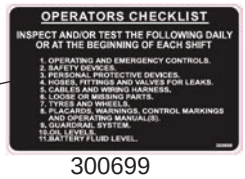


Right Side

514191-000

514359-000

0073224



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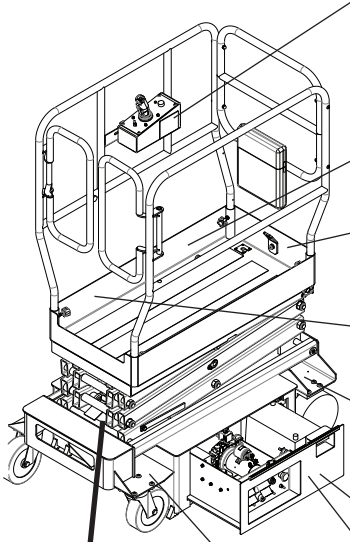

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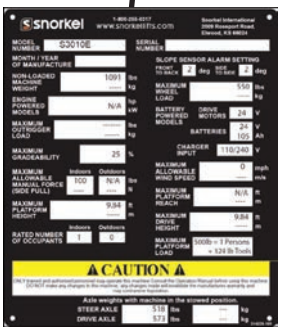


621486 0083426 513871-000

451726

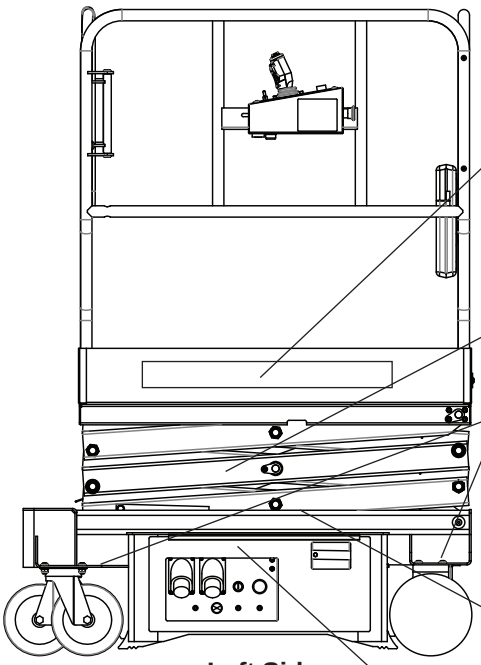
621486 0083426 513871-000

0074311

Label Kit ANSI - 513869-100 2 of 2

snorkel S3010E

514227-000 (Seperate from 513869-100)



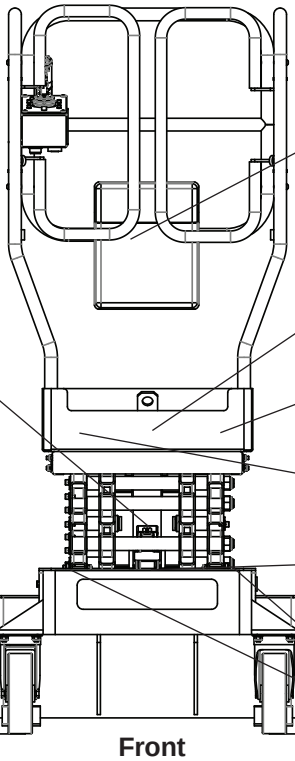
Left Side

514191-000

621486 0083426 513871-000 x2

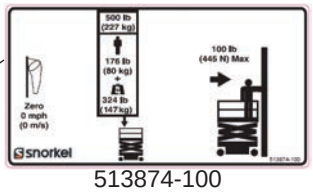
451986

514194-000



Front

0073043



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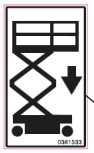

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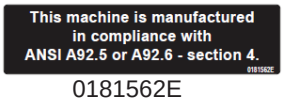

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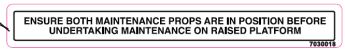
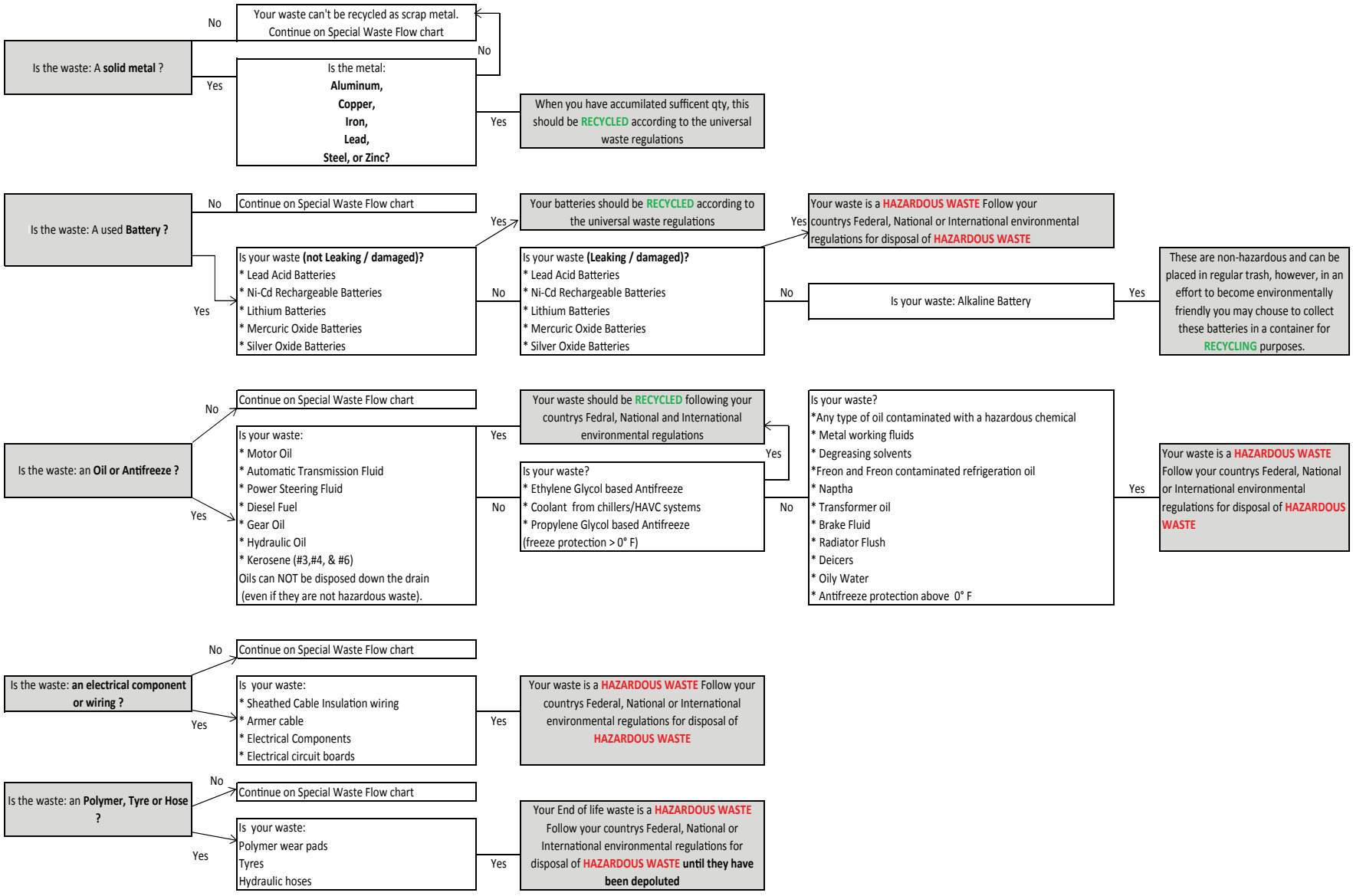


7030018

Waste Removal and Disposal

End of Life Waste Advice Chart :



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El Distribuidor local / Il Distributore locale

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