

# snorkel

## SL30SL

## SL26SL



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## PARTS & SERVICE MANUAL

Part Number 511121-200

December 2012

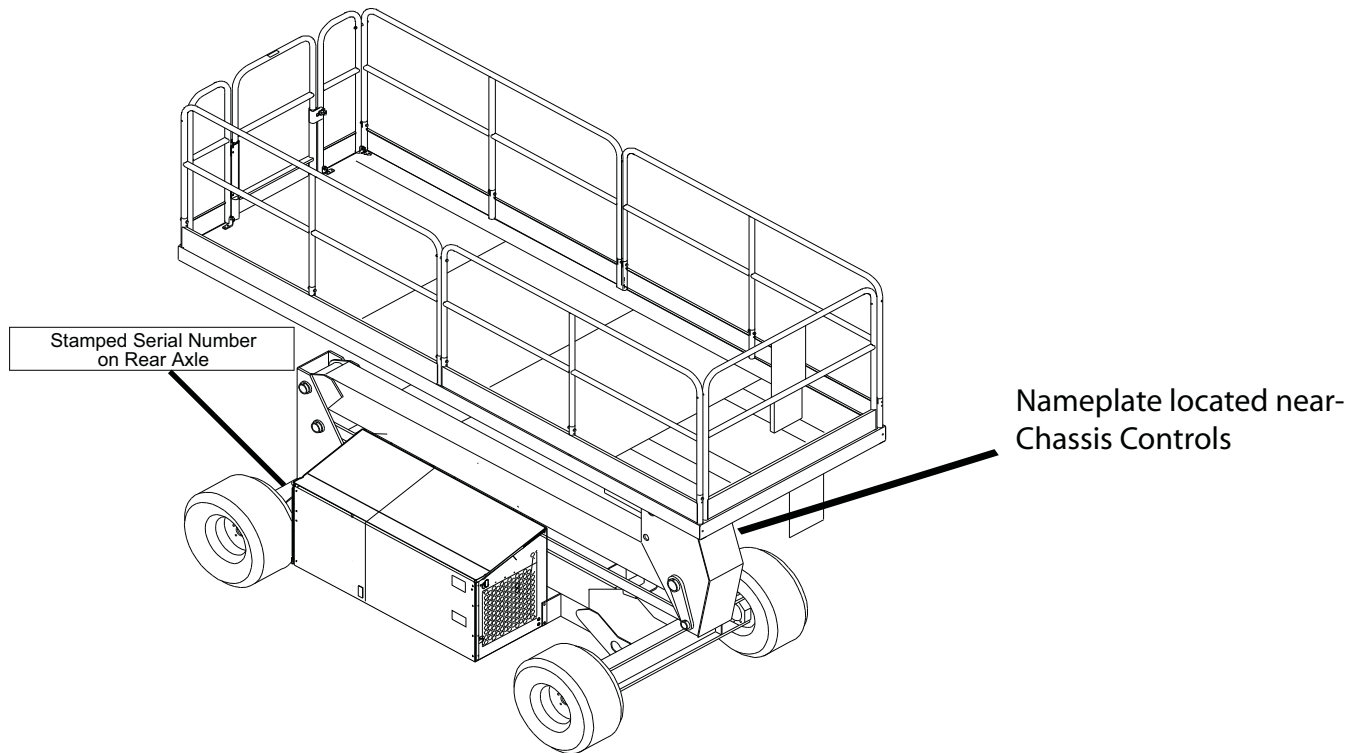
Serial Number 51000 and after



# SL26/30SL Series

## ENGLISH

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 top of the chassis above the front axle pivot.



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# SL26/30SL SERVICE AND PARTS MANUAL

## FOREWORD

### HOW TO USE THIS MANUAL

This manual is divided into six sections.

#### SECTION 1 INTRODUCTION

General description and machine specifications.

#### SECTION 2 OPERATION AND SPECIFICATION

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

#### SECTION 3 MAINTENANCE

Preventative maintenance and service information.

#### SECTION 4 TROUBLESHOOTING

Causes and solutions to typical problems.

#### SECTION 5 SCHEMATICS

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

#### SECTION 6 ILLUSTRATED PARTS BREAKDOWN

Complete parts lists with illustrations.

### SPECIAL INFORMATION

#### D A N G E R

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

#### W A R N I N G

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

#### C A U T I O N

*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.

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### C A U T I O N

*Detailed descriptions of standard workshop procedures, safety principles and service operations are not included.*

*Please note that this manual contains warnings and cautions against some specific service methods which could cause personal injury, or could damage a machine or make it unsafe.*

*Please understand that these warnings cannot cover all conceivable ways in which service, whether or not recommended by Snorkel, might be carried out, 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.*

# 1. INTRODUCTION

## 1.1 INTRODUCTION

### PURPOSE

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

### SCOPE

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

## 1.2 GENERAL DESCRIPTION

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

### ! WARNING !

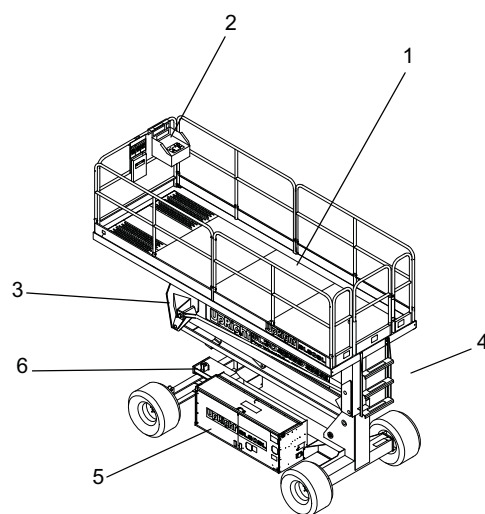
**DO NOT** use the work platform without guardrails properly assembled and in place.

Figure 1: **SL26/30SL Work Platform**

### PLATFORM

The platform has a reinforced steel floor, 1.1m (43.5 inch) high guardrails with midrail, 152 mm (6 inch ) toeboards, and an entry gate at the rear of the platform. The guardrails can be folded down for shipment see page 11-13.

1. Platform
2. Platform Controller Assembly
3. Elevating Assembly
4. Power Module
5. Control Module
6. Chassis



## PLATFORM CONTROLLER

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

## ELEVATING ASSEMBLY

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

## CHASSIS

The chassis is a structural frame that supports all the components of the SL26/30SL work platform.

## PURPOSE OF EQUIPMENT

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

## SPECIAL LIMITATIONS

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

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

## D A N G E R

*The elevating function shall **ONLY** be used when the work platform is level and on a firm surface.*

*The work platform is **NOT** intended to be driven over uneven, rough, or soft terrain when elevated.*





# OPERATION MANUAL

## WARNING

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

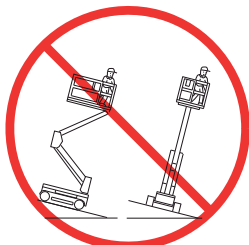
## Safety Rules

### Electrocution Hazard



**THIS MACHINE IS NOT INSULATED!**

### Tip Over Hazard



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

### Collision Hazard



**NEVER** position the platform without first checking for overhead obstructions or other hazards.

### Fall Hazard



**NEVER** climb, stand, or sit on platform guardrails or midrail.

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

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

Exceeding the specified permissible maximum load **is prohibited!** See "Special Limitations" for details.

The use and operation of the aerial work platform as a lifting tool or a crane (lifting of loads from below upwards or from up high on down) **is prohibited!**

**NEVER** exceed the manual force allowed for this machine. See "Special Limitations" 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 when wind speeds exceed this machine's wind rating. See "Beaufort Scale" for details.

**NEVER** attach notice boards etc. to the platform, as this will increase the wind loading effect.

**NEVER** lift or carry large sheet type materials with the platform as this will increase the wind loading effect.

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

**It is prohibited** to keep the swing gate in an open position (held open with tie-straps) 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, **VERIFY** that all labels are in place and legible before using.

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 of the manufacturer.

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

The driving of MEWP's on public highways is subject to Regulations made under the Road Traffic Acts.

**ENVIRONMENTAL TEMPERATURE LIMITATION**, The machine is primarily for use in normal ambient temperatures and conditions ranging between 50c to -20c.

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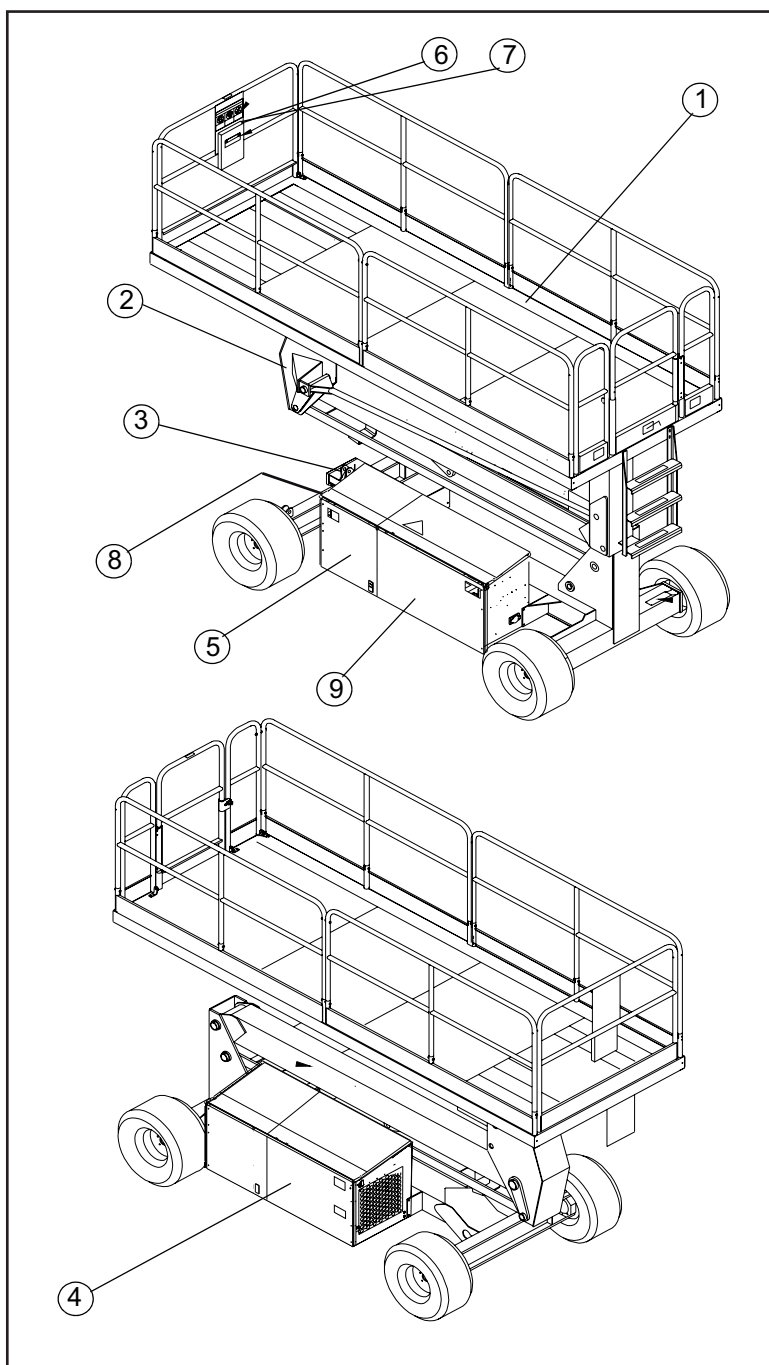
## INTRODUCTION

This manual covers operation of the SL26/30 Speed Level Series Self-Propelled Work Platforms. **This manual must be stored on the machine at all times.**

## GENERAL DESCRIPTION

Figure 1: SL26/30 SL Series

1. Platform
2. Elevating Assembly
3. Chassis
4. Power Module
5. Control Module
6. Platform Controls
7. Manual Case
8. Chassis Controls
9. Hydraulic Fluid Reservoir



## SPECIAL LIMITATIONS

Travel with the platform raised is limited to creep speed range.  
Elevating the Work Platform is limited to firm, level surfaces only.



*The elevating function shall ONLY be used when the work platform is leveled and on a firm surface. The work platform is designed to be driven over uneven, rough, or soft terrain, however great care is required when traversing adverse terrain. Appropriate speeds should always be used.*

### PLATFORM CAPACITY

The maximum capacity for the MACHINE, including occupants is determined by model and options, and is listed in "Specifications" on page 18.



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

### MANUAL FORCE

Manual force is the force applied by the occupants to objects such as walls or other structures outside the work platform.

The maximum allowable manual force is limited to 200 N (45 lbs.) of force per occupant, with a maximum of 400 N (90 lbs.) for two or more occupants.



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

### BEAUFORT SCALE

Never operate the machine when wind speeds exceed 12.5m/s (28 mph) [Beaufort scale 6].

BEAUFORT RATING	WIND SPEED				GROUND CONDITIONS
	m/s	km/h	ft/s	mph	
3	3,4~5,4	12,25~19,4	11.5~17.75	7.5~12.0	Papers and thin branches move, flags wave.
4	5,4~8,0	19,4~28,8	17.75~26.25	12.0~18	Dust is raised, paper whirls up, and small branches sway.
5	8,0~10,8	28,8~38,9	26.25~35.5	18~24.25	Shrubs with leaves start swaying. Wave crests are apparent in ponds or swamps.
6	10,8~13,9	38,9~50,0	35.5~45.5	24.5~31	Tree branches move. Power lines whistle. It is difficult to open an umbrella.
7	13,9~17,2	50,0~61,9	45.5~56.5	31.~38.5	Whole trees sway. It is difficult to walk against the wind.

### LIFT OVERLOAD ALARM

If a load equivalent to 90% of safe working load is lifted a fault code "03" will be displayed on the digital display on the platform control box. If a load which is greater than the safe working load is present in the basket all machine functions will cease to operate and an acoustic warning will sound. In order to return to normal operation a load equal to or less than the safe working load must be present in the basket and the power must be re-cycled, power can be re-cycled by pushing the emergency stop button and releasing it again.



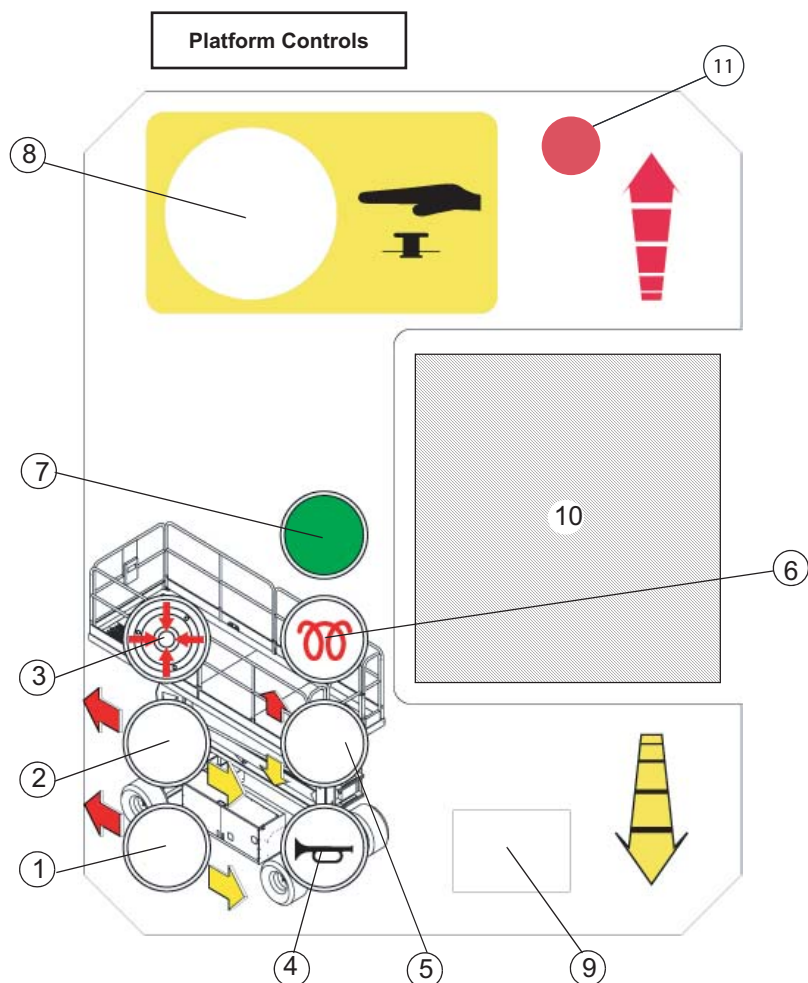
*Never operate the machine with a platform load greater than the rated capacity.*

# CONTROLS AND INDICATORS

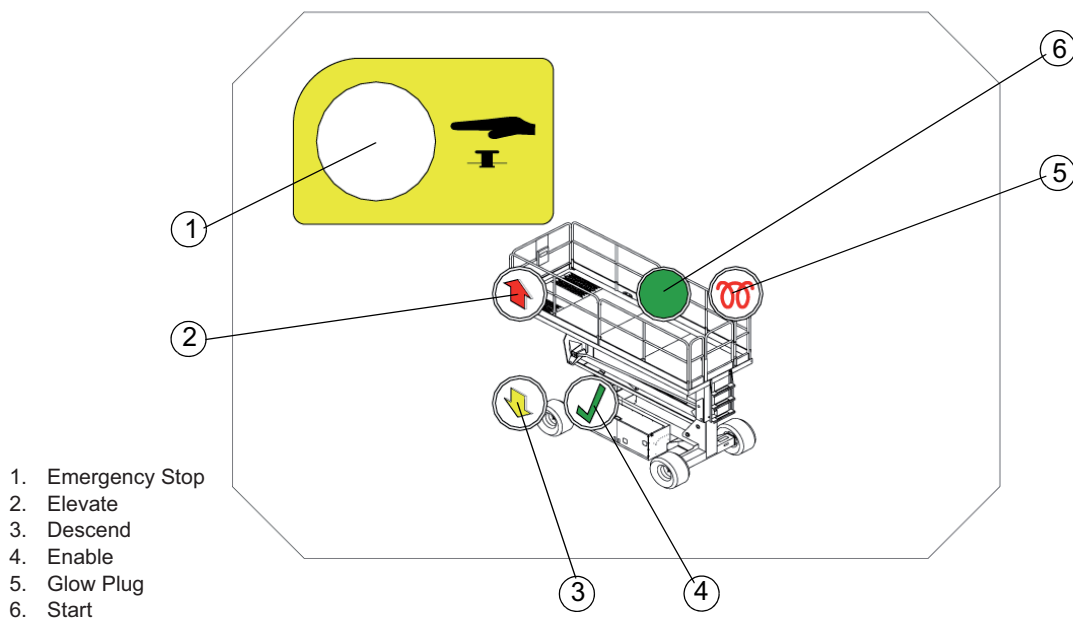
Figure 2: Controls and Indicators



1. Drive (Medium)
2. Drive (Low)
3. Level
4. Horn Button
5. Lift/Lower Button
6. Glow Plug
7. Engine Start
8. Emergency Stop Button
9. Display
10. Joystick
11. Red overload light
12. Drive (Hi Speed / Medium Speed)
13. Key Switch



## Chassis Controls



## PRE-OPERATION SAFETY INSPECTION

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

1. Open modules and inspect for damage, fluid leaks or missing parts.

2. Check the level of the hydraulic fluid with the platform fully lowered. The hydraulic reservoir is located in the Control Module. The fluid level must be between the MIN and MAX lines. Add hydraulic fluid if necessary.

3. Check that fluid level in the starter battery is correct.

4. Check the level of the Diesel fuel with the engine switched off. The fuel tank is located in the Power Module. Add fuel as required.

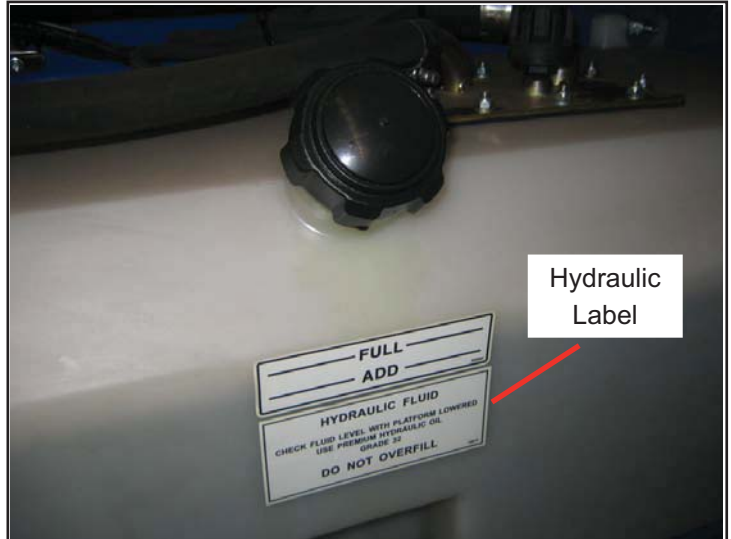
5. Check that all guardrails are in place and all fasteners are properly tightened.

6. Inspect the machine thoroughly for cracked welds and structural damage, loose or missing hardware, hydraulic leaks, damaged control cables, loose wire connections and wheel bolts.

Note : check decal located on tank for Hydraulic Fluid Specification(see fig 3).

Adding fluids of a different specification may cause operational problems.

Figure 3: Hydraulic Tank



Not all hydraulic fluid is suitable to use in the hydraulic system. Some have poor lubricating characteristics and may increase component wear. Only use hydraulic fluid as recommended.

## FUEL SPECIFICATIONS

To get the correct power and performance from the engine it is important to use a fuel of the correct quality.

The recommended fuel for the SL Machine is Diesel Fuel with a minimum Cetane number of 45.

Fuels complying with the following specifications will be suitable:

DERV to "EN590"

GAS Oil to "BS2869 Class A2" or "ASTM D975 - 91 Class 2D"

FUELS OTHER THAN THESE COULD CAUSE SERIOUS DAMAGE TO THE ENGINE AND-SHOULD NOT BE USED WITHOUT CONSULTING THE MANUFACTURER.

## SYSTEM FUNCTION INSPECTION

Refer to Figure 2 (Page 5) for the locations of various controls and indicators.



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

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

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

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

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1. If necessary, move the machine to an unobstructed area to allow for full elevation.
2. Switch battery isolator on.
3. Twist Chassis Emergency Stop Switch to the ON position.
4. Twist Platform Emergency Stop Switch to the ON position.
5. Turn the Key Switch to the Chassis Control position.
6. Visually inspect the elevating assembly, lift cylinder, cables, and hoses for cracked welds and structural damage, loose hardware, hydraulic leaks, loose wire connections, and erratic operation. Check for missing or loose parts.
7. Push the Chassis ELEVATE and ENABLE buttons and fully elevate the platform.
8. Partially lower the platform by pushing Chassis DESCEND and ENABLE buttons, and check for proper operation of the audible lowering alarm.
9. Open the Emergency Lowering Valve (see Figure 4) by pulling the knob out to check for proper operation. When the platform is lowered, release the knob.
10. Push the Chassis Emergency Stop Switch to check for proper operation. All machine functions should be disabled. Twist the Chassis Emergency Stop Switch to resume.
11. Check that the route is clear of obstacles (persons, obstructions, holes, and drop-offs, bumps and debris), is level, and is capable of supporting the wheel loads.
12. Mount the platform and properly close the entrance.
13. Turn Keyswitch to upper control position.
14. Select DRIVE mode.

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

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



## OPERATION

Before operating the work platform, ensure that the Pre-Operation Safety Inspection has been completed and that any deficiencies have been corrected. **Never operate a damaged or malfunctioning machine.** The operator must be thoroughly trained on this machine.

### STARTING THE ENGINE

1. Mount the platform and properly close the entrance.
2. Turn the Key Switch to the Platform position.
3. If the Engine is cold, depress and hold the GLOW PLUG button for approximately 5 seconds.
4. Press green START button, and hold until the Engine is running.

### TRAVEL WITH THE PLATFORM LOWERED

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

**NOTE: Choose between standard drive, Hi, Low and extra torque depending on the gradient.**

7. High speed selected on the Platform Controls is 2-wheel drive only. Max Torque is Four wheel Drive only.
8. The toggle switch is used to select between HIGH and MEDIUM Speed, HIGH speed should only be used to cover large distance over firm level ground. It is not intended to be used for precise maneuvering or positioning.
9. Engage the Safety Interlock Trigger and move the Joystick to FORWARD or REVERSE to travel in the desired direction. The speed of the machine will vary depending on how far from center the Joystick is moved.

### STEERING

1. Turn the Drive/Lift Switch to DRIVE.
2. While engaging the Safety Interlock Trigger, push the Steering Switch to RIGHT or LEFT to turn the wheels in the desired direction. Observe the tires while maneuvering the work platform to ensure proper direction.

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

### ELEVATING THE PLATFORM

1. Select a firm, level surface.
2. Select LIFT mode.
3. While engaging the Safety Interlock Trigger, push the Joystick forward.
4. If the machine is not level the tilt alarm will sound and the machine will not lift or drive.
5. If the tilt alarm sounds the platform must first be fully lowered, then elevate the platform approximately 600mm (2ft), stop, press and hold the LEVEL button whilst engaging safety interlock trigger until the tilt alarm is silenced. Only then can you elevate fully. If the platform is not levelled correctly the tilt alarm will continue to sound and lift functions will be cut at a height of approximately 2m (6ft).



## TRAVEL WITH THE PLATFORM ELEVATED

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

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

## LOWERING THE PLATFORM

1. Select LIFT mode.
2. Check around the base of the platform to ensure that no one is in contact with the machine. Engage the Safety Interlock Trigger and pull back on the Joystick to lower the platform.

## LEVELLING THE PLATFORM

The AUTO LEVEL feature is designed to level the platform in a situation where the ground has no more than a 13 degree slope side to side and 9 degrees fore and aft, if the slope is greater than 13 degrees side to side and 9 degrees fore and aft the AUTO LEVEL feature will not function.

The tilt alarm will continue to sound until the platform is level

1. Check that the route is clear of obstacles (persons, obstructions, holes, drop-offs, bumps, and debris), is level, and is capable of supporting the wheel loads.
2. Check clearances above, below, and to the sides of platform.
3. Elevate the platform approximately 600mm (2ft).
4. Press and hold the AUTO LEVEL and Engage the Safety Interlock Trigger until the platform is level and the tilt alarm is silenced.
5. The Machine can now be driven within the limits of the tilt sensor. If the terrain changes the machine will stop and the platform must be lowered and re-levelled.

## EMERGENCY LOWERING

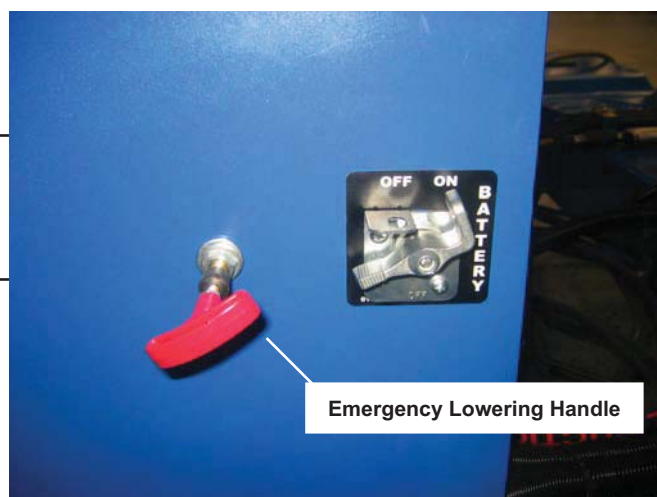
Figure 4: Emergency Lowering Valve



*If the platform should fail to lower, NEVER climb down the elevating assembly.  
Stand clear of the elevating assembly while operating the Emergency Lowering Valve Knob.*

**SL26-30 SPEED LEVEL**

The Emergency Lowering Valve for the SL machine is located on the Module side as shown in fig 4.



1. Open the Emergency Lowering Valve by pulling and holding the handle.
2. To close, release the handle

NOTE: The platform will not elevate if the Emergency Lowering Valve is open.

**EXTENSION PLATFORM (SL26 SPEEDLEVEL ONLY ) see page 11.**

The platform can be extended and securely locked into position.

Use the following procedure to extend the platform:

1. Enter the platform and close the gate.

**Caution**

*The extension platform is free to move when the handles are unlocked. Personal injury may result from accidentally extending or retracting the platform. Make certain the lock pin is engaged when the platform is extended in the working position and when it is stowed. Do not attempt to extend or retract the platform unless the aerial platform is on a level surface.*

2. While facing the front of the platform, unlock the LH and RH handles on the extension platform. Using the handles slide the extension platform out. Ensure that the LH and RH are locked securely in place.
3. Try to move the rails back and forth to make sure the extension platform is locked in position.

Use the following procedure to retract the platform:

1. Enter the platform and close the gate.

**Caution**

*The extension platform is free to move when the handles are unlocked. Personal injury may result from accidentally extending or retracting the platform. Make certain the lock pin is engaged when the platform is extended in the working position and when it is stowed. Do not attempt to extend or retract the platform unless the aerial platform is on a level surface.*

2. While facing the front of the platform, unlock the LH and RH handles on the extension platform. Using the handles slide the extension platform in. Ensure that the LH and RH are locked securely in place.
3. Try to move the rails back and forth to make sure the platform extension platform is locked in position.

## FOLD DOWN GUARDRAILS

This procedure applies only to the SL26-30 Speed Level model for the purpose of Transportation.

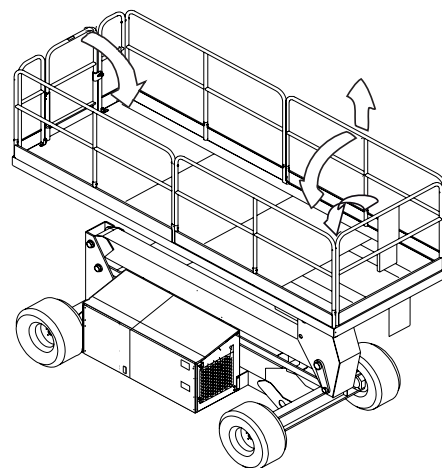
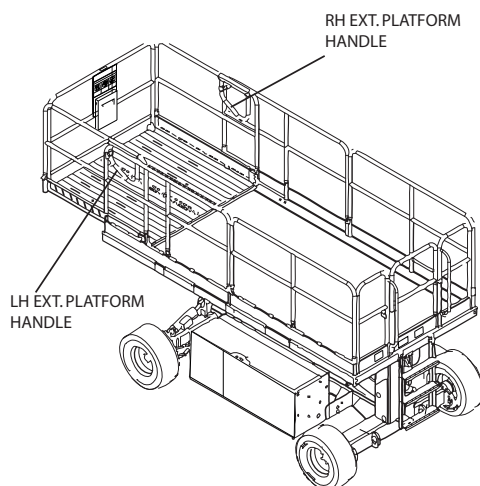
**Guardrails must be returned to proper position before using the machine.**

## FOLD DOWN PROCEDURE

1. Retract Extension Platform by releasing Securing Pins and sliding Extension Platform into locking position.
2. Unhook the controller from the side guardrail and place it on the floor of the platform.
3. Starting at the front of the platform, remove nuts, bolts and washers from the top of the front guardrail. Fold the front guardrail down onto the platform.
4. Close and latch gate.
5. Remove nuts, bolts and washers from the top of the rear guardrail. Fold the rear guardrail down onto the platform being careful to keep latched at all times.
6. Remove nuts, bolts and washers from the top of the side guardrails. Lift up and fold one side guardrail in so it rests on the deck. Repeat with other side guardrails.

## ERECTION PROCEDURE

1. Raise side guardrails, making sure each is pushed down to secure the guardrail in the vertical position.
2. Install bolts, washers and nuts between the side guardrails, tighten securely.
3. Raise rear guardrail assembly, aligning holes and install bolts, washers and nuts. Tighten securely.



## TOWING OR WINCHING

Perform the following only when the machine will not operate under its own power and it is necessary to move the machine or when winching onto a transport vehicle (see "Transporting the Work Platform" on page 13).

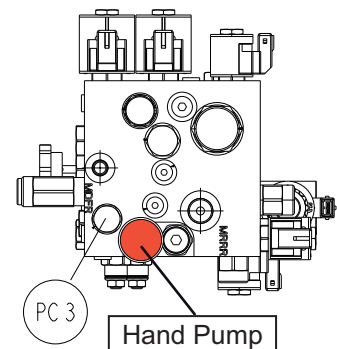
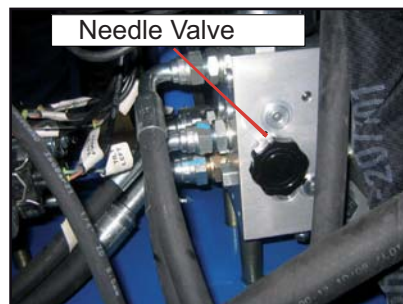
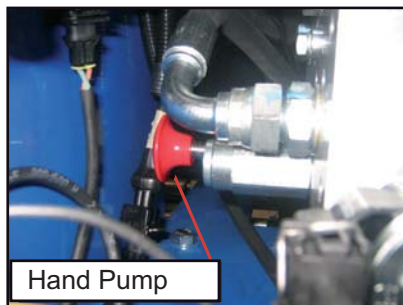
### CAUTION

*DO NOT tow or winch the machine faster than 0,3 m/s (1 ft./s). Faster speeds will damage drive components and void the warranty.*

#### BRAKE RELEASE PUMP

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

1. Open the needle valve by turning the screw anti clockwise, this allows the wheels to freewheel.
2. Pump the Brake Release Pump until the Parking Brake is released.
3. The machine will now roll when pushed or pulled.
4. Be sure to close the needle valve and screw in the **PC3** Valve with an allen key after undoing the locknut. This will release the brake pressure. Once the brakes have been re-applied, return **PC3** Valve to its original configuration by fully unscrewing. Finally tighten the locknut.



### ⚠ WARNING ⚠

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

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

#### AFTER USE EACH DAY

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

#### HOUR METER

To access the hour meter function perform the following steps.

1. Climb into the basket (with the machine powered up)
2. Push the platform emergency stop button.
3. Hold down the following buttons, Horn & Lift.
4. While holding the buttons twist the emergency stop button to return power to the machine.
5. "hr" will now be displayed on the readout, Pressing the right turn button will scroll through the accumulated hours two digits at a time. For example, if pressing the right turn button once displays "20", pressing it a 2nd time displays "58", and pressing it a 3rd time displays "hr", the elapsed time of operation is 2058 hours.

## TRANSPORTING THE WORK PLATFORM

### PREPARATION FOR SHIPMENT

1. Fully lower the platform.
2. Turn batteries off with master switch.
3. Band the controller to the front guardrail.

### LIFTING BY CRANE

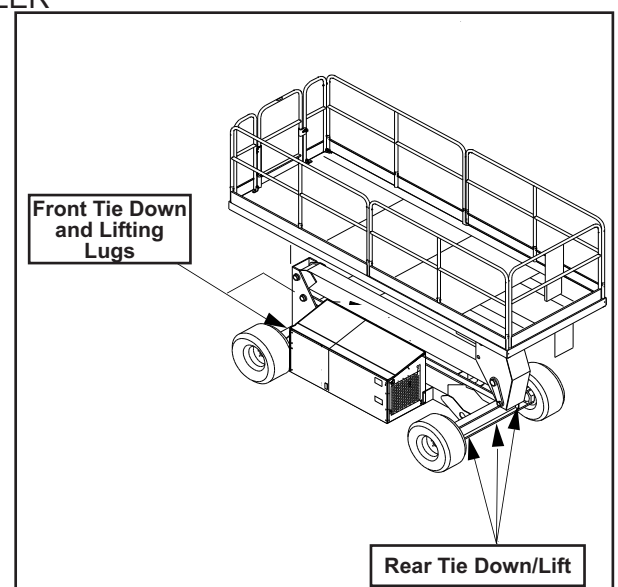
1. Secure straps to chassis tie down/lifting lugs only.
2. Place the platform onto the transport vehicle in transport position.
3. Chock the wheels.
4. Secure the work platform to the transport vehicle with chains or straps of adequate load capacity attached to the chassis tie down/lifting lugs.

Figure 5: Transporting the Work Platform

### DRIVING OR WINCHING ONTO A TRUCK OR TRAILER

**NOTE: Do not winch faster than 0,3 m/s (1 ft/s).**

1. Move the machine onto the truck or trailer;
  - A. To **Drive** the machine onto the transport vehicle:
    - a. Move the work platform up the ramp and into transport position.
    - b. Set the wheels straight and turn off the machine.
    - c. Chock the wheels.
  - B. To Winch the machine onto the transport vehicle:
    - a. Move the work platform up to the ramp.
    - b. Attach the winch cable to the tie down/lifting lugs.
    - c. Release the parking brakes (refer to "Towing or Winching" on page 12).
    - d. Winch the platform into transport position
    - e. Chock the wheels.
2. Secure the work platform to the transport vehicle with chains or straps of adequate load capacity attached to the chassis tie down/lifting lugs.



## CAUTION

*Overtightening of the chains or straps attached to the Tie Down/Lifting Lugs may result in damage to work platform.*

## MAINTENANCE

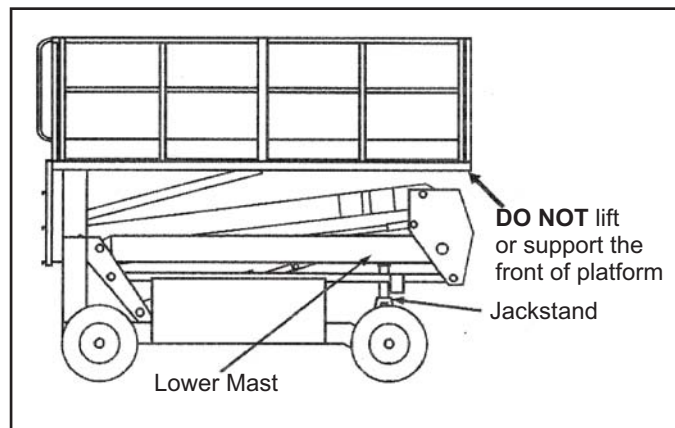
### **WARNING**

*Never perform service while the platform is elevated without first blocking the elevating assembly.  
DO NOT stand in the elevating assembly area while deploying or removing the JackStand.*

**Figure 6:** JackStand

#### BLOCKING THE ELEVATING ASSEMBLY INSTALLATION

1. Park the work platform on firm, level ground and leave the engine running.
2. Ensure the Chassis Emergency Stop Button is twisted to the ON position.
3. Press and hold the Chassis LIFT and ENABLE buttons to elevate the platform approximately 305 mm (12 inches).
4. Place a jackstand with a minimum rating of 2000 kg (4000 lbs.) between the lower mast and chassis, just behind the front axle.
5. Press and hold the Chassis DESCEND and ENABLE buttons to lower the platform until jackstand is secured tightly between lower mast and Chassis.



#### REMOVAL

1. Press and hold the Chassis LIFT and ENABLE buttons to elevate the platform until the jackstand can be removed.
2. Remove jackstand.
3. Press and hold the Chassis DESCEND and ENABLE buttons to completely lower the platform.

## BATTERY MAINTENANCE (Not applicable to Non Maintenance Batteries)



---

*Hazard of explosive gas mixture. Keep sparks, flame, and smoking material away from batteries.  
Always wear safety glasses when working near batteries.  
Battery fluid is highly corrosive. Thoroughly rinse away any spilled fluid with clean water.  
Always replace batteries with Snorkel batteries or manufacturer approved replacements.*

---

- Check the battery fluid level daily, especially if the work platform is being used in a warm, dry climate.
- If electrolyte level is lower than 10 mm (3/8 in.) above the plates add distilled water only. DO NOT use tap water with high mineral content, as it will shorten battery life.
- Keep the terminals and tops of the batteries clean.
- Refer to the Service Manual to extend battery life and for complete service instructions.

### BATTERY CHARGING

The battery is charged while the engine is running.

## FAULT CODES

- 01 - SYSTEM INIT ERROR
- 02 - SYSTEM PLATFORM COM ERROR
- 03 - PLATFORM OVERLOAD
- 04 - SYSTEM LOWER PANEL COM ERROR
- 05 - OIL PRESSURE LOW
- 06 - COOLANT TEMP HOT
  
- 21 - PLATFORM START ON
- 22 - PLATFORM LEFT TURN SW ON
- 23 - PLATFORM RIGHT TURN SW ON
- 24 - PLATFORM LIFT SW ON
- 25 - PLATFORM HISPEEDDRIVE SW ON
- 26 - PLATFORM GLOWLP SW ON
- 27 - PLATFORM LOSPEEDDRIVE SW ON
- 28 - PLATFORM AUTOLEVEL SW ON
- 29 - PLATFORM JOYSTICK ENABLE SW ON
- 31 - PLATFORM JOYSTICK NOT NEUTRAL
  
- 34 - GROUND PANEL ENABLE SW ON
- 37 - GROUND PANEL DOWN SW ON
- 38 - GROUND PANEL UP SW ON
- 43 - GROUND PANEL START SW ON
- 45 - GROUND PANEL GLOWLP SW ON
  
- 51 - Coil Fault HiSpeed1
- 52 - Coil Fault HiSpeed2
- 55 - Coil Fault LiftUp
- 56 - Coil Fault LiftDown
- 57 - Coil Fault TiltLeft
- 58 - Coil Fault TiltRight
- 59 - Coil Fault SteerRight
- 61 - Coil Fault SteerLeft
- 62 - Coil Fault TiltRear
- 63 - Coil Fault TiltForward
- 66 - Coil Fault Forward
- 67 - Coil Fault Reverse
- 71 - Coil Fault CushionValve
- 72 - Coil Fault AxleFloat
- 73 - Coil Fault SteerDump
  
- 68 - LOW BATTERY FAULT



# INSPECTION AND MAINTENANCE SCHEDULE

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



*Before performing preventative maintenance, familiarize yourself with the operation of the machine. Always block the elevating assembly whenever it is necessary to perform maintenance while the platform is elevated.*

The daily preventative maintenance checklist has been designed for machine service and maintenance. Please photocopy this page and use the checklist when inspecting the machine.

## DAILY PREVENTATIVE MAINTENANCE CHECKLIST

### MAINTENANCE TABLE KEY

**Y** = Yes/Acceptable

**N** = No/Not Acceptable

**R** = Repaired/Acceptable

### PREVENTATIVE MAINTENANCE REPORT

Date: \_\_\_\_\_

Owner: \_\_\_\_\_

Model No: \_\_\_\_\_

Serial No: \_\_\_\_\_

Serviced By: \_\_\_\_\_

COMPONENT	INSPECTION OR SERVICES	Y	N	R
Battery	Check electrolyte level.			
	Check battery cable condition.			
Chassis	Check hoses for pinch or rubbing points.			
	Check welds for cracks.			
Control Cable	Check the exterior of the cable for pinching, binding or wear.			
Controller	Check switch operation.			
Drive Motors	Check for operation and leaks.			
Elevating Assembly	Inspect for structural cracks.			
Emergency Lowering System	Operate the emergency lowering valve and check for serviceability.			
Entire Unit	Check for and repair collision damage.			

COMPONENT	INSPECTION OR SERVICES	Y	N	R
Hydraulic Fluid	Check fluid level.			
Hydraulic Pump	Check for hose fitting leaks.			
Hydraulic System	Check for leaks.			
Labels	Check for peeling, missing, or unreadable labels & replace.			
Platform Deck and Rails	Check welds for cracks.			
Platform Deck and Rails	Check condition of deck.			
Tires and Wheels	Check for damage.			

## SPECIFICATIONS

ITEM	SL26SL	SL30SL
<b>Platform Size</b> (Inside Toeboards)		
Standard	1,71 m x 3.66 m [67.5 in. x 144 in.]	1,71 m x 4,22 m [67.5 in. x 166.5 in.]
Slide Out Deck Extended	1,71 m x 4,55 m [67.5 in. x 179 in.]	N/A
<b>Max. Platform Capacity</b>		
Standard	680kg [1,500 lbs.]	590 kg [1,300 lbs.]
w/ Extension	680kg [1,500 lbs.]	N/A
On Extension	225kg [496 lbs.]	N/A
<b>Max. No. of occupants</b>		
Standard	5 people (wind speed 12.5m/s)	5 people (wind speed 12.5m/s)
on Extension	2 people (wind speed 12.5m/s)	N/A
<b>Height</b>		
Working Height	9.75 m [32 ft.]	10.97 m [36 ft.]
Max. Platform Height	7.93m [26 ft.]	9,14 m [30 ft.]
Min. Platform Height	1.5 m [59 in.]	1.5 m [59 in.]
Max. Drive Height	7.93 m [26 ft.]	9.14 m [30 ft.]
<b>Dimensions</b>		
Weight	Diesel: 3,550 kg [7,826 lbs.]	Diesel: 3400 kg [7,495 lbs.]
Overall Width, Standard	2,13 m [84 in.]	2,13 m [84 in.]
Overall Height	2,6 m [102.5 in.]	2,6 m [102.5 in.]
Overall Length, Standard	3.79 m [149 in.]	4,39 m [173 in.]
<b>Surface Speed</b>		
Platform Lowered HI / LO	0 to 5.0 km/h [0 to 3.1 m.p.h.]	0 to 5.0 km/h [0 to 3.1 m.p.h.]
Platform Raised.	0 to 0.8 km/h [0 to 0.5 m.p.h.]	0 to 0.8 km/h [0 to 0.5 m.p.h.]
<b>System Voltage</b>	12 Volt DC	12 Volt DC
<b>Hydraulic Tank Capacity</b>	74 l [19.5 US Gallons]	74 l [19.5 US Gallons]
<b>Maximum Hydraulic System Pressure</b>	210 bar [3000 psi]	210 bar [3000 psi]
<b>Hydraulic Fluid</b>		
Above 32° F [0° C])	ISO #46 (See Decal on Tank)	ISO #46 (See Decal on Tank)
<b>Normal use</b> , below 32° F [0° C])	ISO #32	ISO #32
Below 0° F [-17° C]	ISO #15	ISO #15
<b>Lift System</b>	One Single Stage Lift Cylinder	One Single Stage Lift Cylinder
<b>Lift Speed</b>	Raise, 21 sec./Lower, 32 sec.	Raise, 24 sec./Lower, 36 sec.
<b>Platform Leveling</b>	13° side to side, 9° Fore and Aft	13° side to side, 9° Fore and Aft
<b>Power Source</b>	20 HP (Diesel), 15Kw	20 HP (Diesel), 15Kw
<b>Drive Control</b>	Proportional	Proportional
<b>Control System</b>	Joystick Controller with Safety	Joystick Controller with Safety
	Interlock Trigger and Thumb Rocker	Interlock Trigger and Thumb Rocker
	Steering, Toggle Selector and	Steering, Toggle Selector and
	Emergency Stop Switches	Emergency Stop Switches
<b>Horizontal Drive</b>	Four Wheel, Hydraulic Motors	Four Wheel, Hydraulic Motors
<b>Tyres</b> (Standard)	26 x 12.00 - 12 Super Terra-grip with Trac Seal	26 x 12.00 - 12 Super Terra-grip with Trac Seal
<b>ANSI Spec. Pneumatic Tire Pressure</b>	Do Not Exceed 57 PSI	Do Not Exceed 57 PSI
<b>Parking Brakes</b>	Dual Spring Applied, Hydraulic Release, multi-disc	Dual Spring Applied, Hydraulic Release, multi-disc
<b>Turning Radius</b> (inside)	3,96 m [13 ft.]	3,96 m [13 ft.]
<b>Maximum Gradeability</b>	50% [27°]	50% [27°]
<b>Wheel Base</b>	2,54 m [100 in.]	2,54 m [100 in.]
<b>Guardrails</b>	1,7 m [67 in.] high, Fold Down with gate.	1,7 m [67 in.] high, Fold Down with gate.
<b>Toeboard</b>	152 mm [6 in.] High	152 mm [6 in.] High
<b>Wheel Loading</b>	2000Kg (4400Lb)	2000Kg (4400Lb)
<b>Vibration of this machine does not exceed</b>	2.5m/sec <sup>2</sup>	2.5m/sec <sup>2</sup>
<b>Noise Pressure Level</b>	107dB at Control Station	107dB at Control Station



\*Specifications are subject to change without notice. Hot weather or heavy use may affect performance.

Refer to the Service Manual for complete parts and service information.



This machine meets or exceeds all applicable requirements of OSHA and ANSI A92.6-1999.

## 3. SERVICE AND REPAIR



### 3.1 INTRODUCTION

**W A R N I N G**

*Be sure to read, understand and follow all information in the Operation Section of this manual before attempting to operate or perform service on any SL26/30SL work platform.*

**C A U T I O N**

*It is the responsibility of the person carrying out any maintenance operations to ensure that any hazardous substances eg waste Oil, Batteries, Tires are disposed of in accordance with local regulations.*

**C A U T I O N**

*Detailed descriptions of standard workshop procedures, safety principles and service operations are not included.*

*Please note that this manual contains warnings and cautions against some specific service methods which could cause personal injury, or could damage a machine or make it unsafe.*

*Please understand that these warnings cannot cover all conceivable ways in which service, whether or not recommended by Snorkel, might be carried out, 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.*

This section contains instructions for the maintenance of the SL26/30SL Work Platform. Procedures for the operation inspection, adjustment, scheduled maintenance, and repair/removal are included.

Referring to *Section 2* will aid in understanding the operation and function of the various components and systems of the SL26/30SL work platform, and help in diagnosing and repair of the machine.

Refer to page 3.2 for recommended maintenance intervals.

**Note:** Unless otherwise specified, torque all fittings according to “Torque Specifications for Fasteners”, and “Torque Specifications for Hydraulic Components” on page -18-19.

### 3.2 SPECIAL TOOLS



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

- 0-600 PSI (0-45 bar) Hydraulic Pressure Gauge
- 0-3500 PSI (0-250) Hydraulic Pressure Gauge
- Inclinometer
- Tilt Sensor Adjustment Tool
- Quick Disconnect Gauge Port

### 3.3 PREVENTATIVE MAINTENANCE

The Complete inspection consists of periodic visual and operational checks, together with all necessary 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 **ONLY** performed by personnel who are trained and familiar with mechanical and electrical procedures.

**W A R N I N G**

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

*Always Chock the elevating assembly whenever it is necessary to enter the scissor assembly.*

The preventative maintenance table has been designed to be used primarily for machine service and maintenance repair.

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

### 3. Service and Repair

## Preventative Maintenance Table 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:

**DO NOT** fit replacement parts other than genuine components without express written approval from the manufacturer.

**Table 3-1: Preventative Maintenance Check list**

COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Battery System	Check electrolyte level	Daily			
	Check specific gravity	6m			
	Clean exterior	6m			
	Check battery cable condition	Daily			
	Clean terminals	6m			
Engine Oil	Check level and condition	Daily			
	Check for leaks	Daily			
	Change oil filter	30d			
Engine Fuel System	Check fuel level	Daily			
	Check for leaks	Daily			
	Replace fuel filter	6m			
Engine Coolant	Check air cleaner	Daily			
	Check coolant level (with engine cold)	Daily			
Hydraulic Oil	Replace coolant	3m			
	Check oil level	Daily			
	Change filter	6m			
Hydraulic System	Drain and replace oil	2y			
	Check for leaks	Daily			
	Check hose connections	30d			
Emergency Hydraulic System	Check hoses for exterior wear	30d			
	Operate the emergency lowering valve and check for serviceability	Daily			
Controller	Check switch operation	Daily			
Control Cable	Check the exterior of the cable for pinching, binding or wear	Daily			
Platform Deck and Rails	Check fasteners for proper torque	Daily			
	Check welds for cracks	Daily			
	Check condition of deck	Daily			
Tires	Check for damage	Daily			
	Check lug nuts (torque to 90 ft. lbs.)	30d			
Hydraulic Pump	Wipe clean	30d			
	Check for leaks at mating surfaces	30d			
	Check for hose fitting leaks	Daily			
	Check mounting bolts for proper torque	30d			
Drive Motors	Check for operation and leaks	Daily			
Steering System	Check hardware & fittings for proper torque	6m			
	Grease pivot pins	30d			
	Oil king pins	30d			
	Check steering cylinder for leaks	30d			

COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Elevating Assembly	Inspect for structural cracks	Daily			
	Check pivot points for wear	30d			
	Check mounting pin pivot bolts for proper torque	30d			
	Check linkage gear for wear.	6m			
	Check elevating arms for bending	6m			
	Grease linkage pins	30d			
	Grease linkage gear	30d			
Chassis	Check hoses for pinch or rubbing points	Daily			
	Check component mounting for proper torque	6m			
	Check welds for cracks	Daily			
Lift Cylinder	Check the cylinder rod for wear	30d			
	Check mounting pin pivot bolts for proper torque	30d			
	Check seals for leaks	30d			
	Inspect pivot points for wear	30d			
	Check fittings for proper torque	30d			
Fore/Aft Cylinder & Side/Side Cylinder	Check the cylinder rod for wear.	30d			
	Check mounting pin pivot bolts for proper torque	30d			
	Check seals for leaks	30d			
	Inspect pivot points for wear.	30d			
	Check fittings for proper torque	30d			
Axle Cylinder	Check the cylinder rod for wear.	30d			
	Check mounting pin pivot bolts for proper torque	30d			
	Check seals for leaks	30d			
	Inspect pivot points for wear	30d			
	Check fittings for proper torque	30d			
Entire Unit	Check for and repair collision damage	Daily			
	Check fasteners for proper torque	3m			
	Check for corrosion-remove and repaint	6m			
	Lubricate	30d			
Labels	Check for peeling, missing, or unreadable labels & replace	Daily			
Bubble Level	Check bubble level and target ring for damage	Daily			
Wheel Bearings	Check wheel assembly for play	30d			
	Repack wheel bearings (replace wheel bearings and seals at 2000 hours).	2y			

A thorough investigation should be carried out every 6 months.

**Note** frequency and extent of periodic examinations may depend on National Regulations.

Fitment of any component other than approved items designed for use with this machine can result in serious danger to operators, property and bystanders.

## 3.4 CHOCKING ELEVATING ASSEMBLY

### CAUTION

*DO NOT support or raise the front of the platform during any maintenance operation as this may result in damage to the tension members.*

### WARNING

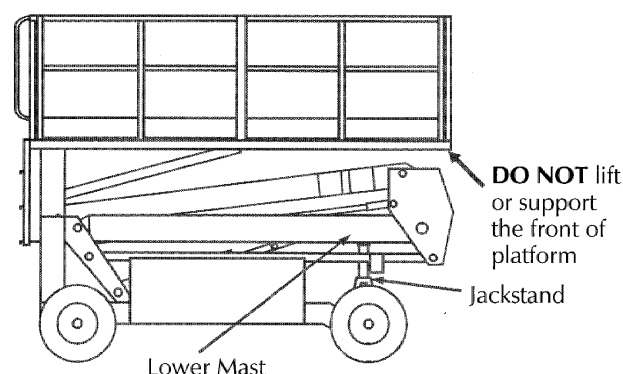
***BEFORE** performing, maintenance on work platform, while elevated, ensure that elevating assembly is properly supported.*

***DO NOT** stand in elevating assembly area while installing or removing jackstand.*

#### Installation

1. Park the work platform on firm, level ground and leave the engine running.
2. Select **LIFT** mode and use the **ENABLE BUTTON** to elevate platform approximately 300 mm (12 inches).
3. Place a jackstand with a minimum rating of 2000 kg (4000 lbs.) between the lower mast and chassis, just behind the front axle.
4. Select **LIFT** mode and use the **ENABLE BUTTON** to gradually lower platform until jackstand is secured tightly between lower mast and Chassis.

Figure 3-1: Blocking Elevating Assembly



#### Removal

1. Select **LIFT** mode and use the **ENABLE BUTTON** to elevate platform until jackstand can be removed.
2. Remove jackstand and select **LIFT** mode and use the **ENABLE BUTTON** to completely lower platform.

## 3.5 BATTERY MAINTENANCE

### WARNING

*Hazard of explosive gas mixture. Keep sparks, flame, and smoking material 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.*

#### Battery Inspection & Cleaning

Check battery fluid level daily, especially if work platform is being used in a warm, dry climate. If required, add distilled water **ONLY**. Use of tap water with high mineral content will shorten battery life. The battery and cables should be inspected regularly for signs of cracks in the case, electrolyte leakage and corrosion of the terminals. Inspect cables for worn spots or breaks in the insulation and for broken cable terminals. Clean the battery when it shows signs of corrosion at the terminals or when electrolyte has overflowed during charging. Use a suitable solution to clean the battery, taking care not to get the solution inside the cells. Rinse thoroughly with clean water. Clean battery and cable contact surfaces to a bright metal finish whenever a cable is removed.

## Battery Charging

The battery is charged by the alternator whenever the engine is running and should not require any other charging. If the machine has not been in service or if for some other reason the battery has been discharged, perform the following:

! WARNING !

*Charge the battery only in a well ventilated area.*

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

*Always follow the charger manufacturer instructions.*

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

Check the battery fluid level. If the electrolyte level is lower than 10 mm (3/8 in.) above the plates, add clean, distilled water only.

## Battery Specific Gravity

After charging, if necessary, the specific gravity of all cells should be checked with a hydrometer. The temperature corrected specific gravity should be 1.260. If the battery contains any cells with corrected readings below 1.230, the battery should be replaced.

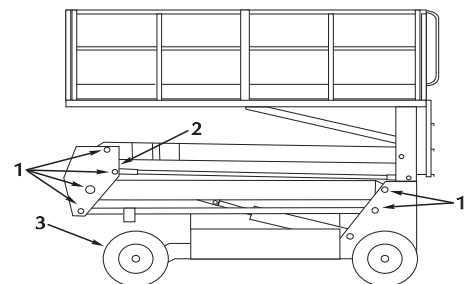
Do not check the specific gravity in a cell to which water has just been added. If there is not enough electrolyte in a fully charged cell to obtain a sample for the hydrometer, add water and continue charging for 1 to 2 hours to adequately mix the water and electrolyte.

## 3.6 LUBRICATION

Refer to Table 3-1 for lubrication intervals and Figure 3-2 for location of items that require lubrication service. Refer to the appropriate sections for lubrication information on the hydraulic tank and filter.

1. Grease Fittings
2. Linkage Gears
3. Steering Linkage

Figure 3-2: Lubrication Points



## Grease Fittings

Wipe each grease fitting before and after greasing. Using a Lithium based multipurpose grease in a grease gun, pump the grease into the fitting until grease just begins to appear at the edges of the pivot, wipe off any excess grease.

## Linkage Gears

1. Raise platform fully.
2. Using another work platform or ladder, get up high enough to comfortably reach gears.
3. Use a long handled brush to apply Gear Linkage lubricant PN: 509594-000
4. Lower the platform after greasing..

! CAUTION !

*Do not use hands to apply grease wear gloves. Do not allow any body part to enter the elevating assembly.*

## Steering Linkage

Apply one or two drops of SAE 10W or Spray lube oil to each pivot and grease Upper and Lower king pin bearing.



## 3.7 HYDRAULICS

### Hydraulic Pump

Remove the capscrews that mount the pump to the engine. Remove the pump from the engine and apply high pressure molybdenum grease to the splines. Re-install the pump and secure with the capscrews.

(Tighten to 30Nm.)

### Hydraulic Oil Tank & Filter

#### Fluid Level

With the platform fully lowered, the oil should be between the levels 'low and high' If the oil is NOT visible, fill the tank until the oil can be seen.

DO NOT fill above the level or when the platform is elevated.

#### Oil & Filter Replacement

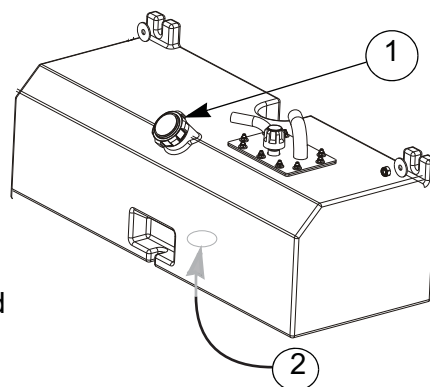
1. Operate the work platform for five minutes to warm up the oil. To change filter only, go to step 5.

**! CAUTION !**

*The hydraulic oil may be hot enough to cause burns. Wear safety gloves and safety glasses when handling hot oil.*

2. Provide a suitable container to catch the drained oil. The hydraulic tank has an oil capacity of 75 L.
3. Remove the drain plug and allow all oil to drain into the container, be sure to dispose of oil properly.
4. Reinstall the drain plug.
5. Unscrew the filter element from the filter body.
6. Lubricate the rubber seal and fill the element with clean Hydraulic Oil.
7. Screw the replacement filter element onto the filter body.
8. Fill the hydraulic oil tank to the level with the recommended fluid, check Decal for details, standard Oil is ISO #46. hydraulic oil by pouring the oil into the filler. Since the oil is being strained as it is going into the tank, it may take a while to fill the tank.

Figure 3-3: Hydraulic Oil Tank



1. Filler Breather
2. Drain Plug (under tank)

### Setting Hydraulic Pressures

Referring to Figure 3-4 along with the other Figures will aid in the following procedures.

Note: Check the hydraulic pressures whenever the pump, manifold, or relief valve(s) have been serviced or replaced.

**! WARNING !**

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

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

#### Main Relief Valve RV3 (Refer to Fig 3.4)

1. Operate the hydraulic system 10 to 15 minutes to warm the oil.
2. Remove the cap or loosen the locknut on the Main Relief Valve.
3. Install a 0-250 bar (**0-3500 psi**) pressure gauge to the gauge port.
4. Select **Drive** mode and remove the wires from the FWD / REV Drive Coils.
5. While engaging the safety interlock trigger, move the Joystick fully forward. Adjust the Main Relief Valve until the pressure gauge reads 210 bar ( **3000 psi**).
6. Release the Joystick.
7. Replace the cap, or tighten the locknut on the Main Relief Valve, and torque to 8N-m ( **6 ft-lbs**).

#### Lift Relief Valve RV2 (Refer to Fig 3.4)

1. Operate the hydraulic system for five minutes.
2. Remove the cap or loosen the locknut on the Lift Relief Valve.
3. install a 0-250 bar (0-3500 psi) pressure gauge.
4. With the engine running, select **LIFT**. Lift the platform fully by moving the Joystick fully forward
5. While holding the Joystick Forward, set the pressure to 180 bar (2.600 psi) maximum by slowly turning the adjusting screw, clockwise increases pressure.
6. Tighten Locknut to 8Nm (6Ft.Lbs).
7. Remove the gauge.

#### Fore/Aft Tilt and Steering Relief Valve RV1 (Refer to Fig 3.4)

1. Operate the hydraulic system for five minutes.
2. Remove the cap or loosen the locknut on the Main Relief Valve.
3. install a 0-100 bar (0-600 psi) pressure gauge.
4. With the engine running, steer the wheels fully left or right using the steering buttons
5. While holding the steering button, set the pressure to 100 bar (1450 psi) maximum by slowly turning the adjusting screw, clockwise increases pressure.
6. Tighten Locknut to 8Nm (6Ft.Lbs).
7. Remove the gauge.

#### Counterbalance Valves

The counterbalance valves are not adjustable. If a suspected problem exists, a counterbalance valve can be changed for one of the same specification and known provenance.

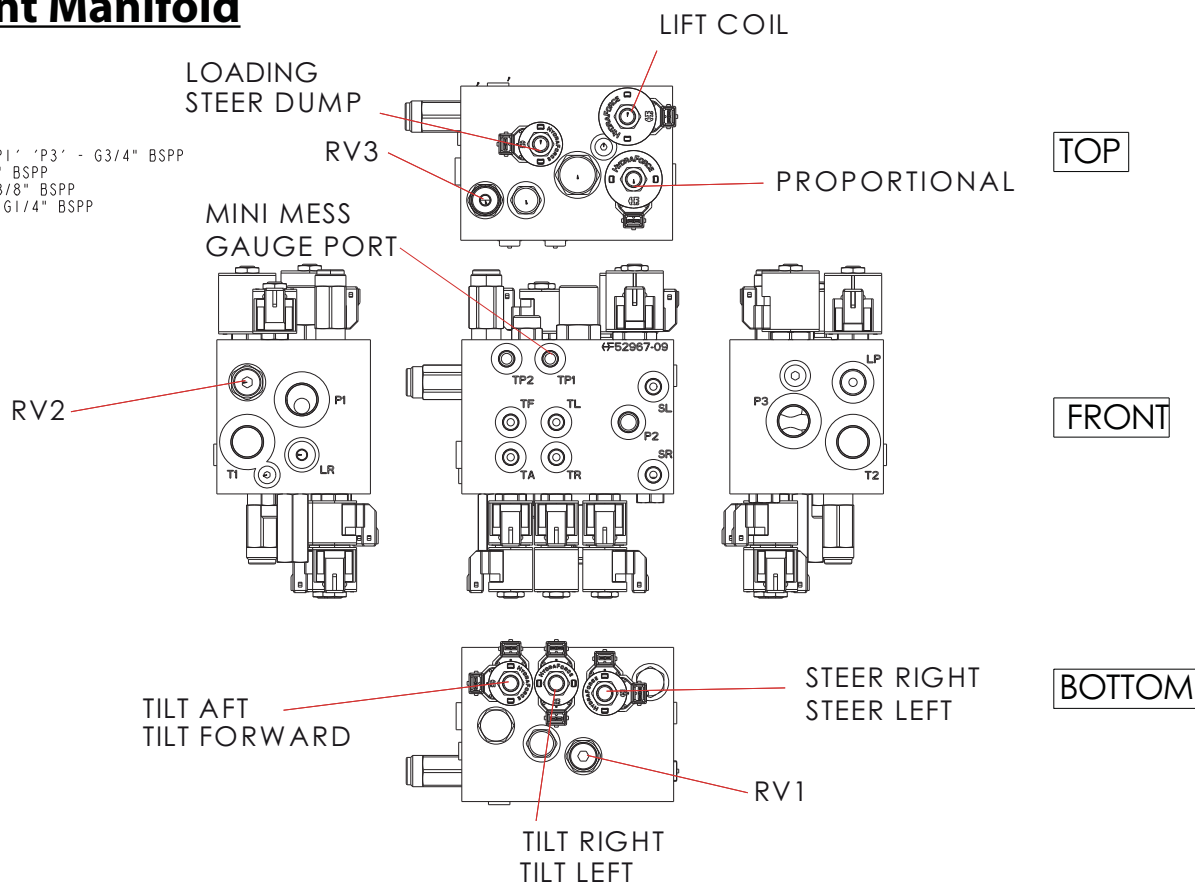


Figure 3.4: Hydraulic Manifold (Coil and Port)

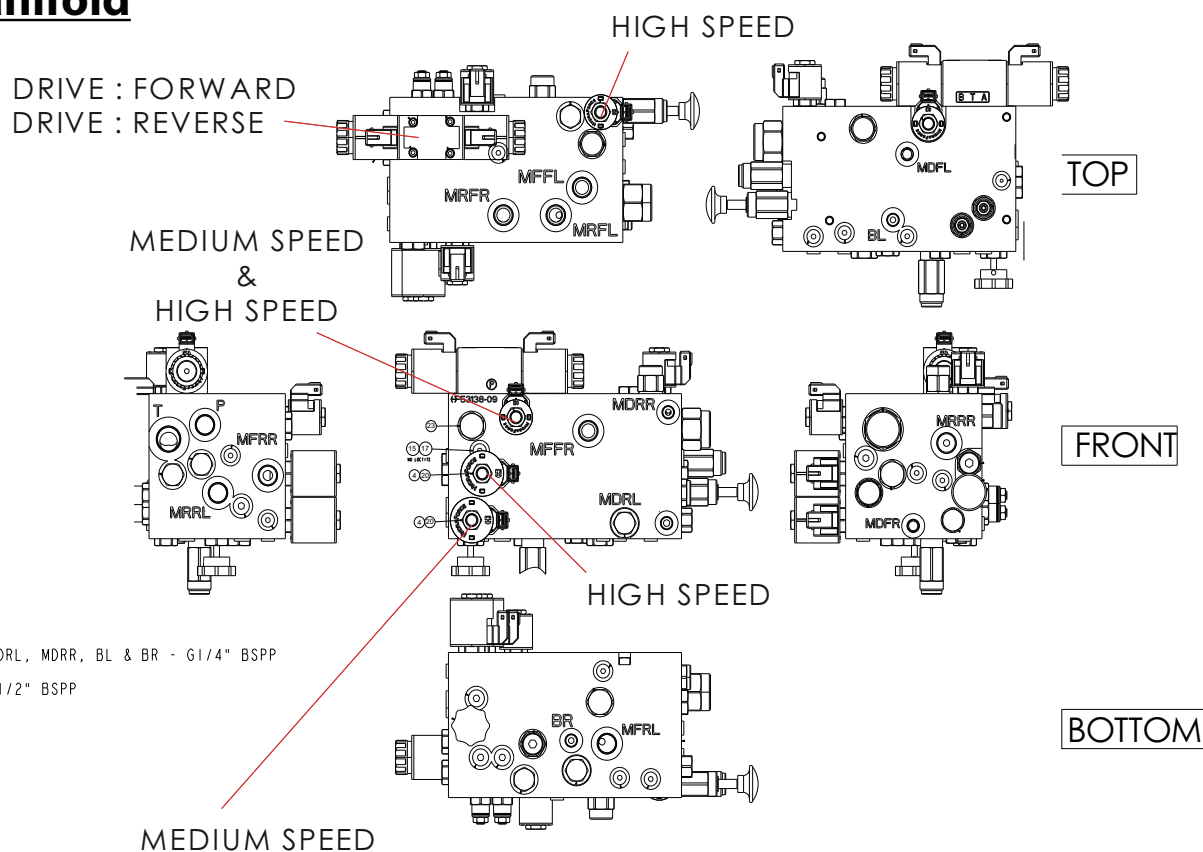
## Movement Manifold

PORTING:

PORTS 'T1' 'T2' 'P1' 'P3' - G3/4" BSPP  
 PORTS 'LP' - G1/2" BSPP  
 PORT 'P2' 'LR' - G3/8" BSPP  
 ALL OTHER PORTS - G1/4" BSPP



## Drive Manifold



PORTING:

PORTS MDFL, MDFR, MDRL, MDRR, BL & BR - G1/4" BSPP  
 PORT T - G3/4" BSPP  
 ALL OTHER PORTS - G1/2" BSPP



## Notes

## HYDRAULIC MANIFOLD

Though it is not always necessary to remove the manifold to perform maintenance procedures, a determination should be made prior to beginning as to whether or not the manifold should be removed before maintenance procedures begin. This work should only be carried out by competent and approved Technicians in a clean environment.

### Removal

1. Disconnect the battery Earth cable.
2. Tag and disconnect the solenoid valve leads.
3. Tag, disconnect and plug hydraulic hoses.
4. Remove the bolts that hold the manifold to the mounting bracket.
5. Remove manifold block.

### Disassembly

**Note: Mark all components as they are removed so as not to confuse their location during assembly. Refer to Valve Block Drawing and Schematic often to aid in disassembly and assembly.**

1. Remove coils from solenoid valves.
2. Remove spool valve covers and spool valves.
3. Remove solenoid valves, main relief valve, counterbalance valves and emergency lowering valves. Remove fittings, plugs, springs, balls and orifices.

## Cleaning and Inspection

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

### Assembly

**Note: Lubricate all O-rings before installation to prevent damage to O-rings. Seat all balls in manifold block by lightly tapping on the ball with a brass drift.**

1. Install fittings, plugs, balls and orifices. Use one drop of Loctite #242 on each screw-in orifice.
2. Install emergency lowering valve, counterbalance valves, main relief valve, brake pressure reducing valve, solenoid valves and spool valves.
3. Install coils on solenoid valves.

### Installation

1. Attach manifold assembly to mounting plate with bolts.
2. Connect solenoid leads (as previously tagged).
3. Connect hydraulic hoses. Be certain to tighten hoses to manifold.
4. Operate each hydraulic function and check for proper operation and leaks.
5. Adjust all hydraulic pressures according to instructions.

## REPLACING HYDRAULIC PUMP

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

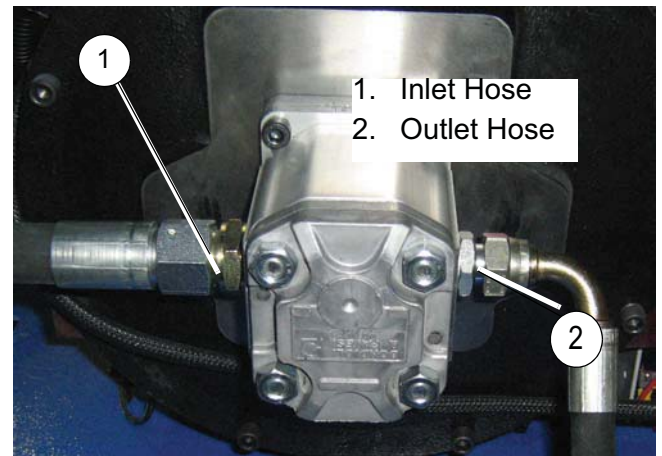
### Removal

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

Figure 3-9: Typical Hydraulic Pump

### Installation

1. Lubricate the pump shaft with extreme high pressure molybdenum grease and attach the pump to the engine with capscrews.
2. Using a criss-cross pattern, torque each capscrew a little at a time until all four capscrews are torqued to 30 Nm (22 ft. lbs.).
3. Unplug and reconnect the hydraulic hoses.
4. Check the oil level in the hydraulic tank before operating the work platform.



## HYDRAULIC BRAKES, DRIVE MOTORS & HUBS

### Rear Axle

#### Removal

1. Park the work platform on firm, level ground and block the wheels to prevent the work platform from rolling.
2. Loosen the wheel lug bolts on the motor to be removed.
3. Raise the rear of the work platform using a 2-tonne jack.
4. Position 2 1-tonne jack stands under the rear axle to prevent the work platform from falling if the jack fails.
5. Remove the wheel lug bolts and wheel.
6. Remove the cotter pin, nut, hub, and shaft key.

### **! CAUTION !**

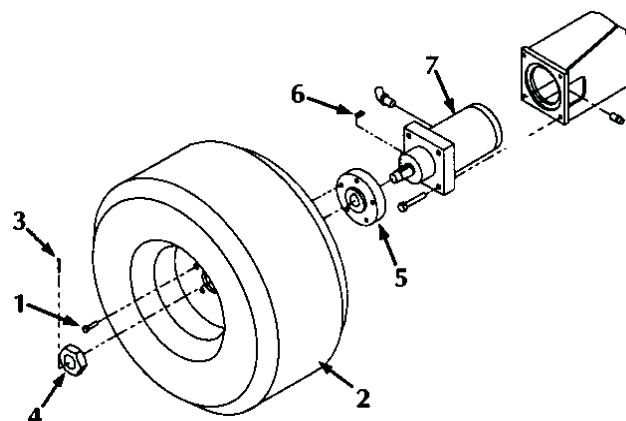
*ONLY use a puller to remove the hub. Using any other method of removal may damage the drive motor housing or shaft and void the warranty.  
Clean all fittings before disconnecting the hose assemblies  
Plug all port holes and hose assemblies IMMEDIATELY to prevent contamination from dust and debris*

7. Tag and disconnect the hose assemblies.
8. Remove the capscrews, washers, brake and drive motor assembly from the rear axle.
9. Remove the socket screws from the drive motor and then separate the brake from the drive motor.

## Installation

1. Insert the drive motor with O-ring (Lubricate O-ring before Assembly) installed into the brake and secure with socket screws using Loctite #242 retaining compound on the screw threads.
2. Position the drive motor and brake in the rear axle and secure with washers and H.H. setscrews.
3. Reinstall the hose assemblies.
4. Reinstall the shaft key, hub, and nut. Torque each wheel hub nut to 475 Nm (350 ft. lbs.).
5. Align the slot in the nut with the hole in the shaft and insert the cotter pin. DO NOT back off the nut to align.
6. Reinstall the wheel and lug on the hub. Torque the bolts to 123 Nm (90 ft. lbs.).
7. Remove the jack stands used to block the wheels. Lower the jack and remove.
8. Operate the drive system to check for leaks and proper function.

Figure 3-6: Rear Axle Assembly



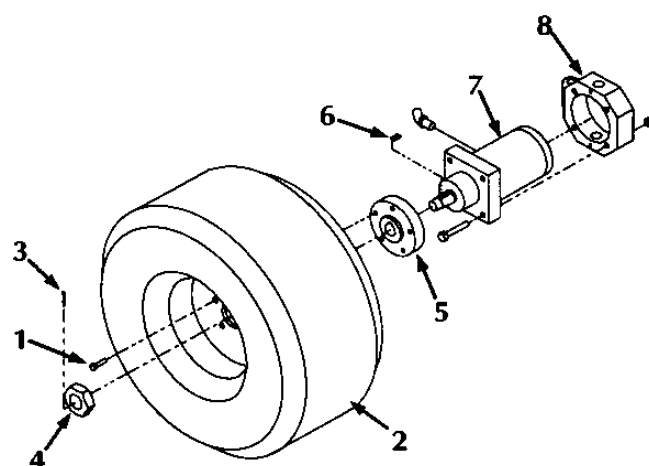
- |                        |                |
|------------------------|----------------|
| 1. Lug Bolt            | 4. Slotted Nut |
| 2. Tire/Wheel Assembly | 5. Adapter Hub |
| 3. Cotter Pin          | 6. Shaft Key   |
|                        | 7. Drive Motor |

## Front Axle

### Removal

1. Park the work platform on firm, level ground and chock the wheels to prevent the work platform from rolling.
2. Loosen the wheel lug bolts on the motor to be removed.
3. Raise the front of the chassis using a 2-tonne jack.
4. Position 2 1-tonne jack stands under the front axle to prevent the work platform from falling if the jack fails.
5. Remove the wheel lug bolts and wheel.
6. Remove the cotter pin, nut, hub and shaft key.
7. Tag and disconnect the hose assemblies.
8. Remove the adaptor hub from the hydraulic motor.
9. Remove the capscrews and nuts and then remove the drive motor from the front axle steering mount.

Figure 3-7: Front Axle Assembly



- |                        |                   |
|------------------------|-------------------|
| 1. Lug Bolt            | 5. Adaptor Hub    |
| 2. Tire/Wheel Assembly | 6. Shaft Key      |
| 3. Cotter Pin          | 7. Drive Motor    |
| 4. Slotted Nut         | 8. Steering Mount |

## **CAUTION**

*ONLY use a wheel puller to remove the hub. Using any other method of removal may damage the drive motor housing and void the warranty.*

*Clean all fittings before disconnecting the hose assemblies.*

*Plug all holes assemblies IMMEDIATELY to prevent contamination from dust and debris.*

### **Installation**

1. Position the drive motor into the steering mount and secure with capscrews and nuts.
2. Reinstall the adaptor on the hydraulic motor.
3. Reinstall the hose assemblies.
4. Reinstall the shaft key, hub, and nut. Torque each wheel hub nut to 475 Nm (350 ft. lbs.). Align the slot in the nut with the hole in the shaft and insert the cotter pin. DO NOT back off the nut to align.
5. Reinstall the wheel and lug bolts onto the hub. Torque the lug bolts to 123 Nm (90 ft. lbs.).
6. Operate the drive system to check for leaks.
7. Remove the jack stands used to chock the wheels. Lower the jack and remove.

## **AXLE CYLINDER**

### **Removal**

Be sure platform is fully down and that machine is on level ground.

1. Remove and cap the hoses.
2. Remove the pivot pins
3. Remove the cylinder.

### **Installation**

1. Attach both ends of the cylinder to mounts with pivot pins and retaining bolts.
2. Torque the retaining bolts to 203 Nm (150 ft. lbs.).
3. Connect all hoses.
4. Jack up front Axle and support.
5. With engine running oscillate axle from side to side slowly to 'Bleed' air from the cylinder and hoses.
5. Lower Axle to ground.
7. Operate the work platform over rough terrain and check for proper function and leaks. This is done by elevating the platform above 2m (Levelling may be required), drive the platform so that one wheel drives up an incline of 150mm (6 inches). The Platform should continue to drive until the wheel diagonally opposite lifts off the ground and the tilt sensor is activated. If this cannot be achieved, either the float cylinder contains air or the float cylinder solenoid valve is faulty.

## **STEERING CYLINDER**

### **Removal**

1. Mark and disconnect the hose assemblies from the fittings and immediately cap the openings to prevent foreign material from entering.
2. Remove the setscrews securing the rod ends to the steering linkage.
3. Remove the setscrews and locknuts that fasten the cylinder assembly to the chassis.
4. Remove the cylinder from the chassis.

### Disassembly

1. Remove the headcaps from the barrel tube.
2. Mark which end of the barrel tube the headcap was removed from.
3. Withdraw the entire shaft assembly from either end of the barrel tube.
4. Remove the rod wipers, rod seals and static O-rings from the headcaps.
5. Discard all the seals.
6. Unscrew the No. 1 shaft from the No. 2 shaft and remove the piston.
7. Remove the piston seal and static O-ring from the piston and discard.

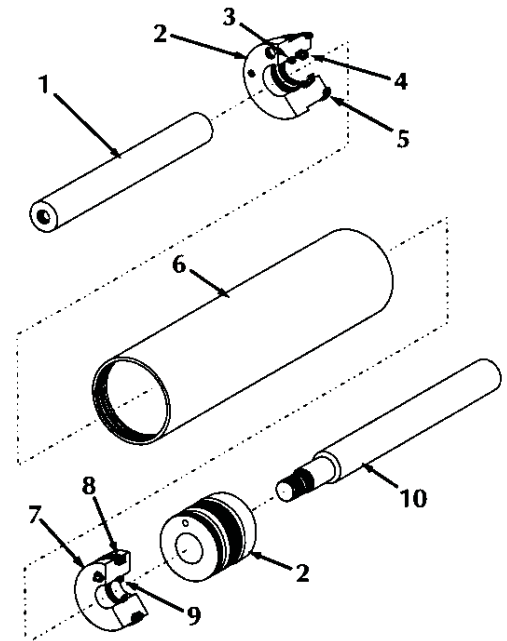
### Cleaning and Inspection

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

### Assembly and Installation

1. Install a new piston seal and static O-rings.
2. Install the piston on the No. 1 shaft.
3. Thread the No. 2 shaft onto the No. 1 shaft and tighten securely.
4. Lubricate the piston seal with clean hydraulic fluid and install the shaft assembly in the barrel tube.
5. Lubricate and install new rod seals and static O-rings on the headcaps.
6. Lubricate and install new rod wipers in the headcaps.
7. Install headcap in the barrel tube and tighten until the mounting holes are in-line.

Figure 3-12: Steering Cylinder Assembly



- |                      |                         |
|----------------------|-------------------------|
| 1. No. 2 Shaft       | 6. Cylinder Barrel      |
| 2. Headcap (2)       | 7. Piston               |
| 3. Rod Wiper (2)     | 8. Piston Seal          |
| 4. Rod Seal (2)      | 9. Piston Static O-ring |
| 5. Static O-ring (2) |                         |

**Note: Headcaps must be reinstalled in the same end from which they were removed.**

8. Install the fittings in the ends of the cylinder.
9. Position the cylinder assembly in the chassis and install the capscrews and locknuts, but DO NOT tighten.
10. Tighten the nut and bolt in front of the cylinder that goes through the frame and then tighten the cylinder mounting capscrews.
11. Install the cylinder rod ends.
12. Set rod ends to align front wheels.
13. Connect the hose assemblies to the fittings.
14. Operate the steering circuit several times throughout its' entire range of travel to expel trapped air and check for leaks.
14. Check and adjust front wheel tracking if required.

#### Adjustment

1. Disconnect the cylinder rod ends (if connected).
2. Operate steering so that both ends of the cylinder rod are equal length i.e. within (.8 mm,  $\pm 1/32$  inch).
3. Position both tires so they are parallel with the frame, with each other and with the rear wheels.
4. Adjust the rod ends until they align with the holes on the steering linkage bars.
5. Reinstall the bolts through the steering linkage bars and rod ends. Tighten the jam nuts on the rod ends and all hardware.
6. When properly adjusted, the wheels must turn the same amount in each direction. The Steering Stops must contact each side at the same time.

#### LIFT CYLINDER

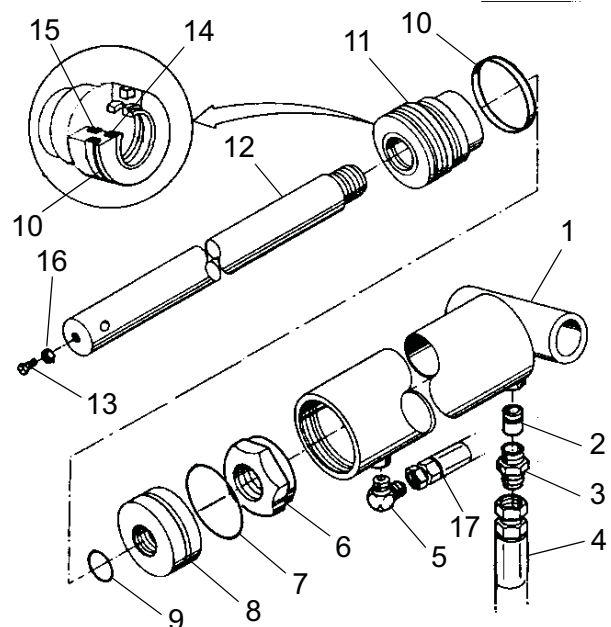
**Note:** DO NOT support or raise the front of the platform during any maintenance operation as this might result in damage to the tension members.

#### Removal

1. Raise and chock the front of the elevating assembly approximately 300 mm (12 inches) above the chassis. Support with a jackstand with a minimum rating of 2000 kg (4000 lbs.). (See Figure 0-2)
2. Open Emergency Lowering Valve to be sure all pressure is off the Lift Cylinder.
3. Remove and cap both hoses and fittings.
4. Support the Lift Cylinder to prevent falling.
5. Remove the set screw from the end of the cylinder rod.
6. Remove the retaining ring from the upper cylinder pin. Remove the upper cylinder pin by tapping out using a soft punch.
7. Remove the retaining bolt from the lower cylinder pin and remove the pin using a soft punch.
8. Remove the cylinder by sliding it out towards the front of the machine.

Figure 3-13: Lift Cylinder Assembly

1. Cylinder Barrel
2. Velocity Fuse
3. Fitting, Adapter
4. Hose Assembly
5. Breather
6. Piston Nut
7. Piston Seal
8. Piston
9. Piston Static O-ring
10. Static O-ring
11. Head Cap
12. Cylinder Rod
13. Set Screw
14. Rod Wiper
15. Rod Seal
16. Nut





### Disassembly

1. Unscrew the head cap from the cylinder barrel.
2. Remove the piston and rod assembly from the cylinder barrel.
3. Unscrew the piston nut and remove piston and head cap from the piston rod.
4. Remove the piston static O-ring from the cylinder rod and discard.
5. Remove the piston seal from the piston and discard.
6. Remove the static O-ring, rod seal and rod wiper.
7. Remove the rod end breather.
8. Do not remove the velocity fuse unless replacement is necessary.

### Cleaning and Inspection

1. Clean all the metal parts in cleaning solvent and blow dry with filtered compressed air.
2. Check the working surfaces of the piston head cap, cylinder barrel and rod for excessive wear or scoring.
3. Replace parts found to be unserviceable.
4. Replace all seals, O-rings and wipers.

### Reassembly

1. Lubricate the static O-ring, rod seal and rod wiper and then install in the head cap.
2. Install the piston seal on the piston.
3. Install the head cap, piston static seal, piston and piston nut on the cylinder rod.  
Torque nut to 96 Nm (70ft.lbs.).

**Note: The head cap should be installed from the piston end of the cylinder rod. Sliding the head cap over the pivot pin hole may damage the rod seal and rod wiper.**

4. Lubricate the and piston seal and install the piston and rod assembly into the cylinder barrel.
5. Screw the head cap into the cylinder barrel hand tight and then turn 1/4 turn further.

### Installation

**Note: Before installing the cylinder, check the pins and bearings for excessive wear. Replace if necessary.**

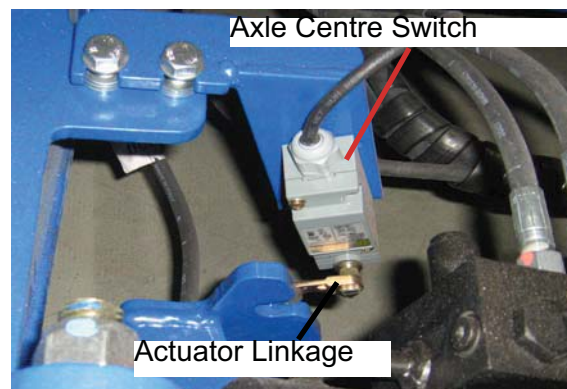
1. Place the cylinder in position taking care to support the cylinder to prevent falling.
2. Install the lower pin and retaining bolt.
3. Install the upper pin and retaining ring.
4. Install both hoses.
5. Raise the machine and check for leaks.

**Note: The cylinder may need to be extended and retracted so as to align the rod end pivot hole.**

### 3.8 AXLE CENTER SWITCH

1. Check tires for proper pressure (ANSI Only).
2. Place the work platform on a level surface with the front and rear axles parallel (on the same plane).
3. Adjust the switch so it is centered in the front axle actuator linkage. When centered, the switch will close the circuit.
4. Test the switch function by positioning the front axle off-center and raising the platform 2 m above the ground. The work platform should not drive. Retest with axle off-center in the opposite position.

Figure 3-10: Axle Center Switch

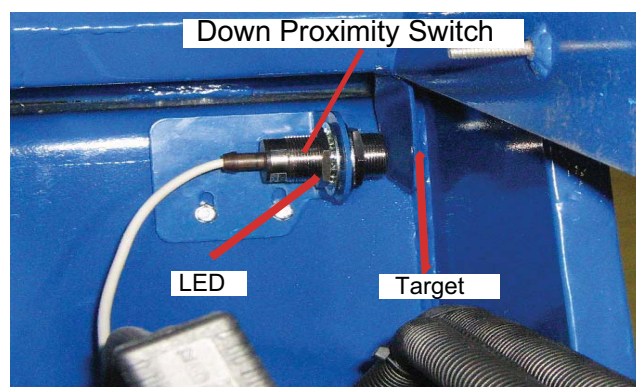


### 3.9 DOWN PROXIMITY SWITCH

The down limit switch is a dual proximity switch which allows the machine to run at HI speed when the platform is lowered.

1. Raise the platform 30 cm (12 in.) from its' fully lowered position.
2. Examine the Switch, the Amber LED should be extinguished. The switch is functioning correctly.
3. Lower the Platform to its stowed position.
4. Examine the switch again, the amber LED should be illuminated. If not adjust the clearance between the switch and the Target.

Figure 3-11: Limit Switch Location



### 3.10 TILT SENSOR

The tilt sensor has four wires; red-power (12v in), black-ground, white-output (12v out), Yellow output for platform levelling. To verify the sensor is working properly, there is one LED under the sensor; red indicates the sensor is out of level and the white wire is "hot" (12v out).

Figure 3-12: Tilt Sensor Adjustment



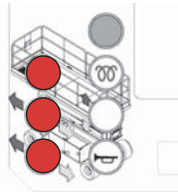
#### Setting the Tilt Sensor & Level

1. Level the platform with the platform controls using a digital level to ensure the platform is level  $\pm 1/4^\circ$  side-to-side and front-to-back.
2. The tilt Sensor is located at the rear of the 1st post weldment.
3. Adjust the three leveling locknuts on the tilt sensor until the bubble is centered in the circle.

# Manual Levelling

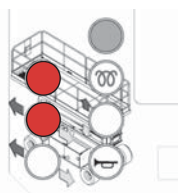
- There are occasions that the manual operation of levelling is required.
- Manual levelling cannot be carried out above the height of the proximity switch.

## Platform Control Box



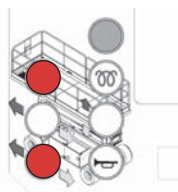
Turn the machine on and check the Display shows DS.  
Turn the machine off using the Emergency stop.  
Press the left buttons as indicated, and pull out the E Stop,  
Start the engine.  
The machine should now be in manual levelling mode.

### Left to Right adjustment



Hold down the two buttons as indicated.  
Pull in the Interlock on the joystick,  
Pushing forwards will move the platform to the left,  
Pull Backwards will move the platform to the right.

### Fore and Aft adjustment.



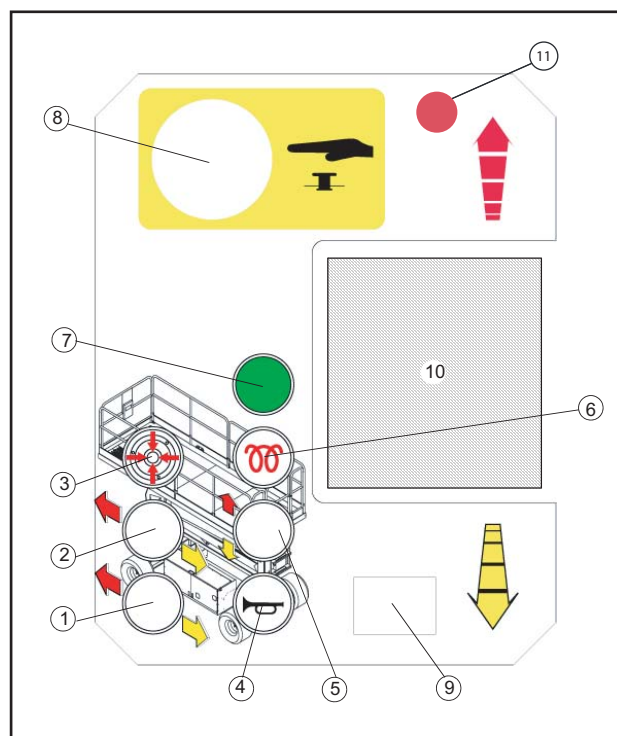
Hold down the two buttons as indicated.  
Pull in the Interlock on the joystick,  
Pushing forwards will move the platform forward,  
Pull Backwards will move the platform backward.

Turn the machine off using the Emergency stop.

Fig 13

## Platform Controls

1. Drive (Medium)
2. Drive (Low)
3. Level
4. Horn Button
5. Lift/Lower Button
6. Glow Plug
7. Engine Start
8. Emergency Stop Button
9. Display
10. Joystick
11. Red overload light



# TORQUE SPECIFICATIONS

## HYDRAULIC COMPONENTS

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

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

### Hose Fittings

ORFS				JIC Hose fittings				BSP 60° cone	
Thread size	Tightening Nm	FFWR new	FFWR reassembly	Hose dim.	Thread	FFWR hose	FFWR pipe	Thread size	Tightening Nm
9/16" - 18	25	1/2-3/4	1/4-1/2	3/16	7/16"-20 UNF	2	2	1/8"	20
11/16" - 16	35	1/2-3/4	1/4-1/2		1/2"-20 UNF	2	2	1/4"	25
13/16" - 16	55	1/2-3/4	1/4-1/2	1/4	9/16"-18 UNF	2	1 1/2	3/8"	40
1" - 14	80	1/2-3/4	1/4-1/2	3/8	3/4"-16 UNF	2	1 1/2	1/2"	60
1 3/16" - 12	120	1/3-1/2	1/4-1/2	1/2	7/8"-14 UNF	1 1/2	1 1/2	5/8"	70
1 7/16" - 12	150	1/3-1/2	1/4-1/2	3/4	1.1/16"-12 UN	1	1 1/4	3/4"	115
1 11/16" - 12	180	1/3-1/2	1/4-1/2	1	1.5/16"-12 UN	1	1	1"	140
2" - 12	220	1/3-1/2	1/4-1/2	1 1/4	1.5/8"-12 UN	1	1	1 1/4"	200
2 1/2" - 12	490	1/3-1/2	1/4-1/2	1 1/2	1.7/8"-12 UN	1	1		
				2	2.1/2"-12 UN	1	1	1 1/2"	270
								2"	350

### Hydraulic Adapters

BSP Tread	Torque (Nm)	UN/UNF Thread	Torque (Nm)
G 1/8"			
G 1/8"	20	7/16"-20 UNF	20
G 1/4"	45	1/2"-20 UNF	25
G 3/8"	70	9/16"-18 UNF	30
G 1/2"	85	3/4"-16 UNF	45
G 1/2"	85		
G 3/4"	170	1 1/16"-12 UN	85
G 1"	330	1 5/16"-12 UN	130
G 1 1/4"	430	1 5/16"-12 UN	170
G 1 1/2"	510	1 7/8"-12 UN	180
		7/8"-14 UNF	55

## FASTENERS

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

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





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

### THREAD CONDITION




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

## TORQUE TABLES




### Torque Specifications for SAE Fasteners

		 SAE J429 Grade 5			 SAE J429 Grade 8		
Nominal Thread Size		Clamp Load	Tightening Torque		Clamp Load	Tightening Torque	
			K=.15	K=.20		K=.15	K=.20
		lbs.	in-lbs.	in-lbs.	lbs.	in-lbs.	in-lbs.
Unified Coarse Thread Series	1/4 -20	2,000	75	100	2850	107	143
	5/16 - 18	3,350	157	210	4700	220	305
		lbs.	ft-lbs.	ft-lbs.	lbs.	ft-lbs.	ft-lbs.
	3/8-16	4,950	23	31	6950	32.5	44
	7/16-14	6,800	37	50	9600	53	70
	1/2-13	9,050	57	75	12800	80	107
	9/16-12	11,600	82	109	16400	115	154
	5/8-11	14,500	113	151	20300	159	211
	3/4-10	21,300	200	266	30100	282	376
	7/8-9	29,435	321	430	41550	454	606
	1-8	38,600	483	640	54540	680	900
		 SAE J429 Grade 5			 SAE J429 Grade 8		
Nominal Thread Size		Clamp Load	Tightening Torque		Clamp Load	Tightening Torque	
			K=.15	K=.20		K=.15	K=.20
		lbs.	in-lbs.	in-lbs.	lbs.	in-lbs.	in-lbs.
Unified Fine Thread Series	1/4 -28	2,300	85	115	3250	120	163
	5/16-24	3,700	173	230	5200	245	325
		lbs.	ft-lbs.	ft-lbs.	lbs.	ft-lbs.	ft-lbs.
	3/8-24	5,600	26	35	7900	37	50
	7/16-20	7,550	42	55	10700	59	78
	1/2-20	10,200	64	85	14400	90	120
	9/16-18	13,000	92	122	18300	129	172
	5/8-18	16,300	128	170	23000	180	240
	3/4-16	23,800	223	298	33600	315	420
	7/8-14	32,480	355	473	45855	500	668
	1-12	42,270	528	704	59670	745	995

## Torque Specifications for Metric Fasteners, U.S. Customary Units

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

## Torque Specifications for Metric Fasteners, SI Units

	 Grade 8.8			 Grade 10.9			 Grade 12.9		
Nominal Thread Size	Clamp Load	Tightening Torque		Clamp Load	Tightening Torque		Clamp Load	Tightening Torque	
		K = .15	K = .20		K = .15	K = .20		K = .15	K = .20
mm	N	N-m	N-m	N	N-m	N-m	N	N-m	N-m
3	-	-	-	-	-	-	3,660	1.65	2.2
3.5	-	-	-	-	-	-	4,932	2.59	3.45
4	-	-	-	-	-	-	6,387	3.83	5.11
5	6,177	4.63	2.2	8,840	6.63	2.2	10,330	7.75	10.3
6	8,743	7.87	3.2	12,512	11.3	3.2	14,623	13.2	17.6
7	12,570	13.2	4.2	17,990	18.9	4.2	21,025	22.1	29.4
8	15,921	19.1	25.5	22,784	27.3	36.5	26,626	32	42.6
10	25,230	37.8	50.5	36,105	54.1	72.2	42,195	63.3	84.4
12	36,670	66	88	52,475	94.5	125	61,328	110	147
14	50,025	105	140	71,587	150	200	83,663	175	234
16	70,650	170	226	97,732	235	313	114,218	274	365
18	86,400	233	311	119,520	323	430	139,680	377	503
20	10,250	330	441	152,513	458	610	178,238	535	713
22	136,350	450	600	188,618	622	830	220,433	727	970
24	158,850	570	762	219,743	791	1055	256,808	925	1233
27	206,550	837	115	285,728	1157	1543	333,923	1352	1803
30	252,450	1136	1515	349,223	1572	2095	408,128	1837	2450
33	312,300	1546	2061	432,015	2138	2851	504,885	2500	3332
36	367,650	1985	2647	508,582	2746	3662	594,368	3210	4279



## 4. TROUBLESHOOTING

### 4.1 INTRODUCTION

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

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

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

#### GENERAL PROCEDURE

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

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

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

#### WARNING

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

*When performing any service that requires the platform to be raised, ensure that the platform and booms are supported by a crane capable of supporting the load.*

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



## 4.2 TROUBLESHOOTING

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

### SPECIAL TOOLS

Following is a list of tools which may be required to perform certain maintenance procedures on the SL-Series work platforms.

- 0-45 bar (0-600 psi ) Hydraulic Pressure Gauge with Adapter Fittings
- 0-250 bar (0-3500 psi) Hydraulic Pressure Gauge with Adapter Fittings
- Mini Mess Hydraulic Test Point Fittings
- Inclinator
- Crimping Tools, STD insulated and Deutsch

### ADJUSTMENT PROCEDURES

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

DO NOT remove counterbalance valves and "bench test" them if they are suspect.

Only replace them with valves of known provenance.

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 manifold pump port and connect pressure gauge.



## 4.3 TROUBLESHOOTING GUIDE

TROUBLE	PROBABLE CAUSE	REMEDY
All functions inoperable, engine does not start.	<ol style="list-style-type: none"> <li>1. Faulty battery</li> <li>2. Loose or broken battery lead.</li> <li>3. Emergency Stop switch(es) failed open.</li> </ol>	<p>After completely charging batteries, test each battery. Replace as</p> <p>Check continuity of all battery and motor leads. Replace if necessary.</p> <p>With emergency stop switch in the ON position, check continuity</p>
Engine does start but no hydraulic power.	<ol style="list-style-type: none"> <li>1. Oil level in hydraulic reservoir is low.</li> <li>2. Faulty hydraulic pump.</li> </ol>	<p>Check hydraulic fluid level, top off as required.</p> <p>Check pressure and delivery of the hydraulic oil. Replace if necessary</p>
Engine does start, have hydraulic power but no electrical function.	<ol style="list-style-type: none"> <li>1. Emergency Lowering valve open.</li> <li>2. Platform overloaded, alarm sounds.</li> <li>3. Faulty controller at upper controls.</li> <li>4. Battery level low.</li> </ol>	<p>Close emergency down valve.</p> <p>Observe maximum load rating. (see Operation section of this manual)</p> <p>Check functionality of controller. Replace if faulty.</p> <p>Check Battery Voltage. Charge if necessary.</p>
Platform drifts down after being elevated	<ol style="list-style-type: none"> <li>1. Emergency lowering valve open.</li> <li>2. Leaking piston seals in lift cylinders</li> </ol>	<p>Ensure that emergency lowering valve is completely closed. Replace if necessary.</p> <p>Check for leakage at cylinder return line, replace seals if necessary.</p>

## 4.4 FAULT CODES INTRODUCTION

The SL26/30 SpeedLevel is equipped with a fault detection system, if you have a faulty component, bad electrical connection or start up error a fault code will be displayed on the read out located on the upper control box.

**For fault codes 01 - 45 the following procedure should be followed.**

Ensure that no selector buttons are depressed.

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

Ensure that the joystick is in neutral.

Ensure that the steer rocker is not activated.

Ensure that toggle switch is in neutral.

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

**For fault codes 51 - 68 the following procedure should be followed.**

1. Check the fault code list to identify the problem component.
2. Ensure that the wiring harness is connected, secure, in good condition and fully intact.
3. Ensure that the problem component is receiving electrical signal, consult the schematics in section 6 of this manual to identify the ECU output and harness test points.
4. If no ECU output is present replace the ECU.
5. If ECU output is present but no signal is reaching the component replace the wiring harness.
6. If signal is reaching the component but the component is not functioning replace the component (refer to section 7 of this manual for part number information).

## 4.5 FAULT CODES

### SpeedLevel Fault Codes

1-31-05

- 01 - SYSTEM INIT ERROR
- 02 - SYSTEM PLATFORM COM ERROR
- 03 - PLATFORM OVERLOAD
- 04 - SYSTEM LOWER PANEL COM ERROR
- 05 - OIL PRESSURE LOW
- 06 - COOLANT TEMP HOT
  
- 21 - PLATFORM START ON
- 22 - PLATFORM LEFT TURN SW ON
- 23 - PLATFORM RIGHT TURN SW ON
- 24 - PLATFORM LIFT SW ON
- 25 - PLATFORM HISPEEDDRIVE SW ON
- 26 - PLATFORM GLOWLP SW ON
- 27 - PLATFORM LOSPEEDDRIVE SW ON
- 28 - PLATFORM AUTOLEVEL SW ON
- 29 - PLATFORM JOYSTICK ENABLE SW ON
- 31 - PLATFORM JOYSTICK NOT NEUTRAL
  
- 34 - GROUND PANEL ENABLE SW ON
- 37 - GROUND PANEL DOWN SW ON
- 38 - GROUND PANEL UP SW ON
- 43 - GROUND PANEL START SW ON
- 45 - GROUND PANEL GLOWLP SW ON
  
- 51 - Coil Fault HiSpeed1
- 52 - Coil Fault HiSpeed2
- 55 - Coil Fault LiftUp
- 56 - Coil Fault LiftDown
- 57 - Coil Fault TiltLeft
- 58 - Coil Fault TiltRight
- 59 - Coil Fault SteerRight
- 61 - Coil Fault SteerLeft
- 62 - Coil Fault TiltRear
- 63 - Coil Fault TiltForward
- 66 - Coil Fault Forward
- 67 - Coil Fault Reverse
- 71 - Coil Fault CushionValve
- 72 - Coil Fault AxleFloat
- 73 - Coil Fault SteerDump
  
- 68 - LOW BATTERY FAULT

# 5. SCHEMATICS

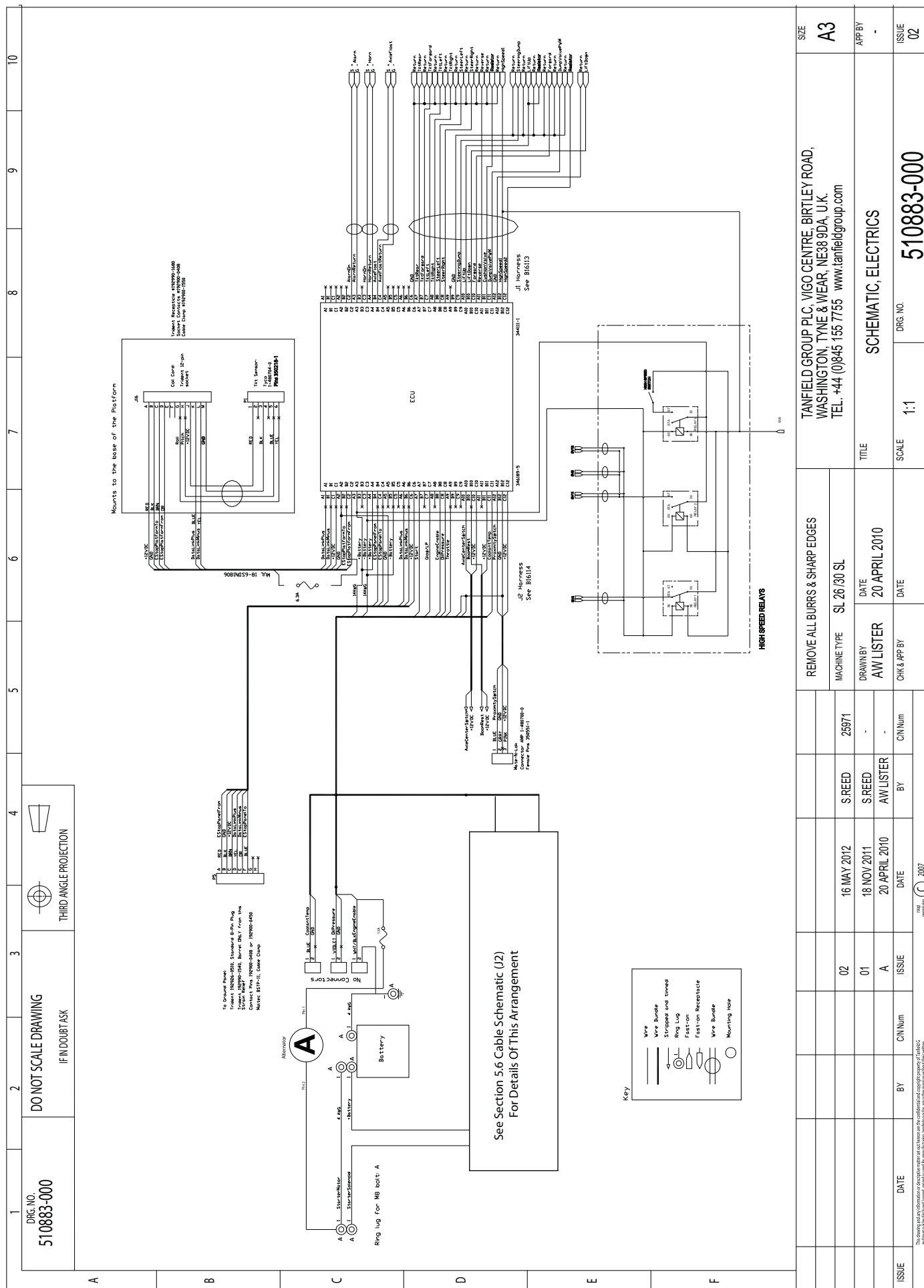
## 5.1 INTRODUCTION

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

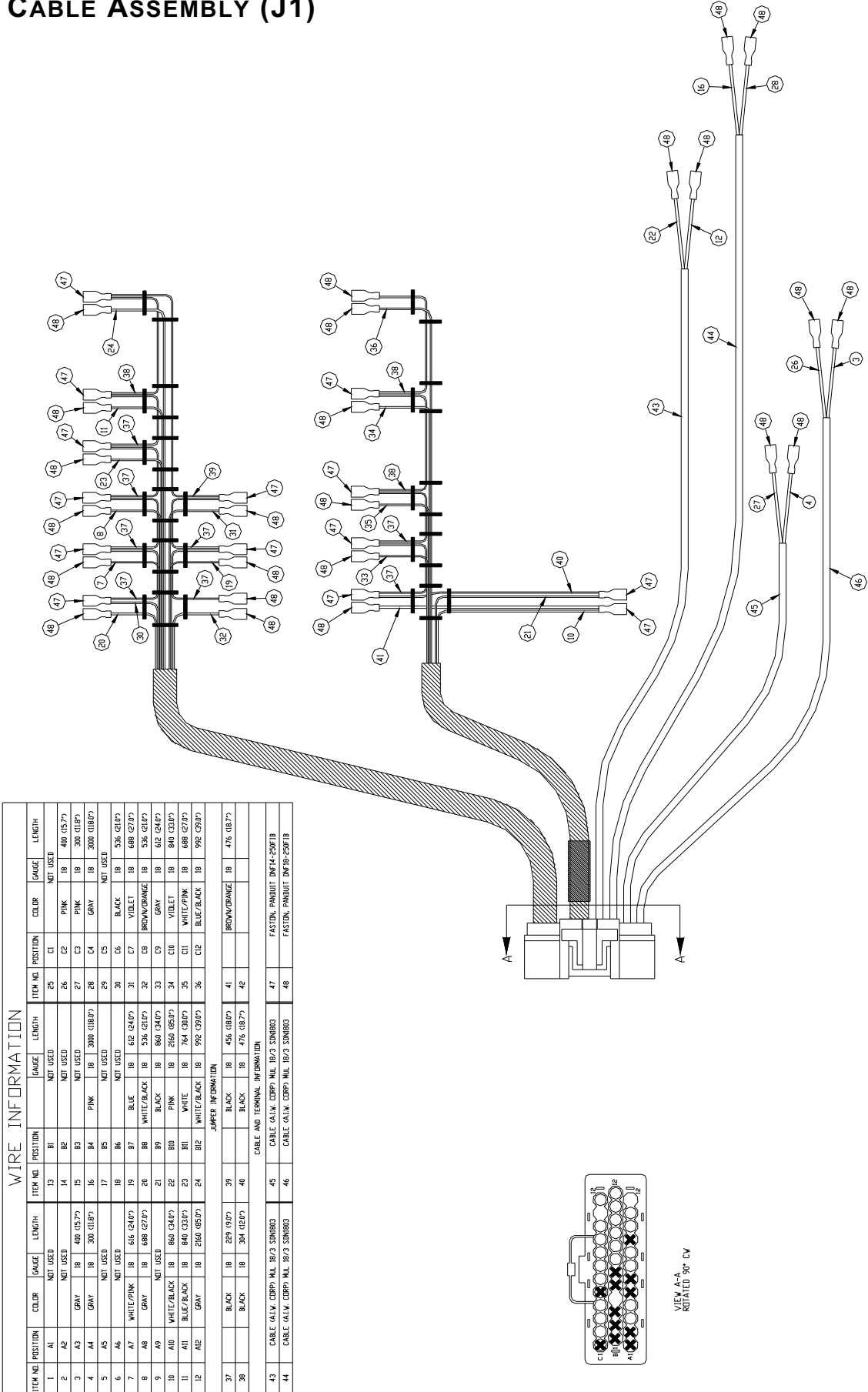
The diagrams are to be used in conjunction with the information in **Section 4**. They allow understanding of the makeup and functions of the systems for checking, tracing, and faultfinding during troubleshooting analysis.

### CONTENTS

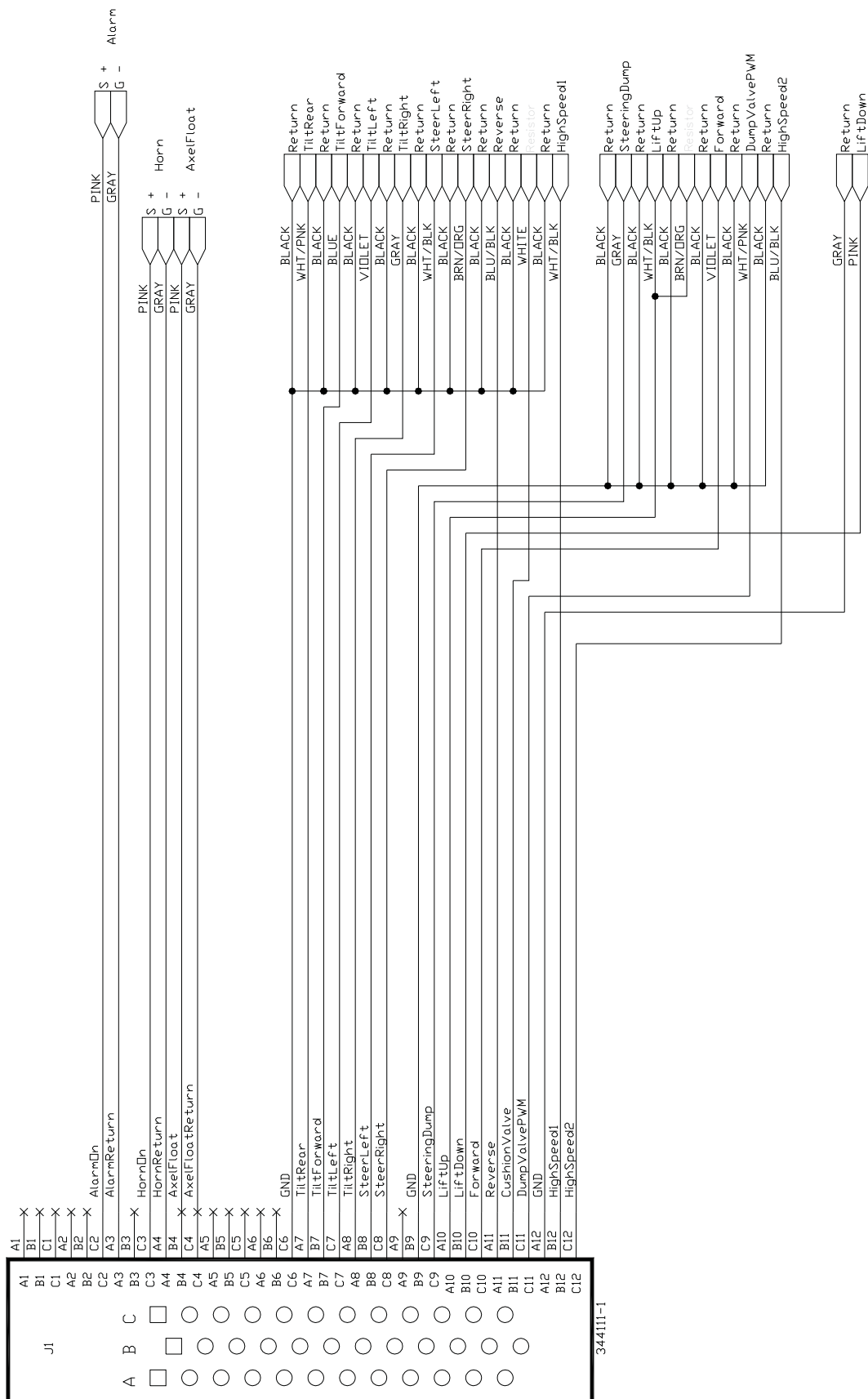
Electrical Schematic .....	5-2
Cable Assembly (J1 Harness).....	5-3
Schematic (J1 Harness) .....	5-4
Cable Assembly (J2 Harness).....	5-5
Schematic (J2 Harness) .....	5-6
Overload Schematic .....	5-7
Hydraulic Schematic .....	5-9



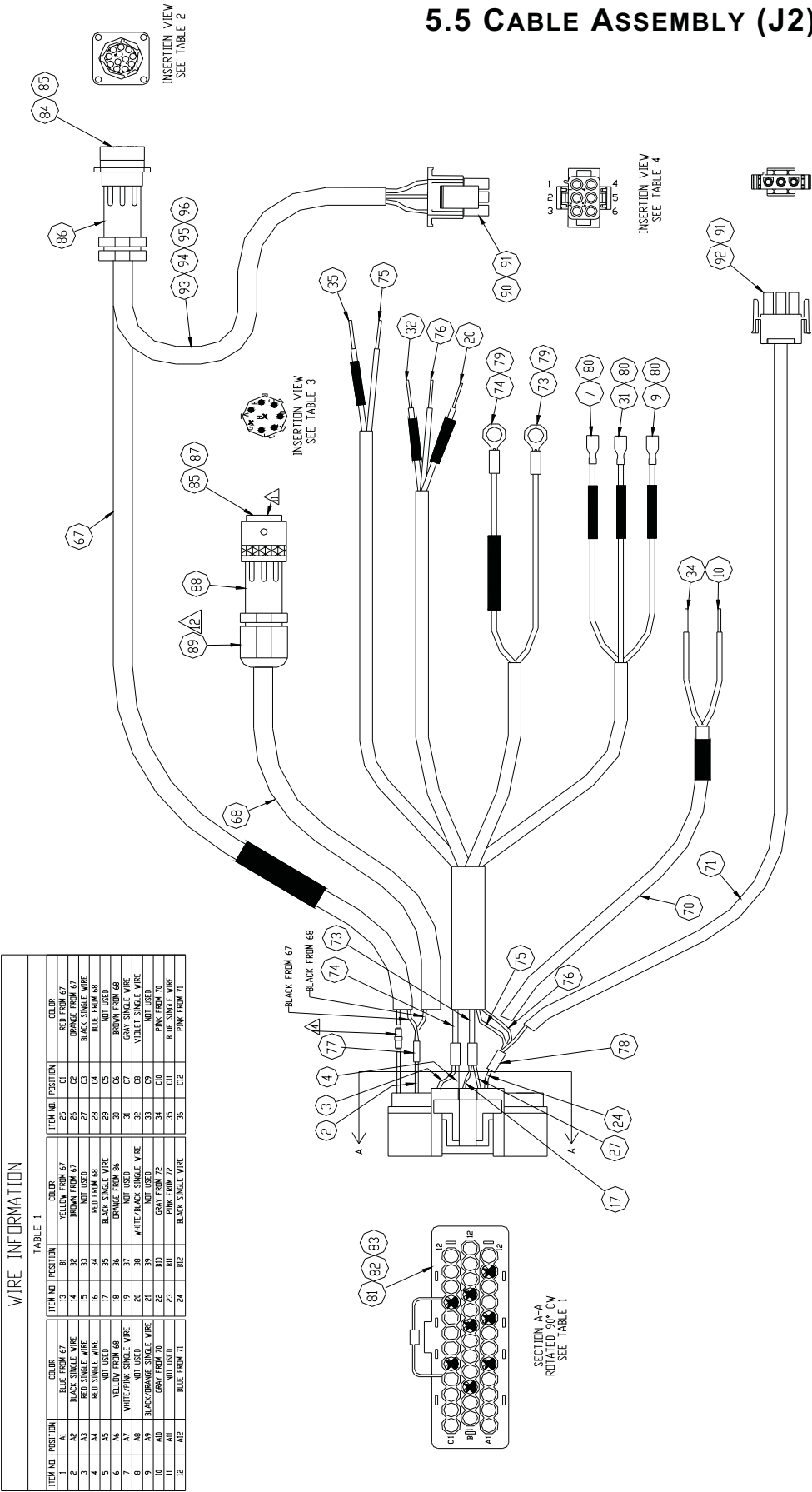
5.3 CABLE ASSEMBLY (J1)



## 5.4 J1 CABLE SCHEMATIC

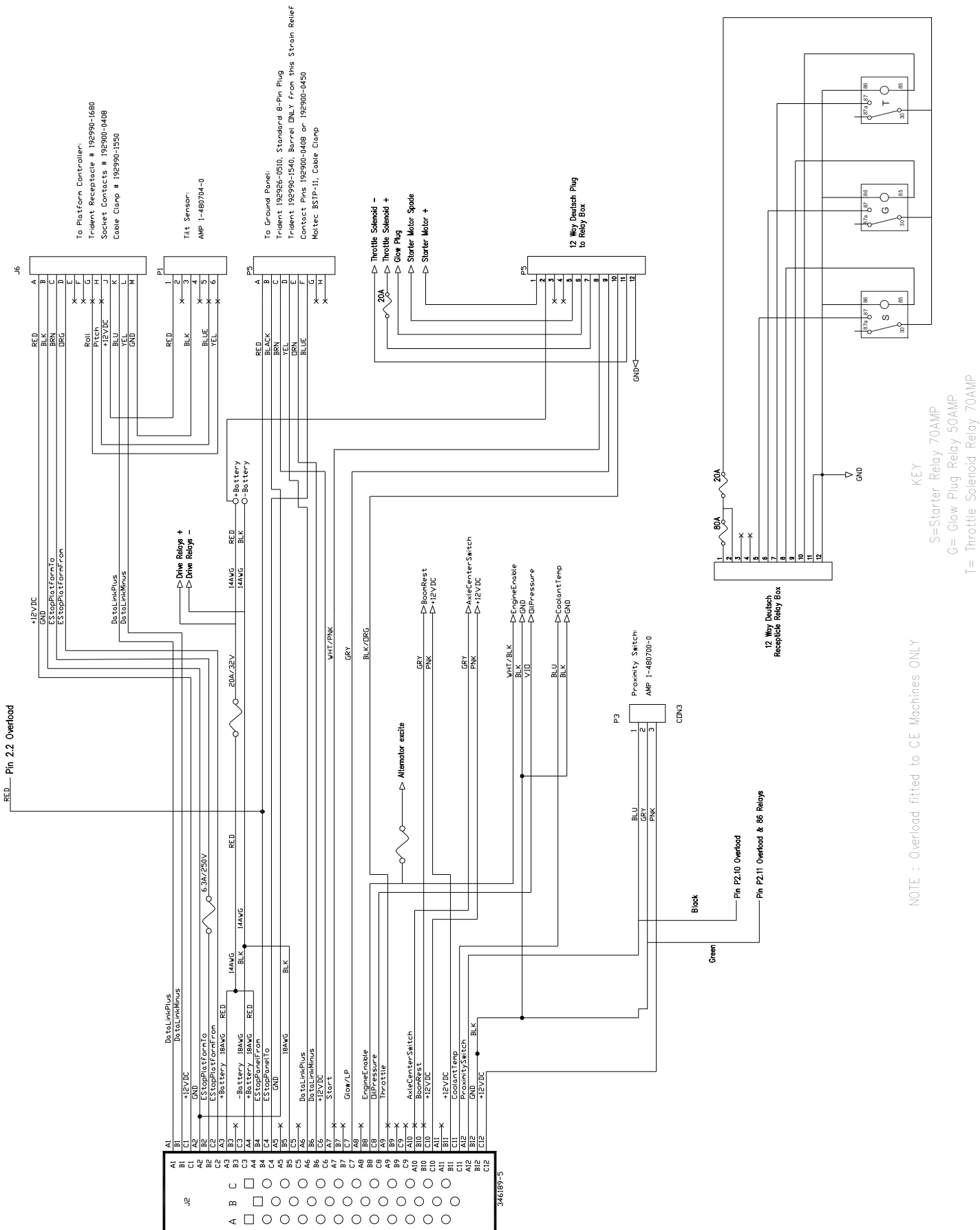


5.5 CABLE ASSEMBLY (J2)

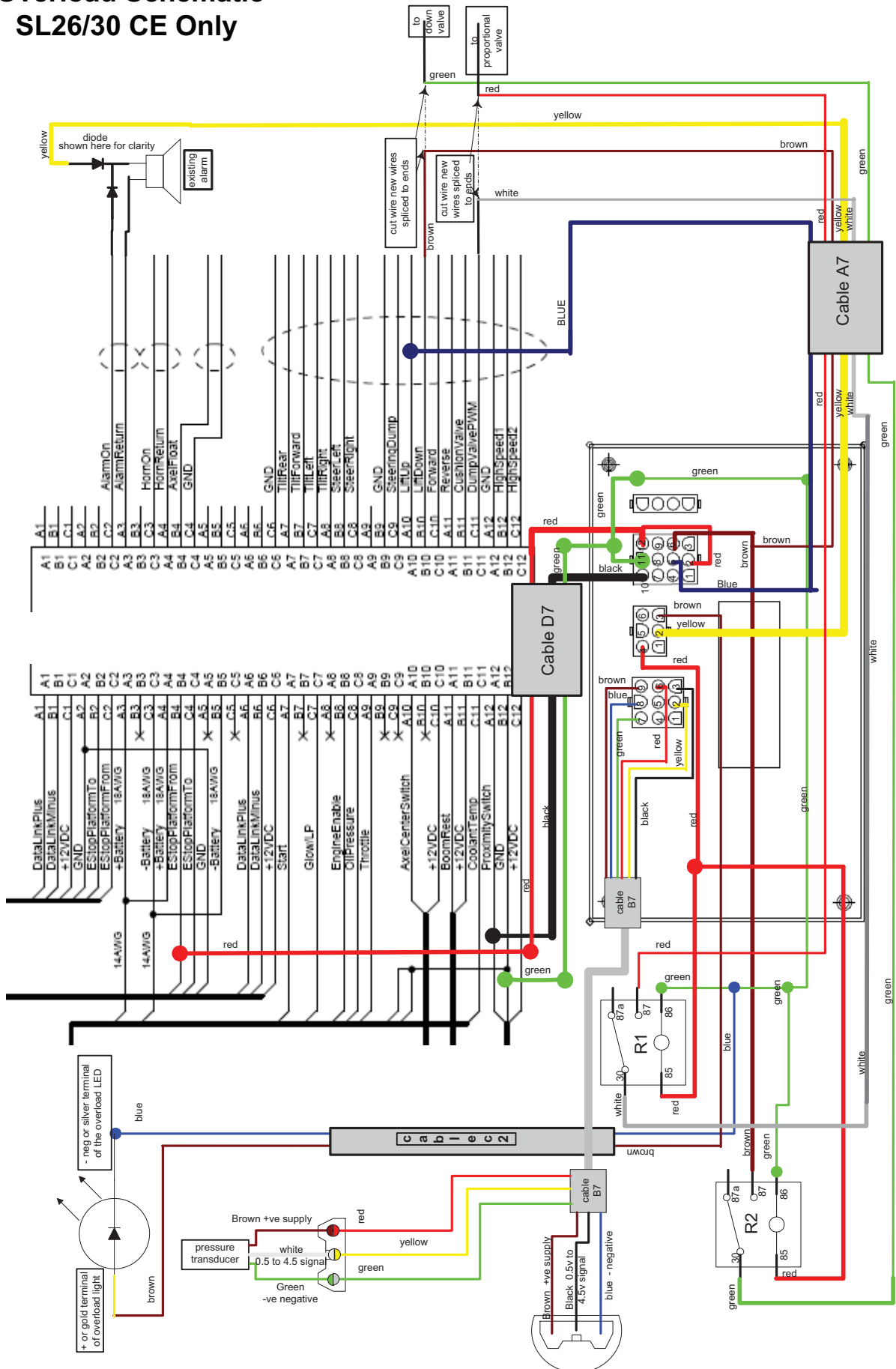




## 5.6 CABLE SCHEMATIC (J2)



## 5.5 Overload Schematic SL26/30 CE Only



## 5.8 SL 26/30 OVERLOAD WIRING INFORMATION

SL 26/30 OVER LOAD	
CABLE DESCRIPTION	
CABLE A=7 CORE	
CABLE B=7 CORE	
CABLE C=2 CORE	
CABLE D=7 CORE	
TWO 12VDC RELAYS	
INTERNAL PLUG CONNECTIONS	
P2 PINS 12 & 2 TIE TOGETHER WITH 0.75 RED WIRE	
P2 PIN 6 ADD 0.75 BROWN WIRE THEN TO RELAY 2 N/O 87	
P2 PIN 11 ADD 0.75 GREEN WIRE THEN TO RELAYS 1 & 2 FOR EARTHING 86 ON RELAYS	
P3 PIN 4 ADD 0.75 RED WIRE THEN TO RELAYS 1 & 2 FOR COILS 85 ON RELAYS	
WIRING OF CABLE D 7	
P2 PIN10 BLACK WIRE OTHERSIDE LOOP INTO J2 A12 ON ECU	
P2 RED WIRE JOIN TO PINS 12 & 3 THE OTHERSIDE LOOP INTO J2 B4	
TAKE GREEN WIRE TO RELAY 2 EARTH 86 OTHERSIDE LOOP INTO J2 B12	
P2 PIN 5 WHITE WIRE OTHERSIDE LOOP INTO J1 A10	
WIRING OF CABLE C2	
P3 PIN 3 BROWN WIRE OTHERSIDE TO PLATFORM L.E.D GOLD SIDE	
BLUE WIRE TO RELAY 2 EARTHING 86 OTHERSIDE TO PLATFORM L.E.D SILVERSIDE	
WIRING OF CABLE B7	
P4 PIN 3 BLACK WIRE OTHERSIDE TO HEIGHT SENSOR PIN 2	
P4 PIN 8 BLUE WIRE OTHERSIDE TO HEIGHT SENSOR PIN 3	
P4 PIN 9 BROWN WIRE OTHERSIDE TO HEIGHT SENSOR PIN 1	
P4 PIN 2 YELLOW WIRE OTHERSIDE TO LOAD SENSOR PIN 2	
P4 PIN 6 RED WIRE OTHERSIDE TO LOAD SENSOR PIN 1	
P4 PIN 7 GREEN WIRE OTHERSIDE TO LOAD SENSOR PIN 3	
WIRING OF CABLE A7	
P3 PIN 2 YELLOW WIRE OTHERSIDE TO 3 AMP DIODE NON STRIPE SIDE THEN TO ALARM	
BROWN WIRE TO RELAY 2 N/O 87 OTHERSIDE TO J1 B10 CUT AND CONNECT TO ECU SIDE	
RED WIRE TO RELAY 1 N/O 87 OTHERSIDE TO J1 C11 CUT AND CONNECT TO MANIFOLD SIDE	
WHITE WIRE TO RELAY 1 COM 30 OTHERSIDE TO J1 C11 CONNECT TO ECU SIDE	
GREEN WIRE TO RELAY 2 COM 30 OTHERSIDE TO J1 B10 CONNECT TO DOWN VALVE SIDE	

[illegible]

**5-9**

## Notes :

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## 6. ILLUSTRATED PARTS

### 6.1 INTRODUCTION

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

Each parts list contains the component parts for that assembly.

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General Assembly .....	6 - 2
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Electrical Assembly .....	6 - 25
Decal Assembly .....	6 - 27

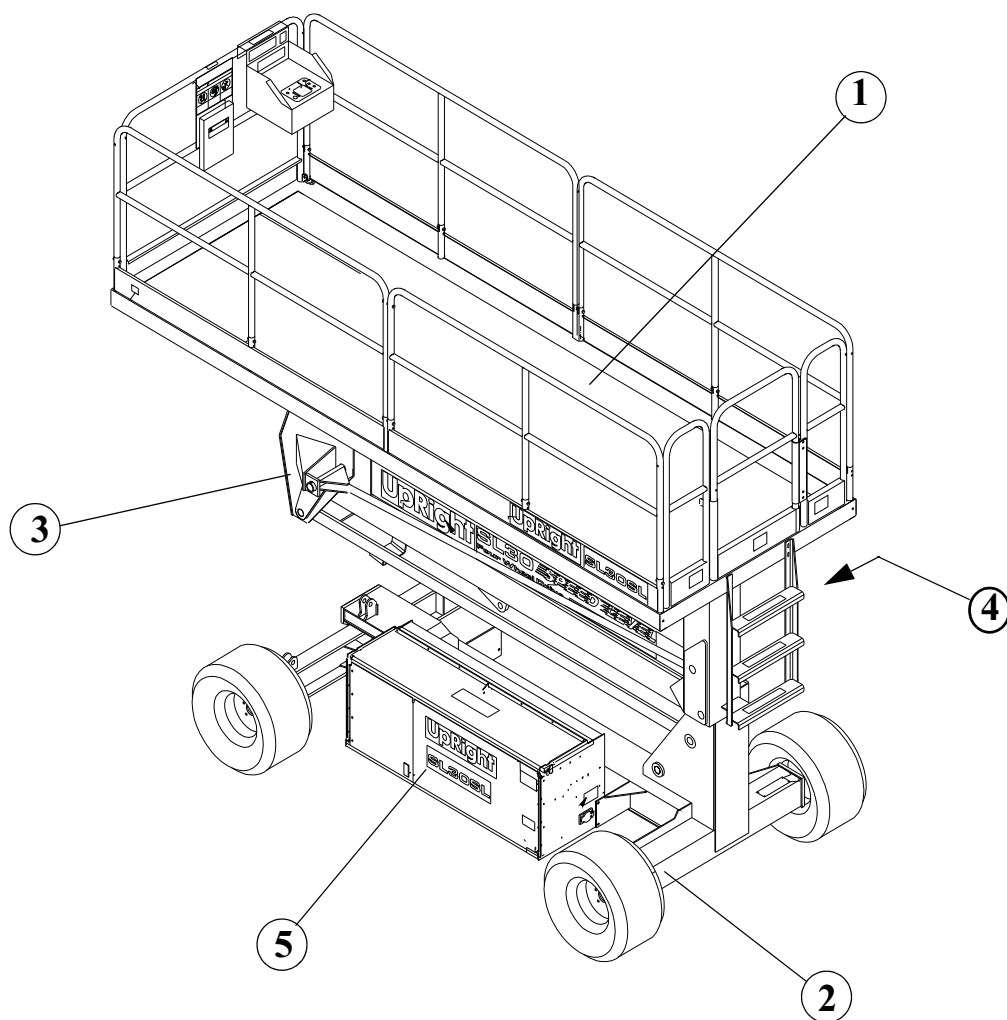
**General Assembly**

SL30SL ~ 505500-000

ITEM	PART	DESCRIPTION	QTY.
1	505503-000	PLATFORM ASSEMBLY	1
2	505501-000	CHASSIS ASSEMBLY	1
3	505502-000	ELEVATING ASSEMBLY	1
4	505504-000	POWER MODULE	1
5	505515-000	CONTROL MODULE	1

SL26SL ~ 505600-000

ITEM	PART	DESCRIPTION	QTY.
1	505603-000	PLATFORM ASSEMBLY	1
2	505501-000	CHASSIS ASSEMBLY	1
3	505602-000	ELEVATING ASSEMBLY	1
4	505504-000	POWER MODULE	1
5	505515-000	CONTROL MODULE	1



# Chassis Assembly

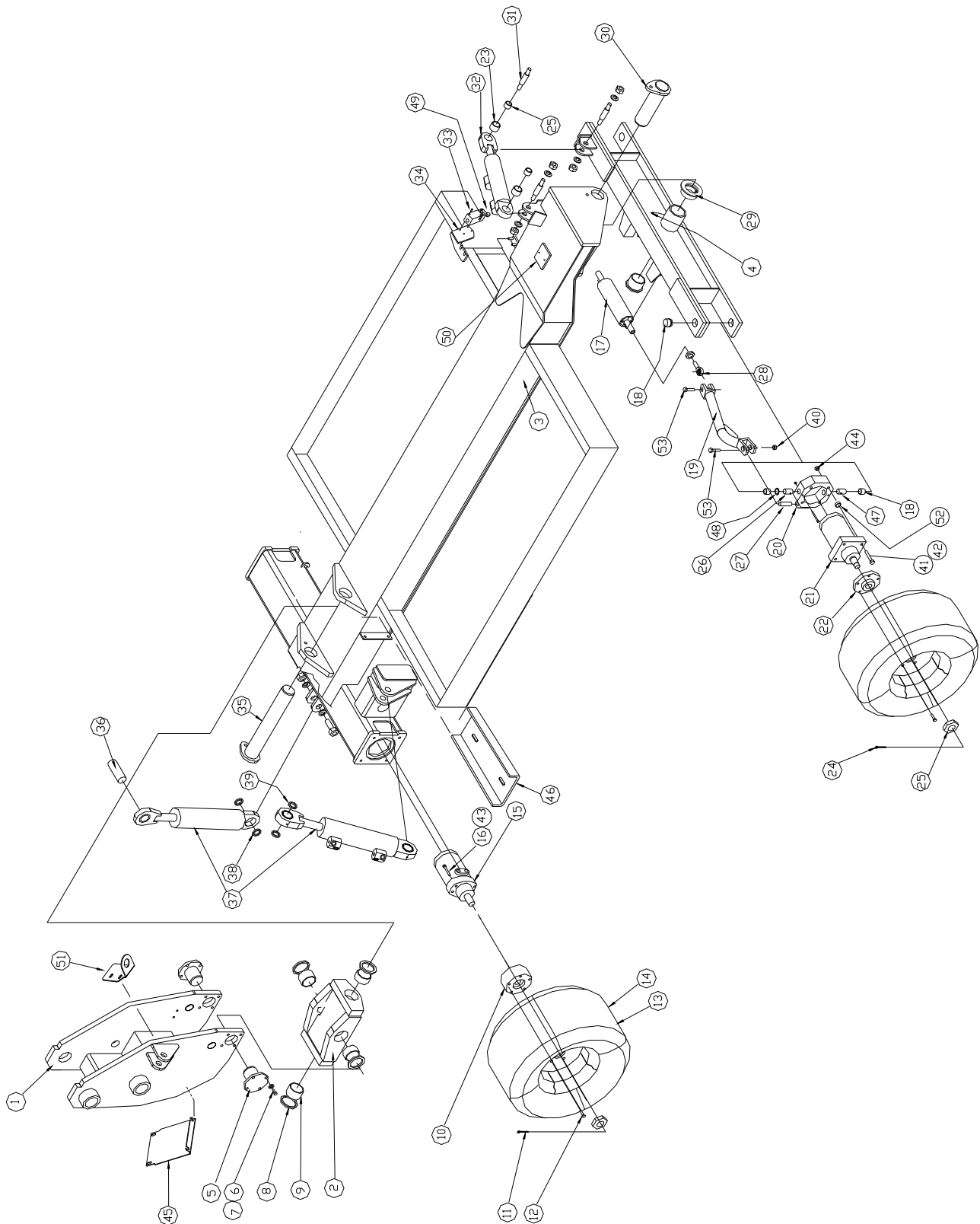
505501-000

ITEM	PART	DESCRIPTION	QTY
1	064320-001	WELDMENT, 1ST POST	1
2	064331-001	WELDMENT, LEVEL PIVOT	1
3	510501-000	WELDMENT, CHASSIS	1
4	510497-000	WELDMENT, FRONT AXLE	1
5	064343-001	TRUNNION	2
6	011256-014	SCREW, TRUNNION	8
7	011238-008	WASHER	8
8	064383-000	THRUST WASHER, 5mm	4
Ref.	064383-001	THRUST WASHER, 4mm	4
Ref.	064383-002	THRUST WASHER, 3mm	4
9	062642-032	BUSHING, LEVEL PIVOT	4
10	064811-000	HUB, REAR	2
11	011754-012	SPLIT PIN	4
12	98300-9	WHEEL BOLT	20
13	069129-000	WHEEL, RIGHT HAND / ANSI 069129-002	2
14	069129-001	WHEEL, LEFT HAND / ANSI 069129-003	2
15	505201-000	DRIVE MOTOR, REAR	2
16	011257-014	BOLT, DRIVE MOTOR, REAR	8
17	063905-101	CYLINDER, STEER	1
18	067606-013	BUSHING, AXLE / MOTOR MOUNT	2
19	510333-000	STEER LINK ARM	2
20	505564-000	MOTOR MOUNT	2
21	505202-000	DRIVE MOTOR, FRONT	2
22	064812-000	HUB, FRONT	2
23	027931-057	BUSHING, ROLLER	2
24	011754-012	SPLIT PIN	4
25	064350-000	AXLE PIVOT	2
26	509463-000	TOP AXLE PIN	2
27	062642-001	BUSHING, MOTOR MOUNT	4
28	063927-001	ROSE BEARING, STEERING CYL	2
29	064298-005	BUSHING, AXLE TO CHASSIS	2
30	064336-000	PIVOT PIN, FRONT AXLE	1
31	508020-000	PIVOT PIN, FLOAT CYL - AXLE	2
32	064346-100	CYLINDER, CHASSIS - AXLE	1
33	064296-002	LIMIT SWITCH, FLOAT, BODY	1
34	064367-001	BRACKET, LIMIT SWITCH MOUNT	1
35	064339-001	PIN, 1ST POST / LEVEL PIVOT / CHASSIS	1
36	508021-000	PIN, LEVEL CYLINDER - 1ST POST	4
37	064345-100	CYLINDER, FLOAT	2
38	509445-000	BEARING SPACER	4
39	064349-000	BEARING SPACER	4
40	505046-000	NUT, STEERING LINKAGE	4
41	057052-130	BOLT, FRONT MOTOR MOUNT	4
42	056069-012	WASHER, FRONT MOTOR	4
43	011238-005	WASHER, REAR MOTOR	4
44	056064-012	NUT, FRONT MOTOR	4
45	064347-000	LEVEL COVER PLATE	1
46	064384-000	CHANNEL	1
47	509462-000	BOTTOM AXLE PIN	2
48	011782-001	BEARING THRUST WASHER	2
49	064294-004	ACTUATOR LEVER	1
50	15-0489	LOCATION PAD	1
51	503995-000	BRACKET, PROXIMITY SWITCH	1
52	509535-000	AXLE SPACERS 6mm	8
53	011257-024	BOLT, 5/8 x 3" UNC HHC	4

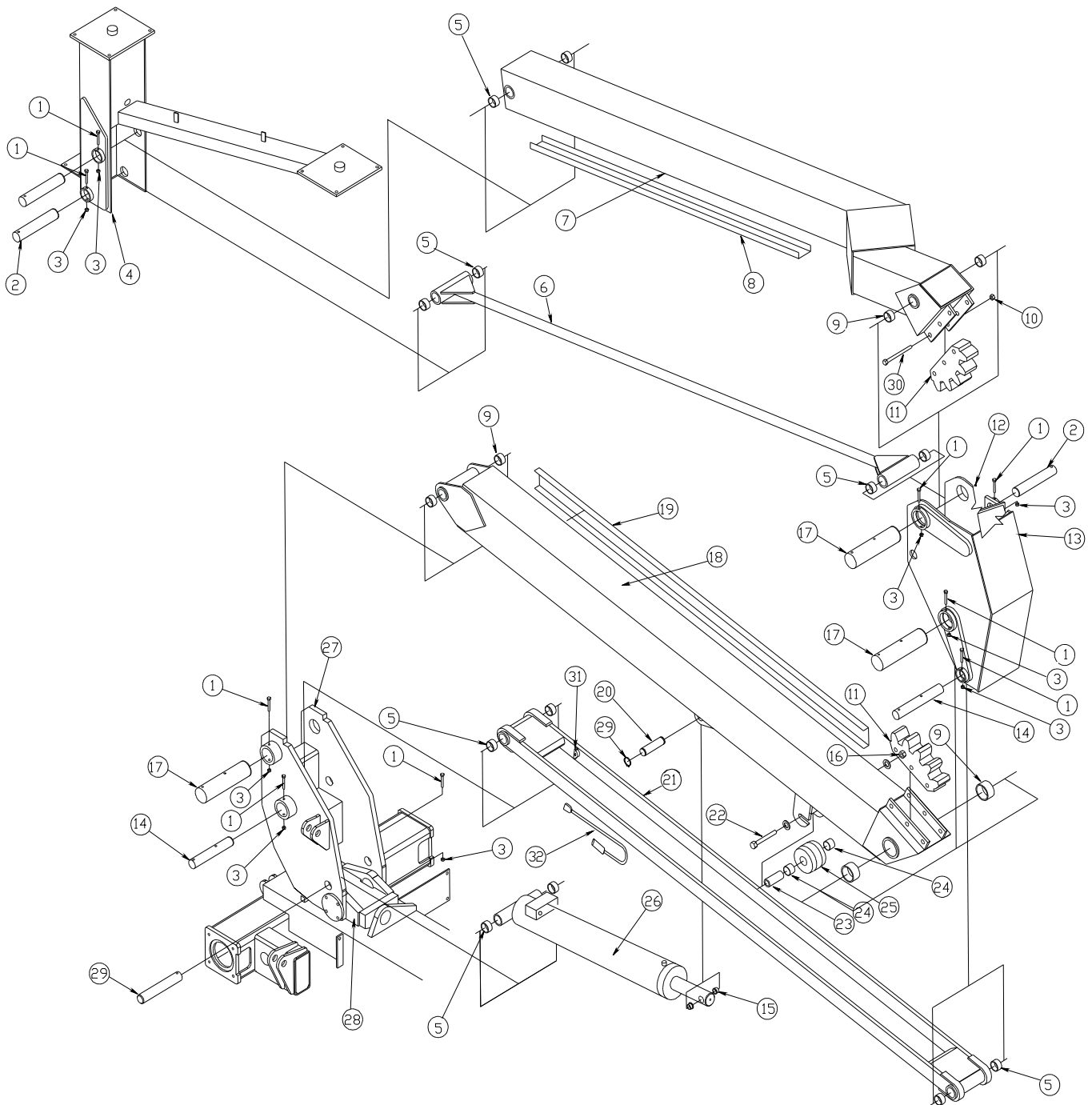


# *Chassis Assembly*

505001-000



## Elevating Assembly



## Elevating Assembly

SL30SL ~ 505502-000

ITEM	PART	DESCRIPTION	QTY.
1	011254-024	BOLT, PIN LOCK 3/8'	9
2	064090-000	PIVOT PIN, UPPER T-BAR & UP BOOM - PED	3
3	011248-006	NUT, PIN LOCK 3/8'	9
4	064111-002	WELDMENT, PEDESTAL (PLATFORM SUP)	1
5	062649-020	BUSHING, ALL 1.75" PINS	12
6	064536-000	UPPER TENSION BAR	1
7	064521-000	UPPER BOOM	1
8	064538-000	CHANNEL, WIRE COVER (UPPER BOOM)	1
9	062642-030	BUSHING, ALL 2.75 PINS	6
10	011248-016	LOCKNUT 1'	6
11	064089-000	GEAR SEGMENT	2
12	013336-001	GREASE NIPPLE (1/8 BSP)	16
13	064070-002	2nd POST WELDMENT	1
14	064094-000	PIVOT PIN, LOWER T-BAR	2
15	062649-010	BUSHING, LIFT CYLINDER ROD - BOOM	2
16	011248-016	NUT (ROLLER)	1
17	064095-000	PIVOT PIN, LOWER BOOM & UP BOOM - 2nd	3
18	064530-000	LOWER BOOM	1
19	064542-000	CHANNEL, WIRE COVER (LOWER BOOM)	1
20	064093-000	PIVOT PIN, CYL ROD - LOWER BOOM	1
21	064531-001	LOWER TENSION BAR	1
22	014918-048	BOLT (ROLLER, BOOM REST)	1
23	064356-000	ROLLER PIN	1
24	027931-057	BUSHING, ROLLER	2
25	064354-000	ROLLER	1
26	063904-101	CYLINDER, MAIN LIFT	1
27	064320-001	1st POST WELDMENT	1
28	064331-001	LEVELLER WELDMENT	1
29	064094-000	PIVOT PIN, CYL BODY - 1st POST	1
30	014918-056	BOLT, 1"-8 UNC x 7"	6
31	504559-000	OVERLOAD EZFIT ANGLE TRANSDUCER	1
32	504560-000	O/LOAD 3000PSI PRESSURE TRANSDUCER	1

SL26SL ~ 505602-000

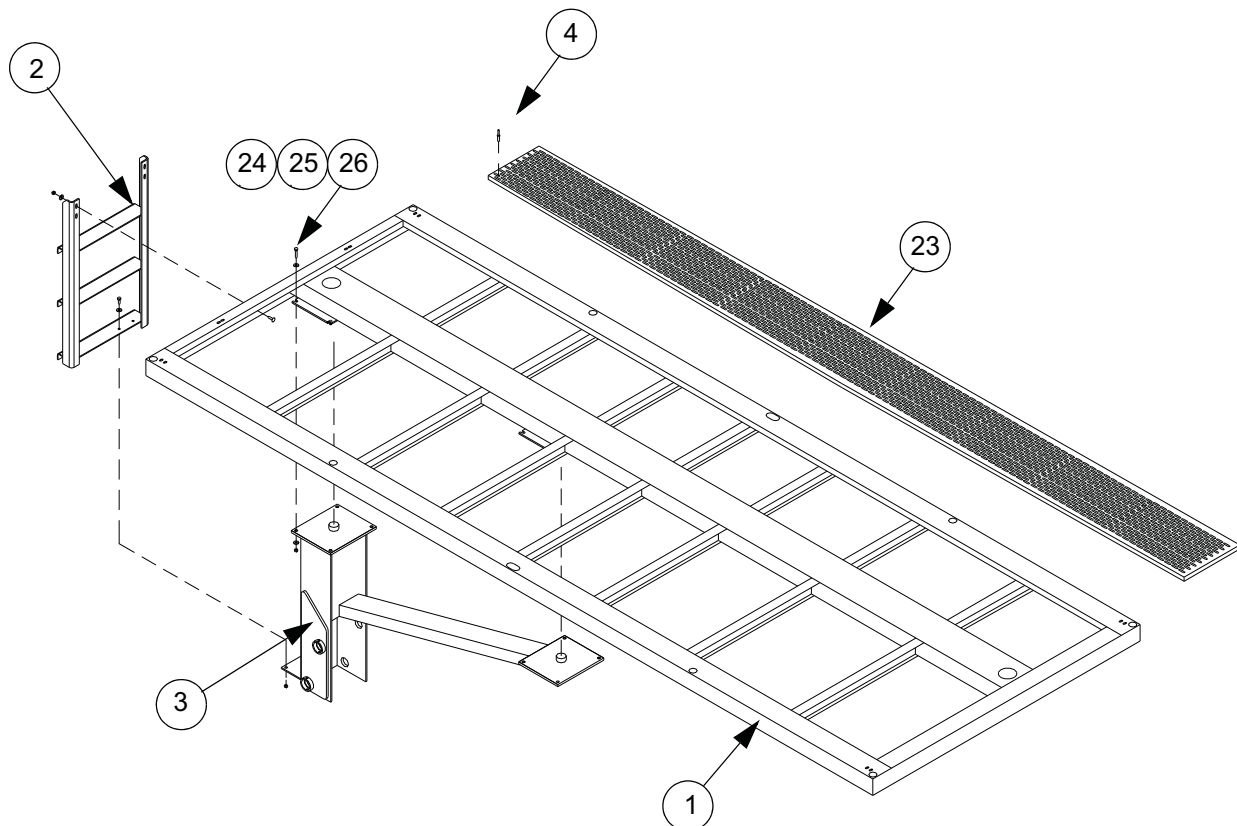
ITEM	PART	DESCRIPTION	QTY.
1	011254-024	BOLT, PIN LOCK 3/8'	9
2	064090-000	PIVOT PIN, UPPER T-BAR & UP BOOM - PED	3
3	011248-006	NUT, PIN LOCK 3/8'	9
4	064111-001	WELDMENT, PEDESTAL (PLATFORM SUP)	1
5	062649-020	BUSHING, ALL 1.75" PINS	12
6	064087-000	UPPER TENSION BAR	1
7	064078-002	UPPER BOOM	1
8	064451-000	CHANNEL, WIRE COVER (UPPER BOOM)	1
9	062642-030	BUSHING, ALL 2.75 PINS	6
10	011248-016	LOCKNUT 1'	6
11	064089-000	GEAR SEGMENT	2
12	013336-001	GREASE NIPPLE (1/8 BSP)	16
13	064070-002	2nd POST WELDMENT	1
14	064094-000	PIVOT PIN, LOWER T-BAR	2
15	062649-010	BUSHING, LIFT CYLINDER ROD - BOOM	2
16	011248-016	NUT (ROLLER)	1
17	064095-000	PIVOT PIN, LOWER BOOM & UP BOOM - 2nd	3
18	064060-003	LOWER BOOM	1
19	064450-000	CHANNEL, WIRE COVER (LOWER BOOM)	1
20	064093-000	PIVOT PIN, CYL ROD - LOWER BOOM	1
21	064084-001	LOWER TENSION BAR	1
22	014918-048	BOLT (ROLLER, BOOM REST)	1
23	064356-000	ROLLER PIN	1
24	027931-057	BUSHING, ROLLER	2
25	064354-000	ROLLER	1
26	063904-101	CYLINDER, MAIN LIFT	1
27	064320-001	1st POST WELDMENT	1
28	064331-001	LEVELLER WELDMENT	1
29	064094-000	PIVOT PIN, CYL BODY - 1st POST	1
30	014918-056	BOLT, 1"-8 UNC x 7"	6
31	504559-000	OVERLOAD EZFIT ANGLE TRANSDUCER	1
32	504560-000	O/LOAD 3000PSI PRESSURE TRANSDUCER	1

## Platform Assembly

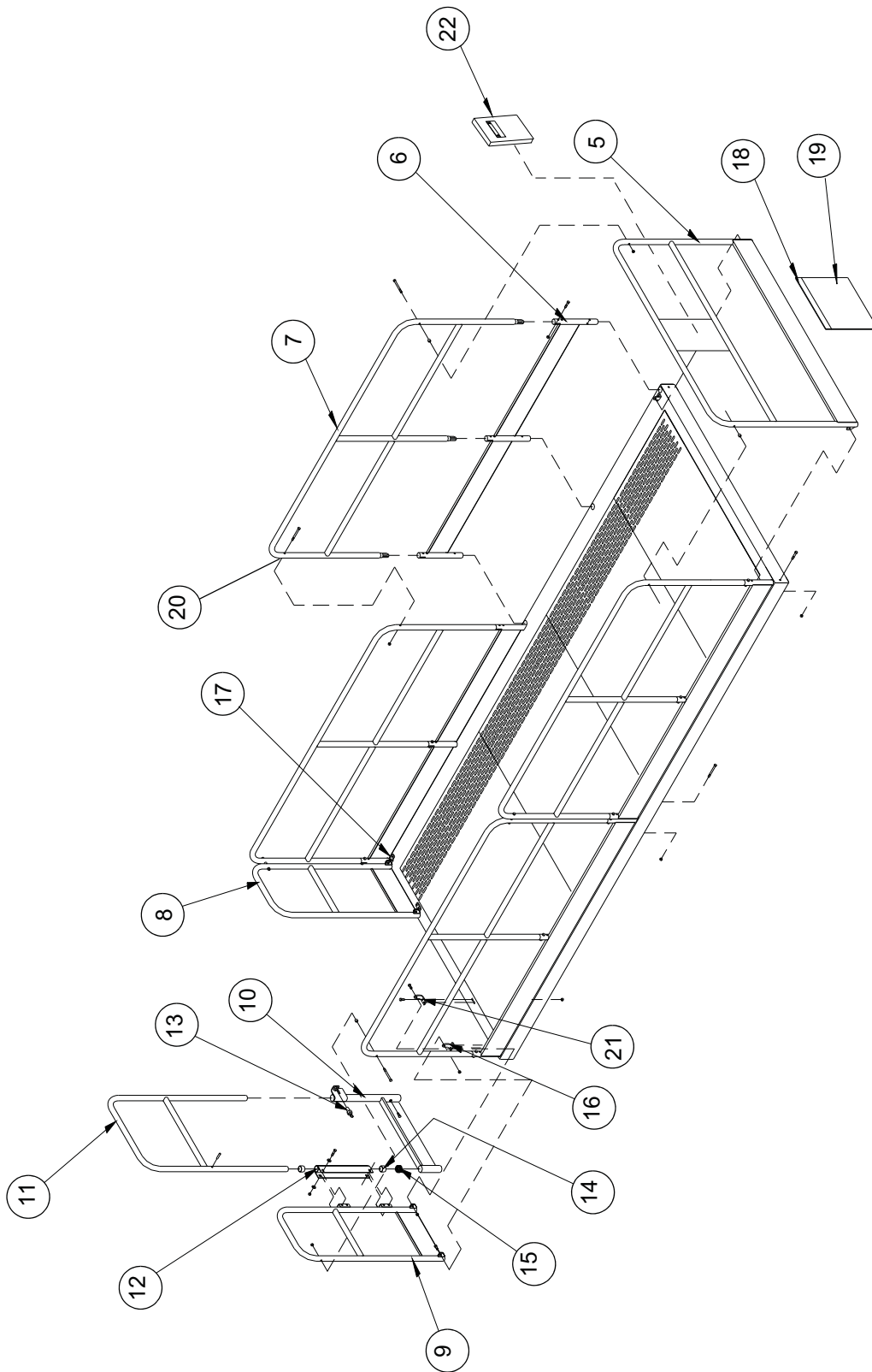
SL30SL ~ 505503-000

SL26SL ~ 505603-00

ITEM	PART	DESCRIPTION	QTY.	ITEM	PART	DESCRIPTION	QTY.
1	064540-011	DECK WELDMENT	1	1	064100-011	DECK WELDMENT	1
2	510502-000	LADDER WELDMENT	1	2	510502-000	LADDER WELDMENT	1
3	064111-002	PEDESTAL WELDMENT	1	3	064111-001	PEDESTAL WELDMENT	1
4	510678-000	SAFEDECK MOUNTING	30	4	026554-002	RIVET (MAIN DECK)	24
5	064700-000	GUARDRAIL, FRONT	1	5	~	~	~
6	064696-000	KICKPLATE, SIDE	4	6	064695-000	KICKPLATE, SIDE	4
7	064698-000	GUARDRAIL, SIDE	4	7	064697-000	GUARDRAIL, SIDE	4
8	064702-002	GUARDRAIL, END LEFT HAND SIDE	1	8	064702-002	GUARDRAIL, END LEFT HAND SIDE	1
9	064702-001	GUARDRAIL, END RIGHT HAND SIDE	1	9	064702-001	GUARDRAIL, END RIGHT HAND SIDE	1
10	067764-001	KICKPLATE, GATE	1	10	067764-001	KICKPLATE, GATE	1
11	067883-000	GATE WELDMENT	1	11	067883-000	GATE WELDMENT	1
12	067712-000	GATE PIVOT TUBE	1	12	067712-000	GATE PIVOT TUBE	1
13	003570-005	PLUNGER ASSEMBLY	1	13	003570-005	PLUNGER ASSEMBLY	1
14	062642-026	BUSHING, GATE PIVOT	2	14	062642-026	BUSHING, GATE PIVOT	2
15	066526-004	GATE SPRING	1	15	066526-004	GATE SPRING	1
16	064688-001	PIVOT BRACKET RH	2	16	064688-001	PIVOT BRACKET RH	2
17	064688-002	PIVOT BRACKET LH	2	17	064688-002	PIVOT BRACKET LH	2
18	064447-000	SKIRT PLATE (RUBBER SKIRT)	1	18	064447-000	SKIRT PLATE (RUBBER SKIRT)	1
19	064448-000	RUBBER SKIRT	1	19	064448-000	RUBBER SKIRT	1
20	067695-000	SPACER, GUARDRAIL	6	20	067695-000	SPACER, GUARDRAIL	6
21	064046-000	RAIL MOUNTING BRACKET	2	21	064046-000	RAIL MOUNTING BRACKET	2
22	010076-000	MANUAL BOX (BLACK PLASTIC)	1	22	010076-000	MANUAL BOX (BLACK PLASTIC)	1
23	510677-000	SAFEDECK, ALUMINIUM STABIL	5	24	057052-050	BOLT, M12x50mm 10.9	8
24	057052-050	BOLT, M12x50mm 10.9	8	25	505087-012	HARDENED WASHER, M12	16
25	505087-012	HARDENED WASHER, M12	16	26	056064-012	NYLOC NUT, M12	8
26	056064-012	NYLOC NUT, M12	8				



**Platform Assembly**

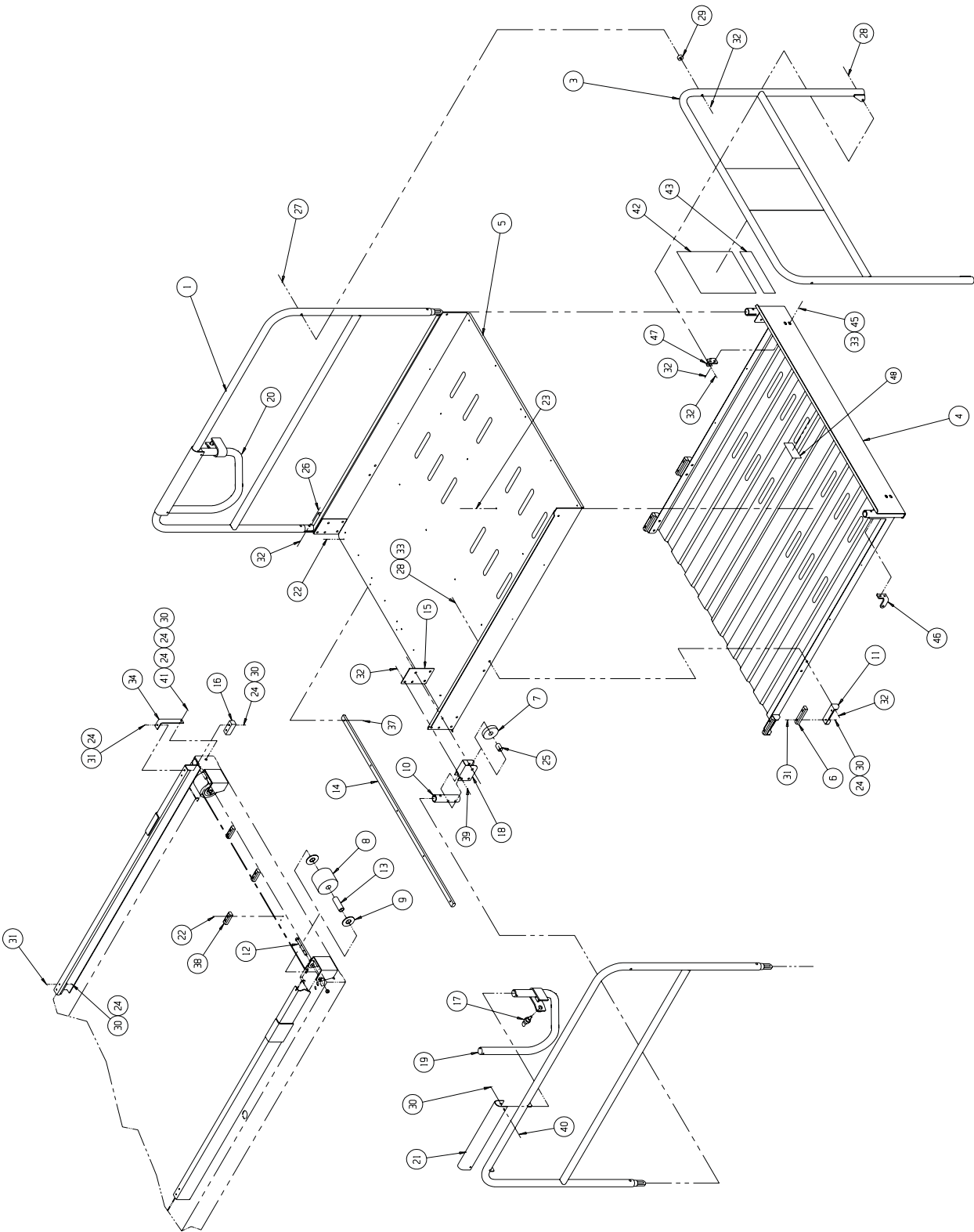


## Platform Assembly (Slide-out Section)

SL26SL ~ 064617-002

ITEM	P ART	DESCRIPTION	QTY.
1	064785-000	SIDE RAIL	2
2	~	~	~
3	064778-000	FRONT RAIL	1
4	064763-000	DECK WELDMENT	1
5	064761-000	FLOOR (ALUMINIUM)	1
6	063727-000	BLOCK	4
7	064233-000	WHEEL (narrow)	4
8	064234-000	WHEEL (wide)	2
9	064235-000	WASHER	4
10	064776-000	TUBE, RAIL SUPPORT	2
11	064425-000	SLIDE BRACKET	4
12	063990-003	AXLE	2
13	064249-000	BUSHING (spanner)	2
14	064256-000	BEARING STRIP	1
15	064795-000	GUSSET PLATE	2
16	064267-000	BUMPER PAD	4
17	003570-001	RETAINING PIN ASSEMBLY	2
18	064774-000	ROLLER BRACKET	2
19	064769-001	R.H HANDLE	1
20	064769-002	L.H HANDLE	1
21	064773-000	HANDLE BRACKET	2
22	026553-008	POP RIVET - 3/16DIA 1/2-5/8 GRIP	12
23	026553-002	POP RIVET - 3/16DIA 1/8-1/4 GRIP	30
24	011240-004	FLAT WASHER 1/4 STD	22
25	064240-001	BUSHING	2
26	011254-018	SCREW - CAP 3/8-16 X 2 1/4	4
27	011254-032	SCREW - CAP 3/8-16 X 4	2
28	011254-010	SCREW - CAP 3/8-16 X 1 1/4	10
29	067685-000	SPACER	2
30	011248-004	LOCKNUT - 1/4-20	22
31	011252-014	SCREW - 1/4-20 UNC HEX HD X 1 3/4	10
32	011248-006	LOCKNUT - 3/8-16	26
33	011240-006	FLAT WASHER 3/8 STD	12
34	064775-000	FRONT ANGLE	2
35	~	~	~
36	~	~	~
37	011240-002	WASHER #8	6
38	064247-000	GUIDE SLIDE	3
39	011254-020	SCREW - CAP 3/8-16 X 2 1/2	6
40	011252-016	SCREW - CAP 1/4-20 X 2	4
41	011252-006	SCREW - CAP 1/4-20 HEX HD X 3/4	2
42	066550-006	DECAL - DANGER	1
43	066551-003	DECAL - DANGER	1
44	~	~	~
45	011254-008	SCREW - 3/8-16 HEX HD X 1	4
46	064688-001	BRACKET - TOEBOARD PIVOT RH	1
47	064688-002	BRACKET - TOEBOARD PIVOT LH	1
48	101251-001	DECAL - DANGER TIP OVER	1

**Platform Assembly** (Slide-out Section)

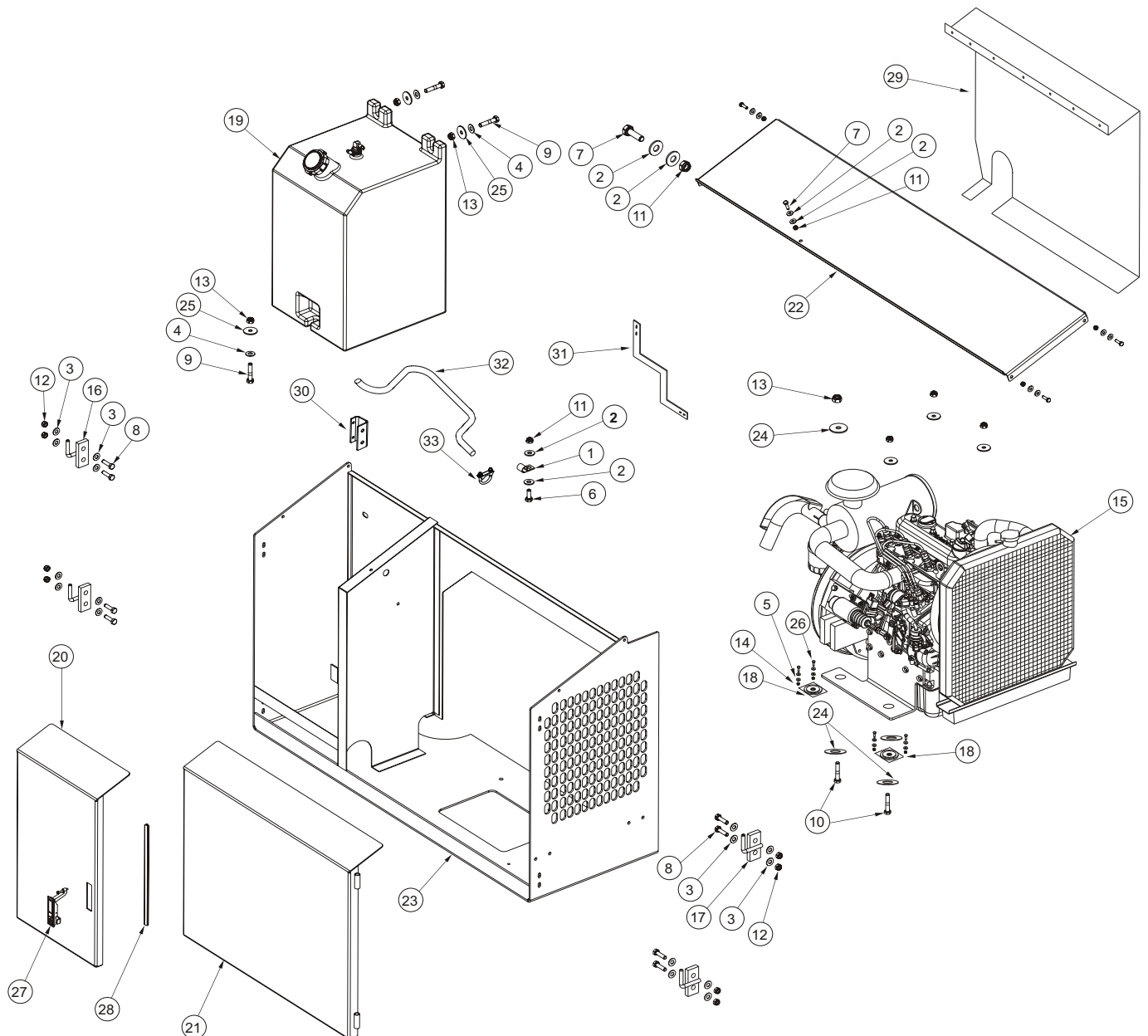


# Power Module Assembly

505504-000

ITEM	PART	DESCRIPTION	QTY.
1	500437-000	20mm P-CLIP	1
2	056069-006	M6, PLAIN WASHER	12
3	056069-008	M8, PLAIN WASHER	16
4	056069-010	M10, PLAIN WASHER	3
5	056069-004	M4, PLAIN WASHER	32
6	058491-016	BOLT, M6 x 16mm	1
7	058491-020	BOLT, M6 x 20mm	5
8	058492-030	BOLT, M8 x 30mm	8
9	056060-050	BOLT, M10 x 50mm	3
10	058509-065	BOLT, M10 x 65mm	4
11	056066-006	NUT, M6 NYLOCK	6
12	056066-008	NUT, M8 NYLOCK	8
13	056064-010	NUT, M10 NYLOCK	7
14	056066-004	NUT, M4 NYLOCK	16
15	505558-000	ENGINE ASSEMBLY	1
16	11470	LEFT HAND HINGE	2
17	11470-1	RIGHT HAND HINGE	2
18	509521-000	ENGINE MOUNT VIBRATION ISOLATION	4
19	13106-2A	FUEL TANK ASSEMBLY	1
20	11679	LEFT HAND DOOR WELD, SMALL	1

ITEM	PART	DESCRIPTION	QTY.
21	11680	RIGHT HAND DOOR WELD, LARGE	1
22	12716-13	TOP PLATE, ENGINE CABINET	1
23	510507-000	ENGINE TRAY MODULE	1
24	509522-000	REBOUND WASHER	8
25	5560179	FLAT WASHER, SPECIAL	3
26	058500-016	BOLT, SOCKET CAP, M4 x 16mm	16
27	8342416	LATCH, ADJUSTABLE TRIGGER	1
28	PCA015	RUBBER CHANNEL SECTION	1
29	510708-000	ENGINE COVER	1
30	508034-000	EXHAUST BRACKET	1
31	509526-000	SILENCER SUPPORT BRACKET	1
32	503991-001	EXHAUST TAILPIPE	1
33	509536-000	EXHAUST CLAMP 58mm	1



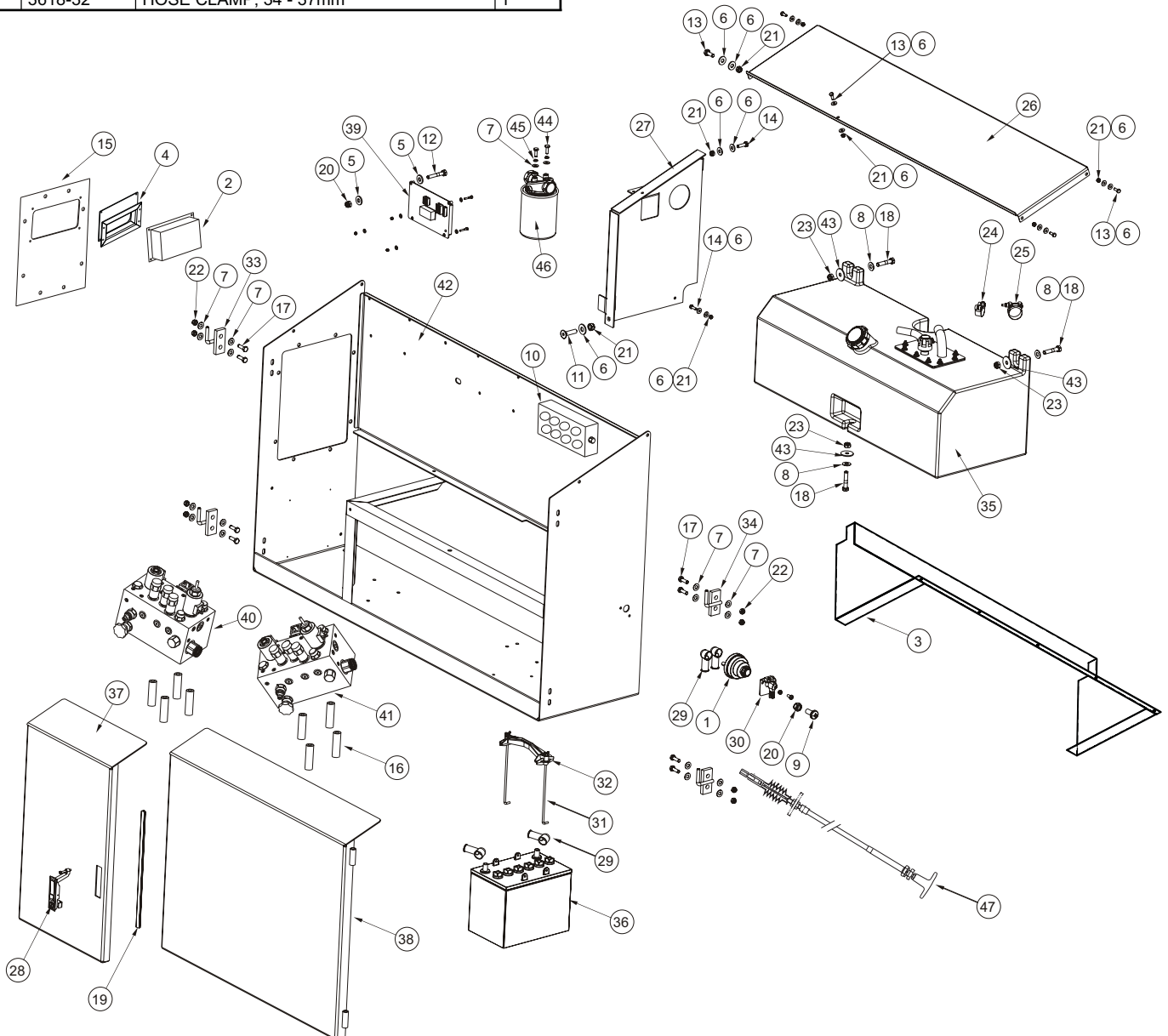


## Control Module Assembly

505505-000

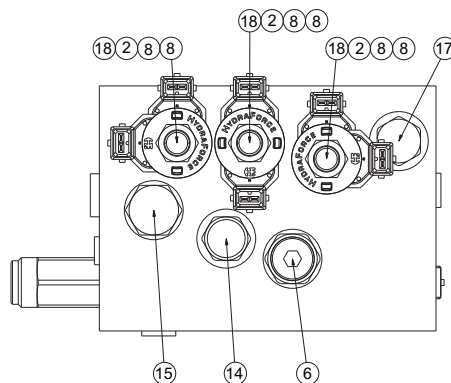
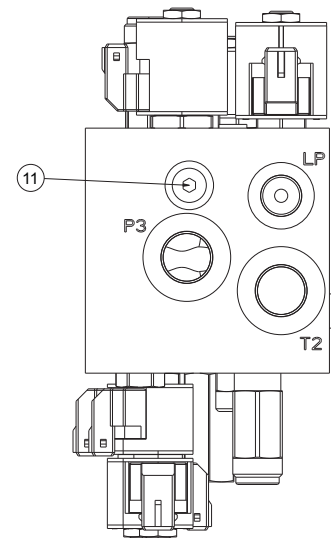
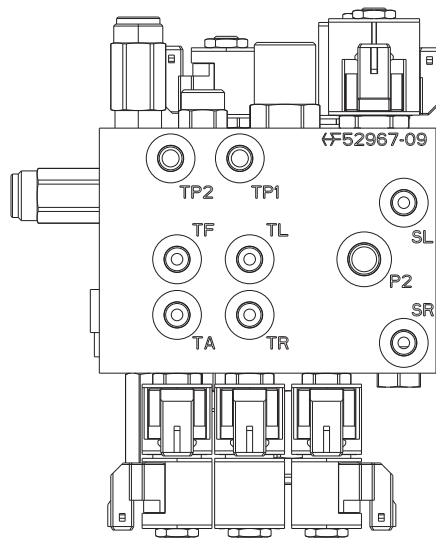
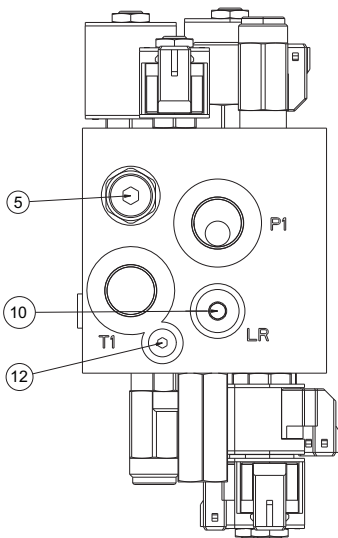
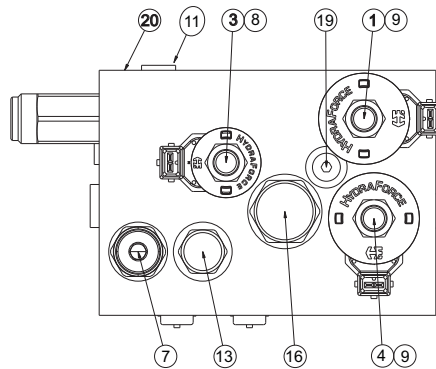
ITEM	PART	DESCRIPTION	QTY.
1	302-0049	SWITCH, BATTERY DISCONNECT	1
2	503949-000	LCB BACK COVER	1
3	510505-000	COVER, HYDRAULIC HOSES	1
4	503935-000	LCB MOUNTING BRACKET	1
5	510588-005	M5, PLAIN WASHER	6
6	510588-006	M6, PLAIN WASHER	8
7	510588-008	M8, PLAIN WASHER	10
8	510588-010	M10, PLAIN WASHER	3
9	510593-012	PAN HEAD SCREW, M5 x 12mm	2
10	13-2367	MANIFOLD TANK LINE DRAIN	1
11	510567-025	CSK SOCKET HEAD SCREW, M6 x 25mm	1
12	058490-025	BOLT, M5 x 25mm	4
13	058491-016	BOLT, M6 x 16mm	5
14	058491-020	BOLT, M6 x 20mm	2
15	510710-000	PLATE, ADAPTER LCB	1
16	510477-000	STAND, MANIFOLD MOUNTING	8
17	058492-025	BOLT, M8 x 25mm	8
18	056060-050	BOLT, M10 x 50mm	3
19	PCA015	RUBBER CHANNEL SECTION	1
20	056066-005	NUT, M5 NYLOCK	6
21	056066-006	NUT, M6 NYLOCK	8
22	056066-008	NUT, M8 NYLOCK	8
23	056064-010	NUT, M10 NYLOCK	3
24	3618-26	HOSE CLAMP, 26 - 28mm	1
25	3618-32	HOSE CLAMP, 34 - 37mm	1

ITEM	PART	DESCRIPTION	QTY.
26	12716-13	TOP PLATE CONTROL CABINET	1
27	12716-14	CABINET SUPPORT	1
28	8342416	LATCH, ADJUSTABLE TRIGGER	1
29	3040269	RUBBER BOOT CABLE END	6
30	300840	LOCK OUT LEVER ASSEMBLY	1
31	502197-000	M8 x 300 HOOK BOLT	2
32	064040-000	ANGLE BATTERY HOLD DOWN	1
33	11470	LEFT HAND HINGE	2
34	11470-1	RIGHT HAND HINGE	2
35	11558	HYDRAULIC OIL TANK ASSEMBLY	1
36	062299-002	BATTERY, 12v	1
37	11679	LEFT HAND DOOR WELD, SMALL	1
38	11680	RIGHT HAND DOOR WELD, LARGE	1
39	504562-000	CIRCUIT BOARD, OVERLOAD	1
40	510332-000	MANIFOLD DRIVE CONTROL	1
41	510331-000	MANIFOLD MOVEMENT CONTROL	1
42	12716	CONTROL CABINET WELD	1
43	5560179	FLAT WASHER, SPECIAL	3
44	058492-020	BOLT, M8 x 20mm	2
45	056021-008	M8, SPRING WASHER	2
46	508078-001	FILTER ASSEMBLY	1
Ref.	508078-000	FILTER	1
Ref.	508078-002	FILTER HEAD	1
47	503789-002	EMERGENCY DOWN CABLE	1



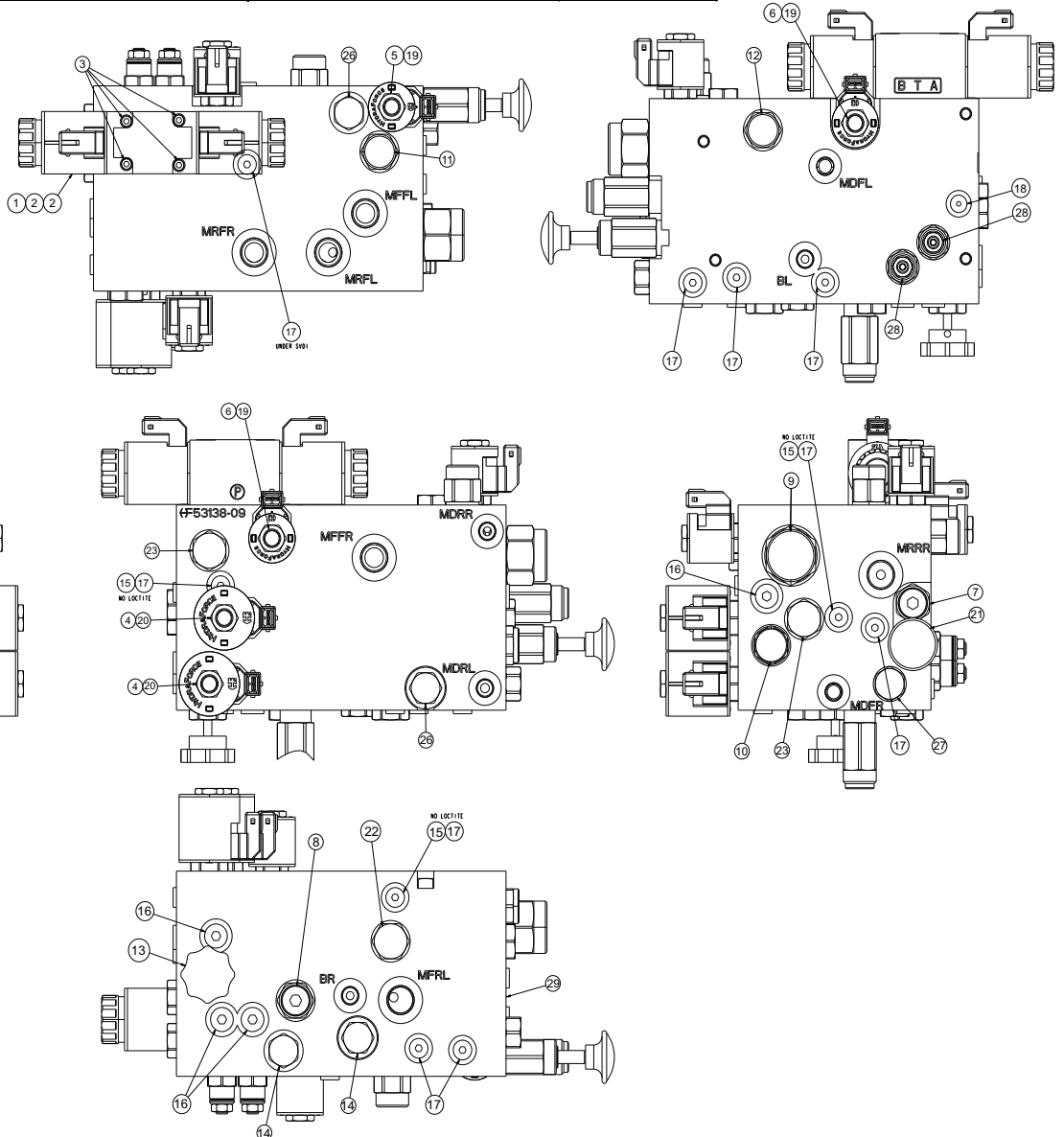
# Hydraulic Valve Block 510331-000

LOC	PORT	QTY	PARTNUMBER
1	SV5	1	CARTRIDGE 510740-000
2	SV 1,2,3	3	CARTRIDGE 510741-000
3	SV4	1	CARTRIDGE 510742-000
4	SPI	1	VALVE 510743-000
5	RV2	1	VALVE 510744-000
6	RVI	1	VALVE 510745-000
7	RV3	1	VALVE 510746-000
8	CLI	7	COIL 510747-000
9	CL2	2	COIL 510748-000
10	PLG3B	1	PLUG 510749-000
11	PLG6	2	PLUG 510750-000
12	PLG4	1	PLUG 510751-000
13	FR2	1	VALVE 510752-000
14	FRI	1	VALVE 510753-000
15	EPI	1	VALVE 510754-000
16	EC I	1	VALVE 510755-000
17	DC I	1	CARTRIDGE 510756-000
18	CV 1,2,3	3	VALVE 510757-000
19	CV4	1	VALVE 510758-000
20	BLK	1	BLOCK 510759-000



# Hydraulic Valve Block 510332-000

LOC	PORT	QTY	PARTNUMBER
1	SVDI	1	CARTRIDGE 510760-000
2	CL3	2	COIL 510761-000
3	CSI	4	HEAD CAP SCREW 510762-000
4	SV4, SV5	2	CARTRIDGE 510763-000
5	SVI3	1	CARTRIDGE 510764-000
6	SV8, SVII	2	CARTRIDGE 510765-000
7	RV4	1	VALVE 510766-000
8	PRI	1	VALVE 510767-000
9	PD2	1	VALVE 510768-000
10	PDI	1	VALVE 510769-000
11	PD3	1	VALVE 510770-000
12	PD4	1	VALVE 510771-000
13	NVI	1	VALVE 510772-000
14	LS2, LS4	2	VALVE 510773-000
15	ORF1, ORF2, ORF3	3	ORIFICE PLUG 510774-000
16	PLG6	5	PLUG 510750-000
17	PLG4	12	PLUG 510751-000
18	PLG3	1	PLUG 510775-000
19	CLI	3	COIL 510776-000
20	CL2	2	COIL 510777-000
21	HPI	1	VALVE 510778-000
22	FD2	1	VALVE 510779-000
23	FDI, FD3	2	VALVE 510780-000
24	FC2	1	VALVE 510781-000
25	FC I	1	VALVE 510782-000
26	CV5, CV6	2	CARTRIDGE 510783-000
27	PC3	1	VALVE 510784-000
28	CBVI, CBV2	2	VALVE 510785-000
29	BLK	1	BLOCK 510786-000



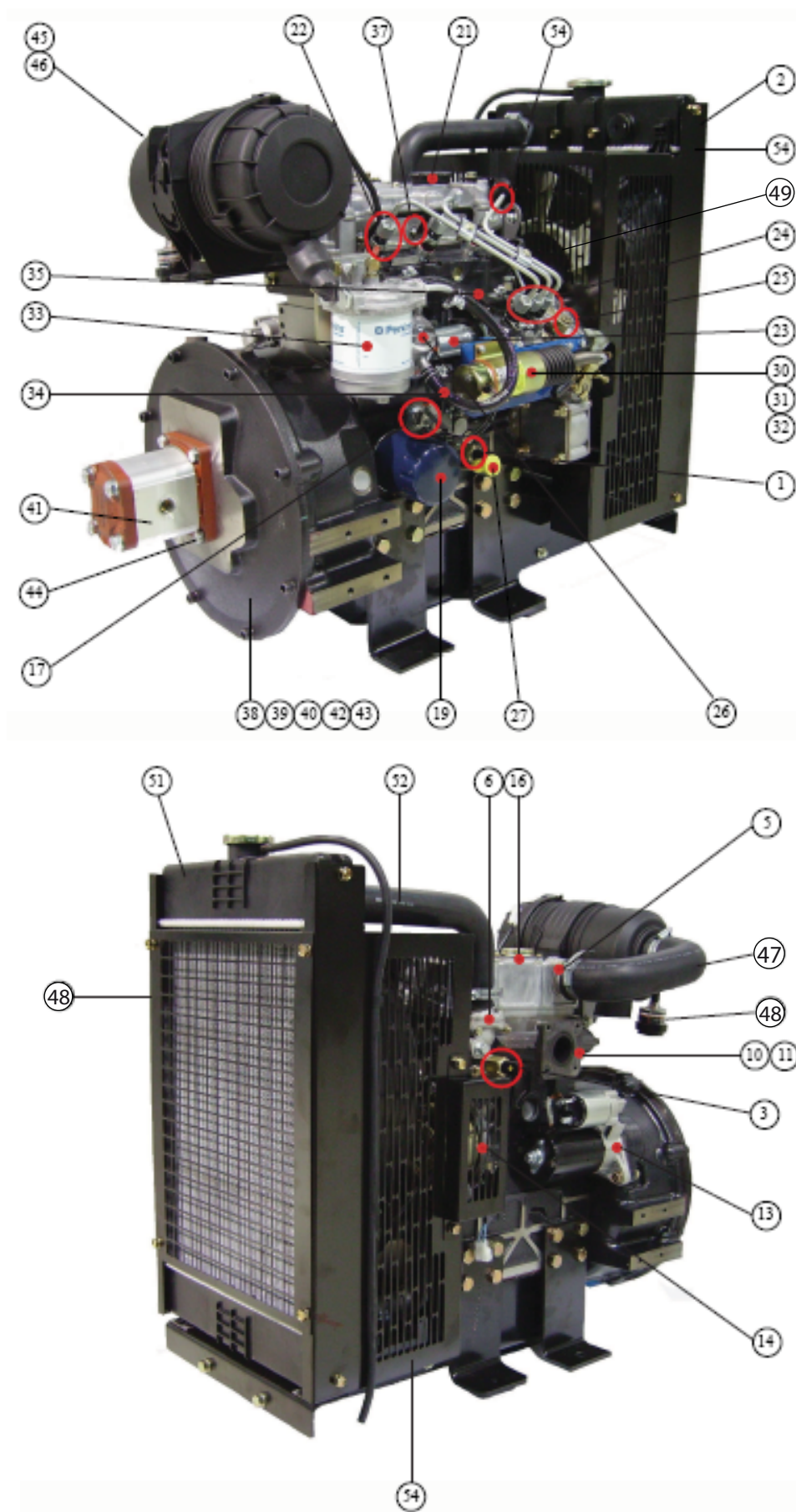
# Engine Assembly

505558-000

ITEM	PART	DESCRIPTION	QTY.
1	505558-007	PRESSURE SWITCH	1
2	505558-008	FAN	1
3	505558-009	COOLANT TEMP SWITCH	1
4	505558-010	CRANKSHAFT PULLEY (NOT SHOWN)	1
5	505558-011	INDUCTION MANIFOLD	1
6	505558-012	COOLANT OUTLET	1
7	509194-000	EXHAUST MUFFLER (NOT SHOWN)	1
8	505558-013	EXHAUST ELBOW (90°)	1
9	Contact Product Support	EXHAUST MANIFOLD GASKET (SQUARE) (NOT SHOWN)	2
10	Contact Product Support	EXHAUST MANIFOLD (3 TO 1)	1
11	Contact Product Support	EXHAUST MANIFOLD GASKET (3 TO 1)	1
12	Contact Product Support	EXHAUST, EXTENDED TAIL PIPE (NOT SHOWN)	1
13	505558-014	STARTER MOTOR	1
14	509564-000	ALTERNATOR	1
15	505558-005	DRIVE BELT	1
16	505558-016	ENGINE BREATHER	1
17	505558-017	COOLANT DRAIN PLUG	1
18	Contact Product Support	THERMOSTAT & GASKET (NOT SHOWN)	1
19	505558-018	LUBRICATING OIL FILTER	1
20	505558-019	LUBRICATING OIL DRAIN PLUG	1
21	505558-020	LUBRICATING OIL FILLER CAP	1
22	505558-021	ATOMISER	3
23	505558-022	FUEL SHUT OFF SOLENOID	1
24	505558-023	FUEL INJECTION PUMP	1
25	505558-024	SPEED CONTROL LEVER	1
26	505558-025	FUEL PUMP	1
27	505558-026	LUBRICATING OIL DIPSTICK	1
28	505558-006	VOLTAGE REGULATOR (NOT SHOWN)	1
29	503953-000	PUMP IN LINE (PRIMER) (NOT SHOWN)	1
30	503998-000	THROTTLE BRACKET	1
31	3040174	THROTTLE SOLENOID	1
32	2650001	INLINE SWIVEL	1
33	508057-000	FUEL FILTER CARTRIDGE	1
34	Contact Product Support	FLEXIBLE FUEL PIPE (PUMP TO FILTER)	1
35	Contact Product Support	FLEXIBLE FUEL PIPE (FILTER TO INJECTION PUMP)	1
36	Contact Product Support	FLEXIBLE FUEL PIPE (LEAK OFF) (NOT SHOWN)	1
37	Contact Product Support	GLOW PLUGS	3
38	503952-001	PLATE ADAPTER	1
39	503952-002	ADAPTER, DRIVE FLYWHEEL	1
40	503952-003	COUPLING, SPLINED DRIVE	1
41	503953-000	HYDRAULIC PUMP	1
42	Contact Product Support	ADAPTOR PLATE SCREW	8
43	Contact Product Support	FLYWHEEL ADAPTOR PLATE SCREW	6
44	Contact Product Support	PUMP MOUNTING SCREW	4
45	Contact Product Support	AIR FILTER ELEMENT	1
46	Contact Product Support	AIR FILTER HOUSING	1
47	508059-000	AIR FILTER HOSE	1
48	Contact Product Support	RESTRICTION INDICATOR	1
49	508060-000	FAN BELT (NOT SHOWN)	1
50	510935-000	RADIATOR	1
51	Contact Product Support	RADIATOR TOP HOSE	1
52	Contact Product Support	RADIATOR BOTTOM HOSE (NOT SHOWN)	1
53	510203-000	RADIATOR COVER	1
54	510204-000	RADIATOR COVER ANTI VIBE MOUNT	1
55	508025-000	DIESEL HOSE FEED (NOT SHOWN)	2M
56	508026-000	DIESEL HOSE RETURN (NOT SHOWN)	2M

Ref.	509457-000	ALTERNATOR KIT 40 AMP	
A	509546-000	ALTERNATOR 40 AMP	1
B	509547-000	MOUNTING BLOCK ALTERNATOR	1
C	509548-000	BRACKET ALTERNATOR ADJUST	1
D	509549-000	SPACER	1

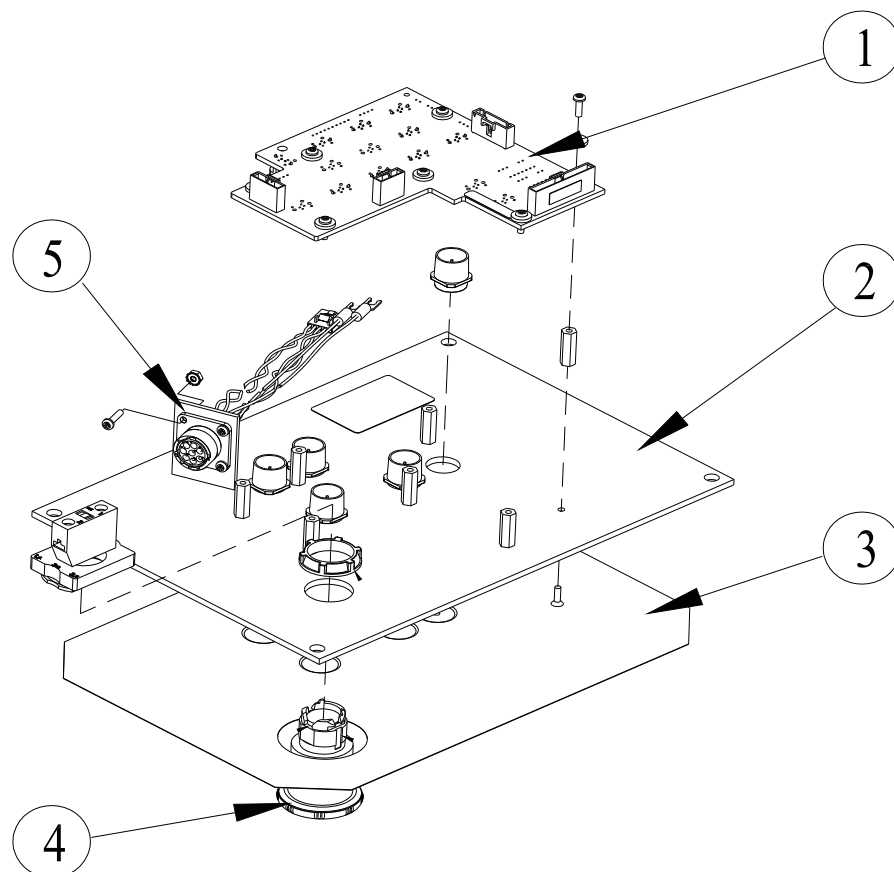
# Engine Assembly



## Lower Control Panel Assembly

502607-000

ITEM	PART	DESCRIPTION	QTY.
1	502457-000	CIRCUIT BOARD	1
2	509575-000	MOUNTING PLATE	1
3	502611-000	DECAL	1
4	501867-000	EMERGENCY STOP	1
5	502495-001	HARNESS SOCKET (ITT)	1

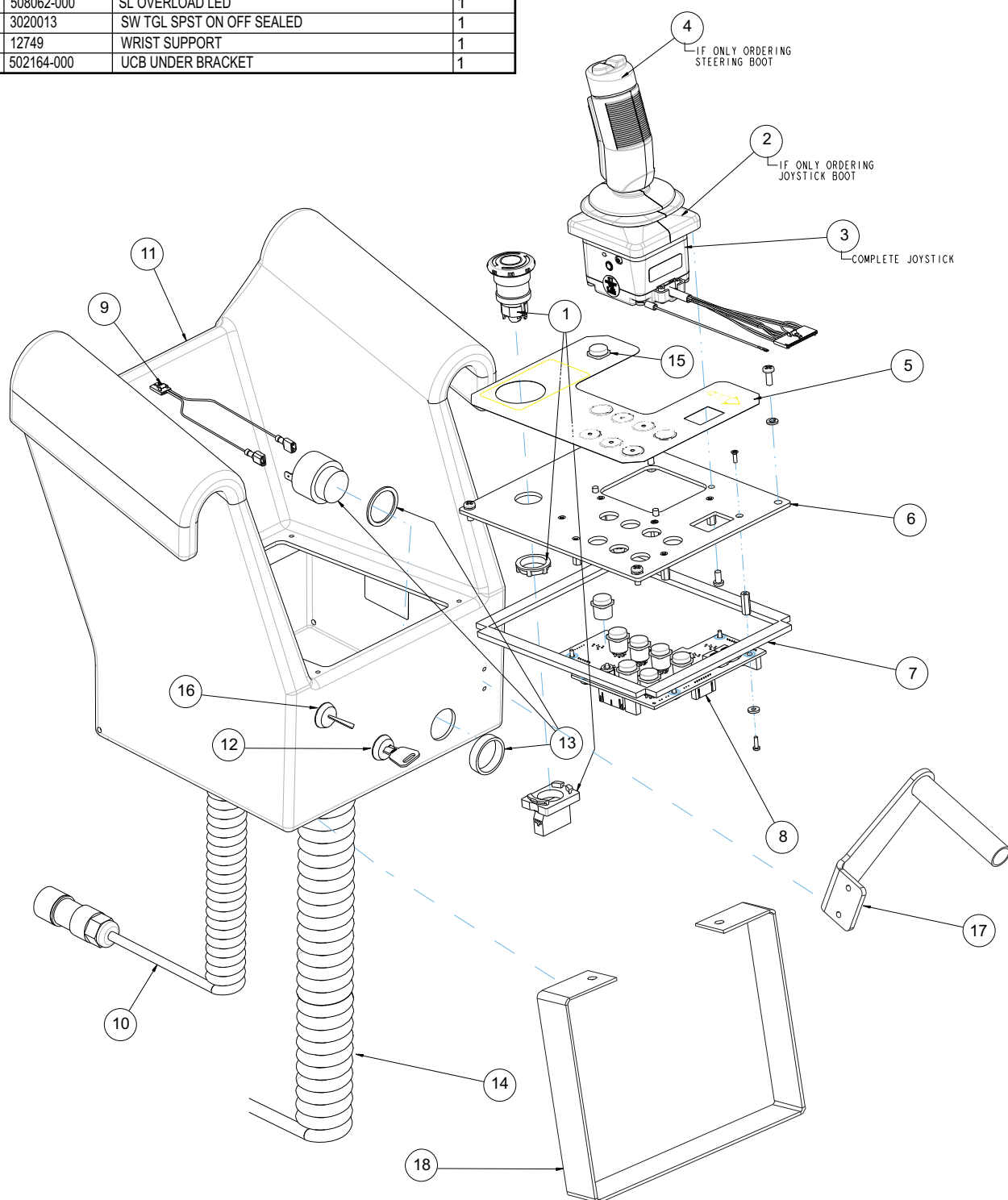




# Upper Control Box Assembly

505505-001

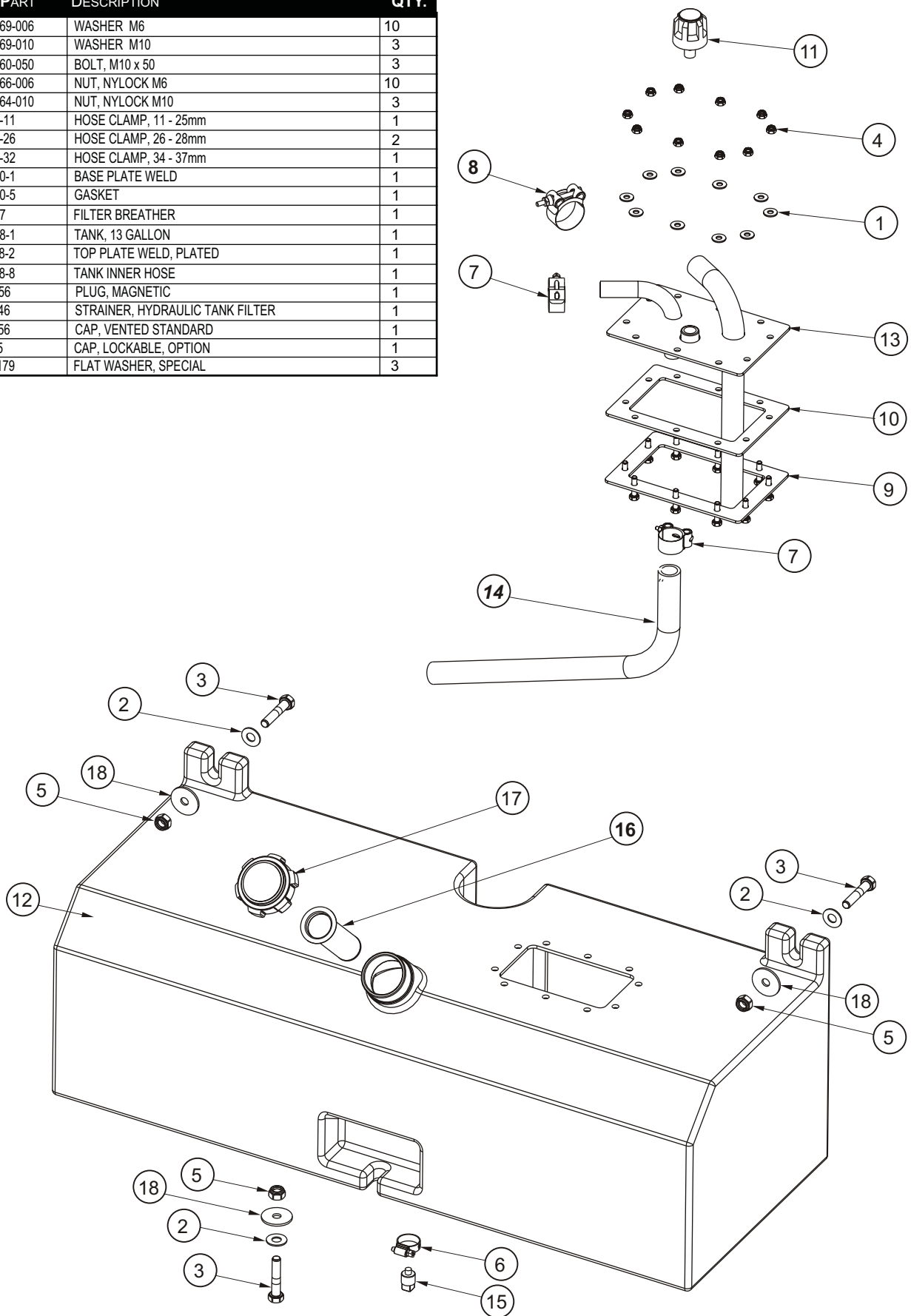
ITEM	PART	DESCRIPTION	QTY.
1	501867-000	EMERGENCY STOP BUTTON	1
2	501882-002	RUBBER BOOT, JOYSTICK	1
3	501882-000	JOYSTICK	1
4	501882-001	RUBBER BOOT, STEERING	1
5	502612-000	DECAL	1
6	501592-000	MOUNTING PLATE	1
7	502591-000	SEAL	1
8	502453-010	CIRCUIT BOARD	1
9	502562-002	CABLE ASSY. 2 CON. (ITT)	1
10	509590-000	SPIRAL CABLE FOR SL UPPER CONTROL BOX	1
11	502496-000	UCB, BOX ONLY	1
12	508081-000	3 POS. KEY SWITCH	1
13	502588-000	MOTION ALARM	1
14	510493	CABLE, 6X1.0 CORE RUBBER CURLYFLEX	1
15	508062-000	SL OVERLOAD LED	1
16	3020013	SW TGL SPST ON OFF SEALED	1
17	12749	WRIST SUPPORT	1
18	502164-000	UCB UNDER BRACKET	1



# Hydraulic Oil Tank Assembly

11558

ITEM	PART	DESCRIPTION	QTY.
1	056069-006	WASHER M6	10
2	056069-010	WASHER M10	3
3	056060-050	BOLT, M10 x 50	3
4	056066-006	NUT, NYLOCK M6	10
5	056064-010	NUT, NYLOCK M10	3
6	3618-11	HOSE CLAMP, 11 - 25mm	1
7	3618-26	HOSE CLAMP, 26 - 28mm	2
8	3618-32	HOSE CLAMP, 34 - 37mm	1
9	11430-1	BASE PLATE WELD	1
10	11430-5	GASKET	1
11	11487	FILTER BREATHER	1
12	11558-1	TANK, 13 GALLON	1
13	11558-2	TOP PLATE WELD, PLATED	1
14	11558-8	TANK INNER HOSE	1
15	452756	PLUG, MAGNETIC	1
16	605246	STRAINER, HYDRAULIC TANK FILTER	1
17	605256	CAP, VENTED STANDARD	1
	11955	CAP, LOCKABLE, OPTION	1
18	5560179	FLAT WASHER, SPECIAL	3

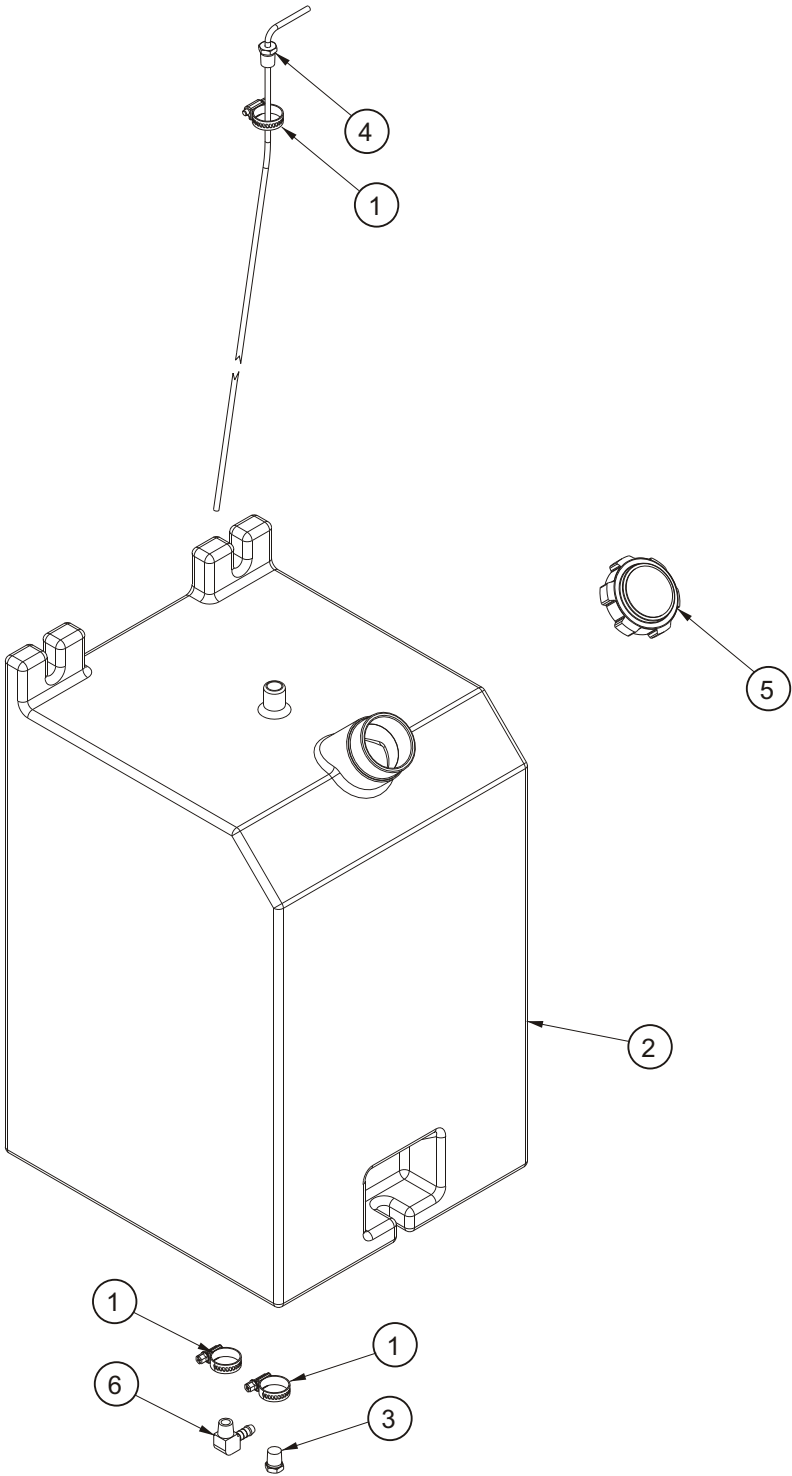




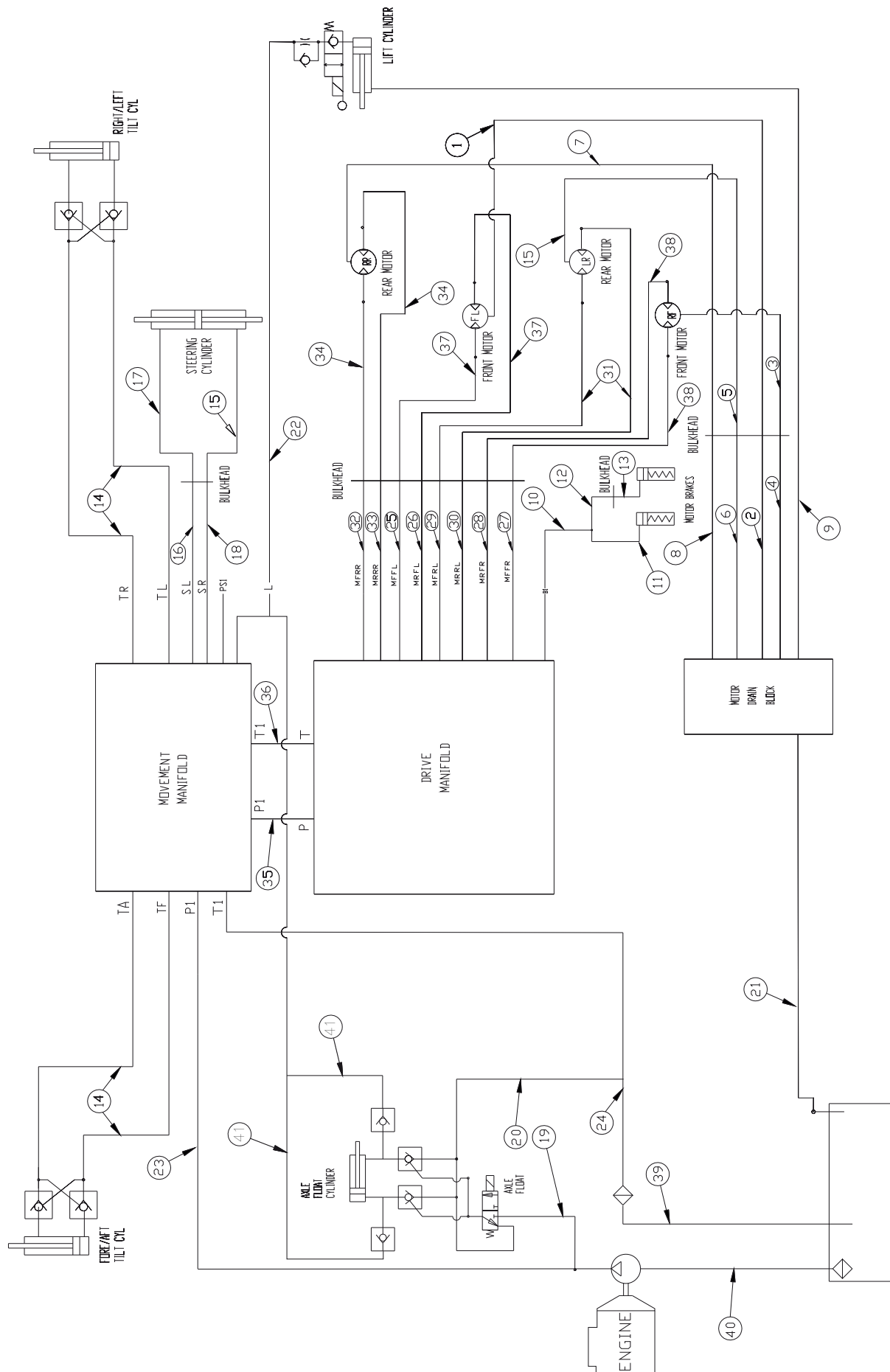
# Fuel Tank Assembly, Diesel Fuel

13106-2a

ITEM	PART	DESCRIPTION	QTY.
1	3618-11	HOSE CLAMP, 11 - 12mm	3
2	13106-1	FUEL TANK	1
3	13108-04	PLUG, 1/4" NPTM	1
4	13109	FUEL RETURN WELD	1
5	605256	CAP, VENTED	1
6	967309	MALE ELBOW, 5/16" X 1/4", BSPT	1



# Hydraulic Hose Assembly



## Hydraulic Hose Assembly

ITEM	PART	DESCRIPTION	QTY
1	510380-000	LHF MOTOR DRAIN TO BH	1
2	510381-000	LHF BH TO RETURN MANIFOLD	1
3	510382-000	RHF MOTOR DRAIN TO BH	1
4	510383-000	RHF BH TO RETURN MANIFOLD	1
5	510384-000	LHR MOTOR DRAIN TO BH	1
6	510385-000	LHR BH TO RETURN MANIFOLD	1
7	510386-000	RHR MOTOR DRAIN TO BH	1
8	510387-000	RHR BH TO RETURN MANIFOLD	1
9	510388-000	LIFT CYL TO RETURN MANIFOLD	1
10	510389-000	BRAKE PORT TO LHR BH TEE	1
11	510390-000	LHR BH TO LH BRAKE	1
12	510391-000	LHR BHTEE TO RHR BH	1
13	510392-000	RHR BH TO RH BRAKE	1
14	510393-000	MOVEMENT MANIFOLD TO TILT CYLINDER	4
15	510394-000	STEER CYL TO LHF BH	1
16	510395-000	LHF BH TO MOVEMENT MANIFOLD (SL)	1
17	510396-000	STEER CYL TO RHF BH	1
18	510397-000	RHF BH TO MOVEMENT MANIFOLD (SR)	1
19	510398-000	RUN TEE TO AXLE FLOAT	1
20	510399-000	AXLE FLOAT TO TANK	1
21	510400-000	RETURN MANIFOLD TO TANK	1
22	510401-000	MOVEMENT MANIFOLD TO LIFT CYL	1
23	510402-000	PUMP TO MOVEMENT MANIFOLD	1
24	510403-000	DRIVE MANIFOLD TO RETURN FILTER	1
25	510404-000	DRIVE MANIFOLD MFFL TO BH	1
26	510405-000	DRIVE MANIFOLD MRFL TO BH	1
27	510406-000	DRIVE MANIFOLD MFFR TO BH	1
28	510407-000	DRIVE MANIFOLD MRFR TO BH	1
29	510408-000	DRIVE MANIFOLD MFRL TO BH	1
30	510409-000	DRIVE MANIFOLD MRRL TO BH	1
31	510410-000	BH TO RL MOTOR	2
32	510411-000	DRIVE MANIFOLD MFRR TO BH	1
33	510412-000	DRIVE MANIFOLD MRRR TO BH	1
34	510413-000	BH TO RR MOTOR	2
35	510414-000	MOVEMENT TO DRIVE MANIFOLD PRESS	1
36	510415-000	MOVEMENT TO DRIVE MANIFOLD RETURN	1
37	510416-000	BH TO RHF MOTOR	2
38	510417-000	BH TO LHF MOTOR	2
39	510418-000	RETURN FILTER TO TANK	1
40	510419-000	TANK TO PUMP SUCTION	1
41	510826-000	LIFT TEE TO AXLE FLOAT CYLINDER	2

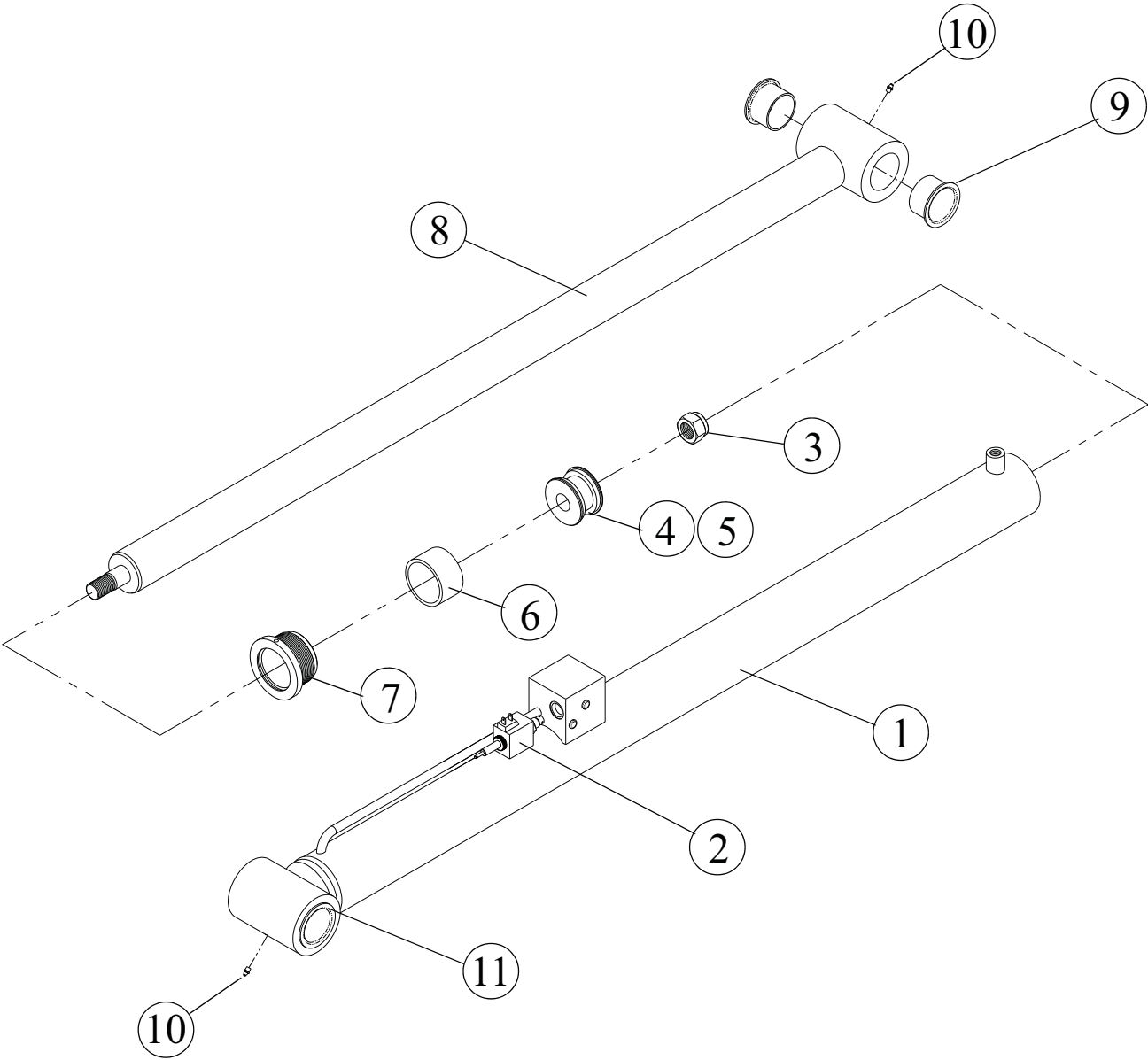
REF.	PART	DESCRIPTION	QTY
	058298-000	1/8 BONDED SEAL, SELF CENTERING	2
	057124-000	1/4 BONDED SEAL, SELF CENTERING	35
	057125-000	3/8 BONDED SEAL, SELF CENTERING	17
	057376-000	1/2 BONDED SEAL, SELF CENTERING	16
	057352-000	3/4 BONDED SEAL, SELF CENTERING	8
REF.		ADAPTERS AND FITTINGS,	
	057358-000	ADAPTER MALE - MALE, 1/4 BSP	17
	057122-000	ADAPTER MALE - MALE, 3/8 BSP	1
	057377-000	ADAPTER MALE - MALE, 1/2 BSP	14
	058350-000	ADAPTER MALE - MALE, 3/4 BSP	3
	509543-000	ADAPTER MALE - MALE, 1/8 BSP-1/4 BSP	2
	057121-000	ADAPTER MALE - MALE, 1/4 BSP-3/8 BSP	7
	057123-000	ADAPTER MALE - MALE, 3/8 BSP-1/2 BSP	1
	503169-000	ADAPTER MALE - MALE, 1/2 BSP-3/4 BSP	4
	510692-000	ADAPTER MALE - MALE, 3/4 BSP-1 BSP	1
	058707-000	PLUG, 3/8 BSP	3
	057352-000	PLUG, 1/2 BSP	2
	510685-000	PLUG, 1/4 BSP	4
	508307-000	BANJO BOLT, 1/4 BSP	5
	510686-000	TEST POINT - MINIMESS, 1/4 BSP	2
	510687-000	BULKHEAD ADAPTER M-M, 1/4 BSP	12
	510688-000	BULKHEAD ADAPTER M-M, 1/2 BSP	8
	510673-000	45° POSITIONAL ELBOW M-M, 1/2 BSP	4
	510689-000	90° BLOCK ELBOW M-F, 1 BSP	1
	510336-000	2.0mm 50 BAR SCREW IN FREE FLOW - FLOW RESTRICTOR, 3/8 BSP	1
	510690-000	RUN TEE 1/4, 1/4 BSP FEMALE, BSP MALE	1
	510691-000	RUN TEE 1/2, 1/2 BSP FEMALE, BSP MALE	1
	510823-000	RUN TEE 3/8 MALE, 3/8 BSP FEMALE, 1/4 BSP MALE BRANCH	1
	510824-000	RUN TEE 3/4 MALE, 3/4 BSP FEMALE, 1/4 BSP MALE BRANCH	1

Complete Hose Kit : 510379-000

Hydraulic Cylinder Assembly (Main Lift)

063904-101

ITEM	PART	DESCRIPTION	QTY.
1	Contact Product Support	CYLINDER BODY	1
2	Contact Product Support	SOLENOID VALVE (EM DOWN) 12V	1
3	Contact Product Support	LOCK NUT	1
4	Contact Product Support	PISTON HEAD	1
5	063904-010	SEAL KIT	1
6	Contact Product Support	SPACING SLEEVE	1
7	Contact Product Support	CAP, BODY END	1
8	Contact Product Support	CYLINDER ROD	1
9	062649-010	FLANGED BUSHING	2
10	058819-000	M6 GREASE NIPPLE	2
11	Contact Product Support	CYLINDER BODY	1
12	062649-020	BUSHING	2

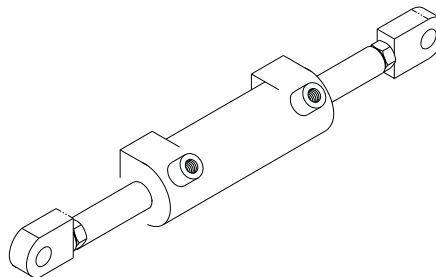


## Hydraulic Cylinders: Steer, Axle Float, Tilt

### Steer Cylinder

063905-101

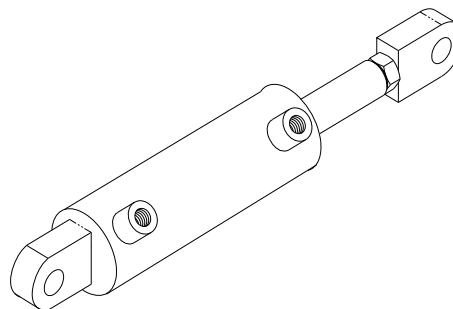
ITEM	PART	DESCRIPTION	QTY.
1	063905-010	SEAL KIT	1



### Tilt Cylinder

064345-100

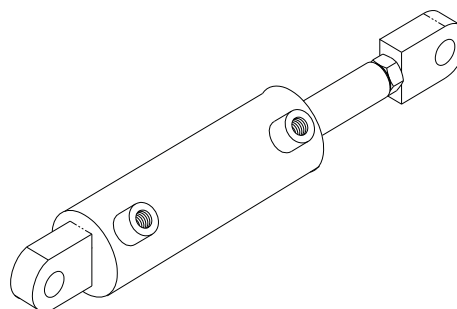
ITEM	PART	DESCRIPTION	QTY.
1	064345-010	SEAL KIT	1



### Axle Float Cylinder

064346-100

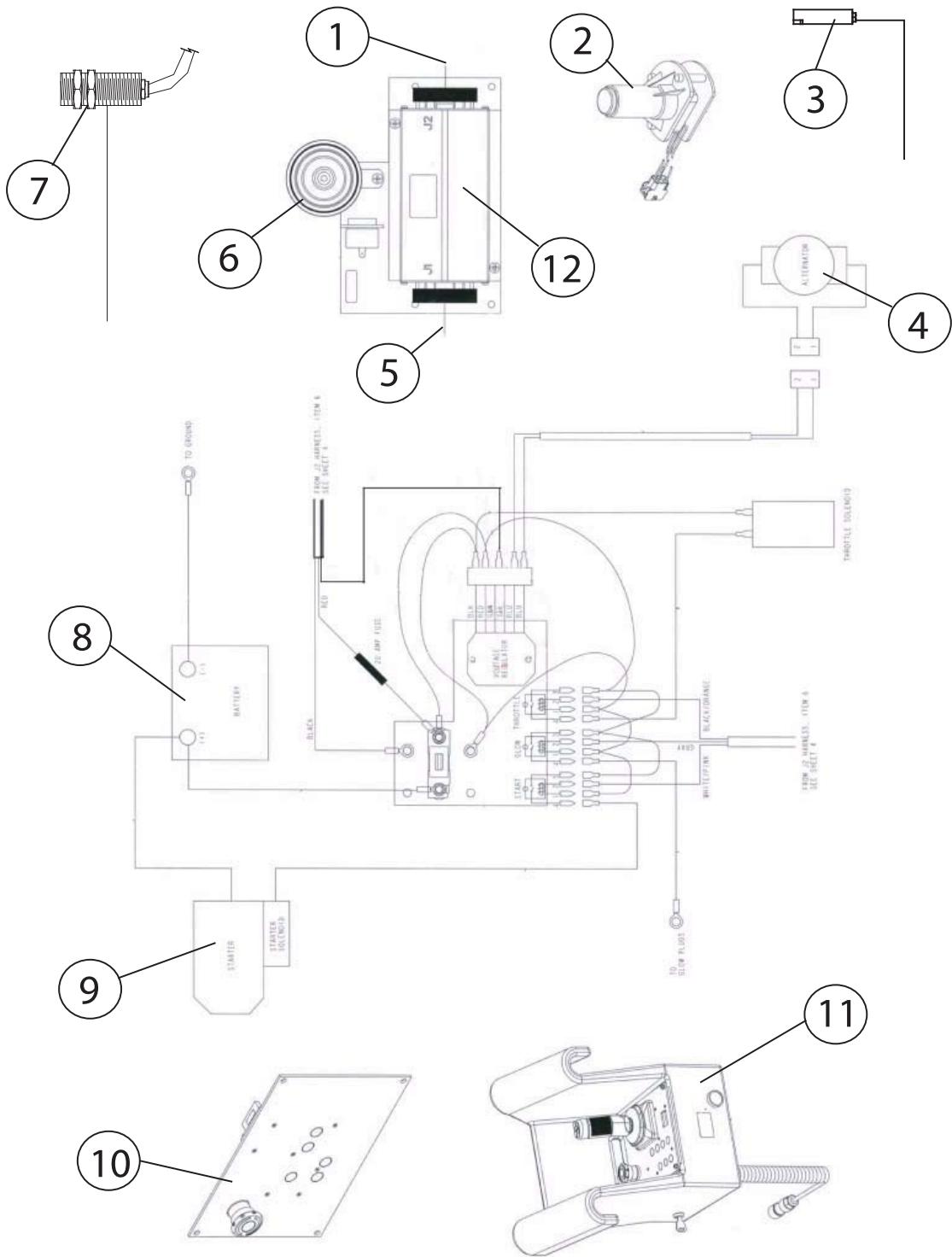
ITEM	PART	DESCRIPTION	QTY.
1	064346-010	SEAL KIT	1



Electrical Assembly  
505508-000

ITEM	PART	DESCRIPTION	QTY.
1	505559-005	ELECTRICAL HARNESS, J2	1
2	505559-002	LEVEL SENSOR	1
3	064296-002	LIMIT SWITCH	1
4	509546-000	ALTERNATOR	1
5	505559-006	ELECTRICAL HARNESS, J1	1
6	501868-001	HORN	1

ITEM	PART	DESCRIPTION	QTY.
7	067193-001	PROXIMITY SWITCH	1
8	062299-002	BATTERY	1
9	505558-014	STARTER	1
10	502607-000	LOWER CONTROL PANEL	1
11	505505-001	UPPER CONTROL BOX (COMPLETE)	1
12	501559-001	ECU	1





Decal Assembly

Fig1

\*SL26, Inc. extension  
DeckDecal  
Arrangement.

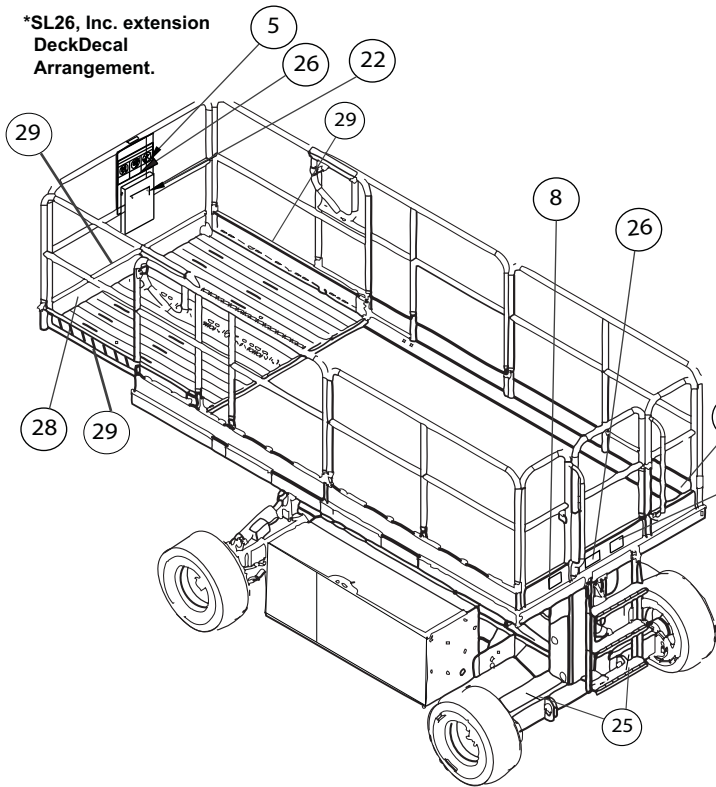


Fig2

\*Illustration shows SL30  
Machine, reference for  
SL26 Decal location.

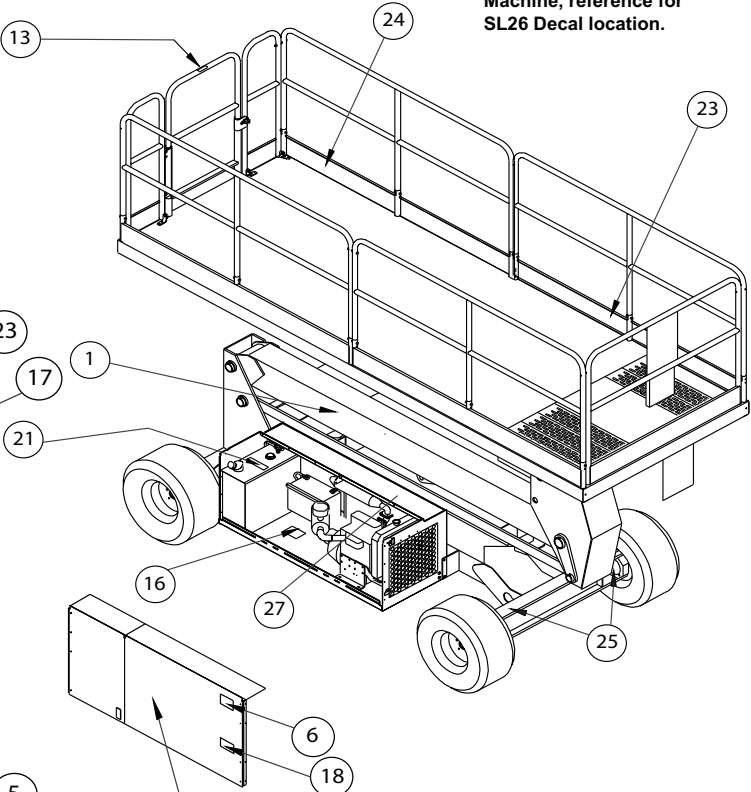
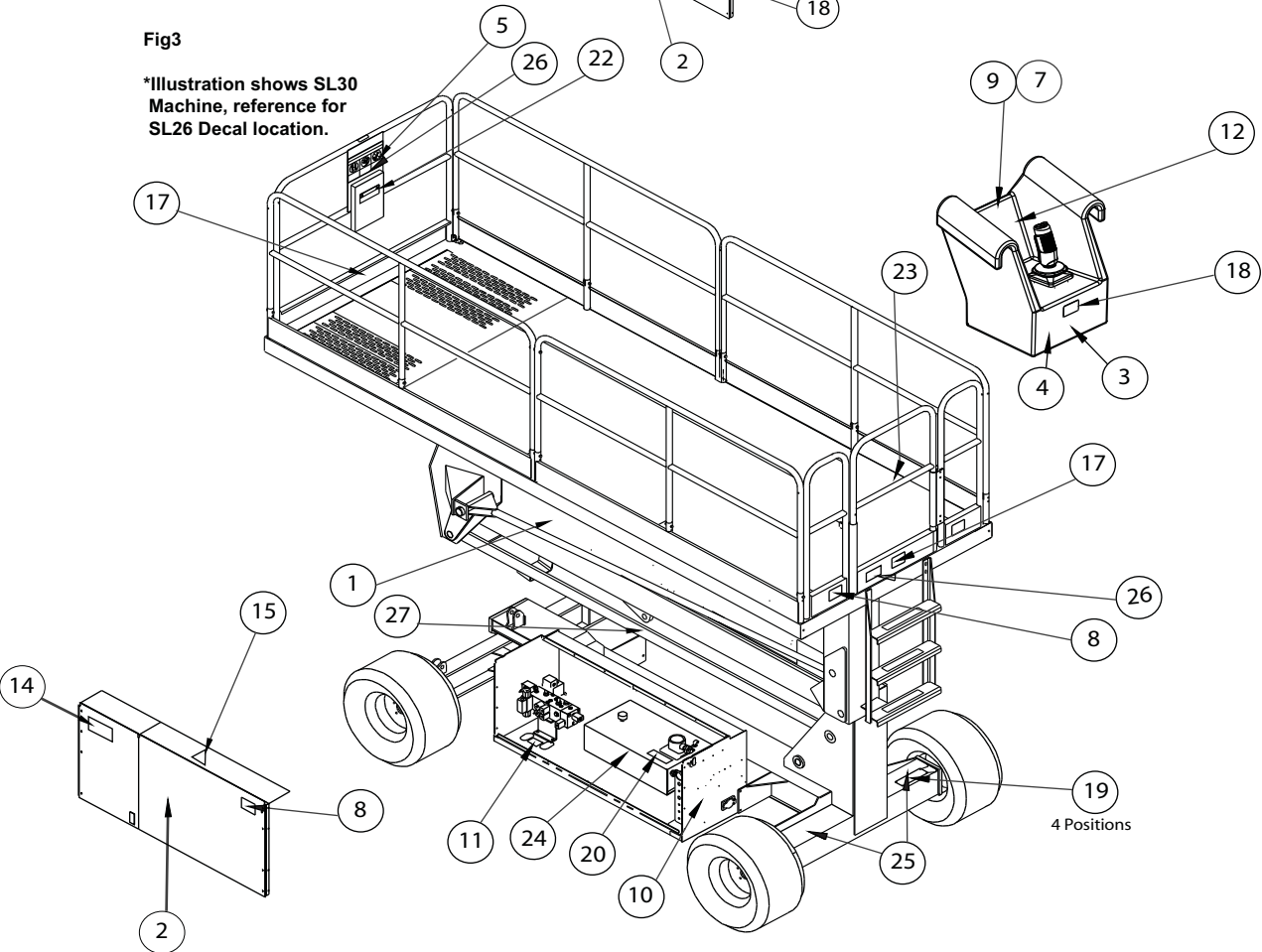


Fig3

\*Illustration shows SL30  
Machine, reference for  
SL26 Decal location.





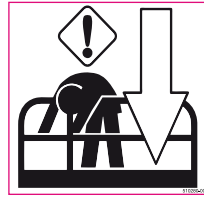
## Decal Kit, (EN)

SL30SL

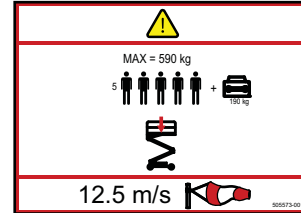
511192-000

## SPEED LEVEL

1 511104-000 qty 2



10 510280-000 qty 1



17 505573-001 qty 2



3 509523-000 qty 1



11 066555-000 qty 1



18 067822-001 qty 2



4 510460-000 qty 1



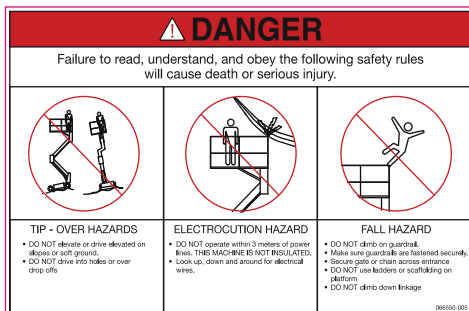
12 064374-000 qty 1



19 058531-000 qty 4



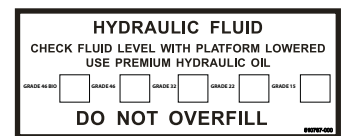
29 058881-000 4 Meters



5 066550-005 qty 1



13 066563-000 qty 1



20 510787-000 qty 1



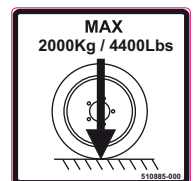
6 508494-000 qty 1



14 101210-000 qty 1



21 027898-001 qty 1



25 510885-000 qty 4



7 066551-003 qty 1



22 010076-901 qty 1



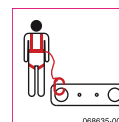
26 508875-000 qty 2



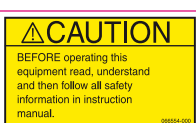
8 066551-002 qty 2



15 066556-900 qty 1



23 068635-001 qty 4



9 066554-000 qty 1



16 057430-002 qty 1



24 302950 qty 1

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27 511066-000 qty 2

## Decal Kit, (EN)

SL26SL

512308-000

## SPEED LEVEL

1 511104-000 qty 2



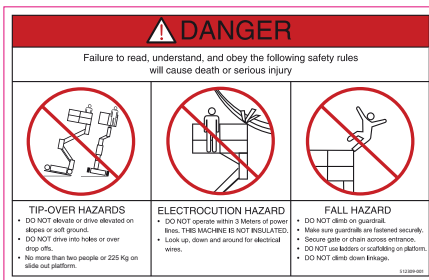
2 511087-000(SL26),qty 2



3 509523-000 qty 1



4 510460-000 qty 1



5 512309-001 qty 1



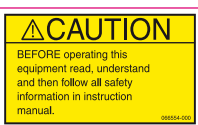
6 508494-000 qty 1



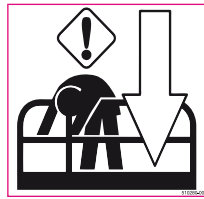
7 066551-003 qty 1



8 066551-002 qty 2



9 066554-000 qty 1



10 510280-000 qty 1



11 066555-000 qty 1



12 064374-000 qty 1



13 066563-000 qty 1



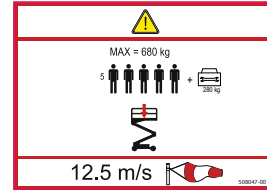
14 101210-000 qty 1



15 066556-900 qty 1



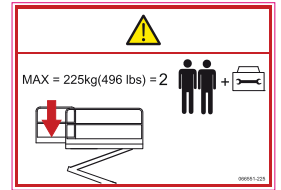
16 057430-002 qty 1



17 508047-001 qty 1



18 067822-001 qty 2



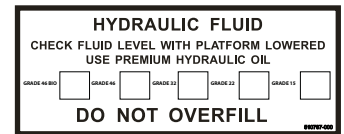
28 066551-225 qty 1



29 058881-000 4 Meters



19 058531-000 qty 4



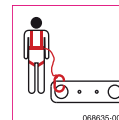
20 510787-000 qty 1



21 027898-001 qty 1



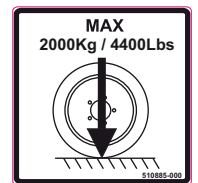
22 010076-901 qty 1



23 068635-001 qty 4



24 302950 qty 1



25 510885-000 qty 4



26 508875-000 qty 2

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27 511066-000 qty 2

**Decal Kit, (EN)**

SL30SL

510876-000

ITEM	PART	DESCRIPTION	QTY.
1	511104-000	DECAL, SPEED LEVEL	2
2	511088-000	DECAL, Snorkel SL30	2
3	509523-000	DECAL, 3 POSITION KEY (NON ANSI)	1
4	510460-000	DECAL, HI-LO SPEED SL UCB	1
5	066550-005	WARNING	1
6	508494-000	LWA DECAL 107dB	1
7	066551-003	TIPPING HAZARD	1
8	066551-002	TIPPING HAZARD	2
9	066554-000	CAUTION, READ OPERATION MANUAL	1
10	510280-000	EMERGENCY LOWER	1
11	066555-000	DO NOT ADJUST	1
12	064374-000	TO LEVEL	1
13	066563-000	DISTANCE TO GROUND	1
14	101210-000	RISK OF HYD GAS AND BATTERY LEAKAGE	1
15	066556-900	RISK FROM ABOVE	1
16	057430-002	RISK OF EXPLOSION	1
17	505573-001	SAFE WORKING LOAD	1
18	067822-001	ATTENTION GLOW PLUGS	2
19	058531-000	LIFT/TIE DOWN POINT	4
20	510787-000	HYDRAULIC FLUID	1
21	027898-001	DIESEL FUEL	1
22	010076-901	DECAL, ATTENTION DOC'S ENCLOSED	1
23	068635-001	HARNES ANCHOR POINT	4
24	302950	DECAL, HYD OIL LEVEL MIN/MAX	1
25	508875-000	DECAL, SIDE FORCE 400N	2
26	510885-000	DECAL, WHEEL LOADING	4
27	511066-000	DECAL, WEB ADDRESS	2
28	-----	N/A	
29	058881-000	HAZARD TAPE 3 " ( Around Ext deck Toe Board )	4M

SL26SL

512308-000

Item	Part	Description	QTY.
1	511104-000	DECAL, SPEED LEVEL PLUS	2
2	511087-000	DECAL, Snorkel SL26	2
3	509523-000	DECAL, 3 POSITION KEY (NON ANSI)	1
4	510460-000	DECAL, HI-LO SPEED SL UCB	1
5	512309-001	WARNING	1
6	508494-000	LWA DECAL 107dB	1
7	066551-003	TIPPING HAZARD	1
8	066551-002	TIPPING HAZARD	2
9	066554-000	CAUTION, READ OPERATION MANUAL	1
10	510280-000	EMERGENCY LOWER	1
11	066555-000	DO NOT ADJUST	1
12	064374-000	TO LEVEL	1
13	066563-000	DISTANCE TO GROUND	1
14	101210-000	RISK OF HYD GAS AND BATTERY LEAKAGE	1
15	066556-900	RISK FROM ABOVE	1
16	057430-002	RISK OF EXPLOSION	1
17	508047-001	SAFE WORKING LOAD	2
18	067822-001	ATTENTION GLOW PLUGS	2
19	058531-000	LIFT/TIE DOWN POINT	4
20	510787-000	HYDRAULIC FLUID	1
21	027898-001	DIESEL FUEL	1
22	010076-901	DECAL, ATTENTION DOC'S ENCLOSED	1
23	068635-001	HARNES ANCHOR POINT	4
24	302950	DECAL, HYD OIL LEVEL MIN/MAX	1
25	508875-000	DECAL, SIDE FORCE 400N	2
26	510885-000	DECAL, WHEEL LOADING	4
27	511066-000	DECAL, WEB ADDRESS	2
28	066551-225	DECAL, SWL EXT. DECK	1
29	058881-000	HAZARD TAPE 3 "	4M

**Decal Kit, (DE)**

SL30SL

508028-000

Item	Part	Description	QTY.
1	511104-000	DECAL, SPEED LEVEL	2
2	511088-000	DECAL, Snorkel SL30	2
3	509523-000	DECAL, 3 POSITION KEY (NON ANSI)	1
4	510460-000	DECAL, HI-LO SPEED SL UCB	1
5	066550-206	WARNING	1
6	508494-000	LWA DECAL 107dB	1
7	508038-000	TIPPING HAZARD	1
8	508037-000	TIPPING HAZARD	2
9	508039-000	CAUTION, READ OPERATION MANUAL	1
10	510280-000	EMERGENCY LOWER	1
11	508040-000	DO NOT ADJUST	1
12	064927-000	TO LEVEL	1
13	508041-000	DISTANCE TO GROUND	1
14	101210-000	RISK OF HYD GAS AND BATTERY LEAKAGE	1
15	066556-900	RISK FROM ABOVE	2
16	057430-002	RISK OF EXPLOSION	1
17	505573-001	SAFE WORKING LOAD	1
18	508042-000	ATTENTION GLOW PLUGS	2
19	058531-000	LIFT/TIE DOWN POINT	4
20	060197-001	HYDRAULIC FLUID	1
21	027898-001	DIESEL	1
22	010076-901	DECAL, ATTENTION DOC'S ENCLOSED	1
22	508035-000	DOCUMENTS ENCLOSED	1
23	068635-001	HARNESS ANCHOR POINT	4
24	302950	DECAL, HYD OIL LEVEL MIN/MAX	1
25	508875-000	DECAL, SIDE FORCE 400N	2
26	510885-000	DECAL, WHEEL LOADING	4
27	510066-000	DECAL, WEB ADDRESS	2
28	-----	N/A	



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