

UpRight



SL26/30SL

WORK PLATFORMS

European Specification



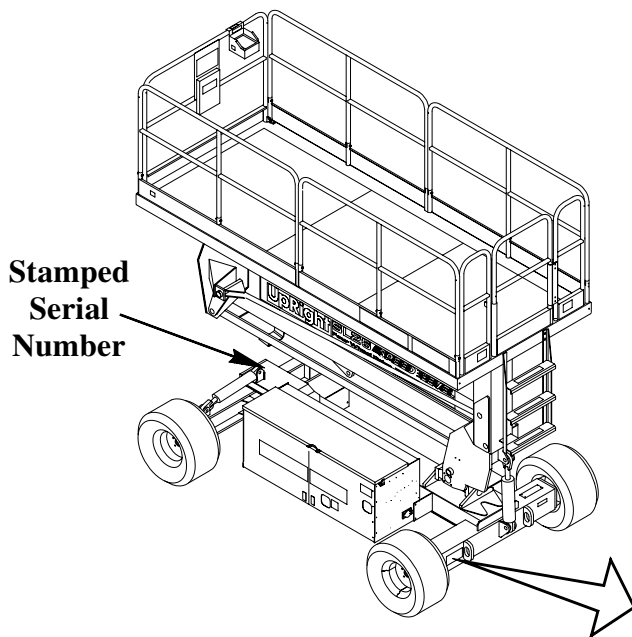
Service & Parts Manual

SERVICE & PARTS MANUAL

SL26/30SL

European Specification

Serial Numbers 11200 - current



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

UpRight, Inc.	
1775 PARK ST. SELMA, CA 93662 USA	
MODEL NO.	MAX. PLATFORM HEIGHT
SERIAL NO.	BATTERY VOLTAGE
MAX. DISTRIBUTED LOAD	
CAUTION: CONSULT OPERATOR'S MANUAL BEFORE USE.	
THIS PLATFORM IS NOT ELECTRICALLY INSULATED	
P/N 61205-000-00	

UpRight

Call Toll Free in U.S.A.

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B 3/00 .5 K

FORWARD

HOW TO USE THIS MANUAL

This manual is divided into 6 sections. The section number printed at the top corner of each page can be used as a quick reference guide.

Special information



Indicates the hazard or unsafe practice will result in severe injury or death.



Indicates the hazard or unsafe practice could result in severe injury or death.



Indicates the hazard or unsafe practice could result in minor injury or property damage

NOTES: Give helpful information.

WORKSHOP PROCEDURES

CAUTION: Detailed descriptions of standard workshop procedures, safety principles and service operations are not included. Please note that this manual does contain warnings and cautions against some specific service methods which could cause personal injury, or could damage a machine or make it unsafe. Please understand that these warnings cannot cover all conceivable ways in which service, whether or not recommended by UpRight, Inc., might be done, or of the possible hazardous consequences of each conceivable way, nor could UpRight Inc. investigate all such ways. Anyone using service procedures or tools, whether or not recommended by UpRight Inc., must satisfy themselves thoroughly that neither personal safety nor machine safety will be jeopardized. All information contained in this manual is based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice. No part of this publication may be reproduced, stored in retrieval system, or transmitted, in any form by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher. This includes text, figures and table.

Introduction & Specifications

General description and machine specifications.

1.0

Machine Preparation & Operation

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

2.0

Maintenance

Preventative maintenance and service information.

3.0

Troubleshooting

Causes and solutions to typical problems.

4.0

Schematics

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

5.0

Illustrated Parts Breakdown

Complete parts lists with illustrations.

6.0

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Section 1

INTRODUCTION & SPECIFICATIONS

1.1 INTRODUCTION

Purpose

The purpose of this service and parts manual is to provide instructions and illustrations for the operation and maintenance of an UpRight SL26/30SL Work Platform manufactured by UpRight, Inc. of Selma, California.

Scope

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

1.2 GENERAL DESCRIPTION

The SL26/30SL Work Platform consists of the platform, controller, elevating assembly, leveling system, power module, control module, and chassis (Figure 1-1).

Platform

The platform has a reinforced wood floor, 43.5 inch (1.11 m) high guardrails with midrail, 6 inch (152 mm) toeboards and an entrance gate at the rear of the platform. The guardrails can be folded down for access through doors or for shipment, except when equipped with the optional roll-out deck extension.

WARNING

DO NOT use the maintenance platform without guardrails properly assembled and in place with fasteners properly torqued.

Controller

The controller contains the controls to operate the machine. It should be hung on the front, left, or right guardrail, but may be hand held if necessary. To operate the machine, the interlock lever must be depressed to operate any function. A complete explanation of control functions can be found in Section 2.

Elevating Assembly

The platform is raised and lowered by the elevating assembly, a two section arm pivoting on a gear, and powered by a single stage lift cylinder. The hydraulic pump, driven by the engine, actuates the cylinder. Solenoid operated valves control raising & lowering.

Power Module

The power module contains the engine, hydraulic pump, fuel tank, battery, and starter solenoid.

Control Module

The control module contains the hydraulic tank, hydraulic valve manifold, horn/alarms, volt/hour meter, electrical terminal strips, and chassis controls. A complete explanation of the chassis control functions is found in Section 2.

Leveling System

The base of the elevating assembly is mounted on two pivots. Hydraulic cylinders at the side and rear of the elevating assembly tilt the elevating assembly and platform side to side or fore and aft. Instructions for leveling the platform and elevating assembly are found in Section 2.

Chassis

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

Purpose of Equipment

The SL26/30SL Work Platform is designed to elevate personnel and materials to overhead work areas and be driven with the platform elevated on firm, level surfaces **only**.

Note: Travel with the platform raised is limited to a creep speed range and will only travel if the platform is less than 8 meters high

Special Limitations

The objective of the SL26/30SL is to provide a quickly deployable, self-propelled, variable height work platform for worksite use that can be driven over rough terrain.

DANGER

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

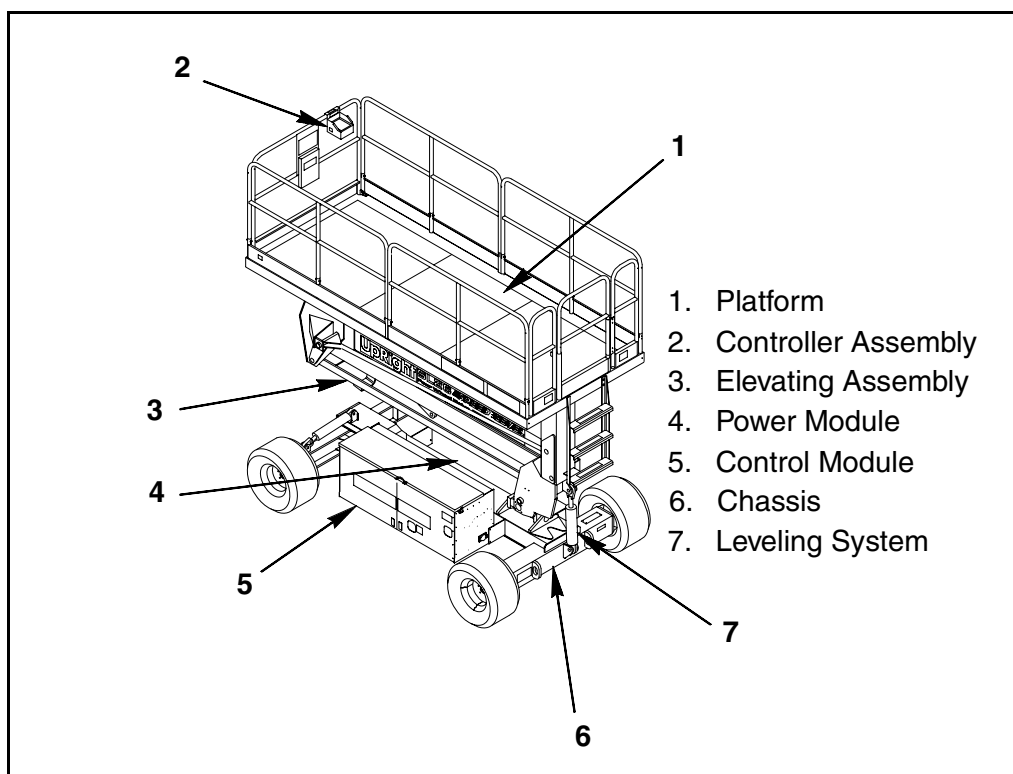


Figure 1-1: SL26/30SL Work Platform

1.3 SPECIFICATIONS

Table 1-1: Specifications

Specifications are subject to change without notice

Meets or exceeds all applicable National Safety requirements.

ITEM	SL26SL	SL30SL
Platform Size (Inside Toeboards)		
Standard	1,71 m x 3,59 m [67.5 in. x 141.5 in.]	1,71 m x 4,22 m [67.5 in. x 166.5 in.]
Slide Out Deck Extended	1,71 m x 4,61 m [67.5 in. x 181.5 in.]	N/A
Max. Platform Capacity		
Standard	680 kg [1,500 lbs.]	590 kg [1,300 lbs.]
w/ Extension	680 kg [1,500 lbs.]	N/A
On Extension	227 kg [500 lbs.]	N/A
Max. No. of occupants		
Standard	5 people	5 people
on Extension	2 people	N/A
Height		
Working Height	9,75 m [32 ft.]	10,97 m [36 ft.]
Max. Platform Height	7,93 m [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.]
Dimensions		
Weight	Diesel: 3,075 kg [6,780 lbs.]	Diesel: 3,216 kg [7,090 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.]
Surface Speed		
Platform Lowered	0 to 5.0 km/h [0 to 3.1 mph]	0 to 5.0 km/h [0 to 3.1 mph]
Platform Raised	0 to 0.8 km/h [0 to 0.5 mph]	0 to 0.8 km/h [0 to 0.5 mph]
System Voltage	12 Volt DC	12 Volt DC
Battery Charger	40 Amp, 110 Volt, 60 Hz (40 Amp, 220 V, 50 Hz, Optional)	40 Amp, 110 Volt, 60 Hz (40 Amp, 220 V, 50 Hz, Optional)
Hydraulic Tank Capacity	45.5 l [12 US Gallons]	45.5 l [12 US Gallons]
Maximum Hydraulic System Pressure	172 bar [2500 psi]	172 bar [2500 psi]
Hydraulic Fluid		
Normal use, above 32° f [0° c]	ISO #46	ISO #46
Low Temp. use, below 32° f [0° c]	ISO #32	ISO #32
Extreme Temp, below 0° f [-17° c]	ISO #15	ISO #15
Lift System	One Single Stage Lift Cylinder	One Single Stage Lift Cylinders
Lift Speed	Raise, 21 sec./Lower, 32 sec.	Raise, 24 sec./Lower, 36 sec.
Platform Leveling	13° side to side, 9° Fore and Aft	13° side to side, 9° Fore and Aft
Power Source	20 HP Kubota D905 (Diesel)	20 HP Kubota D905 (Diesel)
Drive Control	Proportional	Proportional
Control System	Joystick Controller with Interlock Lever and Thumb Rocker Steering, Toggle Selector and Emergency Stop Switches	Joystick Controller with Interlock Lever and Thumb Rocker Steering, Toggle Selector and Emergency Stop Switches
Horizontal Drive	Four Wheel, Hydraulic Motors	Four Wheel, Hydraulic Motors
Tires (Standard)	26 x 12.00 - 12 NHs Super Terra-grip with Trac Seal	26 x 12.00 - 12 NHs Super Terra-grip with Trac Seal
Parking Brakes	Dual Spring Applied, Hydraulic Release, multi-disc	Dual Spring Applied, Hydraulic Release, multi-disc
Turning Radius (inside)	3,96 m [13 ft.]	3,96 m [13 ft.]
Maximum Gradeability	35% [19°]	35% [19°]
Wheel Base	2,54 m [100 in.]	2,54 m [100 in.]
Guardrails	1,11 m [43.5 in.] high, Fold Down with gate.	1,11 m [43.5 in.] high, Fold Down with gate.
Toeboard	152 mm [6 in.] High	152 mm [6 in.] High
Fuel Tank Capacity	45.5 l [12 US Gallons]	45.5 l [12 US Gallons]

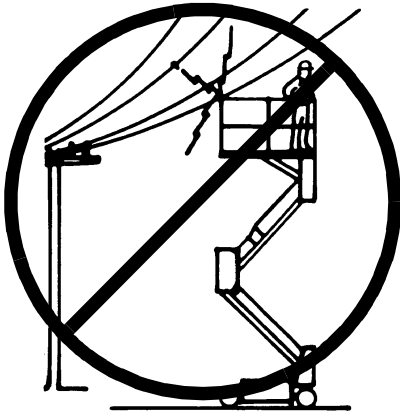
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Section 2

MACHINE PREPARATION & OPERATION

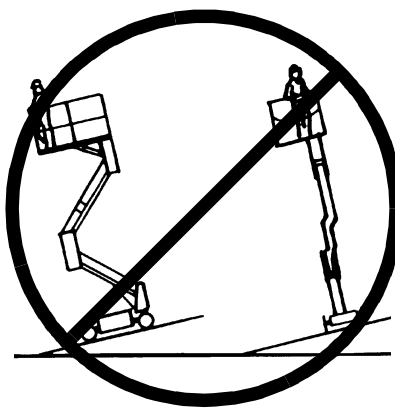
Warning All personnel shall carefully read, understand and follow all safety rules, operating instructions before operating or performing maintenance on any Upright aerial work platform.

Safety Rules

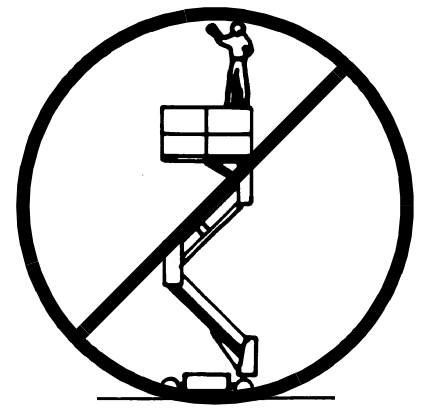


NEVER operate the machine within ten feet of power lines.

THIS MACHINE IS NOT INSULATED.



NEVER elevate the platform or drive elevated on uneven slopes or soft ground unless the platform is level.



NEVER sit, stand or climb on guard-rail or midrail.

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

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

SECURE and lock gate after mounting platform.

KEEP all body parts clear of outriggers when extending or retracting (outrigger equipped machines only).

NEVER use ladders or scaffolding on the platform.

NEVER attach overhanging loads or increase platform size.

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

DISTRIBUTE all loads evenly on the platform. See the back cover for maximum platform load.

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

NEVER change operating or safety systems.

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

NEVER climb down elevating assembly with the platform elevated.

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

NEVER recharge battery near sparks or open flame; batteries that are being charged emit highly explosive hydrogen gas.

AFTER USE secure the work platform against unauthorized use by turning key switch off and removing key.

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

NOTE: Read and familiarize yourself with all operating instructions before attempting to operate the SL26/30SL Work Platform.

2.1 PREPARATION FOR USE

CAUTION

STAND CLEAR when cutting the metal banding to avoid being cut if the banding snaps back.

1. Remove the metal banding from the module covers and elevating linkage.
2. Remove the banding from the control console.
3. Remove tie wraps holding guardrail gate.
4. Connect the negative (-) lead to the negative (-) battery terminals in power module. (Figure 2-1)
5. Close the Emergency Lowering Valve, if necessary. (Figure 2-2)
6. Fill fuel tank.

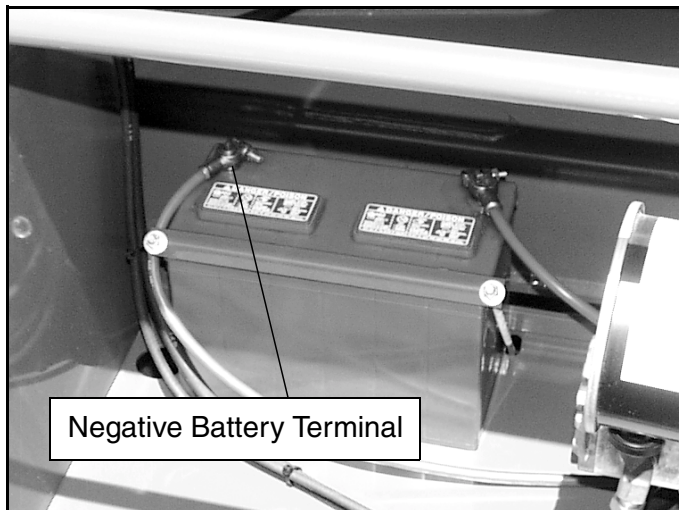


Figure 2-1: Battery

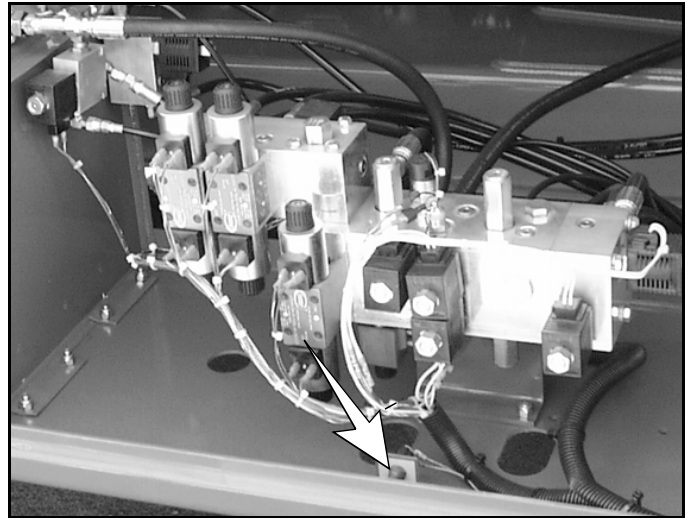


Figure 2-2: Emergency Lowering Valve

2.2 FORKLIFTING WORK PLATFORM

Note: Forklifting is for transporting only.

WARNING

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

Forklift from sides of the platform by lifting under the modules (Figure 2-3).

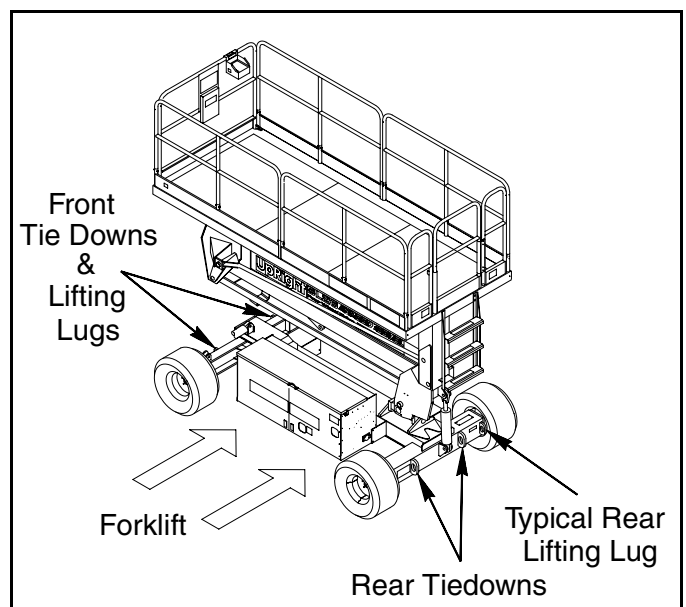


Figure 2-3: Transporting Work Platform

2.3 TRANSPORTING WORK PLATFORM

1. Maneuver the work platform into transport position and chock 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 (Figure 2-3).
3. open the emergency lowering valve.



The rear chassis tie down lugs are not to be used for lifting the work platform.

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

2.4 PREPARATION FOR SHIPMENT

1. Grease all the grease fittings (see Section 3).
2. Fully lower the platform.
3. Disconnect the battery negative (-) lead from the battery terminal(s) (Figure 2-1).
4. Band the controller to the front guardrail.
5. Band the elevating linkage to the frame just behind the front wheels and at the rear wheels.
6. Open the Chassis Emergency Lowering Valve. (Figure 2-2)

2.5 STORAGE

No preparation for storage is required when the work platform is in normal usage. Regular maintenance procedures should continue to be performed (see Section 3).

If the work platform is to be placed in long term storage (dead storage), follow the recommended preservation procedures, below.

Preservation

1. Clean painted surfaces. If the paint is damaged, repaint.
2. Fill the hydraulic tank to operating level, fluid will be visible at the Sight Gauge. DO NOT fill the hydraulic tank while the platform is elevated.

Note: DO NOT drain the hydraulic system prior to long term storage.

3. Coat exposed portions of extended cylinder rods with a preservative such as multipurpose grease and wrap with barrier material.

4. Coat all exposed unpainted metal surfaces with preservative.
5. Service the diesel engine according to the manufacturers recommendations.

Battery

1. Disconnect the battery ground cable and secure to the chassis.
2. Disconnect the remaining battery lead and secure to the chassis.
3. Remove the battery and place in alternate service.

2.6 DESIGN FEATURES

The SL26/30SL has the following features:

- The drive speed is limited to creep speed when operating the work platform while platform is elevated.
- The platform descent rate is controlled by an orifice (fixed speed) and is slowed further by another orifice during the last 304 mm (12 in.) of descent (cushion speed). The lift cylinder is equipped with a velocity fuse to prevent descent should the lift hose rupture.
- The front floating axle locks into position upon elevating the platform.
- The machine will not drive while elevated unless the front axle is parallel with the rear axle.
- An alarm sounds and the drive and lift coils are de-energized if the platform should become unlevel while elevated.
- Parking brakes are automatically engaged when the Control Lever is released and the machine comes to a full stop.
- The Controller and chassis controls are equipped with Emergency Stop Switches for stopping all powered functions.
- The Interlock Lever must be depressed for the Controller to function.
- An alarm is provided to signal when the platform is lowering.
- A lift switch is located in the Control Module on the Chassis for lifting and lowering the platform from ground level.
- An Emergency Down Valve is provided in the Control Module, to lower the platform in the event electrical power is lost.
- Machine will not level above 87 in., interlock height.
- Machine will not travel when elevated above 8 m.

2.7 THE CONTROLS AND INDICATORS

The controls and indicators for operation of the SL26/30SL Work Platform are shown in Figure 2-4. The name and function of each control and indicator are listed in Table 2-1. The index numbers in Figure 2-4 correspond to the index numbers in Table 2-1. The

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

Table 2-1: Controls and Indicators

INDEX #	NAME	FUNCTION	INDEX #	NAME	FUNCTION
1	KEY SWITCH	Turn key fully clockwise to provide power to the Interlock Switch. Turn the key fully clockwise to start engine. When released, key goes to RUN to provide power to the Interlock Switch.	11	HOUR METER	Shows hours machine has been powered on.
2	EMERGENCY STOP SWITCH	Push red button to cut power to all controls (off). Turn clockwise to provide power (on).	12	CHASSIS EMERGENCY STOP SWITCH	Push red button to cut power to all controls (off). Turn clockwise to provide power (on).
3	JOYSTICK	Move joystick forward or backwards to control Drive and Lift Valves proportionally or Down Valve depending on position of Drive Lift Switch.	13	CHASSIS LIFT SWITCH	Push switch up to lift the platform and push switch down to lower the platform.
4	STEERING SWITCH	Moving the momentary rocker switch Right or Left steers the work platform in that direction. Although the Steering Switch is self centering the steering system is not. The wheels must be steered back to straight.	15	EMERGENCY LOWERING VALVE	Push in and turn knob 1/4 turn counterclockwise, the knob will pop out and the platform will lower. To close, push in and turn knob 1/4 turn clockwise until detent engages. The platform cannot be raised until this valve is closed.
5	DRIVE SPEED/TORQUE SELECTOR SWITCH	Provides two speed/torque ranges, in forward or reverse. High Speed -low torque and High Torque -low speed.	17	BRAKE RELEASE PUMP	Releases the parking brake allowing the machine to be moved in the event power is lost or for winching onto a trailer.
6	LEVEL/DRIVE/LIFT SWITCH	Selecting LEVEL allows the platform to be leveled using the tilt switches. Selecting DRIVE allows the work platform to move forward or reverse. Selecting LIFT allows the work platform to raise or lower.	18	BUBBLE LEVEL	Indicates platform is level when bubble is within the circle.
7	SIDE/SIDE TILT SWITCH	Pushing the switch either right or left tilts the platform in that direction.	19	CHASSIS KEY SWITCH	Switches lift control from platform to chassis.
8	FORE/AFT SWITCH	Pushing the switch either forward or rearward tilts the platform in that direction.	20	LEVEL SENSOR	Stops machine operation when out of level
9	INTERLOCK LEVER SWITCH	Provides power to the Controller powered functions, only when depressed, preventing accidental activation of the Controller.			
10	GLOW PLUG BUTTON (Diesel models only)	When engine is cold, depress & hold the Glow Plug button for 6 (six) seconds prior to starting engine.			

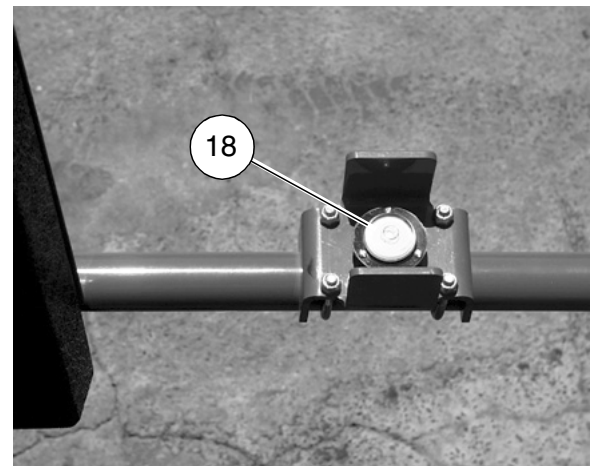
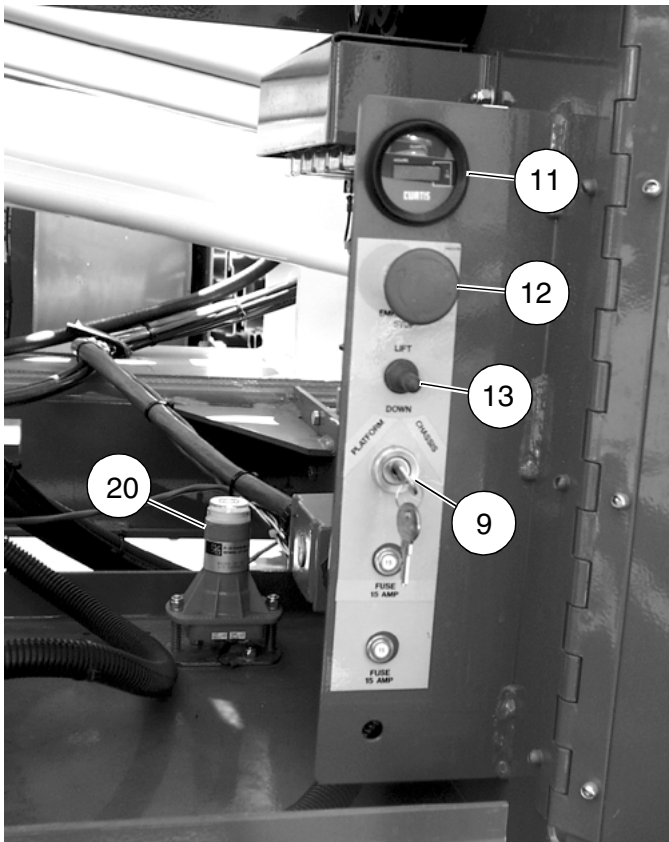
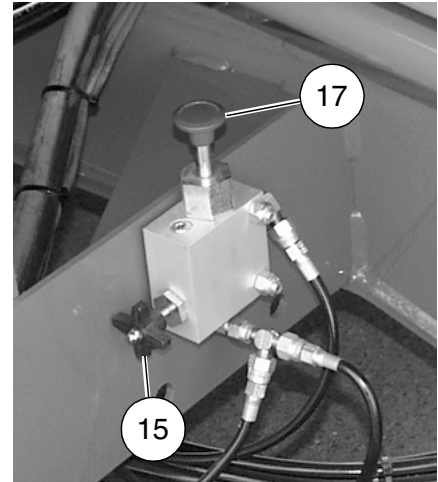
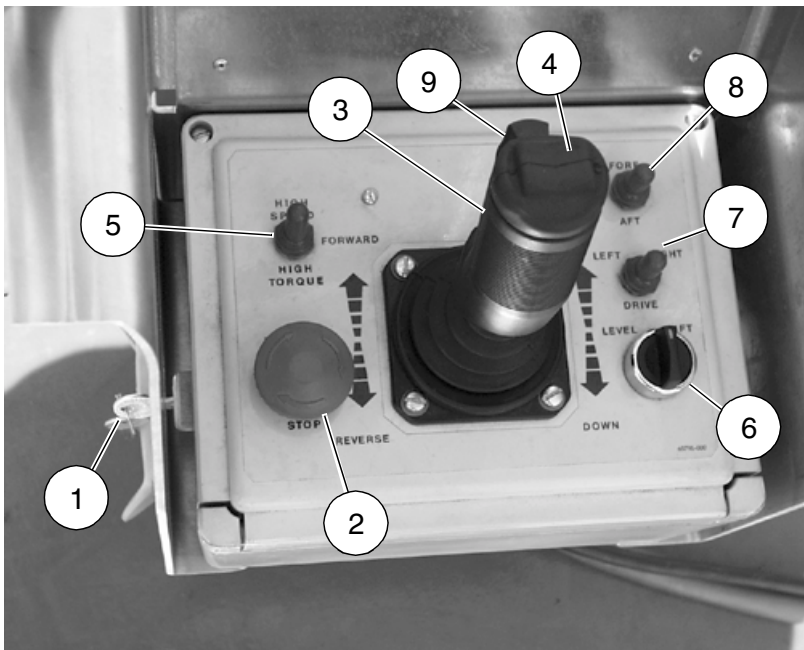


Figure 2-4: Controls & Indicators

2.8 INTRODUCTION

General Functioning

The engine directly drives a hydraulic pump. The pump supplies oil under pressure to operate all the work platform functions. The oil flow is directed to the different functions by electrically activated solenoid valves.

Driving

With the Controller Key Switch **ON**, and the engine running, both chassis and controller Emergency Stop Switches **ON**, the Interlock Lever depressed, and the Drive/Lift Switch on **DRIVE**, the machine will drive forward or reverse at a speed proportional to the angle the control lever is pushed or pulled.

Driving with the Platform Lowered

Selecting **HIGH SPEED** with the Drive Speed Switch and moving the Control Lever forward or reverse with the platform fully lowered will energize the cutout relay thru the Platform Down Relay contacts, the Series/Parallel Coils, the Proportional Coil and the Forward or Reverse Coil to allow oil to flow into the Parking Brake (releasing the Brake) and serially through the Hydraulic Motors. The Proportional Valve closes or opens in proportion to the movement of the Control Lever (from center). As the Proportional Valve closes, more oil is allowed to flow to the Forward or Reverse Valve increasing drive speed.

Selecting **HIGH TORQUE** (low speed) with the Drive Speed Switch the Series/Parallel Valves are not energized, allowing the oil to divide through the Hydraulic Motors producing the high torque/low drive speed.

Driving with the Platform Elevated

Raising the platform (see *RAISING AND LOWERING THE PLATFORM*, below) opens the Platform Down Switch which cuts power to the Platform Down Relay. This energizes the cutout relay thru the tilt sensor and prevents the axle float valve solenoid from energizing, locking the axle in place. Also de-energized are the Series/Parallel coils and the controller high speed circuit. When raised, the platform will only drive at low speed (motors in parallel) and then **only** if the front axle parallel with the rear axle and the platform is level.

Steering

On the top of the Control Lever is a momentary rocker switch for steering the machine left and right. Pressing the right or left side of the rocker switch will energize the Steering Coils and allow oil to flow

through the Steering Valve to the Steering Cylinder. Releasing the rocker switch de-energizes the Steering Coils and holds the Steering Cylinder in position. **The Steering Cylinder will not automatically return to center. The Steering Switch must be activated to change the wheels direction.**

Leveling

With the controller key switch **ON** (and the engine running), both chassis and controller emergency stop switches **ON**, and the Level/Drive/Lift switch on **LEVEL**, the machine can be tilted right or left with the side/side switch forward and backward with the fore/aft switch to allow centering of the platform bubble indicator. The side/side switch and the fore/aft switch energize the steering bypass coil, to direct oil to the tilt valves, and the tilt valves directing oil to the right/left tilt cylinder and fore/aft tilt cylinder, respectively.

Raising And Lowering The Platform

With the Controller Key Switch **ON** (and the engine running), both chassis and controller Emergency Stop Switches **ON**, the Interlock Lever depressed, and the Drive/Lift Switch on **LIFT**, the machine will elevate at a speed proportional to the angle the Control Lever is pushed forward.

Pushing forward on the Control Lever energizes the Cutout Relay thru the tilt sensor, Proportional Coil, Up Coil and accelerator or throttle relay to increase the engine speed. The greater the angle (from center) of the Control Lever the more the Proportional Valve closes. As the Proportional Valve closes more oil is allowed to flow through the Lift Valve to the Lift Cylinder increasing lift speed.

Lowering the platform electrically energizes the Down Alarm and the Down Coil. This allows the oil to flow out of the Lift Cylinder through an orifice, which controls the rate of descent, then back to tank. During the last 304 mm (12 in.) of lowering the Cushion Down Valve is energized forcing the oil thru another orifice slowing the platform rate of descent. Lowering the platform manually with the Emergency Down Valve allows the oil to flow out of the Lift Cylinder in the same manner but there is no Down Alarm.

2.9 SAFETY RULES AND PRECAUTIONS

Always observe the following safety rules and precautions when using the SL26/30SL Work Platform:

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

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

NEVER sit, stand or climb on guardrail or midrail.

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

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

SECURE gate across entrance after mounting the platform.

NEVER use ladders or scaffolding on the platform.

NEVER attach overhanging loads or increase the size of the platform.

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

CHECK all four tires for correct inflation, 3.4 bar (50 psi).

DISTRIBUTE all loads evenly on the platform. (For maximum platform load, refer to Table 1-1).

NEVER use damaged equipment. (Contact UpRight for instructions.)

NEVER change operating or safety systems.

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

NEVER climb down elevating assembly with the platform elevated.

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

NEVER recharge battery near sparks or open flame; battery emits highly explosive hydrogen gas when being charged.

SECURE the work platform against unauthorized use by turning the key switch off and removing the key from the key switch when leaving the machine unattended.

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

2.10 PRE-OPERATION INSPECTION

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

Visual Inspection

WARNING

DO NOT perform service on work platform with the platform elevated unless the elevating assembly is properly blocked.

1. Remove module covers and inspect for damage, oil leaks or missing parts.
2. Check the level of the hydraulic oil with the platform fully lowered (see Section 3.6). Oil should be visible in the sight gauge. Add ISO #46 hydraulic oil, if necessary.
3. Check that the fluid level in the battery is correct (see Section 3.5).
4. Check the engine oil level and fuel level.
5. Carefully inspect the entire work platform for damage such as cracked welds or structural members, loose or missing parts, oil leaks, damaged cables or hoses, loose connections and tire damage.
6. Check that all guardrails are securely in place with all fasteners properly torqued.
7. Check tire pressure; 3.4 bar (50 psi).
8. Turn the Chassis Emergency Stop Switch to the **ON** position. Turn the red knob clockwise.
9. **Diesel Model:** While the engine is cool, check the engine coolant level.

WARNING

DO NOT check coolant when engine or radiator is hot, hot coolant can cause severe burns.

System Function Inspection

! WARNING !

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

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

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

Protect control console cable from possible damage while performing checks.

1. Unhook Controller from front guardrail. Firmly grasp Controller hanger in such a manner that the Interlock Lever can be depressed, while performing the following checks from the ground.
2. Turn the Emergency Stop Button clockwise or pull up to the ON position.
3. Turn Controller Key Switch fully clockwise to start the engine, releasing the key once the engine starts.

Note: If the engine is cold, depress the glow plug button for 6 seconds prior to starting to engage the glow plugs.

4. Position Drive/Lift Switch to **DRIVE** position.
5. With the Speed Range Switch first in **HIGH TORQUE**, and then in **HIGH SPEED**, depress the Interlock Lever and slowly push the Control Lever to **FORWARD**, and then **REVERSE** positions to check for speed and directional control. The farther you push or pull the Control Lever, the faster the machine will travel.
6. Push Steering Switch **RIGHT**, then **LEFT** to check for steering control.
7. Position Level/Drive/Lift Switch to **LEVEL**. Actuate the fore/aft and side/side switches to verify that they are functioning properly. Use the side/side switch and tilt the platform to one side.

8. Rehook controller on front guardrail.

! WARNING !

LOOK up and around for obstructions prior to operating the lift function.

DO NOT operate the work platform within 10 feet of any electrical power lines. **THIS MACHINE IS NOT INSULATED.**

DO NOT elevate the platform unless the work platform is on firm, level ground.

DO NOT enter the elevating assembly while the platform is elevated.

9. Push Chassis Lift Switch to **UP** position and elevate platform. The platform should only elevate to the interlock height, about 2.44 m (8 ft.) above the ground, and the tilt alarm should sound. If the platform continues to elevate and/or there is no alarm, **STOP** and remove the machine from service until it is repaired.
10. Lower the platform with the chassis lift switch.
11. Enter the platform. Using the bubble level as a guide, level the platform with the side/side and fore/aft switches. Dismount platform.
12. Fully elevate platform using chassis lift switch.
13. Visually inspect the elevating assembly, lift cylinder, cables and hoses for damage or erratic operation. Check for missing or loose parts.
14. Lower the platform partially by pushing Chassis Lift Switch to **DOWN**, and check operation of the audible lowering alarm.
15. Open the Chassis Emergency Lowering Valve, push in and turn counterclockwise, to check for proper operation. Once the platform is fully lowered, close the valve, push in and turn clockwise until the detent engages.
16. Close and secure module covers.
17. Turn the controller key switch counterclockwise to **OFF** and push the emergency stop switch button to OFF.

2.11 OPERATION

Note: Before operating work platform, ensure that pre-operation has been completed, any deficiencies have been corrected and the operator has been thoroughly trained on this machine.

Travel With Platform Lowered

1. Verify Chassis Emergency Stop Switch is in the **ON** position, turn clockwise or pull up on the button.
2. After mounting platform, close and latch gate. Check that guardrails are in position and properly assembled with fasteners properly torqued.
3. Check that route is clear of persons, obstructions, holes and drop-offs, and is capable of supporting the wheel loads.
4. Check clearances above, below and to the sides of the platform.
5. Turn Controller Emergency Stop Button clockwise or pull up to the **ON** position.
6. Turn Controller Key Switch fully clockwise to start the engine, releasing the key once the engine starts.

Note: If the engine is cold, depress the glow plug button for 6 seconds prior to starting to engage the glow plugs.

7. Set the Level/Drive/Lift Switch to the **DRIVE** position and the Drive/Lift Speed Range to **HIGH TORQUE**.
8. Grasp the Control Lever so the Interlock Lever is depressed (releasing the Interlock Lever cuts the power to Controller). Slowly push or pull the Control Lever to **FORWARD** or **REVERSE** to travel in the desired direction. The farther you push or pull the Control Lever from center, the faster the machine will travel.
9. While moving, push the Drive/Lift Speed Range Switch to **HIGH SPEED** for travel on level surfaces or to **HIGH TORQUE** for climbing grades or traveling in confined areas.

Steering

1. Push the Steering Switch **RIGHT** or **LEFT** to turn the wheels. Observe the tires while maneuvering to ensure proper direction.

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

Leveling The Platform

Turn Level/Drive/Lift switch to **LEVEL**. Center bubble in bubble level using fore/aft and left/right switches. To level the platform, it may be necessary to elevate the platform slightly.

Raising and Lowering The Work Platform

WARNING

LOOK up and around for obstructions before performing the lift function.

DO NOT elevate the platform unless the work platform is on a firm, level surface.

DO NOT operate the work platform within 10 feet of any electrical lines. **THIS MACHINE IS NOT INSULATED.**

NEVER enter the Elevating Assembly while the platform is elevated.

1. Position the Drive/Lift Switch to **LIFT**.
2. While depressing the Interlock Lever, push the Control Lever slowly to **UP** to raise the platform. Pushing the Control Lever farther increases the lift speed. If the platform does not elevate above the interlock height, about 2.44 m (8 ft.), fully lower platform and re-level.
3. When the work task is completed, position the Level/Drive/Lift Switch to **LIFT** and lower the platform by pulling back on the Control Lever until the platform is fully lowered.

Travel With Work Platform Elevated

WARNING

Travel with platform elevated **ONLY** on firm, level surfaces.

Note: The work platform will travel at reduced speed when in the elevated position. Elevated drive can be obtained only if both axles are parallel to each other.

1. Check that the route is clear of persons, obstructions, holes and drop-offs and is capable of supporting the wheel loads.
2. Check clearances above, below and to the sides of platform.
3. Position the Drive/Lift Switch to the **DRIVE** position.

4. Push the Control Lever to **FORWARD** or **REVERSE** for the desired direction of travel. If the machine quits driving and the tilt alarm sounds, immediately lower and re-level the platform before attempting to elevate again.

Emergency Lowering

Note: The Emergency Lowering Valve is located on the left hand side of the chassis through the cutout in the control module cover.

1. Open the Emergency Lowering Valve by pushing in and turning approximately 1/4 turn, the knob will pop out disengaging detent (Figure 2-4).
2. Once the platform is fully lowered, be certain that Emergency Lowering Valve is closed again. The platform will not elevate if the Emergency Lowering Valve has not been closed.
3. To close the Emergency Lowering Valve, push the knob in and turn approximately 1/4 turn clockwise until the detent engages.

After Use Each Day

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

2.12 BRAKE RELEASE PUMP (FIGURE 2-5)

Perform the following only when the machine will not operate under it's 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. Close the needle valve by turning the knob clockwise.
2. Pump the Brake Release Pump until the Parking Brake Cylinder Rod clears the wheel rotor.

CAUTION

Be careful not to over-pump the brake release pump as damage to the brakes may result.

3. The machine will now roll when pushed or pulled.
4. Be sure to open needle valve and verify that the cylinder rod has extended before the machine is operated.

WARNING

Never operate work platform with the Parking Brake inoperative. Serious injury or damage could result.

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

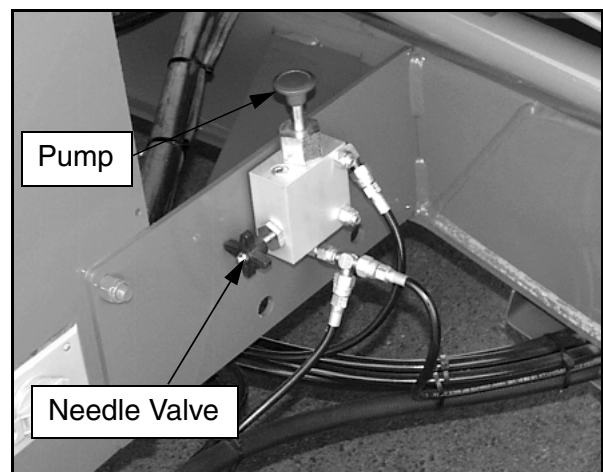


Figure 2-5: Brake Release Pump

2.13 FOLD DOWN GUARDRAILS (FIGURE 2-6)

This procedure is only for passing through doorways. Guardrails must be returned to proper position before using machine.

Fold down Procedure

Note: When performing the following procedures retain all fasteners.

1. Place Controller on platform deck.
2. 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.
3. Close and latch gate.
4. 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.
5. 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.



Before entering platform, guardrails must be securely fastened in their proper position.

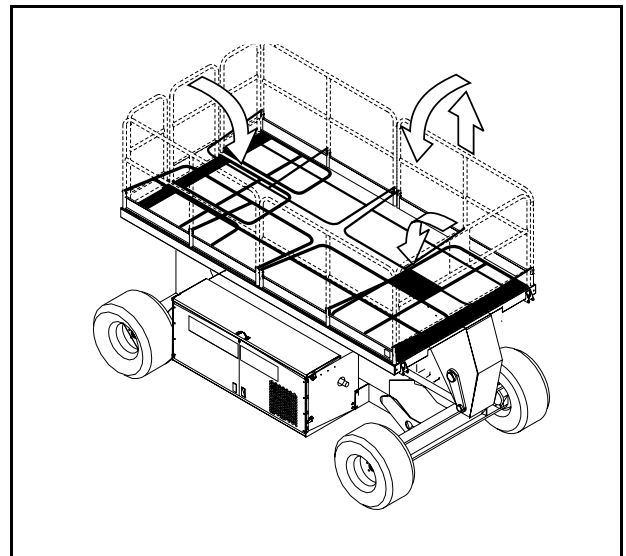


Figure 2-6: Fold Down Guardrails

NOTES:

Section 3

MAINTENANCE

3.1 INTRODUCTION

WARNING

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

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 "Preventative Maintenance Check list" on page -2 for recommended maintenance intervals.

Note: Unless otherwise specified, torque all fittings according to "Torque Specifications for Fasteners" on page 3-18, and "Torque Specifications for Hydraulic Components" on page 3-18.

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 (0-41 bar) Hydraulic Pressure Gauge (p/n 014124-006)
- 0-3000 PSI (0-207) Hydraulic Pressure Gauge (p/n 014124-030)
- Inclinator (p/n 010119-000)
- Tilt Sensor Adjustment Tool (p/n 030622-000)
- Quick Disconnect Gauge Port (p/n 063965-002)

3.3 PREVENTATIVE MAINTENANCE (TABLE 3-1)

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 performed by personnel who are trained and familiar with mechanical and electrical procedures.

WARNING

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

Always block the elevating assembly whenever it is necessary to enter the scissor assembly to perform maintenance while the platform is elevated (Figure 3-1).

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.

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: _____

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			
	Check air cleaner	Daily			
Engine Coolant	Check coolant level (with engine cold)	Daily			
	Replace coolant	3m			
Hydraulic Oil	Check oil level	Daily			
	Change filter	6m			
	Drain and replace oil	2y			
Hydraulic System	Check for leaks	Daily			
	Check hose connections	30d			
	Check hoses for exterior wear	30d			
Emergency Hydraulic System	Operate the emergency lowering valve and check for serviceability	Daily			
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			

3.4 BLOCKING ELEVATING ASSEMBLY (FIGURE 3-1)

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. Open control module cover.
3. Turn Chassis Emergency Stop Button clockwise to the ON position.
4. Position Chassis Lift/Lower to **UP** and elevate platform approximately 305 mm (12 inches).
5. Place a jackstand with a minimum rating of 1814 kg (4000 lbs.) between the lower mast and chassis, just behind the front axle.
6. Push Chassis Lift Switch to **DOWN** position and gradually lower platform until jackstand is secured tightly between lower mast and Chassis.

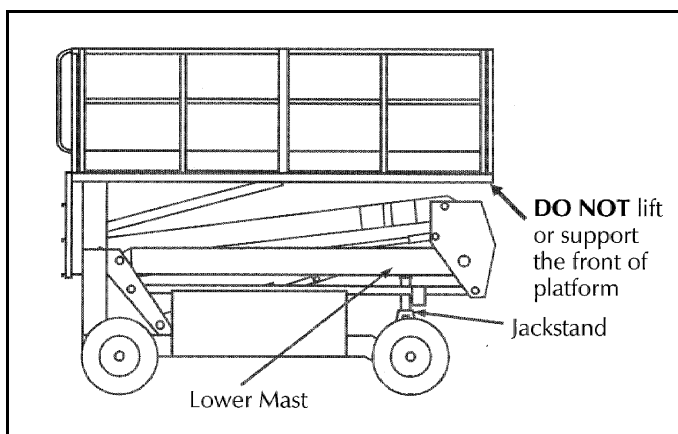


Figure 3-1: Blocking Elevating Assembly

Removal

1. Push Chassis Lift Switch to **UP** position and gradually raise platform until jackstand can be removed.
2. Remove jackstand.
3. Push Chassis Lift Switch to **DOWN** position and 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 baking soda 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.

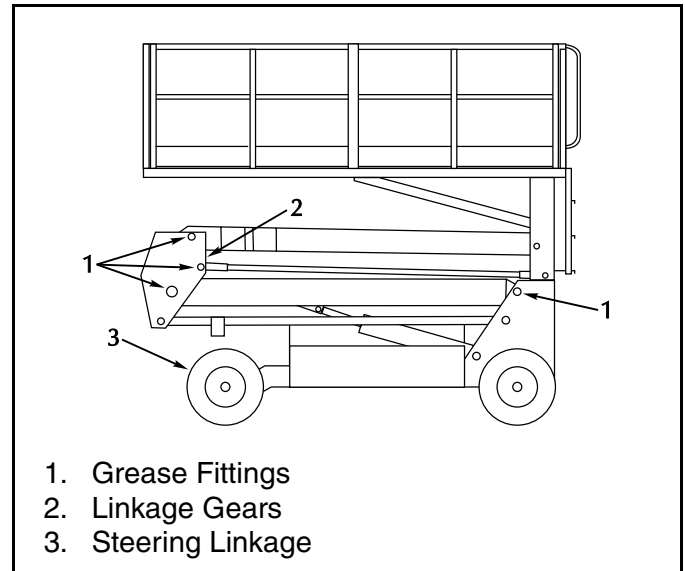


Figure 3-2: Lubrication Points

Grease Fittings

Wipe each grease fitting before and after greasing. Using multipurpose grease in a grease gun, pump the grease into the fitting until grease just begins to appear at the edges of the pivot, 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 multipurpose grease to the face of the gears.

! CAUTION !

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

4. Lower the platform after greasing.

Steering Linkage

Apply one or two drops of motor oil to each pivot and king pin bearing.

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.

Hydraulic Oil Tank & Filter (Figure 3-3)

Fluid Level

With the platform fully lowered, the oil should be visible in the sight gauge. If the oil is NOT visible, fill the tank until the oil can be seen. DO NOT fill above the sight gauge 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 45.5 l (12 US Gallons).
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 top from the filter body.
6. Lift the filter element from the filter body.
7. Remove filter cup and clean cavity, reinstall cup.
8. Insert the replacement filter into the filter body and press into position.
9. Fill the hydraulic oil tank to the level of the Sight Gauge with ISO #46 (see Table 1-1) hydraulic oil by pouring the oil into the top of the filter. Since the oil is being filtered as it is going into the tank, it will take a while to fill the tank.

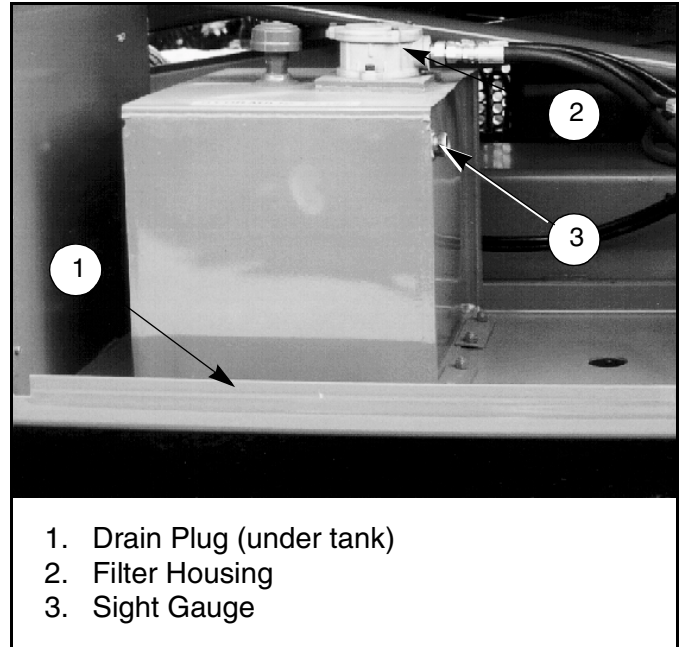


Figure 3-3: Hydraulic Oil Tank & Filter

3.7 SETTING HYDRAULIC PRESSURES

Referring to Figure 3-13 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.

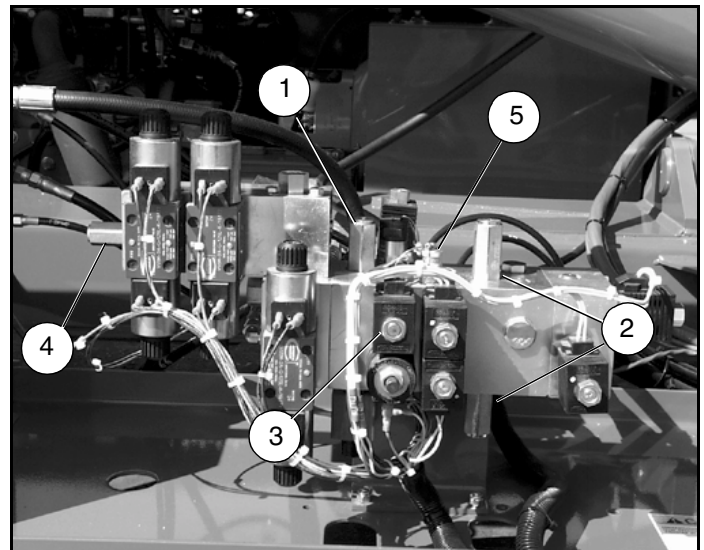
! WARNING !

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 (Figure 3-4)

1. Operate the hydraulic system for five minutes.
2. Remove the gauge port plug (Figure 3-5) and install a quick disconnect gauge assembly.
3. Remove the plug in the end of the main relief valve to expose the adjusting screw.
4. Remove the hex nut holding the lift coil onto the lift valves and remove coil.
5. With the engine running, use the chassis lift switch to elevate the platform, hold until the system bypasses (approximately 2 seconds).
6. While holding the chassis lift switch in the **UP** position, set the pressure to 172 bar (2500 psi) maximum by slowly turning the adjusting screw, clockwise increases pressure.
7. Reinstall the coil on the lift valve.
8. Remove the pressure gauge and reinstall all plugs.

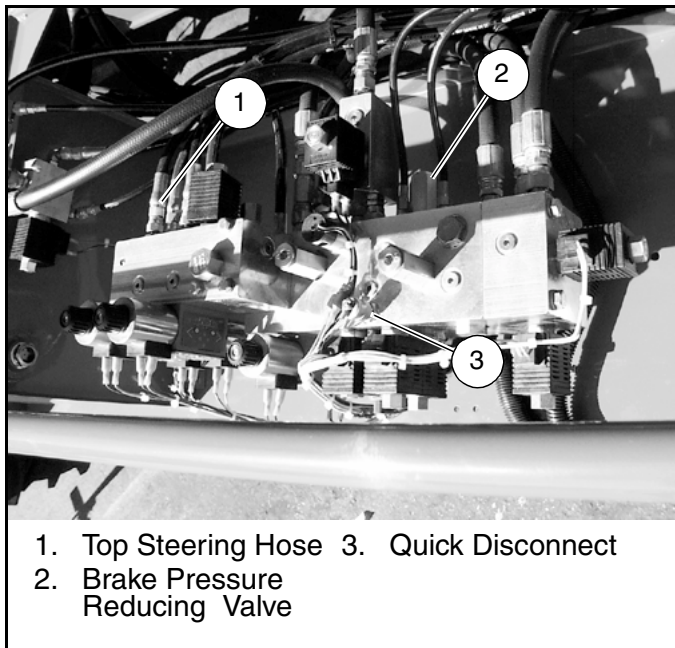


- | | |
|--------------------------|--------------------------|
| 1. Main Relief Valve | 4. Steering Relief Valve |
| 2. Counterbalance Valves | 5. Quick Disconnect |
| 3. Lift Coil | |

Figure 3-4: Hydraulic Manifold Assembly, Front View

Counterbalance Valves (Figure 3-4)

1. Operate the hydraulic system for five minutes to warm the oil.
2. Remove the quick disconnect plug (Figure 3-5) and install a 0-41 bar (0-600 psi) pressure gauge assembly.
3. Exchange the top Counterbalance Valve with the Main Relief Valve.
4. Remove the plug from the end of the Counterbalance Valve to expose the adjusting screw.
5. Remove the hex nut holding the lift coil onto the lift valve and remove the coils.
6. With the engine running, use the chassis lift switch to elevate the platform, hold until the system bypasses (approximately 2 seconds).
7. While holding the chassis lift switch in the **UP** position, set the pressure to 34.5 bar (500 psi) maximum by slowly turning the adjusting screw, clockwise increases pressure.
8. Exchange the top Counterbalance Valve with the bottom Counterbalance Valve and repeat the procedure.
9. Be sure to reinstall the valves to their original locations and replace all plugs when finished setting pressures.



1. Top Steering Hose 3. Quick Disconnect
2. Brake Pressure Reducing Valve

Figure 3-5: Hydraulic Manifold Assembly, Top View

Fore/Aft Tilt Cylinder Relief Valve (Figure 3-4)

1. Operate the hydraulic system for five minutes.
2. Remove the quick disconnect plug and install a 0-41 bar (0-600 psi) pressure gauge.
3. Remove the plug from the end of the valve to expose the adjusting screw.
4. With the engine running, tilt the platform **fully forward** using the fore/aft level switch.
5. While holding the level switch forward, set the pressure to 34.5 bar (500 psi) maximum by slowly turning the adjusting screw, clockwise increases pressure.
6. Replace the valve plug.
7. Remove the gauge and reinstall the plug.
8. Level the platform.

Steering Relief Valve (Figure 3-5)

1. Remove the top steering hose from back of the manifold and replace it with a 0-207 bar (0-3000 psi) pressure gauge assembly.
2. Block the end of the hose with a cap fitting.
3. Remove the plug from the end of the valve to expose the adjusting screw.
4. With the engine running, push the Steering Switch **RIGHT** and set the pressure to 83 bar (1200 psi) maximum by slowly turning the adjusting screw clockwise to increase pressure.

5. Replace the valve plug.
6. Remove the gauge and reinstall the hose.

Drive Cross Relief Valve (Figure 3-6)

1. Operate the hydraulic system for five minutes.
2. Remove the gauge port plug and install a 0-207 bar (0-3000 psi) pressure gauge assembly.
3. Exchange the Main Relief Valve with one drive cross relief valve. The rear drive cross relief valve is mounted by the left rear tire and the front drive cross relief valve is mounted behind the control module towards the front of the machine.
4. Remove the plug from the end of the valve to expose the adjusting screw.
5. Remove the hex nut holding the lift coil onto the lift valve and remove the coil.
6. With the engine running, use the chassis lift switch to elevate the platform, hold until the system bypasses (approximately 2 seconds).
7. While holding the chassis lift switch in the UP position, set the pressure to 103 bar (1500 psi) maximum by slowly turning the adjustment screw, clockwise increases pressure.
8. Exchange the two drive cross relief valves and repeat the procedure.
9. Reinstall the valves to their original locations and replace all plugs when finished setting pressure.
10. Replace the drive valve coils.

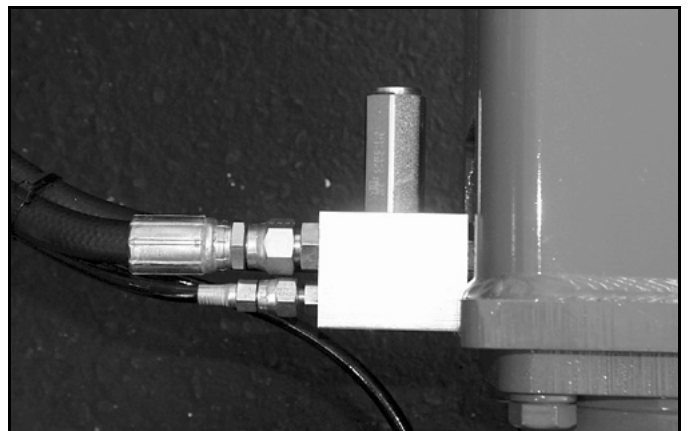


Figure 3-6: Drive Cross Relief Valve (Front Shown)

Brake Pressure Reducing Valve (Figure 3-5 & Figure 3-7)

1. Using two 1-ton jack stands and a 2-ton jack, jack the work platform up to raise the rear wheels off the ground and block the machine securely.
2. Remove the outlet hose from the backside of the Brake Release Pump and install a 41.4 (0-600 psi) gauge assembly in-line with a tee fitting.
3. Remove the plug on the end of the Brake Relief Valve.
4. With the engine running, position the Control Lever to **REVERSE** and hold.
5. While holding the Control Lever in **REVERSE**, set the pressure to 24-33 bar (350-480 psi) maximum by slowly turning the adjusting screw, clockwise to increase pressure.
6. Replace the valve plug.
7. Remove the gauge and tee fitting and reinstall the hose.
8. Remove the jack stands and lower the machine.

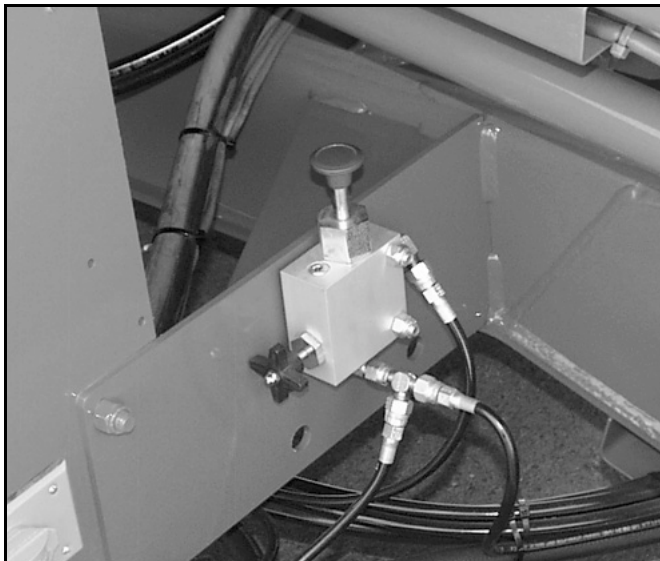


Figure 3-7: Brake Release Pump

3.8 SWITCH ADJUSTMENTS

Proportional Control Adjustment (Figure 3-8)

To perform the adjustment, the control box must be opened by removing the screws at the corners of the controller and rotating the top forward to expose the proportional controller. Remove the potting material from the potentiometer adjustment screws if necessary.

Please follow the exact sequence outlined below when making controller adjustments. It is possible that making an adjustment to one setting could affect another, so please verify that all speeds are correct before completing the adjustment procedure. For all potentiometers, clockwise movement will increase, and counterclockwise movement will decrease the speed of that function.

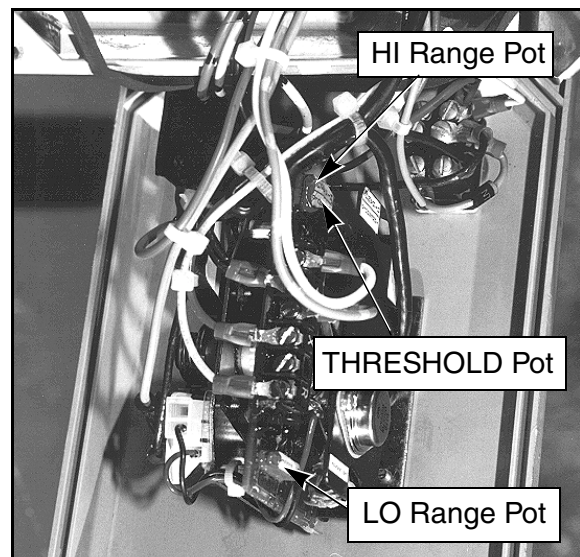


Figure 3-8: Proportional Controller Adjustment

1. Set the THRESHOLD potentiometers so that the machine is just starting to move when the controller is stroked slightly forward.
2. Mark out a 6.1 m (20 foot) course on the ground to use for step numbers 3, 4 and 5.
3. Set the HI RANGE potentiometers so that the machine will travel 6.1 m (20 ft.) in 5 to 7 seconds at full controller deflection.

Note: The machine should be running full speed before crossing the starting line, and should run perfectly straight through the course.

4. Elevate the machine until the lower tension member clears the limit switch lever. Set the LO RANGE potentiometer so that the machine will travel 6.1 m (20 ft.) in 27 to 28 at full controller deflection.

Note: The machine should be running full speed before crossing the starting line, and should run perfectly straight through the course.

5. Repeat the speed trials for verification and readjust as necessary.

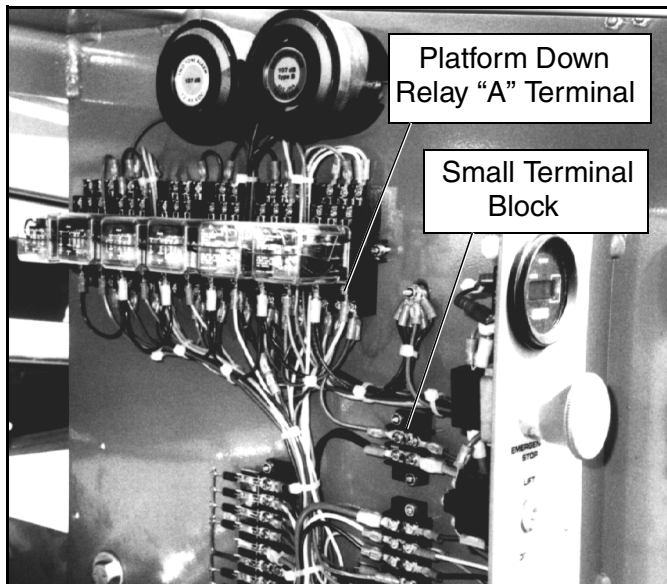


Figure 3-9: Platform Down Relay & Terminal Block

Axle Center Switch (Figure 3-10)

1. Check tires for proper pressure.
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 2.21-2.26 m (87-89 in.) above the ground. The work platform should not drive. Retest with axle off-center in the other position.

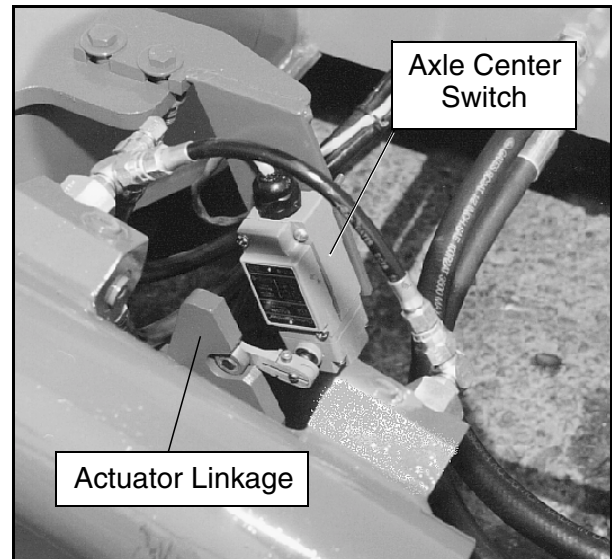


Figure 3-10: Axle Center Switch

Cushion Down Limit Switch (Figure 3-11)

The cushion down limit switch is a mercury switch that provides power to energize the cushion valve during the last 30 cm (12 in.) of platform lowering.

1. Raise the platform 30 cm (12 in.) from its' fully lowered position.
2. Disconnect the wires at the mercury switch and connect an ohmmeter or continuity tester.
3. Rotate the switch until it just closes. If necessary, tighten the locknut that mounts the switch.
4. Raise and lower the platform to verify the adjustment.
5. Disconnect ohmmeter and reconnect wires.
6. Lower platform.

Lift Cutout Limit Switch (Figure 3-11)

The lift cutout limit switch is a mercury switch that prevents the lift cylinder from bottoming out when the platform is raised.

1. Raise the platform to its' maximum height (mercury switch may need to be rotated if switch is cutting out lift function before cylinder bottoms out).
2. Mark the cylinder rod 25.4 mm (1 in.) from base of the rod. Lower platform slightly so the mark is at cylinder head cap.
3. Disconnect the wires at the mercury switch and connect an ohmmeter or continuity tester.
4. Rotate the switch until it just opens. If necessary, tighten the locknut that mounts the switch.
5. Raise and lower the platform to verify the adjustment.
6. Lower platform.

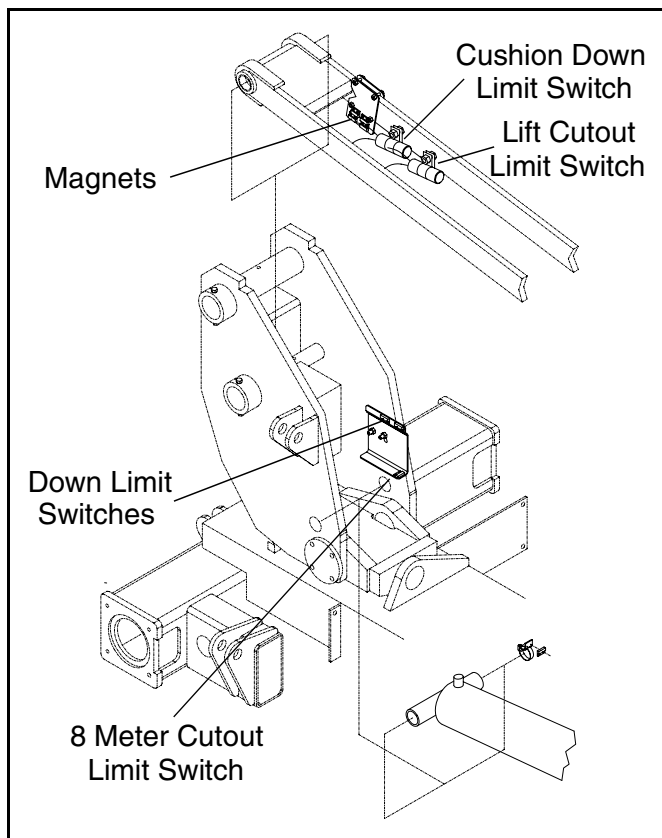


Figure 3-11: Limit Switch Locations

Down Limit Switch (Figure 3-11)

The down limit switches are dual proximity switches which allow 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. Disconnect the wires at the proximity switches and connect an ohmmeter or continuity tester.
3. Move the brackets holding the magnets so the switch just closes. Tighten the locknuts that hold the brackets.
4. Raise and lower the platform to verify the adjustment.
5. Disconnect ohmmeter and reconnect wires.
6. Lower platform.

Tilt Sensor (Figure 3-12)

The tilt sensor has three wires; red-power (12v in), black-ground, white-output (12v out). 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).

1. Level the platform with the platform controls using the inclinometer (p/n: 010119-000) to ensure the platform is level $\pm 1/4^\circ$ side-to-side and front-to-back.
2. Adjust the platform bubble level with the three leveling screws until the bubble is centered in the circle on the bubble level.
3. Dismount the platform and remove the cover from the back of the mast pivot weldment.
4. Adjust the three leveling locknuts on the tilt sensor until the bubble is centered in the circle on the attaches bubble level.
5. Replace the mast pivot weldment cover.



Figure 3-12: Tilt Sensor Adjustment

3.9 HYDRAULIC MANIFOLD (FIGURE 3-13)

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.

Removal

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

Disassembly

Note: Mark all components as they are removed so as not to confuse their location during assembly. Refer to Figure 3-13 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.
4. Disconnect cushion down valve block.
5. Remove tilt/level block and the manifold block.
6. Remove fittings, plugs, springs, balls and orifices.

Cleaning and Inspection

1. Wash the manifold in cleaning solvent to remove built up contaminants and then blow out all passages with clean compressed air.
2. Inspect the manifold for cracks, thread damage and scoring where O-rings seal against internal and external surfaces.
3. Wash and dry each component and check for thread damage, torn or cracked O-rings and proper operation.
4. 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 Locktite #242 on each screw-in orifice.
2. Install tilt/level block and manifold block.
3. Install emergency lowering valve, counterbalance valves, main relief valve, brake pressure reducing valve, solenoid valves and spool valves.
4. Install coils on solenoid valves.

Installation

1. Attach manifold assembly to mounting plate with bolts.

Note: Longer bolt goes in hole nearest the front of the module.

2. Attach cushion down valve block.
3. Connect solenoid leads to terminal strip (as previously tagged).
4. Connect hydraulic hoses. Be certain to tighten hoses to manifold.
5. Operate each hydraulic function and check for proper operation and leaks.
6. Adjust all hydraulic pressures according to instructions in Section 3.5.

1. Manifold
2. Manifold Block
3. Steering Valves
4. Three Way Valves
5. Flow Regulator
6. Flow Divider
8. Brake Pressure Reducing Valve
9. Lowering Valve
10. Lift Check Valve
11. Relief Valve
12. Ball, 5/16" Dia.
14. Ball, 1/2" Dia.
15. Spring
16. Spring
17. Orifice
18. Piston
22. Plug - SAE #4
23. Plug - SAE #6
24. Plug - SAE #8
25. Lift Valve
26. Screw, 3/4"
27. Washer, 3/8"
29. O-ring
30. Fitting Adapter
31. Fitting Adapter
32. Lowering Orifice
33. Cable Connector
36. Screw, 10-24
37. Fitting Adapter
38. Fitting Adapter
40. Relief Valve
42. Screw, 5/16"
43. Lockwasher, 5/16"
44. Tilt Level Block
45. Pluge
46. Relief Valve
47. Cushion Valve
48. Valve Poppet
49. Fitting, 90°
50. Relief Valve
51. Spacer
52. O-ring
53. Lift Check Valve
54. Relief Valve
57. Pressure Switch
58. Spacer
59. O-ring
60. Fitting, Gauge conn.

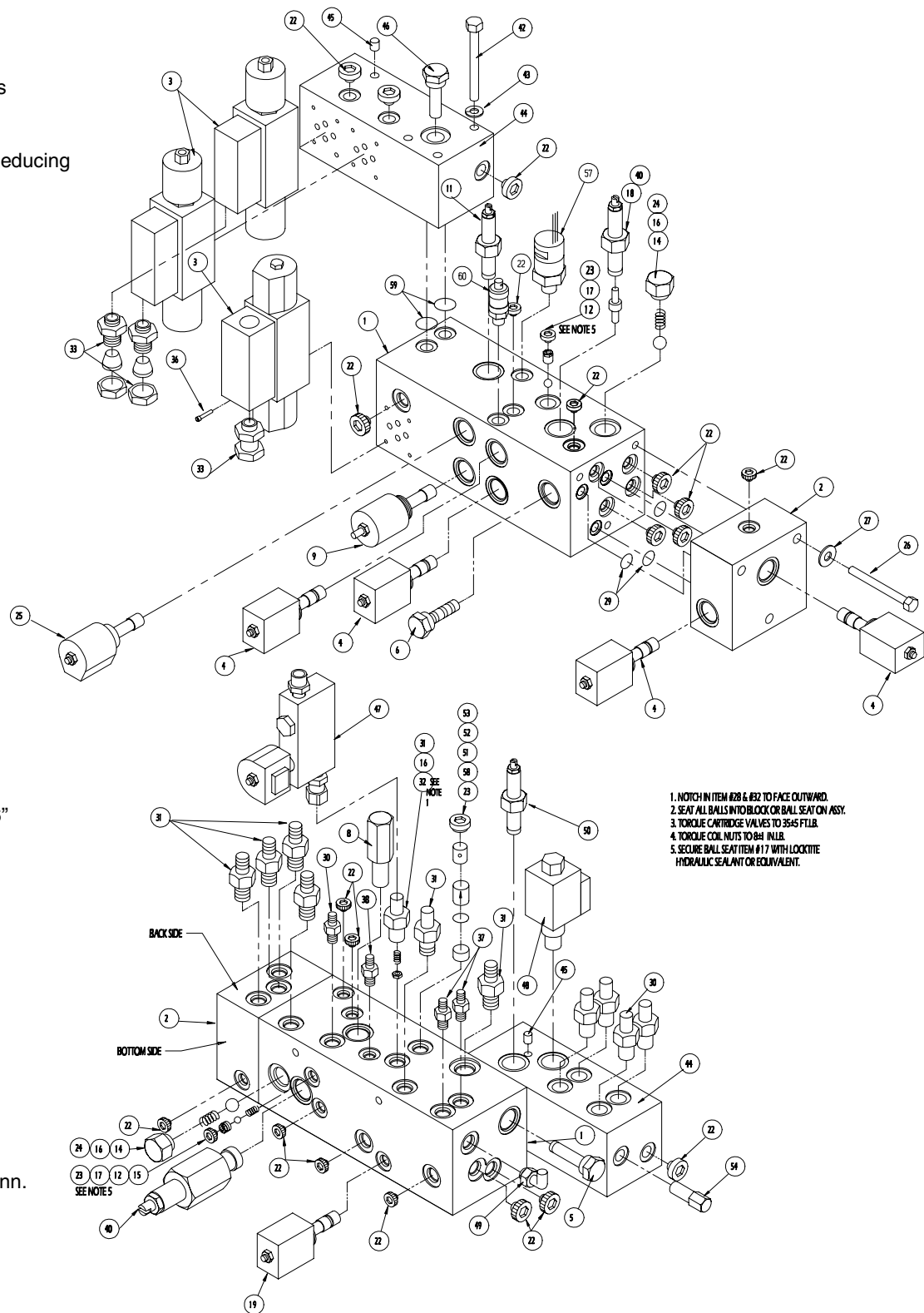


Figure 3-13: Hydraulic Manifold, Exploded View

3.10 HYDRAULIC PUMP (FIGURE 3-14)

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 assemblies from the engine.

Installation

1. Lubricate the pump shaft with extreme high pressure molybdenum grease and attach the pumps to the engine with capscrews.
2. Using a criss-cross pattern, torque each cap-screw a little at a time until all four capscrews are torqued to 27 Nm (20 ft. lbs.).
3. Unplug and reconnect the hydraulic hoses.
4. Check the oil level in the hydraulic tank before operating the work platform.

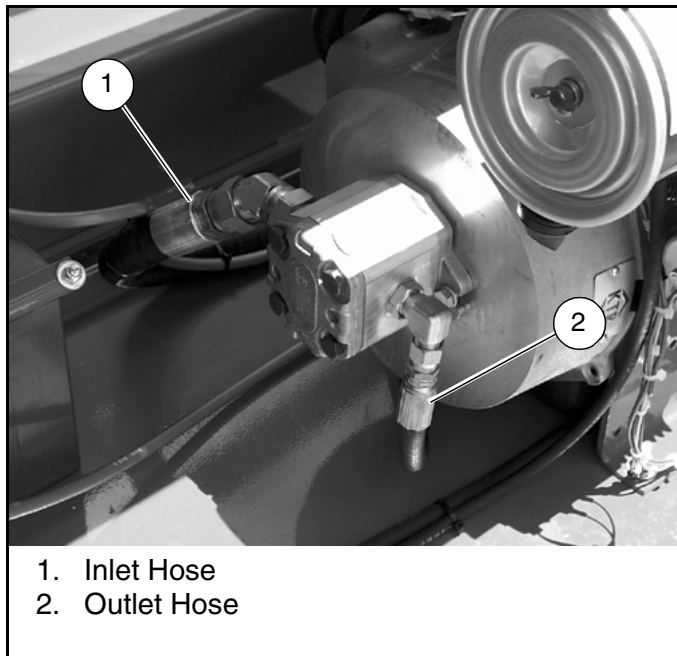


Figure 3-14: Typical Hydraulic Pump

3.11 HYDRAULIC BRAKES, DRIVE MOTORS & HUBS

Rear Axle (Figure 3-15)

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-ton jack.
4. Position 2 1-ton 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 wheel 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, lockwashers and drive motor assembly from the rear axle.
9. Remove the capscrews, washers, brake and drive motor assembly from the rear axle.
10. 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 installed into the brake and secure with socket screws using Locktite #242 retaining compound on the screw threads.
2. Position the drive motor and brake in the rear axle and secure with washers and capscrews.
3. Reinstall the adaptor and crossover block assembly to the hydraulic motor.
4. Reinstall the hose assemblies.

5. 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.
6. Reinstall the wheel and lug bolts onto the hub. Torque the lug 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.

⚠ 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.

7. Tag and disconnect the hose assemblies.
8. Remove the adaptor from the hydraulic motor.
9. Remove the capscrews and nuts and then remove the drive motor from the front axle steering mount.

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. Remove the jack stands used to block the wheels. Lower the jack and remove.
7. Operate the drive system to check for leaks.

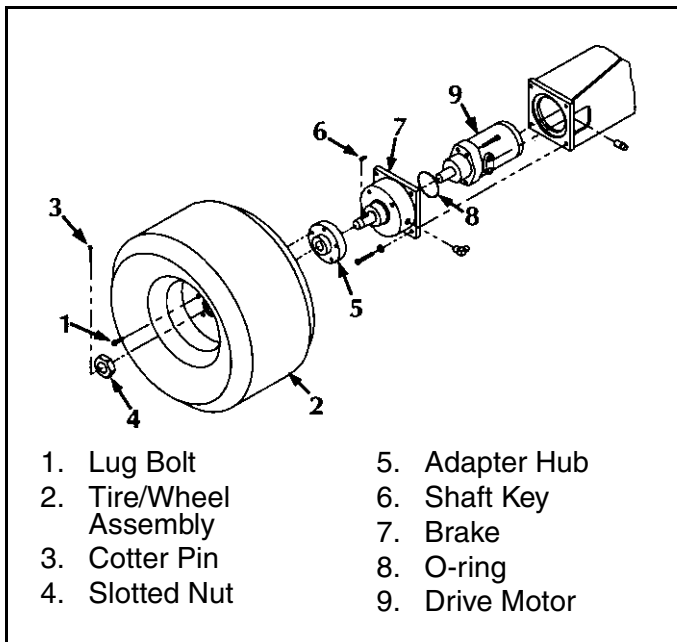


Figure 3-15: Rear Axle Assembly

Front Axle (Figure 3-16)

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 front of the chassis using a 2-ton jack.
4. Position 2 1-ton 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

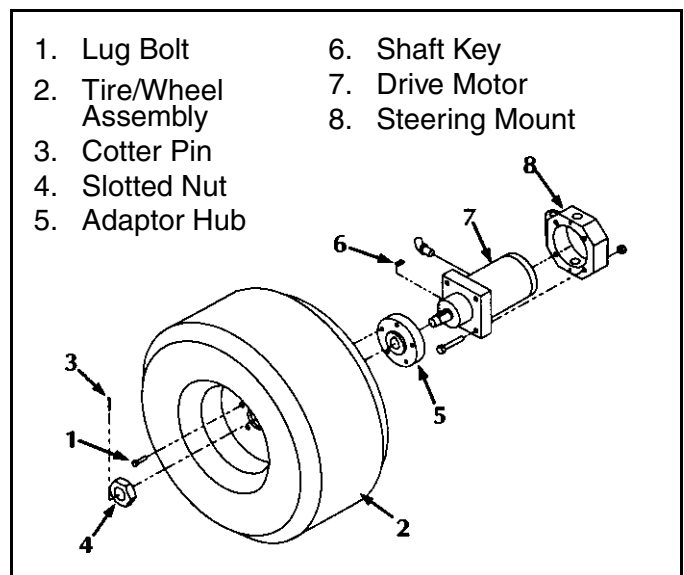


Figure 3-16: Front Axle Assembly

3.12 AXLE CYLINDER

Removal

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

1. Remove and cap the hoses.
2. Unscrew both cylinder retaining bolts noting the position of the washers. Remove the bolts from the cylinder and mounts.
3. Lift the cylinder from the mounts.

Installation

1. Completely fill both ends of cylinder with hydraulic oil.
 - a. Lay the cylinder on its' side on a level table with the pilot operated check valves up.
 - b. Remove the pilot operated check valves from the ports.
 - c. Pour hydraulic oil into the cylinder through the pilot operated check valve ports.
 - d. The opening to the cylinder is small. Be careful to ensure all air is removed and the cylinder is full of oil.
 - e. Reinstall the pilot operated check valves.
2. Attach both ends of the cylinder to mounts with cylinder retaining bolts.
3. Torque the retaining bolts to 203 Nm (150 ft. lbs.).
4. Operate the work platform over rough terrain and check for proper function and leaks.

3.13 STEERING CYLINDER (FIGURE 3-17)

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 capscrews securing the rod ends to the steering linkage.
3. Loosen the nut and bolt in front of the Steering Cylinder that goes through the frame.
4. Remove the capscrews and locknuts that fasten the cylinder assembly to the chassis.
5. Remove the cylinder from the chassis.

Disassembly

1. Remove the fittings from both ends of the cylinder.
2. Remove the headcaps from the barrel tube, being sure to 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.

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. Connect the hose assemblies to the fittings.
13. Operate the steering circuit several times throughout its' entire range of travel to expel trapped air and check for leaks.

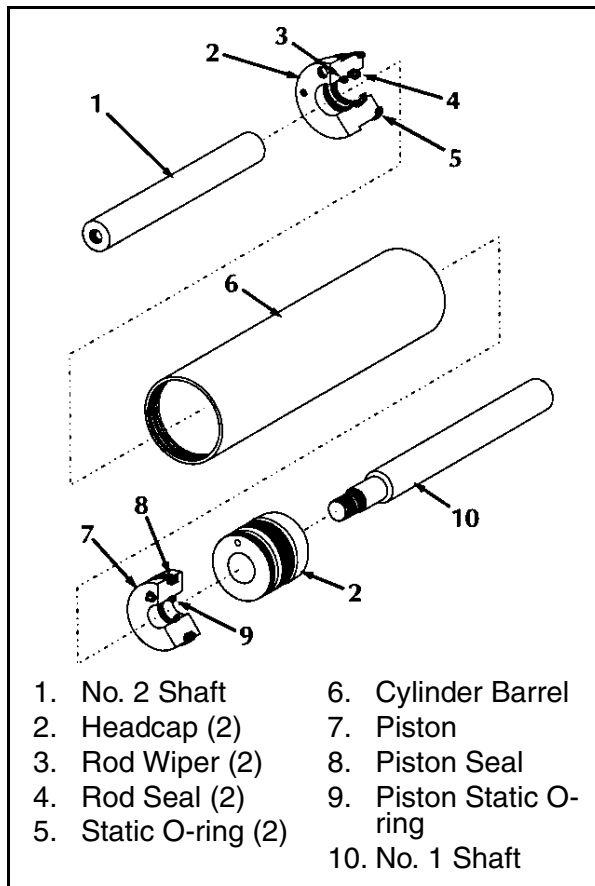


Figure 3-17: Steering Cylinder Assembly

Adjustment

1. Disconnect the cylinder rod ends (if connected).
2. Operate steering so that both ends of the cylinder rod are equal length (.8 mm, $\pm 1/32$ inch).
3. Position both tires so they are parallel with the frame and with each other.
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.

3.14 LIFT CYLINDER (FIGURE 3-18)

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 block the front of the elevating assembly approximately 305 mm (12 inches) above the chassis. Support with a jackstand with a minimum rating of 1814 kg (4000 lbs.).
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 of the front of the machine.

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 (70 ft. 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.

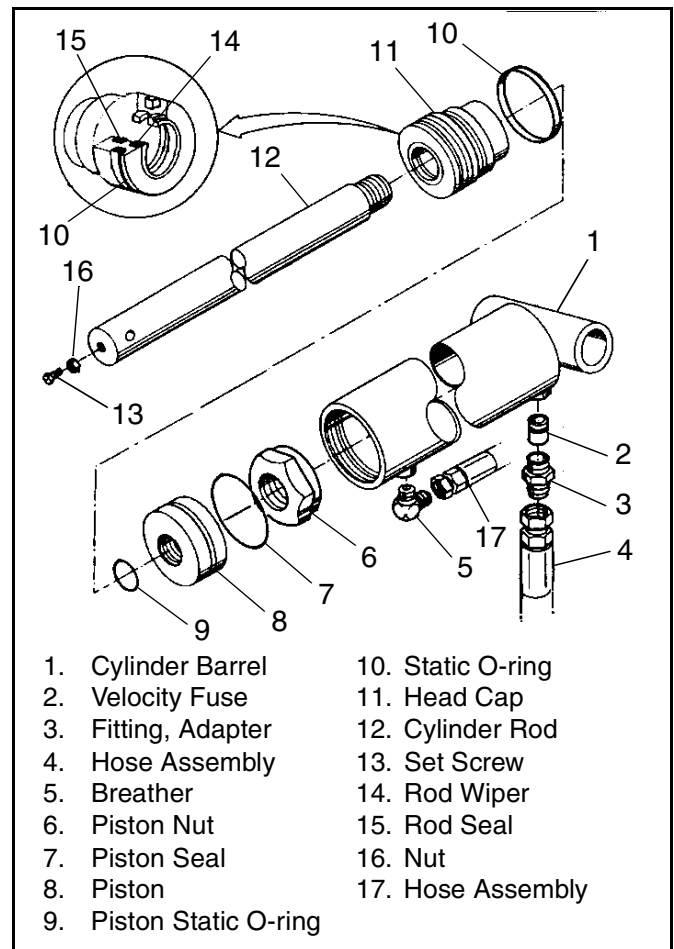


Figure 3-18: Lift Cylinder Assembly

4. Lubricate 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.

3.15 TORQUE SPECIFICATIONS

Fasteners

Use the following values to torque fasteners used on UpRight Work Platforms unless a specific torque value is called out for the part being installed.

Hydraulic Components

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

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

Table 3-1: Torque Specifications for Fasteners

AMERICAN STANDARD CAP SCREWS									METRIC CAP SCREWS								
SAE GRADE	5				8				METRIC GRADE	8.8				10.9			
Cap Screw Size (inches)									Cap Screw Size (millimeters)	 				 			
	TORQUE				TORQUE					TORQUE				TORQUE			
	Ft./Lbs		Nm.		Ft./Lbs.		Nm.			Ft./Lbs.		Nm.		Ft./Lbs.		Nm.	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
1/4 - 20	6.25	7.25	8.5	10	8.25	9.5	11	13	M6 x 1.00	6	8	8	11	9	11	12	15
1/4 - 28	8	9	11	12	10.5	12	14	16	M8 x 1.25	16	20	21.5	27	23	27	31	36.5
5/16 - 18	14	15	19	20	18.5	20	25	27	M10 x 1.50	29	35	39	47	42	52	57	70
5/16 - 24	17.5	19	23	26	23	25	31	34	M12 x 1.75	52	62	70	84	75	91	102	123
3/8 - 16	26	28	35	38	35	37	47.5	50	M14 x 2.00	85	103	115	139	120	146	163	198
3/8 - 24	31	34	42	46	41	45	55.5	61	M16 x 2.50	130	158	176	214	176	216	238	293
7/16 - 14	41	45	55.5	61	55	60	74.5	81	M18 x 2.50	172	210	233	284	240	294	325	398
7/16 - 20	51	55	69	74.5	68	75	92	102	M20 x 2.50	247	301	335	408	343	426	465	577
1/2 - 13	65	72	88	97.5	86	96	116	130	M22 x 2.50	332	404	450	547	472	576	639	780
1/2 - 20	76	84	103	114	102	112	138	152	M24 x 3.00	423	517	573	700	599	732	812	992
9/16 - 12	95	105	129	142	127	140	172	190	M27 x 3.00	637	779	863	1055	898	1098	1217	1488
9/16 - 18	111	123	150	167	148	164	200	222	M30 x 3.00	872	1066	1181	1444	1224	1496	1658	2027
5/8 - 11	126	139	171	188	168	185	228	251	NOTE: These values apply to fasteners as received from the supplier, dry or when lubricated with normal engine oil. They do not apply if special graphited or molydisulphide greases or other extreme pressure lubricants are used								
5/8 - 18	152	168	206	228	203	224	275	304									
3/4 - 10	238	262	322	355	318	350	431	474									
3/4 - 16	274	302	371	409	365	402	495	544									
7/8 - 9	350	386	474	523	466	515	631	698									
7/8 - 14	407	448	551	607	543	597	736	809									
1 - 8	537	592	728	802	716	790	970	1070									
1 - 14	670	740	908	1003	894	987	1211	1337									

Table 3-2: Torque Specifications for Hydraulic Components

Type: SAE Part Series	Cartridge Poppet		Fittings		Hoses	
	Ft/Lbs	Nm	Ft/Lbs	Nm	Ft/Lbs	Nm
#4	N/A	N/A	N/A	N/A	135-145	15-16
#6	N/A	N/A	10-20	14-27	215-245	24-28
#8	25-30	34-41	25-30	34-41	430-470	49-53
#10	35-40	47-54	35-40	47-54	680-750	77-85
#12	85-90	115-122	85-90	115-122	950-1050	107-119
#16	130-140	176-190	130-140	176-190	1300-1368	147-155

Section 4

TROUBLESHOOTING

Introduction

This section contains troubleshooting Truth Tables for the Work Platform.

W A R N I N G

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

When performing any service on, or in the Elevating Assembly area, which requires the platform to be raised, the Elevating Assembly must be blocked

Disconnect the battery ground cable when replacing or testing the continuity of any electrical component.

General Procedure

Thoroughly study the hydraulic and electrical schematics in **Section 5**.

Check for loose connections and short circuits.

Check/Repair/Replace each component in the Truth Table which is listed under each machine function which does not operate properly.

Upright Product Support

UPRIGHT USA **TEL: 1-559-891-5200**
FAX: 1-559-896-9244

UPRIGHT IRELAND **TEL: 353-1-202-4100**
FAX: 353-1-202-4105

Table	Page
Electrical Schematic Truth Table, Diesel	4-2
Hydraulic Schematic Truth Table	4-4

4.1 ELECTRICAL TRUTH TABLE, DIESEL

Table 4-1: Electrical Truth Table - Diesel (064149-079)

COMPONENT	FUNCTION	ENGINE START & RUN	UPPER CONTROL FUNCTIONS	LOWER CONTROL FUNCTIONS	RAISE PLATFORM	LOWER PLATFORM	DRIVE FORWARD	DRIVE REVERSE	HIGH/LOW SPEED	STEER LEFT	STEER RIGHT	BATTERY CHARGE	ALARMS	PLATFORM LEVEL
ALM1	Alarm, Down					X							X	
ALM2	Alarm, Tilt						X	X					X	
ALT	Alternator											X		
BAT	Battery, 12 Volt	X												
CO1	Coil, Throttle	X												
CO2	Coil, Run	X												
D1	Diode						X							
D2	Diode							X						
D3	Diode				X									
D4	Diode							X						
D5	Diode						X	X						
D6	Diode					X	X	X						
D7	Diode				X									
D8	Diode						X	X						
D9	Diode				X		X							
D10	Diode						X	X						
F1	Fuse, 15 Amp	X			X		X	X		X	X	X	X	
F2	Fuse, 15 Amp	X			X		X	X		X	X	X	X	
HM	Hour Meter													
LS1	Limit Switch, Platform Down						**	**		XX	XX			
LS2	Limit Switch, Cushion Down					X								
LS3	Limit Switch, Axle Center						**	**						
PS1	Oil Pressure Switch				X		X	X		X	X			
PS2	Pressure Switch, Lift				X									
R1	Relay, Platform Down						X	X						
R2	Relay, Cutout				X		**	**						
R3	Relay, Drive						X	X						
R4	Relay, Throttle				X		X	X						
R5	Relay, Drive/Lift				X	X								
R6	Relay, Start				X		X	X		X	X			
R7	Relay, Controller				X		X	X						
R8	Relay, Engine Start	X												

NOTE: Schematic shows machine in Hi-Torque. * shows high speed drive

** De-Energized when platform is elevated.

XX Schematic shows machine steering when platform is lowered.

Schematic shows machine elevated in steering and drive.

Elevated drive only.

TROUBLESHOOTING

Section 4.1

COMPONENT		FUNCTION	ENGINE START & RUN	UPPER CONTROL FUNCTIONS	LOWER CONTROL FUNCTIONS	RAISE PLATFORM	LOWER PLATFORM	DRIVE FORWARD	DRIVE REVERSE	HIGH/LOW SPEED	STEER LEFT	STEER RIGHT	BATTERY CHARGE	ALARMS	PLATFORM LEVEL
R9	Relay, Starter		X												
R10	Relay, Glow Plug		X												
RES1	Glow Plugs		X												
S1	Switch, Interlock Lever (Trigger)					X	X	X	X						
S2	Switch, Down/Reverse						X		X						
S3	Switch, Lift/Forward					X		X							
S4,5	Switches, Steering										X	X			
S6	Switch, Emergency Stop (Upper)		X	X	X	X	X	X	X		X	X			
S7	Switch, Key		X			X	X	X	X		X	X			
S8	Switch, Drive/Level/Lift					X	X	X	X						X
S9	Switch, Torque Selector							*	*						
S10	Switch, Emergency Stop (Lower)					X	X	X	X						
S11	Switch, Chassis Lift					X									
S12	Switch, Tilt Fore/Aft														X
S13	Switch, Tilt Right/Left														X
S14	Switch, Platform/Chassis				X										
S15	Switch, Platform Down Limit							X	X						
S16	Switch, Drive Cutout							X	X						
S17	Switch, Glow Plug		X												
SEN1	Sensor, Level					X		#	#		#	#			
SOL1	Solenoid, Steer Right											X			
SOL2	Solenoid, Steer Left										X				
SOL3	Solenoid, Forward							X							
SOL4	Solenoid, Reverse								X						
SOL5	Solenoid, Up					X									
SOL6	Solenoid, Down						X	X	X						
SOL7	Solenoid, Proportional					X		X	X						
SOL8	Solenoid, Cushion						X								
SOL9,10	Solenoids, Series/Parallel							*	*						
SOL11	Solenoid, Axle Float							X	X						
SOL12	Solenoid, Tilt Forward														X
SOL13	Solenoid, Tilt Aft														X
SOL14	Solenoid, Tilt Right														X
SOL15	Solenoid, Tilt Left														X
SOL16	Solenoid, Steer Bypass										X	X			
STR	Starter		X												

NOTE: Schematic shows machine in Hi-Torque. * shows high speed drive

** De-Energized when platform is elevated.

XX Schematic shows machine steering when platform is lowered.

Schematic shows machine elevated in steering and drive.

Elevated drive only.

4.2 HYDRAULIC TRUTH TABLE

Table 4-2: Hydraulic Truth Table (064148-022)

COMPONENT		FUNCTION	RAISE PLATFORM	LOWER PLATFORM	DRIVE FORWARD	DRIVE REVERSE	HIGH/LOW SPEED	STEER LEFT	STEER RIGHT	BRAKES	AXLE FLOAT	TILT
BR1&2	Brake, Multi-disc									X		
CV1	Check Valve, Brake									X		
CV2	Check Valve, Lift		X									
CV3,4	Check Valve, Axle Float Cylinder										X	
CV5-8	Check Valves, Tilt Cylinder											X
CYL1	Cylinder, Steering							X	X			
CYL2	Cylinder, Lift		X									
CYL3	Cylinder, Axle Float										X	
CYL4	Cylinder, Fore/Aft Tilt											X
CYL5	Cylinder, Side/Side Tilt											X
FD1	Flow Divider, Steering							X	X			
FD2	Flow Divider/Combiner				X	X		X	X			
FD3	Flow Divider, Tilt											X
FL1	Filter		X	X	X	X	X	X	X	X	X	X
FL2	Filter, Suction Screen		X	X	X	X	X	X	X	X	X	X
MOT1-4	Motor, Drive				X	X						
ORF1	Orifice, Down			X								
ORF2	Orifice, Cushion Down			X								
P1	Pump, Hydraulic		X	X	X	X	X	X	X	X	X	X
RV1	Relief Valve, Main		X	X	X	X		X	X			
RV2	Relief Valve, Steering							X	X			
RV3	Relief Valve, Rear Drive Cross				X	X						
RV4	Relief Valve, Front Drive Cross				X	X						
RV5	Relief Valve, Fore/Aft Tilt											X
SV1	Shuttle Valve				X	X						

TROUBLESHOOTING

Section 4.2

COMPONENT		FUNCTION	RAISE PLATFORM	LOWER PLATFORM	DRIVE FORWARD	DRIVE REVERSE	HIGH/LOW SPEED	STEER LEFT	STEER RIGHT	BRAKES	AXLE FLOAT	TILT
V1	Valve, Steering							X	X			
V2	Valve, Forward Counterbalance				X							
V3	Valve, Reverse Counterbalance					X						
V4	Valve, Forward				X							
V5	Valve, Reverse					X						
V6	Valve, Velocity Fuse		X									
V7	Valve, Lift		X									
V8	Valve, Down			X								
V9	Valve, Proportional				X	X						
V10	Valve, Brake Release									X		
V11	Valve, Axle Float										X	
V12,13	Valves, Series/Parallel				X	X						
V14	Valve, Brake Pressure Reducing									X		
V15	Valve, Cushion Down			X								
V16	Valve, Steering Dump							X	X			
V17	Valve, Fore/Aft Tilt											X
V18	Valve, Side/Side Tilt											X

NOTES:

Section 5

SCHEMATICS

Introduction

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

The schematics may be used in conjunction with the ***Troubleshooting Truth Tables*** in **Section 4**. They are designed to be an aid in understanding each machine function.

They may be used for checking, tracing, and faultfinding during troubleshooting machine operation.

The components in the electrical and hydraulic schematics are given a reference designation and are explained as to function and location in the following tables.

Schematic	Page
Electrical Schematic, Diesel	5-3
Hydraulic Schematic	5-5
Table	Page
Elec. Schematic Legend, Diesel	5-2
Hydraulic Schematic Legend	5-4

5.1 ELECTRICAL SCHEMATIC, SL26/30SL

Table 5-1: Electrical Schematic Legend: Diesel (064149-079)

DESIGNATION	NAME	FUNCTION	LOCATION
ALM1	Alarm, Down	Provides warning sound when deck is lowered.	Control Module
ALM2	Alarm, Tilt	Sounds audible warning when platform is elevated and not level	Control Module
ALT	Alternator	Maintains battery charge while engine is running	Power Module
BAT	Battery, 12 Volt	Stores energy	Power Module
CO1	Coil, Throttle	Controls engine RPM	Engine
CO2	Coil, Run	Shuts off fuel flow	Engine
D1	Diode	Supplies power to Drive Relay	Fanning Strip
D2	Diode	Supplies power to Drive Relay	Fanning Strip
D3	Diode	Supplies power to throttle	Fanning Strip
D4	Diode	Supplies power to throttle	Fanning Strip
D5	Diode	Supplies power to down circuit	Fanning Strip
D6	Diode	Supplies power to down circuit	Fanning Strip
D7	Diode	Supplies power to joystick terminal	Fanning Strip
D8	Diode	Supplies power to joystick terminal	Fanning Strip
D9	Diode	Supplies power to Controller Relay	Upper Controls
D10	Diode	Supplies power to Drive Relay	On Drive Relay R3
D11	Diode	Provides power to Drive Relay	Upper Controls
D12	Diode	Supplies power to Steer Bypass	Fanning Strip
D13	Diode	Supplies power to Steer Bypass	Fanning Strip
D14-17	Diodes	Supplies power to Steer Bypass	Fanning Strip
D18	Diode	Supplies power to Platform Level circuit when platform is down	On Down Relay R1
D19	Diode	Prevents power from keyswitch S14 from energizing terminal strip B	On keyswitch S14
D20	Diode	Supplies power to Choke Switch S17	Upper Controls
F1	Fuse, 15 Amp	Overload protection for control circuit	Control Module
F2	Fuse, 15 Amp	Overload protection for control circuit	Control Module
HM	Hour Meter	Tracks hours machine has been in operation.	Control Module
LS1	Limit Switch, Platform Down	Energizes platform down relay, providing power to joystick	Elevating Assembly at Lift Cylinder
LS2	Limit Switch, Cushion Down	Provides power to Cushion Valve during last 6 in. of lowering	Mounted to lower tension member
LS3	Limit Switch, Axle Center	Supplies power to Drive Relay when platform is elevated.	Mounted behind left front axle
PS1	Pressure Switch, Engine Oil	Cuts power to engine when oil pressure falls to dangerous levels	Power Module
PS3	Pressure Switch, Lift	Cuts power to high speed circuit and Axle Float Solenoid when there is pressure in the lift circuit	Valve Manifold
R1	Relay, Platform Down	Provides power to Series/Parallel and Down Valves and Cutout Relay	Control Module

DESIGNATION	NAME	FUNCTION	LOCATION
R2	Relay, Cutout	Provides power to Drive Relay thru Axle Center Switch and closes Lift circuit when energized by Platform Down Relay	Control Module
R3	Relay, Drive	Energized by Platform Down Relay when platform is down or by Cutout Relay thru Axle Center Switch	Control Module
R4	Relay, Throttle	Provides power to the Throttle Solenoid to increase RPM	Control Module
R5	Relay, Drive/Lift	Provides power to forward or reverse coils when not energized	Control Module
R6	Relay, Run	Provides power to Run Solenoid thru Oil Pressure Switch	Control Module
R7	Relay, Controller	Provides power to the joystick "+" terminal	Upper Controller
R8	Relay, Start	Engages Starter Relay	Power Module
R9	Relay, Starter	Connects battery to starter motor	Starter Motor
R10	Relay, Glow Plug	Provides power to Glow Plugs	Power Module
RES1	Glow Plugs	Aids starting engine when cold	Power Module
S1	Switch, Interlock Lever (Trigger)	Enables lift/drive/level functions when depressed	Upper Controls
S2	Switch, Down/Reverse	Provides power to down and reverse circuits when actuated	Upper Controls
S3	Switch, Lift/Forward	Provides power to lift and forward circuits when actuated	Upper Controls
S4,5	Switch, Steering	Provides power to steer left/right circuits when actuated with thumb rocker switch on joystick	Upper Controls
S6	Switch, Emergency Stop (Upper)	Cuts power to control circuits	Upper Controls
S7	Switch, Key	Supplies power to controls and engine	Upper Controls
S8	Switch, Drive/Level/Lift	Supplies power to selected circuits	Upper Controls
S9	Switch, Torque Selector (Drive/Lift speed)	Provides power to Series/Parallel Valves to provide high speed drive/lift	Upper Controls
S10	Switch, Emergency Stop (Lower)	Cuts power to control circuits	Lower Controls
S11	Switch, Chassis Lift	Supplies power to Up and Proportional coils or down circuit	Lower Controls
S12	Switch, Tilt Fore/Aft	Provides power to Tilt Fore or Aft Coils to level platform	Upper Controls
S13	Switch, Tilt Right/Left	Provides power to Tilt Right or Left Coils to level platform	Upper Controls
S14	Switch, Platform/Chassis	Toggles power between platform controls and lower controls	Lower Controls
S15	Switch, Platform Down Limit	Prevents Lift Cylinder from bottoming out on down stroke	Upper Controls
S16	Switch, Drive Cutout	Disables drive function when platform is above 8 meters	Elevating Assembly at Lift Cylinder
S17	Switch, Glow Plug	Engages glow plugs to aid starting engine when cold	Upper Controls

Section 5.1

[illegible]

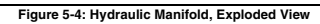
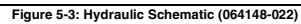
SL26/30SL Work Platform

**Section
5.2****SCHEMATICS****5.2 HYDRAULIC SCHEMATIC, SL26/30SL****Table 5-2: Hydraulic Schematic Legend (064148-022)**

DESIGNATION	NAME	FUNCTION	LOCATION
BR1	Brake, Multi-disc	Parking brake	Right rear wheel
BR2	Brake, Multi-disc	Parking brake	Left rear wheel
CV1	Check Valve, Brake	Allows free flow of oil from brakes around pressure reducing valve	Valve Block
CV2	Check Valve, Lift	Prevents oil from leaking through Lift Valve	Valve Manifold
CV3,4	Check Valves, Axle Float Cylinder	Locks Axle Float Cylinder when platform is elevated	On Axle Float Cylinder
CV5-8	Check Valves, Tilt Cylinder	Locks Tilt Cylinder to prevent motion when platform is elevated	On Tilt Cylinder
CYL1	Cylinder, Steering	Provides force to steer front wheels	Front of chassis
CYL2	Cylinder, Lift	Provides force to Lift Platform	Between chassis pedestal weldment and lower arm weldment
CYL3	Cylinder, Axle Float	Locks front axle when platform is elevated	Front axle
CYL4	Cylinder, Fore/Aft Tilt	Provides front and rear leveling of platform	Rear of elevating assembly
CYL5	Cylinder, Side/Side Tilt	Provides right and left leveling of platform	Right rear of elevating assembly
FD1	Flow Divider, Steering	Diverts oil to Steering Valve	Valve Manifold
FD2	Flow Divider, Combiner	Allows positive traction in parallel drive	Valve Manifold
FD3	Flow Divider, Tilt	Diverts oil for platform leveling	Auxiliary Valve Manifold
FL1	Filter	Filters oil returning to tank	Top of hydraulic tank
FL2	Filter, Suction Screen	Traps particles in hydraulic tank	Inside hydraulic tank, at outlet
MOT1	Motor, Drive	Drives left rear wheel	Left rear axle
MOT2	Motor, Drive	Drives right front wheel	Left front axle
MOT3	Motor, Drive	Drives right rear wheel	Right rear axle
MOT4	Motor, Drive	Drives right front wheel	Right front axle
ORF1	Orifice, Down	Controls the platform rate of descent	Valve Manifold
ORF2	Orifice, Cushion Down	Slows the platform rate of descent during the last 12 in. (300mm) of platform lowering	Cushion Valve Block
P1	Pump, Hydraulic	Provides fluid power for hydraulic system	Rear of engine
P1	Pump, Brake Release	Release Brakes Manually	Rear of Chassis
RV1	Relief Valve, Main	Provides overpressure protection to Pump	Valve Manifold
RV2	Relief Valve, Steering	Provides overpressure protection to steering components	Valve Manifold
RV3	Relief Valve, Rear Drive Cross	Provides overpressure protection to drive motors during turning	Mounted behind hydraulic tank
RV4	Relief Valve, Front Drive Cross	Provides overpressure protection to drive motors during turning	Mounted behind hydraulic tank

DESIGNATION	NAME	FUNCTION	LOCATION
RV5	Relief Valve, Fore/Aft Tilt	Provides overpressure protection for forward leveling	Auxiliary Valve Manifold
SV1	Shuttle Valve	Provides oil to brakes when either drive FORWARD or REVERSE are actuated.	Valve Manifold
V1	Valve, Steering	Provides directional control for Steering Cylinder	Valve Manifold
V2	Valve, Forward Counterbalance	Prevents machine from running away on slopes and also cushions stops	Valve Manifold
V3	Valve, Reverse Counterbalance	Prevents machine from running away on slopes and also cushions stops	Valve Manifold
V4	Valve, Forward	Provides directional control of oil for forward drive	Valve Manifold
V5	Valve, Reverse	Provides directional control of oil for reverse drive	Valve Manifold
V6	Valve, Velocity Fuse	Locks Lift Cylinder if line breaks	Lift Cylinder
V7	Valve, Lift	Provides oil flow to Lift Cylinder	Valve Manifold
V8	Valve, Down	Allows oil to flow out of Lift Cylinder to tank	Valve Manifold
V9	Valve, Proportional	Prevents oil from bypassing while driving or lifting	Valve Manifold
V10	Valve, Brake Release	Allows use of brake release pump by closing return circuit	On front of brake release pump Assy
V11	Valve, Axle Float	Allows Axle Cylinder to float when energized, locks Axle Cylinder when not energized	Mounted on side of hydraulic tank
V12,13	Valves, Series/Parallel	Shifting both valves changes the oil flow from high torque (parallel) to high speed (series).	Valve Manifold
V14	Valve, Brake Pressure Reducing	Drops system pressure to 390 psi (27 bar) for proper Brake operation	Valve Manifold
V15	Valve, Cushion Down	Closes to send oil thru Cushion Down Orifice, slowing platform rate of descent for the last 12 in. (305mm)	Valve Manifold
V16	Valve, Steering Dump	Directs oil to platform leveling or steering valves	Auxiliary Valve Manifold
V17	Valve, Fore/Aft Tilt	Provides direction control of oil for fore/aft platform leveling	Auxiliary Valve Manifold
V18	Valve, Side/Side Tilt	Provides direction control of oil for side/side platform leveling	Auxiliary Valve Manifold

Section 5.2



NOTES:

Section 6

ILLUSTRATED PARTS BREAKDOWN

Introduction

This section lists and illustrates the replaceable assemblies and parts of this product, as manufactured by UpRight, Inc. Each parts list contains the component parts for that assembly.

CONTENTS

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Section 6.1

ILLUSTRATED PARTS BREAKDOWN

**FINAL ASSEMBLY,
SL26SL KUBOTA DIESEL**
064405-011

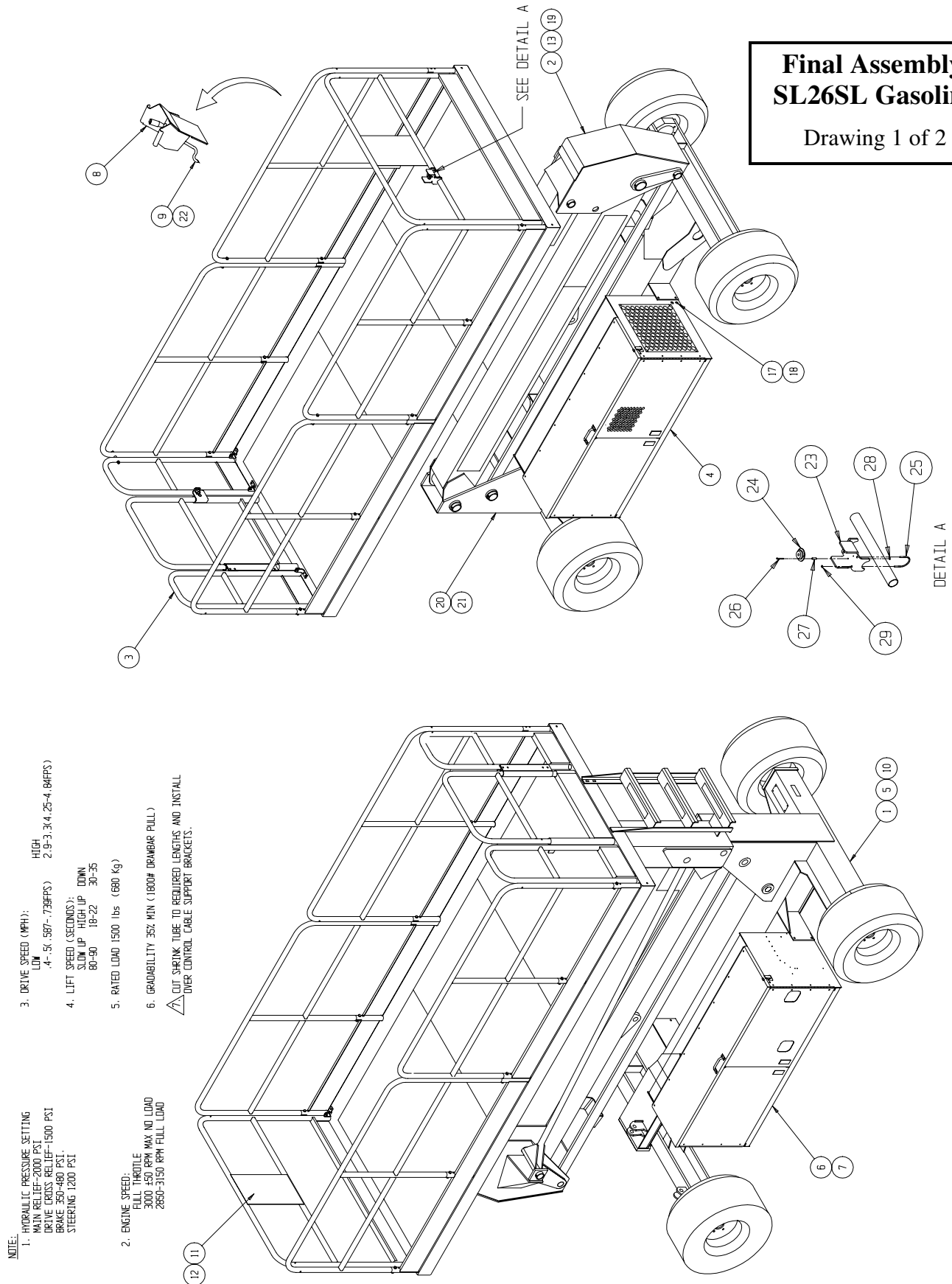
ITEM	PART NO.	DESCRIPTION	QTY.
1	064001-035	CHASSIS ASSEMBLY	1
2	064677-005	LINKAGE INSTALLATION	1
3	064678-003	PLATFORM/GUARDRAIL INSTALLATION	1
4	064002-024	POWER MODULE ASSEMBLY	1
5	064207-003	WIRE HARNESS	1
7	064003-081	CONTROL MODULE ASSEMBLY	1
8	064411-024	CONTROLLER ASSEMBLY	1
9	064007-010	CONTROL CABLE	1
10	064008-039	HOSE KIT	1
12	064006-085	LABEL KIT	1
13	064679-002	SWITCH INSTALLATION	1
15	064149-080	ELECTRICAL SCHEMATIC	REF
16	064148-022	HYDRAULIC SCHEMATIC	REF
17	011256-010	SCREW HHC 1/2-13 UNC X 1-1/4	8
18	011248-008	NUT HEX 1/2-13 UNC ESNA	8
19	064412-000	CYLINDER HOLD	1
21	064680-002	LEVEL SENSOR INSTALLATION	1
22	064007-011	AUX CONTROL CABLE	1
23	064794-000	LEVEL MOUNT	1
24	000942-000	ORBIT LEVEL	1
25	014924-008	U-BOLT	2
26	011721-008	SCREW MACHINE RD HD 4-40 X 1	3
27	005133-000	SPRING	3
28	011248-049	NUT HEX 4-40 ESNA	3
29	011248-004	NUT HEX 1/4-20 ESNA	4
30	029940-099	SHRINK TUBING 3/4 DIA	2.7FT
31	029976-099	SHRINK TUBING 1/2 DIA	2FT

ILLUSTRATED PARTS BREAKDOWN

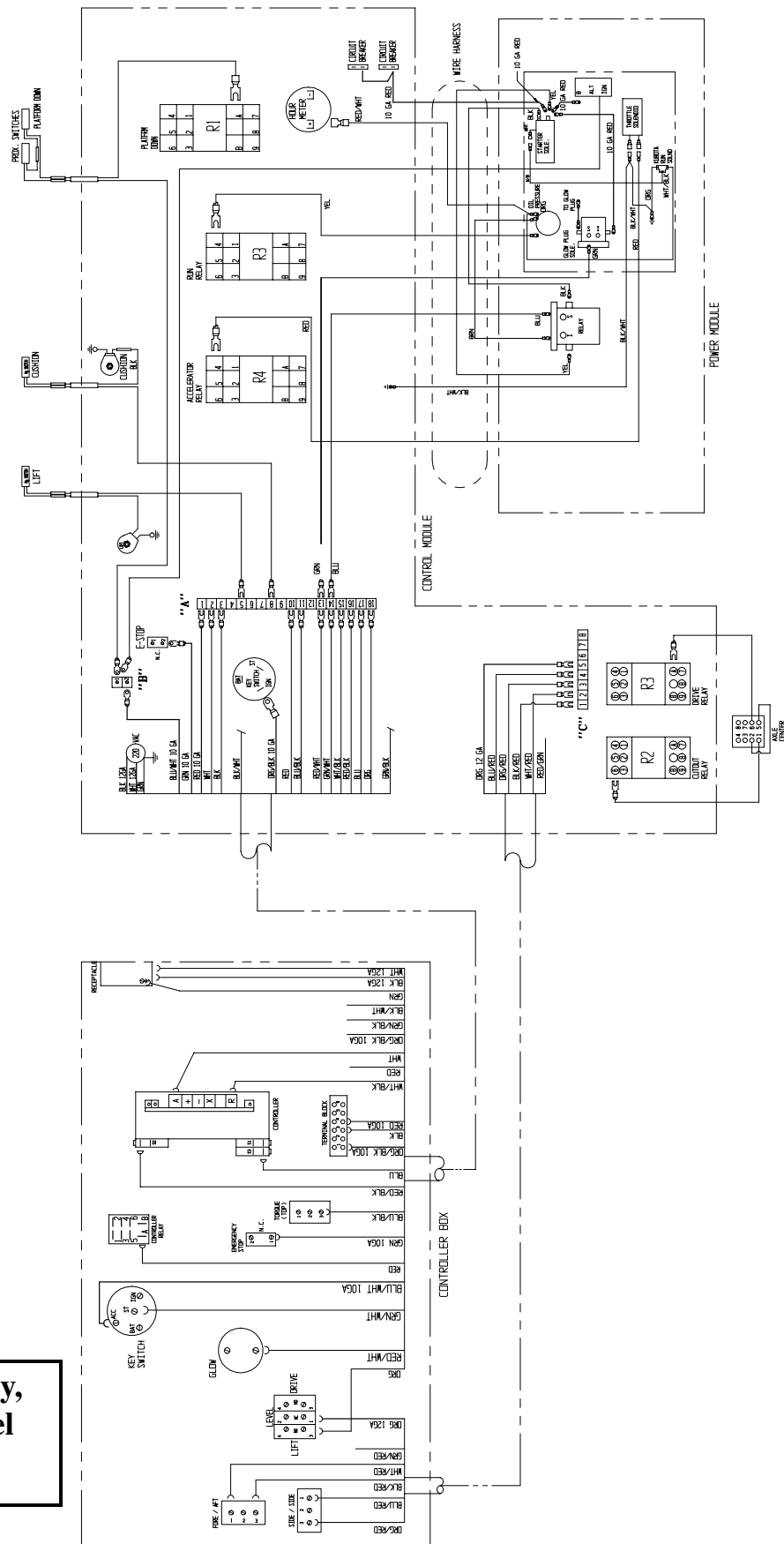
Section 6.1

Final Assembly, SL26SL Gasoline

Drawing 1 of 2



ILLUSTRATED PARTS BREAKDOWN



**Final Assembly,
SL26SL Diesel**

Drawing 2 of 2

ILLUSTRATED PARTS BREAKDOWN

Section 6.1

NOTES:

Section 6.1

ILLUSTRATED PARTS BREAKDOWN

**FINAL ASSEMBLY,
SL30SL KUBOTA DIESEL**
064605-011

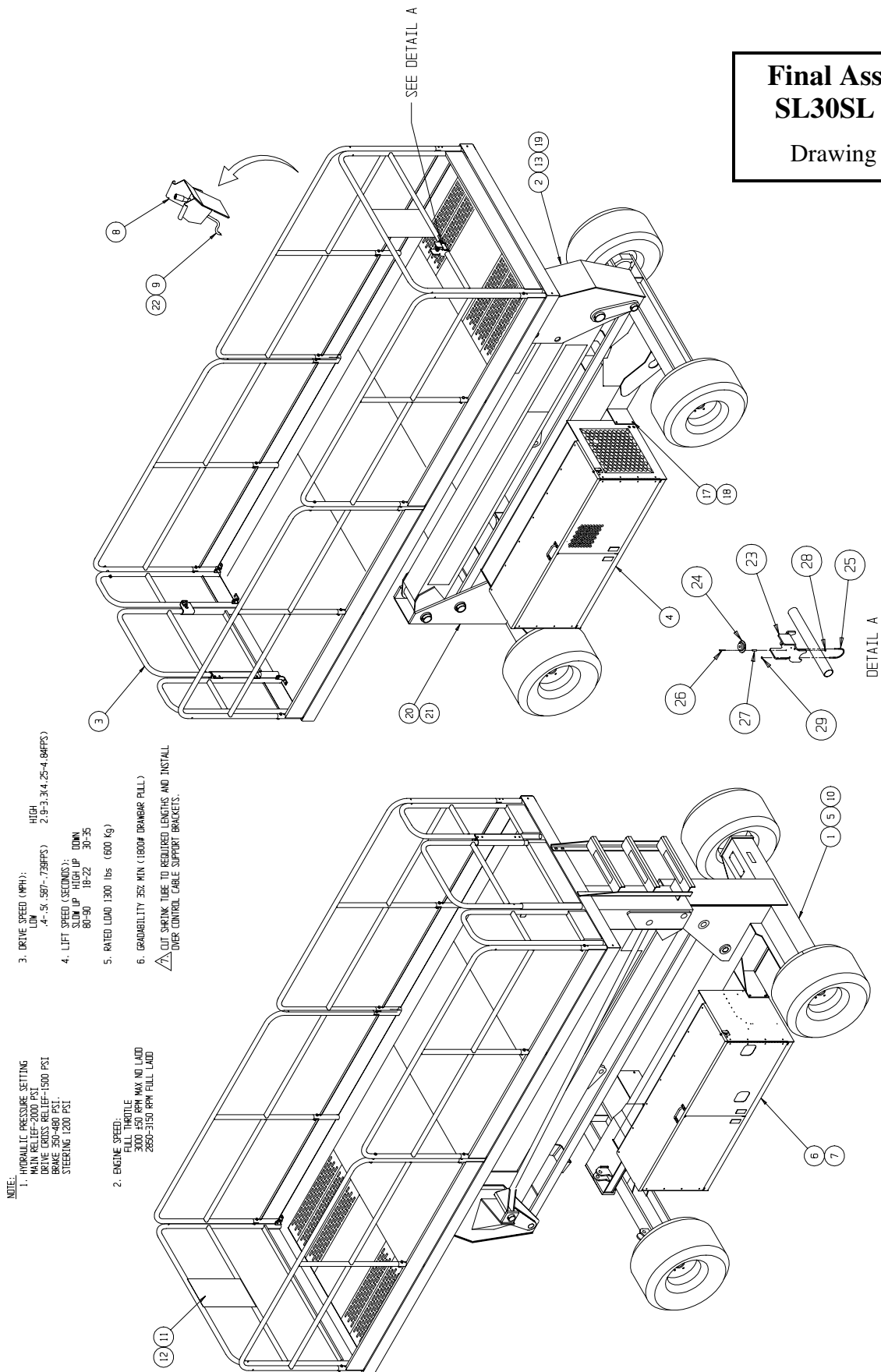
ITEM	PART NO.	DESCRIPTION	QTY.
1	064001-035	CHASSIS ASSEMBLY	1
2	064677-006	LINKAGE INSTALLATION	1
3	064678-004	PLATFORM/GUARDRAIL INSTALLATION	1
4	064002-024	POWER MODULE ASSEMBLY	1
5	064207-003	WIRE HARNESS	1
7	064003-081	CONTROL MODULE ASSEMBLY	1
8	064411-024	CONTROLLER ASSEMBLY	1
9	064007-010	CONTROL CABLE	1
10	064008-039	HOSE KIT	1
12	064006-091	LABEL KIT	1
13	064679-002	SWITCH INSTALLATION	1
15	064149-080	ELECTRICAL SCHEMATIC	REF
16	064148-022	HYDRAULIC SCHEMATIC	REF
17	011256-010	SCREW HHC 1/2-13 UNC X 1-1/4	8
18	011248-008	NUT HEX 1/2-13 UNC ESNA	8
19	064412-000	CYLINDER HOLD	1
21	064680-002	LEVEL SENSOR INSTALLATION	1
22	064007-011	AUX CONTROL CABLE	1
23	064794-000	LEVEL MOUNT	1
24	000942-000	ORBIT LEVEL	1
25	014924-008	U-BOLT	2
26	011721-008	SCREW MACHINE RD HD 4-40 X 1	3
27	005133-000	SPRING	3
28	011248-049	NUT HEX 4-40 ESNA	3
29	011248-004	NUT HEX 1/4-20 ESNA	4
30	029940-099	SHRINK TUBING 3/4 DIA	2.7FT
31	029976-099	SHRINK TUBING 1/2 DIA	2FT

ILLUSTRATED PARTS BREAKDOWN

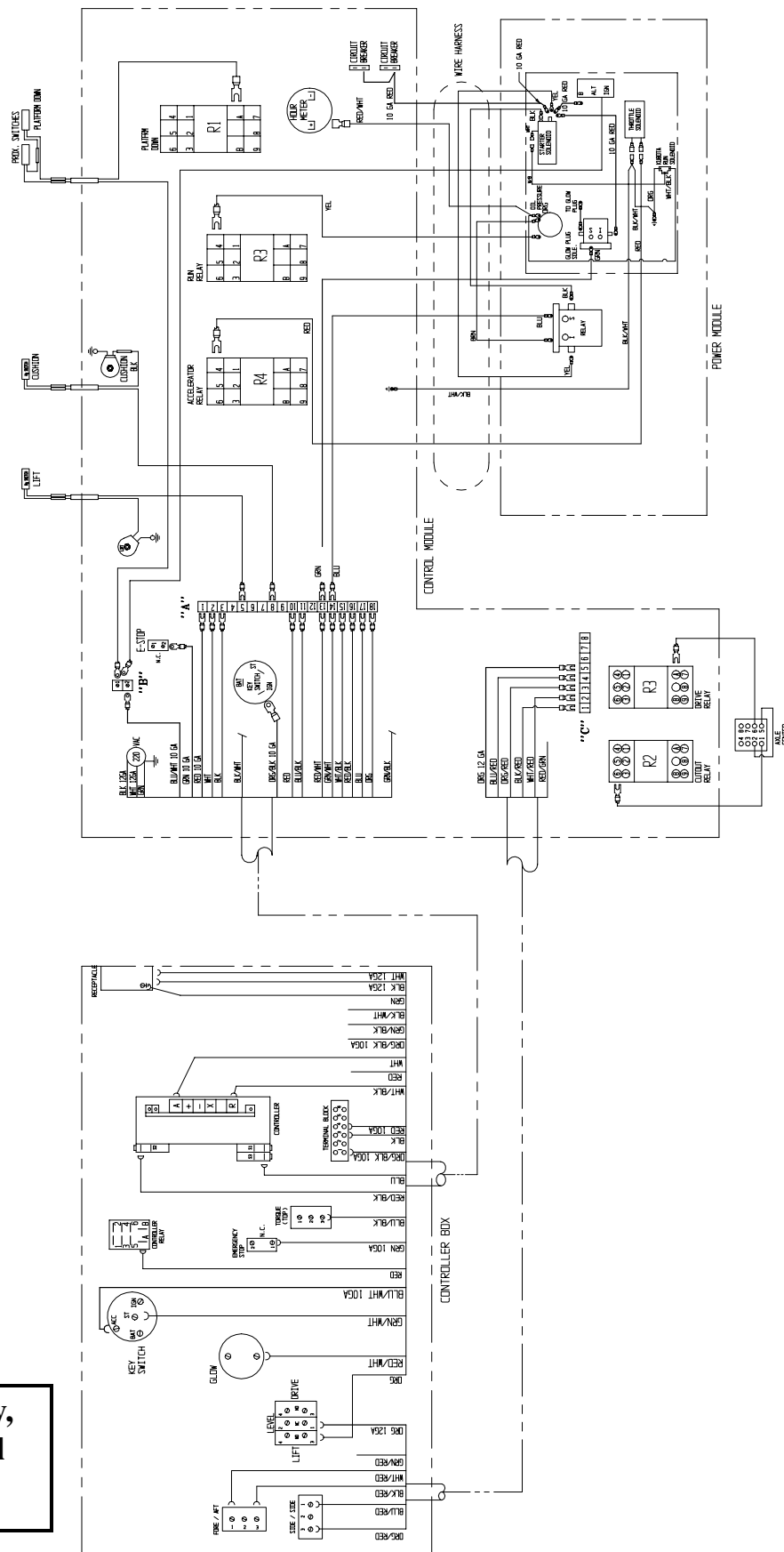
Section 6.1

Final Assembly, SL30SL Diesel

Drawing 1 of 2



ILLUSTRATED PARTS BREAKDOWN



**Final Assembly,
SL30SL Diesel**

Drawing 2 of 2

ILLUSTRATED PARTS BREAKDOWN

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ILLUSTRATED PARTS BREAKDOWN

CHASSIS ASSEMBLY, SL26/30SL

064001-035

ITEM	PART NO.	DESCRIPTION	QTY.
1	064300-002	CHASSIS WELDMENT	1
2	064384-000	CHANNEL	1
3	064029-001	HUB DRIVE MOTOR	4
4	064030-001	STEERING MOUNT WELDMENT	2
5	064033-001	STEERING LINKAGE	4
6	064034-001	PIVOT PIN	4
7	011782-001	BEARING, THRUST WASHER	2
8	013336-001	GREASE FITTING	1
9	011239-005	WASHER 5/16 DIA ASTM FLAT	4
10	011248-004	LOCKNUT 1/4-20 UNC HEX	4
11	011248-008	LOCKNUT 1/2-13 UNC HEX	8
12	011248-010	LOCKNUT 5/8-11 UNC HEX	4
13	011252-024	SCREW 1/4-20 UNC HHC X 3	4
14	011253-008	SCREW 5/16-18 UNC HHC X 1	4
15	010177-010	SCREW 1/2-20 UNF SOC HD X 1 1/4	8
16	011256-040	SCREW 1/2-13 UNC HHC X 5	8
17	064150-000	SERRATED BOLT	2
18	014122-001	WHEEL BOLT	20
19	011754-012	COTTER PIN 5/32 DIA X 1 1/2	4
20	063903-016	O-RING SEAL	2
21	067606-013	BEARING GARLOCK #020DXR012	4
22	063901-001	BRAKE	2
23	063903-005	MOTOR HYD	2
24	063903-002	MOTOR HYD	2
25	063905-000	CYLINDER,STEERING	1
26	063927-001	ROD END 5/8	2
27	011240-010	WASHER 5/8 FLAT	2
28	011238-010	LOCKWASHER 5/8 DIA SPLIT	8
29	011257-014	SCREW 5/8-11 UNC HHC 1 3/4	8
30	062642-001	BEARING GARLOCK # 10DU12	2
31	011935-005	FITTING ADAPTER 90	4
32	011941-014	FITTING ADAPTER STR.	4
33	011934-001	FITTING ADAPTER 90	11
34	020495-010	NUT 5/8-18 UNF JAM HEX	2
39	011256-010	SCREW 1/2-13 UNC HHC X 1 1/4	1
41	011256-014	SCREW 1/2-13 UNC HHC X 1 3/4	9
42	010150-005	FITTING ADAPTER	2
43	011979-008	O-RING	1
44	064169-000	VALVE BLOCK	2
45	060390-000	RELIEF VALVE	2
46	011941-006	FITTING ADAPTER	2
47	011941-001	FITTING ADAPTER	8
48	064170-005	FITTING ADAPTER	1
49	011257-024	SCREW 5/8-11 UNC HHC X 3	2
50	05078-000	CAP, DUST	2
52	011937-001	FITTING AD 4FJX-4MJ	2
53	011238-005	LOCKWASHER 5/16 DIA SPLIT	4
54	029976-099	TUBE ØØ1/2 SHRINK	.17FT
55	064350-000	AXLE PIVOT	2
59	027931-057	BUSHING BRZ	2
60	064346-000	AXLE CYLINDER	1

ITEM	PART NO.	DESCRIPTION	QTY.
61	064370-000	CYLINDER PIN	2
62	011249-016	LOCKNUT 1-14 UNF HEX	4
63	064371-001	CYLINDER PIN	2
64	011249-020	LOCKNUT 1 1/4-12 UNF HEX	8
65	064296-002	LIMIT SWITCH	1
66	011248-006	LOCKNUT 3/8-16 UNC HEX	6
67	011240-006	WASHER 3/8 DIA STD FLAT	10
68	064336-000	FRONT PIVOT WELDMENT	1
69	064294-004	CLAMP LEVER	1
70	012004-004	PLUGE SAE 4	8
71	011248-003	LOCKNUT 10-24 UNC HEX	2
72	011709-016	SCREW 10-24UNC MRH X 2	2
73	011763-038	RING SNAP	8
74	064288-005	BEARING SPHERICAL	4
75	064345-000	TILT CYLINDER	2
76	064339-001	MAST PIVOT WELDMENT SL-26	1
77	064331-001	LEVEL PIVOT WELDMENT SL-26	1
78	064343-001	TRUNNION WELDMENT SL-26	2
79	064320-001	MAST WELDMENT SL-26	1
82	011239-008	WASHER 1/2 DIA A325 FLAT	8
83	011252-008	SCREW 1/4-20 UNC HHC X 1	2
86	064298-004	BEARING FLANGE BRZ	2
87	064297-001	VALVE CHECK P.O.	6
88	064348-000	MOUNT HIGHT LIMIT	1
89	064349-000	BEARING SPACER	4
90	064324-002	FRONT AXLE WELDMENT SL-26 AL	1
91	011238-006	LOCKWASHER 3/8 SPLIT	1
93	011254-020	SCREW 3/8-16UNC X 2 1/2	2
94	063978-000	HAND PUMP	1
95	011254-016	SCREW 3/8-16UNC X 2	2
96	011254-014	SCREW 3/8-16UNC X 1 3/4	2
97	029610-002	CONN. FORK 16-14 #10	6
98	029610-004	CONN. FORK 12-10 #10	1
99	029601-013	CONN. RING 16-14 #10	1
100	011709-012	SCREW MACH RD HD 10-24UNC X 1 1/2	2
101	064284-001	LIMIT SWITCH	1
102	064285-001	ROD LEVER	1
105	015961-004	FITTING TEE	2
106	011934-003	FITTING 90	1
107	011709-004	SCREW 10-24 UNC MACH RD HD X 1/2	2
108	064372-001	CYLINDER PIN	2
109	011297-020	WASHER BELL	8
110	011297-016	WASHER BELL	4
111	013336-001	GREASE FITTING	4
113	064367-001	SWITCH MOUNT	1
114	064383-000	THRUST WASHER	4
115	062642-032	BEARING BRZ	4

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ILLUSTRATED PARTS BREAKDOWN

LINKAGE INSTALLATION SL26SL

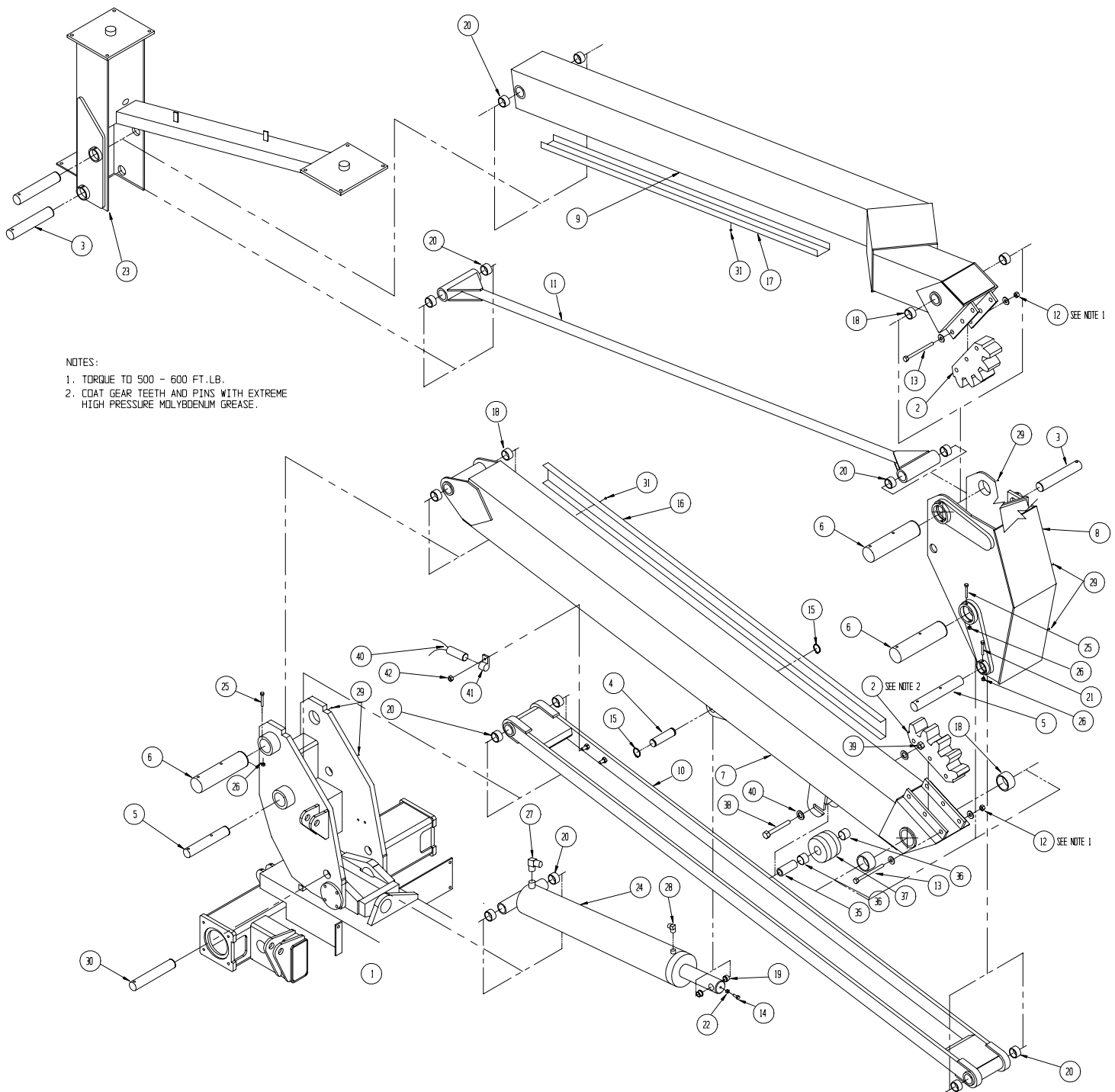
064677-005

ITEM	PART NO.	DESCRIPTION	QTY.
1	REF	CHASSIS ASSY	REF
2	064089-000	LIFT GEAR	2
3	064090-000	PIVOT PIN 1.75 X 11.45	3
4	064093-000	CYLINDER PIN	1
5	064094-000	PIVOT PIN 1.75 X 13.11	2
6	064095-000	PIVOT PIN 2.75 X 13.27	3
7	064060-003	LOWER BOOM WELDMENT	1
8	064070-002	MID-LINKAGE WELDMENT	1
9	064078-002	UPPER BOOM WELDMENT	1
10	064084-001	LOWER TENSION WELDMENT	1
11	064087-000	UPPER TENSION WELDMENT	1
12	011248-016	LOCKNUT 1-8 UNC HEX	6
13	014918-056	SCREW 1-8 UNC HEX HEAD CAP X 7	6
14	011705-020	SCREW 3/8-16 UNC SET HEXSOC X 1-1/4	1
15	011764-020	RET RING TRUARC #5100-125	2
16	064450-000	WIRE COVER	1
17	064451-000	WIRE COVER	1
18	062642-030	BEARING GARLOCK #44DU32	6
19	062649-010	BEARING GARLOCK #20FDU16	2
20	062649-020	BEARING GARLOCK #28FDU24	12
21	011254-024	SCREW 3/8-16 UNC HHC X 3	6
22	011273-006	NUT 3/8-16 UNC JAM HEX	1
23	064111-001	PEDESTAL WELDMENT	1
24	063904-000	LIFT CYL	1
25	011254-030	SCREW 3/8-16 UNC HHC X 3 3/4	3
26	011248-006	LOCKNUT 3/8-16 UNC HEX	9
27	011934-013	FITTING ADAPTER	1
28	011940-006	FITTING ADAPTER	1

ITEM	PART NO.	DESCRIPTION	QTY.
29	013336-001	GREASE FITTING	5
30	064092-000	PIN (1 3/4)	1
31	011246-006	LOCKNUT 3/8-16UNC THIN	4
32	063497-001	MERCURY SWITCH	1
33	013919-013	CLAMP	1
34	011248-004	LOCKNUT 1/4-20 UNC	1
35	064356-000	WHEEL TUBE	1
36	027931-057	BEARING BRZ OILITE AA-1704-11	2
37	064354-000	WHEEL	1
38	014918-048	SCREW HHC GR5 1-8UNC X 6	1
39	011246-016	NUT HEX ESNA 1-8 UNC	1
40	011239-016	WASHER FLAT ASTM A-325 1 DIA	2

ILLUSTRATED PARTS BREAKDOWN

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ILLUSTRATED PARTS BREAKDOWN

LINKAGE INSTALLATION, SL30SL

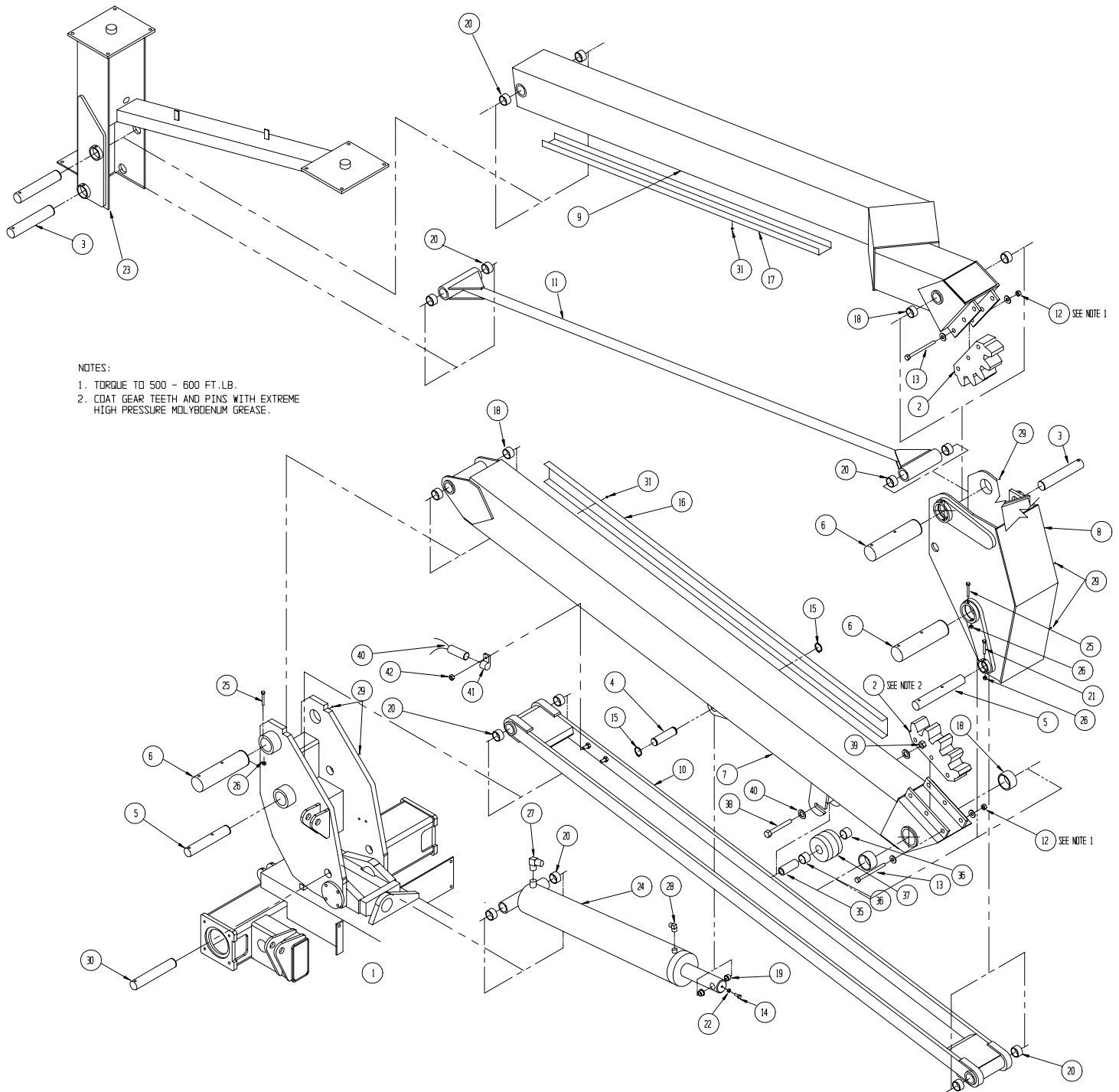
064677-006

ITEM	PART NO.	DESCRIPTION	QTY.
1	REF	CHASSIS ASSY	REF
2	064089-000	LIFT GEAR	2
3	064090-000	PIVOT PIN 1.75 X 11.45	3
4	064093-000	CYLINDER PIN	1
5	064094-000	PIVOT PIN 1.75 X 13.11	2
6	064095-000	PIVOT PIN 2.75 X 13.27	3
7	064060-000	LOWER BOOM WELDMENT	1
8	064070-002	MID-LINKAGE WELDMENT	1
9	064521-000	UPPER BOOM WELDMENT	1
10	064531-001	LOWER TENSION WELDMENT	1
11	064536-000	UPPER TENSION WELDMENT	1
12	011248-016	LOCKNUT 1-8 UNC HEX	6
13	014918-056	SCREW 1-8 UNC HEX HEAD CAP X 7	6
14	011705-020	SCREW 3/8-16 UNC SET HEXSOC X 1-1/4	1
15	011764-020	RET RING TRUARC #5100-125	2
16	064542-000	WIRE COVER	1
17	064538-000	WIRE COVER	1
18	062642-030	BEARING GARLOCK #44DU32	6
19	062649-010	BEARING GARLOCK #20FDU16	2
20	062649-020	BEARING GARLOCK #28FDU24	12
21	011254-024	SCREW 3/8-16 UNC HHC X 3	6
22	011273-006	NUT 3/8-16 UNC JAM HEX	1
23	064111-002	PEDESTAL WELDMENT	1
24	063904-000	LIFT CYL	1
25	011254-030	SCREW 3/8-16 UNC HHC X 3 3/4	3

ITEM	PART NO.	DESCRIPTION	QTY.
26	011248-006	LOCKNUT 3/8-16 UNC HEX	9
27	011934-013	FITTING ADAPTER	1
28	011940-006	FITTING ADAPTER	1
29	013336-001	GREASE FITTING	5
30	064092-000	PIN (1 3/4)	1
31	011246-006	LOCKNUT 3/8-16UNC THIN	4
32	063497-001	MERCURY SWITCH	1
33	013919-013	CLAMP	1
34	011248-004	LOCKNUT 1/4-20 UNC	1
35	064356-000	WHEEL TUBE	1
36	027931-057	BEARING BRZ OILITE AA-1704-11	2
37	064354-000	WHEEL	1
38	014918-048	SCREW HHC GR5 1-8UNC X 6	1
39	011246-016	NUT HEX ESNA 1-8 UNC	1
40	011239-016	WASHER FLAT ASTM A-325 1 DIA	2

ILLUSTRATED PARTS BREAKDOWN

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Section 6.1

ILLUSTRATED PARTS BREAKDOWN

POWER MODULE ASSEMBLY, SL26/30SL DIESEL

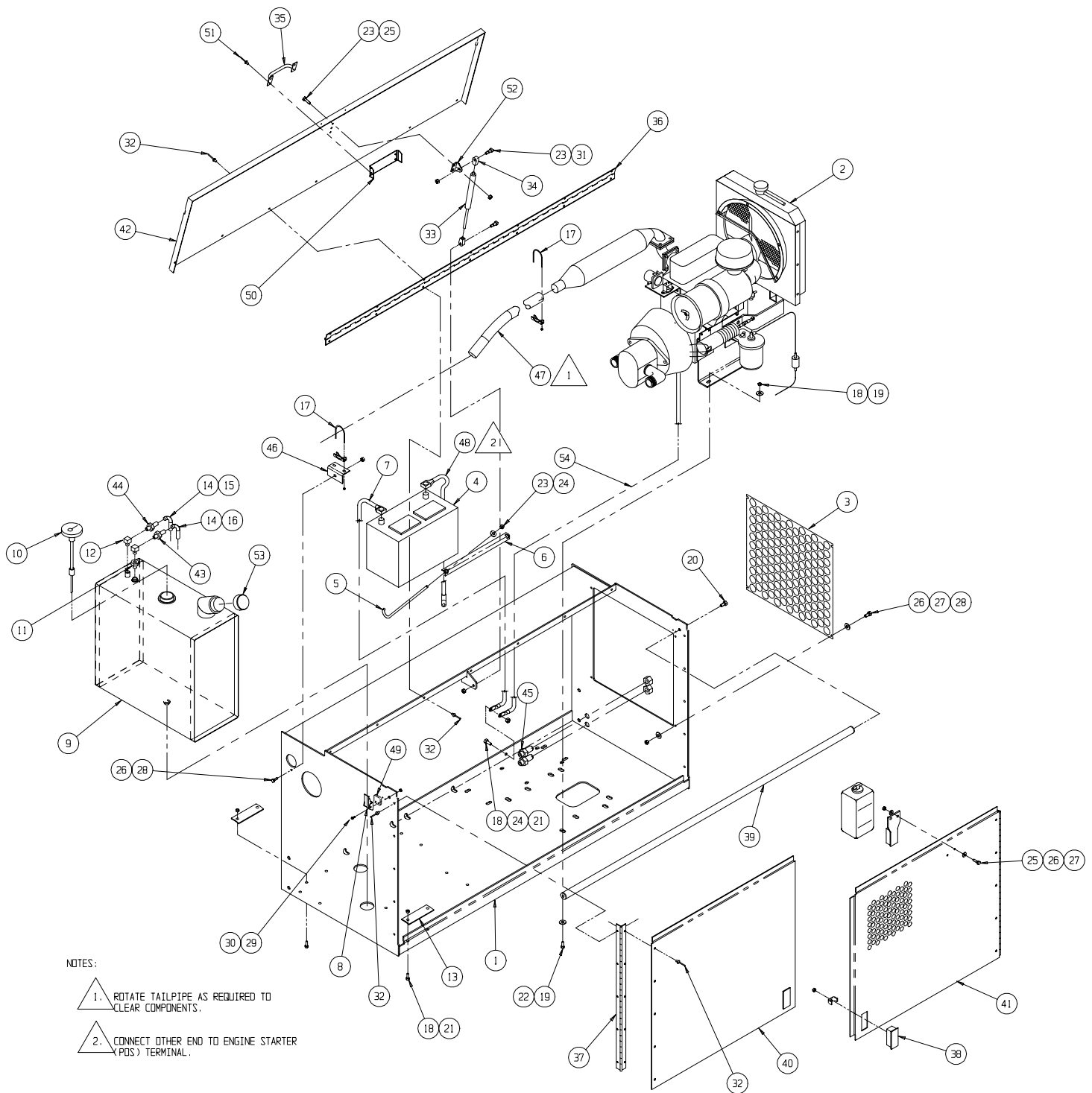
064002-024

ITEM	PART NO.	DESCRIPTION	QTY.
1	064724-000	POWER MODULE WELDMENT, KUBOTA	1
2	064009-002	ENGINE ASSEMBLY, KUBOTA DIESEL	1
3	065918-000	RADIATOR GRILL	1
4	062299-002	BATTERY, 12 VOLT GROUP 27C	1
5	012039-000	BATTERY HOLD DOWN	2
6	064040-000	ANGLE, BATTERY HOLD DOWN	1
7	064275-034	BATTERY CABLE ASSY	1
8	005299-000	LATCH, TOGGLE	2
9	064681-000	FUEL TANK	1
10	063982-001	FUEL LEVEL GAGE	1
11	003556-001	FITTING	1
12	003495-001	FITTING, ELBOW	2
13	064039-000	FUEL TANK MOUNTING TAB	2
14	020541-001	HOSE CLAMP	9
15	012736-099	HOSE, 3/16 ID	FT 8
16	012733-099	HOSE, 5/16 ID	FT 5
17	013259-006	MUFFLER CLAMP, 1-1/2	2
18	011248-006	LOCKNUT, HEX 3/8-16 UNC	9
19	011240-006	WASHER, 3/8 STD FLAT	8
20	011254-006	SCREW, HHC 3/8-16 UNC X 3/4	2
21	011254-008	SCREW, HHC 3/8-16 UNC X 1	5
22	011254-010	SCREW, HHC 3/8-16 UNC X 1 1/4	4
23	011248-005	LOCKNUT, HEX 5/16-UNC	6
24	011240-005	WASHER, 5/16 STD FLAT	3
25	011253-008	SCREW, HHC 5/16-18 UNC X 1	4
26	011248-004	LOCKNUT, HEX 1/4-20 UNC	3
27	011240-004	WASHER, 1/4 STD FLAT	12
28	011254-006	SCREW, HHC 1/4-20 UNC X 3/4	5
29	011248-002	LOCKNUT, HEX 8-32 UNC	8
30	011708-006	SCREW, RD HD MACH 8-32 UNC X 3/4	4
31	015936-004	SCREW, SHOULDER 3/8 X 1/2	2
32	026554-002	RIVET, POP 1/4 DIA (.251-.375 GRIP)	34
33	063650-012	GAS SPRING	1
34	067648-008	END FITTING, GAS SPRING	2
35	025427-002	HANDLE	1
36	064731-000	HINGE, MODULE COVER	1

ITEM	PART NO.	DESCRIPTION	QTY.
37	064740-000	HINGE, DOOR	2
38	067629-000	LATCH, FLUSH	2
39	064725-000	STIFFENER BAR WELDMENT	1
40	064736-000	DOOR, LEFT	1
41	064752-000	DOOR, RIGHT	1
42	064732-000	COVER, MODULE	1
43	010178-001	FITTING, 3/16 BARBED	1
44	010178-005	FITTING, 5/16 BARBED	1
45	010150-005	FITTING, ELBOW	1
46	065917-000	EXHAUST BRACKET	1
47	065914-000	EXHAUST TUBE	1
48	064275-034	BATTERY CABLE ASSY X 34	1
49	064754-000	SPACER	2
50	064798-000	DOOR BRACKET	1
51	010128-008	RIVET 3/16 X 1/2	4
52	067902-000	BRACKET, GAS SHOCK	1
53	063929-001	CAP, FUEL DELUXE	1
54	068776-007	CABLE ASSY X 16	1

ILLUSTRATED PARTS BREAKDOWN

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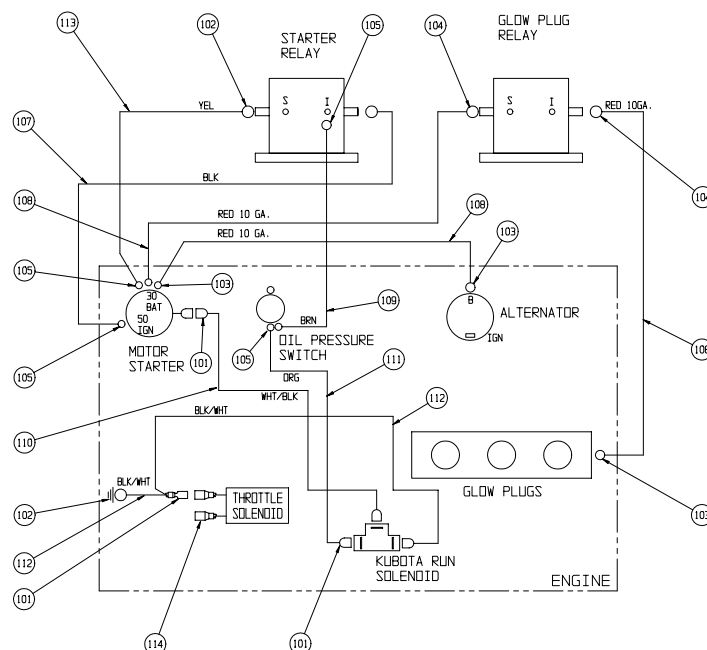
ILLUSTRATED PARTS BREAKDOWN

ENGINE ASSEMBLY, SL26/30SL KUBOTA DIESEL

064009-002

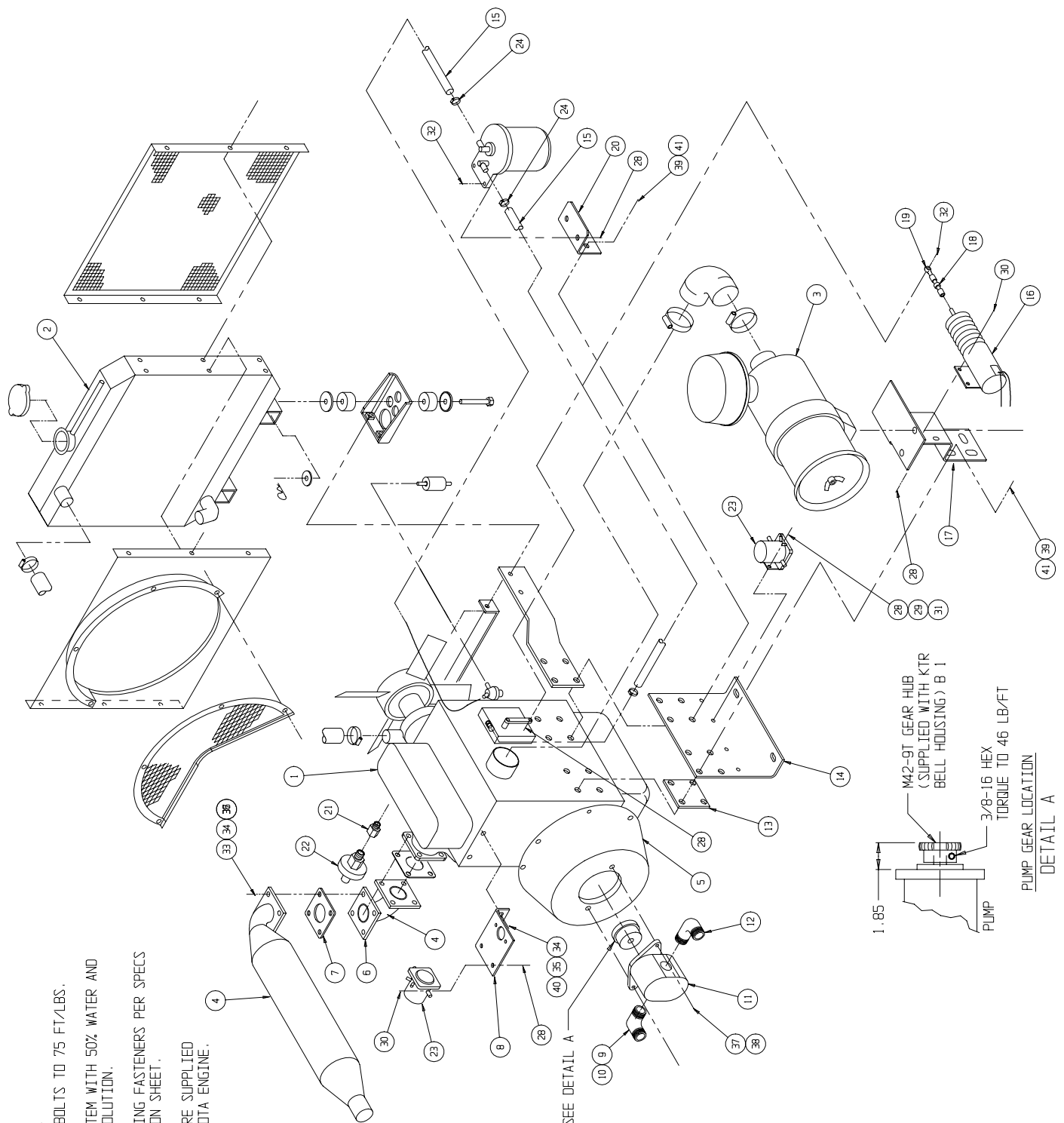
ITEM	PART NO.	DESCRIPTION	QTY.
1	067614-000	KUBOTA DIESEL ENGINE (D905)	1
2	REF	RADIATOR KIT	1
3	REF	AIR CLEANER KIT	1
4	REF	MUFFLER KIT	1
5	067617-010	KTR BELL HOUSING KIT	1
6	063936-024	GASKET, MUFFLER	1
7	065912-000	EXHAUST ELBOW WELDMENT (90°)	1
8	067850-000	BRACKET, SOLENOID/GLOW	1
9	011932-007	FITTING ADAPTER 16FJX-16MJ 45°	1
10	011941-028	FITTING ADAPTER 16MB-16MJ	1
11	063902-015	PUMP, FIXED DISPLACEMENT	1
12	011934-010	FITTING ADAPTER 10MB-8MJ 90°	1
13	064183-000	SPACER, ENGINE	2
14	064180-001	ENGINE MOUNT BRACKET	2
15	012739-099	HOSE, 1/4 I.D.	FT. 4.5
16	067599-000	SOLENOID, THROTTLE	1
17	067859-000	BRACKET, AIR CLEANER	1
18	064423-000	INLINE SWIVEL 1/4	1
19	011760-004	ROD END BEARING 1/4-28	1
20	067870-000	BRACKET, DIESEL FUEL FILTER	1
21	003142-001	FITTING	1
22	063945-001	OIL PRESSURE SWITCH	1
23	027972-000	STARTER SOLENOID	2
24	020541-001	HOSE CLAMP	7
28	011248-004	NUT 1/4-20 UNC ESNA	14
29	011240-004	WASHER 1/4 STD FLAT	4

ITEM	PART NO.	DESCRIPTION	QTY.
30	011252-004	SCREW 1/4-20UNC HHC X 1/2	4
31	011252-006	SCREW 1/4-20UNC HHC X 3/4	2
32	011252-008	SCREW 1/4-20UNC HHC X 1	2
33	011250-005	NUT 5/16 18 UNC	4
34	011238-005	LOCKWASHER 5/16 SPLIT	6
35	011240-005	WASHER 5/16 STD FLAT	2
36	011253-010	SCREW 5/16-18 UNC X 1 1/4	4
37	011254-010	SCREW 3/8-16 UNC X 1 1/4	2
38	011238-006	LOCKWASHER 3/8 SPLIT	2
39	011240-007	WASHER 7/16 FLAT STD	16
40	067672-010	SCREW HHC M8 X 1.25 X 10MM	2
41	063946-030	SCREW HHC M10 X 1.25 X 30MM	16
101	029931-003	CONN FEM. PUSH 14-16GA. .25	5
102	029601-040	CONN RING 14-16GA. 5/16D	3
103	029601-020	CONN RING 12-10GA. 1/4D	4
104	029601-039	CONN RING 12-10GA. 5/16D	2
105	029601-014	CONN RING 16-14GA. 1/4D	5
107	029452-099	WIRE 16AWG COPPER -BLACK	FT 2
108	029480-099	WIRE 10AWG COPPER -RED	FT 4
109	029455-099	WIRE 16AWG COPPER -BRN	FT 2
110	029479-099	WIRE 16AWG COPPER -WHT/BLK	FT 2
111	029453-099	WIRE 16AWG COPPER -ORG	FT 2
112	029479-099	WIRE 16AWG COPPER -BLK/WHT	FT 2
113	029456-099	WIRE 16AWG COPPER -YEL	FT 2
114	029617-002	CONN MALE PUSH 14-16 GA. .25	1



ILLUSTRATED PARTS BREAKDOWN

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NOTES:

1. TORQUE MOUNTING BOLTS TO 75 FT/LBS.
2. FILL COOLING SYSTEM WITH 50% WATER AND 50% ANTIFREEZE SOLUTION.
3. TORQUE BELL HOUSING FASTENERS PER SPECS ON KTR INSTRUCTION SHEET.
4. ITEMS 2 THRU 4 ARE SUPPLIED WITH ITEM 1, KUBOTA ENGINE.

Engine Assembly, Kubota Diesel

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Section 6.1

ILLUSTRATED PARTS BREAKDOWN

CONTROL MODULE ASSEMBLY, SL26/30SL DIESEL

064003-081

ITEM	PART NO.	DESCRIPTION	QTY.
1	05299-000	LATCH, TOGGLE	2
2	011238-005	LOCKWASHER, SPLIT 5/16 DIA	2
3	11248-006	LOCKNUT, HEX 3/8-16 UNC	8
4	11248-047	LOCKNUT, HEX 6-32 UNC	16
6	063962-001	BACKUP RING	1
7	11254-008	SCREW, HHC 3/8-16 UNC X 1	3
8	11254-010	SCREW, HHC 3/8-16 UNC X 1 1/4	1
10	11715-006	SCREW, RH 6-32 UNC X 3/4	12
11	11715-008	SCREW, RH 6-32 UNC X 1	10
13	11940-006	FITTING ADAPTER	1
14	11708-006	MACH SCREW, RD HD 8-32 UNC X 3/4	4
15	11248-002	LOCKNUT, HEX 8-32 UNC	4
16	15915-000	BOX, ELECTRICAL, BELL	1
17	15752-000	HOUR METER	1
18	21305-006	MAGNET PLUG	1
19	27962-000	RELAY 2-POLE 12V	2
20	27963-000	SOCKET	6
21	63930-001	CAP, FILLER / VENT	1
22	29868-007	CIRCUIT BREAKER, 15 AMP	2
23	29925-001	CONNETOR, CABLE	1
24	29928-000	TERMINAL BLOCK	1
25	66807-001	ALARM 600 Hz (TILT)	1
26	29961-000	INLET FLANGE	1
27	29962-000	ELEC BOX COVER	1
28	27962-003	RELAY 3-POLE 12V	3
29	63919-001	FILTER HYD	1
30	64642-000	TANK, HYDRAULIC	1
31	63931-016	STREET ELBOW 1 NPT	1
32	63935-000	SUCTION SCREEN	1
33	64004-019	CONTROL VALVE ASSY	1
34	064039-000	FUEL TANK MOUNTING TAB	3
35	064045-000	MOUNT - MANIFOLD	1
36	064056-012	FANNING STRIP ASSY SL26/30	1
37	064721-000	CONTROL MODULE WELDMENT	1
38	029928-009	TERMINAL BLOCK 2-141	1
39	063968-001	PUSH BUTTON	1
40	012798-001	SWITCH, TOGGLE	1
41	063985-000	SWITCH, KEY	1
42	011939-019	FITTING ADAPTER	1
43	014334-008	SCREW, SOC HD 5/16-18 UNC X 1	2
44	064754-000	SPACER	2
47	029925-011	CONNETOR, CABLE	1
48	011715-004	SCREW, RD HD 6-32 UNC X 1/2	2

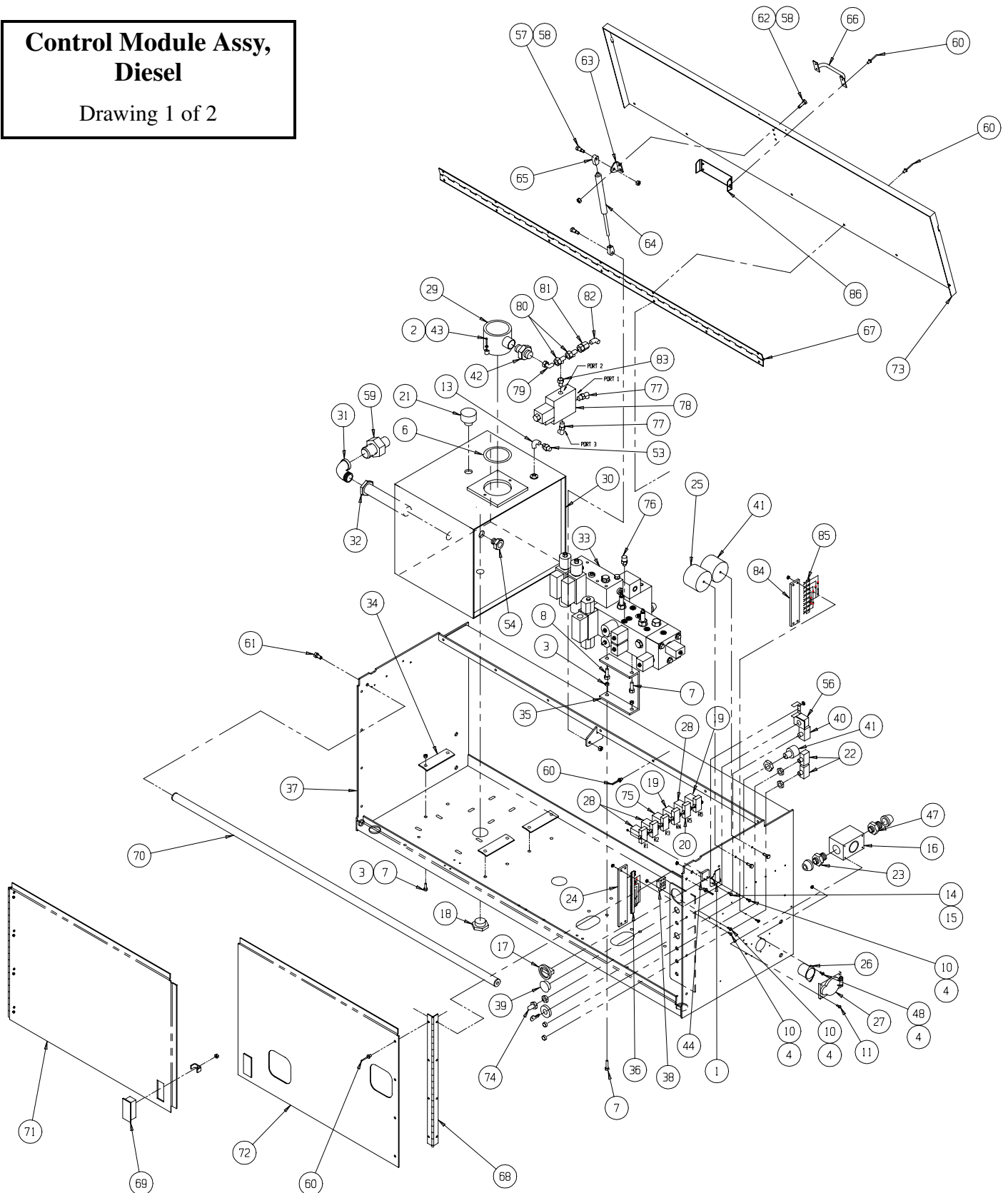
ITEM	PART NO.	DESCRIPTION	QTY.
53	020733-002	FITTING ADAPTER TEE	1
54	063979-006	SIGHT GLASS	1
55	066807-003	ALARM 60 Hz (LOWER/MOTION)	1
56	063968-002	CONTACT BLOCK	1
57	015936-004	SCREW, SHOULDER 3/8 X 1/2	2
58	011248-005	LOCKNUT, HEX 5/16-UNC	4
59	011939-023	FITTING, 16MP-16S MJ	1
60	026554-002	RIVET, POP 1/4 DIA (.251-.375 GRIP)	34
61	011254-006	SCREW, HHC 3/8-16 UNC X 3/4	2
62	011253-008	SCREW, HHC 5/16-18 UNC X 1	2
63	067902-000	BRACKET, GAS SPRING	1
64	063650-012	GAS SPRING	1
65	067648-008	END FITTING, GAS SPRING	2
66	025427-002	HANDLE	1
67	064731-000	HINGE, MODULE COVER	1
68	064730-000	HINGE, DOOR	2
69	067629-000	LATCH, FLUSH	2
70	064725-000	STIFFENER BAR WELDMENT	1
71	064734-000	DOOR, LEFT	1
72	064735-000	DOOR, RIGHT	1
73	064732-000	COVER, CONTROL MODULE	1
74	029872-000	BOOT, SWITCH	1
75	027962-005	RELAY, 3 POLE, 6V	1
76	063965-001	CONNECTOR, GAGE PORT	1
77	011934-003	FITTING, 90° ELBOW	2
78	063923-003	VALVE, SOLENOID	1
79	011937-004	FITTING, 90° ELBOW	1
80	020733-003	FITTING, TEE	2
81	014048-002	FITTING, STRAIGHT	1
82	011940-008	FITTING, 90° ELBOW	1
83	064170-004	FITTING, STRAIGHT	1
84	029928-001	TERMINAL BLOCK 8-141	1
85	064056-013	FANNING STRIP	1
86	064798-000	DOOR BRACKET	1

ILLUSTRATED PARTS BREAKDOWN

Section 6.1

Control Module Assy, Diesel

Drawing 1 of 2



Section 6.1

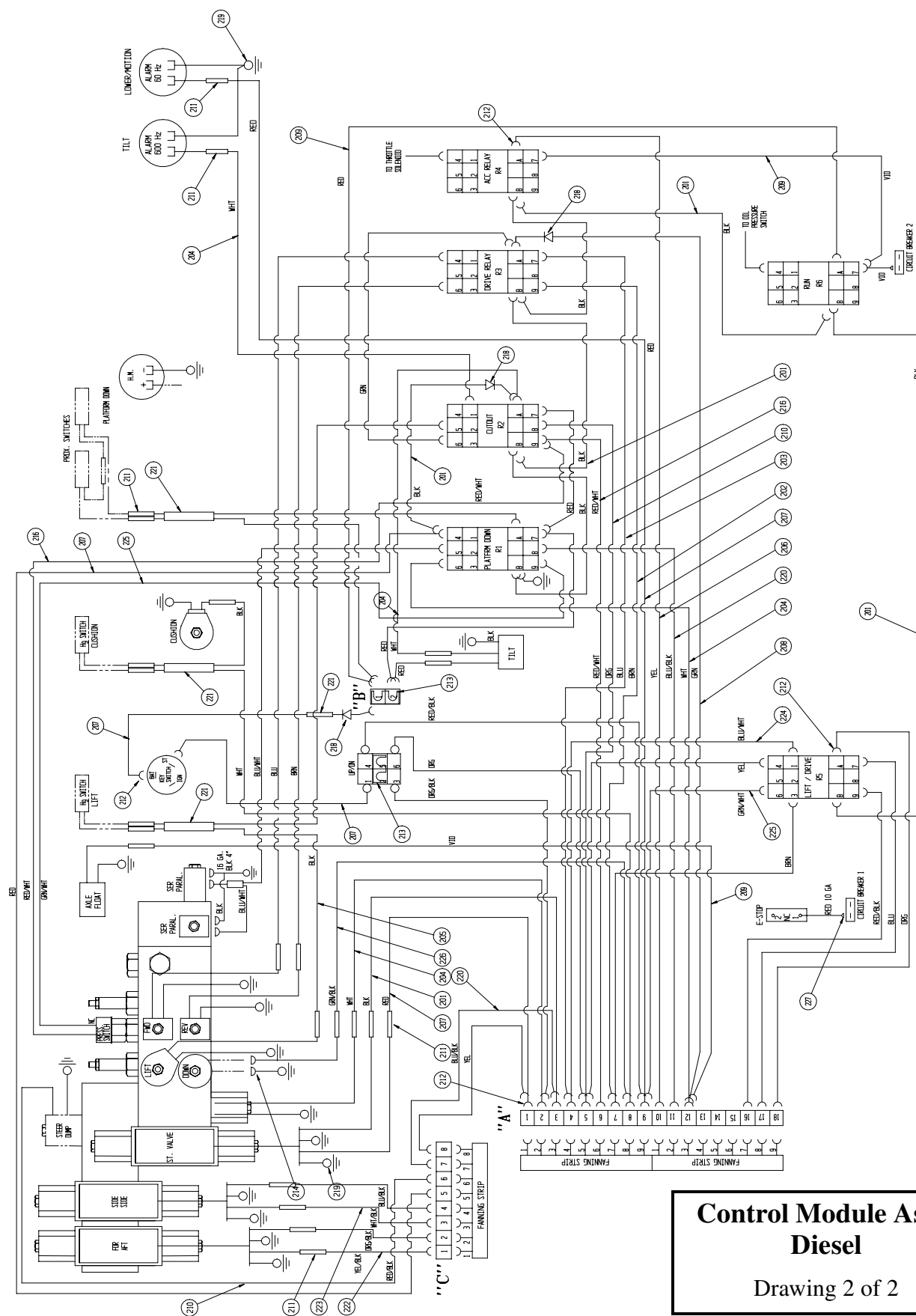
ILLUSTRATED PARTS BREAKDOWN

CONTROL MODULE ASSEMBLY, SL26/30SL DIESEL

064003-081

ITEM	PART NO.	DESCRIPTION	QTY.
201	029452-099	WIRE 16 AWG THHN STRD COP BLACK	FT 9
202	029455-099	WIRE 16 AWG THHN STRD COP BRN	FT 3
203	029450-099	WIRE 16 AWG THHN STRD COP BLU	FT 3
204	029451-099	WIRE 16 AWG THHN STRD COP WHT	FT 5
205	029453-099	WIRE 16 AWG THHN STRD COP ORG	FT 5
206	029456-099	WIRE 16 AWG THHN STRD COP YEL	FT 5
207	029454-099	WIRE 16 AWG THHN STRD COP RED	FT 8
208	029457-099	WIRE 16 AWG THHN STRD COP GRN	FT 5
209	029458-099	WIRE 16 AWG THHN STRD COP VIO	FT 4
210	029478-099	WIRE 16 AWG THHN STRD COP RED/BLK	FT 6
211	029620-002	CONN BUTT 16-14	21
212	029610-002	CONN FORK 16-14 #8	80
213	029932-002	TERMINAL JUMPER	2
214	029931-003	CONN FEMALE PUSH 16-14 1/4	6
215	029477-099	WIRE 16 AWG THHN STRD COP ORG/BLK	FT 4
216	029483-099	WIRE 16 AWG THHN STRD COP RED/WHT	FT 4
217	029601-013	CONN RING 16-14 #10	4
218	029825-002	DIODE	2
219	029601-014	CONN RING 16-14 1/4 DIA	9
220	029475-099	WIRE 16 AWG THHN STRD COP BLU/BLK	FT 3
221	029496-099	WIRE 16 AWG 2-COND.	FT 10
222	029476-099	WIRE 16 AWG THHN STRD COP YEL/BLK	FT 4
223	029479-099	WIRE 16 AWG THHN STRD COP WHT/BLK	FT 4
224	029459-099	WIRE 16 AWG THHN STRD COP BLU/WHT	FT 4
225	029482-099	WIRE 16 AWG THHN STRD COP GRN/WHT	FT 4
226	05491-099	WIRE 16 AWG THHN STRD COP GRN/BLK	FT 4
227	029616-003	CONN FEM 12-10 GA PUSH X .25	1

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ILLUSTRATED PARTS BREAKDOWN

CONTROLLER ASSEMBLY, SL26/30SL DIESEL

064411-024

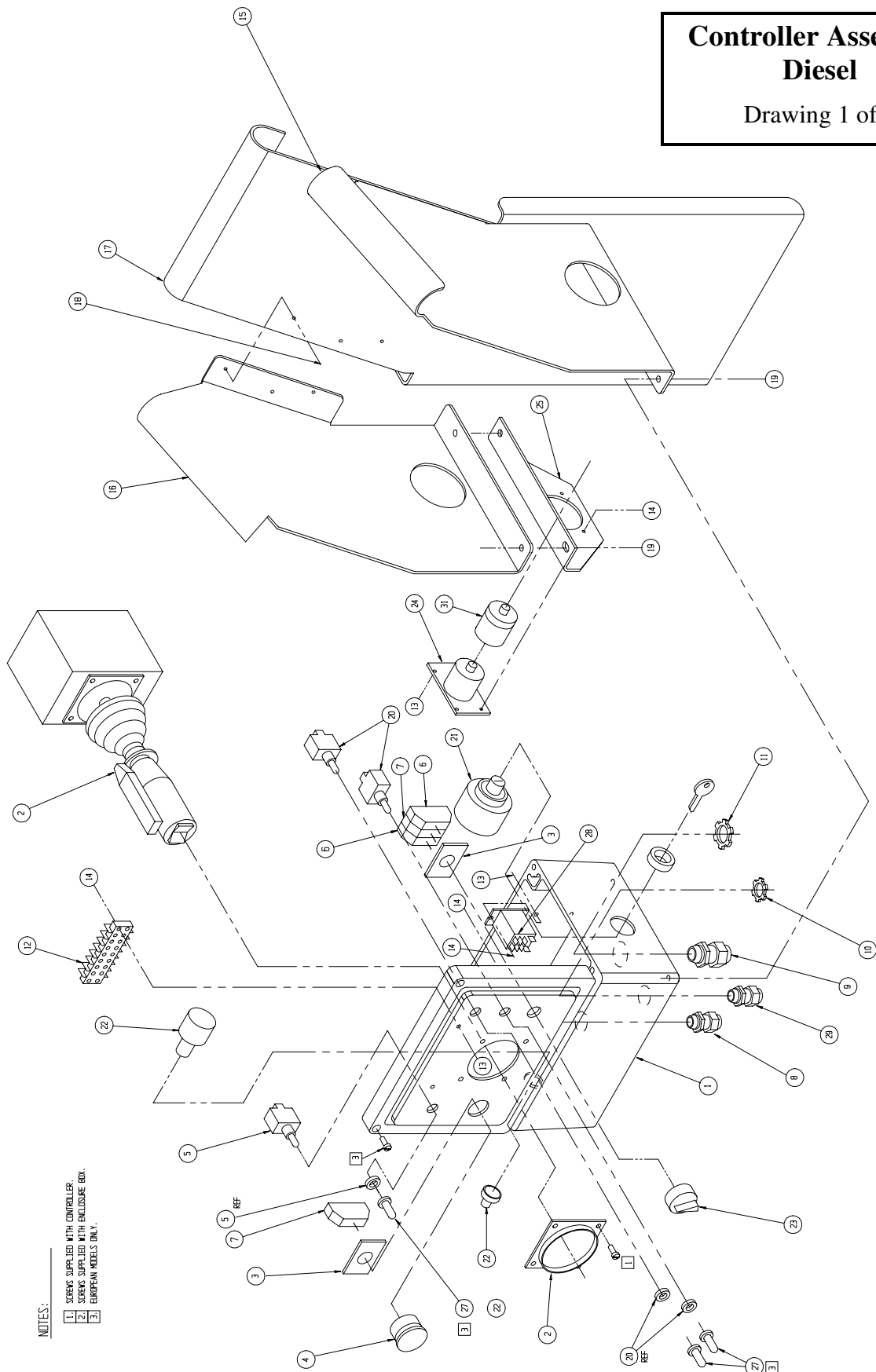
ITEM	PART NO.	DESCRIPTION	QTY.
1	063368-004	ENCLOSURE BOX SP LV	1
2	066544-001	CONTROLLER, PROPORTIONAL 12V	1
3	064417-001	MOUNTING LATCH	2
4	064446-003	EMERGENCY STOP PUSH BUTTON	1
5	012797-000	SWITCH SPDT - HI/LOW TORQUE	1
6	064443-001	CONTACT BLOCK N.O.	2
7	064443-002	CONTACT BLOCK N.C.	2
8	029925-000	CABLE CONNECTOR 1/2"	1
9	029925-011	CABLE CONNECTOR 3/4"	1
10	029939-002	CONDUIT NUT - 1/2"	2
11	029939-003	CONDUIT NUT - 3/4"	1
12	029928-003	TERMINAL BLOCK 6 PLACE	1
13	011715-006	SCREW, RD HD 6-32UNC X 3/4	8
14	011248-047	LOCKNUT 6-32 UNC	8
15	066095-001	HANGER, RH	1
16	066094-001	HANGER, LH	1
17	067889-000	HANGER, REAR PLATE	1
18	026551-007	RIVET 1/8 DIA. X 1/4-5/16 GRIP	6
19	011253-004	SCREW, HHC 5/16-18UNC X 1/2	4
20	012798-000	SWITCH SPDT MOMENTARY	2
21	064666-000	KEY SWITCH	1
22	063917-00	SWITCH, PUSH BUTTON	1
23	064445-001	SELECTOR SWITCH	1
24	08942-001	OUTLET, HUBBELL	1
25	064520-000	110 POWER BRACKET	1
27	029872-000	BOOT, SWITCH	3
28	063951-001	RELAY 2-POLE 12VDC	1
29	029925-002	CONN. CABLE	1
31	029961-001	SEAL, INLET PLUG	1

ILLUSTRATED PARTS BREAKDOWN

Section
6.1

Controller Assembly, Diesel

Drawing 1 of 2



NOTES:

- [1] SCREWS SUPPLIED WITH CONTROLLER.
- [2] SCREWS SUPPLIED WITH ENCLOSURE BOX.
- [3] EUROPEAN MODELS ONLY.

Section 6.1

ILLUSTRATED PARTS BREAKDOWN

CONTROLLER ASSEMBLY, SL26/30SL DIESEL

064411-024

ITEM	PART NO.	DESCRIPTION	QTY.
101	029610-004	CONNECTOR FORK TERM 12-10 GA. #10	6
102	029610-002	CONNECTOR FORK TERM 16-14 GA. #8	13
103	029931-003	CONNECTOR F PUSH TERM 16-14 GA. .25T	7
104	063574-099	WIRE 16 GA. BLACK/WHT	FT 1
105	029450-099	WIRE 16 GA. BLUE	FT 3
106	029620-002	CONNECTOR, BUTT 16-14 GA.	4
107	029454-099	WIRE 16 GA. RED	FT 1
108	05491-099	WIRE 16 GA. GREEN/BLACK	FT 1
109	029475-099	WIRE 16 GA. BLUE/BLACK	FT 1
110	029453-099	WIRE 16 GA. ORANGE	FT 1
111	029480-099	WIRE 10 GA. RED	FT 2
112	029401-099	WIRE 16 GA. YELLOW	FT 1
113	029825-002	DIODE	3
114	029455-099	WIRE 16GA GREEN	FT 1
115	029932-002	TERMINAL JUMPER	1
116	029610-001	CONNECTOR FORK TERM 22-18 GA. #6	5
117	029610-006	CONNECTOR FORK TERM 16-14 GA. #6	3
118	029458-099	WIRE 16 GA. PURPLE	FT 1
119	029451-099	WIRE 16 GA. WHITE	FT 1

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Drawing 2 of 2

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6.1

ILLUSTRATED PARTS BREAKDOWN

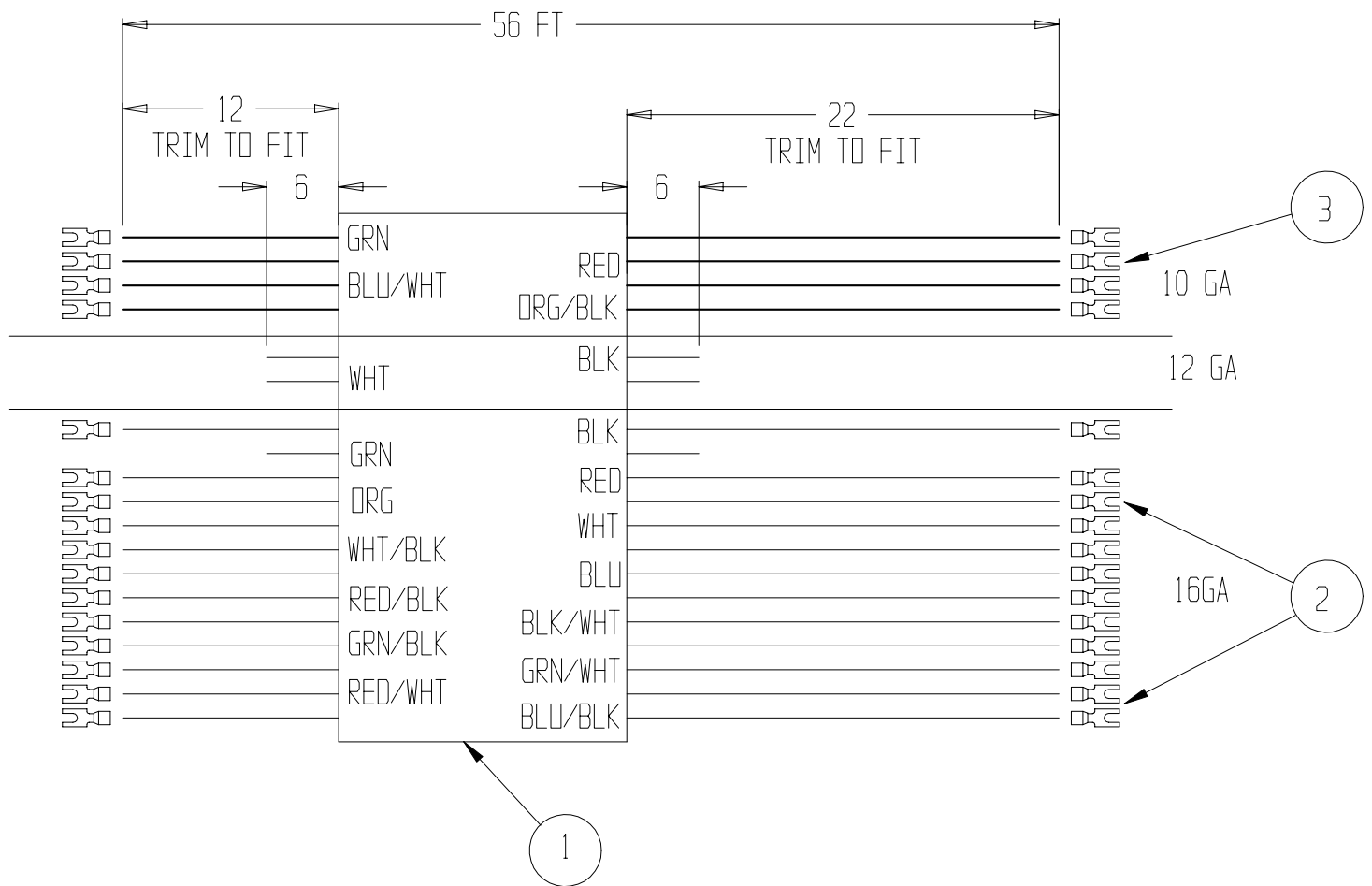
CONTROL CABLE ASSEMBLY, SL26/30SL

064007-010

ITEM	PART NO.	DESCRIPTION	QTY.
1	064253-099	WIRE CABLE	56 FT
2	029610-002	CONN FORK 16-14 #8	24
3	029610-003	CONN FORK 12-10 #6	8

ILLUSTRATED PARTS BREAKDOWN

Section 6.1



**Section
6.1****ILLUSTRATED PARTS BREAKDOWN****HOSE KIT INSTALLATION,
SL26/30SL DIESEL**

064008-039

ITEM	PART NO.	DESCRIPTION	QTY.
1	064488-007	HOSE ASSY X 68	1
2	064156-020	HOSE ASSY X 26	1
3	064156-033	HOSE ASSY X 94	1
4	064156-028	HOSE ASSY X 63	1
5	064156-032	HOSE ASSY X 30	2
6	064156-021	HOSE ASSY X 42	1
7	064156-022	HOSE ASSY X 54	1
8	064156-023	HOSE ASSY X 78	1
9	064156-024	HOSE ASSY X 52	1
10	064156-019	HOSE ASSY X 67	1
11	064156-025	HOSE ASSY X 75	1
12	061131-010	HOSE ASSY X 83 1/2	1
13	061131-007	HOSE ASSY X 64	1
14	061132-007	HOSE ASSY X 103	1
15	061351-022	HOSE ASSY X 30	1
16	061351-006	HOSE ASSY X 53	1
17	061351-008	HOSE ASSY X 41	2
18	061351-015	HOSE ASSY X 56	1
20	064156-017	HOSE ASSY X 33	2
21	060460-008	HOSE ASSY X 84	1
22	060460-009	HOSE ASSY X 90	1
23	060460-010	HOSE ASSY X 93	1
24	060460-011	HOSE ASSY X 89	1
29	061351-016	HOSE ASSY 1/8 SYNIFLEX X 8	6
30	061351-054	HOSE ASSY X 22	1
32	060460-012	HOSE ASSY X 66	2

Section 6.1



**Section
6.1****ILLUSTRATED PARTS BREAKDOWN****GUARDRAIL INSTALLATION,
SL26SL**

064678-003

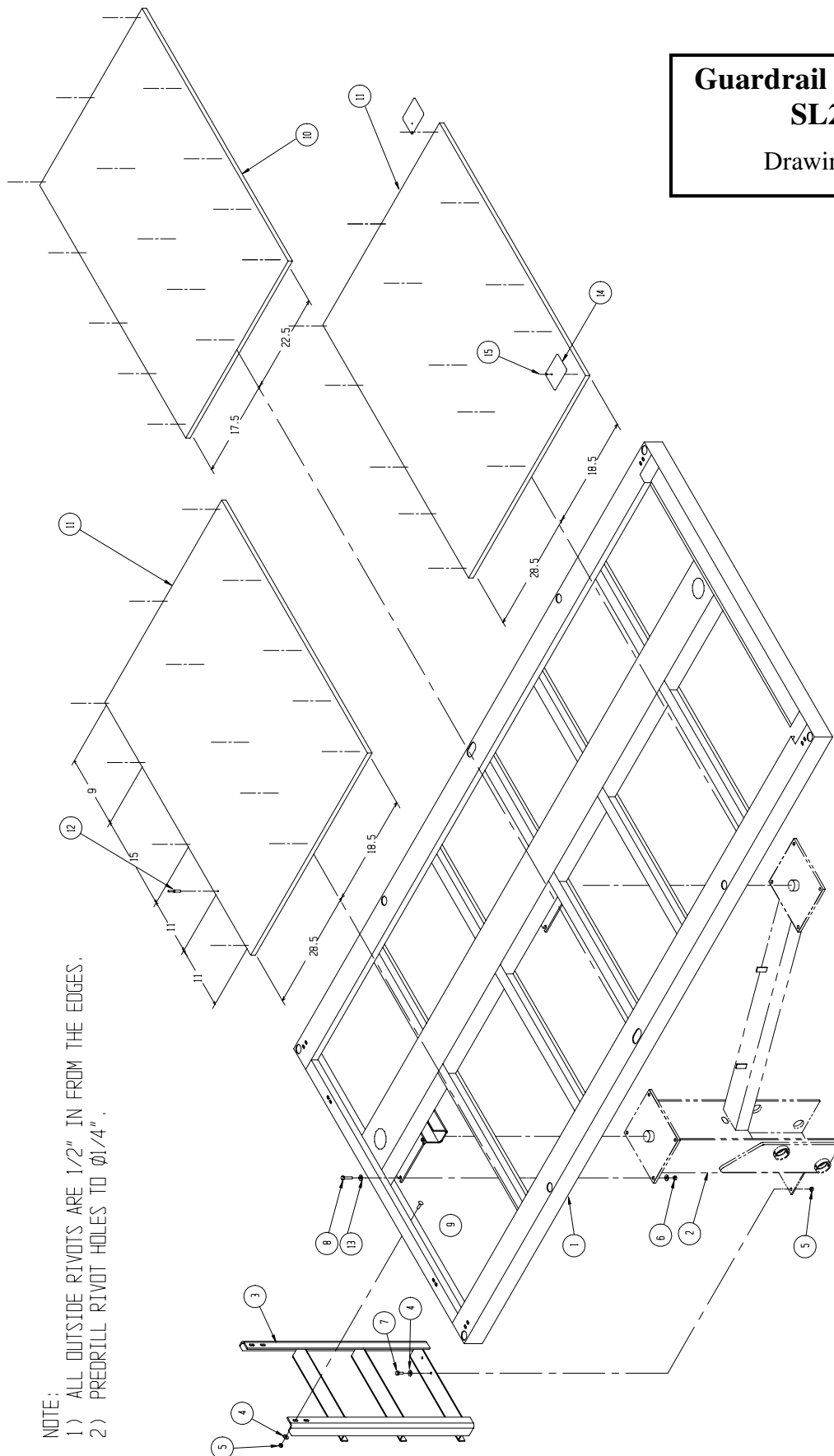
ITEM	PART NO.	DESCRIPTION	QTY.
1	064100-011	DECK WELDMENT	1
2	REF	PEDESTAL WELDMENT	REF
3	064119-000	LADDER WELDMENT	1
4	011240-006	WASHER STD FLAT 3/8 DIA	6
5	011248-006	NUT HEX ESNA 3/8-16 UNC	6
6	011248-008	NUT HEX ESNA 1/2-16 UNC	8
7	011254-010	SCREW HHC GR5 3/8-16 UNC X 1 1/4	2
8	011256-016	SCREW HHC GR5 1/2-13 UNC X 2	8
9	011831-008	BOLT CARRGE 3/8-16 UNC X 1	4
10	026505-013	PLYWOOD 3/4 A/C EXT 41 X 58	1
11	026505-012	PLYWOOD 3/4 A/C EXT 48 X 58	2
12	026554-006	RVT POP 1/4 DIA .751-.875 GRIP	43
13	011240-008	WASHER STD FLAT 1/2 DIA	16
14	064424-000	COVER PLATE	2
15	026526-006	SCREW SLFTP #10 SLOT HD. X 3/4	4

ILLUSTRATED PARTS BREAKDOWN

Section 6.1

Guardrail Installation, SL26SL

Drawing 1 of 2



GUARDRAIL ASSEMBLY, SL26SL

064678-003

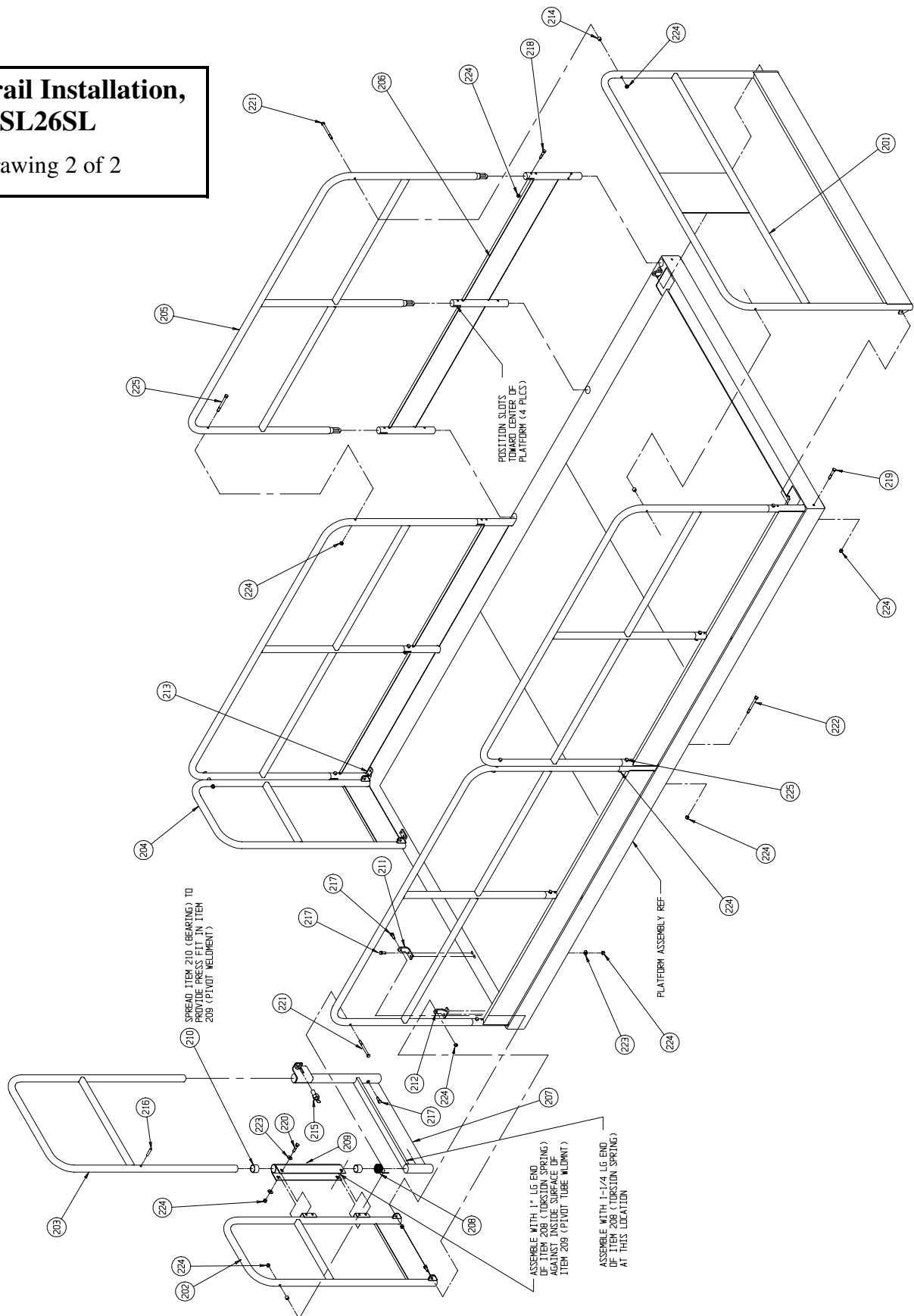
ITEM	PART NO.	DESCRIPTION	QTY.
201	064700-000	END RAIL WELDMENT, WIDE	1
202	064702-001	REAR GUARDRAIL WELDMENT, R.H.	1
203	067883-000	GATE WELDMENT	1
204	064702-002	REAR GUARDRAIL WELDMENT, L.H.	1
205	064697-000	GUARDRAIL WELDMENT, SL26	4
206	064695-000	KICK RAIL WELDMENT, SL26	4
207	067764-001	GATE KICK RAIL WELDMENT	1
208	066526-002	TORSION SPRING	1
209	067712-000	PIVOT TUBE WELDMENT	1
210	062642-026	BEARING	2
211	064046-000	RAIL MOUNTING BRACKET	2
212	064688-002	BRACKET, TOEBOARD PIVOT, L.H.	2
213	064688-001	BRACKET, TOEBOARD PIVOT, R.H.	2
214	067695-000	SPACER	4
215	003570-000	RETAINING PIN ASSEMBLY	1
216	011739-014	ROLLPIN, 3/8 DIA X 1-3/4 LG	1
217	011254-010	SCREW, 3/8-16 HHC X 1 1/4	19
218	011254-016	SCREW, 3/8-16 HHC X 2	8
219	011254-018	SCREW, 3/8-16 HHC X 2-1/4 LG	8
220	011254-022	SCREW, 3/8-16 HHC X 2 3/4	2
221	011254-032	SCREW, 3/8-16 HHC X 4 LG	4
222	011254-030	SCREW, 3/8-16 HHC X 3 3/4	2
223	011240-006	WASHER, 3/8 STD FLAT	16
224	011248-006	NUT, 3/8-16 HEX, ESNA	47
225	011254-028	SCREW, 3/8-16 HHC X 3 1/2	4

ILLUSTRATED PARTS BREAKDOWN

Section 6.1

Guardrail Installation, SL26SL

Drawing 2 of 2



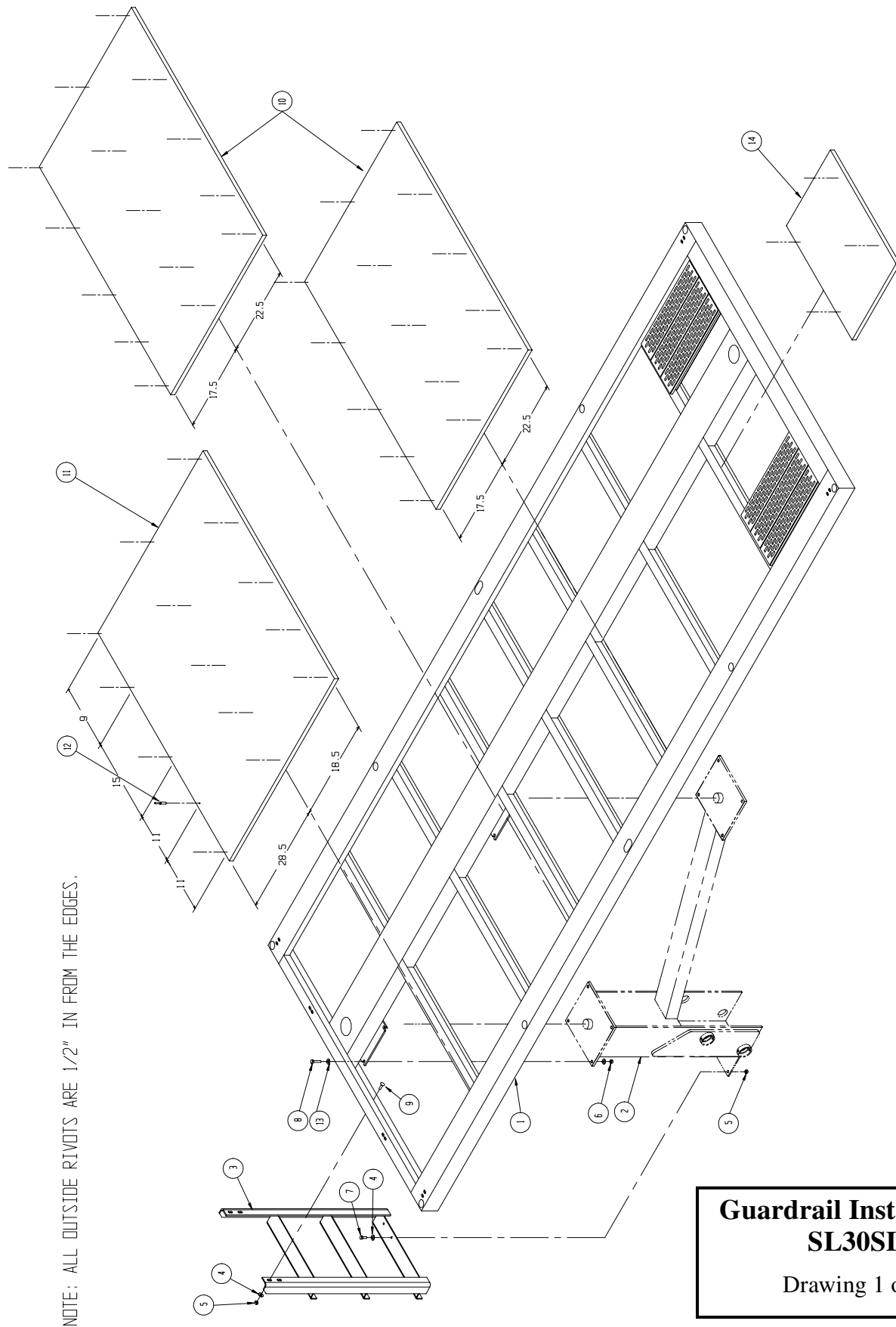
**Section
6.1****ILLUSTRATED PARTS BREAKDOWN****GUARDRAIL INSTALLATION,
SL30SL**

064678-004

ITEM	PART NO.	DESCRIPTION	QTY.
1	064540-011	DECK WELDMENT	1
2	REF	PEDESTAL WELDMENT	REF
3	064119-000	LADDER WELDMENT	1
4	011240-006	WASHER FLAT STD 3/8 DIA	6
5	011248-006	NUT HEX ESNA 3/8-16 UNC	6
6	011248-008	NUT HEX ESNA 1/2-16 UNC	8
7	011254-010	SCREW HHC GR5 3/8-16 UNC X 1 1/4	2
8	011256-016	SCREW HHC GR5 1/2-13 UNC X 2	8
9	011831-008	BOLT CARRGE GR5 3/8-16 UNC X 1	4
10	026505-013	PLYWOOD 3/4 A/C EXT 41 X 58	2
11	026505-012	PLYWOOD 3/4 A/C EXT 48 X 58	1
12	026554-006	RVT POP 1/4 DIA .751-.875 GRIP	49
13	011240-008	WASHER STD FLAT 1/2 DIA	16
14	026505-014	PLYWOOD 3/4 AC EXT. 22 X 31	1

ILLUSTRATED PARTS BREAKDOWN

Section 6.1



**Guardrail Installation,
SL30SL**

Drawing 1 of 2

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ILLUSTRATED PARTS BREAKDOWN

GUARDRAIL INSTALLATION, SL30SL

064678-004

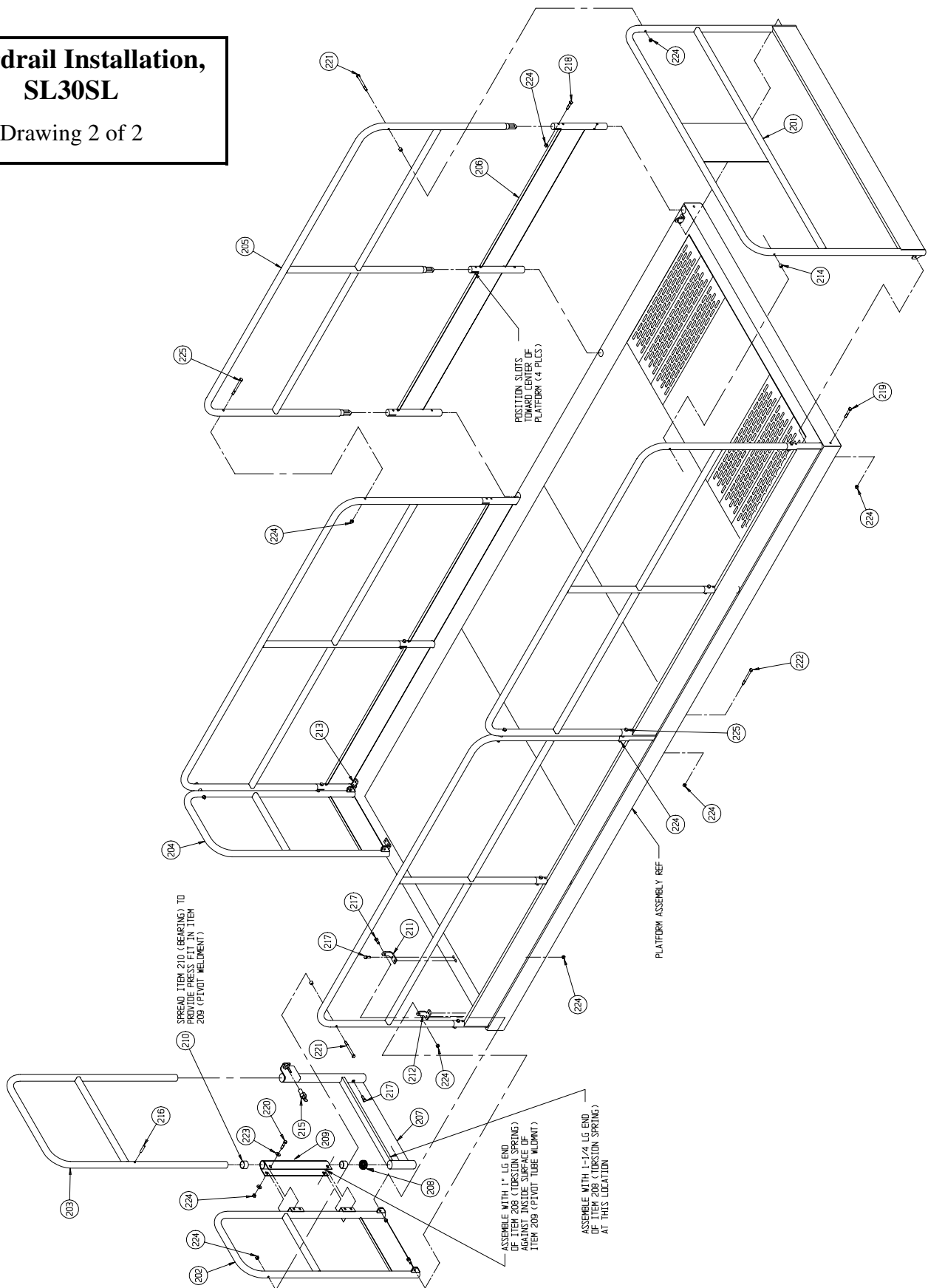
ITEM	PART NO.	DESCRIPTION	QTY.
201	064700-000	END RAIL WELDMENT, WIDE	1
202	064702-001	REAR GUARDRAIL WELDMENT, R.H.	1
203	067883-000	GATE WELDMENT	1
204	064702-002	REAR GUARDRAIL WELDMENT, L.H.	1
205	064698-000	GUARDRAIL WELDMENT, SL30	4
206	064696-000	KICK RAIL WELDMENT, SL30	4
207	067764-001	GATE KICK RAIL WELDMENT	1
208	066526-002	TORSION SPRING	1
209	067712-000	PIVOT TUBE WELDMENT	1
210	062642-026	BEARING	2
211	064046-000	RAIL MOUNTING BRACKET	2
212	064688-002	BRACKET, TOEBOARD PIVOT, L.H.	2
213	064688-001	BRACKET, TOEBOARD PIVOT, R.H.	2
214	067695-000	SPACER	4
215	03570-000	RETAINING PIN ASSEMBLY	1
216	011739-014	ROLLPIN, 3/8 DIA X 1-3/4 LG	1
217	011254-010	SCREW, 3/8-16 HHC X 1 1/4	19
218	011254-016	SCREW, 3/8-16 HHC X 2	8
219	011254-018	SCREW, 3/8-16 HHC X 2-1/4 LG	8
220	011254-022	SCREW, 3/8-16 HHC X 2 3/4	2
221	011254-032	SCREW, 3/8-16 HHC X 4 LG	4
222	011254-030	SCREW, 3/8-16 HHC X 3 3/4	2
223	011240-006	WASHER, 3/8 STD FLAT	16
224	011248-006	NUT, 3/8-16 HEX, ESNA	47
225	011254-028	SCREW, 3/8-16 HHC X 3 1/2	4

ILLUSTRATED PARTS BREAKDOWN

Section 6.1

Guardrail Installation, SL30SL

Drawing 2 of 2



Section 6.1

ILLUSTRATED PARTS BREAKDOWN

VALVE BLOCK ASSEMBLY, SL26/30SL

064004-019

ITEM	PART NO.	DESCRIPTION	QTY.
1	064050-002	MANIFOLD - SL - 26 PROPORTIONAL	1
2	064051-000	MANIFOLD BLOCK	1
3	063928-001	STEERING VALVE 12VDC	3
4	063923-000	3-WAY VALVE - 10VDC	4
5	063924-001	FLOW REGULATOR	1
6	063924-003	FLOW DIVIDER	1
8	063922-001	PRESSURE REDUCING	1
9	063925-001	LOWERING VALVE	1
11	060390-000	RELIEF VALVE - PRESET 2000 PSI SET TO 2500 PSI	1
12	005135-000	BALL 5/16 DIA STL	2
14	008998-000	BALL 1/2 DIA STL	2
15	015799-000	SPRING	1
16	005133-000	SPRING	3
17	061728-000	ORIFICE	2
18	063920-000	PISTON	1
19	063952-001	POROPTIONAL VALVE	1
22	012004-004	PLUG - SAE#4	21
23	012004-006	PLUG - SAE#6	3
24	020021-008	PLUG - SAE#8	2
25	060291-000	VALVE - SOL. NC-12V	1
26	011254-022	SCREW 3/8-16 UNC HHC X 2 3/4	3
27	011240-006	WASHER 3/8 DIA STD FLAT	3
29	013888-044	O RING	3
30	011941-004	FITTING ADAPTER	5
31	011941-006	FITTING ADAPTER	7
32	015919-003	ORIFICE LOWER	1
33	029925-000	CONN CABLE 3/4	3
36	014412-016	SCREW 10-24 UNC SOC HD X 2	12
37	011941-005	FITTING ADAPTOR	2
38	011941-001	FITTING ADAPTOR	1
40	060390-001	RELIEF VALVE-PRESET 500 PSI	2
42	011263-028	SCREW 5/16-24UNF HHC X 3 1/2	3
43	011238-005	LOCKWASHER 5/16 DIA SPLIT	3
44	064344-000	TILT LEVEL BLOCK SL-26 AL	1
45	063977-001	PLUGE - KOENIG MB-800-090	2

ITEM	PART NO.	DESCRIPTION	QTY.
46	063924-005	VALVE RELIEF	1
47	064559-001	CUSHION VALVE - 12VDC	1
48	064293-002	VALVE POPET N.O. - 10VDC	1
49	011934-003	FITTING 90	1
50	060390-003	VALVE RELIEF 1200 PSI	1
51	064281-000	SPACER	1
52	013888-007	O-RING	1
53	003391-002	LIFT CHECK VALVE	1
54	060390-006	VALVE RELIEF 500 PSI	1
57	063921-009	PRESSURE SWITCH	1
58	064278-000	SPACER	1
59	011979-008	O-RING	2
60	063965-001	FITTING, GAGE CONNECTOR	1

Section 6.1



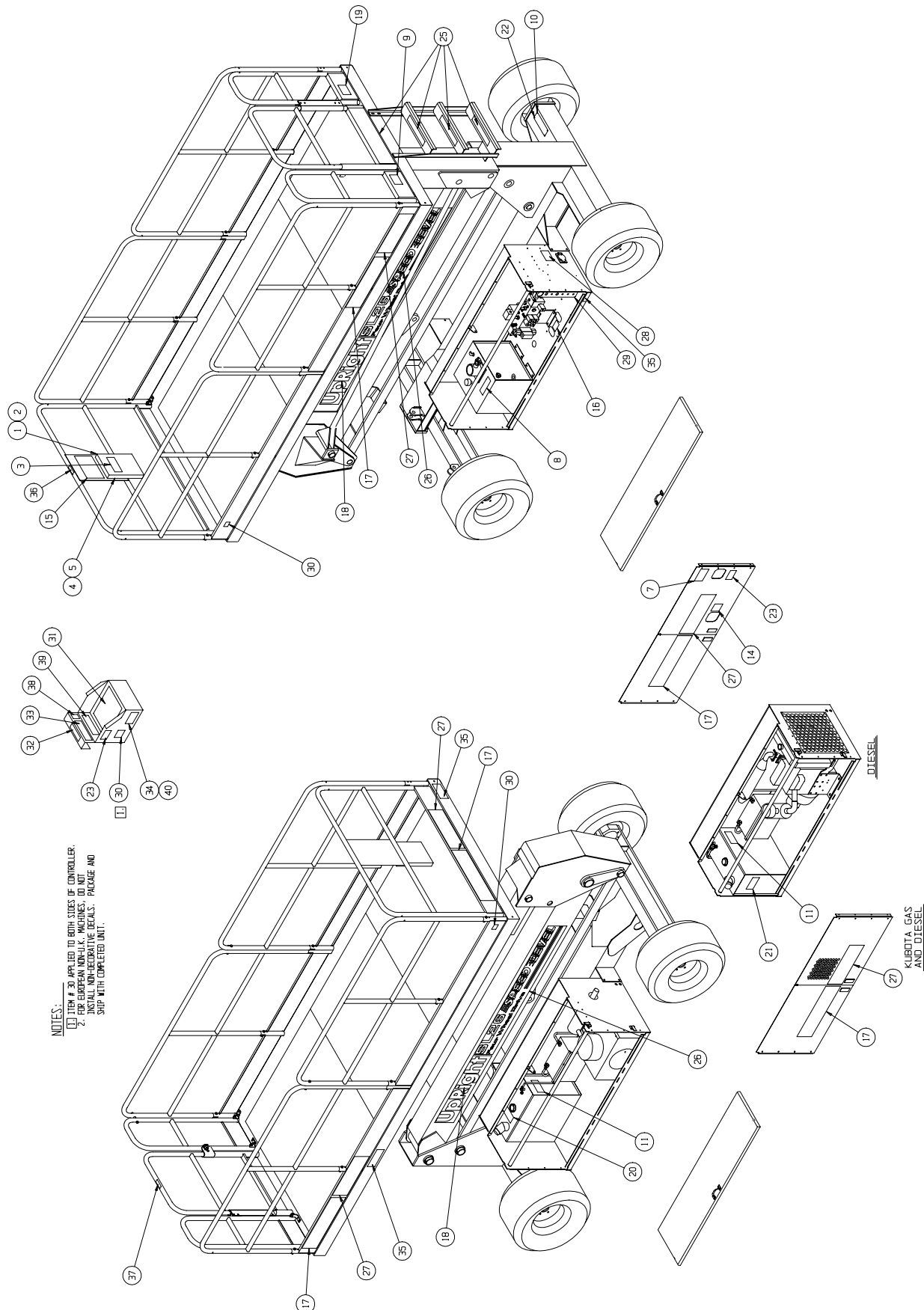
LABEL KIT INSTALLATION, SL26SL DIESEL

064006-085

ITEM	PART NO.	DESCRIPTION	QTY.
1	060588-025	MANUAL, USER, SL26/30SL	1
2	010076-000	MANUAL CASE	1
3	010076-001	LABEL - SAFETY RULES	1
4	011248-004	LOCKNUT 1/4-20 UNC HEX	2
5	011252-008	SCREW 1/4-20 UNC HHC X 1	2
7	066568-000	LABEL - LOWER PLATFORM	1
8	060197-000	LABEL - HYDRAULIC FLUID	1
9	066557-007	LABEL - LOAD 1500 LBS	1
10	061205-001	LABEL - NAME PLATE EURO	1
11	066552-000	LABEL - DANGER HYDROGEN GAS	1
14	062524-001	LABEL - EMERGENCY LOWERING	1
15	066550-004	LABEL - DANGER INSTRUCTIONS	1
16	066555-000	LABEL - CAUTION RELIEF VALVE	1
17	061683-005	LABEL - UPRIGHT 4 1/2	5
18	061683-007	LABEL - UPRIGHT 5 1/2	2
19	066562-000	LABEL - TIRE PRESSURE 50 P.S.I.	1
21	027898-000	LABEL - DIESEL FUEL	1
22	065368-000	TACK	4
23	067822-001	LABEL -ATTENTION GLOW PLUGS	2
25	060830-000	SAFETY WALK	4
26	067770-008	LABEL - SL26SL	2
27	067770-002	LABEL - SL26SL	5
28	063423-000	LABEL - BRAKE RELEASE	1
29	064414-000	LABEL - CONTROLS	1
30	064444-000	LABEL - USA (SEE NOTE-1)	4
31	065791-000	LABEL - CONTROLLER	1
32	061515-000	LABEL - LIFT HERE	1
33	066554-000	LABEL - READ	1
35	066551-002	LABEL - TIPPING HAZZARD	3
36	066551-003	LABEL - TIPPING HAZZARD	1
37	066563-000	LABEL - BEFORE LEAVING	1
38	064374-000	LABEL - LEVEL	1
39	066551-004	LABEL - DANGER	1
40	067822-000	LABEL GLOW BUTTON	1

ILLUSTRATED PARTS BREAKDOWN

Section 6.1



Section 6.1

ILLUSTRATED PARTS BREAKDOWN

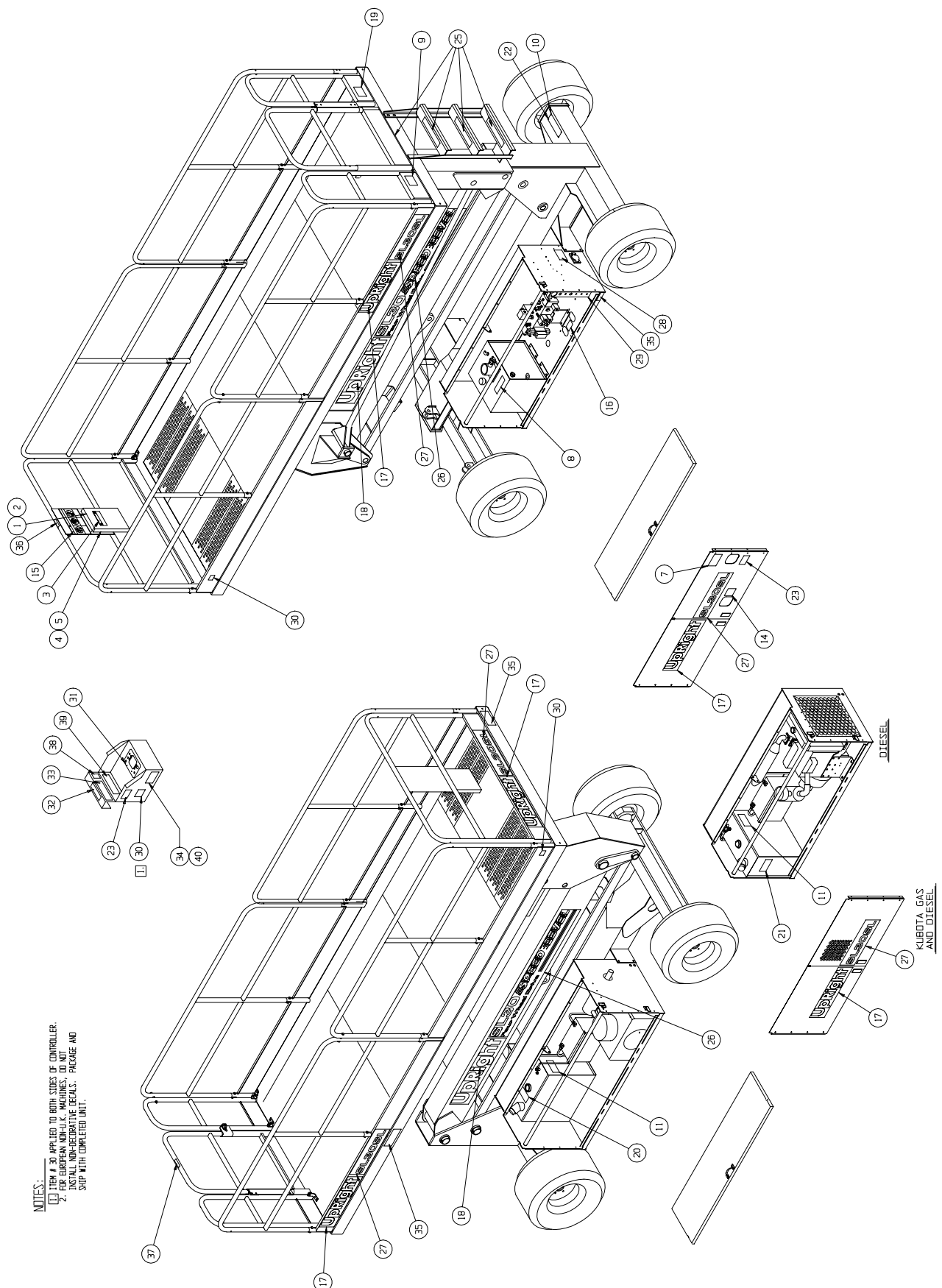
LABEL KIT INSTALLATION, SL30SL DIESEL

064006-091

ITEM	PART NO.	DESCRIPTION	QTY.
1	060588-025	MANUAL, USER, SL26/30SL	1
2	010076-000	MANUAL CASE	1
3	010076-001	LABEL - SAFETY RULES	1
4	011248-004	LOCKNUT 1/4-20 UNC HEX	2
5	011252-008	SCREW 1/4-20 UNC HHC X 1	2
7	066568-000	LABEL - LOWER PLATFORM	1
8	060197-000	LABEL - HYDRAULIC FLUID	1
9	066557-005	LABEL - LOAD 1300 LBS	1
10	061205-001	LABEL - NAME PLATE EURO	1
11	066552-000	LABEL - DANGER HYDROGEN GAS	1
14	062524-001	LABEL - EMERGENCY LOWERING	1
15	066550-004	LABEL - DANGER INSTRUCTIONS	1
16	066555-000	LABEL - CAUTION RELIEF VALVE	1
17	061683-005	LABEL - UPRIGHT 4 1/2	5
18	061683-007	LABEL - UPRIGHT 5 1/2	2
19	066562-000	LABEL - TIRE PRESSURE 50 P.S.I.	1
21	027898-000	LABEL - DIESEL FUEL	1
22	065368-000	TACK	4
23	067822-001	LABEL -ATTENTION GLOW PLUGS	2
25	060830-000	SAFETY WALK	4
26	067770-011	LABEL - SL30SL	2
27	067770-005	LABEL - SL30SL	5
28	063423-000	LABEL - BRAKE RELEASE	1
29	064414-000	LABEL - CONTROLS	1
30	064444-000	LABEL - USA (SEE NOTE-1)	4
31	065791-000	LABEL - CONTROLLER	1
32	061515-000	LABEL - LIFT HERE	1
33	066554-000	LABEL - READ	1
35	066551-002	LABEL - TIPPING HAZZARD	3
36	066551-003	LABEL - TIPPING HAZZARD	1
37	066563-000	LABEL - BEFORE LEAVING	1
38	064374-000	LABEL - LEVEL	1
39	066551-004	LABEL - DANGER	1
40	067822-000	LABEL GLOW BUTTON	1

ILLUSTRATED PARTS BREAKDOWN

Section 6.1



NOTES:
 1) ITEM # 30 APPLIED TO BOTH SIDES OF CONTROLLER.
 2) FOR EUROPEAN NON-LX MACHINES, DO NOT
 INSTALL NON-REDUCATIVE DECALS. PACKAGE AND
 SHIP WITH COMPLETED UNIT.

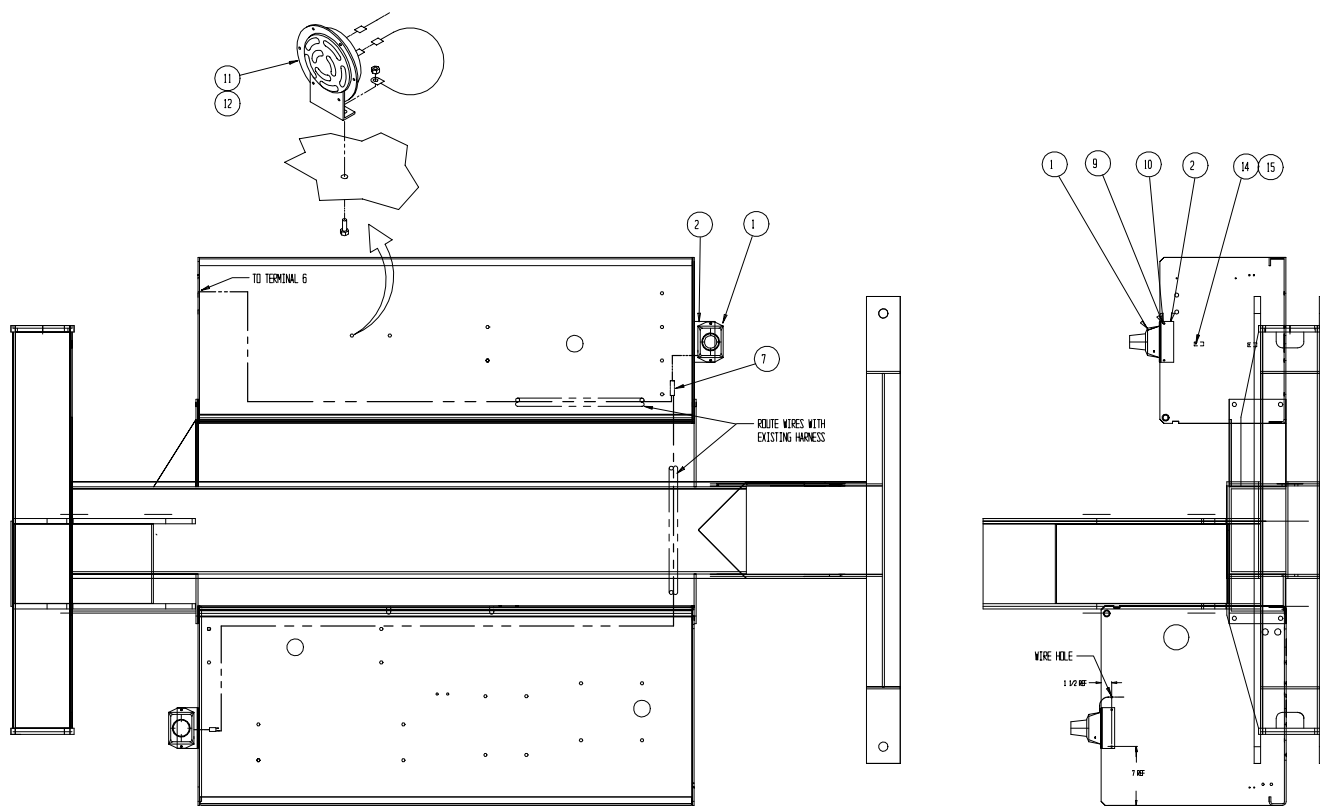
**Section
6.1****ILLUSTRATED PARTS BREAKDOWN****OPTIONAL AMBER BEACON,
SL26/30SL**

063999-003

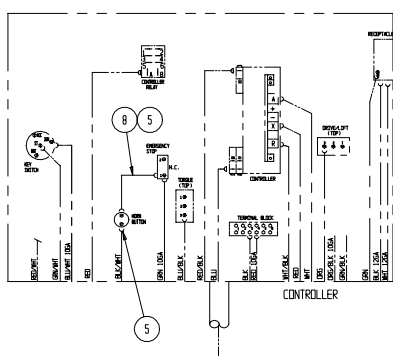
ITEM	PART NO.	DESCRIPTION	QTY.
1	012848-004	LIGHT 12-24 VOLT	2
2	063193-000	LIGHT MOUNT BRACKET	2
3	029702-000	FUSE HOLDER	1
4	029704-002	FUSE 2 AMP	1
5	029610-002	TERM. FORK	4
6	029601-013	TERM. RING	5
7	029620-002	CONNECTOR BUTT	1
8	029452-099	WIRE 16 GA AWG BLK	FT 18
9	011249-003	LOCKNUT 10-32 HEX	4
10	11826-004-00	SCREW 10-32 RD.HD. MACH X 1/2	4
12	029958-001	HORN, 12 VOLT	1
13	063917-000	SWITCH	1
14	029918-010	TIE DOWN	5
15	026551-007	POPRIVET 1/8 X .251 GRIP	5

ILLUSTRATED PARTS BREAKDOWN

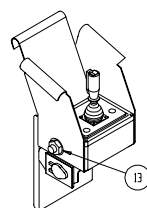
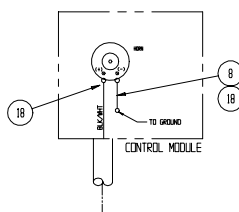
Section 6.1



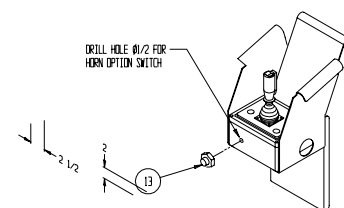
FLASHING AMBER BEACON OPTION



WIRING DIAGRAM FOR HORN

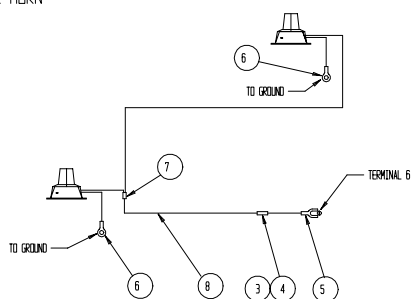


ALL MODELS EXCEPT KUBOTA GASOLINE



KUBOTA GASOLINE

LOCATION FOR HORN BUTTON



WIRING DIAGRAM FOR BEACONS

Section
6.1

ILLUSTRATED PARTS BREAKDOWN

OPTIONAL POLY-FILL RT TIRE, SL26/30SL

063998-000

ITEM	PART NO.	DESCRIPTION	QTY.
1	064187-001	POLY FILL TIRE & WHEEL ASSY R/H REAR	1
2	064187-002	POLY FILL TIRE & WHEEL ASSY L/H REAR	1
3	064187-003	POLY FILL TIRE & WHEEL ASSY R/H FRONT	1
4	064187-004	POLY FILL TIRE & WHEEL ASSY L/H FRONT	1

UpRight

Call Toll Free in U.S.A.

1-800-926-LIFT

Upright, Inc.

1775 Park Street

Selma, California 93662

TEL: 559/891-5200

FAX: 559/891-9012

PARTS: 1-888-UR-PARTS

PARTSFAX: 559/896-9244

P/N 060587-025

B 3/00 .5 K