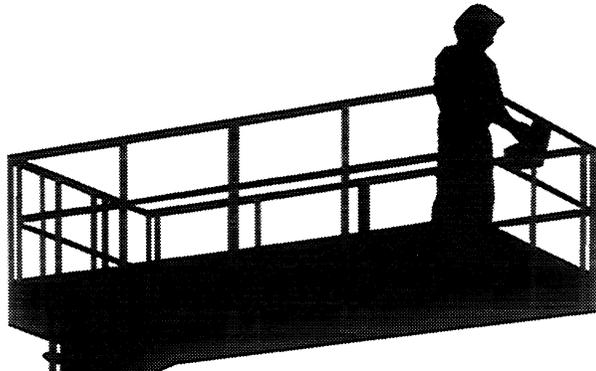


UpRight



SL26/30SL

WORK PLATFORMS



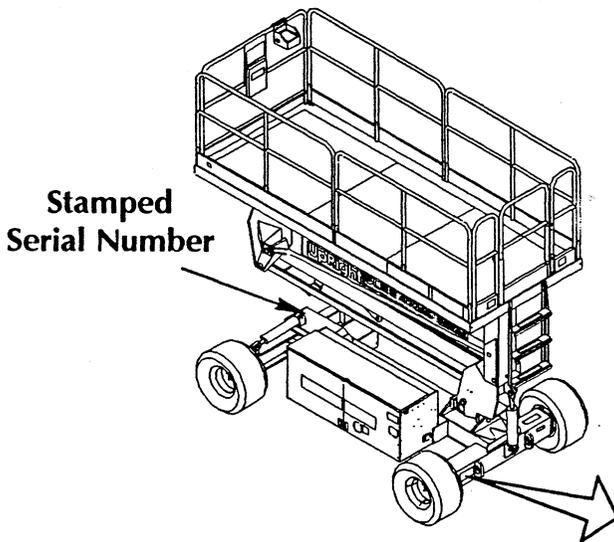
**Service &
Parts Manual**

SERVICE & PARTS MANUAL

SL26/30SL

Kohler & Kubota Gas, & Diesel Models

Serial Numbers 9600 to 11199



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Forward

Introduction

HOW TO USE THIS MANUAL

This manual is divided into 7 sections. The right hand pages of each section is marked with a black tab that lines up with one of the thumb index tabs on the right side of this page. You can quickly find each section without looking through the table of contents which follows this page. The section number printed at the top corner of each page can also be used as a quick reference guide.

SPECIAL INFORMATION

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

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

⚠ CAUTION ⚠
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.

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2.0

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Operation

3.0

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Maintenance

4.0

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5.0

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6.0

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1.0 Introduction

PURPOSE

The purpose of this service and parts manual is to provide instructions and illustrations for the operation and maintenance of a 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.

1.1 General Description

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

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.

Controller

The controller contains the controls to operate the machine. It should be hung on the front 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 3*.

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 and lowering.

Power Module

The power module contains the engine, hydraulic pump, LP gas bottle and/or 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 3*.

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 3.1, Introduction*.

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 low speed range.

SPECIAL LIMITATIONS

The objective of the SL26/30SL Work Platform 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.

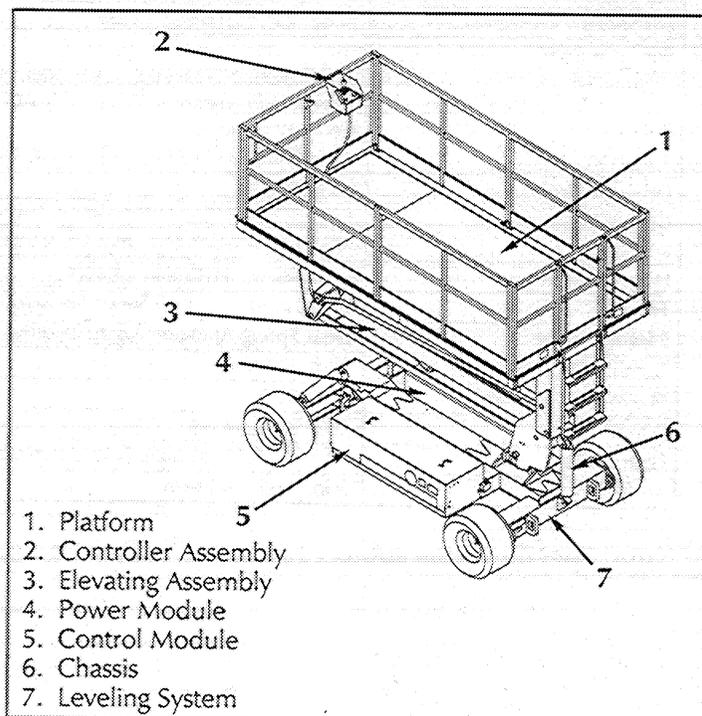


Figure 1-1: SL26/30SL Work Platform

1.2 Specifications

Table 1-1: Specifications

ITEM	SL26SL	SL30SL
Platform Size (Inside Toeboards) Standard w/ Extension	65 in. x 141.5 in. [1.71 m x 3.59 m] 65 in. x 181.5 in. [1.71 m x 4.61 m]	65 in. x 166.25 in. [1.71 m x 4.22 m] N/A
Max. Platform Capacity Standard w/ Extension on Extension	1500 lbs. [680 kg] 1500 lbs. [680 kg] (combined platform & extension) 500 lbs. [227 kg]	1300 lbs. [590 kg] N/A N/A
Max. No. of occupants Standard on Extension	5 people 2 people	5 people N/A
Height Working Height Max. Platform Height Min. Platform Height	32 ft. [9.75 m] 26 ft. [7.93 m] 59 in. [1.5 m]	36 ft. [10.97 m] 30 ft. [9.14 m] 59 in. [1.5 m]
Dimensions Weight Overall Width Overall Height Overall Length	Dual Fuel: 6,130 lbs. [2,780 kg] Diesel: 6,290 [2,853 kg] 84 in. [2.13 m] 102.5 in. [2.60 m] 149 in. [3.79 m]	Dual Fuel: 6,380 lbs. [2,894 kg] Diesel: 6,540 [2,967 kg] 84 in. [2.13 m] 102.5 in. [2.60 m] 173 in. [4.39 m]
Driveable Height	26 ft. [7.93 m]	30 ft. [9.14 m]
Surface Speed Platform Lowered: Platform Raised:	0 to 3.1 mph [0 to 5.0 km/h] 0 to .5 mph [0 to .8 km/h]	0 to 3.1 mph [0 to 5.0 km/h] 0 to .5 mph [0 to .8 km/h]
System Voltage	12 Volt DC	12 Volt DC
Hydraulic Tank Capacity	12 Gallons [45.5 l]	12 Gallons [45.5 l]
Maximum Hydraulic System Pressure	2500 psi [172 bar]	2500 psi [172 bar]
Hydraulic Fluid Normal Use (>32 °F [0 °C]) Low Temp. Use (-10 to 32 °F [-23 to 0 °C])	ISO #46 5W-20 Motor Oil	ISO #46 5W-20 Motor Oil
Lift System	One Single Stage Lift Cylinder	One Single Stage Lift Cylinder
Lift Speed	Raise, 21 sec./Lower, 32 sec.	Raise, 24 sec./Lower, 36 sec.
Power Source Standard Optional	20 HP Kohler Dual Fuel, 2 Cylinder, Air Cooled Engine (Gasoline/Propane) or 18 HP Kubota Diesel, 3 cyl., Water Cooled Engine 23 HP Kubota Dual Fuel, 3 Cylinder, Water Cooled Engine	20 HP Kohler Dual Fuel, 2 Cylinder, Air Cooled Engine (Gasoline/Propane) or 18 HP Kubota Diesel, 3 cyl., Water Cooled Engine 23 HP Kubota Dual Fuel, 3 Cylinder, Water Cooled Engine
Drive Control	Proportional	Proportional
Control System	Joystick Controller with Interlock Lever and Thumb Rocker Steering, Selector and Emergency Stop Switches	Joystick Controller with Interlock Lever and Thumb Rocker Steering, Selector and Emergency Stop Switches
Horizontal Drive	Four Wheel, Hydraulic Motors	Four Wheel, Hydraulic Motors
Tires	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 Brake	Dual Spring-Applied/Hydraulic-Released, Multiple Disc	Dual Spring-applied/hydraulic-released, multiple disc
Turning Radius (inside)	13 ft. [3.96 m]	13 ft. [3.96 m]
Maximum Gradeability	35% [19°]	35% [19°]
Wheel Base	100 in. [2.54 m]	100 in. [2.54 m]
Guardrails	43.5 in. [1.11 m] high, Fold Down with Gate	43.5 in. [1.11 m] high, Fold Down with Gate
Toeboard	6 in. [152 mm] high	6 in. [152 mm] high

Note: Specifications subject to change without notice.

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 terminal to the battery in the power module (Figure 2-1).
5. Close the emergency lowering valve (Figure 2-2), if necessary.

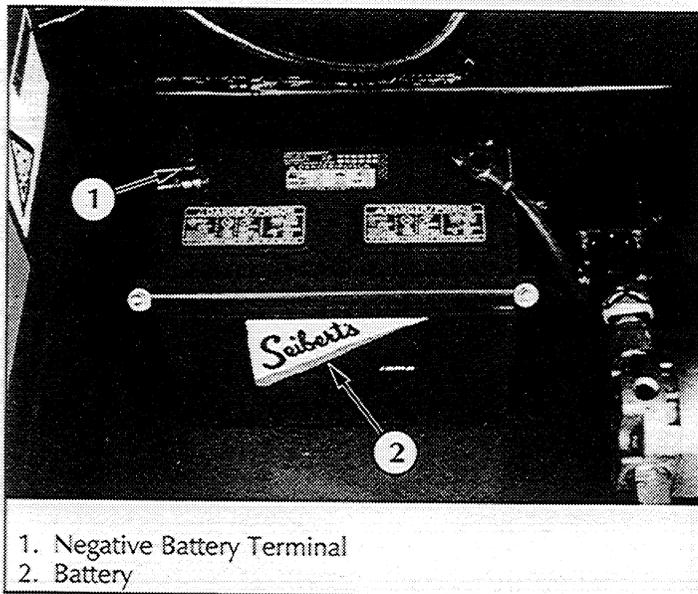


Figure 2-1: Battery

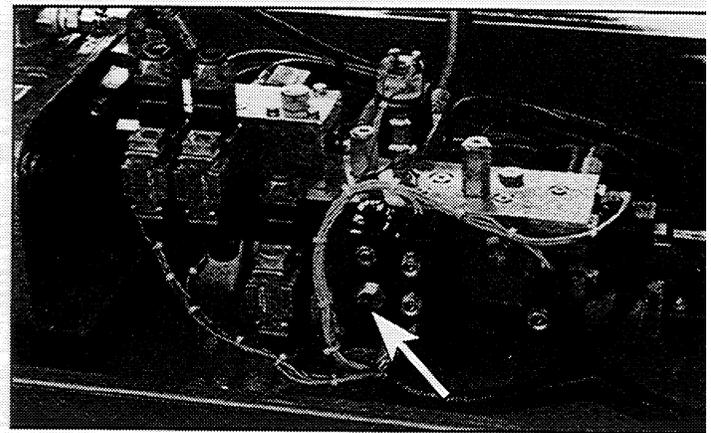


Figure 2-2: Emergency Lowering Valve

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 the side of the platform by lifting under the modules (Figure 2-3).

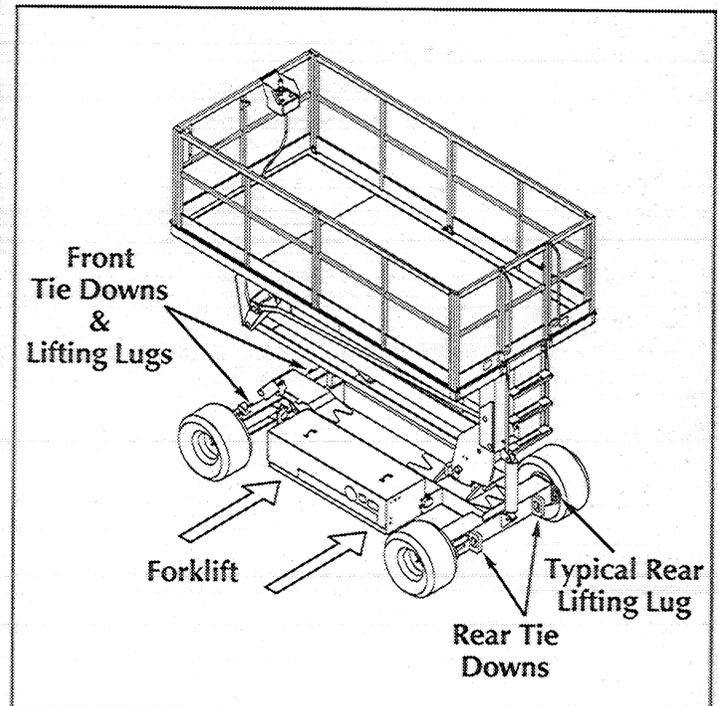


Figure 2-3: Transporting Work Platform

2.3 Transporting the Work Platform

1. Maneuver the work platform into transport position and chock the wheels.
2. Secure the work platform to the transport vehicle with chains or straps of adequate load capacity attached to the chassis tie down lugs (Figure 2-3).
3. Open the emergency lowering valve.

⚠ CAUTION ⚠

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

Overtightening of tie down chains or straps may result in damage to the machine.

2.4 Preparation for Shipment

1. Grease all the grease fittings (see Section 4.4).
2. Fully lower the platform.
3. Disconnect the battery negative (-) lead from the battery terminal (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 Figure 4-1 and Table 4-1).

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. With the platform fully down 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 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.

3.0 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 level/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, drive relay contacts, the platform down relay contacts, the series/parallel coils, the axle float valve solenoid, the proportional coil and the forward or reverse coil to allow oil to flow into the parking brakes (releasing the brakes) 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 is 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 bypass valve and steering coils to 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. **Steering is not self-centering. Wheels must be returned to the straight ahead position by operating the steering switch.**

LEVELING

With the controller key switch **ON** (and the engine running), both chassis and controller emergency stop switches **ON**, the interlock lever depressed, and the level/drive/lift switch on **LEVEL**, the machine can be tilted right or left with the side/side switch or 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 level/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 12 in. (304 mm) 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 or cushion down.

DESIGN FEATURES

The SL26/30SL has the following features:

- The drive speed is limited to low 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 12 in. (304 mm) of platform lowering (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.

DESIGN FEATURES (Cont'd.)

- 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 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.

3.1 Controls and Indicators

The controls and indicators for operation of the SL26/30SL Work Platform are shown in Figure 3-1. The name and function of each control and indicator are listed in Table 3-1. The index numbers in Figure 3-1 correspond to the index numbers in Table 3-1. 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 3-1: Controls and Indicators

Controller/Platform

INDEX NO.	NAME	FUNCTION
1	KEY SWITCH (Dual Fuel, shown)	Turn key fully clockwise to start engine, when released key goes to RUN to provide power to the interlock switch.
	KEY SWITCH (Diesel, on left side of controller)	Turn key fully counterclockwise to preheat engine glow plugs, 30 seconds max. Turn key fully clockwise to start engine, when released key goes to RUN to provide power to the interlock switch.
2	EMERGENCY STOP SWITCH (platform)	Push red button to cut power to controls (off). Turn clockwise to provide power (on).
3	CONTROL LEVER	Move joystick forward or backwards to control drive and lift valves proportionally or down valve depending on position of drive lift switch.
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 straight. The wheels must be steered back to
5	DRIVE SPEED/TORQUE SELECTOR SWITCH	Provides two speed/torque ranges, in forward or reverse. HIGH SPEED -low torque and HIGH TORQUE -low speed.
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.
7	SIDE/SIDE TILT SWITCH	Pushing the switch either right or left tilts the platform in that direction.
8	FORE/AFT SWITCH	Pushing the switch either forward or rearward tilts the platform in that direction.
9	INTERLOCK LEVER SWITCH	Provides power to the controller powered functions, only when depressed, preventing accidental activation of the controller.
10	BUBBLE LEVEL	Indicates platform is level when bubble is

Chassis

INDEX NO.	NAME	FUNCTION
		within the circle.
11	HOURMETER METER	Shows hours machine has had power on.
12	EMERGENCY STOP SWITCH (chassis)	Push red button to cut power to controls (off). Turn clockwise to provide power (on).
13	CHASSIS LIFT SWITCH	Push switch up to lift the platform and push switch down to lower the platform.
14	FUEL SELECTOR SWITCH (Dual Fuel Only)	Moving switch up or down changes the engine's fuel supply between GASOLINE and PROPANE . Placing the switch in the center position purges the fuel lines prior to changing fuels.
15	EMERGENCY LOWERING VALVE	Push in and turn knob ¼ turn counterclockwise, the knob will pop out and the platform will lower. To close, push in and turn knob ¼ turn clockwise until detent engages. The platform cannot be raised until this valve is closed.
16	DOWN ALARM* (60 Hz)	Sounds an audible signal while platform is lowering during normal operation. If the emergency lowering valve is used the alarm does not sound.
	TILT ALARM* (600 Hz)	Sounds an audible signal when the platform is elevated and out of level more than 1.5°.
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. See Section 3.5.

* Down alarm and tilt alarm are the same unit with different inputs.

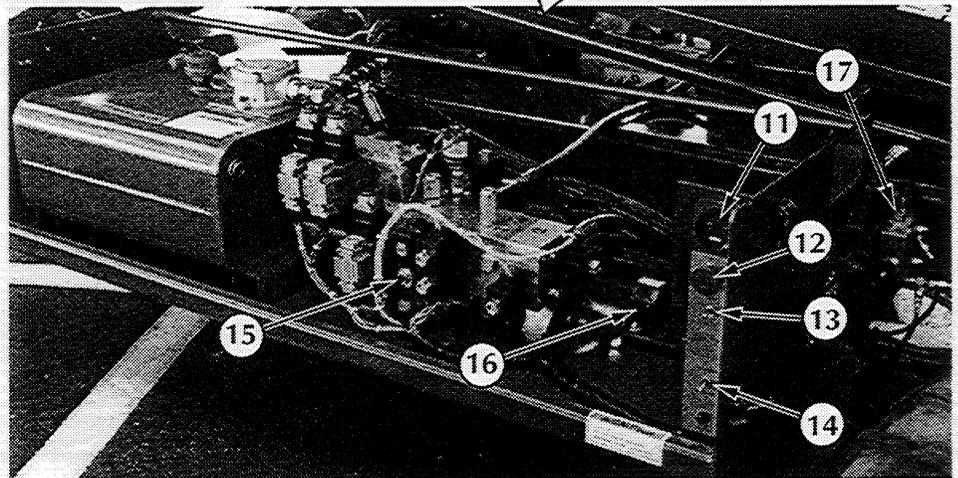
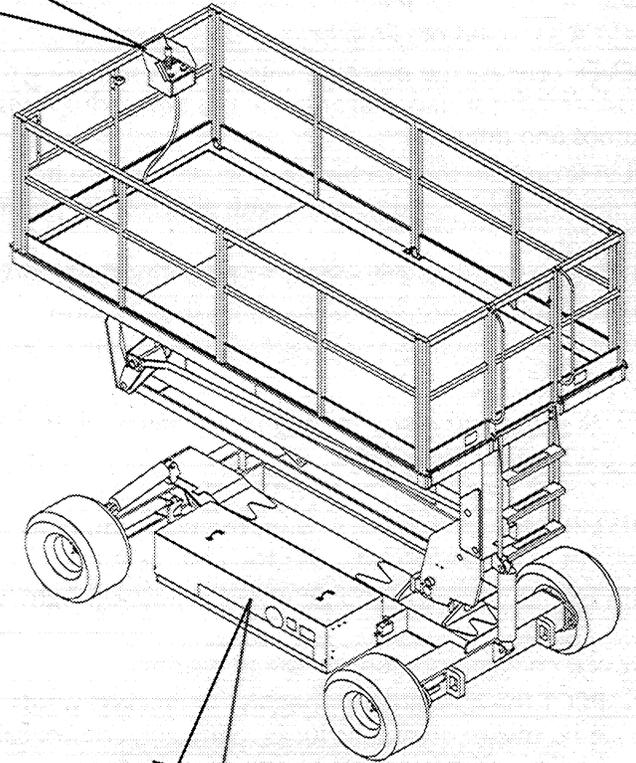
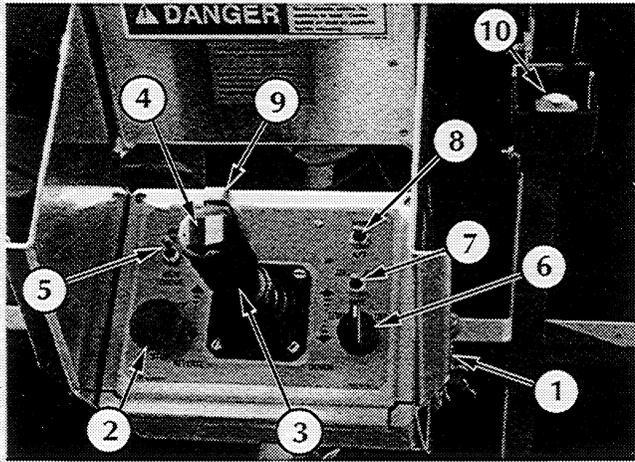


Figure 3-1: Controls and Indicators

3.2 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 on uneven slopes or soft ground or elevate the platform unless the platform is level.

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 (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 loose wheel bolts.

NEVER climb down elevating assembly with the platform elevated.

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

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

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.

ALWAYS read, understand, and follow Section 8 of ANSI Standard A92.6-1990 when operating any work platform.

3.3 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	⚠
<p>DO NOT perform service on work platform with the platform elevated unless the elevating assembly is properly blocked.</p>		

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 4.4). 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 4.3).
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; 50 psi (3.4 bar).
8. Place the chassis emergency stop switch to the ON position. Turn the red knob clockwise.
9. **Dual Fuel Model:** set dual fuel selector to desired position. Set to the center position to purge the system when switching fuels. If the machine is to be operated on propane, open the supply valve on the tank.

Note: When using LP gas, use clean, water free liquid petroleum gas, preferably from a bulk storage tank. Follow the instructions located on the power module tray for filling the tank. Over filling the propane tank may cause regulator freeze-up.

⚠	WARNING	⚠
<p>If you smell propane, close the supply valve on the tank immediately until you have located and corrected the leak.</p>		

10. **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 clockwise to **ON**. Turn fully clockwise to start engine.
4. Position level/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** 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. Place level/drive/lift switch to **LEVEL**. While depressing interlock lever actuate the fore/aft and side/side switches to verify they function 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 WORK PLATFORM 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 8 feet (2.44 m) 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 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 down to **OFF**.

3.4 Operation

Note: Before operating work platform, ensure that the pre-operation and safety inspection 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 the key switch fully clockwise to start the engine.

Note: On Diesel Models, if the engine is cold, turn the key fully counterclockwise and hold for 30 seconds to engage the glow plugs.

7. Set the level/drive/lift switch to the **DRIVE** position and the drive/lift speed range switch to **HIGH TORQUE**.
8. Grasp the control lever so the interlock lever is depressed (releasing the interlock lever cuts 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

Push the steering switch **RIGHT** or **LEFT** to turn the wheels. Observe the tires while maneuvering to insure proper direction.

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

LEVELING PLATFORM

Turn level/drive/lift switch to **LEVEL**. Center bubble in bubble level using fore/aft and left/right switches. To level the platform forward it may be necessary to elevate the platform slightly.

RAISING AND LOWERING THE PLATFORM

WARNING

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

DO NOT elevate the platform unless the machine is on a firm surface with the platform level.

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

NEVER enter the elevating assembly while the platform is elevated.

1. Position the level/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 eight feet (2.44 m), 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 PLATFORM ELEVATED

WARNING

Travel with platform elevated **ONLY** on firm flat surfaces.

Note: The work platform will travel at reduced speed when in the elevated position and then only if the front axle is parallel to the rear axle.

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. With the platform elevated, position the level/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

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 the knob counterclockwise approximately $\frac{1}{4}$ turn, the knob will pop out disengaging detent (see Figure 3-1).
2. Once the platform is fully lowered, be certain that the 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 $\frac{1}{4}$ turn clockwise until the detent engages.

SWITCHING FUELS (DUAL FUEL ONLY)

1. With the engine running, push the fuel selector switch to the center position.
2. After the engine has quit running select the appropriate fuel supply.
3. Restart the engine.

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.

3.5 Brake Release Pump (Figure 3-2)

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

1. Close the needle valve by turning the knob clockwise.
2. Pump the brake release pump until the parking brakes release, the machine will be easier to roll.



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 the needle valve and verify that the parking brakes have engaged 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 1 ft./sec. (.3 m/sec).

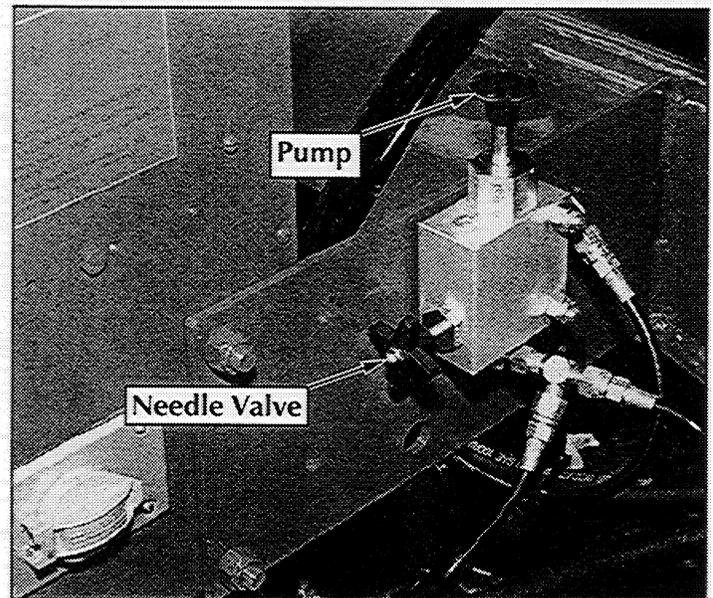


Figure 3-2: Brake Release Pump

3.6 Fold Down Guardrails (Figure 3-3)

Note: Guardrails do not fold down on machines equipped with the optional roll-out deck extension.

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

FOLD DOWN PROCEDURE

Note: When performing the following procedures retain all fasteners.

1. Place controller on 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 forward and down.
3. Hang the controller from the front guardrail.
4. Close and latch the gate.
5. Remove nuts, bolts and washers from the top of the rear guardrail. Fold the rear guardrail back and down being careful to keep gate latched at all times.
6. Fold one side guardrail in so it rests on the deck, repeat with other side guardrail.

ERECTION PROCEDURE

1. Raise side guardrails.
2. Raise rear guardrail assembly, aligning holes and install bolts, washers and nuts. Tighten securely.
3. Place the controller on the deck.
4. Raise front guardrail, aligning holes and install bolts, washers and nuts. Tighten securely.
5. Hang controller from front guardrail.
6. Before operating work platform check that all fasteners are in place and properly torqued.

**DANGER**

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

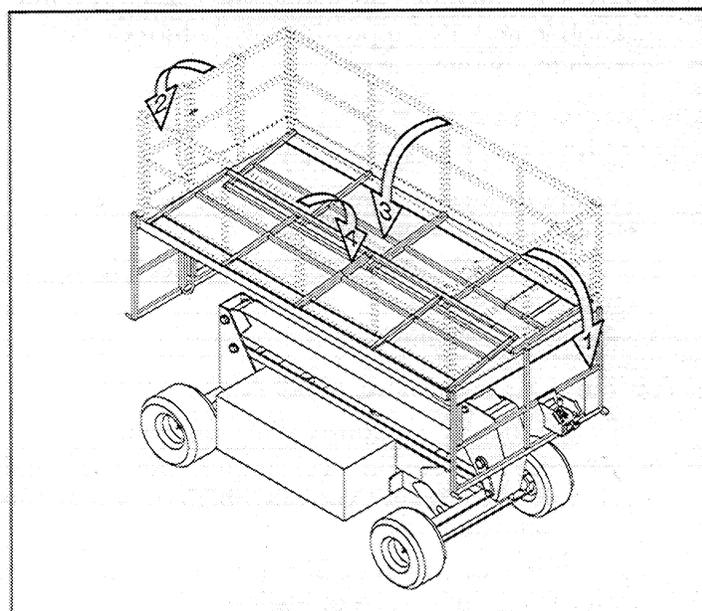


Figure 3-3: Fold Down Guardrails

4.0 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.

Note: For information on the engine refer to your local engine dealer.

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 3.0* and *Section 6.0* will aid in understanding the operation and function of the various components and systems of the SL26/30SL and help in diagnosing and repair of the machine.

Refer to Table 4-1, Preventative Maintenance Checklist, for recommended maintenance intervals.

SPECIAL TOOLS

The following is a list of special tools that may be required to perform certain maintenance procedures. These tools may be purchased from your dealer.

Description	Part Number
Gauge, 0-600 psi	14124-006-00
Gauge, 0-3000 psi	14124-030-00
Inclinometer	10119-000-00
Tilt Sensor Adjusting Tool	30622-000-00

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 4-1: Preventative Maintenance Checklist

COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
Battery System	Check electrolyte level	Daily			
	Check specific gravity	30d			
	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 (Water cooled units only)	Check coolant level (with engine cold)	Daily			
	Replace coolant	250h/6m			
Hydraulic Oil	Check oil level	Daily			
	Change filter	6m			
	Drain and replace oil	2y			
Hydraulic System	Check for leaks	Daily			
	Check hose connections	30d			
	Check hoses for exterior wear	30d			
Emergency Hydraulic System	Open 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 air pressure (50 psi [3.4 bar])	Daily			
	Check lug nuts (torque to 90 ft. lbs. [123 Nm])	30d			

Table 4-1: Preventative Maintenance Checklist (cont'd.)

COMPONENT	INSPECTION OR SERVICES	INTERVAL	Y	N	R
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			
	Check the drive coupling for proper torque and alignment (Kubota engine only)	1y			
	Lubricate pump splines	6m			
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 & mounting bolts for proper torque	30d			
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 pivot pin snap rings	30d			
	Check seals for leaks	30d			
	Inspect pivot points for wear	30d			
	Check fittings for proper torque	30d			
Fore/Aft 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			
	Check seals for leaks	30d			
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			
	Check seals for leaks	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			
Bubble Level	Check bubble and target ring for damage.	Daily			
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			

4.2 Blocking Elevating Assembly (Figure 4-1)

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 switch to **UP** and elevate platform approximately 12 inches (305 mm).
5. Place a jackstand with a minimum rating of 4000 lbs. (1814 kg) between the lower arm and chassis near the front axle.
6. Push chassis lift switch to **DOWN** position and gradually lower platform until jackstand is secured tightly between lower arm and chassis.

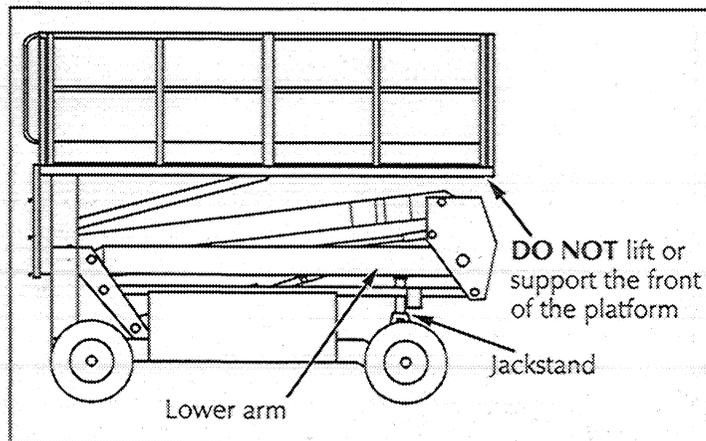


Figure 4-1: Blocking the Elevating Assembly

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.
4. Close and secure the module cover.

4.3 Battery Maintenance

WARNING

Hazard of explosive gas mixture. Keep sparks, flame, and smoking material away from battery.

Always wear safety glasses when working with batteries.

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

BATTERY INSPECTION AND 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 battery when the charger is operating.

Check the battery fluid level. If the electrolyte level is lower than $\frac{3}{8}$ in. (10mm) 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 or higher. 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.

4.4 Lubrication

Refer to Table 4-1 for the lubrication intervals and Figure 4-2 for location of items that require lubrication service. Refer to the appropriate sections for lubrication information on the hydraulic oil tank and filter.

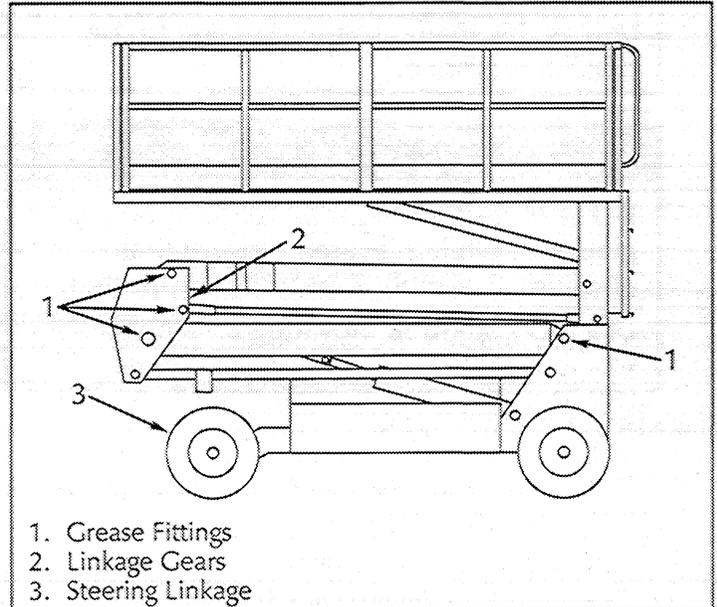


Figure 4-2: Lubrication Points

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. Reinstall the pump and secure with the capscrews.

HYDRAULIC OIL TANK AND FILTER

(Figure 4-3)

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.

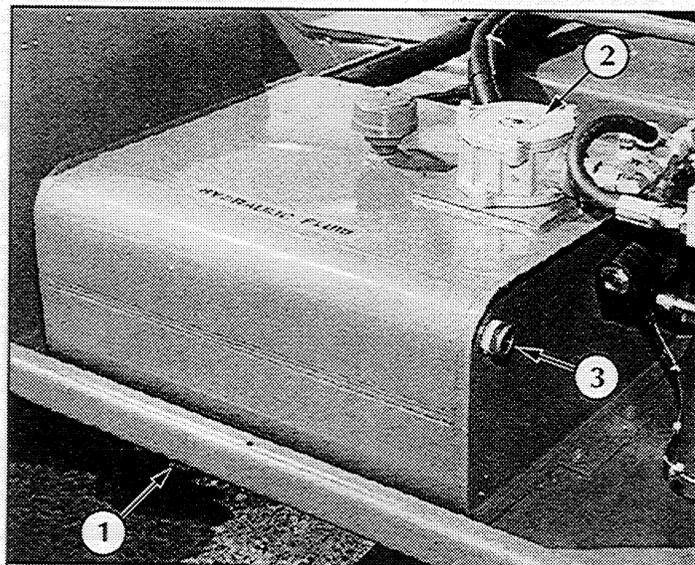
Oil and Filter Replacement

1. Operate the work platform for five minutes to warm up the oil. To change the 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 a capacity of 12.0 gallons (45.5 l).
3. Remove the drain plug and allow all oil to drain into the container. Be sure to dispose of used oil properly, contact your local oil recycler.
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 any dirt or debris from the filter body and check the body O-ring.
8. Insert the replacement filter element into the filter body and press into position.
9. Fill the hydraulic oil tank to the level of the sight gauge with ISO #46 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.



1. Drain Plug (under tank)
2. Filter Housing
3. Sight Gauge

Figure 4-3: Hydraulic Oil Tank and Filter

4.5 Setting Hydraulic Pressures

Referring to Figure 4-14 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.

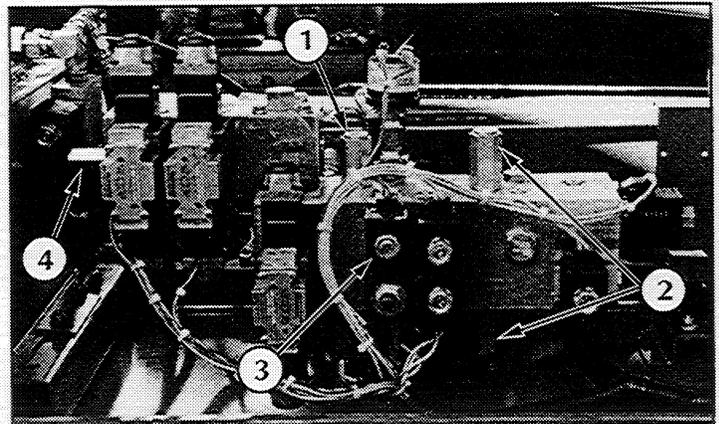
The oil in the hydraulic system is under very high pressure which can easily cause severe cuts. Obtain medical assistance **immediately** if cut by hydraulic oil.

MAIN RELIEF VALVE (Figure 4-4)

1. Operate the hydraulic system for five minutes.
2. Remove the gauge port plug (Figure 4-5) and install a 0-3000 psi (0-250 bar) pressure 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 valve and remove the 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 2500 psi (172 bar) 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.

COUNTERBALANCE VALVES (Figure 4-4)

1. Operate the hydraulic system for five minutes.
2. Remove the gauge port plug (Figure 4-5) and install a 0-600 psi (0-50 bar) 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 coil.



1. Main Relief Valve 3. Lift Coil
2. Counterbalance Valves 4. Steering Relief Valve

Figure 4-4: Hydraulic Manifold Assembly, Front View

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 500 psi (34.5 bar) 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, reinstall the lift coil and replace all plugs when finished setting pressures.

FORE/AFT TILT CYLINDER RELIEF VALVE (Figure 4-4)

1. Operate the hydraulic system for five minutes.
2. Remove the gauge port plug and install a 0-600 psi (0-50 bar) 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 500 psi (35 bar) 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.

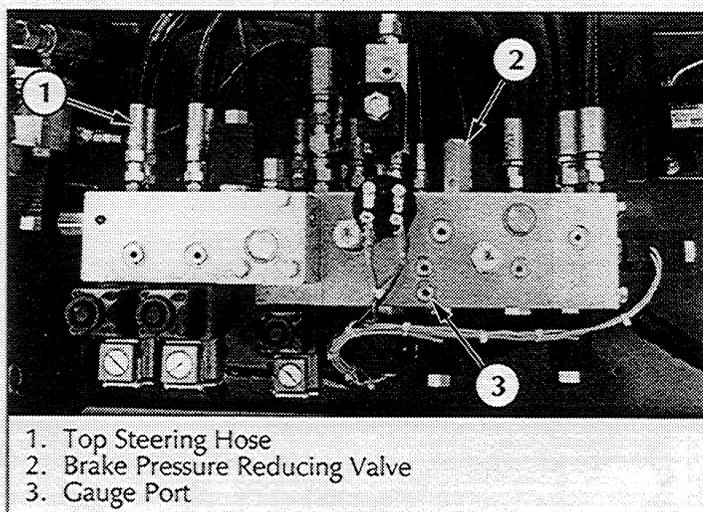
STEERING RELIEF VALVE

(Figures 4-4 & 4-5)

1. Remove the top steering hose from back of the manifold and replace it with a 0-3000 psi (0-250 bar) pressure gauge assembly.
2. Block the end of the hose with a cap fitting.
3. Remove the plug from the end of the steering relief valve to expose the adjusting screw.
4. With the engine running, push the steering switch **RIGHT** and set the pressure to 1200 psi (83 bar) maximum by slowly turning the adjusting screw, clockwise increases pressure.
5. Replace the valve plug.
6. Remove the gauge and reinstall the hose.

BRAKE PRESSURE REDUCING VALVE (Figure 4-5 & 4-6)

1. Using four 1-ton jack stands and a 2-ton jack, jack the work platform up to raise all four wheels off the ground and block the machine securely.
2. Remove the outlet hose from the bottom of the brake release pump (Figure 4-6) and install a 0-600 psi (0-50 bar) gauge assembly in-line with a tee fitting.
3. Loosen the locknut on the brake pressure reducing 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 350-450 psi (24-31 bar) maximum by slowly turning the adjusting screw, clockwise increases pressure.
6. Tighten the locknut on the brake pressure reducing valve.
7. Remove the gauge and tee fitting and reinstall the hose.



1. Top Steering Hose
2. Brake Pressure Reducing Valve
3. Gauge Port

Figure 4-5: Hydraulic Manifold Assembly, Top View

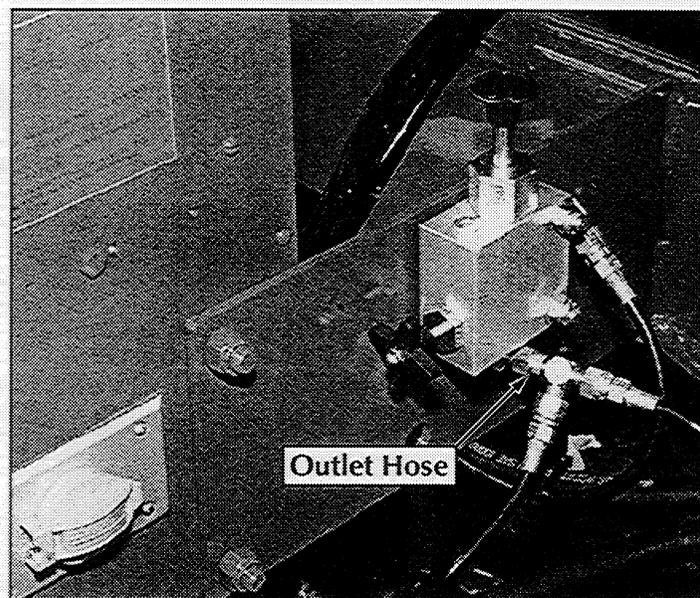


Figure 4-6: Brake Release Pump

8. Remove the jack stands and lower the machine.

DRIVE CROSS RELIEF VALVES

(Figure 4-7)

1. Operate the hydraulic system for five minutes.
2. Remove the gauge port plug (Figure 4-5) and install a 0-3000 psi (0-250 bar) 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 nuts 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 by-

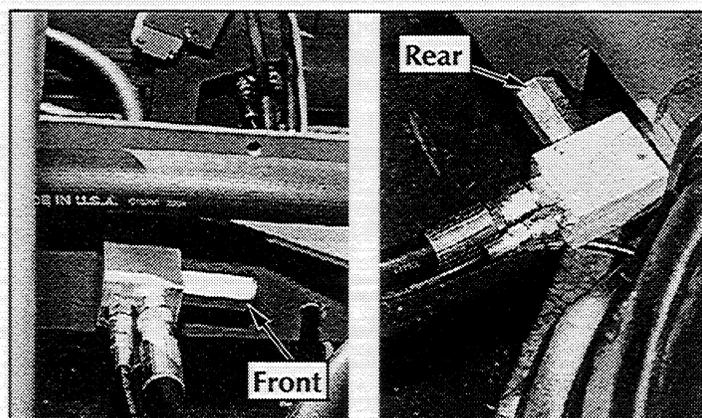


Figure 4-7: Drive Cross Relief Valves

passes (approximately 2 seconds).

7. While holding the chassis lift switch in the UP position, set the pressure to 1500 psi (103 bar) maximum by slowly turning the adjusting 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 pressures.
10. Replace the lift valve coil.

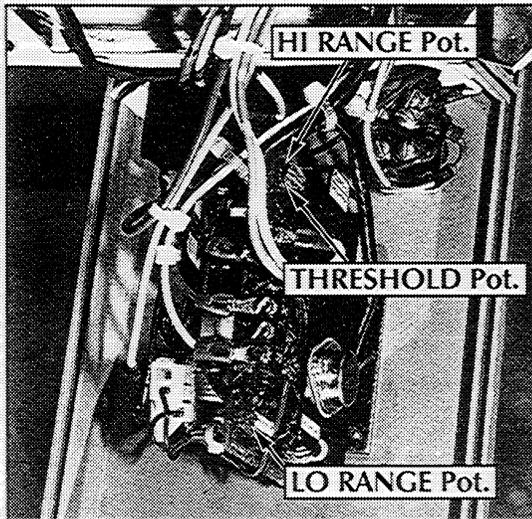


Figure 4-8: Proportional Control Circuit

4.6 Switch Adjustments

PROPORTIONAL CONTROL ADJUSTMENT (Figure 4-7)

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

Follow the exact sequence outlined below when making controller adjustments. It is possible that making an adjustment to one setting could affect another so 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.

1. Set the THRESHOLD potentiometer so that the machine is just starting to move when the controller is moved slightly forward.
2. Mark out a 20 ft. (6.1 m) course on the ground to use for step numbers 3, 4 and 5.
3. Set the HI RANGE potentiometer so that the machine will travel 20 ft. (6.1 m) 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 20 ft. (6.1 m) in 18 to 22 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.

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

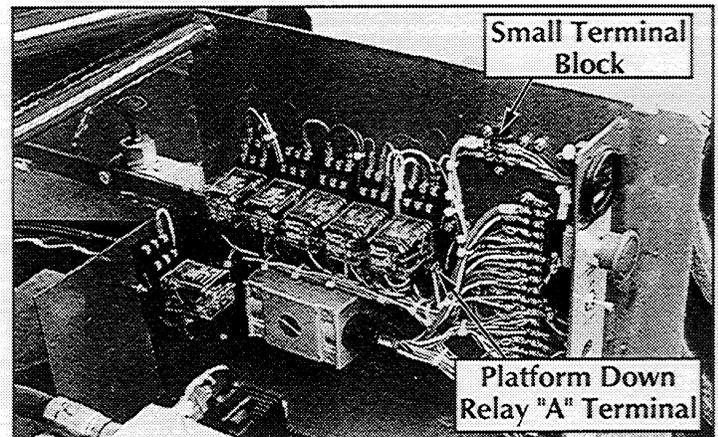


Figure 4-9: Platform Down Relay and Terminal Block

PLATFORM DOWN LIMIT SWITCH (Figures 4-9 & 4-10)

The platform down switch, mounted inside the mast pivot weldment, closes the circuit to the level switch and platform down relay, which provides power to the drive relay, cutout relay, high speed circuit and series/parallel valves and bypasses the tilt sensor when the platform is down.

1. Elevate platform until the platform deck is 87-89 in. (2.21-2.26 m) above the ground.
2. Disconnect the black wire on the small terminal block and the white wire connected to the 'A' terminal of the

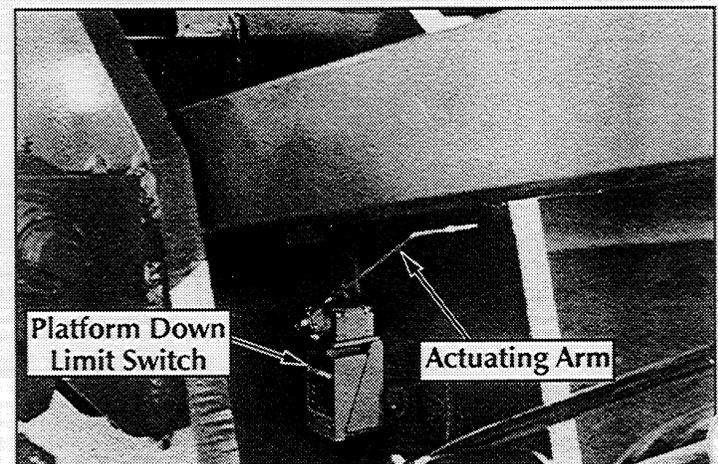


Figure 4-10: Platform Down Limit Switch

platform down relay (Figure 4-9). Connect an ohmmeter or continuity tester to the wires.

3. Adjust switch to just open by loosening hex nut and moving the actuating arm. Raise and lower platform to verify adjustment and tighten hex nut.
4. Disconnect ohmmeter and reconnect wires.
5. Lower platform.

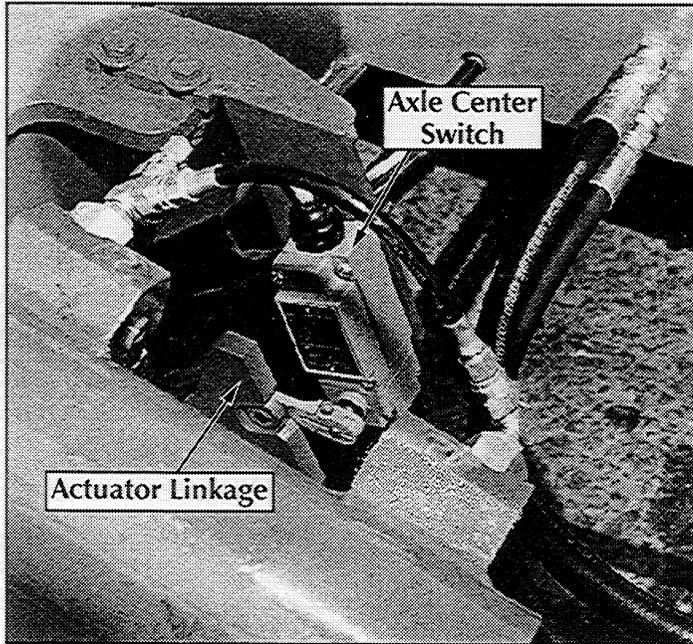


Figure 4-11: Axle Center Switch

AXLE CENTER SWITCH (Figure 4-11)

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 87-89 in. (2.21-2.26 m) above the ground. The work platform should not drive. Retest with the axle off center in the other direction.

CUSHION DOWN LIMIT SWITCH (Figure 4-12)

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

1. Raise the platform 12 in. (30 cm) from its fully lowered position.
2. Disconnect the wires at the mercury switch and connect an ohmmeter or continuity tester.

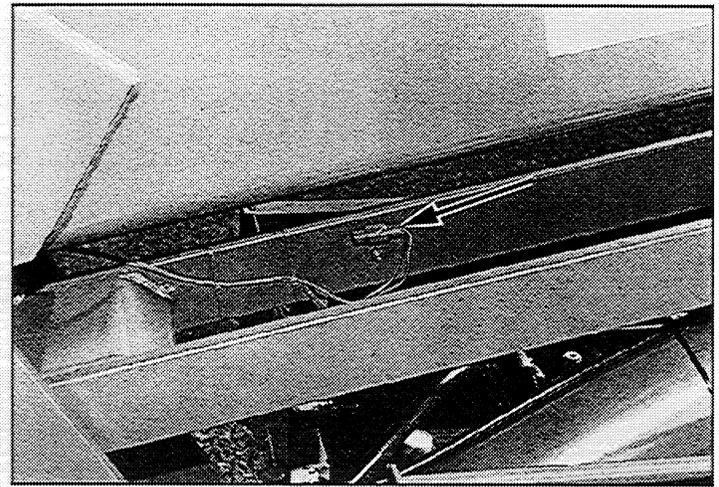


Figure 4-12: Cushion Down Mercury Switch

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.

TILT SENSOR (Figure 4-13)

The tilt sensor has three wires; red-power (12v in), black-ground, white-output (12v out). To verify the sensor is working properly there are two LED's under the sensor; green indicates the sensor is on (has power), red indicates the sensor is level and the white wire is 'hot' (12v out).

1. Level the platform with the platform controls using the inclinometer (P/N: 10119-000-00) 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.

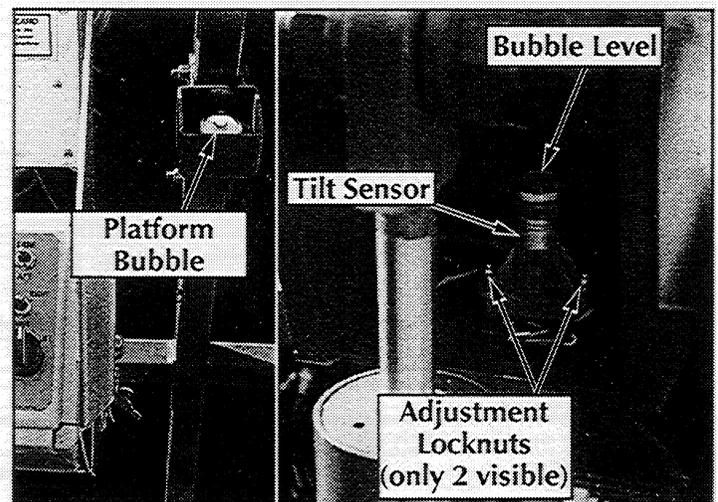


Figure 4-13: Tilt Sensor Adjustment

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 attached bubble level.
5. Replace the mast pivot weldment cover.

4.7 Hydraulic Manifold (Figure 4-14)

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 4-14 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 valve.
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 by lightly tapping on the ball with a brass drift.

1. Install fittings, plugs, springs, balls and orifices. Use one drop of Loctite #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 machine.

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 4.5.

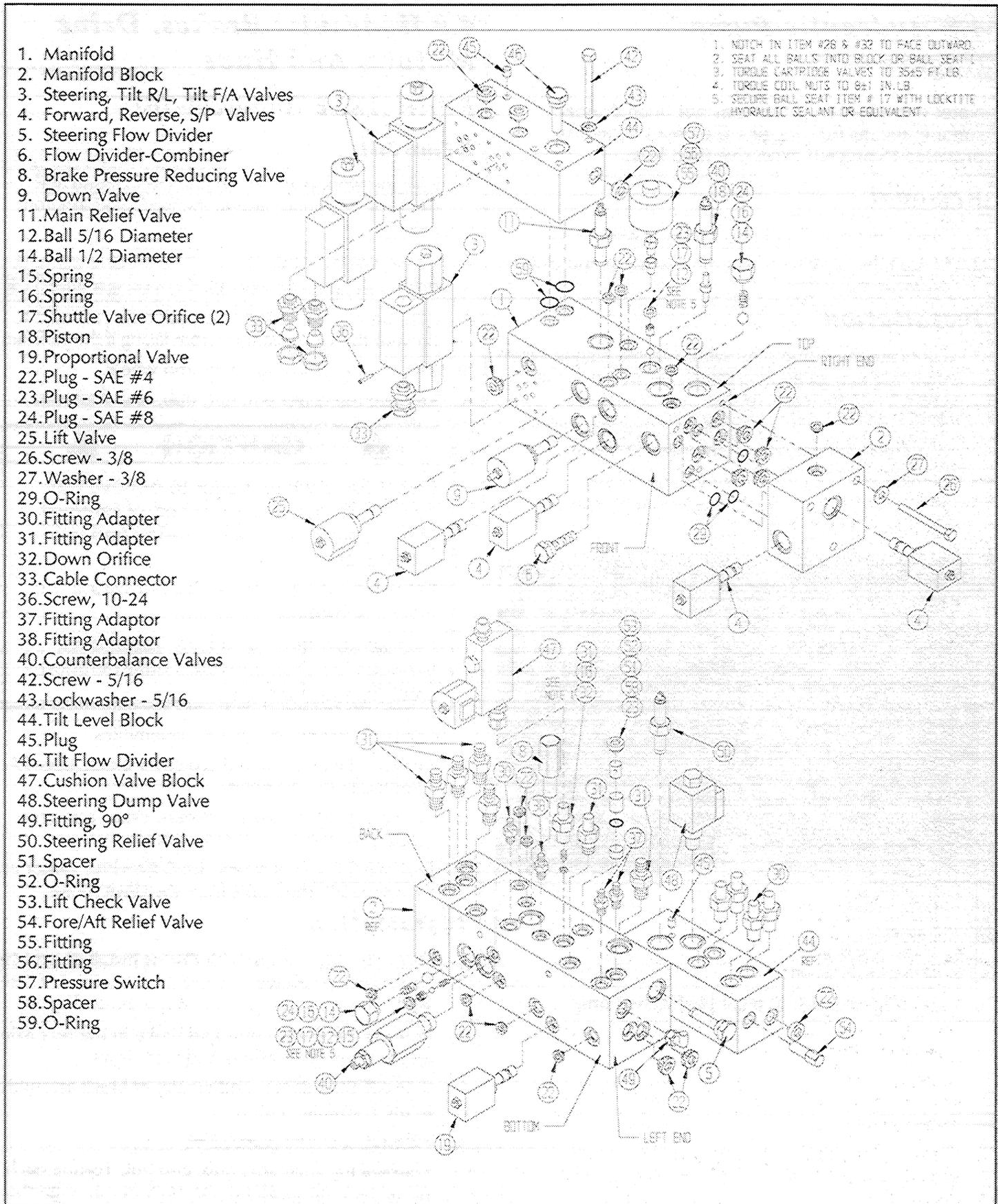


Figure 4-14: Hydraulic Manifold, Exploded View

4.8 Hydraulic Pump (Figure 4-15)

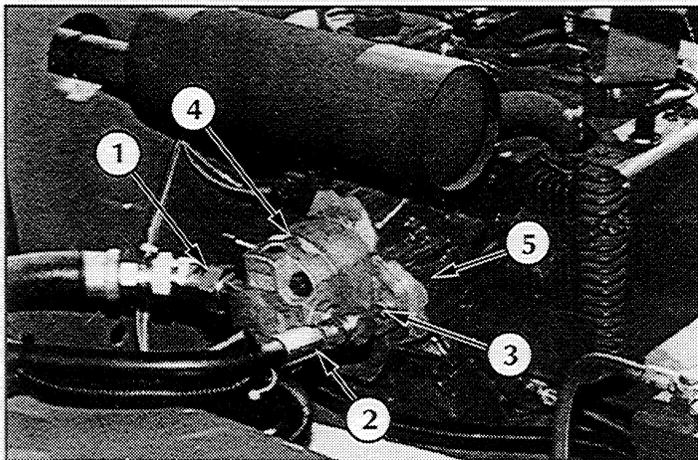
Note: If the hydraulic tank has not been drained, suitable means for plugging the hoses should be provided to prevent excessive fluid loss.

Removal

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

Installation

1. Lubricate the pump shaft with extreme high pressure molybdenum grease and attach the pump to the engine with the capscrews.
2. Torque each capscrew a little at a time until both capscrews are torqued to 20 ft. lbs. (27 N-m).
3. Unplug and reconnect the hydraulic hoses.
4. Check the oil level in the hydraulic tank before operating the work platform.



1. Inlet Hose
2. Outlet Hose
3. Capscrew
4. Pump Assembly
5. Engine Bell Housing

Figure 4-15: Typical Hydraulic Pump

4.9 Hydraulic Brakes, Drive Motors, And Hubs

REAR AXLE (Figure 4-16)

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 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 brake housing 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 adaptor and crossover block assembly from the hydraulic motor.
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 350 ft. lbs. (475 N-m). 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.

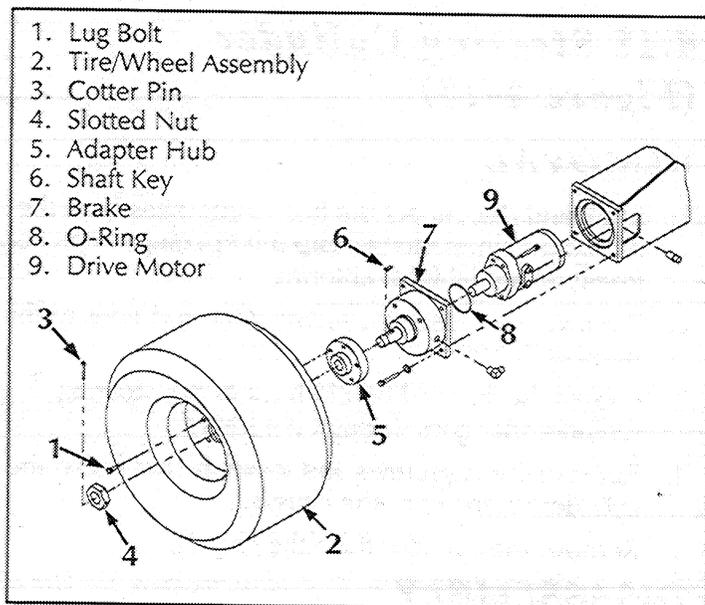


Figure 4-16: Rear Axle Assembly

6. Reinstall the wheel and lug bolts onto the hub. Torque the lug bolts to 90 ft. lbs. (122 N-m).
7. Remove the jack stands used to block the wheels. Lower the jack and remove.
8. Operate the drive system to check for leaks.

FRONT AXLE (Figure 4-17)

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.



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 port holes and hose 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 adapter on the hydraulic motor.
3. Reinstall the hose assemblies.
4. Reinstall the shaft key, hub, and nut. Torque each wheel hub nut to 350 ft. lbs. (475 N-m). 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 90 ft. lbs. (122 N-m).
6. Remove the jack stands used to block the wheels. Lower the jack and remove.
7. Operate the drive system to check for leaks.

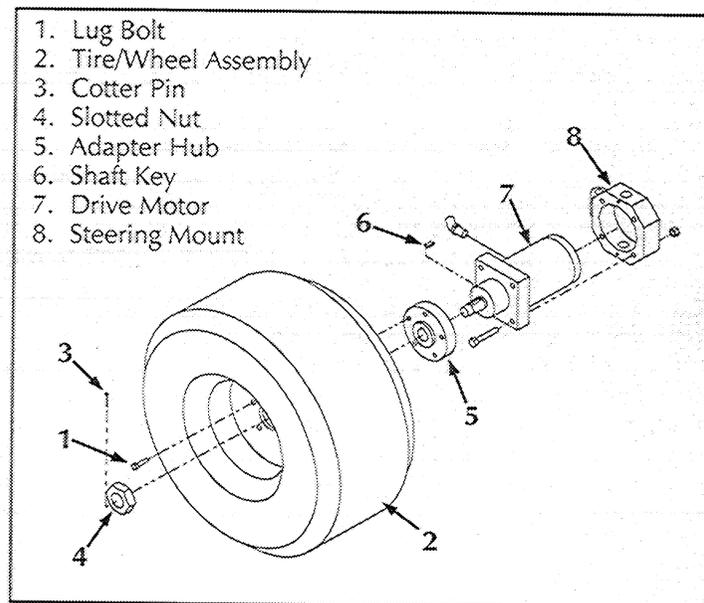


Figure 4-17: Front Axle Assembly

4.10 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 insure 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 150 ft. lbs. (203 N-m).
4. Operate the work platform over rough terrain and check for proper function and leaks.

4.11 Steering Cylinder (Figure 4-18)

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 headcaps 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.

ADJUSTMENT

1. Disconnect the cylinder rod ends (if connected).
2. Operate steering so that both ends of the cylinder rod are equal length ($\pm 1/32$ 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.

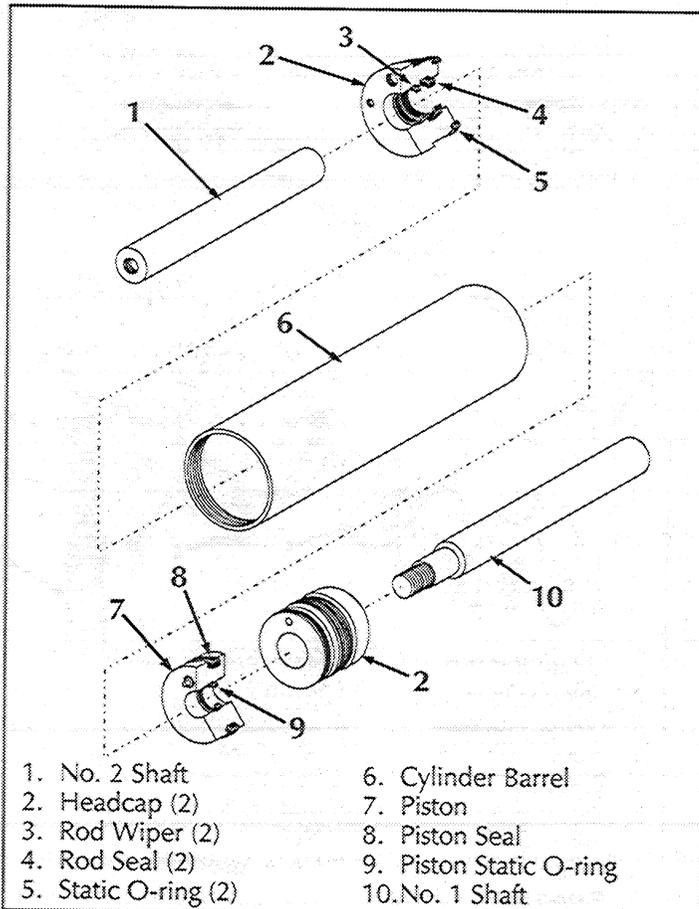


Figure 4-18: Steering Cylinder Assembly

4.12 Lift Cylinder (Figure 4-19)

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 12 inches (305 mm) above the chassis. Support with a jackstand with a minimum rating of 4000 lbs. (1814 kg).
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 70 ft. lbs. (96 N-m).

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

4. Lubricate 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.

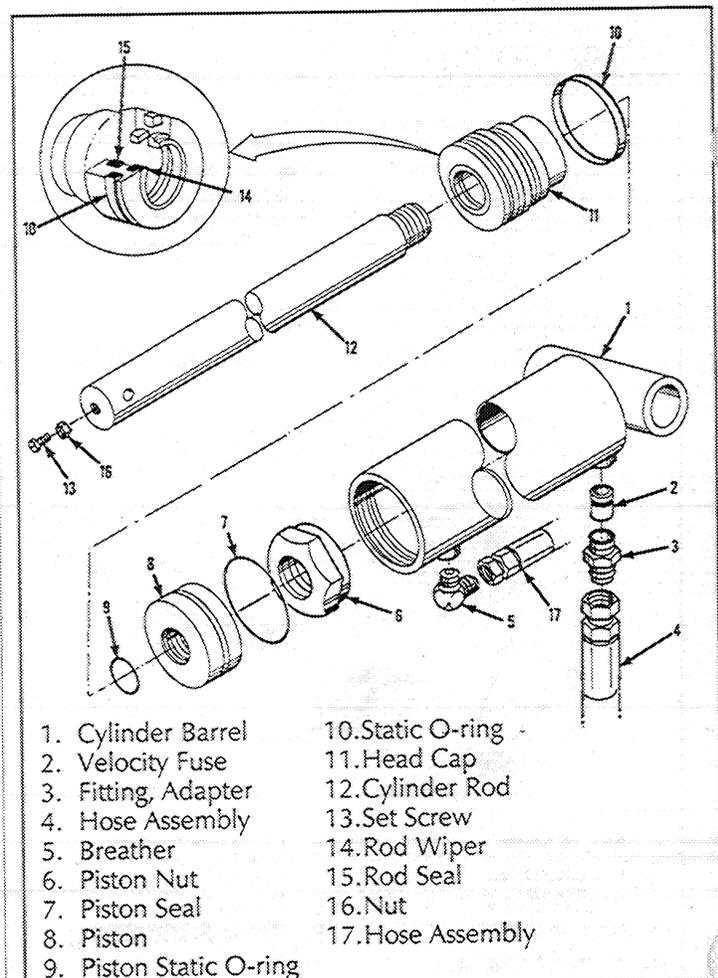


Figure 4-19: Lift Cylinder Assembly

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.

4.13 Torque Specifications (Table 4-2)

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.

Table 4-2: Bolt Torque

THREAD SIZE <small>American National Std.-UNC (course) Grade 5</small>	WIDTH ACROSS FLATS	TORQUE VALUE	
		ENGLISH	METRIC
1/4	7/16	110 In/Lbs	12 N.m
5/16	1/2	190 In/Lbs	22 N.m
3/8	9/16	30 Ft/Lbs	41 N.m
7/16	5/8	50 Ft/Lbs	68 N.m
1/2	3/4	75 Ft/Lbs	102 N.m
5/8	1 5/16	150 Ft/Lbs	203 N.m
3/4	1 1/8	250 Ft/Lbs	339 N.m
7/8	1 15/16	400 Ft/Lbs	542 N.m
1	1 1/2	600 Ft/Lbs	813 N.m

HYDRAULIC COMPONENTS

Use the following values to torque hydraulic components used on UpRight work platforms. Refer to Figure 4-20 to help identify cartridge valves.

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

Table 4-3: Hydraulic Component Torque

TYPE: SAE PART SERIES	CARTRIDGE 2-WAY		CARTRIDGE 3 & 4-WAY		FITTINGS		HOSES	
	(Ft/Lbs)	(Nm)	(Ft/Lbs)	(Nm)	(Ft/Lbs)	(Nm)	(In/Lbs)	(Nm)
#4	N/A	N/A	N/A	N/A	N/A	N/A	135-145	15-16
#6	N/A	N/A	N/A	N/A	10-20	14-27	215-245	24-28
#8	25-30	34-41	8-10	11-14	25-30	34-41	430-470	49-53
#10	35-40	47-54	10-12	14-16	35-40	47-54	680-750	77-85
#12	85-90	115-122	15-18	20-24	85-90	115-122	950-1050	107-131
#16	130-140	176-190	N/A	N/A	130-140	176-190	1300-1368	147-155

Coil nuts: 30 In/Lbs (3 Nm)

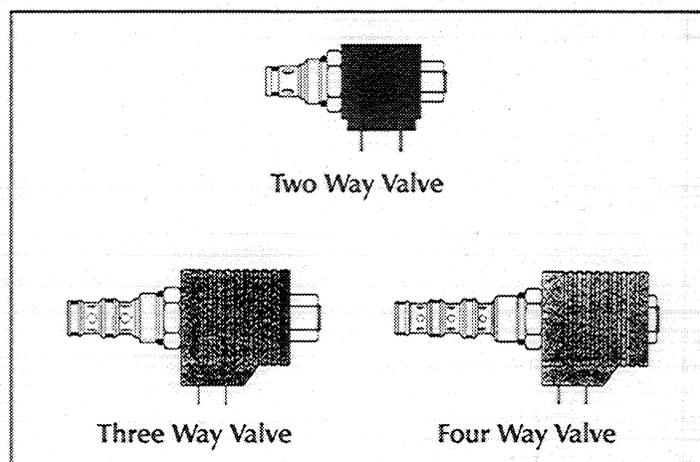


Figure 4-20: Valve Cartridge Identification

NOTES

Blank lined area for notes.

5.0 Introduction

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

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

Referring to Section 3.0 will aid in understanding the operation and function of the various components and systems of the SL26/30SL and help in diagnosing and repair of the machine.

GENERAL PROCEDURE

Troubleshooting should be carried out in two steps. First, thoroughly study both hydraulic and electric schematics to determine possible causes. Loose terminal connections and short circuits are always a potential cause when troubleshooting. Second, check suspect components electrically, hydraulically and mechanically to determine if they are at fault.

⚠ WARNING ⚠

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

When performing any service 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.

FOR SERVICE ASSISTANCE, IN THE U.S.A., CALL:

1-800-926-LIFT

FROM OUTSIDE THE USA, CALL 1-209-896-5150

5.1 Troubleshooting Guide

Table 5-1: Troubleshooting Guide

PROBLEM	PROBABLE CAUSE	REMEDY
All functions inoperable, engine does not start.	1. Blown control circuit Fuse.	Check 15 amp control circuit fuse. Replace if blown.
	2. Faulty battery.	Check condition of battery. If serviceable, recharge battery. If defective, replace battery.
	3. Emergency stop switch failed open.	With the emergency stop switch in the ON position, check continuity across the contacts. If none, replace.
	4. Key switch.	Replace switch if inoperative.
Engine fails to start. Does not crank or cranks slowly.	1. Battery terminals corroded or loose.	Check and tighten terminals.
	2. Discharged battery.	Check condition of battery. If serviceable, recharge battery. If defective, replace battery.
	3. Starter solenoid.	Replace the starter solenoid.
	4. Starter motor.	Repair or replace starter.
	5. Key switch.	Replace the switch.
	6. Main fuse.	Check fuse and replace if required.
	7. Emergency stop switch.	Replace switch if inoperative.
Engine cranks but will not start.	1. Out of fuel	Fill tank.
	2. Blocked fuel line.	Remove obstruction.
	3. Fuel filter clogged.	Clean or replace filter.
	4. Air leaks in the fuel system.	Tighten all fuel line fittings or clamps.
	5. Water in fuel system.	Drain water separator and tank if necessary to remove all water.
	6. Magneto oil pressure switch inoperative.	Check pressure switch. Replace if faulty.
	7. Fuel pump defective/damaged.	Replace the pump.

Table 5-1: Troubleshooting Guide (Cont'd.)

PROBLEM	PROBABLE CAUSE	REMEDY
Engine starts then stops.	1. Low fuel level.	Fill fuel tank.
	2. Fuel filter clogged.	Clean or replace the filter element.
	3. Air leaks in the fuel system.	Tighten all fuel line connections and clamps.
	4. Water in the fuel.	Drain the filter separator and tank if necessary to remove all water.
	5. Fuel pump defective/damaged.	Replace the pump.
	6. Clogged air filter.	Clean or replace air filter.
	7. Key switch.	Switch defective or damaged. Replace the switch.
All functions inoperable. Engine starts.	1. Hydraulic reservoir low.	Check hydraulic fluid level, top off as required.
	2. Faulty hydraulic pump.	Check pressure and delivery of the hydraulic pump. Replace if required.
	3. Damaged drive coupling.	Remove pump from engine and check coupling.
	4. Proportional valve.	Check operation. Replace if required.
	5. Faulty proportional controller.	Check operation. Adjust or replace if required.
Engine smokes (white).	1. Oil level too high in crankcase.	Drain oil to proper level.
	2. Piston rings worn or sticking.	Replace rings.
Loss of power	1. Clogged air filter.	Clean or replace the filter.
	2. Clogged fuel filter.	Replace the filter.
	3. Incorrect fuel.	Drain and refill tank with proper fuel.
	4. Incorrect valve clearance.	Adjust to proper clearance.
	5. Fuel pump defective/damaged.	Replace the pump.
Engine stops.	1. Fuel tank empty.	Refill tank and prime system as required.
	2. Water in fuel.	Drain fuel system to remove all water and refill with fresh fuel.
	3. Magneto oil pressure switch inoperative.	Check pressure switch. Replace if faulty.
Hourmeter does not register.	1. Electrical connections loose or connected improperly.	Tighten and/or correct the connections.
	2. Hourmeter failure.	Replace the meter.
All Controller functions inoperative.	1. Blown fuse.	Find short. Replace fuse.
	2. Key switch.	Replace switch if inoperative.
	3. Faulty interlock switch.	Check interlock switch for continuity, replace if faulty.
	4. Control cable.	Test cable and replace if damaged.

PROBLEM	PROBABLE CAUSE	REMEDY
Unit will not steer. (Lift function operative.)	1. Steering valve/coils (right and left).	Test valve/coils, replace if inoperative.
	2. Open circuit in control cable.	Test cable for continuity, replace if defective.
	3. Steering valve.	Test valve, replace if not serviceable.
	4. Mechanical damage.	Replace damaged parts.
	5. Steering switch.	Replace steering switch.
Unit will not drive.	1. Level/Drive/Lift switch.	Position switch in DRIVE position. Test switch and replace if inoperative.
	2. Forward or reverse valve/coil.	Test valve/coil and replace if inoperative.
	3. Control cable.	Test cable and replace if damaged.
	4. Ruptured hydraulic hose.	Replace hose.
	5. Proportional controller.	Test controller and replace if inoperative.
	6. Main relief valve.	Adjust relief valve and replace if not serviceable.
	7. Hydraulic pump.	Test pump pressure and delivery. Replace if not serviceable.
	8. Hydraulic motors.	Test hydraulic pressure at drive circuit. If normal, replace motors.
	9. Drive relay.	Check for contact closure when energized. If contacts do not close, replace the relay.
	10. Lift/Drive relay.	Check for continuity across contacts, if none replace the relay.
	11. Axle center switch.	Check switch adjustment, then check continuity with switch lever in centered position.
	12. Platform down relay.	Check for contact closure when energized. If contacts do not close, replace the relay.
	13. Shuttle valve not seating.	Check for contaminants and reseal ball in valve block.
Unit will not drive full speed.	1. Series/Parallel valve/coil.	Test valve/coil and replace if inoperative.
	2. Proportional valve/coil.	Test solenoid and replace if inoperative.
	3. Proportional controller.	Test/Adjust the control and replace if inoperative.
	4. Hydraulic motors worn.	Inspect the motors and replace if not serviceable.
	5. Hydraulic pump worn.	Check pump pressure and delivery. Replace if not serviceable.
	6. Main relief valve stuck open.	Check relief valve and replace if inoperative.
	7. Torque selector/drive speed switch.	Replace switch.

Troubleshooting

Table 5-1: Troubleshooting Guide (Cont'd.)

PROBLEM	PROBABLE CAUSE	REMEDY	PROBLEM	PROBABLE CAUSE	REMEDY
Unit will not drive full speed. (Cont'd.)	8. Platform down relay.	Check for contact closure when energized. If contacts do not close, replace the relay.	Platform will not elevate. (Cont'd.)	7. Hydraulic pump.	Check for pressure and delivery. Repair or replace if inoperative.
	9. Platform down switch.	Check for continuity, replace if faulty.		8. Down valve stuck open.	Remove and inspect the valve for sticky operation or damaged O-rings. Repair or replace if unserviceable.
No drive FWD but drives in REV . Lift function operable.	1. Faulty lift/drive relay.	Test lift/drive relay, replace if required.		9. Proportional valve/coil.	Test valve/coil and replace if inoperative.
	2. Faulty diode.	Test diodes. Replace if faulty.	Platform drifts down.	10. Proportional controller.	Test controller, replace if inoperative.
	3. Faulty forward coil.	Test forward coil if proper voltage is present and coil is not magnetized, replace.		1. Emergency lowering/down valve partly open or faulty.	Ensure that the emergency lowering valve is completely closed. If the platform still drifts down, replace the valve.
	4. Faulty forward valve.	Inspect forward valve, if spool is sticking replace.		2. Faulty valve O-rings.	Check and replace O-rings on emergency lowering/down valve and piston.
	5. Faulty drive relay.	Test drive relay, replace if required.		3. Check valve leaking.	Check for oil bypassing check valve. Replace O-rings as required.
	6. Faulty counterbalance valves.	Check pressure of counterbalance valves. Replace or reset valves as required.	Machine drives while lifting.	4. Lift cylinder.	Check lift cylinder seals for leaking.
	7. Shuttle valve.	Check for contaminants and reseal ball in valve block.		Faulty diode.	Test diodes, replace if faulty.
No drive FWD but drives in REV . No lift function.	1. Faulty lift/drive relay.	Test lift/drive relay, replace if required.	Machine lifts while driving.	Faulty diode.	Test diodes, replace if faulty.
	2. Faulty proportional controller.	Check operation of proportional controller. Adjust as necessary. Replace if required.	Platform will not lower.	1. Blown fuse.	Locate electrical short and then replace fuse.
No drive REV but drives in FWD . Lift function operable.	1. Faulty lift/drive relay.	Test lift/drive relay, replace if required.		2. Down valve/coil.	Test valve/coil and replace if inoperative.
	2. Faulty diode.	Test diodes. Replace if faulty.		3. Control cable.	Check cable and replace if damaged.
	3. Faulty reverse coil.	Test reverse coil if proper voltage is present and coil is not magnetized, replace.		4. Proportional controller.	Test control and replace if inoperative.
	4. Faulty reverse valve.	Inspect reverse valve, if spool is sticking replace.		5. Level/Drive/Lift switch.	Check switch and replace if inoperative.
	5. Faulty drive relay.	Test drive relay, replace if required.		6. Lift/Drive relay.	Check for contact closure when energized. If contacts do not close, replace the relay.
	6. Faulty counterbalance valves.	Check pressure of counterbalance valves. Replace or reset valves as required.	Platform starts to lower then stops.	Lift cylinder internal fuse blown (oil viscosity too high).	Raise platform slightly. Allow hydraulic oil to warm up, then lower platform.
	7. Shuttle valve.	Check for contaminants and reseal ball in valve block.		Platform will not level.	1. Level/Drive/Lift switch.
No drive REV but drives in FWD . No lift function.	1. Faulty lift/drive relay.	Check lift/drive relay, replace if faulty.	2. Fore/Aft switch.		Test switch and replace if faulty.
	2. Faulty proportional controller.	Adjust proportional controller, replace if required.	3. Side/Side switch.		Test switch and replace if faulty.
Platform will not elevate.	1. Emergency lowering valve open.	Close valve.	4. Tilt fore coil/valve.		Test coil/valve, replace if faulty.
	2. Platform overloaded.	Observe maximum load rating.	5. Tilt aft coil/valve.		Test coil/valve, replace if faulty.
	3. Ruptured hydraulic hose.	Replace the hose and check relief valve setting.	6. Tilt right coil/valve.		Test coil/valve, replace if faulty.
	4. Lift valve/coil.	Test valve/coil and replace if inoperative.	7. Tilt left coil/valve.		Test coil/valve, replace if faulty.
	5. Main relief valve stuck open.	Replace the relief valve.	8. Platform down switch.		Test/adjust switch, replace if faulty.
	6. Level/Drive/Lift switch on controller.	Test switch, replace if inoperative.	9. Diode.		Test all diodes in circuit, replace if faulty.
			10. Steer bypass coil/valve.		Test coil/valve, replace if faulty.

Table 5-1: Troubleshooting Guide (Cont'd.)

PROBLEM	PROBABLE CAUSE	REMEDY
Front axle will not float.	1. Pressure switch.	Test switch and replace if inoperable.
	2. Diode.	Test all diodes in circuit, replace if faulty.
	3. Platform down relay.	Check for contact closure when energized. If contacts do not close, replace the relay.
	4. Axle float valve/coil.	Test valve/coil and replace if inoperable.
Brakes do not release.	1. Pressure reducing valve.	Check pressure at brake. Replace valve if not serviceable.
	2. Shuttle valve stuck.	Clean or replace shuttle valve assembly.
	3. Faulty brake(s).	Check and replace seals in brake(s).
	4. Brake release valve closed.	Open valve.
Brakes will not engage.	1. Faulty brake(s).	Check and replace seals in brake(s).
	2. Brake release valve closed.	Open valve.

6.0 Introduction

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

The diagrams are to be used in conjunction with *Table 5-1: Troubleshooting Guide*. They allow understanding of the makeup and functions of the systems for checking, tracing, and faultfinding during trouble analysis.

The diagrams appear in the following order:

Figure 6-1: Terminal Strip and Relay Identification, Dual Fuel

Figure 6-2: Electrical Schematic, Dual Fuel

Figure 6-3: Terminal Strip and Relay Identification, Diesel

Figure 6-4: Electrical Schematic, Diesel

Figure 6-5: Terminal Strip and Relay Identification, Optional Kubota Dual Fuel

Figure 6-6: Electrical Schematic, Optional Kubota Dual Fuel

Figure 6-7: Hydraulic Schematic

Figure 6-8: Hydraulic Manifold

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

6.1 Electrical Schematics

Table 6-1: Electrical Schematic Legend, Dual Fuel

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
ALM 1	Alarm, Down	Provides warning sound (60 Hz) when deck is lowering.	Control Module on aux. electrical bracket. Red wire for 60 Hz.
ALM 2	Alarm, Tilt	Provides warning sound (600 Hz) when platform is elevated and not level.	Control Module next to Tilt Sensor. White wire for 600 Hz.
BAT	Battery, 12 volts	To store energy	Power Module.
CO1	Coil, Choke	Opens Choke as Engine warms up.	Right side of Engine Carburetor.
CO2	Coil, Engine Idle	Holds throttle in idle position.	Left side of Engine Carburetor.
CO3	Coil, Gasoline Valve	Allows gasoline to flow to Engine.	In front of Battery on module floor.
CO4	Coil, L.P. Gas Valve	Allows L.P. Gas to flow to Engine.	Left side of Engine, mounted to L.P. Gas Regulator.
CONT	Controller, Proportional Joystick	Supplies power to Lift/Drive Switch, Lift/Drive Relay, Cutout Relay contacts & Proportional Coil. Includes Switches S1-S5.	Inside Controller (Control Box).
D1	Diode	Supplies power to Drive Relay thru Cutout Relay, Axle Center Switch and Platform Down Relay and down circuit thru Platform Down Relay from forward circuit.	Between A-T4 and A-T6 on Fanning Strip.
D2	Diode	Supplies power to Drive Relay thru Cutout Relay, Axle Center Switch and Platform Down Relay and down circuit thru Platform Down Relay from reverse circuit.	Between A-T7 and A-T6 on Fanning Strip.
D3	Diode	Supplies power to Throttle and Controller Relay for LIFT operation.	Between A-T5 and A-T10 on Fanning Strip.
D4	Diode	Supplies power to Throttle and Controller Relay for REVERSE operation.	Between A-T7 and A-T10 on Fanning Strip.
D5	Diode	Supplies power to down circuit from Platform Down Relay.	Between A-T12 and A-T8 on Fanning Strip.
D6	Diode	Supplies power to down circuit from Drive/Lift Relay and Chassis Lift Switch.	Between A-T9 and A-T8 on Fanning Strip.
D7	Diode	Supplies power to Joystick 'R' terminal from lift circuit for high speed lift.	Between A-T5 and A-T15 on Fanning Strip.
D8	Diode	Supplies power to Joystick 'R' terminal from drive circuit for high speed drive.	Between A-T12 and A-T15 on Fanning Strip.
D9	Diode	Supplies power to Controller Relay when S2 is not activated and prevents feedback to controller switches.	Between S2 and Controller Relay.
D10	Diode	Supplies power to Drive Relay.	Between A-T12 and Drive Relay 'A' term.
D11	Diode	Prevents feedback into the gasoline or LP coils from the Idle Coil.	Attached to normally open pressure switch.
D12	Diode	Prevents feedback to the Down Solenoid.	Between T9 and the Down Alarm.
D13 & D14	Diode	Prevents transient voltage spikes from damaging the alarms.	Between each alarm input and ground.
D15	Diode	Provides power to Controller Relay from level circuit.	Between level switch and Controller Relay.
D16	Diode	Supplies power to Steer Bypass Valve from steer right circuit.	Between C-T7 and C-T6 on Fanning Strip.
D17	Diode	Supplies power to Steer Bypass Valve from steer left circuit.	Between C-T8 and C-T6 on Fanning Strip.
D18-D21	Diode	Supplies power to Steer Bypass Valve from tilt circuit.	Between C-T1 thru C-T4 and C-T6 on Fanning Strip.
FU1	Fuse, 15 AMP	Overload protection for the control circuit.	Right front of Control Module, Bottom of Chassis Control Panel.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
LS1A	Switch, Platform Down Limit	Energizes Platform Down Relay, providing power to Joystick high speed and Series/Parallel circuits and bypassing Tilt Sensor when Platform is down.	Mounted inside front of mast pivot weldment. Multi-contact switch with one body.
LS1B		Provides power to platform level circuit when Platform is down.	
LS2	Switch, Cushion, Mercury	Provides power to energize Cushion Valve during last 6 in. (15 cm) of platform lowering.	Mounted to lower tension member.
LS3	Switch, Axle Center	Supplies power to Drive Relay when Platform is elevated but only when front axle is parallel with rear axle.	Mounted behind left front axle.
MTR	Meter, Hour	Shows hours machine has had power on.	Right front of Control Module, top of Chassis Control Panel.
PS1	Pressure Switch, Engine Oil, normally closed.	Stops ignition if engine loses oil pressure.	Back right of engine.
PS2	Pressure Switch, Engine Oil, normally open.	Stops fuel if engine loses oil pressure.	Back right of engine.
PS3	Pressure Switch, Lift (NC)	Cuts power to high speed circuit and Axle Float Solenoid when there is pressure in lift circuit.	Top of Manifold Assembly.
R1	Relay, Platform Down	Provides power to Series/Parallel and Down Valves and Cutout Relay and Drive Relay Coils when energized by Platform Down Switch (platform down). Cuts out high speed drive when platform is elevated.	Control Module right bulkhead, closest to terminal strip.
R2	Relay, Cutout	Provides power to Drive Relay thru Axle Center Switch and closes Lift circuit when energized by Platform Down Relay (platform down) or Tilt Sensor (platform elevated). Cuts power to Drive Relay, opens lift circuit and energizes Tilt Alarms when machine is on slopes of 2° side to side or fore and aft.	Control Module right bulkhead, second relay in from terminal strip.
R3	Relay, Drive	Energized by Platform Down Relay when platform is down or by Cutout Relay thru Axle Center Switch with platform elevated, closes forward and reverse circuits.	Control Module right bulkhead, third relay in from terminal strip.
R4	Relay, Accelerator	Energized thru diodes D9, D3 or D4. Cuts power to the Idle Coil to increase engine speed.	Control Module right bulkhead, fourth relay in from terminal strip.
R5	Relay, Lift/Drive	Energized by Level/Drive/Lift Switch. Provides power to forward or reverse coils when not energized and to lift or down circuits when energized.	Control Module right bulkhead, farthest relay from terminal strip.
R6	Relay, Motor Start	Connects Battery to Starter Motor.	Power Module, right side of Battery.
R7	Relay, Controller	Energized thru diodes D9, D3, D4 or D15. Provides power to the Joystick '+' terminal.	Mounted inside of Controller.
S1	Switch, Interlock Lever	Supplies power to Lift/Drive and Controller S2 & S3 switches.	Inside Joystick handle.
S2	Switch, Controller Down/Reverse	When actuated (Joystick pulled back) provides power to down and reverse circuits. Provides power to '+' terminal of Joystick when not actuated.	Inside Controller, switch farthest away when lid is open.
S3	Switch, Controller Lift/Forward	When actuated (Joystick pushed forward) provides power to lift and forward circuits.	Inside Controller, switch closest when lid is open.
S4, S5	Switch, Steering	Actuated with thumb rocker on top of Joystick, provides power to right or left steer circuits.	Inside Joystick handle.
S6	Switch, Controller Emergency Stop	Control Circuit shut off.	Platform Controller, lower left.

Table 6-1: (cont'd.)

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
S7	Switch, Controller Key	Supplies power to controls, magneto and starts engine.	Platform Controller, left side.
S8	Switch, Level/Drive/Lift	Supplies power to level circuit, Lift/Drive Relay when in LIFT or to Torque Switch when in DRIVE .	Platform Controller, lower right.
S9	Switch, Torque Selector (Drive/Lift Speed)	Provides power to Series/Parallel Valves through Platform Down Relay to provide high speed drive/lift.	Platform Controller, upper left.
S10	Switch, Chassis Emergency Stop	Control Circuit shut off.	Chassis Control Panel.
S11	Switch, Chassis Lift	Supplies power to Up and Proportional coils or down circuit.	Chassis Control Panel.
S12	Switch, Tilt Fore/Aft	Provides power to Tilt Fore or Aft Coils to level platform.	Controller upper right.
S13	Switch, Tilt Right/Left	Provides power to Tilt Right or Left Coils to level platform.	Controller middle right.
S14	Switch, Fuel Selector	Supplies power to either Gas Coil or LP Coil.	Chassis Control Panel.
SNSR	Sensor, Tilt	Cuts power to Cutout Relay when platform is out-of-level 2" side to side and fore and aft to activate Tilt Alarm.	Inside mast pivot weldment.
SOL1	Solenoid, Right Steer (coil)	Shifts Steer Valve to RIGHT turn position.	Top end of Spool Valve, mounted on left front of Manifold Block.
SOL2	Solenoid, Left Steer (coil)	Shifts Steer Valve to LEFT turn position.	Bottom end of Spool Valve, mounted on left front of Manifold Block.
SOL3	Solenoid, Forward (coil)	Opens Forward Valve to direct oil through drive circuit for forward operation.	Top center front of Manifold Block in front of Gauge Port.
SOL4	Solenoid, Reverse (coil)	Opens Reverse Valve to direct oil through drive circuit for reverse operation.	Bottom center front of Manifold Block below Forward Valve.
SOL5	Solenoid, Lift (Up Coil)	Opens Lift Valve.	Top front of Manifold Block, left of Forward Valve.
SOL6	Solenoid, Down (coil)	Opens Down Valve.	Bottom front of Manifold Block, below Lift Valve.
SOL7	Solenoid, Proportional (coil)	Controls Proportional Valve.	Left bottom of Manifold Block.
SOL8	Solenoid, Cushion (coil)	Opens Cushion Valve to allow high lowering speed.	Rear of Manifold Block, mounted on Cushion Down Block.
SOL9	Solenoid, Series/Parallel (coil)	Opens Series/Parallel Valve to allow high speed drive.	Lower right front of Manifold Block.
SOL10	Solenoid, Series/Parallel (coil)	Opens Series/Parallel Valve to allow high speed drive.	Right end of Manifold Block.
SOL11	Solenoid, Axle Float (coil)	Locks front axle when Platform is elevated.	Mounted to block on right side of Hydraulic Tank.
SOL12	Solenoid, Tilt Fore (forward) (coil)	Opens Tilt Fore Valve to direct oil to tilt platform forward.	Bottom end of spool valve mounted on left front of top auxiliary block on Manifold Assembly.
SOL13	Solenoid, Tilt Aft (coil)	Opens Tilt Aft Valve to direct oil to tilt platform to the rear.	Top end of spool valve mounted on left front of top auxiliary block on Manifold Assembly.
SOL14	Solenoid, Tilt Right (coil)	Opens Tilt Right Valve to direct oil to tilt platform to the right.	Top end of spool valve mounted on center front of top auxiliary block on Manifold Assembly.
SOL15	Solenoid, Tilt Left (coil)	Opens Tilt Left Valve to direct oil to tilt platform to the left.	Bottom end of spool valve mounted on center front of top auxiliary block on Manifold Assembly.
SOL16	Solenoid, Steer Bypass	Closes Steer Bypass Valve to direct oil to steering or tilt circuits.	Mounted on rear of auxiliary block on Manifold Assembly.

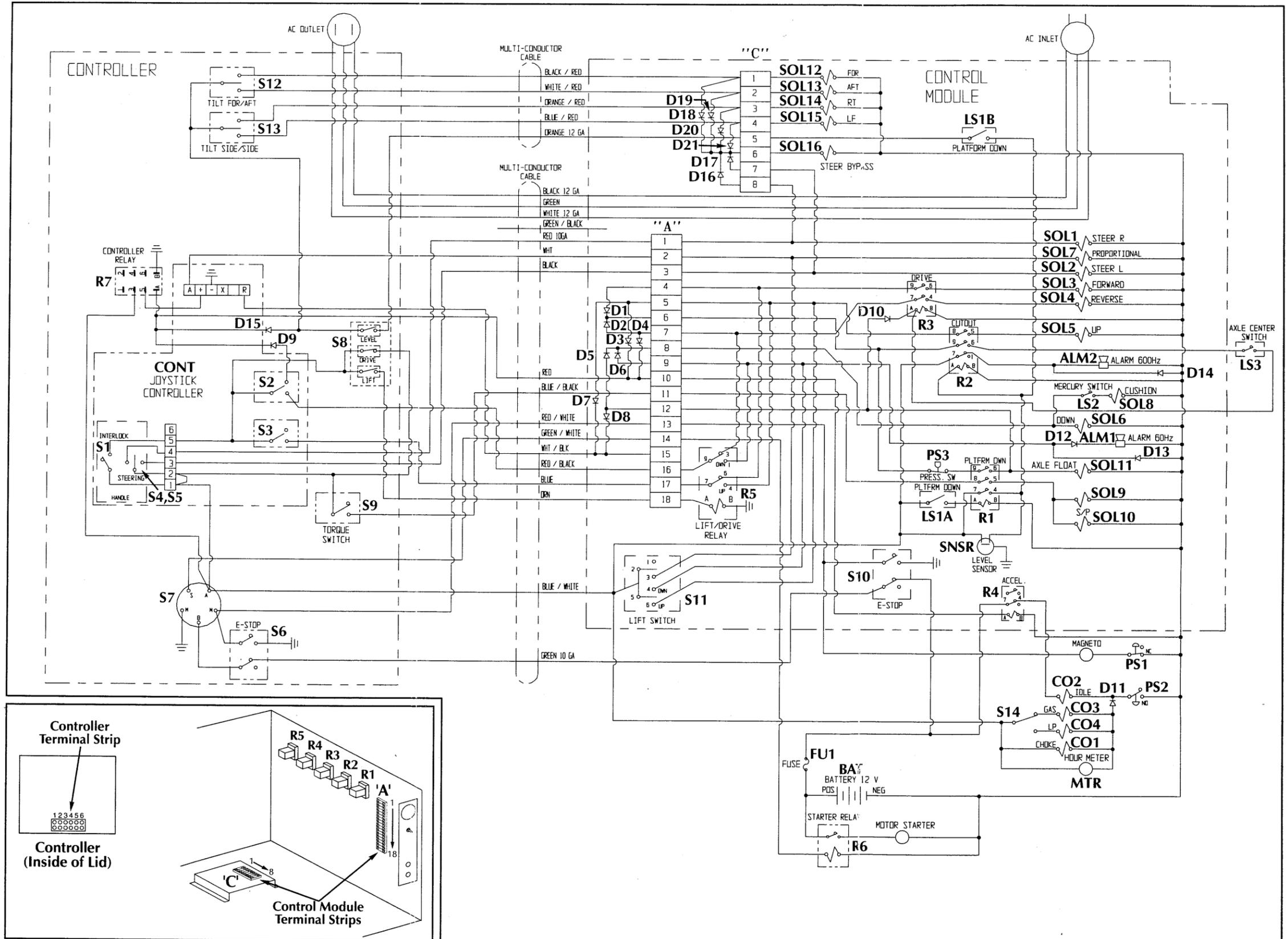


Figure 6-1: Terminal Strip and Relay Identification, Dual Fuel Model

Figure 6-2: Electrical Schematic, Dual Fuel Model

Table 6-2: Electrical Schematic Legend, Diesel

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
ALM 1	Alarm, Down	Provides warning sound (60 Hz) when deck is lowering.	Control Module on aux. electrical bracket. Red wire for 60 Hz.
ALM 2	Alarm, Tilt	Provides warning sound (600 Hz) when platform is elevated and not level.	Control Module next to Tilt Sensor. White wire for 600 Hz.
BAT	Battery, 12 volts	To store energy	Power Module.
CO1	Solenoid, Throttle	Controls Engine RPM.	Front of Engine, unit closest to engine.
CO2	Solenoid, Run	Shuts off fuel flow.	Front of Engine, unit farthest from engine.
CONT	Controller, Proportional Joystick	Supplies power to Lift/Drive Switch, Lift/Drive Relay, Cutout Relay contacts & Proportional Coil. Includes Switches S1-S5.	Inside Controller (Control Box).
D1	Diode	Supplies power to Drive Relay thru Cutout Relay, Axle Center Switch and Platform Down Relay and down circuit thru Platform Down Relay from forward circuit.	Between A-T4 and A-T6 on Fanning Strip.
D2	Diode	Supplies power to Drive Relay thru Cutout Relay, Axle Center Switch and Platform Down Relay and down circuit thru Platform Down Relay from reverse circuit.	Between A-T7 and A-T6 on Fanning Strip.
D3	Diode	Supplies power to Throttle and Controller Relay for LIFT operation.	Between A-T5 and A-T10 on Fanning Strip.
D4	Diode	Supplies power to Throttle and Controller Relay for REVERSE operation.	Between A-T7 and A-T10 on Fanning Strip.
D5	Diode	Supplies power to down circuit from Platform Down Relay.	Between A-T12 and A-T8 on Fanning Strip.
D6	Diode	Supplies power to down circuit from Drive/Lift Relay and Chassis Lift Switch.	Between A-T9 and A-T8 on Fanning Strip.
D7	Diode	Supplies power to Joystick 'R' terminal from lift circuit for high speed lift.	Between A-T5 and A-T15 on Fanning Strip.
D8	Diode	Supplies power to Joystick 'R' terminal from drive circuit for high speed drive.	Between A-T12 and A-T15 on Fanning Strip.
D9	Diode	Supplies power to Controller Relay when S2 is not activated and prevents feedback to controller switches.	Between S2 and Controller Relay.
D10	Diode	Supplies power to Drive Relay.	Between A-T12 and Drive Relay 'A' term.
D11	Diode	Prevents feedback to the Down Solenoid.	Between A-T9 and the Down Alarm.
D12 & D13	Diode	Prevents transient voltage spikes from damaging the alarms.	Between each alarm input and ground.
D14	Diode	Provides power to Controller Relay from level circuit.	Between level switch and Controller Relay.
D15	Diode	Supplies power to Steer Bypass Valve from steer right circuit.	Between C-T7 and C-T6 on Fanning Strip.
D16	Diode	Supplies power to Steer Bypass Valve from steer left circuit.	Between C-T8 and C-T6 on Fanning Strip.
D17-D20	Diode	Supplies power to Steer Bypass Valve from tilt circuit.	Between C-T1 thru C-T4 & C-T6 on Fanning Strip.
FU1	Fuse, 15 AMP	Overload protection for the control circuit.	Right front of Control Module, lower Fuse in Chassis Control Panel.
FU2	Fuse, 15 AMP	Overload protection for the Run Throttle, & Horn Relays, Oil Pressure Switch and Run Solenoid.	Right front of Control Module, upper Fuse in Chassis Control Panel.
GP(s)	Glow Plugs	Preheats cylinders to aid in starting a cold engine.	Screwed into cylinder head.
IND	Indicator, Glow Plugs	Indicates that Glow Plugs are on and functioning.	Rear of Engine to the right of Glow Plug Relay.
LS1A	Switch, Platform Down Limit	Energizes Platform Down Relay, providing power to Joystick high speed and Series/Parallel circuits and bypassing Tilt Sensor when Platform is down.	Mounted inside front of mast pivot weldment. Multi-contact switch with one body.
LS1B		Provides power to platform level circuit when Platform is down.	

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
LS2	Switch, Cushion, Mercury	Provides power to energize Cushion Valve during last 6 in. (15 cm) of platform lowering.	Mounted to lower tension member.
LS3	Switch, Axle Center	Supplies power to Drive Relay when Platform is elevated but only when front axle is parallel with rear axle.	Mounted behind left front axle.
MTR	Meter, Hour	Shows hours machine has had power on.	Right front of Control Module, top of Chassis Control Panel.
PS1	Pressure Switch, Engine Oil, normally open.	Cuts power to Run Solenoid if engine loses oil pressure.	Rear of engine above starter.
PS2	Pressure Switch, Lift (NC)	Cuts power to high speed circuit and Axle Float Solenoid when there is pressure in lift circuit.	Top of Manifold Assembly.
R1	Relay, Platform Down	Provides power to Series/Parallel and Down Valves and Cutout Relay and Drive Relay Coils when energized by Platform Down Switch (platform down). Cuts out high speed drive when platform is elevated.	Control Module right bulkhead, closest to terminal strip.
R2	Relay, Cutout	Provides power to Drive Relay thru Axle Center Switch and closes Lift circuit when energized by Platform Down Relay (platform down) or Tilt Sensor (platform elevated). Cuts power to Drive Relay, opens lift circuit and energizes Tilt Alarms when machine is on slopes of 2° side to side or fore and aft.	Control Module right bulkhead, second relay in from terminal strip.
R3	Relay, Drive	Energized by Platform Down Relay when platform is down or by Cutout Relay thru Axle Center Switch with platform elevated, closes forward and reverse circuits.	Control Module right bulkhead, third relay in from terminal strip.
R4	Relay, Throttle	Energized thru diodes D9, D3 or D4. Provides power to the Throttle Solenoid to increase Engine speed.	Control Module right bulkhead, fourth relay in from terminal strip.
R5	Relay, Lift/Drive	Energized by Level/Drive/Lift Switch. Provides power to forward or reverse coils when not energized and to lift or down circuits when energized.	Control Module right bulkhead, farthest relay from terminal strip.
R6	Relay, Run	Provides power to Run Solenoid thru Oil Pressure Switch.	Mounted on term. strip 'C' bracket, right rear of Control Module.
R7	Relay, Controller	Energized thru diodes D9, D3, D4 or D14. Provides power to the Joystick '+' terminal.	Mounted inside of Controller.
R8	Relay, Start	Engages Starter Relay.	Next to Battery in Power Module.
R9	Relay, Starter	Connects Battery to Starter Motor.	Mounted to Starter Motor.
R10	Relay, Glow Plug	Provides power to Indicator and Glow Plugs.	Top rear of Engine.
S1	Switch, Interlock Lever	Supplies power to Lift/Drive and Controller S2 & S3 switches.	Inside Joystick handle.
S2	Switch, Controller Down/Reverse	When actuated (Joystick pulled back) provides power to down and reverse circuits. Provides power to '+' terminal of Joystick when not actuated.	Inside Controller, switch farthest away when lid is open.
S3	Switch, Controller Lift/Forward	When actuated (Joystick pushed forward) provides power to lift and forward circuits.	Inside Controller, switch closest when lid is open.
S4, S5	Switch, Steering	Actuated with thumb rocker on top of Joystick, provides power to right or left steer circuits.	Inside Joystick handle.
S6	Switch, Controller Emergency Stop	Control Circuit shut off.	Platform Controller, lower left.

Table 6-2: Cont'd.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
S7	Switch, Controller Key	Supplies power to controls, glow plugs and starts engine.	Platform Controller, left side.
S8	Switch, Level/Drive/Lift	Supplies power to level circuit, Lift/Drive Relay when in LIFT or Torque Switch when in DRIVE.	Platform Controller, lower right.
S9	Switch, Torque Selector (Drive/Lift Speed)	Provides power to Series/Parallel Valves through Platform Down Relay to provide high speed drive/lift.	Platform Controller, upper left.
S10	Switch, Chassis Emergency Stop	Control Circuit shut off.	Chassis Control Panel.
S11	Switch, Chassis Lift	Supplies power to Up and Proportional coils or down circuit.	Chassis Control Panel.
S12	Switch, Tilt Fore/Aft	Provides power to Tilt Fore or Aft Coils to level platform.	Controller upper right.
S13	Switch, Tilt Right/Left	Provides power to Tilt Right or Left Coils to level platform.	Controller middle right.
SNSR	Sensor, Tilt	Cuts power to Cutout Relay when platform is out-of-level 2" side to side and fore and aft to activate Tilt Alarm.	Inside mast pivot weldment.
SOL1	Solenoid, Right Steer (coil)	Shifts Steer Valve to RIGHT turn position.	Top end of Spool Valve, mounted on left front of Manifold Block.
SOL2	Solenoid, Left Steer (coil)	Shifts Steer Valve to LEFT turn position.	Bottom end of Spool Valve, mounted on left front of Manifold Block.
SOL3	Solenoid, Forward (coil)	Opens Forward Valve to direct oil through drive circuit for forward operation.	Top center front of Manifold Block in front of Gauge Port.
SOL4	Solenoid, Reverse (coil)	Opens Reverse Valve to direct oil through drive circuit for reverse operation.	Bottom center front of Manifold Block below Forward Valve.
SOL5	Solenoid, Lift (Up Coil)	Opens Lift Valve.	Top front of Manifold Block, left of Forward Valve.
SOL6	Solenoid, Down (coil)	Opens Down Valve.	Bottom front of Manifold Block, below Lift Valve.
SOL7	Solenoid, Proportional (coil)	Controls Proportional Valve.	Left bottom of Manifold Block.
SOL8	Solenoid, Cushion (coil)	Opens Cushion Valve to allow high lowering speed.	Rear of Manifold Block, mounted on Cushion Down Block.
SOL9	Solenoid, Series/Parallel (coil)	Opens Series/Parallel Valve to allow high speed drive.	Lower right front of Manifold Block.
SOL10	Solenoid, Series/Parallel (coil)	Opens Series/Parallel Valve to allow high speed drive.	Right end of Manifold Block.
SOL11	Solenoid, Axle Float (coil)	Locks front axle when Platform is elevated.	Mounted to block on right side of Hydraulic Tank.
SOL12	Solenoid, Tilt Fore (forward) (coil)	Opens Tilt Fore Valve to direct oil to tilt platform forward.	Bottom end of spool valve mounted on left front of top auxiliary block on Manifold Assembly.
SOL13	Solenoid, Tilt Aft (coil)	Opens Tilt Aft Valve to direct oil to tilt platform to the rear.	Top end of spool valve mounted on left front of top auxiliary block on Manifold Assembly.
SOL14	Solenoid, Tilt Right (coil)	Opens Tilt Right Valve to direct oil to tilt platform to the right.	Top end of spool valve mounted on center front of top auxiliary block on Manifold Assembly.
SOL15	Solenoid, Tilt Left (coil)	Opens Tilt Left Valve to direct oil to tilt platform to the left.	Bottom end of spool valve mounted on center front of top auxiliary block on Manifold Assembly.
SOL16	Solenoid, Steer Bypass	Closes Steer Bypass Valve to direct oil to steering or tilt circuits.	Mounted on rear of auxiliary block on Manifold Assembly.

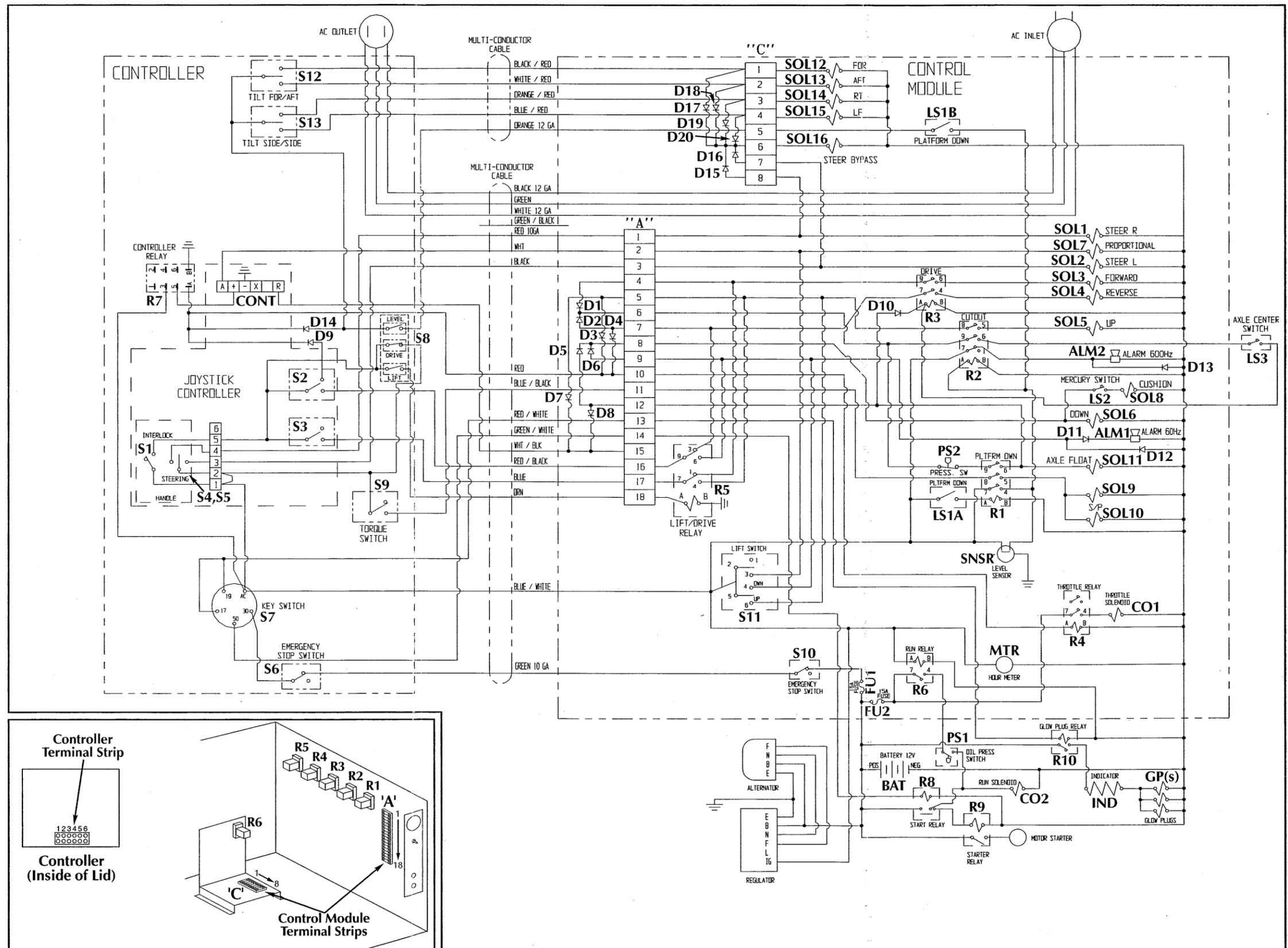


Figure 6-3: Terminal Strip and Relay Identification, Diesel Model

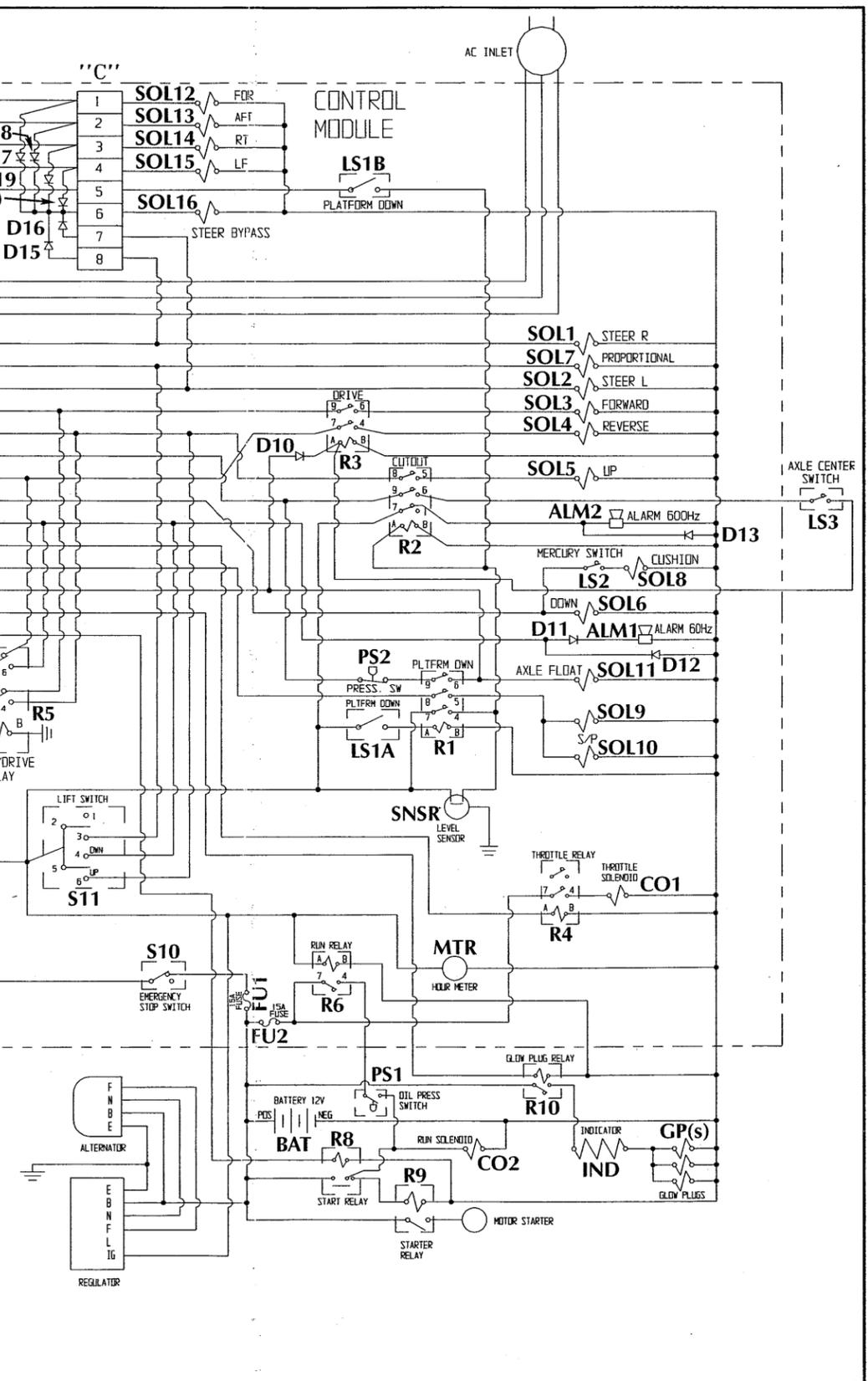


Figure 6-4: Electrical Schematic, Diesel

Table 6-3: Electrical Schematic Legend, Optional Kubota Dual Fuel

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
ALM 1	Alarm, Down	Provides warning sound (60 Hz) when deck is lowering.	Control Module next to Tilt Sensor. Red wire for 60 Hz.
ALM 2	Alarm, Tilt	Provides warning sound (600 Hz) when platform is elevated and not level.	Control Module next to Tilt Sensor. White wire for 600 Hz.
BAT	Battery, 12 volts	To store energy.	Power Module.
CO1	Coil, Choke	Closes Choke for Engine cold starting.	Top front of Engine.
CO2	Coil, Engine Throttle	Increases Engine RPM for normal operation.	Front of Engine below carburetor.
CO3	Coil, Gasoline Valve	Allows gasoline to flow to Fuel Shut-off Valve.	Rear of Engine under air cleaner.
CO4	Coil, L.P. Gas Valve	Allows L.P. Gas to flow to Fuel Shut-off Valve.	Left side of Engine, on L.P. Gas Regulator.
CO5	Coil, Ignition	Provides high voltage to distributor.	Mounted to front Engine mount.
CO6	Coil, Fuel Shut-off	Allows fuel flow in the carburetor.	Under carburetor on fuel bowl.
CONT	Controller, Proportional Joystick	Supplies power to Lift/Drive Switch, Lift/Drive Relay, Cutout Relay contacts & Proportional Coil. Includes Switches S1-S5.	Inside Controller (Control Box).
D1	Diode	Supplies power to Drive Relay thru Cutout Relay, Axle Center Switch and Platform Down Relay and down circuit thru Platform Down Relay from forward circuit.	Between A-T4 and A-T6 on Fanning Strip.
D2	Diode	Supplies power to Drive Relay thru Cutout Relay, Axle Center Switch and Platform Down Relay and down circuit thru Platform Down Relay from reverse circuit.	Between A-T7 and A-T6 on Fanning Strip.
D3	Diode	Supplies power to Accelerator and Controller Relay for LIFT operation.	Between A-T5 and A-T10 on Fanning Strip.
D4	Diode	Supplies power to Accelerator and Controller Relay for REVERSE operation.	Between A-T7 and A-T10 on Fanning Strip.
D5	Diode	Supplies power to down circuit from Platform Down Relay.	Between A-T12 and A-T8 on Fanning Strip.
D6	Diode	Supplies power to down circuit from Drive/Lift Relay and Chassis Lift Switch.	Between A-T9 and A-T8 on Fanning Strip.
D7	Diode	Supplies power to Joystick 'R' terminal from lift circuit for high speed lift.	Between A-T5 and A-T15 on Fanning Strip.
D8	Diode	Supplies power to Joystick 'R' terminal from drive circuit for high speed drive.	Between A-T12 and A-T15 on Fanning Strip.
D9	Diode	Supplies power to Controller Relay when S2 is not activated and prevents feedback to controller switches.	Between S2 and Controller Relay.
D10	Diode	Supplies power to Drive Relay.	Between A-T12 and Drive Relay 'A' term.
D11	Diode	Prevents feedback to the Down Solenoid.	Between A-T9 and the Down Alarm.
D12 & D13	Diode	Prevents transient voltage spikes from damaging the alarms.	Between each alarm input and ground.
D14	Diode	Provides power to Controller Relay from level circuit.	Between level switch and Controller Relay.
D15	Diode	Supplies power to Steer Bypass Valve from steer right circuit.	Between C-T7 and C-T6 on Fanning Strip.
D16	Diode	Supplies power to Steer Bypass Valve from steer left circuit.	Between C-T8 and C-T6 on Fanning Strip.
D17-D20	Diode	Supplies power to Steer Bypass Valve from tilt circuit.	Between C-T1 thru C-T4 & C-T6 on Fanning Strip.
FU1	Fuse, 15 AMP	Overload protection for the control circuit.	Right front of Control Module, Bottom of Chassis Control Panel.
LS1A	Switch, Platform Down Limit	Energizes Platform Down Relay, providing power to Joystick high speed and Series/Parallel circuits and bypassing Tilt Sensor when Platform is down.	Mounted inside front of mast pivot weldment. Multi-contact switch with one body.
LS1B		Provides power to platform level circuit when Platform is down.	

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
LS2	Switch, Cushion, Mercury	Provides power to energize Cushion Valve during last 6 in. (15 cm) of platform lowering.	Mounted to lower tension member.
LS3	Switch, Axle Center	Supplies power to Drive Relay when Platform is elevated but only when front axle is parallel with rear axle.	Mounted behind left front axle.
MTR	Meter, Hour	Shows hours machine has had power on.	Right front of Control Module, top of Chassis Control Panel.
PMP	Pump, Fuel, Gasoline	Supplies fuel to Gasoline Valve.	Left front of Engine under Air Cleaner.
PS1	Pressure Switch, Engine Oil (NO)	Cuts fuel and Ignition if engine loses oil pressure.	Back of engine next to oil filter.
PS2	Pressure Switch, Lift (NC)	Cuts power to high speed circuit and Axle Float Solenoid when there is pressure in lift circuit.	Top of Manifold Assembly.
R1	Relay, Platform Down	Provides power to Series/Parallel and Down Valves and Cutout Relay and Drive Relay Coils when energized by Platform Down Switch (platform down) Cuts out high speed drive when platform is elevated.	Control Module right bulkhead, closest to terminal strip.
R2	Relay, Cutout	Provides power to Drive Relay thru Axle Center Switch and closes Lift circuit when energized by Platform Down Relay (platform down) or Tilt Sensor (platform elevated). Cuts power to Drive Relay, opens lift circuit and energizes Tilt Alarms when machine is on slopes of 2° side to side or fore and aft.	Control Module right bulkhead, second relay in from terminal strip.
R3	Relay, Drive	Energized by Platform Down Relay when platform is down or by Cutout Relay thru Axle Center Switch with platform elevated, closes forward and reverse circuits.	Control Module right bulkhead, third relay in from terminal strip.
R4	Relay, Accelerator	Energized thru diodes D9, D3 or D4. Provides power to the Throttle Coil to increase Engine speed.	Control Module right bulkhead, fourth relay in from terminal strip.
R5	Relay, Lift/Drive	Energized by Level/Drive/Lift Switch Provides power to forward or reverse coils when not energized and to lift or down circuits when energized.	Control Module right bulkhead, farthest relay from terminal strip.
R6	Relay, Choke	Closes Choke for cold starting of Engine.	Mounted to Tilt Sensor bracket in Control Module.
R7	Relay, Controller	Energized thru diodes D9, D3, D4 or D14. Provides power to the Joystick '+' terminal.	Mounted inside of Controller.
R8	Relay, Starter	Energizes starter solenoid.	Mounted to back engine mount.
S1	Switch, Interlock Lever	Supplies power to Lift/Drive and Controller S2 & S3 switches.	Inside Joystick handle.
S2	Switch, Controller Down/Reverse	When actuated (joystick pulled back) provides power to down and reverse circuits. Provides power to '+' terminal of Joystick when not actuated.	Inside Controller, switch farthest away when lid is open.
S3	Switch, Controller Lift/Forward	When actuated (joystick pushed forward) provides power to lift and forward circuits.	Inside Controller, switch closest when lid is open.
S4, S5	Switch, Steering	Actuated with thumb rocker on top of Joystick, provides power to right or left steer circuits.	Inside Joystick handle.
S6	Switch, Controller Emergency Stop	Control Circuit shut off.	Platform Controller, lower left.
S7	Switch, Controller Key	Supplies power to controls, alternator and starts engine.	Platform Controller, left side.

Table 6-3: Cont'd.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
S8	Switch, Level/Drive/Lift	Supplies power to level circuit, Lift/Drive Relay when in LIFT or Torque Switch when in DRIVE.	Platform Controller, lower right.
S9	Switch, Torque Selector (Drive/Lift Speed)	Provides power to Series/Parallel Valves through Platform Down Relay to provide high speed drive/lift.	Platform Controller, upper left.
S10	Switch, Chassis Emergency Stop	Control Circuit shut off.	Chassis Control Panel.
S11	Switch, Chassis Lift	Supplies power to Up and Proportional coils or down circuit.	Chassis Control Panel.
S12	Switch, Tilt Fore/Aft	Provides power to Tilt Fore or Aft Coils to level platform.	Controller upper right.
S13	Switch, Tilt Right/Left	Provides power to Tilt Right or Left Coils to level platform.	Controller middle right.
S14	Switch, Choke	Supplies power to the Choke Relay.	On left side of Controller.
S15	Switch, Fuel Selector	Supplies power to either Gas Coil or LP Coil.	Chassis Control Panel.
SNSR	Sensor, Tilt	Cuts power to Cutout Relay when platform is out-of-level 2" side to side and fore and aft to activate Tilt Alarm.	Inside mast pivot weldment.
SOL1	Solenoid, Right Steer (coil)	Shifts Steer Valve to RIGHT turn position.	Top end of Spool Valve, mounted on left front of Manifold Block.
SOL2	Solenoid, Left Steer (coil)	Shifts Steer Valve to LEFT turn position.	Bottom end of Spool Valve, mounted on left front of Manifold Block.
SOL3	Solenoid, Forward (coil)	Opens Forward Valve to direct oil through drive circuit for forward operation.	Top center front of Manifold Block in front of Gauge Port.
SOL4	Solenoid, Reverse (coil)	Opens Reverse Valve to direct oil through drive circuit for reverse operation.	Bottom center front of Manifold Block below Forward Valve.
SOL5	Solenoid, Lift (Up Coil)	Opens Lift Valve.	Top front of Manifold Block, left of Forward Valve.
SOL6	Solenoid, Down (coil)	Opens Down Valve.	Bottom front of Manifold Block, below Lift Valve.
SOL7	Solenoid, Proportional (coil)	Controls Proportional Valve.	Left bottom of Manifold Block.
SOL8	Solenoid, Cushion (coil)	Opens Cushion Valve to allow high lowering speed.	Rear of Manifold Block, mounted on Cushion Down Block.
SOL9	Solenoid, Series/Parallel (coil)	Opens Series/Parallel Valve to allow high speed drive.	Lower right front of Manifold Block.
SOL10	Solenoid, Series/Parallel (coil)	Opens Series/Parallel Valve to allow high speed drive.	Right end of Manifold Block.
SOL11	Solenoid, Axle Float (coil)	Locks front axle when Platform is elevated.	Mounted to block on right side of Hydraulic Tank.
SOL12	Solenoid, Tilt Fore (forward) (coil)	Opens Tilt Fore Valve to direct oil to tilt platform forward.	Bottom end of spool valve mounted on left front of top auxiliary block on Manifold Assembly.
SOL13	Solenoid, Tilt Aft (coil)	Opens Tilt Aft Valve to direct oil to tilt platform to the rear.	Top end of spool valve mounted on left front of top auxiliary block on Manifold Assembly.
SOL14	Solenoid, Tilt Right (coil)	Opens Tilt Right Valve to direct oil to tilt platform to the right.	Top end of spool valve mounted on center front of top auxiliary block on Manifold Assembly.
SOL15	Solenoid, Tilt Left (coil)	Opens Tilt Left Valve to direct oil to tilt platform to the left.	Bottom end of spool valve mounted on center front of top auxiliary block on Manifold Assembly.
SOL16	Solenoid, Steer Bypass	Closes Steer Bypass Valve to direct oil to steering or tilt circuits.	Mounted on rear of auxiliary block on Manifold Assembly.

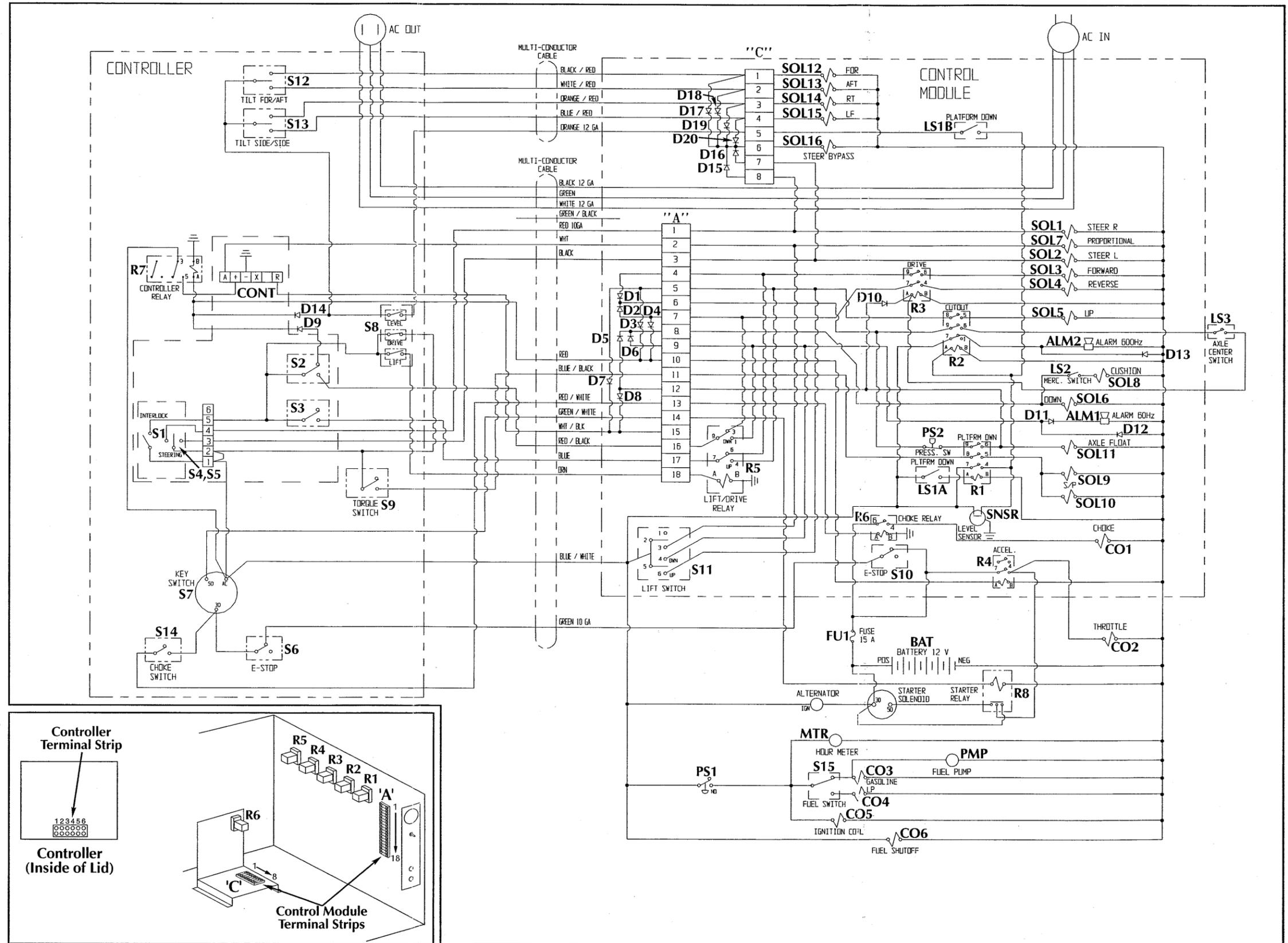


Figure 6-5: Terminal Strip and Relay Identification, Optional Kubota Dual Fuel Model

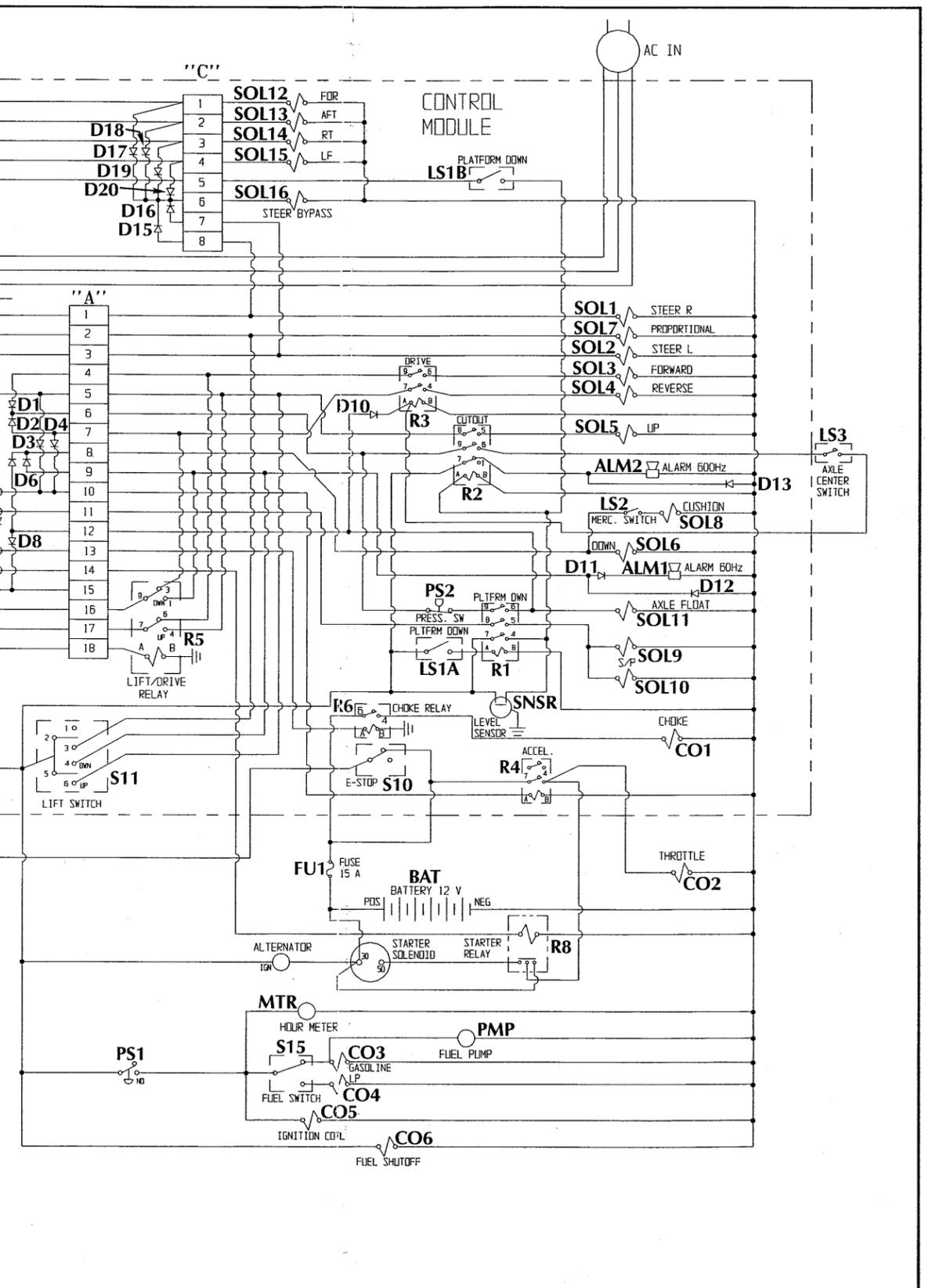


Figure 6-6: Electrical Schematic, Optional Kubota Dual Fuel

6.2 Hydraulic Schematic

Table 6-4: Hydraulic Schematic Legend

REFERENCE 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 from Brakes around Pressure Reducing Valve.	Bottom center of Manifold Block.
CV2	Check Valve, Lift	Prevents oil from leaking through Lift Valve.	Center back of Manifold Block.
CV3, 4	Check Valve, Axle Float Cylinder	Locks Axle Float Cylinder when Platform is elevated.	In ports on Axle Float Cylinder.
CV5,6,7,8	Check Valve, Tilt Cylinder	Locks tilt cylinders to prevent motion when platform is elevated.	In ports of tilt cylinders.
CYL1	Cylinder, Steering	Provides force to steer front wheels.	Center front of Chassis.
CYL2	Cylinder, Lift	Provides force to lift Platform.	Between Chassis Pedestal weld't and Lower Arm weld't.
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.	Left end of Manifold Block.
FD2	Flow Divider/Combiner	Allows positive traction in parallel drive.	Right front of Manifold Block, right side of Forward Valve.
FD3	Flow Divider, Tilt	Diverts oil for platform leveling.	Right top of upper auxiliary block on Manifold Assembly.
FL1	Filter	Filters oil returning to Tank.	Top of Hydraulic Tank.
FL2	Suction Screen	Traps particles in Hydraulic Tank.	Inside Hydraulic Tank at outlet.
MOT1	Drive Motor	Provides tractive effort for work platform.	In left rear axle.
MOT2	Drive Motor	Provides tractive effort for work platform.	In left front axle.
MOT3	Drive Motor	Provides tractive effort for work platform.	In right rear axle.
MOT4	Drive Motor	Provides tractive effort for work platform.	In right front axle.
ORF1	Orifice, Down	Controls the platform rate of descent.	Center back of Manifold Block.
ORF2	Orifice, Cushion Down	Slows the platform rate of descent during the last 12 in. (305mm) of platform lowering.	Under plug on Cushion Valve Block Assembly.
PMP1	Pump, Hydraulic	Supplies hydraulic oil flow for all functions.	Rear of Engine.
PS1	Pressure Switch, Lift (NC)	Cuts power to high speed circuit and Axle Float Solenoid when there is pressure in lift circuit.	Top of Manifold Assembly.
PMP2	Pump, Brake Release	Provides a means of releasing the Parking Brakes.	Mounted externally on right side of Control Module.
RV1	Valve, Main Relief	Provides over pressure protection to Pump.	Top left of Manifold Block.
RV2	Valve, Steering Relief	Provides over pressure protection to Steering Cylinder.	Mounted to right rear of auxiliary block top left of Manifold Block.

REFERENCE DESIGNATION	NAME	FUNCTION	LOCATION
RV3	Valve, Drive Cross Relief, Rear	Provides over pressure protection to Drive Motors during turning.	Mounted to block behind left rear of Hydraulic Tank on Control Module support.
RV4	Valve, Drive Cross Relief, Front	Provides over pressure protection to Drive Motors during turning.	Mounted to block at left rear Drive Motor.
RV5	Valve, Fore/Aft Tilt Relief	Provides over pressure protection for forward leveling.	Left end of upper auxiliary block on Manifold Assembly.
SV1	Valve, Shuttle	Provides oil to Brakes when either Drive FORWARD or REVERSE are actuated.	Top center of Manifold Block.
V1	Valve, Steering	Provides directional control for Steering Cylinder.	Left front of Manifold Block.
V2	Valve, Counterbalance Forward	Prevents machine from running away on slopes and cushions stops.	Top of Manifold Block, just right of center.
V3	Valve, Counterbalance Reverse	Prevents machine from running away on slopes and cushions stops.	Bottom of Manifold Block, just right of center.
V4	Valve, Forward	Provides directional control of oil for forward drive.	Front center top of Manifold Block.
V5	Valve, Reverse	Provides directional control of oil for reverse drive.	Front center bottom of Manifold Block.
V6	Valve, Velocity Fuse	Locks Lift Cylinder if lines break.	Inside Lift Cylinder Port.
V7	Valve, Lift	Provides oil flow to Lift Cylinder.	Front top of Manifold Block, left of Forward Valve.
V8	Valve, Down	Allows oil to flow out of Lift Cylinder to Tank.	Front bottom of Manifold Block, below Lift Valve.
V9	Valve, Proportional	Prevents oil from bypassing while driving or lifting.	Bottom left of Manifold Block.
V10	Valve, Brake Release	Allows use of Brake Release Pump by closing return circuit.	On front of Brake Release Pump assembly.
V11	Valve, Axle Float	Allows Axle Cylinder to float when energized, locks Axle Cylinder when not energized.	Mounted on Hydraulic Tank, right side.
V12, V13	Valve Series/Parallel	Shifting both valves changes the oil flow from high torque (parallel) to high speed (series)	Right end of Manifold Block.
V14	Valve, Brake Pressure Reducing	Drops system pressure to 390 psi (27 bar) for proper Brake operation.	Center back of Manifold Block.
V15	Valve, Cushion Down	Closes to send oil thru Cushion Down Orifice, slowing platform rate of descent for the last 12 in. (305mm).	Rear of Manifold Block mounted on Cushion Block Assembly.
V16	Valve, Steering Dump	Directs oil to platform leveling or steering valves.	Back center, upper auxiliary block on Manifold Assembly.
V17	Valve, Fore/Aft Tilt	Provides direction control of oil for fore/aft Platform leveling.	Left front upper auxiliary block on Manifold Assembly.
V18	Valve, Side/Side Tilt	Provides directional control of oil for side/side Platform leveling.	Center front upper auxiliary block on Manifold Assembly.

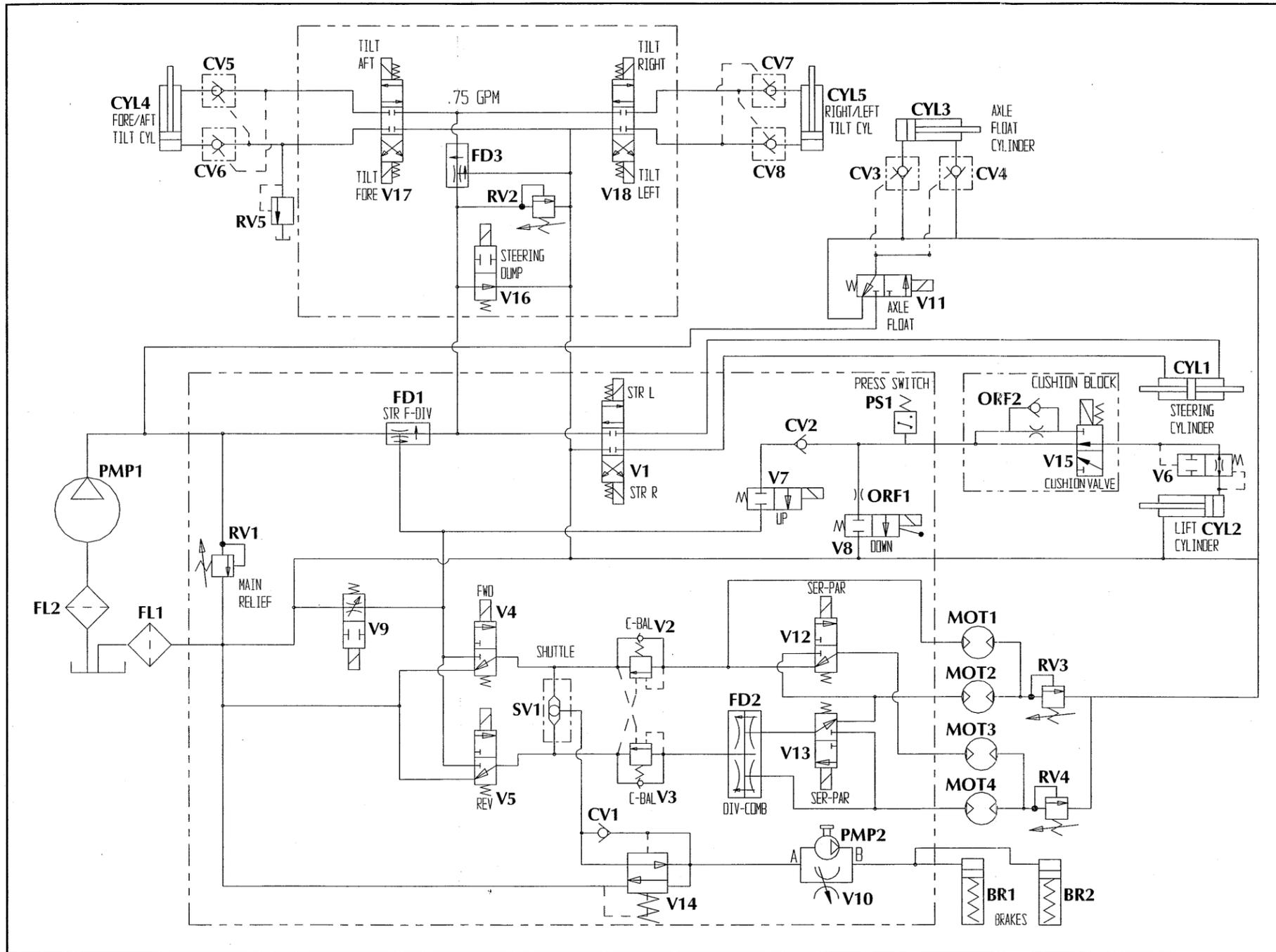


Figure 6-7: Hydraulic Schematic

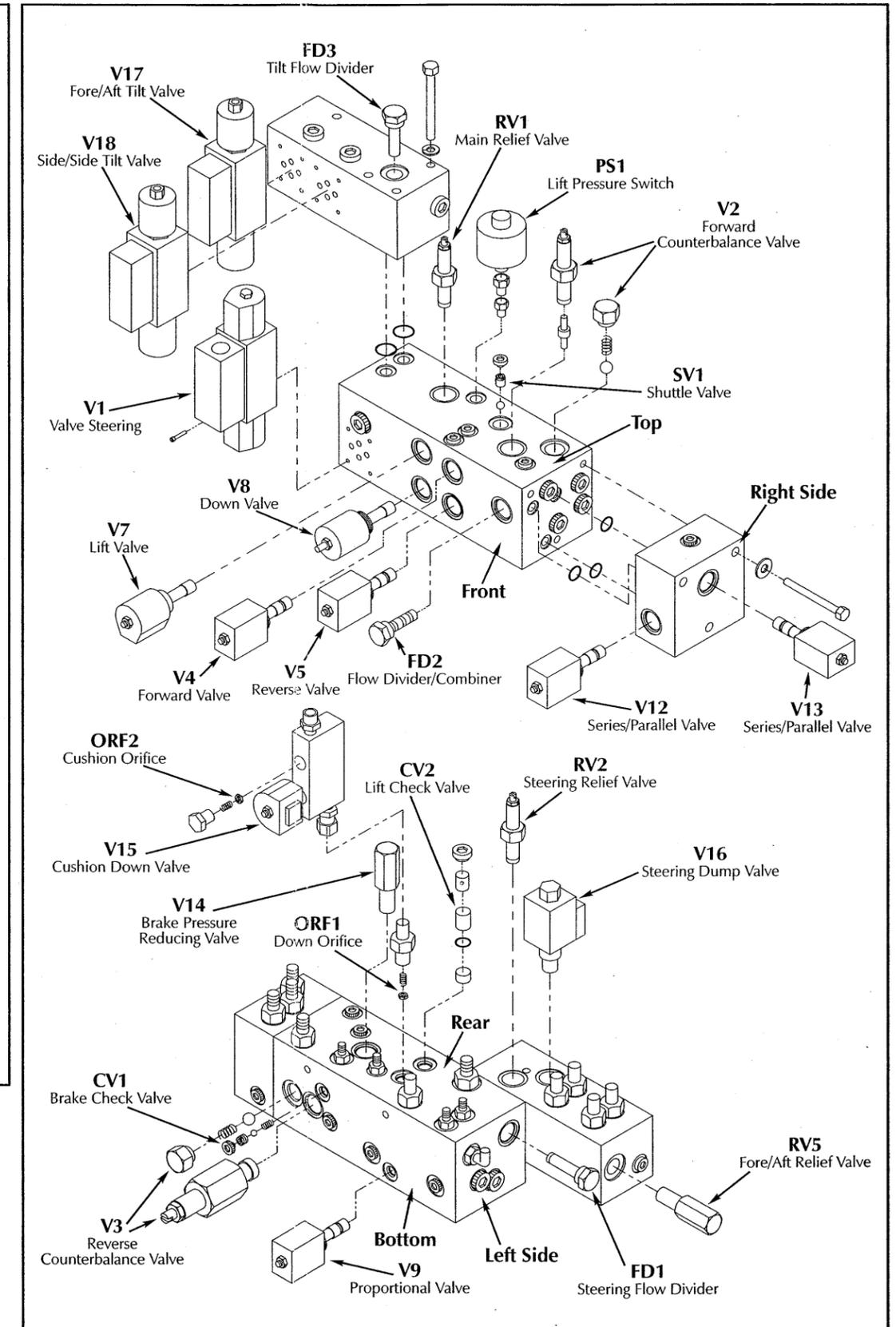


Figure 6-8: Typical Hydraulic Manifold

NOTES

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7.0 Introduction

This section lists and illustrates the replaceable assemblies and parts of the SL26/30SL Work Platform, as manufactured by UpRight, Inc.

Each parts list contains the component parts for that assembly indented to show relationship where applicable.

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CHASSIS ASSEMBLY

DUAL FUEL & DIESEL

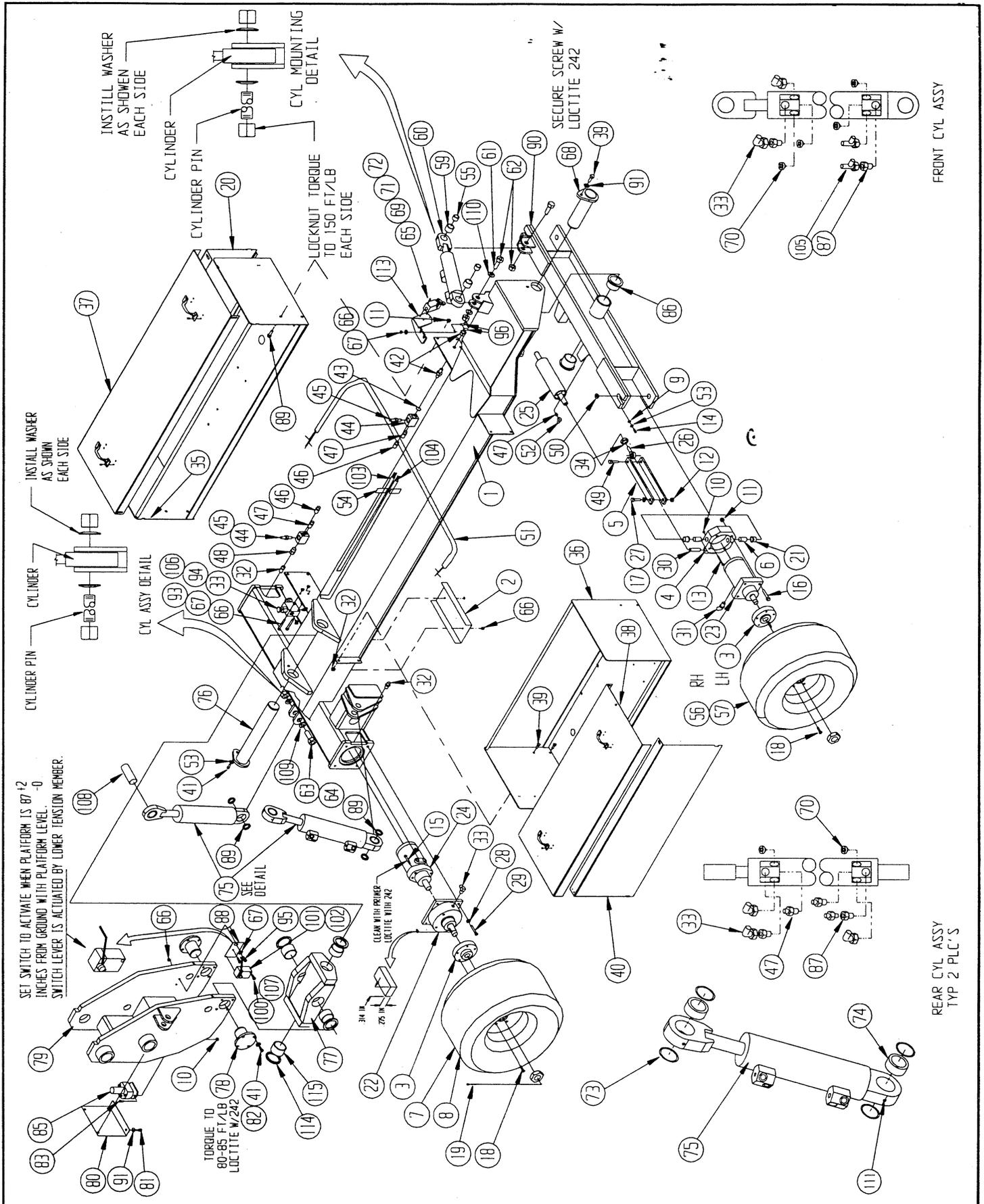
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Item	Part	Description	Qty.
1	64300-002	Chassis Weldment	1
2	64384-000	Channel	1
3	64029-001	Hub Drive Motor	4
4	64030-000	Steering Mount Weldment	2
5	64033-001	Steering Linkage	4
6	64034-000	Pivot Pin	4
7	64054-001	Tire / Wheel Assy, RH, Rear	1
8	64054-002	Tire / Wheel Assy, LH, Rear	1
9	11239-005	Washer, 5/16 Dia Astm Flat	4
10	11248-004	Locknut, 1/4-20 UNC Hex	6
11	11248-008	Locknut, 1/2-13 UNC Hex	16
12	11248-010	Locknut, 5/8-11 UNC Hex	4
13	11252-024	Screw, 1/4-20 UNC HHC x 3	4
14	11253-008	Screw, 5/16-18 UNC HHC x 1	4
15	10177-010	Screw, 1/2-20 UNF Soc Hd x 1 1/4	8
16	11256-040	Screw, 1/2-13 UNC HHC x 5	8
17	64150-000	Serrated Bolt	2
18	14122-001	Wheel Bolt	20
19	11754-012	Cotter Pin, 5/32 Dia x 1 1/2	4
20	64220-000	Cover, Side, Control Module	1
21	62649-002	Bearing	4
22	63901-001	Brake	2
*	63901-010	Seal Kit, Brake	1
23	63903-005	Motor, Hydraulic, Front	2
*	63903-010	Seal Kit, Hydraulic Motor, Front	1
*	63903-015	Nut, Castle	1
24	63903-002	Motor, Hydraulic, Rear	2
*	61817-010	Seal Kit, Hydraulic Motor, Rear	1
25	63905-000	Cylinder, Steering	1
*	63905-010	Seal Kit, Steering Cylinder	1
26	63927-001	Rod End, 5/8	2
27	11240-010	Washer, 5/8 Flat	2
28	11238-010	Lockwasher, 5/8 Dia Split	8
29	11257-014	Screw, 5/8-11 UNC HHC 1 3/4	8
30	62642-001	Bearing	2
31	11935-005	Fitting Adapter 90	4
32	11941-014	Fitting Adapter Str.	4
33	11934-001	Fitting Adapter 90	11
34	20495-010	Nut, 5/8-18 UNF Jam Hex	2
34	20495-010	Nut, 5/8-18 UNF Jam Hex	2
35	64003-041	Control Module, Diesel	1
	64003-040	Control Module, Dual Fuel	1
36	64002-010	Power Module, Diesel	1
	64002-007	Power Module, Dual Fuel	1
37	64221-000	Cover, Top, Control Module	1
38	64181-000	Cover, Top, Power Module, Diesel	1
	64219-000	Cover, Top, Power Module, Dual Fuel	1
39	11256-010	Screw, 1/2-13 UNC HHC x 1 1/4	9
40	64182-000	Cover, Side, Power Module, Diesel	1
	64222-000	Cover, Side, Power Module, Dual Fuel	1
41	11256-014	Screw, 1/2-13 UNC HHC x 1 3/4	9
42	10150-005	Fitting, Adapter	2
43	11979-008	O-Ring	1
44	64169-000	Valve Block	2
45	60390-000	Relief Valve	2
46	11941-006	Fitting, Adapter	2
47	11941-001	Fitting, Adapter	8
48	64170-005	Fitting, Adapter	1
49	11257-024	Screw, 5/8-11 UNC HHC x 3	2
50	63933-016	Plug	2
51	64207-000	Wire, Harness, Diesel	1
	64206-001	Wire, Harness, Dual Fuel	1

Item	Part	Description	Qty.
52	11937-001	Fitting	2
53	11238-005	Lockwasher, 5/16 Dia Split	4
54	29976-099	Tube, 1/2 Shrink	.17'
55	64350-000	Axle Pivot	2
56	64054-003	Tire / Wheel Assy, RH, Front	1
57	64054-004	Tire / Wheel Assy, LH, Front	1
59	27931-057	Bushing, Brz	2
60	64346-000	Axle Cylinder	1
*	64346-010	Seal Kit, Axle Cylinder	1
61	64370-000	Cylinder Pin	2
62	11249-016	Locknut, 1-14 UNF Hex	4
63	64371-001	Cylinder Pin	2
64	11249-020	Locknut, 1 1/4-12 UNF Hex	8
65	64296-001	Limit Switch	1
66	11248-006	Locknut, 3/8-16 UNC Hex	6
67	11240-006	Washer, 3/8 Dia Std Flat	10
68	64336-000	Front Pivot Weldment	1
69	64294-003	Clamp Lever, Limit Switch	1
70	12004-004	Plug, SAE 4	8
71	11248-003	Locknut, 10-24 UNC Hex	2
72	11709-016	Screw, 10-24 UNC x 2	2
73	11763-038	Ring, Snap	1
74	64288-005	Bearing, Spherical	4
75	64345-000	Tilt Cylinder	2
76	64339-001	Mast Pivot Weldment	1
77	64331-001	Level Pivot Weldment	1
78	64343-001	Trunnion Weldment	2
79	64320-001	Mast Weldment	1
80	64347-000	Lever Cover Plate	1
81	11254-008	Screw, 3/8-16 UNC HHC x 1	4
82	11239-008	Washer, 1/2 Dia A325 Flat	4
83	11252-008	Screw, 1/4-20 UNC HHC x 1	4
85	29945-005	Tilt Sensor	1
86	64298-004	Bearing, Flange Brz	2
87	64297-001	Valve, Check	6
88	64348-000	Mount, Hight Limit	1
89	64349-000	Bearing, Spacer	4
90	64324-001	Front Axle Weldment	1
91	11238-006	Lockwasher, 3/8 Split	5
93	11254-020	Screw, 3/8-16 UNC x 2 1/2	2
94	63978-000	Hand Pump	1
95	11254-016	Screw, 3/8-16 UNC x 2	2
96	11254-014	Screw, 3/8-16 UNC x 1 3/4	2
100	11709-012	Screw, Mach Rd Hd 10-24 UNC x 1 1/2	2
101	64284-001	Limit Switch	1
102	64285-001	Rod Lever, Limit Switch	1
103	64007-003	Aux. Cable, SL26	1
	64007-011	Aux. Cable, SL30	1
104	64007-005	Control Cable, SL26	1
	64007-010	Control Cable, SL30	1
105	15961-004	Fitting, Tee	2
106	11934-003	Fitting, 90	1
107	11709-004	Screw, 10-24 UNC Mach Rd Hd x 1/2	2
108	64372-001	Cylinder Pin	2
109	11297-020	Washer, Bell	8
110	11297-016	Washer, Bell	4
111	13336-001	Grease Fitting	4
113	64367-001	Switch Mount	1
114	64383-000	Thrust Washer	4
115	62642-032	Bearing, Brz	4

*Not Shown

Illustrated Parts Breakdown

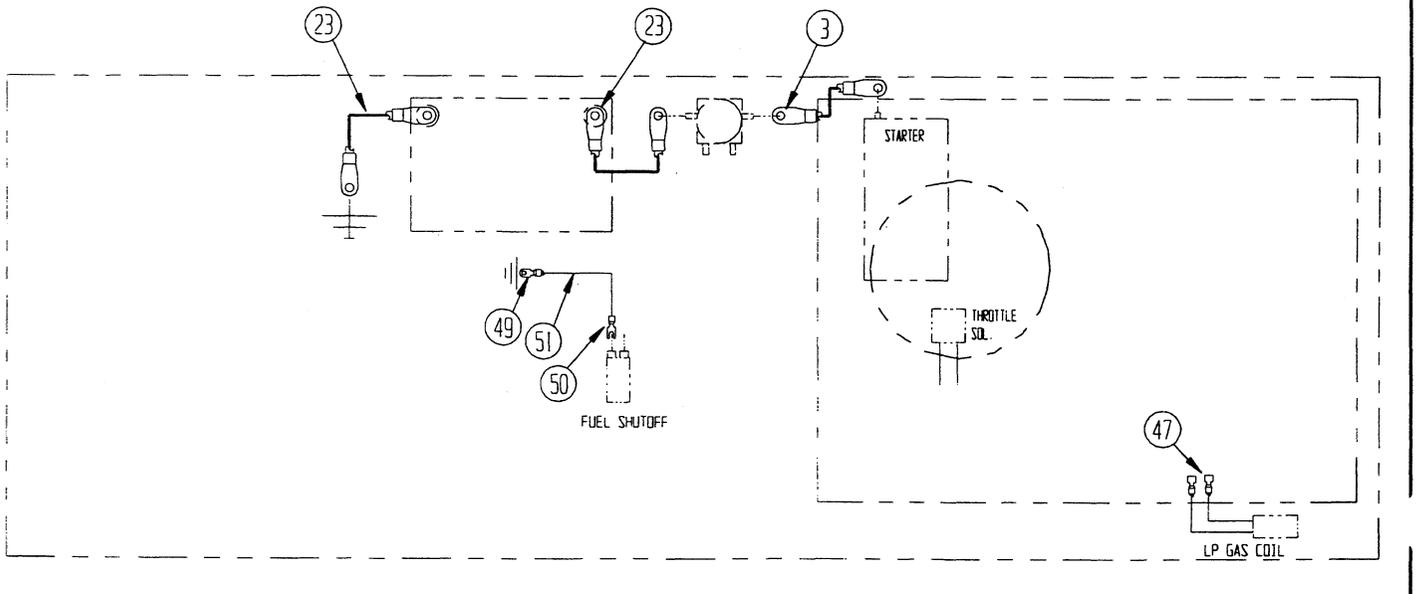


POWER MODULE ASSEMBLY DUAL FUEL 64002-007

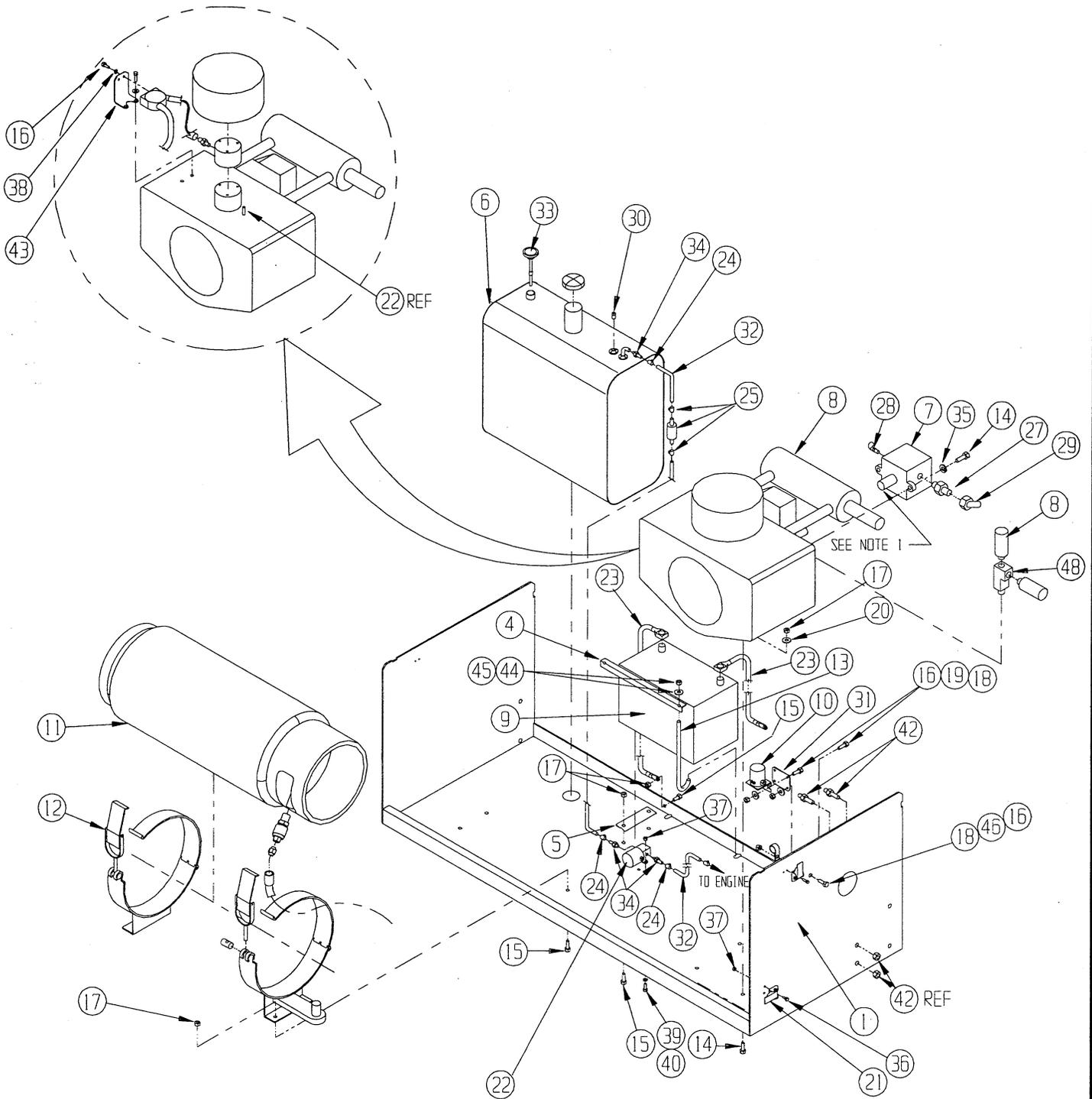
Item	Part	Description	Qty.
1	64057-001	Module Tray - Power	1
4	64040-000	Angle - Battery Hold Down	1
5	64039-000	Mounting Tab, Fuel Tank	2
6	63929-010	Fuel Tank	1
-	63929-001	Filler Cap, Fuel Tank	1
7	63902-012	Pump, Hydraulic - Serial Nos. thru 9965	1
	63902-014	Pump, Hydraulic - Serial Nos. 9966 to current	1
8	63954-000	Engine, Gas (Kohler)	1
*	63900-001	Air Filter	1
*	63900-002	Air Pre-filter	1
*	63900-003	Oil Filter	1
*	63900-007	Ignition Module	1
*	63900-009	Throttle Solenoid	1
-	63900-010	Oil Pressure Switch, N.O.	1
-	63900-011	Oil Pressure Switch, N.C.	1
*	63900-015	Spark Plug	2
*	63954-001	Carburetor Kit	1
*	63954-004	Starter	1
9	62299-002	Battery, 12 Vdc Group 27c	1
10	27972-000	Starter Solenoid	1
11	27934-002	Tank, Propane	1
12	27823-000	Bracket, Propane Tank, Set	1
13	12039-000	Battery Hold Down	2
14	11254-010	Screw, 3/8-16 UNC HHC x 1 1/4	6
15	11254-008	Screw, 3/8-16 UNC HHC x 1	9
16	11252-006	Screw, 1/4-20 UNC HHC x 3/4	7
17	11248-006	Locknut, 3/8-16 UNC Hex	13
18	11248-004	Locknut, 1/4-20 UNC Hex	5
19	11240-004	Washer, 1/4 Dia Std Flat	4
20	11240-006	Washer, 3/8 Dia Std Flat	4
21	05299-000	Latch Toggle	4
22	63957-000	Propane Conversion Kit	1
*	63934-002	L.P. Gas Regulator	1
*	63934-003	Propane Solenoid	1
*	63934-004	Gas Solenoid	1
*	63934-005	Carburetor Adapter	1

Item	Part	Description	Qty.
23	64275-010	Battery Cable Assy.	2
24	63125-008	Clamp Hose, 3/8-7/8	6
25	20331-000	Filter, Fuel, Inline	1
27	11941-022	Fitting, Adapter - Serial Nos. thru 9965	1
	11941-028	Fitting, Adapter - Serial Nos. 9966 to current	1
28	11934-010	Fitting, Adapter	1
29	11932-007	Fitting, Adapter	1
30	11919-002	Fitting, Plug	1
31	64269-000	Relay Plate	1
32	12739-099	Hose, 1/4 ID	4'
33	63982-001	Sight Gage	1
34	10178-003	Fitting, Barbed	3
35	11238-006	Lockwasher, 3/8 Dia Split	2
36	11708-004	Screw, 8-32 UNC Mach Rd Hd x 1/2	8
37	11248-002	Locknut, 8-32 UNC Hex	10
38	11238-004	Lockwasher, 1/4 Dia Split	2
39	11708-006	Screw, 8-32 UNF Rd Hd x 3/4	2
40	11240-002	Washer, #8 Std Flat	2
42	10150-005	Fitting, Adapter	2
43	64232-000	Backfire Bracket	1
44	11248-005	Locknut, 5/16-18 UNC Hex	2
45	11240-005	Washer 5/16 Dia Std Flat	2
46	13919-009	Clamp Hose	1
47	14914-001	Conn., M Push 16-14 .25 Tab	2
48	60193-001	Fitting, Tee	1
49	29601-014	Conn., Ring 16-14 1/4	1
50	29610-002	Conn., Ring 16-14 #8	1
51	29456-099	Wire, 16 AWG Yel	.5'

*Not Shown



Illustrated Parts Breakdown



NOTE:

1. COAT LIBERALLY WITH EXTREME HIGH-PRESSURE MOLYBDENUM GREASE

POWER MODULE ASSEMBLY, SL26/30

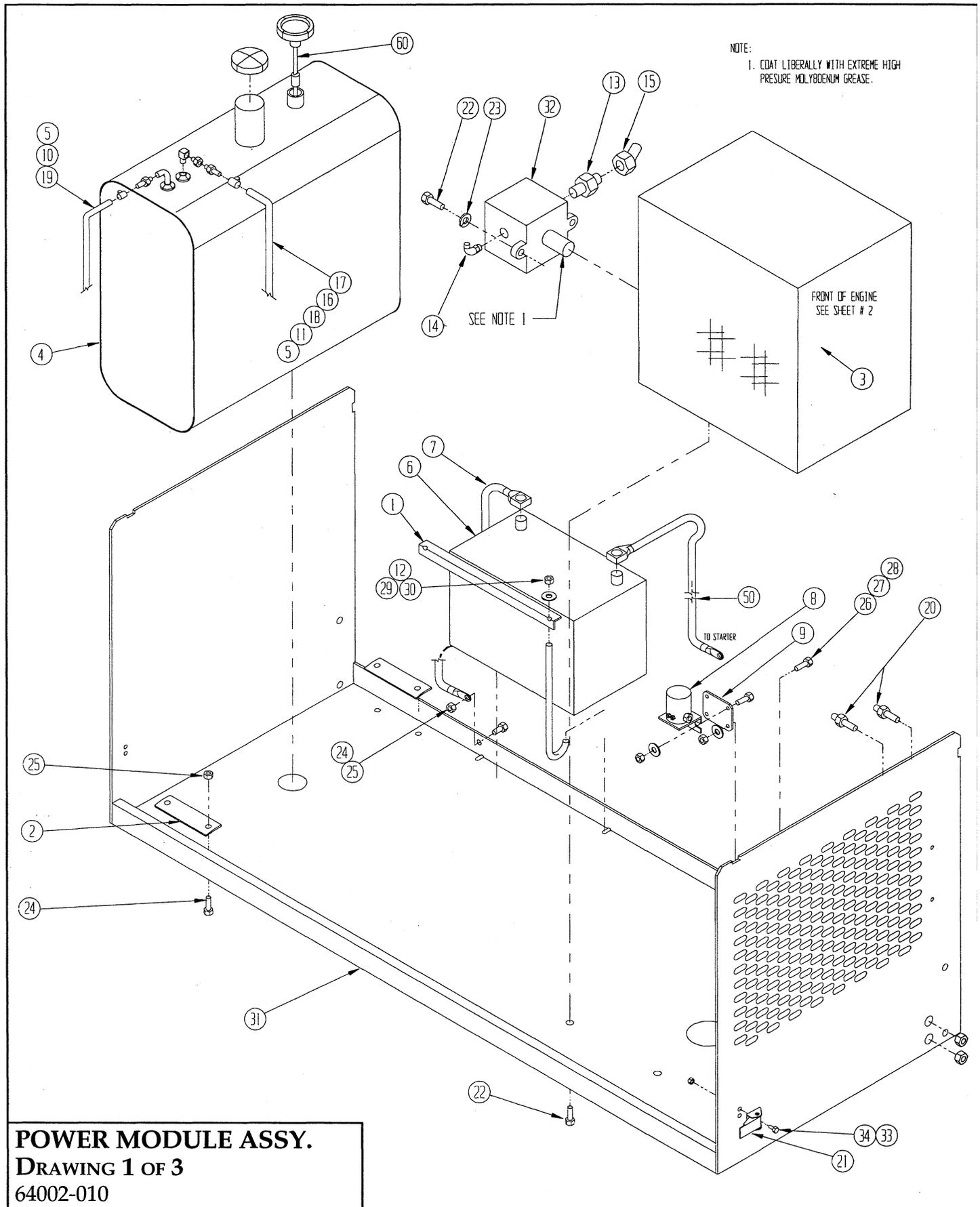
DIESEL

64002-010

Item	Part	Description	Qty.
1	64040-000	Angle, Battery Hold Down	1
2	64039-000	Mounting Tab, Fuel Tank	2
3	63936-000	Engine, Diesel	1
4	63929-010	Fuel Tank	1
5	20541-001	Hose Clamp	4
6	62299-002	Battery, 12 VDC, Group 27C	1
7	64275-010	Battery Cable Assy	1
8	27972-000	Solenoid, Starter/Glow Plug	2
9	64269-000	Relay Plate	1
10	12733-099	Hose, 5/16 ID	5'
11	12736-099	Hose, 3/16 ID	8'
12	12039-000	Rod, Battery Hold Down	2
13	11941-022	Fitting, Adapter	1
14	11934-010	Fitting, Adapter	1
15	11932-007	Fitting, Adapter	1
16	03556-001	Bushing	1
17	03495-001	Fitting, Adapter	1
18	10178-001	Fitting, Adapter	1
19	10178-005	Fitting, Adapter	1
20	10150-005	Fitting, Adapter	2
21	05299-000	Latch, Toggle	4
22	11254-010	Screw, 3/8-16 UNC HHC x 1 1/4	10
23	11238-006	Lockwasher, 3/8 Dia Split	14
24	11254-008	Screw, 3/8-16 UNC HHC x 1	13
25	11248-006	Locknut, 3/8-16 UNC Hex	9
26	11252-006	Screw, 1/4-20 UNC HHC x 3/4	10
27	11240-004	Washer, 1/4 Dia Std Flat	8
28	11248-004	Locknut, 1/4-20 UNC Hex	12
29	11248-005	Locknut, 5/16-18 UNC Hex	4
30	11240-005	Washer, 5/16 Dia Std Flat	4
31	64184-000	Module Tray Weldment	1
32	63902-013	Pump, Hydraulic - Serial Nos. thru 9965	1
	63902-015	Pump, Hydraulic - Serial Nos. 9966 to current	1
33	11708-004	Screw, 8-32 UNC Mach Rd Hd 1/2	8
34	11248-002	Locknut, 8-32 UNC Hex	8
35	64171-000	Muffler Mounting Bracket	1
36	64172-000	Throttle Link Bracket	1
37	64173-000	Solenoid Bracket	1
38	64174-000	Throttle Link	1
39	64175-000	Air Cleaner Bracket	1
40	64177-000	Muffler Weldment	1
41	64180-000	Angle, Mount	2
42	64183-000	Spacer, Engine	2
43	63941-000	Solenoid	1

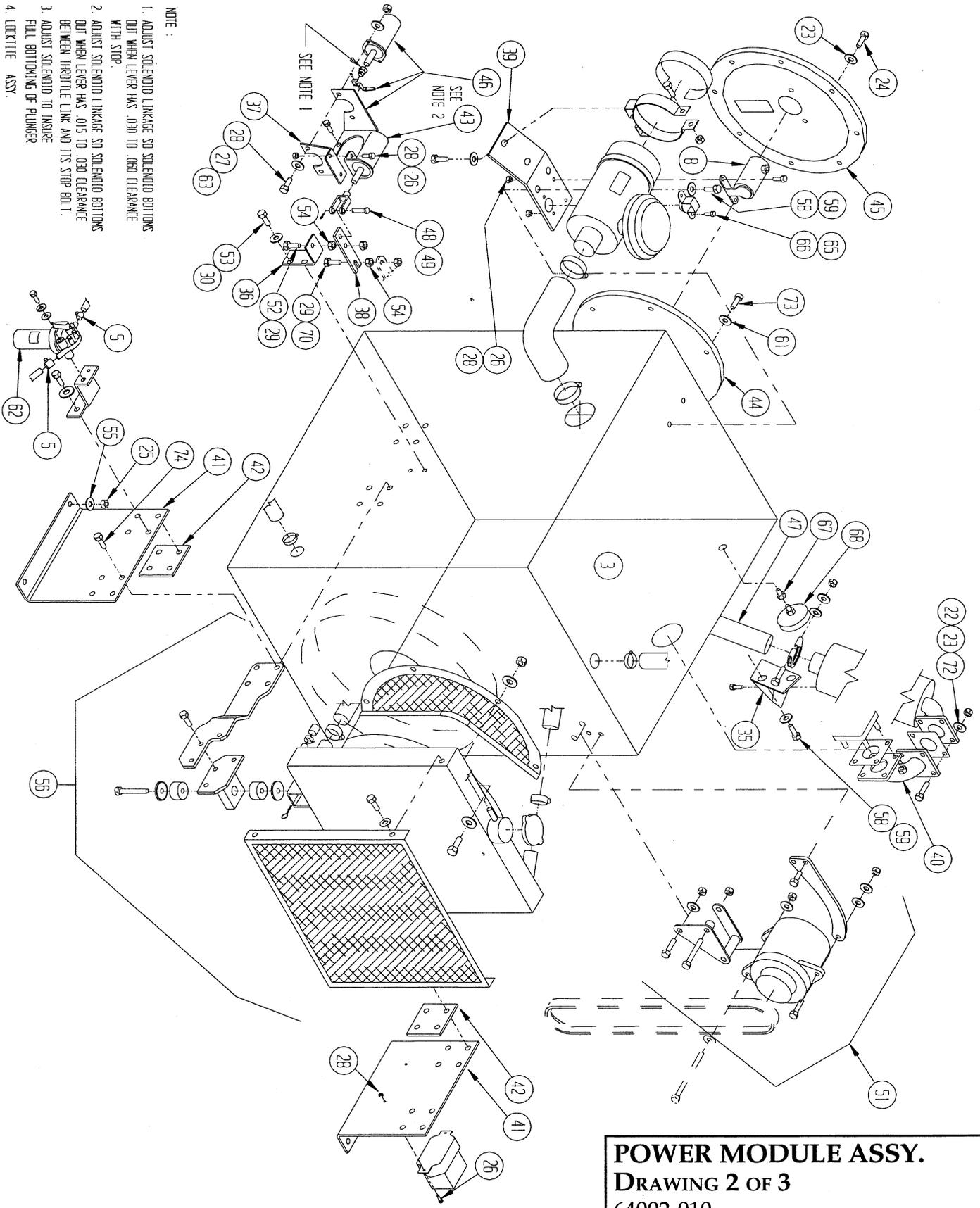
Item	Part	Description	Qty.
44	63939-000	Drive Plate	1
45	63938-000	Flywheel Cover	1
46	63937-000	Shut Down Kit	1
*	63937-001	Solenoid, Shut Down	1
47	64188-000	Muffler Tail Pipe	1
48	11847-004	Clevis w/ Pin	1
49	11751-004	Cotter Pin	1
50	64275-034	Batt. Cable Assy	1
51	63936-007	Alternator Kit	1
52	11253-008	Screw, 5/16-18 UNC HHC x 1	1
53	11253-006	Screw, 5/16-18 UNC HHC x 3/4	2
54	11273-005	Nut, 5/16-18 UNC Hex Jam	2
55	11240-006	Washer, 3/8 Dia Std Flat	4
56	63936-002	Radiator Kit	1
57	64207-000	Wire, Harness, Diesel	Ref
58	11256-006	Screw, 1/2-13 UNC HHC x 3/4	4
59	11239-008	Washer, 1/2 Dia ASTM A325 Flat	4
60	63982-001	Fuel Level Gage	1
61	11238-005	Lockwasher, 5/16 Dia Split	8
62	63936-005	Fuel Filter Kit	1
*	63936-018	Fuel Filter Element	
63	11252-008	Screw, 1/4-20 UNC HHC x 1	2
64	29454-099	Wire, 16 AWG Red	1'
65	11275-006	Screw, 10-32 UNF HHC x 3/4	2
66	11249-003	Locknut, 10-32 UNF Hex	2
67	03142-001	Fitting, Adapter	1
68	63945-001	Switch, Pressure	1
69	29452-099	Wire, 16 AWG Blk	1'
70	11253-010	Screw, 5/16-18 HHC x 1 1/4	1
71	29457-099	Wire, 16 AWG Grn	1'
72	11250-006	Nut, 3/8-16 UNC Hex	4
73	14334-006	Screw, 5/16-18 UNC Soc Hd x 3/4	8
74	63946-030	Screw, 10mm x 1.25 HHC x 30mm	16
75	29480-099	Wire, 10 AWG Red	.333'
76	29480-099	Wire, 10 AWG Red	.417'
77	29480-099	Wire, 10 AWG Red	.75'
78	29452-099	Wire, 16 AWG Blk	.333'
79	29452-099	Wire, 16 AWG Blk	.417'
80	29456-099	Wire, 16 AWG Yel	1.33'
81	29451-099	Wire, 16 AWG Wht	1.16'
82	29601-019	Conn., Ring 12-10 #10	3
83	29601-039	Conn., Ring 12-10 5/16 Dia	4
84	29610-002	Conn., Fork 16-14 #18	2
85	29601-008	Conn., Ring 16-14 5/16 Dia	1
86	29617-002	Conn., Fork M 16-14 .25 Tab	1

Illustrated Parts Breakdown

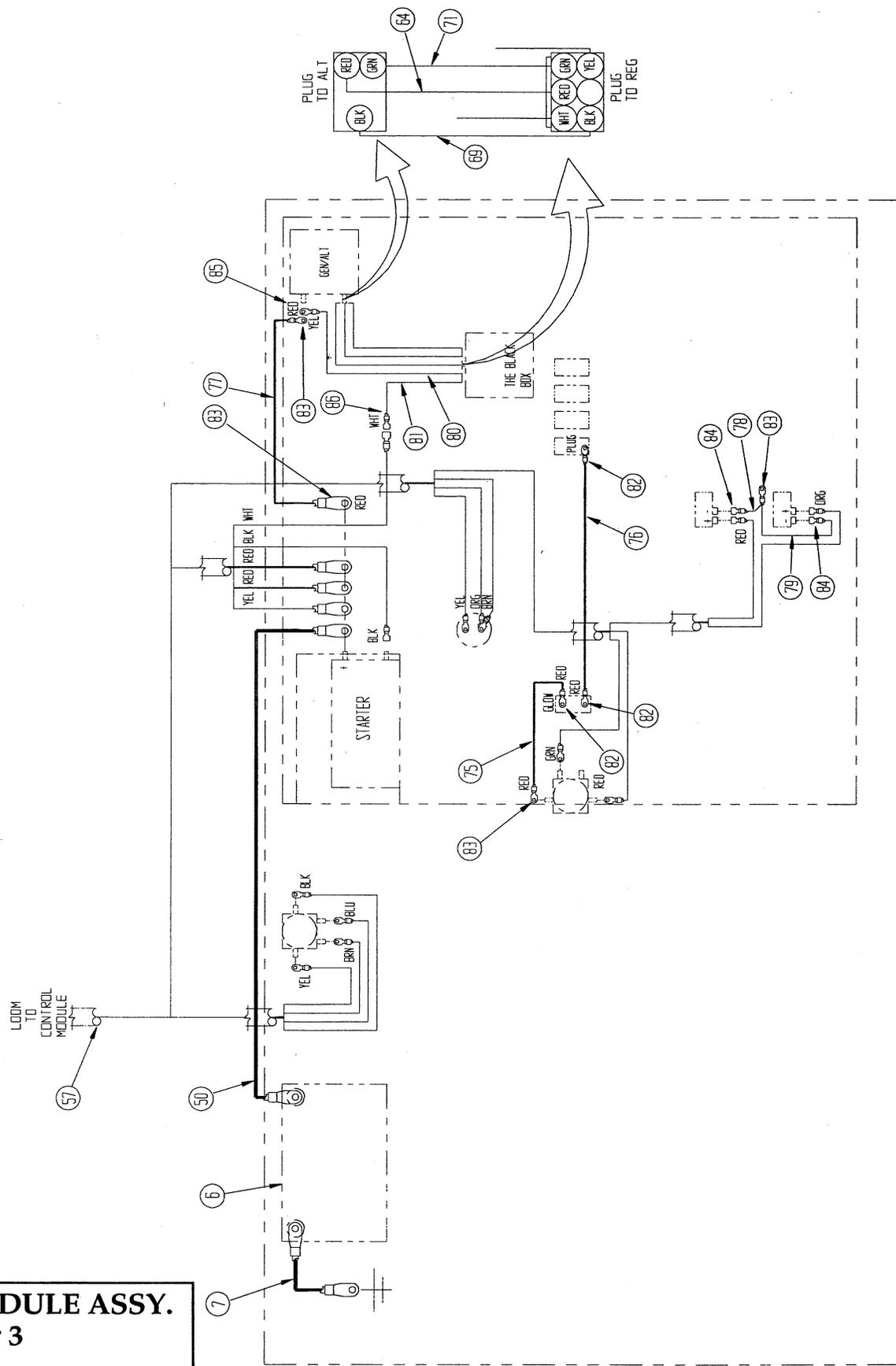


Illustrated Parts Breakdown

- NOTE :
1. ADJUST SOLENOID LINKAGE SO SOLENOID BOTTOMS OUT WHEN LEVER HAS .030 TO .060 CLEARANCE WITH STOP.
 2. ADJUST SOLENOID LINKAGE SO SOLENOID BOTTOMS OUT WHEN LEVER HAS .015 TO .030 CLEARANCE BETWEEN HANDLE LINK AND ITS STOP BOLT.
 3. ADJUST SOLENOID TO INSURE FULL BOTTOMING OF PLUNGER.
 4. LOCKTITE ASSY.



Illustrated Parts Breakdown



POWER MODULE ASSY.
DRAWING 3 OF 3
64002-010

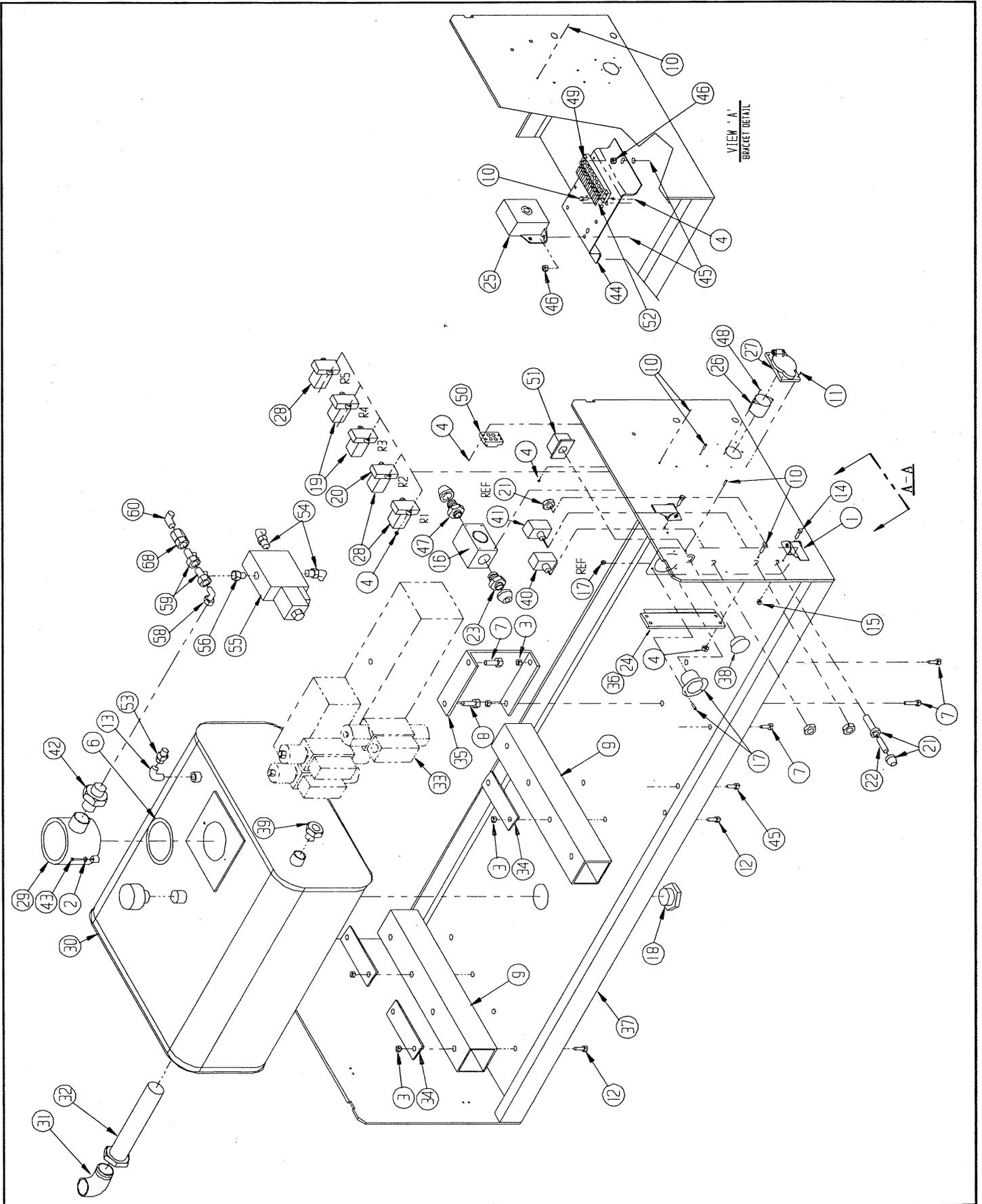
CONTROL MODULE ASSY., SL26/30
DUAL FUEL, DRAWING 1 OF 2
64003-040

Item	Part	Description	Qty.
1	05299-000	Latch, Toggle	4
2	11238-005	Lockwasher, Split 5/16 Dia	2
3	11248-006	Locknut, Hex 3/8-16 UNC	8
4	11248-047	Locknut, Hex 6-32 UNC	18
5	63965-001	Connector, Gage	1
6	63962-001	Backup Ring	1
7	11254-008	Screw, HHC 3/8-16 UNC x 1	10
8	11254-010	Screw, HHC 3/8-16 UNC x 1 1/4	1
9	64460-000	Spacer	2
10	11715-006	Screw, Rd Hd 6-32 UNC x 3/4	18
11	11715-008	Screw, Rd Hd 6-32 UNC x 1	4
12	11254-028	Screw, HHC 3/8-16 UNC x 3 1/2	6
13	11940-006	Fitting, Adapter	1
14	11708-004	Mach Screw, Rd Hd 8-32 UNC x 1/2	8
15	11248-002	Locknut, Hex 8-32 UNC	8
16	15915-000	Box, Electrical, AC	1
17	15752-000	Hour Meter	1
18	21305-006	Magnet Plug	1
19	27962-000	Relay	2
20	27963-000	Socket	5
21	29701-000	Fuse Holder	1
22	29704-015	Fuse, AGC 15 Amp	1
23	29925-001	Connetor, Cable	1
24	29928-000	Terminal Block	1
25	63778-000	Alarm, 60-600Hz Dual Range 10-28 VDC	1
26	29961-000	Inlet Flanged	1
27	29962-000	Elec Box Cover	1
28	27962-003	Relay, 3 Pole, 12 VDC	3
29	63919-001	Hydraulic Filter Assy.	1
*	63919-010	Filter Element	1
30	63930-010	Oil Reservoir	1
-	63930-001	Breather, Oil Reservoir	1

Item	Part	Description	Qty.
31	63931-016	Street Elbow, 1 NPT Blk Std	1
32	63935-000	Suction Screen	1
33	64004-019	Control Valve Assy.	1
34	64039-000	Tank Mounting Tab	3
35	64305-000	Mount - Manifold	1
36	64056-012	Fanning Strip Assy.	1
*	29825-002	Diode	8
37	64058-002	Module Weldment	1
38	63968-001	Push Button	1
39	63979-006	Sight Gage	1
40	12798-001	Switch, Toggle	1
41	29871-001	Switch, Toggle	1
42	11939-019	Fitting, Adapter	1
43	14334-008	Screw, Soc Hd 5/16-18 UNC x 1	2
44	63438-000	Bracket	1
45	11252-006	Screw, HHC 1/4-20 UNC x 3/4	5
46	11248-004	Locknut, Hex 1/4-20 UNC	4
47	29925-011	Connector, Cable	1
48	11715-004	Screw, 6-32 UNC x 1/2	2
49	29928-001	Terminal Block, 8	1
50	29928-009	Terminal Block, 2	1
51	63968-004	Contact Block	1
52	64056-013	Fanning Strip	1
*	29825-002	Diode	8
53	20733-002	Fitting, Adapter Tee	1
54	11934-003	Fitting, 90	2
55	63923-003	Valve Solenoid, Axle Float	1
56	64170-004	Fitting, Str	1
57	20733-003	Fitting, Tee	2
58	11937-004	Fitting, 90	1
59	14048-002	Fitting, Str	1
60	11940-010	Fitting, 90	1

*Not Shown

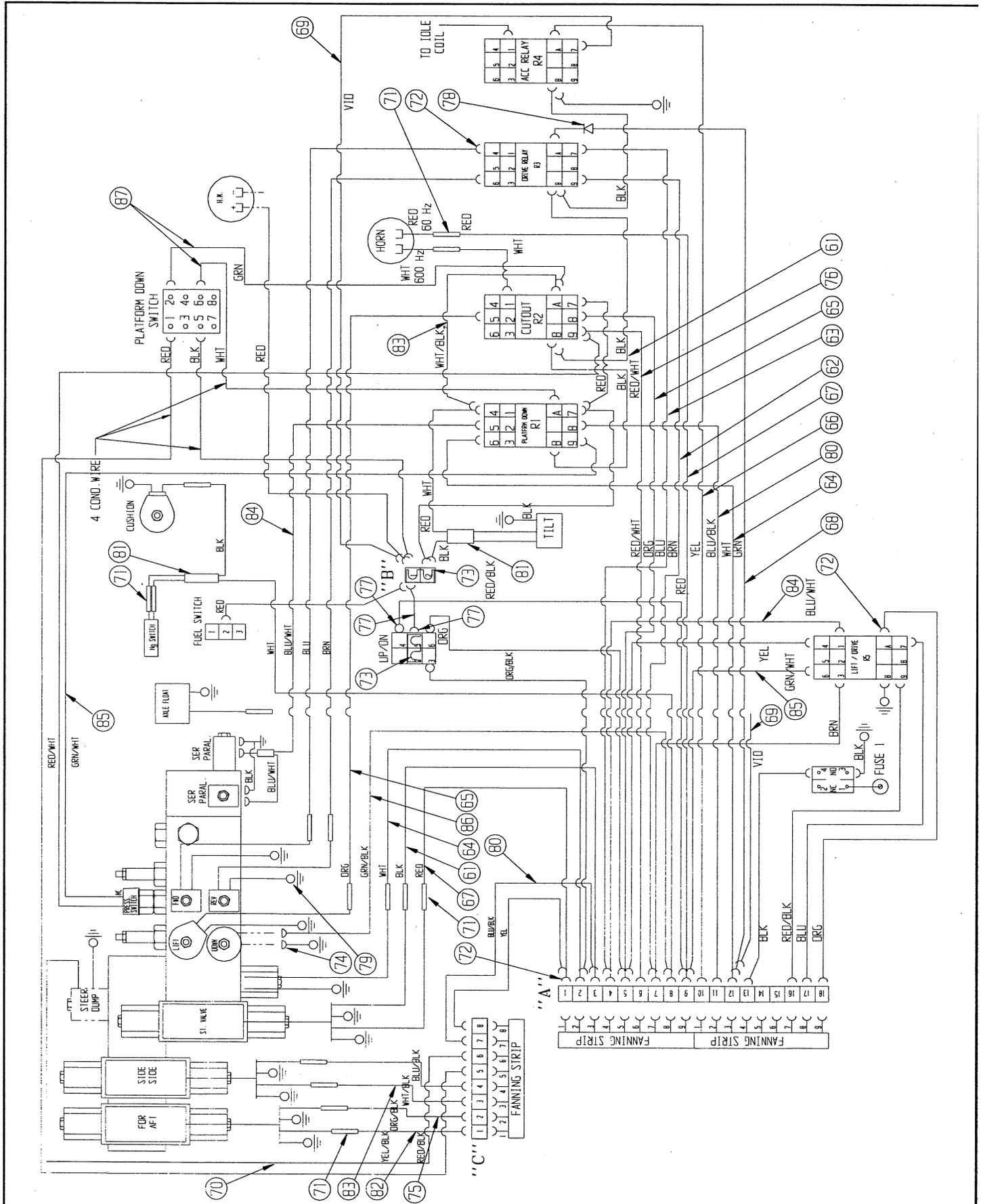
Illustrated Parts Breakdown



CONTROL MODULE ASSY., SL26/30
DUAL FUEL, DRAWING 2 OF 2
64003-040

Item	Part	Description	Qty.
61	29452-099	Wire, 16 AWG THHN Strd Cop Black	12'
62	29455-099	Wire, 16 AWG THHN Strd Cop Brn	3'
63	29450-099	Wire, 16 AWG THHN Strd Cop Blu	6'
64	29451-099	Wire, 16 AWG THHN Strd Cop Wht	5'
65	29453-099	Wire, 16 AWG THHN Strd Cop Org	5'
66	29456-099	Wire, 16 AWG THHN Strd Cop Yel	8'
67	29454-099	Wire, 16 AWG THHN Strd Cop Red	8'
68	29457-099	Wire, 16 AWG THHN Strd Cop Grn	5'
69	29458-099	Wire, 16 AWG THHN Strd Cop Vio	4'
70	29478-099	Wire, 16 AWG THHN Strd Cop Red/Blk	6'
71	29620-002	Conn., Butt 16-14	17
72	29610-002	Conn., Fork 16-14 #8	*87
73	29932-002	Terminal Jumper	2
74	29931-003	Conn., Female Push 16-14 1/4	6
75	29477-099	Wire, 16 AWG THHN Strd Cop Org/Blk	9'
76	29483-099	Wire, 16 AWG THHN Strd Cop Red/Wht	4'
77	29601-013	Conn., Ring 16-14 #10	4
78	29825-002	Diode	1
79	29601-014	Conn., Ring 16-14 1/4 Dia	14
80	29475-099	Wire, 16 AWG THHN Strd Cop Blu/Blk	6'
81	29490-099	Wire, 16 AWG 2-Cond. Type So	4'
82	29476-099	Wire, 16 AWG THHN Strd Cop Yel/Blk	4'
83	29479-099	Wire, 16 AWG THHN Strd Cop Wht/Blk	2'
84	29459-099	Wire, 16 AWG THHN Strd Cop Blu/Wht	4'
85	29482-099	Wire, 16 AWG THHN Strd Cop Grn/Wht	4'
86	05491-099	Wire, 16 AWG THHN Strd Cop Grn/Blk	4'
87	29498-099	Wire, 4-Cond. 16 AWG	4'

Illustrated Parts Breakdown



CONTROL MODULE ASSY., SL26/30
DIESEL, DRAWING 1 OF 2
 64003-041

Item	Part	Description	Qty.
1	05299-000	Latch Toggle	4
2	11238-005	Lockwasher, Split 5/16 Dia	2
3	11248-006	Locknut, Hex 3/8-16 UNC	8
4	11248-047	Locknut, Hex 6-32 UNC	20
6	63962-001	Backup Ring	1
7	11254-008	Screw, HHC 3/8-16 UNC x 1	10
8	11254-010	Screw, HHC 3/8-16 UNC x 1 1/4	1
9	64460-000	Spacer	2
10	11715-006	Screw, Rd 6-32 UNC x 3/4	20
11	11715-008	Screw, Rd 6-32 UNC x 1	4
12	11254-028	Screw, HHC 3/8-16 UNC x 3 1/2	6
13	11940-006	Fitting, Adapter	1
14	11708-004	Mach. Screw, Rd Hd 8-32 UNC x 1/2	8
15	11248-002	Locknut, Hex 8-32 UNC	8
16	15915-000	Box, Electrical, AC	1
17	15752-000	Hour Meter	1
18	21305-006	Magnet Plug	1
19	27962-000	Relay	2
20	27963-000	Socket	6
21	29701-000	Fuse Holder	2
22	29704-015	Fuse, AGC 15 Amp	2
23	29925-001	Connetor, Cable	1
24	29928-000	Terminal Block	1
25	63778-000	Alarm, 60-600Hz Dual Range 10-28 VDC	1
26	29961-000	Inlet, Flanged	1
27	29962-000	Elec Box Cover	1
28	27962-003	Relay, 3 Pole, 12 Vdc	3
29	63919-001	Hydraulic Filter Assy.	1
*	63919-010	Filter Element	
30	63930-010	Oil Reservoir	1
-	63930-001	Breather Cap, Oil Reservoir	1
31	63931-016	Street Elbow 1-NPT Blk Stl	1

Item	Part	Description	Qty.
32	63935-000	Suction Screen	1
33	64004-019	Control Valve Assy.	1
34	64039-000	Tank Mounting Tab	3
35	64305-000	Mount - Manifold	1
36	64056-012	Fanning Strip Assy.	1
*	29825-002	Diode	8
37	64058-002	Module Weldment	1
38	63968-001	Push Button	1
39	63979-006	Sight Gage	1
40	12798-001	Switch, Toggle	1
41	27962-005	Relay, 6VDC	1
42	11939-019	Fitting, Adapter	1
43	14334-008	Screw, Soc Hd 5/16-18 UNC x 1	2
44	64550-000	Bracket, Diesel	1
45	11252-006	Screw, HHC 1/4-20 UNC x 3/4	5
46	11248-004	Locknut, Hex 1/4-20 UNC	4
47	29925-011	Connector, Cable	1
48	11715-004	Screw, Rd 6-32 UNC x 1/2	2
49	29928-001	Terminal Block, 8	1
50	29928-009	Terminal Block, 2	1
51	63968-004	Contact Block	1
52	64056-013	Fanning Strip	1
*	29825-002	Diode	8
53	20733-002	Fitting, Adapter Tee	1
54	11934-003	Fitting, 90	2
55	63923-003	Valve Solenoid, Axle Float	1
56	64170-004	Fitting, Str	1
57	20733-003	Fitting, Tee	2
58	11937-004	Fitting, 90	1
59	14048-002	Fitting, Str	1
60	11940-010	Fitting, 90	1

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**CONTROL MODULE ASSY., SL26/30
DIESEL, DRAWING 2 OF 2
64003-041**

Item	Part	Description	Qty.
61	29452-099	Wire, 16 AWG THHN Strd Cop Black	12'
62	29455-099	Wire, 16 AWG THHN Strd Cop Brn	3'
63	29450-099	Wire, 16 AWG THHN Strd Cop Blu	6'
64	29451-099	Wire, 16 AWG THHN Strd Cop Wht	5'
65	29453-099	Wire, 16 AWG THHN Strd Cop Org	5'
66	29456-099	Wire, 16 AWG THHN Strd Cop Yel	8'
67	29454-099	Wire, 16 AWG THHN Strd Cop Red	6'
68	29457-099	Wire, 16 AWG THHN Strd Cop Grn	5'
69	29458-099	Wire, 16 AWG THHN Strd Cop Vio	4'
70	29478-099	Wire, 16 AWG THHN Strd Cop Red/Blk	6'
71	29620-002	Conn., Butt 16-14	17
72	29610-002	Conn., Fork 16-14 #8	87
73	29932-002	Terminal Jumper	2
74	29931-003	Conn., Female Push 16-14 1/4	6
75	29477-099	Wire, 16 AWG THHN Strd Cop Org/Blk	9'
76	29483-099	Wire, 16 AWG THHN Strd Cop Red/Wht	4'
77	29601-013	Conn., Ring 16-14 #10	4
78	29825-002	Diode	1
79	29601-014	Conn., Ring 16-14 1/4 Dia	14
80	29475-099	Wire, 16 AWG THHN Strd Cop Blu/Blk	6'
81	29490-099	Wire, 16 AWG 2-Cond. Type So	8'
82	29476-099	Wire, 16 AWG THHN Strd Cop Yel/Blk	4'
83	29479-099	Wire, 16 AWG THHN Strd Cop Wht/Blk	4'
84	29459-099	Wire, 16 AWG THHN Strd Cop Blu/Wht	4'
85	29482-099	Wire, 16 AWG THHN Strd Cop Grn/Wht	4'
86	05491-099	Wire, 16 AWG THHN Strd Cop Grn/Blk	4'
87	29498-099	Wire, 4-Cond. 16 AWG	4'

Illustrated Parts Breakdown

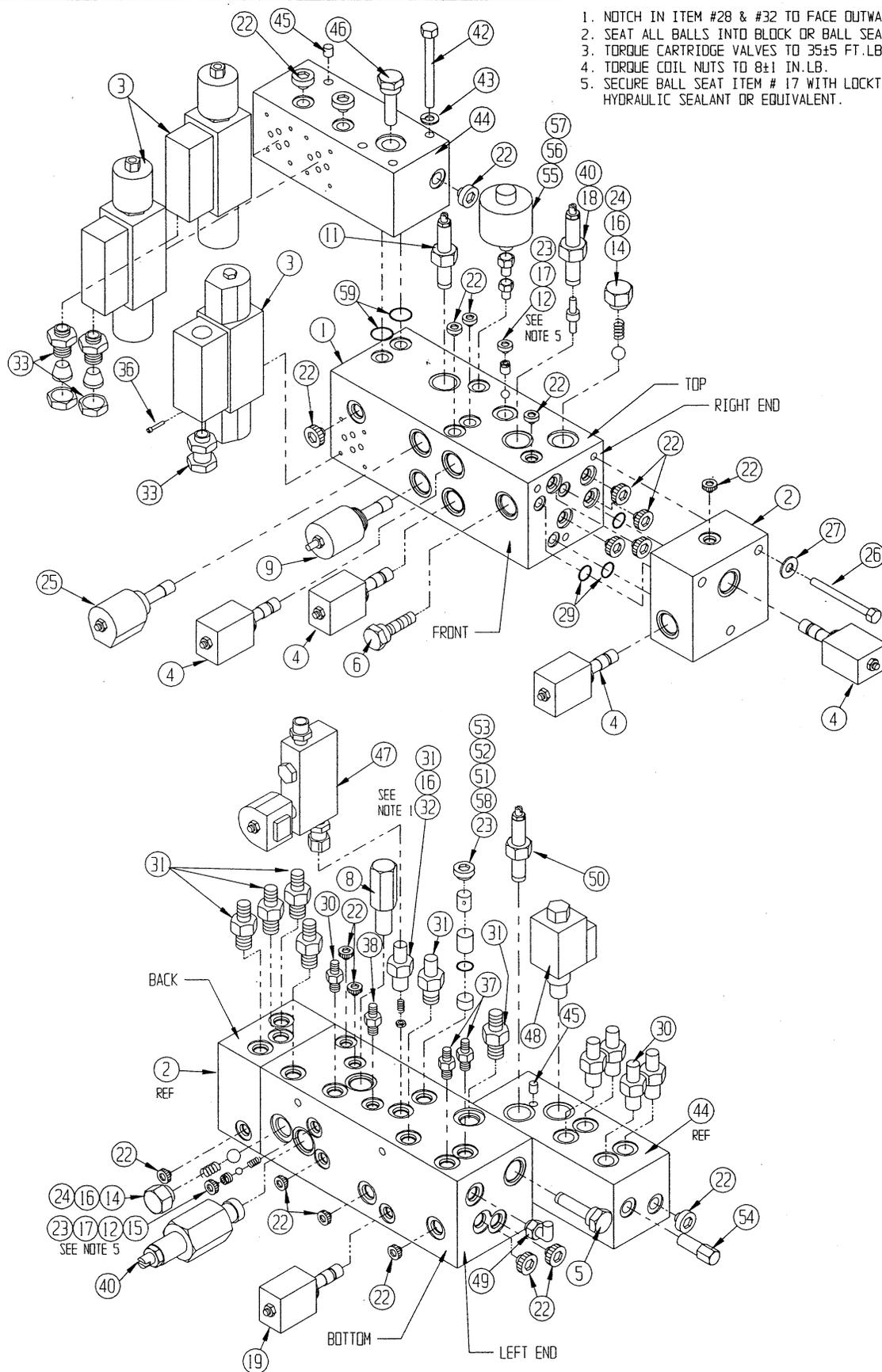
VALVE BLOCK ASSEMBLY, SL26/30 DUAL FUEL & DIESEL 64004-019

Item	Part	Description	Qty.
1	64050-002	Manifold	1
*	30576-010	Service Block, Manifold	1
2	64051-000	Manifold Block	1
3	63928-001	Valve, 12vdc	3
*	13888-007	O-Ring	12
4	63923-000	3-Way Valve, 10vdc	4
*	63976-010	Seal Kit, 3 Way Valve	1
5	63924-001	Flow Regulator	1
6	63924-003	Flow Divider	1
8	63922-001	Pressure Reducing	1
9	63925-001	Lowering Valve	1
11	60390-000	Relief Valve	1
12	05135-000	Ball, 5/16 Dia Stl	2
14	08998-000	Ball, 1/2 Dia Stl	2
15	15799-000	Spring	1
16	05133-000	Spring	3
17	61728-000	Orifice	2
18	63920-000	Piston	1
19	63952-001	Poroptional Valve	1
22	12004-004	Plug - SAE #4	19
*	11974-004	O-Ring	1
23	12004-006	Plug - SAE #6	3
*	11974-006	O-Ring	1
24	20021-008	Plug - SAE #8	2
*	11974-008	O-Ring	1
25	60291-000	Valve, Sol. NC 12V	1
*	60390-011	Seal Kit, Valve	1
26	11254-022	Screw, 3/8-16 UNC HHC x 2 3/4	3
27	11240-006	Washer, 3/8 Dia Std Flat	3

Item	Part	Description	Qty.
29	13888-044	O-Ring	3
30	11941-004	Fitting, Adapter	5
31	11941-006	Fitting, Adapter	7
32	15919-003	Orifice, Lower	1
33	29925-000	Conn., Cable 3/4	3
36	14412-016	Screw, 10-24 UNC Soc Hd x 2	12
37	11941-005	Fitting, Adaptor	2
38	11941-001	Fitting, Adaptor	1
40	60390-001	Relief Valve	2
42	11263-028	Screw, 5/16-24 UNF HHC x 3 1/2	3
43	11238-005	Lockwasher, 5/16 Dia Split	3
44	64344-000	Tilt Level Block	1
45	63977-001	Plug	2
46	63924-005	Valve, Relief	1
47	64559-001	Cushion Valve Assy - 12vdc	1
48	64293-002	Valve Popet N.O. - 10vdc	1
49	11934-003	Fitting, 90	1
50	60390-003	Valve, Relief	1
51	64281-000	Spacer	1
52	13888-007	O-Ring	1
53	03391-002	Lift Check Valve	1
54	60390-006	Valve, Relief	1
55	15959-001	Fitting	1
56	11922-003	Fitting	1
57	63921-005	Pressure Switch	1
58	64278-000	Spacer	1
59	11979-008	O-Ring	2

*Not Shown

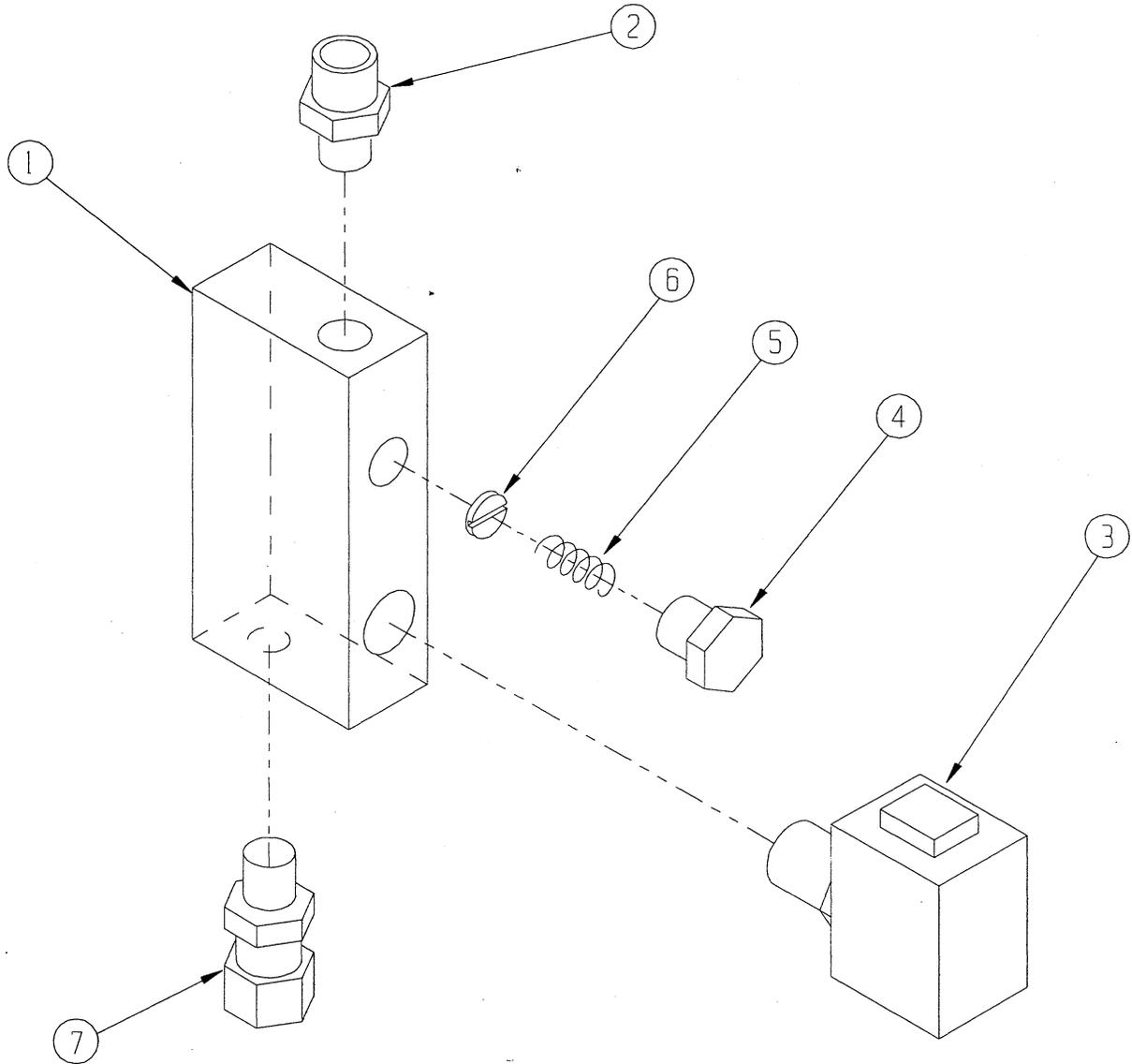
Illustrated Parts Breakdown



CUSHION VALVE ASSY., SL26/30
DUAL FUEL & DIESEL
64559-001

Item	Part	Description	Qty.
1	64560-000	Cushion Block	1
2	11941-006	Fitting	1
3	64293-003	Solenoid Valve, 12v	1
4	12004-006	Fitting, #6 Plug	1
5	05133-000	Spring	1
6	15919-001	Orifice (.062 Dia.)	1
7	64170-004	Fitting	1

Illustrated Parts Breakdown



Illustrated Parts Breakdown

ELEVATING ASSEMBLY, SL26 DUAL FUEL & DIESEL

Item	Part	Description	Qty.
1	64001-032	Chassis Assy	Ref
2	64089-000	Lift Gear	2
3	64090-000	Pivot Pin 1.75 x 11.45	3
4	64093-000	Cylinder Pin	1
5	64094-000	Pivot Pin 1.75 x 13.11	2
6	64095-000	Pivot Pin 2.75 x 13.27	3
7	64060-003	Lower Boom Weldment	1
8	64070-002	Mid-Linkage Weldment	1
9	64078-002	Upper Boom Weldment	1
10	64084-001	Lower Tension Weldment	1
11	64087-000	Upper Tension Weldment	1
12	11248-016	Locknut, 1-8 UNC Hex	6
13	14918-056	Screw, HHC GR5 1-8 UNC x 7	6
14	11705-020	Screw, St Hex Soc 3/8-16 UNC x 1-1/4	1
15	11764-020	Ret Ring Truarc #5100-125	2
16	64450-000	Wire, Cover, Lower	1
17	64451-000	Wire, Cover, Upper	1
18	62642-030	Bearing, Garlock #44du32	6
19	62649-010	Bearing, Garlock #20fdu16	2
20	62649-020	Bearing, Garlock #28fdu24	12
21	11254-024	Screw, HHC GR5 3/8-16 UNC x 3	6
22	11273-006	Nut Hex Jam 3/8-16 UNC	1
23	64111-002	Pedestal Weldment	1
24	63904-000	Lift Cylinder	1
*	63904-010	Seal Kit, Lift Cylinder	1
*	63904-011	Velocity Fuse	1
25	11254-030	Screw, HHC GR5 3/8-16 UNC x 3 3/4	3
26	11248-006	Nut Hex Esna 3/8-16 UNC	9
27	11934-013	Fitting, 90 12mb-8mj	1
28	11940-006	Fitting, 90 4mp-6mj	1
29	13336-001	Grease Fitting	5
30	64092-000	Pin (1 3/4)	1
31	11273-006	Nut Hex Thin 3/8-16unc	4
32	11252-008	Screw, HHC 1/4-20 UNC x 1	2
33	64356-000	Wheel Tube	1
34	27931-057	Bearing, Brz Oilite Aa-1704-11	2
35	64354-000	Wheel	1
36	14918-048	Screw, HHC GR5 1-8unc x 6	1
37	11246-016	Nut Hex Esna 1-8 UNC	1
38	11239-016	Washer Flat Astm A-325 1 Dia	2
39	64347-000	Cover Plate, Level Sensor	1
40	63497-001	Mercury Switch	1
41	13919-013	Clamp	1
42	11248-004	Nut Hex Esna 3/8-16 UNC	3
43	11254-008	Screw, HHC 3/8-16 x 1	4
44	11238-006	Lockwasher, 3/8	4
45	29945-005	Level Sensor	1

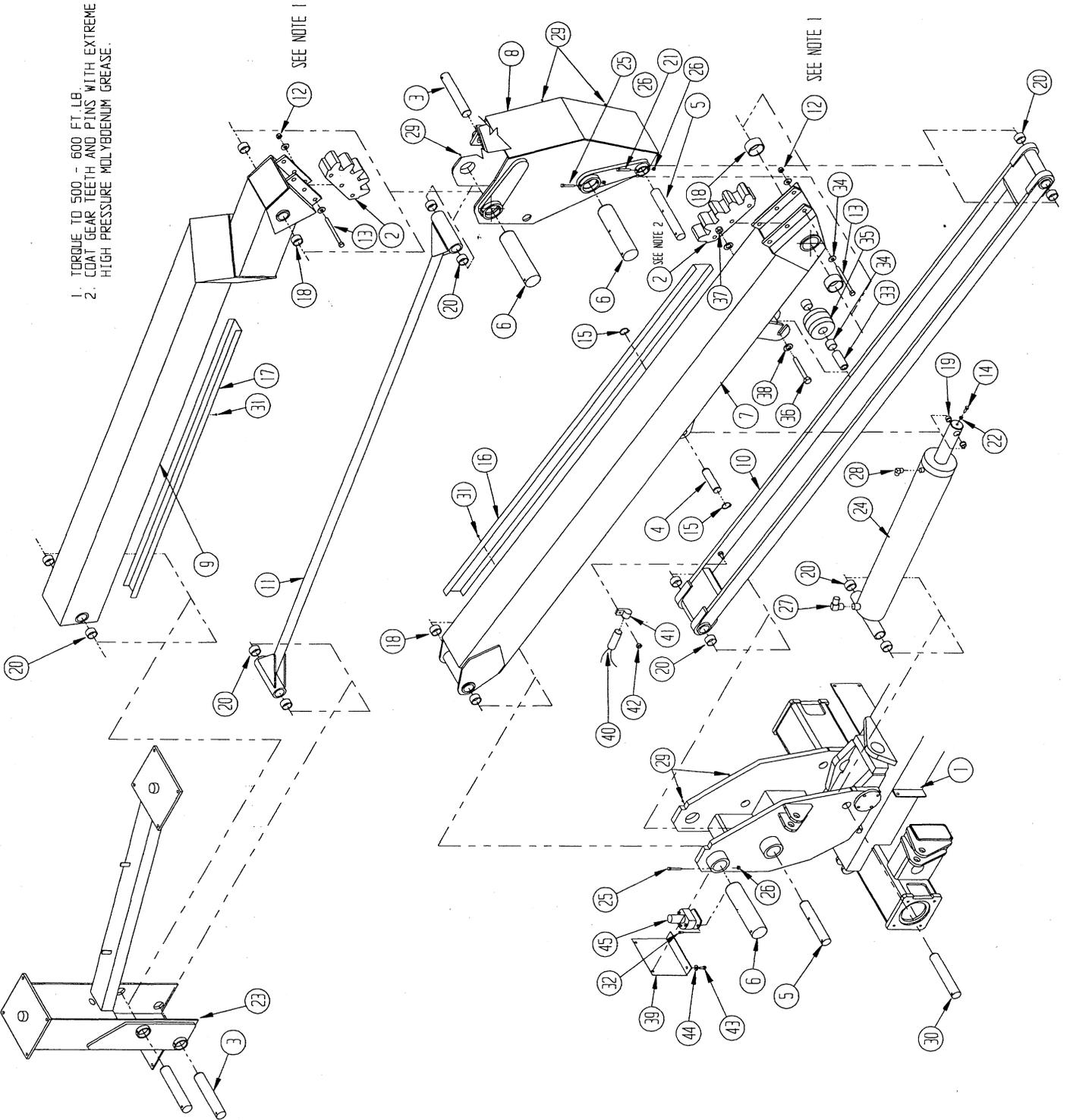
ELEVATING ASSEMBLY, SL30 DUAL FUEL & DIESEL

Item	Part	Description	Qty.
1	64001-032	Chassis Assy	Ref
2	64089-000	Lift Gear	2
3	64090-000	Pivot Pin 1.75 x 11.45	3
4	64093-000	Cylinder Pin	1
5	64094-000	Pivot Pin 1.75 x 13.11	2
6	64095-000	Pivot Pin 2.75 x 13.27	3
7	64530-000	Lower Boom Weldment	1
8	64070-002	Mid-Linkage Weldment	1
9	64521-000	Upper Boom Weldment	1
10	64531-001	Lower Tension Weldment	1
11	64536-000	Upper Tension Weldment	1
12	11248-016	Locknut, 1-8 UNC Hex	6
13	14918-056	Screw, HHC GR5 1-8 UNC x 7	6
14	11705-020	Screw, St Hex Soc 3/8-16 UNC x 1-1/4	1
15	11764-020	Ret Ring Truarc #5100-125	2
16	64542-000	Wire, Cover, Lower	1
17	64538-000	Wire, Cover, Upper	1
18	62642-030	Bearing, Garlock #44du32	6
19	62649-010	Bearing, Garlock #20fdu16	2
20	62649-020	Bearing, Garlock #28fdu24	12
21	11254-024	Screw, HHC GR5 3/8-16 UNC x 3	6
22	11273-006	Nut Hex Jam 3/8-16 UNC	1
23	64111-002	Pedestal Weldment	1
24	63904-000	Lift Cylinder	1
*	63904-010	Seal Kit, Lift Cylinder	1
*	63904-011	Velocity Fuse	1
25	11254-030	Screw, HHC GR5 3/8-16 UNC x 3 3/4	3
26	11248-006	Nut Hex Esna 3/8-16 UNC	9
27	11934-013	Fitting, 90 12mb-8mj	1
28	11940-006	Fitting, 90 4mp-6mj	1
29	13336-001	Grease Fitting	5
30	64092-000	Pin (1 3/4)	1
31	11273-006	Nut Hex Thin 3/8-16unc	4
32	11252-008	Screw, HHC 1/4-20 UNC x 1	2
33	64356-000	Wheel Tube	1
34	27931-057	Bearing, Brz Oilite Aa-1704-11	2
35	64354-000	Wheel	1
36	14918-048	Screw, HHC GR5 1-8unc x 6	1
37	11246-016	Nut Hex Esna 1-8 UNC	1
38	11239-016	Washer Flat Astm A-325 1 Dia	2
39	64347-000	Cover Plate, Level Sensor	1
40	63497-001	Mercury Switch	1
41	13919-013	Clamp	1
42	11248-004	Nut Hex Esna 3/8-16 UNC	3
43	11254-008	Screw, HHC 3/8-16 x 1	4
44	11238-006	Lockwasher, 3/8	4
45	29945-005	Level Sensor	1

*Not Shown

Illustrated Parts Breakdown

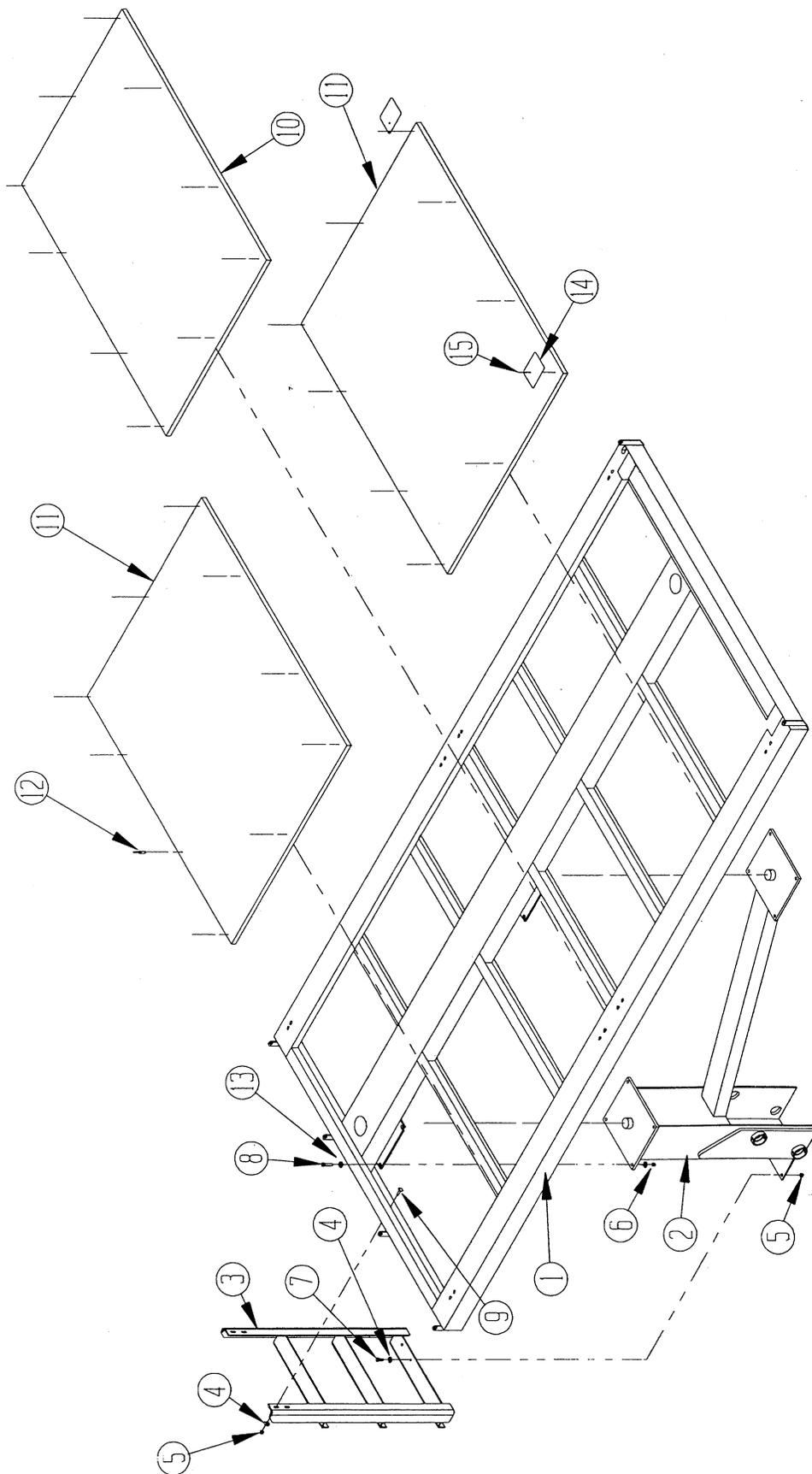
- 1. TORQUE TO 500 - 600 FT. LB.
- 2. COAT GEAR TEETH AND PINS WITH EXTREME HIGH PRESSURE MOLYBDENUM GREASE.



**PLATFORM ASSEMBLY, SL26
DUAL FUEL & DIESEL**

Item	Part	Description	Qty.
1	64100-002	Platform Weldment	1
2	64111-001	Pedestal Weldment	REF.
3	64119-000	Ladder Weldment	1
4	11240-006	Washer 3/8 Dia Std Flat	6
5	11248-006	Locknut, 3/8 - 16 UNC	6
6	11248-008	Locknut, 1/2 - 16 UNC	8
7	11254-010	Screw, 3/8 - 16 UNC x 1 1/4	2
8	11256-016	Screw, 1/2 - 13 UNC x 2	8
9	11831-008	Bolt Carriage 3/8 - 16 UNC x 1	4
10	26505-003	Plywood 3/4, Mid	1
11	26505-004	Plywood 3/4, Front/Rear	2
12	26554-006	Pop Rivet 1/4 Dia .751-.875 Grip	30
13	11240-008	Washer 1/2 Dia Std Flat	16
14	64424-000	Cover Plate	2
15	26526-006	Screw, Rd, HD, #10 x 3/4	4

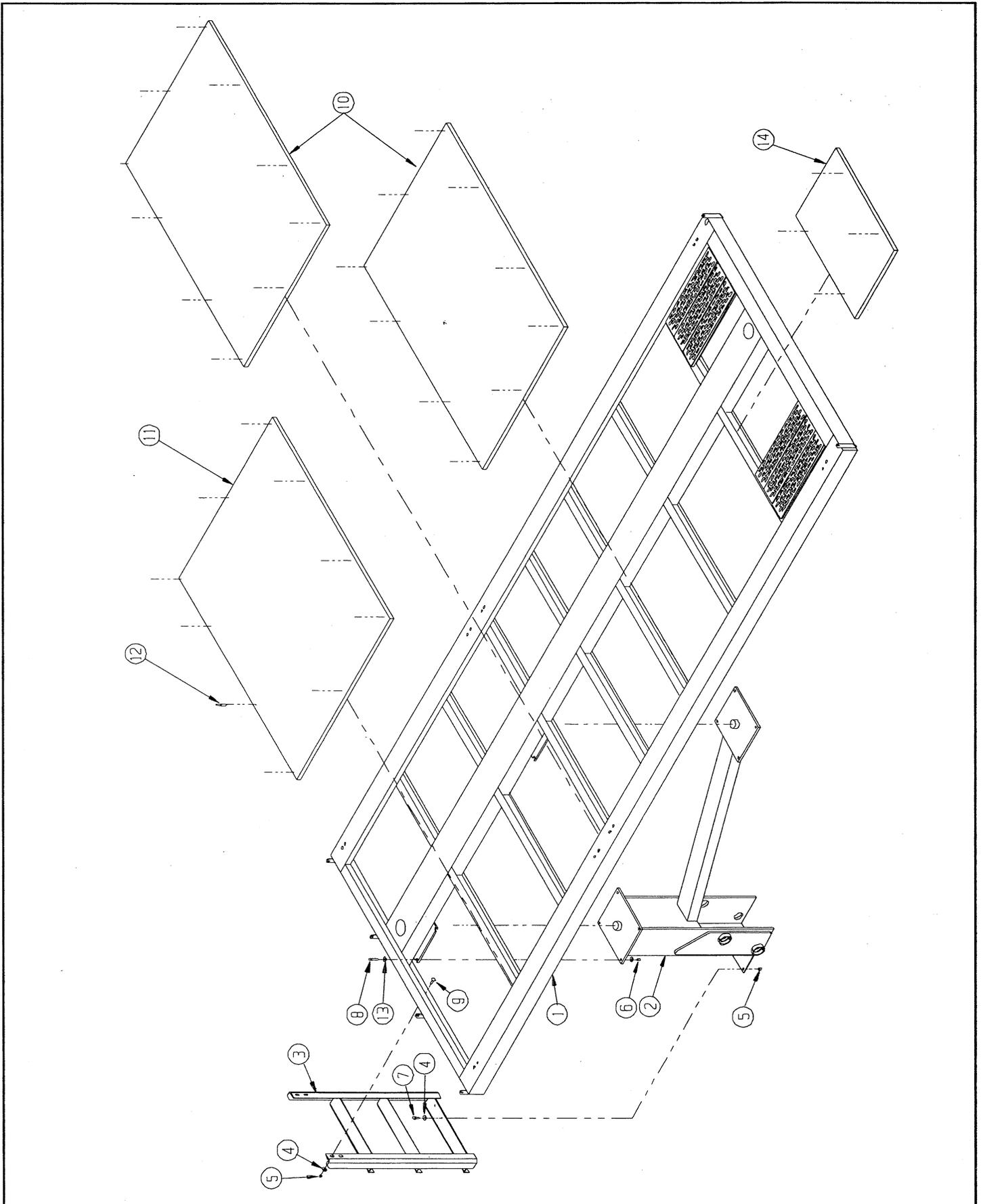
Illustrated Parts Breakdown



**PLATFORM ASSEMBLY, SL30
DUAL FUEL & DIESEL**

Item	Part	Description	Qty.
1	64540-001	Platform Weldment	1
2	64111-002	Pedestal Weldment	Ref
3	64119-000	Ladder Weldment	1
4	11240-006	Washer, Std Flat 3/8 Dia	6
5	11248-006	Nut, Hex ESNA 3/8-16 UNC	6
6	11248-008	Nut, Hex ESNA 1/2-16 UNC	8
7	11254-010	Screw, HHC GR5 3/8-16 UNC x 1 1/4	2
8	11256-016	Screw, HHC GR5 1/2-13 UNC x 2	8
9	11831-008	Bolt Carrige 3/8-16 UNC x 1	4
10	26505-001	Plywood, 3/4, Mid	2
11	26505-002	Plywood, 3/4, Rear	1
12	26554-006	Rvt Pop 1/4 Dia .751-.875 Grip	36
13	11240-008	Washer, Std Flat 1/2 Dia	16
14	26505-011	Plywood, 3/4, Front	1

Illustrated Parts Breakdown



Illustrated Parts Breakdown

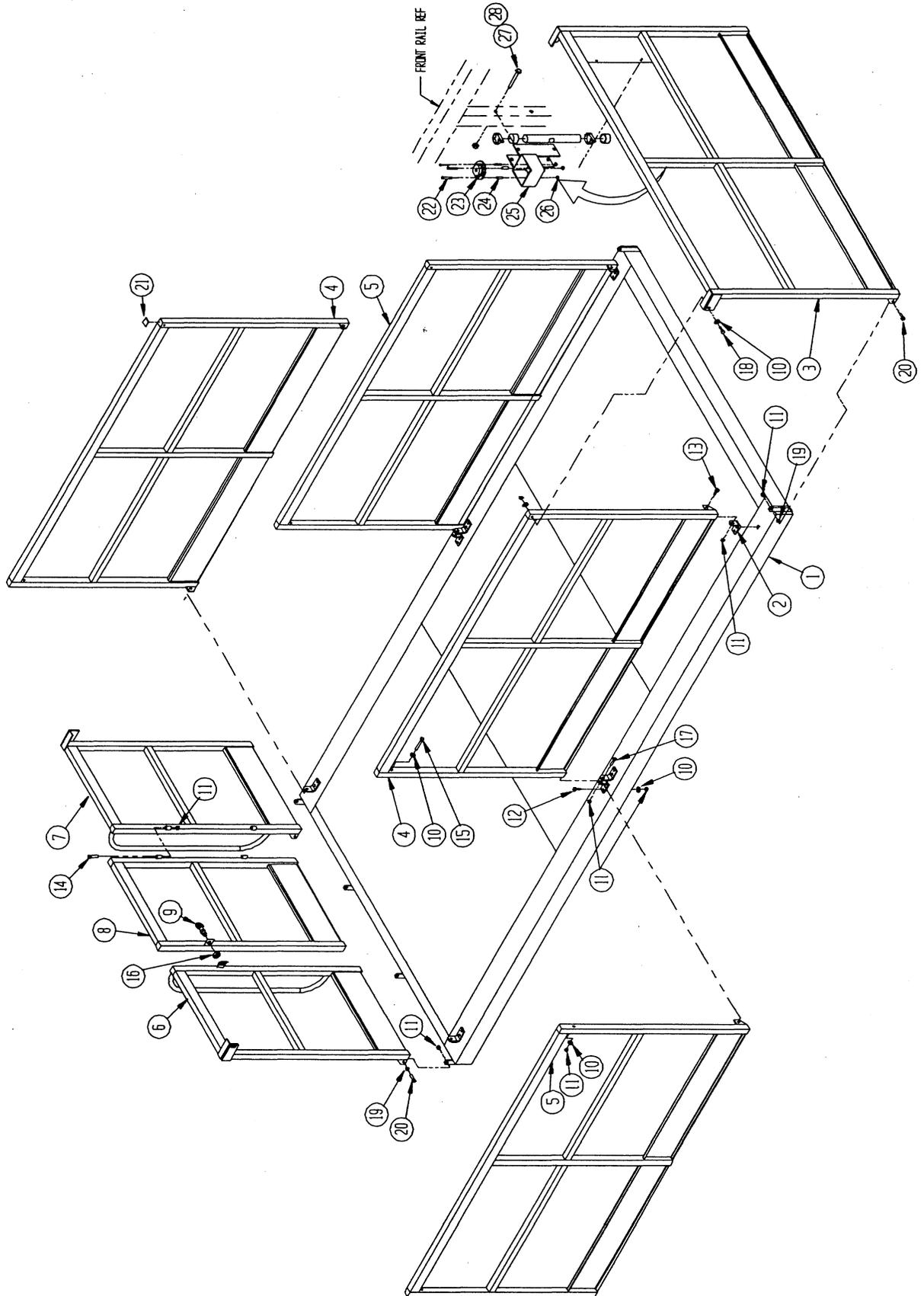
GUARDRAIL ASSEMBLY, SL26 DUAL FUEL & DIESEL

Item	Part	Description	Qty.
1	64100-002	Platform Weldment	Ref.
2	64046-000	Rail Mounting Bracket	8
3	64124-001	Front Rail Weldment	1
4	64125-001	Side Rail Weldment - RH	2
5	64126-001	Side Rail Weldment - LH	2
6	64127-001	Rear Rail Weldment - RH	1
7	64128-001	Rear Rail Weldment - LH	1
8	64129-001	Gate Weldment	1
9	03570-000	Retaining Pin Assy	1
10	11240-006	Washer Std Flat 3/8 Dia	28
11	11248-006	Nut Hex Esna 3/8-16 UNC	36
12	11254-008	Screw, HHC GR5 3/8-16 UNC x 1	16
13	11254-010	Screw, HHC GR5 3/8-16 UNC x 1 1/4	4
14	11254-022	Screw, HHC GR5 3/8-16 UNC x 2 3/4	2
15	11254-026	Screw, HHC GR5 3/8-16 UNC x 3 1/4	2
16	20495-012	Nut Hex Jam 3/4-16 UNF	1
17	11254-014	Screw, HHC GR5 3/8-16 UNC x 1 3/4	2
18	11254-018	Screw, HHC GR5 3/8-16 UNC x 2 1/4	4
19	11273-006	Nut Hex Jam 3/8-16 UNC	6
20	11254-012	Screw, HHC GR5 3/8-16 UNC x 1 1/2	6
21	63926-001	Plug-Sq Tube	8
22	11721-008	Screw, Mach Rd Hd 4-40 UNC x 1	3
23	00942-000	Orbit Level Mayes Bros # Or	1
24	05133-000	Spring	3
25	64361-000	Level Mount Weldment	1
26	11250-018	Nut Hex 4-40 UNC	3
27	11248-004	Nut Hex Esna 1/4-20 UNC	2
28	11252-016	Screw, HHC GR5 1/4-20 UNC x 2	2

GUARDRAIL ASSEMBLY, SL30 DUAL FUEL & DIESEL

Item	Part	Description	Qty.
1	64540-001	Platform Weldment	Ref.
2	64046-000	Rail Mounting Bracket	8
3	64124-002	Front Rail Weldment	1
4	64544-000	Side Rail Weldment - RH	2
5	64543-000	Side Rail Weldment - LH	2
6	64127-001	Rear Rail Weldment - RH	1
7	64128-001	Rear Rail Weldment - LH	1
8	64129-001	Gate Weldment	1
9	03570-000	Retaining Pin Assy	1
10	11240-006	Washer, Std Flat 3/8 Dia	28
11	11248-006	Nut, Hex ESNA 3/8-16 UNC	36
12	11254-008	Screw, HHC GR5 3/8-16 UNC x 1	16
13	11254-010	Screw, HHC GR5 3/8-16 UNC x 1 1/4	4
14	11254-022	Screw, HHC GR5 3/8-16 UNC x 2 3/4	2
15	11254-026	Screw, HHC GR5 3/8-16 UNC x 3 1/4	2
16	20495-012	Nut, Hex Jam 3/4-16 UNF	1
17	11254-014	Screw, HHC GR5 3/8-16 UNC x 1 3/4	2
18	11254-018	Screw, HHC GR53/8-16 UNC x 2 1/4	4
19	11273-006	Nut, Hex Jam 3/8-16 UNC	6
20	11254-012	Screw, HHC GR5 3/8-16 UNC x 1 1/2	6
21	63926-001	Plug-Sq Tube	8
22	11721-008	Screw, Mach Rd Hd 4-40 UNC x 1	3
23	00942-000	Orbit Level Mayes Bros # Or	1
24	05133-000	Spring	3
25	64361-000	Level Mount Weldment	1
26	11250-018	Nut Hex 4-40 UNC	3
27	11248-004	Nut Hex Esna 1/4-20 UNC	2
28	11252-016	Screw, HHC GR5 1/4-20 UNC x 2	2

Illustrated Parts Breakdown

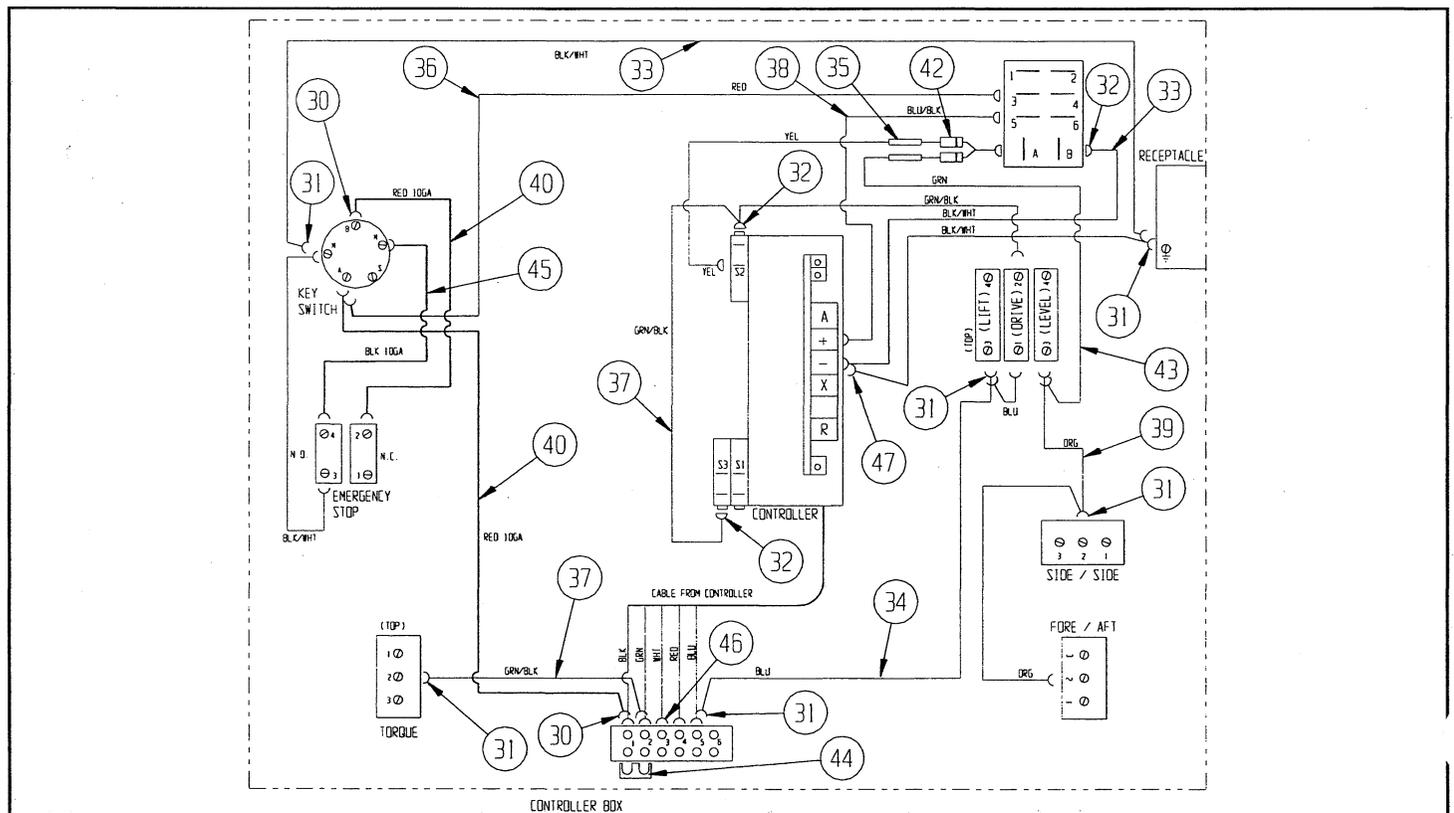


CONTROLLER ASSEMBLY, SL26/30 DUAL FUEL MODEL 64411-016

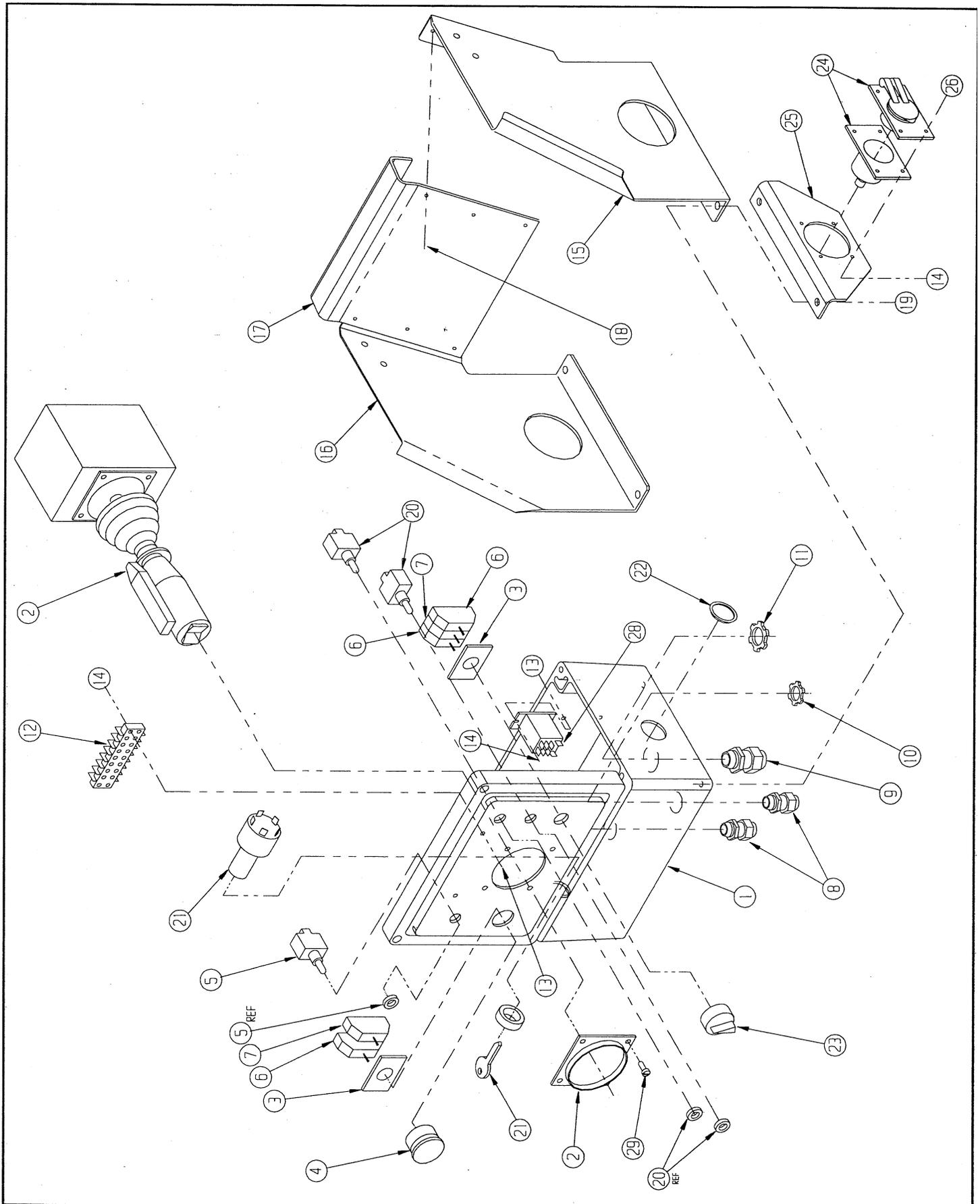
Item	Part	Description	Qty.
1	63368-004	Enclosure Box Sp Lv	1
2	66544-001	Controller, Proportional 12v	1
*	15772-001	Switch, Micro	3
*	66544-014	Switch, Steering	2
*	63913-003	Boot, Steering Switch	1
*	63913-004	Rocker Assembly	1
-	66544-010	Handle, 2 Piece	1
-	66544-011	Lever, Interlock	1
*	66544-012	Switch, Interlock	1
-	66544-013	Boot, Joystick Shaft	1
-	66544-015	Flange, Controller Mounting	1
3	64417-001	Mounting Latch, Switch	2
4	64446-003	Emergency Stop Push Button	1
5	12797-000	Switch Spdt - Hi/Low Torque	1
6	64443-001	Contact Block N.O.	3
7	64443-002	Contact Block N.C.	2
8	29925-000	Cable Connector 1/2"	2
9	29925-011	Cable Connector 3/4"	1
10	29939-002	Conduit Nut - 1/2"	2
11	29939-003	Conduit Nut - 3/4"	1
12	29928-003	Terminal Block 6 Place	1
13	11715-006	Screw, Rd Hd 6-32unc x 3/4	4
14	11248-047	Locknut, 6-32 UNC	8
15	64545-000	Control Box Wing, RH	1
16	64545-001	Control Box Wing, LH	1
17	63613-002	Controller Hanger	1
18	26551-007	Rivet 1/8 Dia. x 1/4-5/16 Grip	6
19	11253-004	Screw, HHC 5/16-18unc x 1/2	4

Item	Part	Description	Qty.
20	12798-000	Switch Spdt Momentary	2
21	63916-000	Key Switch	1
-	63916-001	Key	1
22	64462-010	Caplug 1 1/8 Dia.	1
23	64445-001	Selector Switch	1
24	08942-001	Outlet, Ac	1
25	64520-000	Ac Power Bracket	1
26	11715-004	Screw, Rd Hd 6-32unc x 1/2	4
28	63951-001	Relay 2-Pole 12vdc	1
29	11826-004	Screw, 10-32 x 1/2	4
30	29610-004	Connector Fork Term 12-10 Ga. #10	6
31	29610-002	Connector Fork Term 16-14 Ga. #8	17
32	29931-003	Connector F Push Term 16-14 Ga. .25t	7
33	63574-099	Wire, 16 Ga. Black/White	1'
34	29450-099	Wire, 16 Ga. Blue	3'
35	29620-002	Connector, Butt 16-14 Ga.	2
36	29454-099	Wire, 16 Ga. Red	1'
37	05941-099	Wire, 16 Ga. Green/Black	1'
38	29475-099	Wire, 16 Ga. Blue/Black	1'
39	29453-099	Wire, 16 Ga. Orange	1'
40	29480-099	Wire, 10 Ga. Red	2'
41	29401-099	Wire, 16 Ga. Yellow	1'
42	29825-002	Diode	2
43	29455-099	Wire, 16 Ga. Green	1'
44	29932-002	Terminal Jumper	1
45	29841-099	Wire, 10 Ga. Black	1'
46	29610-001	Connector Fork Term 22-18 Ga. #6	5
47	29610-006	Connector Fork Term 16-14 Ga. #6	3

*Not Shown



Illustrated Parts Breakdown



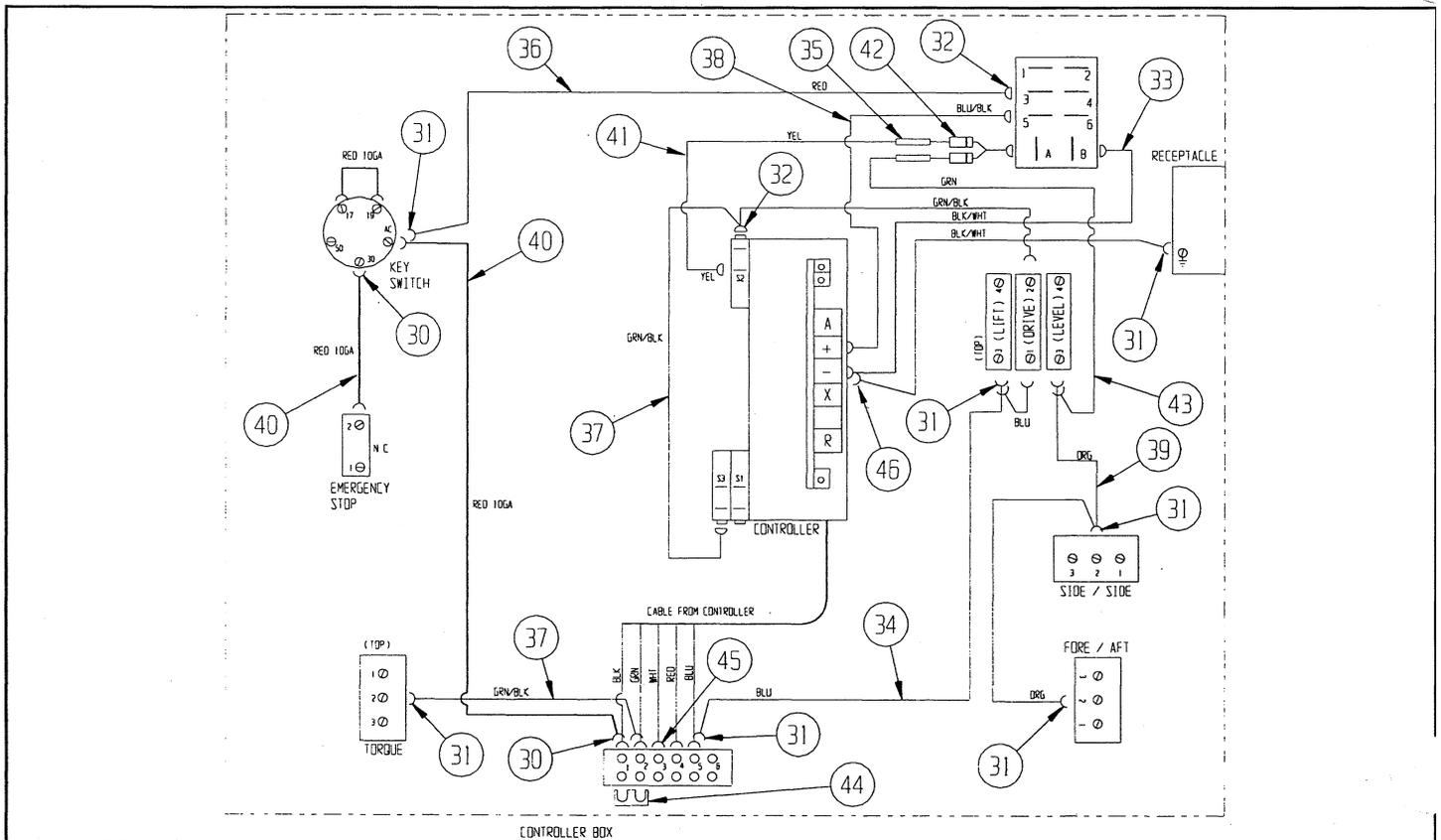
Illustrated Parts Breakdown

CONTROLLER ASSEMBLY, SL26/30 DIESEL MODEL 64411-017

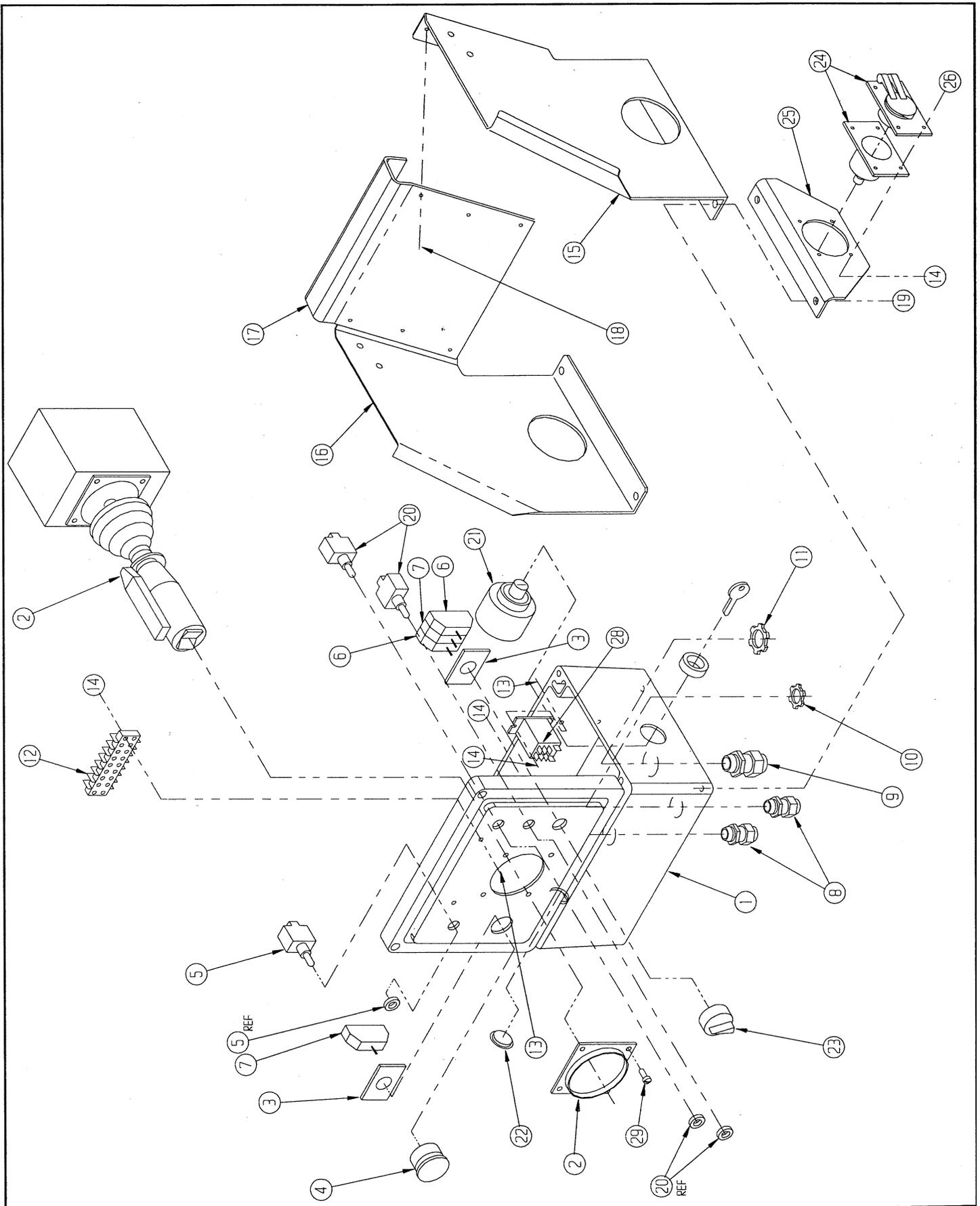
Item	Part	Description	Qty.
1	63368-004	Enclosure Box Sp Lv	1
2	66544-001	Controller, Proportional 12v	1
*	15772-001	Switch, Micro	3
*	66544-014	Switch, Steering	2
*	63913-003	Boot, Steering Switch	1
*	63913-004	Rocker Assembly	1
-	66544-010	Handle, 2 Piece	1
-	66544-011	Lever, Interlock	1
*	66544-012	Switch, Interlock	1
-	66544-013	Boot, Joystick Shaft	1
-	66544-015	Flange, Controller Mounting	1
3	64417-001	Mounting Latch, Switch	2
4	64446-003	Emergency Stop Push Button	1
5	12797-000	Switch Spdt - Hi/Low Torque	1
6	64443-001	Contact Block N.O.	2
7	64443-002	Contact Block N.C.	2
8	29925-000	Cable Connector 1/2"	2
9	29925-011	Cable Connector 3/4"	1
10	29939-002	Conduit Nut - 1/2"	2
11	29939-003	Conduit Nut - 3/4"	1
12	29928-003	Terminal Block 6 Place	1
13	11715-006	Screw, Rd Hd 6-32unc x 3/4	4
14	11248-047	Locknut, 6-32 UNC	8
15	64545-000	Control Box Wing, RH	1
16	64545-001	Control Box Wing, LH	1
17	63613-002	Controller Hanger	1
18	26551-007	Rivet 1/8 Dia. x 1/4-5/16 Grip	6
19	11253-004	Screw, HHC 5/16-18unc x 1/2	4

Item	Part	Description	Qty.
20	12798-000	Switch Spdt Momentary	2
21	63936-006	Key Switch	1
-	63936-015	Key	1
22	64462-006	Caplug 13/16 Dia.	1
23	64445-001	Selector Switch	1
24	08942-001	Outlet, Ac	1
25	64520-000	Ac Power Bracket	1
26	11715-004	Screw, Rd Hd 6-32unc x 1/2	4
28	63951-001	Relay 2-Pole 12vdc	1
29	11826-004	Screw, 10-32 x 1/2	4
30	29610-004	Connector Fork Term 12-10 Ga. #10	6
31	29610-002	Connector Fork Term 16-14 Ga. #8	13
32	29931-003	Connector F Push Term 16-14 Ga. .25t	7
33	63574-099	Wire, 16 Ga. Black/Wht	1'
34	29450-099	Wire, 16 Ga. Blue	3'
35	29620-002	Connector, Butt 16-14 Ga.	2
36	25454-099	Wire, 16 Ga. Red	1'
37	05941-099	Wire, 16 Ga. Green/Black	1'
38	29475-099	Wire, 16 Ga. Blue/Black	1'
39	29453-099	Wire, 16 Ga. Orange	1'
40	29480-099	Wire, 10 Ga. Red	2'
41	29401-099	Wire, 16 Ga. Yellow	1'
42	29825-002	Diode	2
43	29455-099	Wire, 16ga Green	1'
44	29932-002	Terminal Jumper	1
45	29610-001	Connector Fork Term 22-18 Ga. #6	5
46	29610-006	Connector Fork Term 16-14 Ga. #6	?

*Not Shown



Illustrated Parts Breakdown



Illustrated Parts Breakdown

HOSE KIT, SL26/30 DUAL FUEL, SER. NOS. THRU 9965 64008-005

Item	Part	Description	Qty.
1	64157-006	Hose Assy x 41	1
2	64156-002	Hose Assy x 23	1
3	64156-019	Hose Assy x 67	1
4	64156-028	Hose Assy x 63	1
5	64156-032	Hose Assy x 30	2
6	64156-021	Hose Assy x 42	1
7	64156-022	Hose Assy x 54	1
8	64156-023	Hose Assy x 78	1
9	64156-024	Hose Assy x 52	1
10	64156-019	Hose Assy x 67	1
11	64156-025	Hose Assy x 75	1
12	61131-010	Hose Assy x 83 1/2	1
13	61131-007	Hose Assy x 64	1
14	61132-007	Hose Assy x 103	1
15	61351-022	Hose Assy x 30	1
16	61351-006	Hose Assy x 53	1
17	61351-008	Hose Assy x 41	2
18	61351-015	Hose Assy x 56	1
19	60460-012	Hose Assy x 66	2
20	64156-017	Hose Assy x 33	2
21	60460-008	Hose Assy x 84	1
22	60460-009	Hose Assy x 90	1
23	60460-010	Hose Assy x 93	1
24	60460-011	Hose Assy x 89	1
25	61351-016	Hose Assy 1/8 Synflex x 8	6
26	61351-018	Hose Assy x 16	1

HOSE KIT, SL26/30 DIESEL, SER. NOS. THRU 9965 64008-006

Item	Part	Description	Qty.
1	64157-007	Hose Assy x 68	1
2	64156-002	Hose Assy x 23	1
3	64156-033	Hose Assy x 94	1
4	64156-028	Hose Assy x 63	1
5	64156-032	Hose Assy x 30	2
6	64156-021	Hose Assy x 42	1
7	64156-022	Hose Assy x 54	1
8	64156-023	Hose Assy x 78	1
9	64156-024	Hose Assy x 52	1
10	64156-019	Hose Assy x 67	1
11	64156-025	Hose Assy x 75	1
12	61131-010	Hose Assy x 83 1/2	1
13	61131-007	Hose Assy x 64	1
14	61132-007	Hose Assy x 103	1
15	61351-022	Hose Assy x 30	1
16	61351-006	Hose Assy x 53	1
17	61351-008	Hose Assy x 41	2
18	61351-015	Hose Assy x 56	1
19	60460-012	Hose Assy x 66	2
20	64156-017	Hose Assy x 33	2
21	60460-008	Hose Assy x 84	1
22	60460-009	Hose Assy x 90	1
23	60460-010	Hose Assy x 93	1
24	60460-011	Hose Assy x 89	1
25	61351-016	Hose Assy 1/8 Synflex x 8	6
26	61351-018	Hose Assy x 16	1

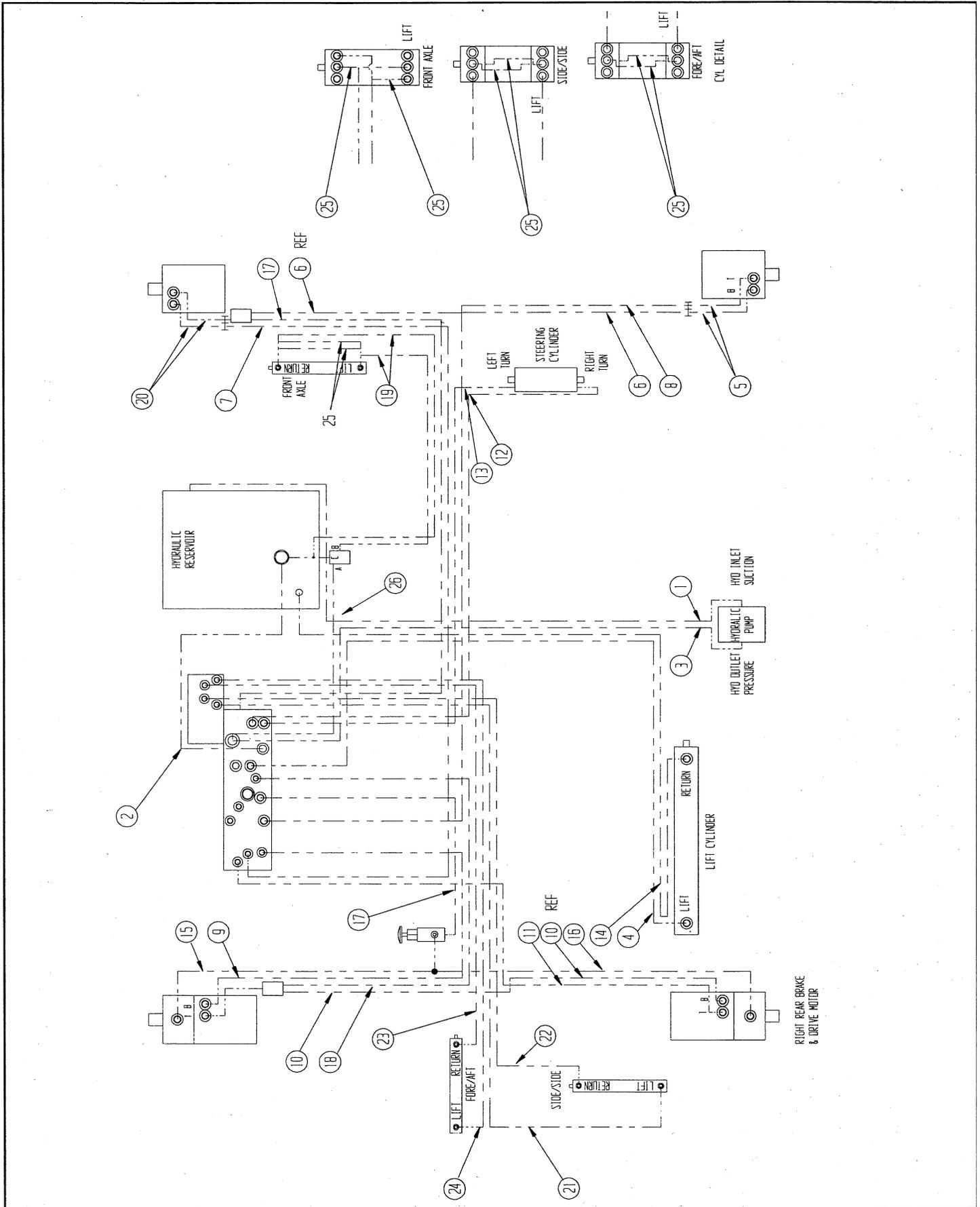
HOSE KIT, SL26/30 DUAL FUEL, SER. NOS. 9966 TO CURRENT 64008-021

Item	Part	Description	Qty.
1	64488-006	Hose Assy x 41	1
2	64156-002	Hose Assy x 23	1
3	64156-019	Hose Assy x 67	1
4	64156-028	Hose Assy x 63	1
5	64156-032	Hose Assy x 30	2
6	64156-021	Hose Assy x 42	1
7	64156-022	Hose Assy x 54	1
8	64156-023	Hose Assy x 78	1
9	64156-024	Hose Assy x 52	1
10	64156-019	Hose Assy x 67	1
11	64156-025	Hose Assy x 75	1
12	61131-010	Hose Assy x 83 1/2	1
13	61131-007	Hose Assy x 64	1
14	61132-007	Hose Assy x 103	1
15	61351-022	Hose Assy x 30	1
16	61351-006	Hose Assy x 53	1
17	61351-008	Hose Assy x 41	2
18	61351-015	Hose Assy x 56	1
19	60460-012	Hose Assy x 66	2
20	64156-017	Hose Assy x 33	2
21	60460-008	Hose Assy x 84	1
22	60460-009	Hose Assy x 90	1
23	60460-010	Hose Assy x 93	1
24	60460-011	Hose Assy x 89	1
25	61351-016	Hose Assy 1/8 Synflex x 8	6
26	61351-018	Hose Assy x 16	1

HOSE KIT, SL26/30 DIESEL, SER. NOS. 9966 TO CURRENT 64008-022

Item	Part	Description	Qty.
1	64488-007	Hose Assy x 68	1
2	64156-002	Hose Assy x 23	1
3	64156-033	Hose Assy x 94	1
4	64156-028	Hose Assy x 63	1
5	64156-032	Hose Assy x 30	2
6	64156-021	Hose Assy x 42	1
7	64156-022	Hose Assy x 54	1
8	64156-023	Hose Assy x 78	1
9	64156-024	Hose Assy x 52	1
10	64156-019	Hose Assy x 67	1
11	64156-025	Hose Assy x 75	1
12	61131-010	Hose Assy x 83 1/2	1
13	61131-007	Hose Assy x 64	1
14	61132-007	Hose Assy x 103	1
15	61351-022	Hose Assy x 30	1
16	61351-006	Hose Assy x 53	1
17	61351-008	Hose Assy x 41	2
18	61351-015	Hose Assy x 56	1
19	60460-012	Hose Assy x 66	2
20	64156-017	Hose Assy x 33	2
21	60460-008	Hose Assy x 84	1
22	60460-009	Hose Assy x 90	1
23	60460-010	Hose Assy x 93	1
24	60460-011	Hose Assy x 89	1
25	61351-016	Hose Assy 1/8 Synflex x 8	6
26	61351-018	Hose Assy x 16	1

Illustrated Parts Breakdown



Illustrated Parts Breakdown

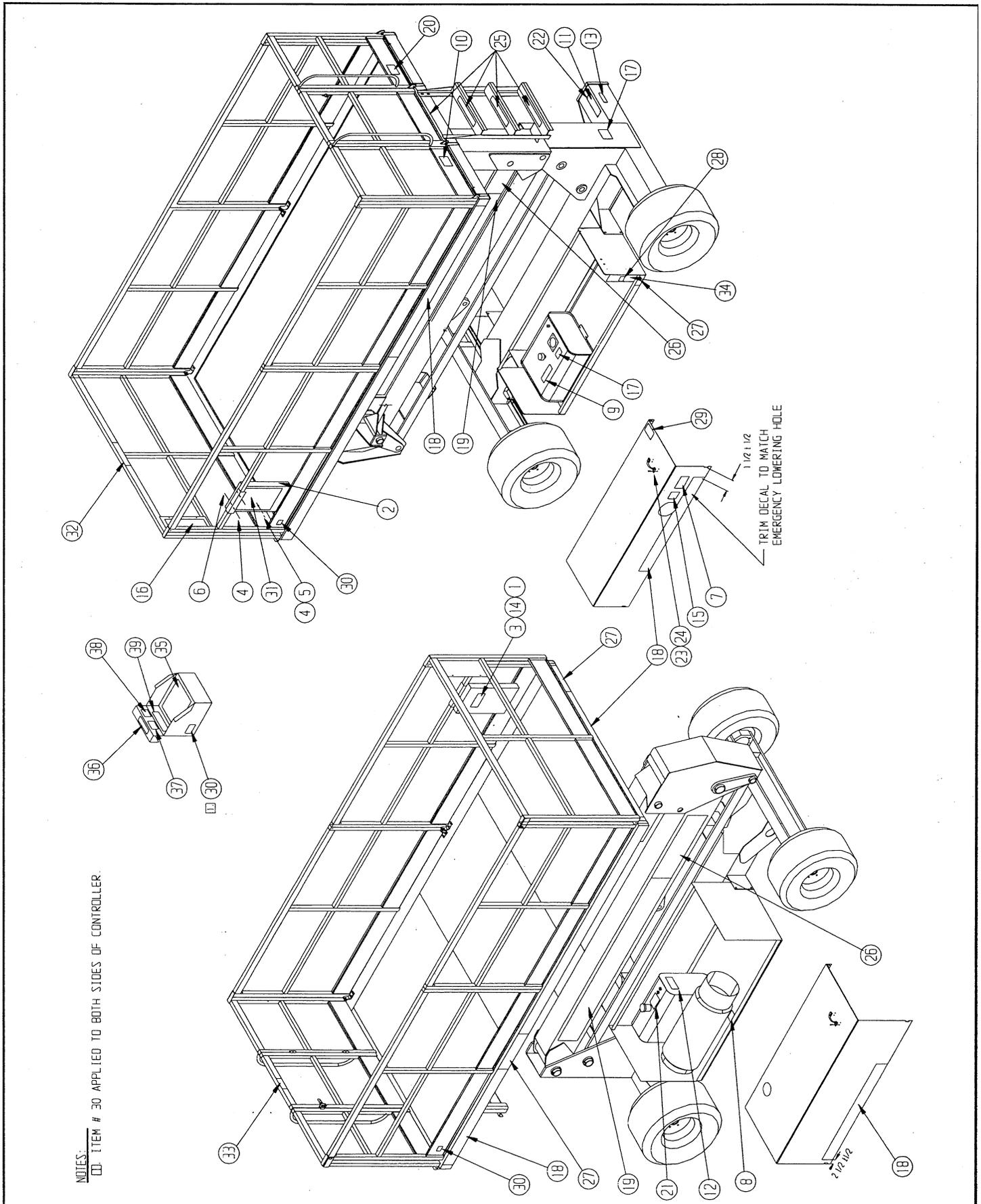
LABEL INSTALLATION, SL26 DUAL FUEL 64006-015

Item	Part	Description	Qty.
1	60588-007	Manual, User	1
2	10076-000	Manual Case	1
3	10076-001	Label - Safety Rules	1
4	11248-004	Locknut, 1/4-20 UNC Hex	4
5	11252-008	Screw, 1/4-20 UNC HHC x 1	2
6	11252-016	Screw, 1/4-20 UNC HHC x 2	2
7	66568-000	Label - Lower Platform	1
8	64189-000	Label - Vapor Withdrawal	1
9	60197-000	Label - Hydraulic Fluid	1
10	66557-007	Label - Load 1500 Lbs	1
11	61205-000	Label - Name Plate	1
12	66552-000	Label - Danger Hydrogen Gas	1
13	61220-001	Label - Ansi Requirement	1
14	60577-000	Ansi Manual	1
15	62524-001	Label - Emergency Lowering	1
16	66550-002	Label - Danger Instructions	1
17	66555-000	Label - Caution Relief Valve	2
18	64048-000	Label - SI-26 4 x 40	5
19	64049-000	Label - SI-26 7 1/4 x 68 1/2	2
20	66562-000	Label - Tire Pressure 50 P.S.I.	1
21	64166-000	Label - Gas Unleaded	1
22	65368-000	Tack	4
23	25427-002	Handle	4
24	26553-002	Rivet Pop	16
25	60830-000	Safety Walk	4
26	674231-000	Label - Speed Level	2
27	66551-002	Label - Tipping Hazard	3
28	64421-000	Switch Fuels	1
29	63423-000	Label - Brake Release	1
30	64444-000	Label - Usa	4
31	64551-000	Manual Case Bracket	1
32	66551-003	Label - Tipping Hazard	1
33	66563-000	Label - Before Leaving	1
34	64414-000	Label - Controls	1
35	65791-000	Label - Controller	1
36	61515-000	Label - Lift	1
37	66554-000	Label - Read	1
38	64374-000	Label - Level	1
39	66551-004	Label - Danger	1

LABEL INSTALLATION, SL30 DUAL FUEL 64006-021

Item	Part	Description	Qty.
1	60588-007	Manual, User	1
2	10076-000	Manual Case	1
3	10076-001	Label - Safety Rules	1
4	11248-004	Locknut, 1/4-20 UNC Hex	4
5	11252-008	Screw, 1/4-20 UNC HHC x 1	2
6	11252-016	Screw, 1/4-20 UNC HHC x 2	2
7	66568-000	Label - Lower Platform	1
8	64189-000	Label - Vapor Withdrawal	1
9	60197-000	Label - Hydraulic Fluid	1
10	66557-005	Label - Load 1300 Lbs	1
11	61205-000	Label - Name Plate	1
12	66552-000	Label - Danger Hydrogen Gas	1
13	61220-001	Label - Ansi Requirement	1
14	60577-000	Ansi Manual	1
15	62524-001	Label - Emergency Lowering	1
16	66550-005	Label - Danger Instructions	1
17	66555-000	Label - Caution Relief Valve	2
18	64539-001	Label - SI-30 4 x 40	5
19	64539-000	Label - SI-30 7 1/4 x 68 1/2	2
20	66562-000	Label - Tire Pressure 50 P.S.I.	1
21	64166-000	Label - Gas Unleaded	1
22	65368-000	Tack	4
23	25427-002	Handle	4
24	26553-002	Rivet Pop	16
25	60830-000	Safety Walk	4
26	674231-000	Label - Speed Level	2
27	66551-002	Label - Tipping Hazard	3
28	64421-000	Switch Fuels	1
29	63423-000	Label - Brake Release	1
30	64444-000	Label - Usa (See Note-1)	4
31	64551-000	Manual Case Bracket	1
32	66551-003	Label - Tipping Hazard	1
33	66563-000	Label - Before Leaving	1
34	64414-000	Label - Controls	1
35	65791-000	Label - Controller	1
36	61515-000	Label - Lift	1
37	66554-000	Label - Read	1
38	64374-000	Label - Level	1
39	66551-004	Label - Danger	1

Illustrated Parts Breakdown



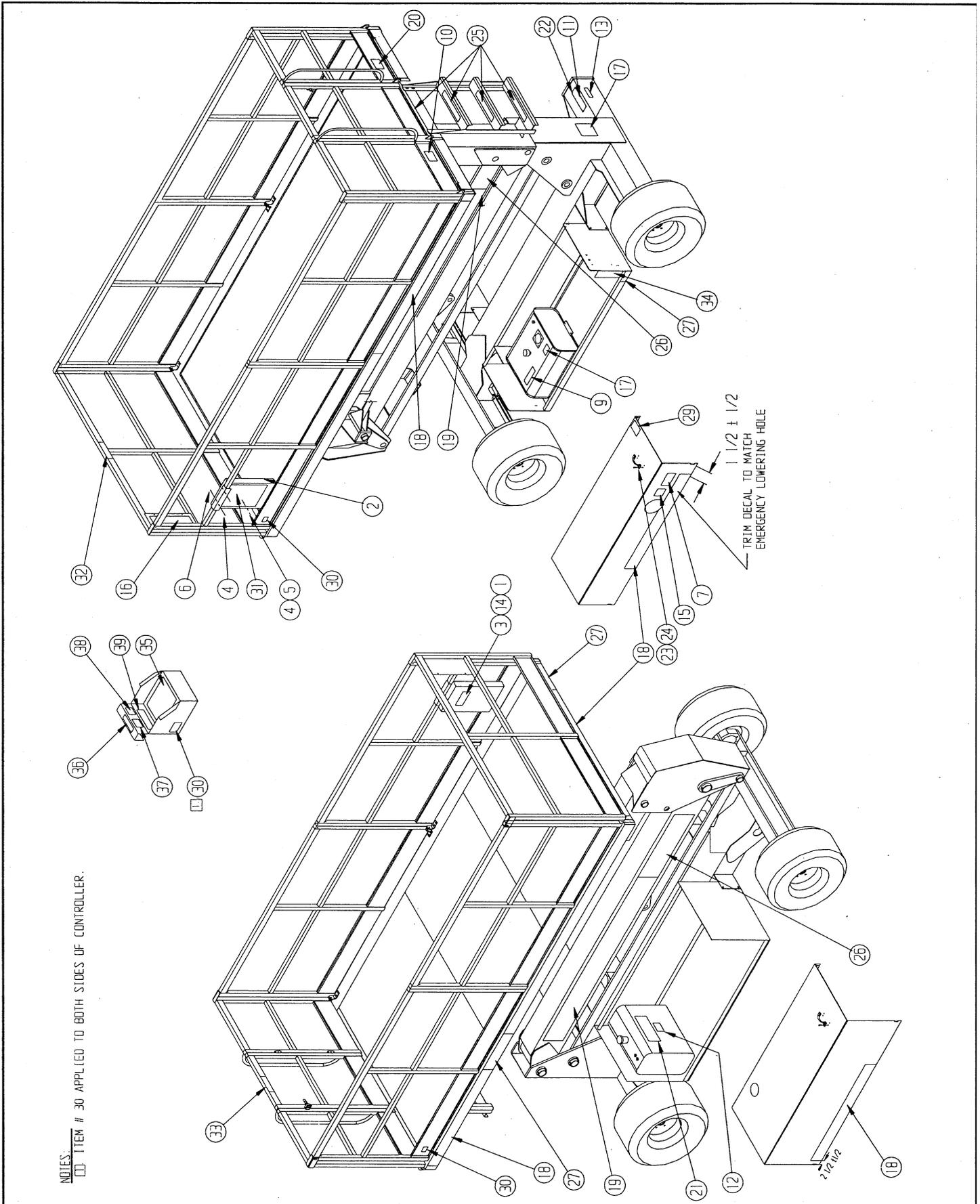
**LABEL INSTALLATION, SL26
DIESEL
64006-016**

Item	Part	Description	Qty.
1	60588-007	Manual, User	1
2	10076-000	Manual Case 1	
3	10076-001	Label - Safety Rules	1
4	11248-004	Locknut, 1/4-20 UNC Hex	4
5	11252-008	Screw, 1/4-20 UNC HHC x 1	2
6	11252-016	Screw, 1/4-20 UNC HHC x 2	2
7	66568-000	Label - Lower Platform	1
9	60197-000	Label - Hydraulic Fluid	1
10	66557-007	Label - Load 1500 Lbs	1
11	61205-000	Label - Name Plate	1
12	66552-000	Label - Danger Hydrogen Gas	1
13	61220-001	Label - Ansi Requirement	1
14	60577-000	Ansi Manual	1
15	62524-001	Label - Emergency Lowering	1
16	66550-002	Label - Danger Instructions	1
17	66555-000	Label - Caution Relief Valve	2
18	64048-000	Label - SI-26 4 x 40	5
19	64049-000	Label - SI-26 7 1/4 x 68 1/2	2
20	66562-000	Label - Tire Pressure 50 P.S.I.	1
21	27898-000	Label - Diesel Fuel	1
22	65368-000	Tack	4
23	25427-002	Handle	4
24	26553-002	Rivet Pop	16
25	60830-000	Safety Walk	4
26	64231-000	Label - Speed Level	2
27	66551-002	Label - Tipping Hazard	3
29	63423-000	Label - Brake Release	1
30	64444-000	Label - Usa (See Note-1)	4
31	64551-000	Manual Case Bracket	1
32	66551-003	Label - Tipping Hazard	1
33	66563-000	Label - Before Leaving	1
34	64414-000	Label - Controls	1
35	65791-000	Label - Controller	1
36	61515-000	Label - Lift	1
37	66554-000	Label - Read	1
38	64374-000	Label - Level	1
39	66551-004	Label - Danger	1

**LABEL INSTALLATION, SL30
DIESEL
64006-022**

Item	Part	Description	Qty.
1	60588-007	Manual, User	1
2	10076-000	Manual Case	1
3	10076-001	Label - Safety Rules	1
4	11248-004	Locknut, 1/4-20 UNC Hex	4
5	11252-008	Screw, 1/4-20 UNC HHC x 1	2
6	11252-016	Screw, 1/4-20 UNC HHC x 2	2
7	66568-000	Label - Lower Platform	1
9	60197-000	Label - Hydraulic Fluid	1
10	66557-005	Label - Load 1300 Lbs	1
11	61205-000	Label - Name Plate	1
12	66552-000	Label - Danger Hydrogen Gas	1
13	61220-001	Label - Ansi Requirement	1
14	60577-000	Ansi Manual	1
15	62524-001	Label - Emergency Lowering	1
16	66550-002	Label - Danger Instructions	1
17	66555-000	Label - Caution Relief Valve	2
18	64539-001	Label - SI-30 4 x 40	5
19	64539-000	Label - SI-30 7 1/4 x 68 1/2	2
20	66562-000	Label - Tire Pressure 50 P.S.I.	1
21	27898-000	Label - Diesel Fuel	1
22	65368-000	Tack	4
23	25427-002	Handle	4
24	26553-002	Rivet Pop	16
25	60830-000	Safety Walk	4
26	64231-000	Label - Speed Level	2
27	66551-002	Label - Tipping Hazard	3
29	63423-000	Label - Brake Release	1
30	64444-000	Label - Usa (See Note-1)	4
31	64551-000	Manual Case Bracket	1
32	66551-003	Label - Tipping Hazard	1
33	66563-000	Label - Before Exiing	1
34	64414-000	Label - Controls	1
35	65791-000	Label - Controller	1
36	61515-000	Label - Lift	1
37	66554-000	Label - Read	1
38	64374-000	Label - Level	1
39	66551-004	Label - Danger	1

Illustrated Parts Breakdown

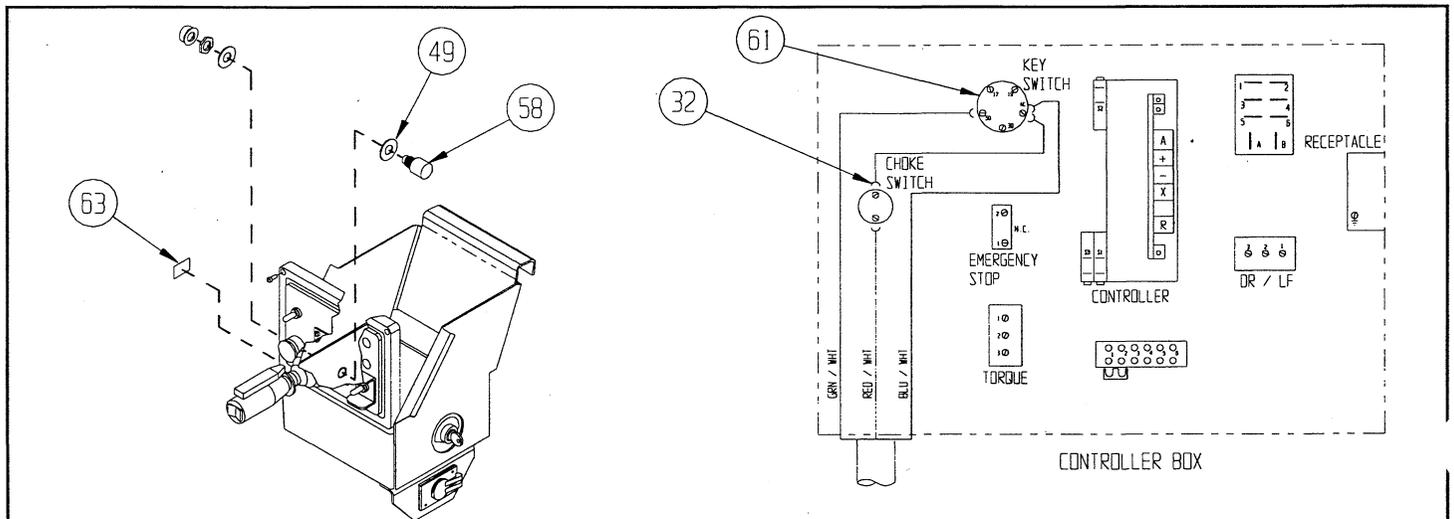


OPTION: KUBOTA DUAL FUEL ENGINE
DUAL FUEL
30755-000

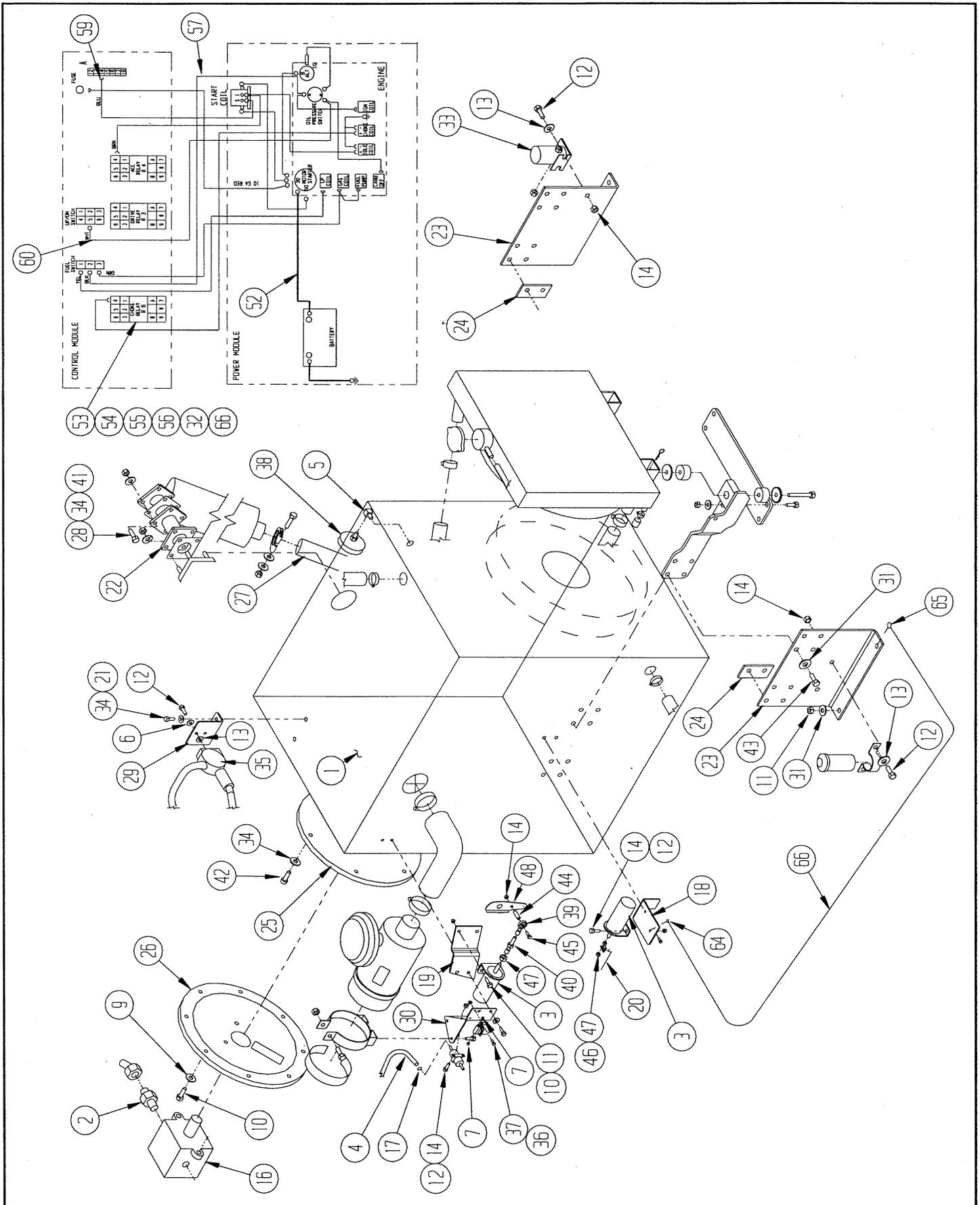
Item	Part	Description	Qty.
1	64505-000	Engine, Dual Fuel, Kubota	1
*	63936-011	Filter, Oil	1
*	64505-005	Switch, Oil Pressure	1
*	64505-008	Filter, Air	1
*	64505-009	Filter, Fuel	1
2	11934-019	Fitting Adapter	1
3	63941-000	Solenoid, Throttle & Choke	2
4	12739-099	Hose 1/4 ID	5'
5	03495-001	Fitting Adapter	1
6	11238-004	Lockwasher 1/4 Dia Split	2
7	10178-003	Fitting Adapter	3
8	11254-010	Screw 3/8-16 UNC HHC x 1 1/4	8
9	11238-006	Lockwasher 3/8 Dia Split	8
10	11254-008	Screw 3/8 - 16 UNC Hex x 1	12
11	11248-006	Locknut 3/8-16 UNC Hex	12
12	11252-006	Screw 1/4-20 UNC HHC x 3/4	11
13	11240-004	Washer 1/4 Dia Std Flat	6
14	11248-004	Locknut 1/4-20 UNC Hex	10
15*	30624-016	Module Tray Weldment	1
16	63902-014	Pump, Hydraulic	1
*	64488-009	Hose, Pump Supply	1
*	64156-033	Hose, Pump Return	1
17	63125-008	Clamp	5
18	30624-008	Choke Sol Bracket	1
19	30624-009	Coil Bracket	1
20	30624-020	Choke Rod	1
21	01253-006	Screw 5/16-18 HHC x 3/4	2
22	30624-013	Muffler Weldment	1
23	30624-007	Angle Mount	2
24	30624-021	Spacer, Engine	2
25	63939-000	Drive Plate	1
26	63938-000	Flywheel Cover	1
27	30624-014	Muffler Tail Pipe	1
28	11253-010	Screw, 5/16-18 HHC x 1 1/4	4
29	30624-011	Reg. Bracket	1
30	30624-012	Air, Fuel & Gas Bracket	1
31	11240-006	Washer 3/8 Dia Std Flat	10
32	29610-002	Conn., Fork 14-16 #8	9
33	27972-000	Starter Sol.	1
34	11238-005	Lockwasher 5/16 Dia Split	14

Item	Part	Description	Qty.
35	63957-000	Propane Conversion Kit	1
*	63934-002	Regulator, L.P. Gas	1
*	63934-003	Solenoid, Propane	1
*	63934-004	Solenoid, Gasoline	1
*	63934-005	Adapter, Carburetor	1
36	11275-006	Screw 10-32 UNC HHC x 3/4	2
37	11249-003	Locknut 10-32 UNC Hex	2
38	63945-001	Switch, Pressure	1
39	11760-004	Rod End	1
40	64423-000	In-line Swivel	1
41	11250-005	Nut 5/16-18 UNC Hex	4
42	11287-008	Screw 5/16-18 UNC Soc Hd x 1	8
43	63946-030	Screw 10M x 1.25 HHC x 30MM	12
44	18024-002	Tube 3/8 OD x .049 Wall x 7/8	1
45	11252-014	Screw 1/4-20 UNC HHC x 1 3/4	1
46	30624-019	Choke Angle	1
47	11261-004	Nut 1/4-28 UNF Hex	3
48	30624-022	Com. Lever Control	1
49	11240-010	Washer, Flat 3/8	2
50*	64157-000	Hose, Hydraulic Return	1
51*	64156-000	Hose, Hydraulic Supply	1
52	64275-034	Cable, Batt. x 34	1
53	27962-000	Relay, Choke	1
*	29601-014	Conn., Ring 14-16 1/4 Dia	1
*	29458-099	Wire, 16 AWG THHN Strd Cop Vio	4'
*	29459-099	Wire, 16 AWG THHN Strd Cop Blu/Wht	4'
54	27963-000	Socket, Relay	1
55	11248-047	Locknut 6-32 UNC Hex	2
56	11715-006	Screw 6-32 UNC x 3/4	2
57	30624-017	Wire Loom	1
58	63917-000	Switch, Choke Push Button	1
59	29610-002	Conn, Fork 16-14 x #8	2
60	29451-099	Wire 16 AWG Wht	1'
61	63936-006	Switch, Key	1
-	63936-015	Key (only)	1
63	30624-024	Label, Choke Button	1
64	29601-014	Conn., Ring 16-14 Ga 1/4 Dia.	1
65	29601-021	Conn., Ring 12-10 Ga 3/8 Dia.	1
66	29452-099	Wire, 16 Ga Blk	5'

*Not Shown

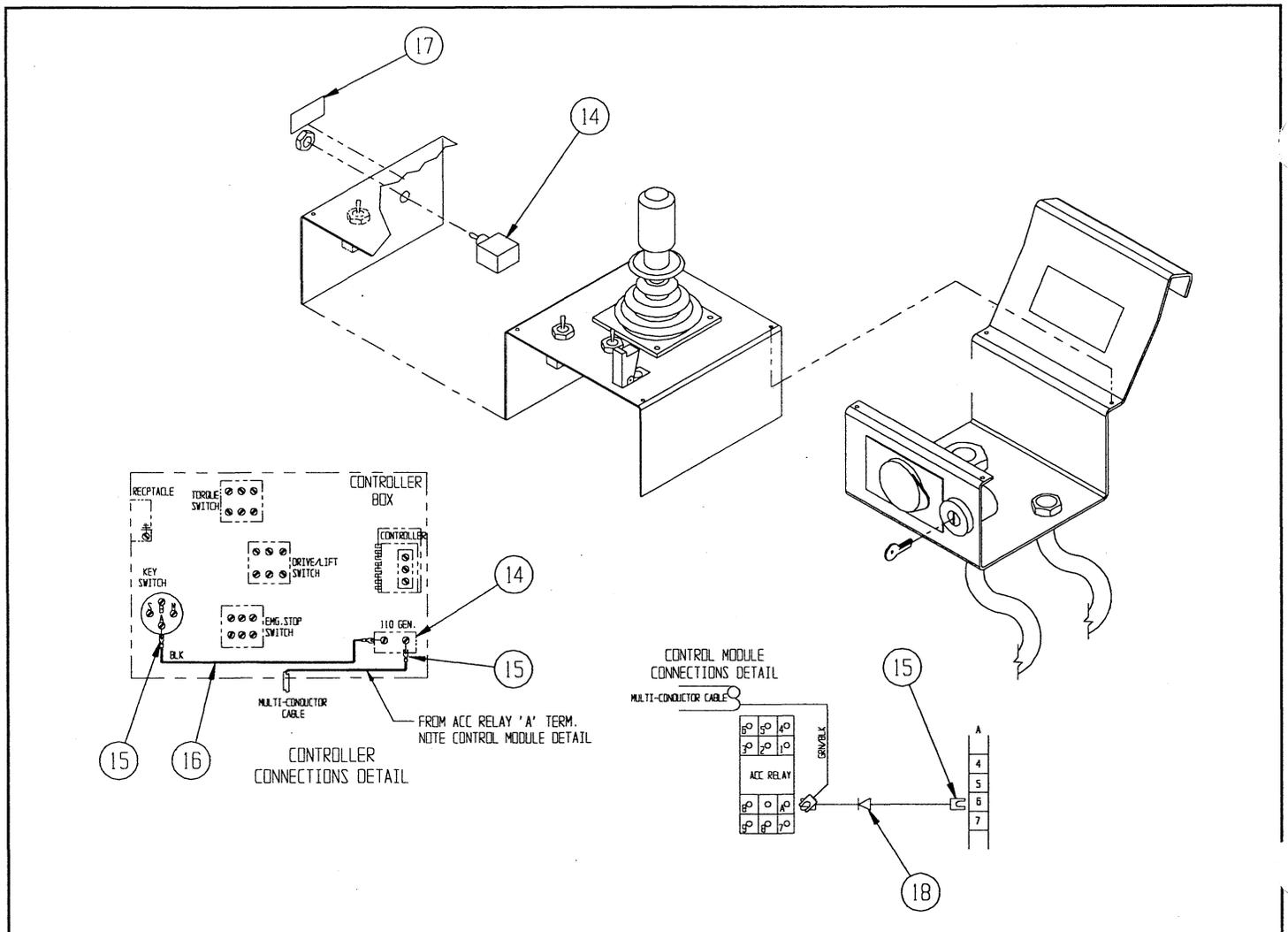


Illustrated Parts Breakdown

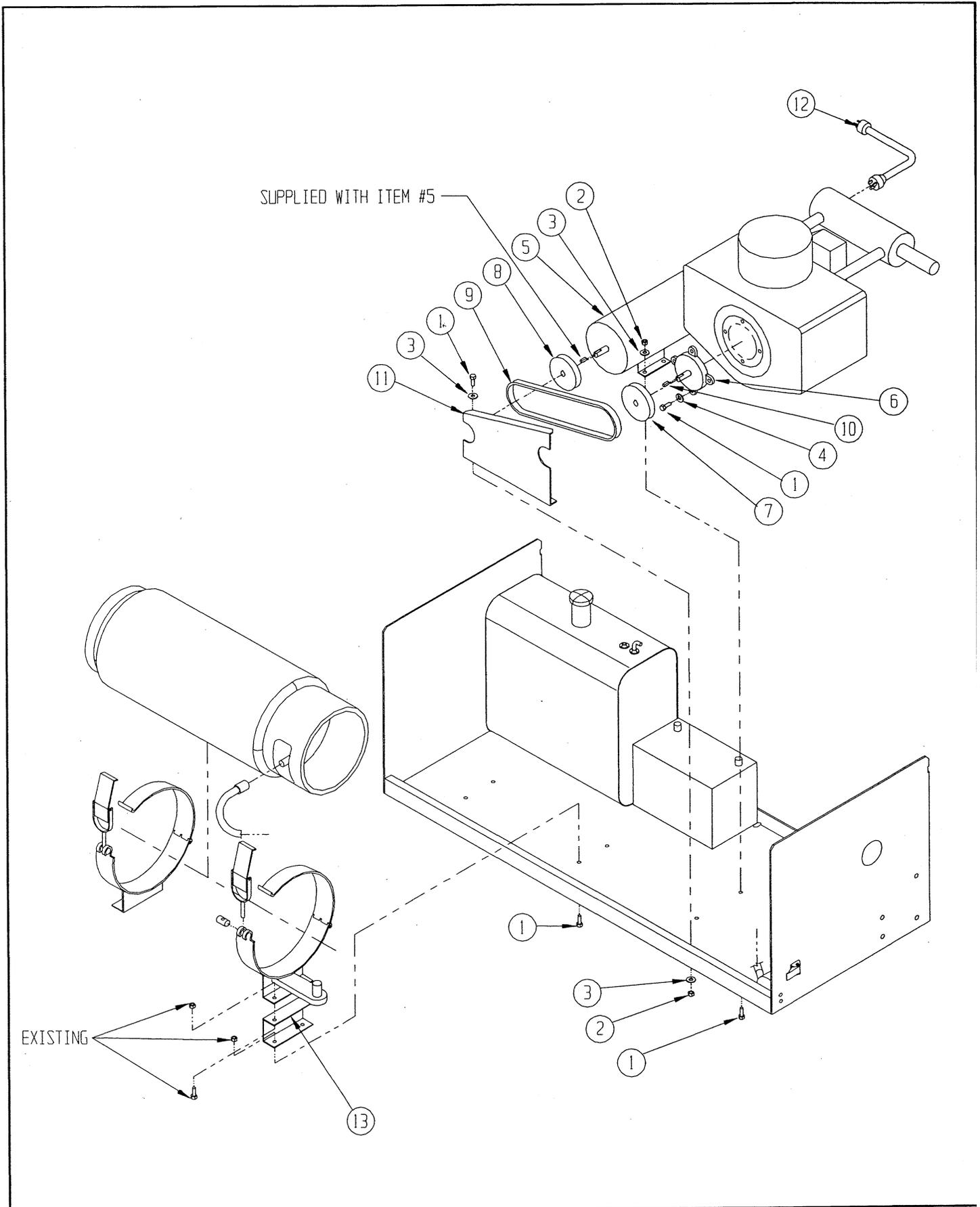


OPTION: GENERATOR
DUAL FUEL, KOHLER ONLY
 63994-001

Item	Part	Description	Qty.
1	11254-008	Screw 3/8-16 UNC HHC X 1	14
2	11248-006	Locknut 3/8-16 UNC Hex	10
3	11240-006	Washer 3/8 Dia Std Flat	8
4	11238-006	Lockwasher 3/8 Dia Split	4
5	27979-000	Generator	1
6	63918-000	Drive Shaft	1
7	63949-043	Pulley	1
8	63949-040	Pulley	1
9	11675-090	Belt - V	1
10	19102-006	Bar 1/4 Sq X 3/4 CRS	1
11	64210-000	Guard	1
12	64212-000	Cord Assy	1 *
13	64041-000	Bracket-Propane Tank	2
14	12797-000	Switch	1
15	29610-002	Conn Term	7
16	29452-099	Wire 16 AWG THHN Strd Black	.5'
17	64211-000	Label - Off On	1
18	29825-002	Diode	2



Illustrated Parts Breakdown

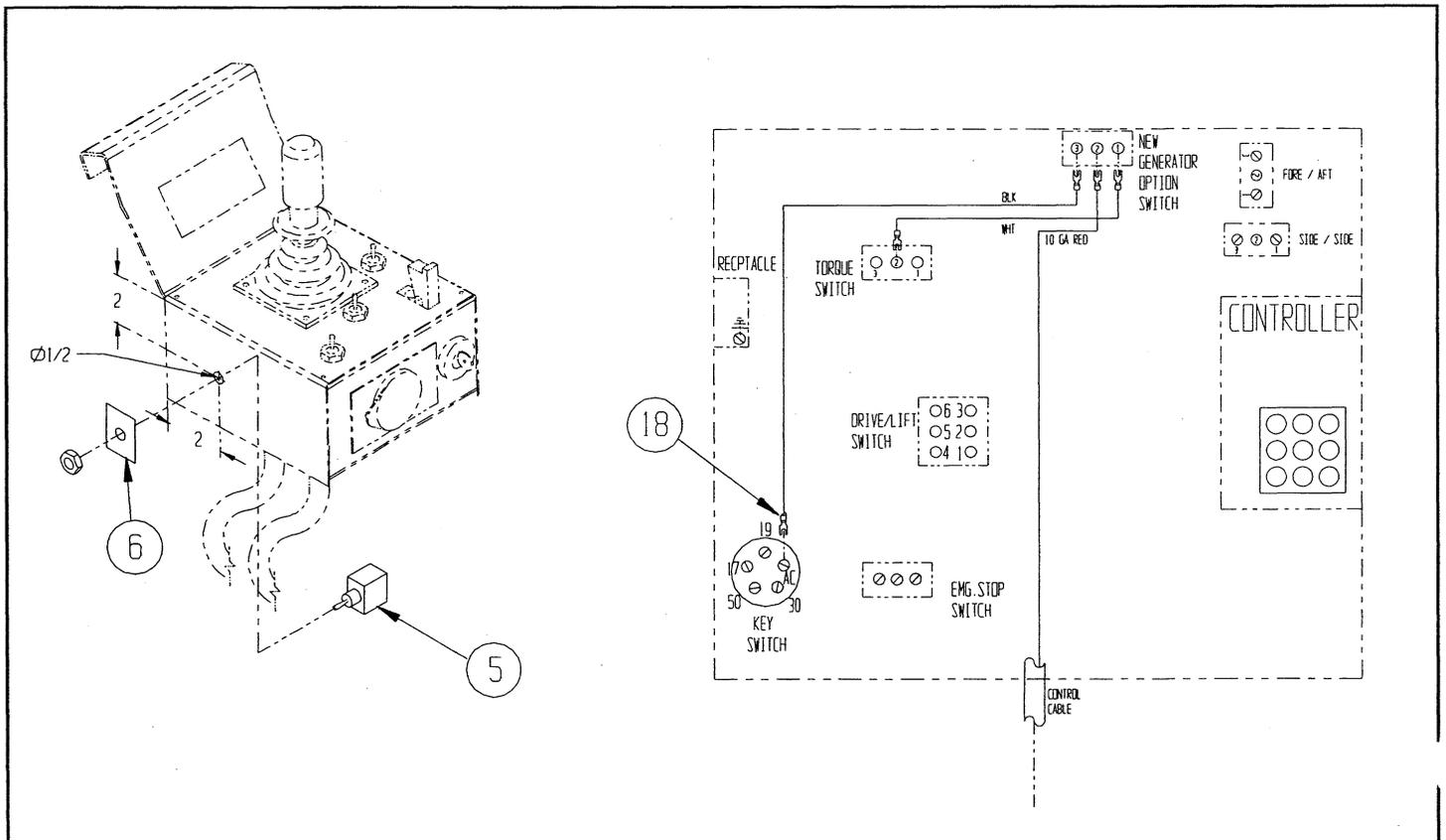


OPTION: GENERATOR

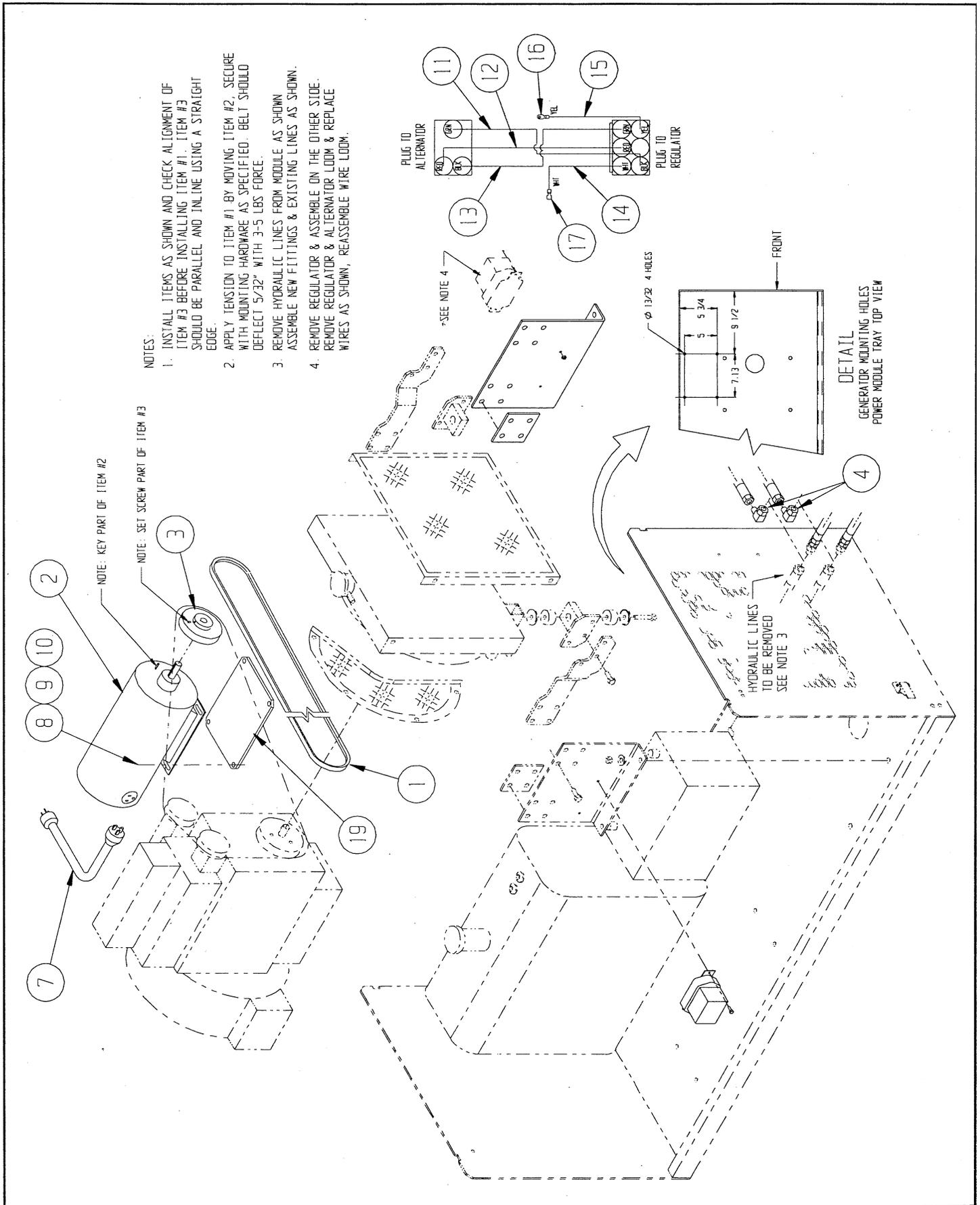
DIESEL

63994-002

Item	Part	Description	Qty.
1	11994-009	V-Belt	1
2	27979-000	Generator	1
3	63949-040	Pulley	1
4	11937-004	Fitting 90°	2
5	12797-000	Switch, Toggle	1
6	64211-000	Label, On-Off	1
7	64212-000	Cord Ass'y	1
8	11254-010	Screw 3/8-16 HHC X 1 1/4" Lg	4
9	11240-006	Washer 3/8 Std Flat	4
10	11248-006	Locknut 3/8-16 UNC	4
11	29457-099	Wire 16 Awg Grn	2.5'
12	29454-099	Wire 16 Awg Red	2.5''
13	29452-099	Wire 16 Awg Blk	2.5'
14	29451-099	Wire 16 Awg Wht	2.7'
15	29456-099	Wire 16 Awg Yel	2.7'
16	29601-013	Conn. Ring 16-14 #10	1
17	29617-002	Conn. M Tab 16-14 .25	1
18	29610-004	Conn. Fork 16-14 #10	4
19	64389-000	Spacer Generator	1

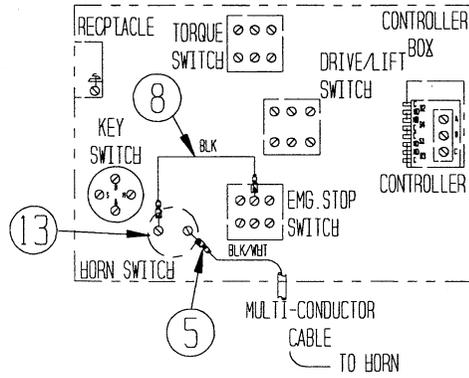


Illustrated Parts Breakdown

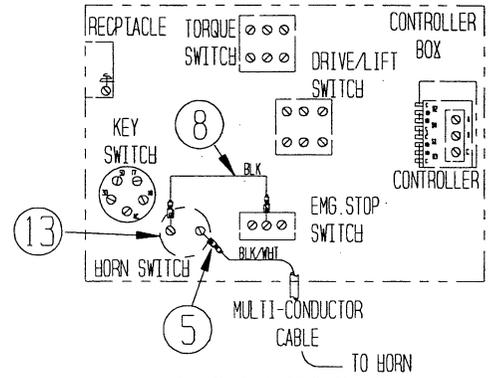


OPTION: HORN & FLASHING BEACON
DUAL FUEL & DIESEL
63999-001

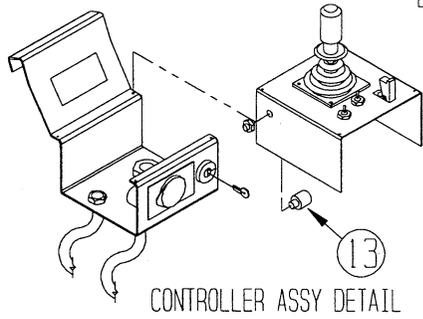
Item	Part	Description	Qty.
1	12848-004	Light 12-24 Volt	2
2	63193-000	Light Mount Bracket	2
3	29702-000	Fuse Holder	1
4	29704-002	Fuse 2 Amp	1
5	29610-002	Term, Fork	5
6	29601-013	Term. Ring	1
7	29620-002	Connect, Butt	1
8	29452-099	Wire 16 GA Blk	17'
9	11249-003	Locknut 10-32 Hex	4
10	11826-004	Screw 10-32 Rd Hd Mach x 1/2	4
11	29958-001	Horn 12v	1
13	63917-000	Switch	1
14	29918-010	Tie Down	5
15	26551-007	Pop Rivet 1/8 x .251 Grip	5
16	29452-099	Wire 16 AWG Black	.5'
17	29931-003	Conn. Fm Push 16-14 1/4	2
18	29601-014	Conn. Ring 16-14 1/4	1
19	11248-004	Locknut 1/4 - 20 UNC Hex	1
20	11252-006	Screw 1/4 - 20 UNC HHC x 3/4	1



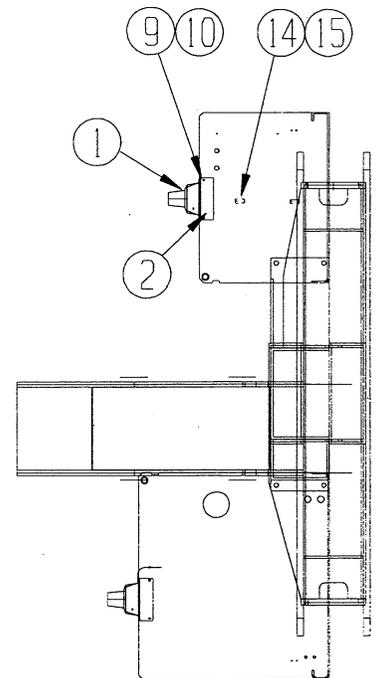
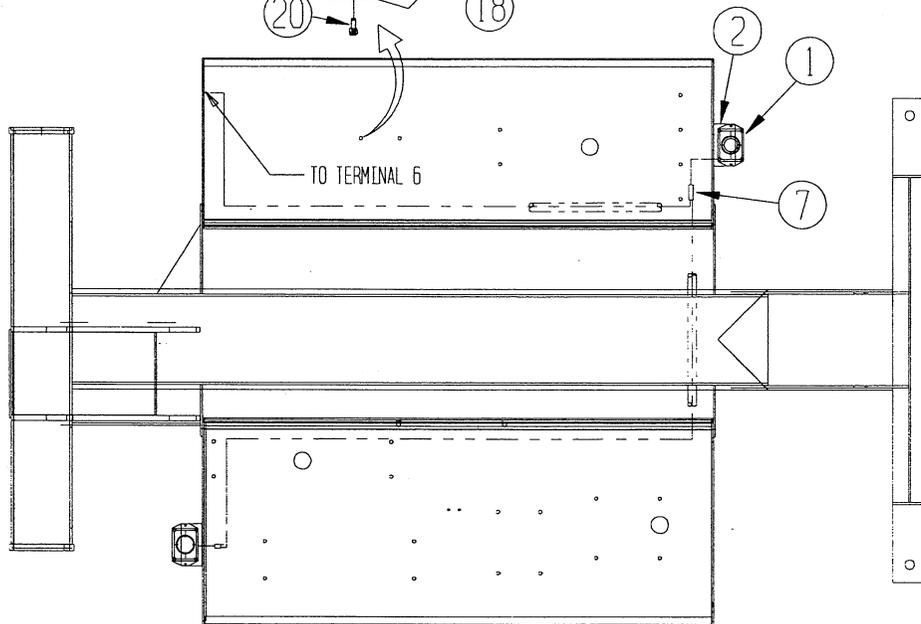
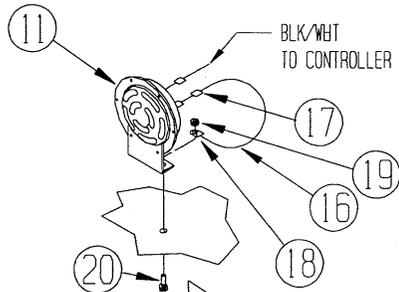
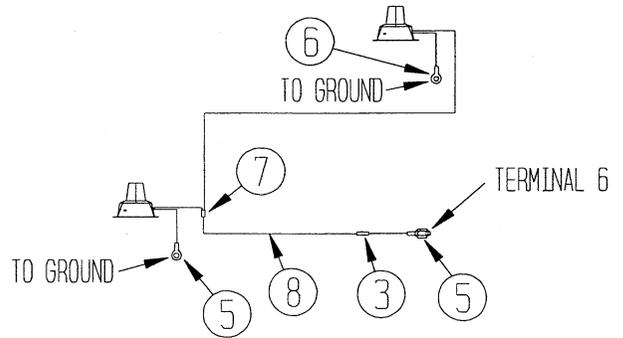
ELECTRIC SCHEMATIC
DUAL FUEL



ELECTRIC SCHEMATIC
DIESEL



CONTROLLER ASSY DETAIL



OPTION: DECK EXTENSION, SL26 ONLY
DUAL FUEL & DIESEL
64251-000

Item	Part	Description	Qty.
1	64241-000	Weldment - Side Rail	1
2	64242-000	Weldment - Side Rail	1
3	64243-000	Weldment - Front Rail	1
4	64245-000	Weldment - Front Rail	1
5	64255-000	Floor - Diamond Aluminum	1
6	63727-000	Block	2
7	64233-000	Wheel	2
8	64234-000	Wheel	2
9	64235-000	Washer	4
10	64239-000	Clip - Guardrail	2
11	64425-000	Weldment Slide Bracket	2
12	63990-003	Axle	2
13	64249-000	Bushing - Spanner	2
14	64256-000	Bearing Strip	1
15	64265-000	Cusset Plate	2
16	64267-000	Bumper Pad	4
18	64273-000	Bracket - Rear Wheel	2
19	64270-000	Handle	2
20	63926-001	Cap	4
21	64248-000	Pin - Quick Release	2
22	26553-008	Rivet - Pop 3/16 Dia 1/2-5/8 Grip	10
23	26553-002	Rivet - Pop 3/16 Dia 1/8-1/4 Grip	37
24	11240-004	Washer 1/4 Std. Flat	20
25	64240-000	Bushing	2
26	11254-018	Screw - Cap 3/8-16 x 2 1/4	10
27	11252-008	Screw - Cap 1/4-20 x 1	8
28	11254-010	Screw - Cap 3/8-16 x 1 1/4	4
29	11252-024	Screw - Cap 1/4 - 20 x 3	2
30	11248-004	Locknut 1/4-20	16
31	12553-008	Screw 1/4-20 UNC Soc Hd x 1	4
32	11248-006	Locknut 3/8-16	16
33	11240-006	Washer 3/8 Std Flat	16
34	10080-006	Tree Clip	6
35	64259-000	Slide Weldment R.H.	1
36	64260-000	Slide Weldment L.H.	1
37	11240-002	Washer #8	6
38	64247-000	Guide Slide	2
39	11254-020	Screw - Cap 3/8 -16 x 2 1/2	6
40	11252-016	Screw - Cap 1/4-20 x 2	4
41	11252-012	Screw - Cap 1/4 -20 x 1 1/2	2
42	66550-004	Label, Danger	1
43	66551-003	Label, Danger	1
44	66557-001	Label, Caution 500 lbs. Cap.	1

NOTES

UpRight

Call Toll Free in U.S.A.

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Selma, California 93622

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