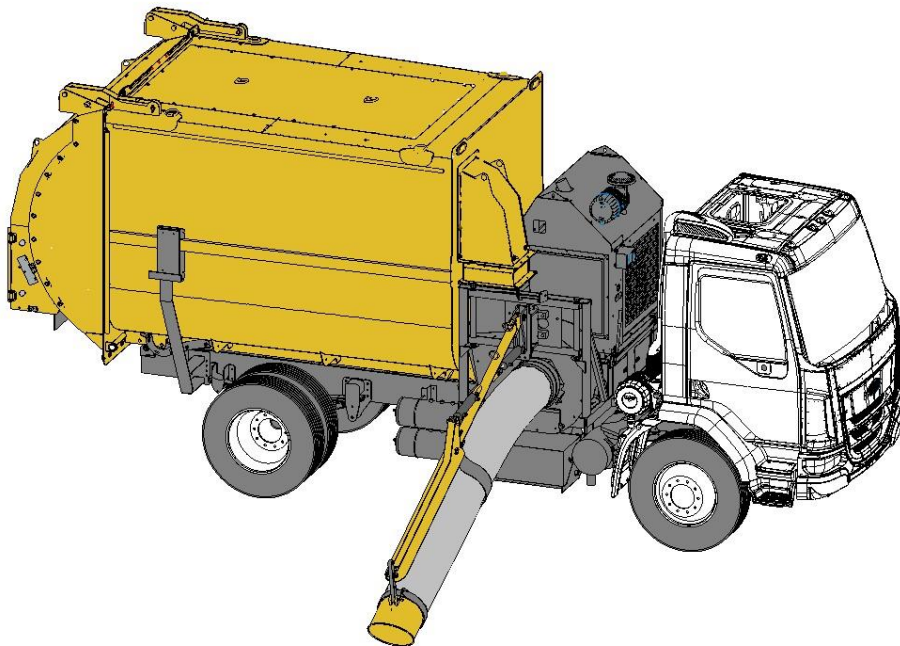




**OPERATION & MAINTENANCE MANUAL**  
**FOR MODEL YEARS 2021 & NEWER**

Release Date: 12/30/22



WHEN ORDERING PARTS, PLEASE REFER TO THE  
VIN NUMBER AND "TYPE OF VEHICLE" OF YOUR LEAF VACUUM.

RECORD THEM FROM THE VIN TAG ON THE  
FRONT DRIVER'S SIDE OF THE TRAILER:

OLYMPIAN LEAF VACUUM VIN: \_\_\_\_\_

TYPE OF TOW VEHICLE: \_\_\_\_\_

OLYMPIAN ENGINE MODEL NO: \_\_\_\_\_

OLYMPIAN ENGINE SERIAL NO: \_\_\_\_\_

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Bonnell Industries

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Dixon, IL 61021

800-851-9664

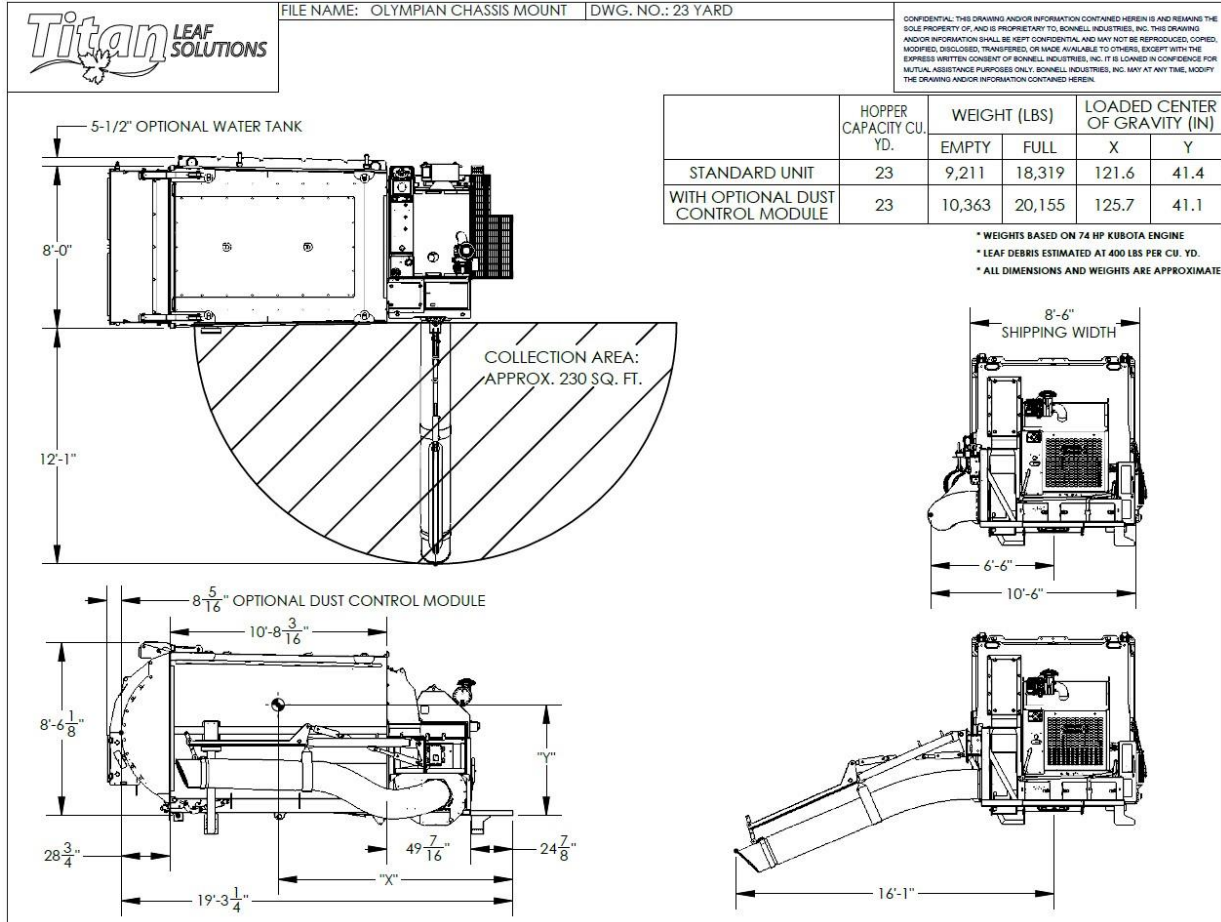
[www.bonnell.com](http://www.bonnell.com)

[www.titanleafpro.com](http://www.titanleafpro.com)

# Specifications & Dimensions

## 1 DIMENSIONAL DATA

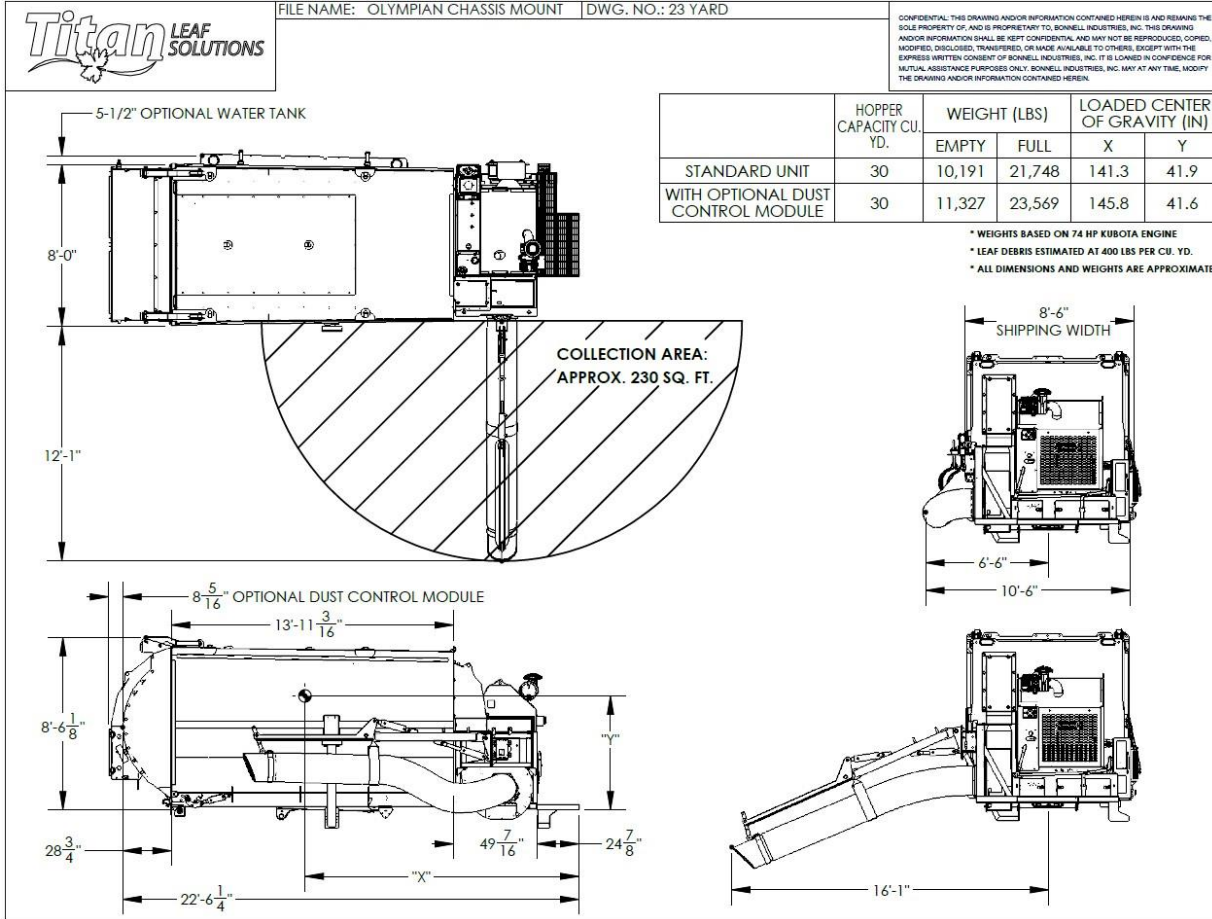
### 1.1.1 OLYMPIAN DIMENSIONS



### SPECIFICATIONS

Collection Box Capacity .....	23 yd <sup>3</sup>
Standard Unit Empty Weight .....	9,211 lbs
Standard Unit Full Weight.....	18,319 lbs
With Optional Dust Control Module Empty Weight.....	10,363 lbs
With Optional Dust Control Module Full Weight.....	20,155 lbs
Approximate Density of Compacted Leaves .....	400 lbs/yd <sup>3</sup>
Density of leaf debris may vary. All weights and dimensions are approximate.	

# Specifications & Dimensions



## SPECIFICATIONS

Collection Box Capacity .....	30 yd <sup>3</sup>
Standard Unit Empty Weight .....	10,191 lbs
Standard Unit Full Weight.....	21,748 lbs
With Optional Dust Control Module Empty Weight.....	11,327 lbs
With Optional Dust Control Module Full Weight.....	23,569 lbs
Approximate Density of Compacted Leaves .....	400 lbs/yd <sup>3</sup>

Density of leaf debris may vary. All weights and dimensions are approximate.



# Safety Information


## 2 GENERAL SAFETY INFORMATION





### 2.1.1 SAFETY ALERT SYMBOLS AND SIGNAL WORDS

This manual contains information pertaining to the leaf vacuum equipment along with general information for mounting this equipment on a vehicle chassis. Always follow the vehicle manufacturer's guidelines and instructions for proper mounting of equipment onto a vehicle chassis.

The shipping width of this equipment is 102" wide, which is within legal vehicle width for all US interstates and federally designated state highways. When transporting on other roadways, consult local and state laws regarding legal vehicle width.

This leaf vacuum is built with components produced by various manufacturers. Some of these components have separate instruction manuals, many of which are included in this manual. Call 800-851-9664 for replacement manuals that are available from Bonnell Industries at no charge.

The safety information in this manual is denoted by the safety alert symbol . The level of risk is indicated by the following signal words:

 <b>DANGER</b>
<b>DANGER</b> – Immediate hazards which WILL result in severe personal injury or death if the warning is ignored.
 <b>WARNING</b>
<b>WARNING</b> – Hazards or unsafe practices which COULD result in severe personal injury or death if the warning is ignored.
 <b>CAUTION</b>
<b>CAUTION</b> – Hazards or unsafe practices which could result in minor or moderate injury if the warning is ignored.
 <b>NOTICE</b>
<b>NOTICE</b> – Practices that could result in damage to the leaf vacuum equipment or other property.



## Safety Information

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### 2.1.2 PROPOSITION 65 WARNING

#### WARNING

Operating, servicing and maintaining a passenger vehicle or off-highway motor vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to [www.P65Warnings.ca.gov/passenger-vehicle](http://www.P65Warnings.ca.gov/passenger-vehicle).

#### WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- Always start and operate the engine in a well-ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.

For more information go to [www.P65warnings.ca.gov/diesel](http://www.P65warnings.ca.gov/diesel).

#### WARNING

Processing wood products can expose you to wood dust, a substance known to the State of California to cause [cancer](#). Avoid inhaling wood dust or leaf debris or use a dust mask or other safeguards for personal protection. For more information go to [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood).

## Safety Information

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### 2.1.3 VEHICLE OVERLOADING

An overloaded vehicle can create dangerous stability and braking problems. The vehicle chassis must be properly sized to not exceed the front / rear GAWR (gross axle weight rating), or total GVWR (gross vehicle weight rating). Refer to the vehicle chassis manufacturer for the chassis ratings. Other considerations for chassis overloading are:

- While operating leaf collection equipment, never exceed the available payload.
- When determining available payload, always account for the weight of optional equipment, operator(s), and completely filled fuel, oil and water tanks.
- Leaf debris is normally estimated at 400 lbs. per cubic yard. The actual weight may vary depending on climate and type of debris being collected.

### 2.1.4 SAFE DRIVING DURING LEAF COLLECTION OPERATIONS

The leaf collection equipment adds substantial width, height and weight to the vehicle. It is imperative the driver be trained on the safe operation of this vehicle.

- The collection arm and hose add additional width to the vehicle. Ensure enough distance is provided when passing objects.
- Be aware of overhead obstructions such as tree branches and power lines.
- The added weight of the leaf vacuum equipment and debris will increase the required stopping distance.
- Use flashing warning lights during leaf collection operations.
- Leaf collection generates dust which may reduce visibility around the vehicle.
- Always operate the vehicle at a safe speed.
- Never allow riders on leaf vacuum equipment. The operator(s) should be properly seated inside the vehicle cab with seat belts fastened.
- Always be aware of pedestrians near the vehicle.
- Know how to shut down the equipment in an emergency situation.

### 2.1.5 SAFETY WARNING LABELS ON THE LEAF VACUUM EQUIPMENT

Below are illustrations of the safety warning labels applied to the leaf vacuum equipment. Familiarize yourself with their locations & importance. To protect you and others against serious injury or death, all of the labels shown below must be on the equipment and be legible. If any safety labels are missing or illegible, contact Bonnell Industries for free replacements.

<b>⚠ DANGER</b>	
	<b>CRUSHING HAZARD</b> Serious injury or death will occur
	<ul style="list-style-type: none"> <li>• Stay clear of a raised dump body. If service work is required, make sure the body prop is properly used.</li> <li>• Dump body must be empty when using body prop.</li> <li>• Return the body prop to its storage position after service work is completed.</li> <li>• Body must be completely lowered when unattended.</li> </ul>

BON-011376

<b>⚠ DANGER</b>	
	<b>FALL/CRUSH HAZARD</b> Serious injury or death could result from being crushed by moving machinery and revolving tires. <b>NO RIDERS!</b>
	<ul style="list-style-type: none"> <li>• Only the machine operator shall occupy the machine when traveling or in operation.</li> <li>• Do not stand, ride, or sit on machine.</li> <li>• Keep clear when machine is in operation.</li> <li>• Avoid driver and machine operator blind spots at all times.</li> </ul>

<b>⚠ DANGER</b>	
	<b>FALL/CRUSH HAZARD</b> Serious injury or death could result from being crushed by moving machinery and revolving tires. <b>NO RIDERS!</b>
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LV-2152\_REV2\_9.26.16 DECAL SET FOR TITAN & SPARTAN LEAF PRO SERIES

(APPLY TO BOTH SIDES OF FRAME, DIRECTLY IN FRONT OF CENTER MOUNT POINT)

<b>NOTICE</b>	
<p>Bonnell Industries is not an authorized service center for engines, nor do we stock parts for these engines. Please refer to your engine manual, the yellow pages or internet to find your local authorized engine service center.</p>	

B.ZV-1660

<b>⚠ WARNING</b>	
	<b>CRUSHING HAZARD</b> Serious injury or death can occur
	<ul style="list-style-type: none"> <li>• Stay clear while loading, unloading, raising, or lowering dump body.</li> </ul>

BON-011377

<b>⚠ CAUTION</b>	
<ul style="list-style-type: none"> <li>• Read and understand Operator's Manual before operating unit. Free replacement manuals are available from Bonnell Industries.</li> <li>• Keep all shields and guards in place and in good working condition. Keep hands, feet, and clothing away from all moving parts.</li> <li>• Keep others away while operating or loading equipment. Do not allow children or untrained persons to operate or play on equipment.</li> <li>• Stop vehicle, disengage power, stop engine, set parking brake and remove key before leaving vehicle. Make sure all movement has stopped before servicing machine.</li> <li>• Failure to follow safety rules can result in serious injury or death.</li> </ul>	

BON-011377

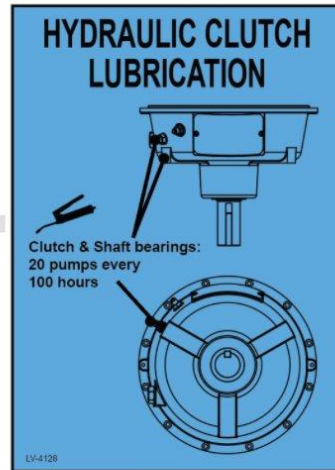
(APPLY DIRECTLY ABOVE YELLOW EMERGENCY SHUT OFF BUTTONS)

<b>EMERGENCY ENGINE SHUT-OFF</b>
----------------------------------

<b>EMERGENCY ENGINE SHUT-OFF</b>
----------------------------------

 <p style="text-align: center;"><b>USE 3 POINTS OF CONTACT</b></p>	 <p style="text-align: center;"><b>WHEN ENTERING OR EXITING VEHICLE</b></p>
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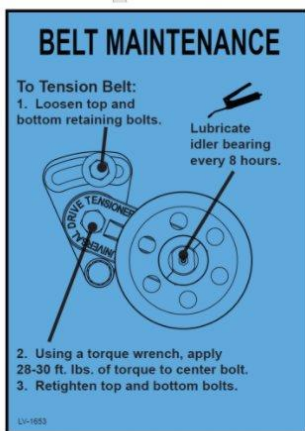
# Safety Information



LV-4128



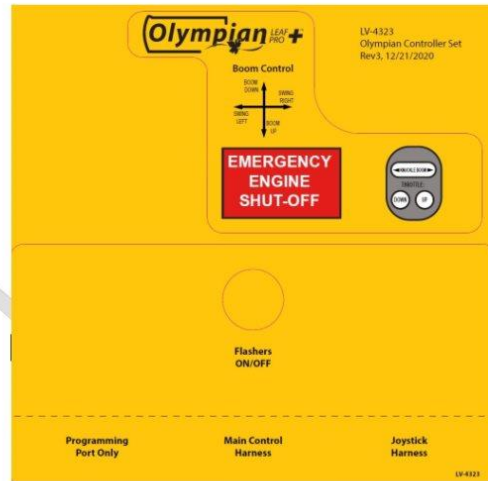
DECAL SET  
LV-1232



LV-1653



# Safety Information



LV-4323



LV-1232

<b>⚠ DANGER</b>	<b>ENTANGLEMENT HAZARD</b> Serious injury or death will occur • Shut down engine & disconnect safety interlock before removing hose or guards.
<b>⚠ WARNING</b>	<b>PERSONAL INJURY HAZARD</b> • Head, Eye and Ear Protection required while operating this machine.
<b>⚠ WARNING</b>	<b>LOSS OF CONTROL HAZARD</b> • Check wheels when servicing or parking machine.

LV-1232

<b>⚠ DANGER</b>	<b>PERSONAL INJURY HAZARD</b> Serious injury or death will occur • Read and understand operator's manual before operating machine. • Operator seat for leaf collection purposes only. • Seat belt required at all times. • Max speed with operator not to exceed 5 MPH.
<b>⚠ WARNING</b>	<b>PERSONAL INJURY HAZARD</b> • Head, Eye and Ear Protection required while operating this machine.
<b>PRESTART CHECKLIST</b>	
<ul style="list-style-type: none"> <li>✓ INSPECT TIRES</li> <li>✓ ENGINE OIL &amp; FUEL LEVELS</li> <li>✓ CHECK ALL LIGHTS</li> <li>✓ HYDRAULIC OIL LEVEL</li> <li>✓ WATER LEVEL</li> </ul>	<ul style="list-style-type: none"> <li>✓ INSPECT HOSE FOR WEAR</li> <li>✓ PICK-UP HOSE SECURE</li> <li>✓ CHECK BELT TENSION</li> <li>✓ ALL GUARDS IN PLACE</li> <li>✓ DISENGAGE CLUTCH</li> </ul>
<b>⚠ WARNING</b>	<b>COLLISION HAZARD</b> Serious injury or death could occur • Secure Pick-up nozzle for transport.
<b>STOP</b>	<b>SAFETY LATCH MUST BE RELEASED BEFORE OPERATING BOOM AND SECURED BEFORE TRANSPORTING OR SERVICING MACHINE.</b>
<b>⚠ WARNING</b>	<b>FIRE HAZARD</b> • Keep engine and engine area free of leaf debris buildup.

# Safety Information



	<b>DANGER</b> <b>ENTANGLEMENT HAZARD</b> Serious injury or death will occur • Shut down engine & disconnect safety interlock before removing hose or guards.
	<b>WARNING</b> <b>PERSONAL INJURY HAZARD</b> • Head, Eye and Ear Protection required while operating this machine.
	<b>WARNING</b> <b>HEAVY IMPACT HAZARD</b> Serious injury or death could occur • Inspect fan and liners for wear or damage every 80 hours. • Perform an inspection immediately if vibration occurs, or if large heavy debris is run through the machine.
	<b>WARNING</b> <b>LOSS OF CONTROL HAZARD</b> • Chock wheels when servicing or parking machine.

LV-1232

**NOTICE**

FAN ROTATION

LV-4324

LV-2093

**OPERATION OF BODY PROP**

This machine is equipped with:

- ( ) 1 Body Prop
- ( ) 2 Body Props

**TO USE BODY PROP(S):**

1. Raise body to height where prop(s) can be swung upward into position. Place the hoist control valve in the neutral (hold) position.
2. Locate prop(s) (behind loader, and swing "up" to the support position).
3. Lower body slowly until prop(s) rests on prop receiver. Do not power hoist down. Place the hoist control valve in the neutral (hold) position.

**TO STORE THE PROPS:**

4. Raise body to a height where the prop(s) will clear the prop receiver. Be sure the hoist control valve is in the neutral (hold) position.
5. Swing prop(s) down to stow position. Before lowering body be certain that the area is clear.

TT13169

LV-2093

**LUBRICATE HOIST EVERY 100 HRS.  
3 PUMPS EACH LOCATION**

**DANGER**  
**CRUSHING HAZARD**  
Serious injury or death will occur  
• Body prop is properly used when lubricating hoist.

UPPER HINGE: 2 PLACES ALL MODELS  
MIDDLE HINGE: 3 PLACES SINGLE CYLINDER, 4 PLACES DUAL CYLINDER  
LOWER HINGE: 5 PLACES SINGLE CYLINDER, 6 PLACES DUAL CYLINDER

BON-011376

**DANGER**

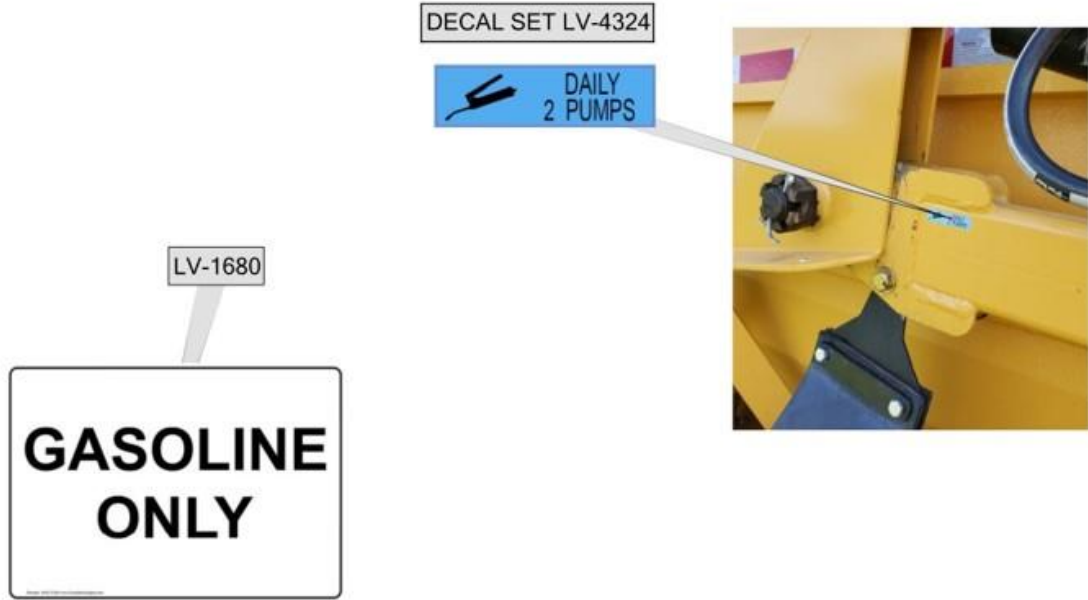
**CRUSHING HAZARD**  
Serious injury or death will occur

- Body prop must be in place while performing service work with the dump body raised.
- Dump body must be empty while performing service work.

BON-011376



# Safety Information



# Safety Information



**HYDRAULIC FLUID ONLY. FILL LINE:**

**CAUTION**

**EQUIPMENT DAMAGE HAZARD**  
 Serious injury or death could occur

- Do not operate engine with ball valve closed.
- Close valve to change hydraulic filter.

DECAL SET LV-4324

**DANGER**

**EXPLOSION HAZARD**  
 Serious injury or death will occur

- No smoking.
- Keep open flame away.
- Do not weld, cut or burn on or near fuel tank.

**ULTRA LOW SULFUR DIESEL FUEL ONLY**

DECAL SET LV-4324



**EMERGENCY ENGINE SHUT-OFF**

DECAL SET LV-2152

BJV-1660

**NOTICE**

Bonnell Industries is not an authorized service center for engines, nor do we stock parts for these engines. Please refer to your engine manual, the yellow pages or internet to find your local authorized engine service center.

DECAL SET LV-4324

**NOTICE**

**TO OPERATE THE CLUTCH:**

Make sure that there is free play in the engagement handle prior to operation of the power take-off.

If no free play is evident, see adjustment procedure in manual.

1. Engine should be started and running at low idle speed, 1000 rpm or less.
2. Engage the PTO clutch with one single hand lever movement.

Do not slip the clutch for longer than one or two seconds without completely engaging it or disengaging it and allowing it to coast.

Set engine to idle speed before disengaging clutch.

**CLUTCH ADJUSTMENT:**

Clutch adjustment should be checked after the first eight hours of operation.

Adjustments should be made at the ten to fifteen hour intervals thereafter until the new plates are worn in.

Refer to clutch manual for proper adjustment procedures.



BON-011377

**CAUTION**

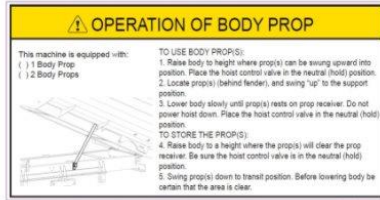
- Read and understand Operator's Manual before operating unit. Free replacement manuals are available from Bonnell Industries.
- Keep all shields and guards in place and in good working condition. Keep hands, feet, and clothing away from all moving parts.
- Keep others away while operating or loading equipment. Do not allow children or untrained persons to operate or play on equipment.
- Stop vehicle, disengage power, stop engine, set parking brake and remove key before leaving vehicle. Make sure all movement has stopped before servicing machine.
- Failure to follow safety rules can result in serious injury or death.





# Safety Information

DECAL SET LV-2093



DECAL SET LV-2093



BON-011377



TT13169



DECAL SET LV-1232



TT13169



BON-011376



DECAL SET LV-4324



BON-011375

## Safety Information

### 2.1.6 GENERAL SAFETY RELATED TO OPERATION OF VACUUM EQUIPMENT

- Review safety items with all relevant personnel at regular intervals.
- Ensure all operators are familiar with this manual before operating.
- Ensure your operation is in compliance with all applicable codes and regulations.
- Perform a safety inspection before operating machine. Refer to the pre-start checklist on page 42 for general procedures.
- Make sure all personal protective equipment is in order before leaving for the job site. Recommended equipment includes hard hat, safety goggles or ski mask, and ear protection.
- Have a fire extinguisher on hand at all times.
- Clean leaf debris from machine and engine screen after each load to prevent build-up of flammable material. A leaf blower works well for this. This can be done during truck change-over.
- Inspect work area before operating machine. Inspect for heavy debris, such as bricks, rocks, or glass bottles.
- Ensure all pedestrians and operators are clear of the vacuum area.
- Keep nozzle away from loose objects that may be near the collection area, and may get caught in the nozzle.
- Remove key and chock wheels when leaving machine unattended.
- **DO NOT** operate machine with guard, hose, or housing cover removed. Refer to safety sensor & e-stop section below for lock-out procedures.
- Secure pick-up nozzle for transport.
- When rotating hose per maintenance section, inspect fan for uneven wear, cracks, or looseness. Also check housing for large heavy debris & remove.
- Never allow riders on the machine.

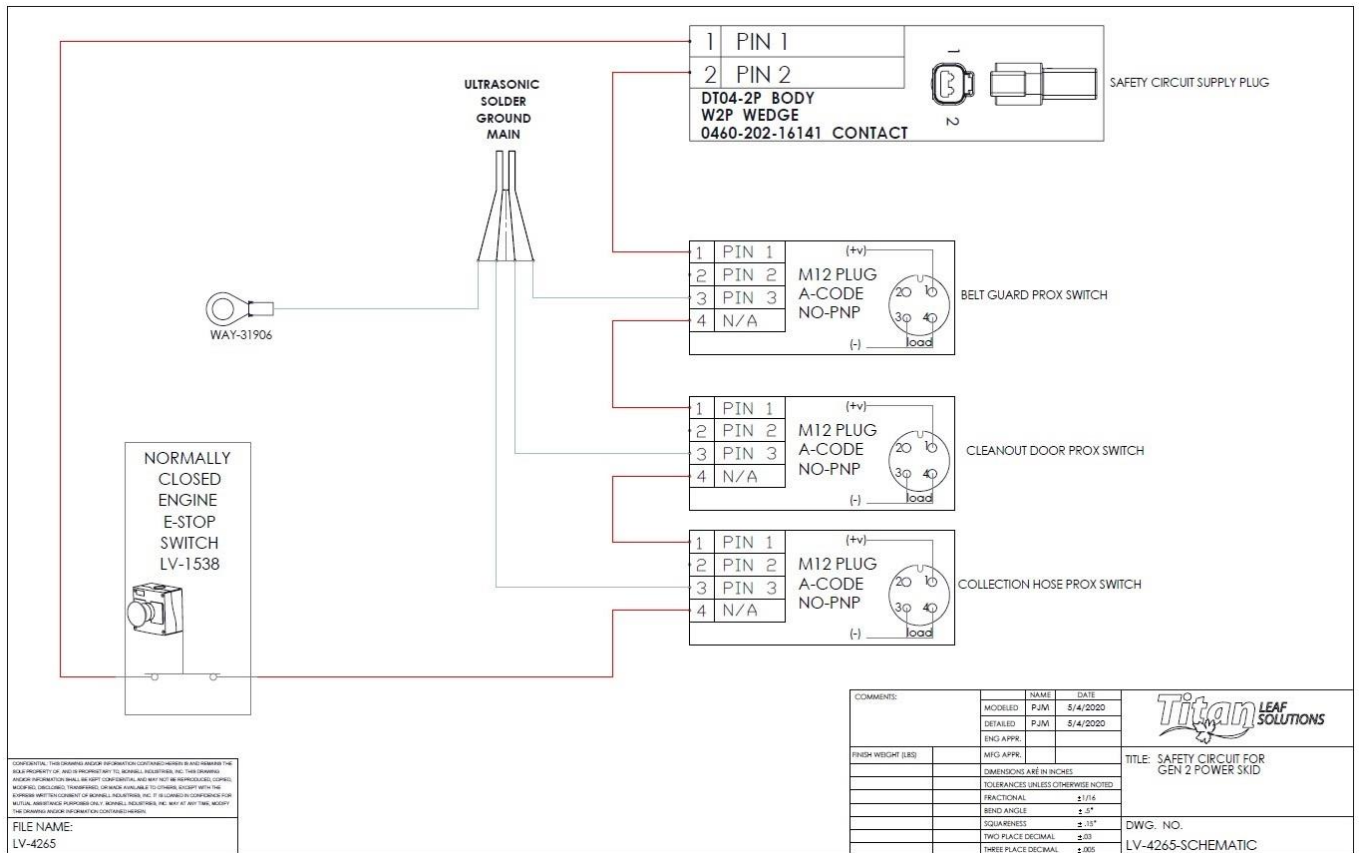
# Safety Information

## 2.1.7 SAFETY SENSORS & E-STOPS

Your Leaf Machine is equipped with safety sensors & e-stop system which will automatically stop all machine functions and shut down the engine when activated. Safety sensors are located at the hose connection of the blower housing, blower housing cleanout door, and the belt guard. E-stop switches are located on the control panel near the operator's seat and on the engine housing near the belt guard. When performing any repair or maintenance work, remove the key from the ignition, active the e-stop switch, and disconnect the safety sensor for the area being serviced.

**The safety sensors, emergency stop switches and wiring must be operable and in their proper locations for the life of the machine. Never operate this machine with broken, incomplete or modified safety components or wiring.**

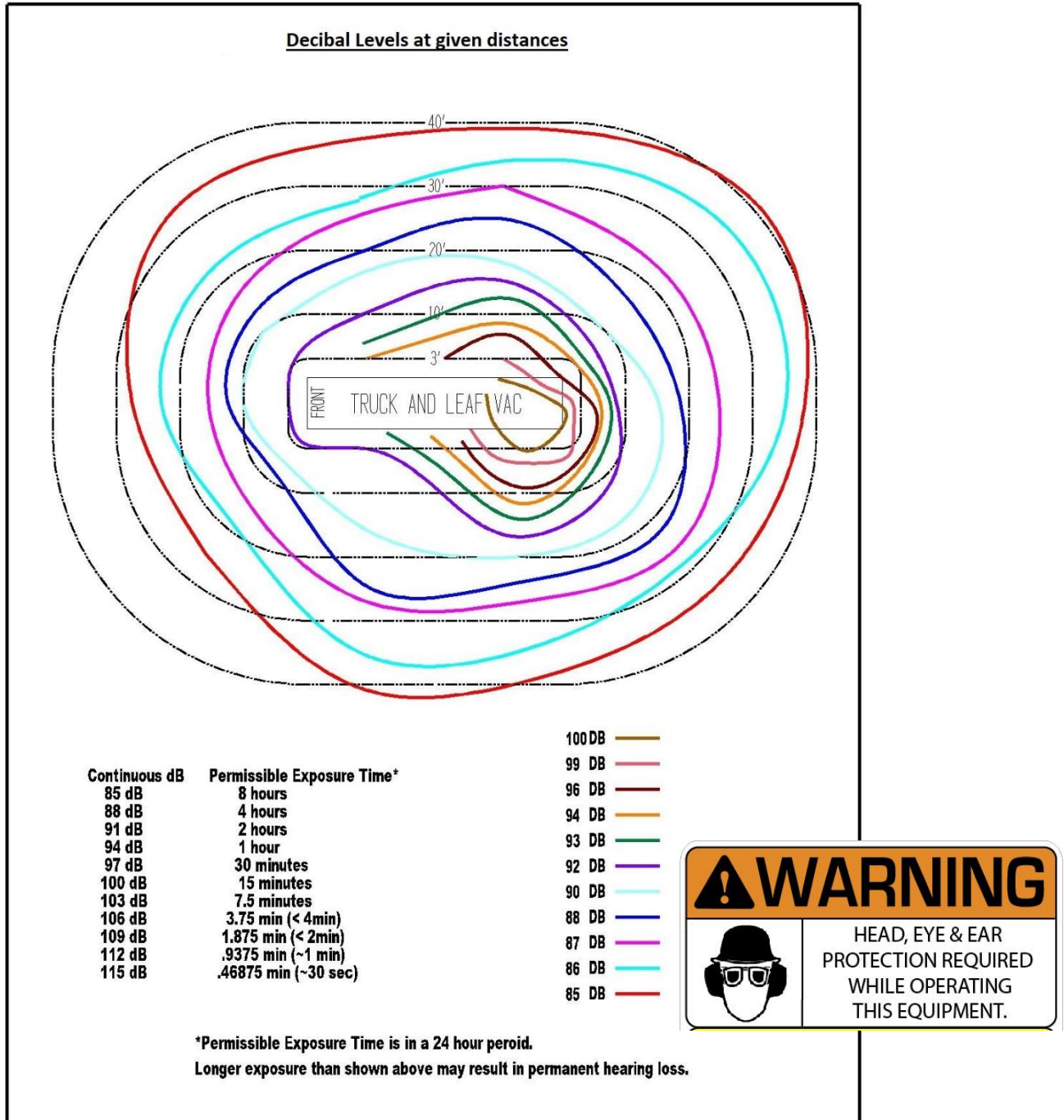
See sections 6.1.4, 6.1.5 & 6.2.6 for additional Safety Circuit information



# Safety Information

## 2.1.8 DECIBEL LEVELS

Below is a decibel level chart showing approximate sound levels at given positions around the machine. The purpose of this chart is to illustrate the approximate sound levels of the machine, and provide a guideline for hearing protection. **To prevent hearing loss, ear protection is required when working on or around the leaf vacuum during operation.** The illustration below shows a Pro Plus leaf vacuum with Kubota 99 HP engine. Decibel levels for the Olympian Pro Series with Kubota or John Deere engines may vary from below.



## 3 INSTALLATION

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The following section details the installation of the leaf vacuum equipment onto the vehicle chassis. Always refer to the vehicle manufacturer's instructions and guidelines on equipment installation.

### 3.1.1 GENERAL INSTALLATION NOTES

For scissor hoists, it is critical that all instructions be followed closely to ensure all hoist components are installed safely and correctly.

1. Installation of the rear hinge is critical. An incorrectly positioned hinge will cause the body to lift and perform poorly. If the rear hinge is not welded correctly to the dump body long sill, a weld failure in this region can lead to serious equipment damage and serious injury or death.

**NOTE: Do not allow un-qualified technicians to weld this critical area.**

2. Serious planning is required to ensure that the body is properly mounted on the truck rails. When doing the initial equipment layout, consider all peripheral objects that could interfere with the performance of the dump body. Peripheral objects include cab clearance, exhaust clearance, clearance from additional accessories and the proximity of the rear tires relative to the back of the dump body.

### 3.1.2 EQUIPMENT LAYOUT AND MEASUREMENTS

1. When preparing a body for installation on a truck, in general, it is best to work from the rear of the truck to the front. Mark the position of the intended location of the rear hinge centerline. When determining this location, address interference issues with components such as hoist, body props, body guides, etc. Also take into consideration the location of accessories such as mud flaps and fenders.
2. Position the hoist on the truck frame rails based on the measurement show on the layout.
3. Mark the location on the truck rail for the measurement which reflects the position of the front of the engine skid listed on the layout below. The remaining distance to the back of the cab represents the clearance between the back of the cab and the front of the box. If this clearance is less than 27", additional evaluation may be required.

**NOTE: Welding the hoist directly to the flange section of the truck rail IS NOT allowed. All holes drilled into the truck rails for hoist mounting brackets must be located within the vertical zone of factory installed truck hardware. Failure to comply with this requirement can cause serious damage to the truck chassis and possible injury to the equipment operator or bystanders.**

**NEVER ASSUME! MEASURE SEVERAL TIMES TO BE 100% SURE.**



## Installation

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### 3.1.3 HOIST AND REAR HINGE

1. Trim the frame rails to the required length and notch out for rear hinge.
2. Center rear hinge on frame rails and weld solid.
3. Mark and drill holes in the frame rails for hoist.
4. Bolt hoist to frame rails with ½" grade 8 bolts and locknuts.

### 3.1.4 POWER SKID

1. Position power skid on frame rails at the required dimension. Power skid mounting angles should be centered side to side on the truck's frame rails.
2. Mark and drill holes in frame rails for power skid mounting angles.
3. Bolt power skid mounting angles to truck frame rails with ½" grade 8 bolts and locknuts.

### 3.1.5 BODY

1. Tack weld body spacers to the bottom edges of body longsills. 23-yard bodies require four body spacers and 30-yard bodies require six body spacers. Tack weld one body guide to outside of each body long sill.
2. With the Power skid, hoist, and rear hinge installed, set the body on the truck frame rails. Center the body on the frame rails and offset the body a 1/4" behind the rear hinge to accommodate a weld in this area. Tack weld the body to the rear hinge blocks.
3. Operate the hoist to raise the body until the front is approximately 3-1/2" above the top face of the frame rails. Tack weld the hoist mounting clips to the body long sills.
4. Lower the body and fully weld the hinge blocks to the body long sills.
5. Raise the body and put up the body props to safely get under the body. Fully weld the hoist mounting clips, body spacers and body guides to the body long sills.

### 3.1.6 SERVICE PLATFORM

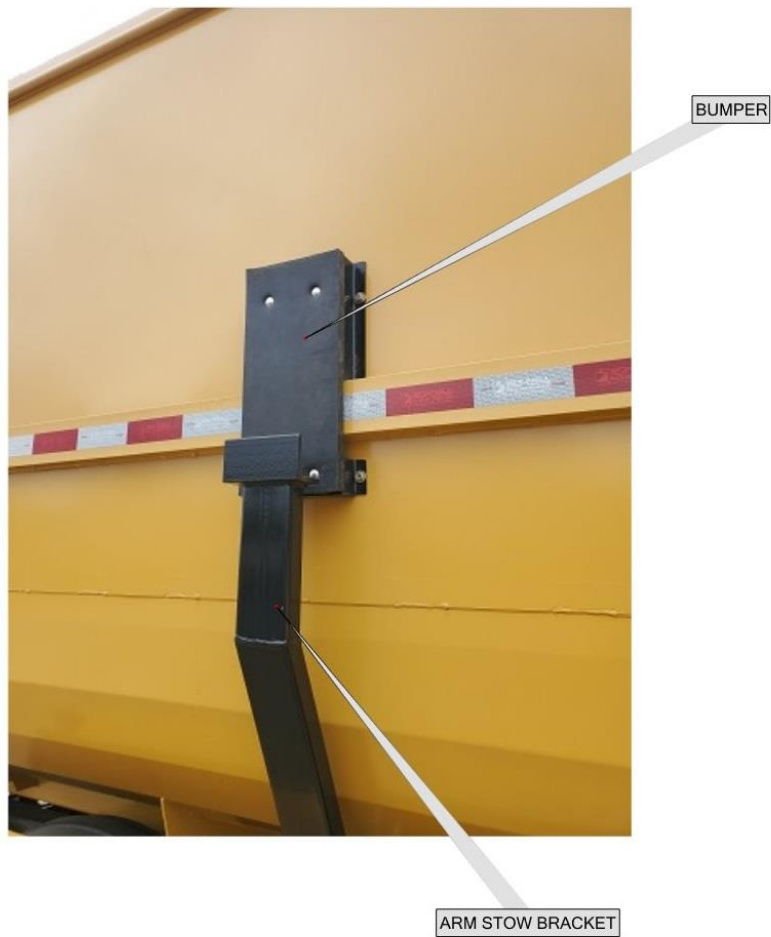
1. Position service platform on truck frame rails at the required dimension.
2. Center service platform mounting angles side to side.
3. Mark and drill holes in frame rails for service platform mounting angles.
4. Bolt service platform mounting angles to truck frame rails with ½" grade 8 bolts and locknuts.

## Installation

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### 3.1.7 ARM STOW BRACKET & BUMPER

1. Locate a section of clear frame rail on the passenger side, near the rear axle for mounting the arm stow bracket.
2. Bolt arm stow bracket to passenger side frame rail with ½" grade 8 bolts and locknuts.
3. Position arm bumper on body side, centered with the arm stow bracket. Arm bumper should fit around channel on side of body.
4. Drill holes and bolt arm bumper to body with 3/8" grade 8 bolts and locknuts.



## Installation

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### 3.1.8 ELECTRICAL & HYDRAULIC CONNECTIONS

1. Connect hydraulic hoses to tailgate latch cylinders, hoist, and collection arm.
2. Install main chassis harness LV-4279 on the inside of the passenger side frame rail.
3. Route plug 1 of LV-4279 harness to power skid and connect.
4. Route plug 10 of LV-4279 harness to rear of body and connect to body light harness.
5. Route plugs 2 & 3 of harness LV-4279 to vehicle cab.
6. Connect flying leads of LV-4279 harness to vehicle lighting circuit.

### 3.1.9 CONTROL PANEL & JOYSTICK

1. Install control panel inside vehicle cab, in a convenient location for the operator.
2. Install joystick in vehicle cab, in a convenient location for the operator.
3. Connect joystick to control panel with harness LV-4264.

### 3.1.10 OPTIONAL DIRECTIONAL LIGHT BAR

1. Install light bar controller in vehicle cab.
2. Connect light bar controller to plug 3 of harness LV-4279.

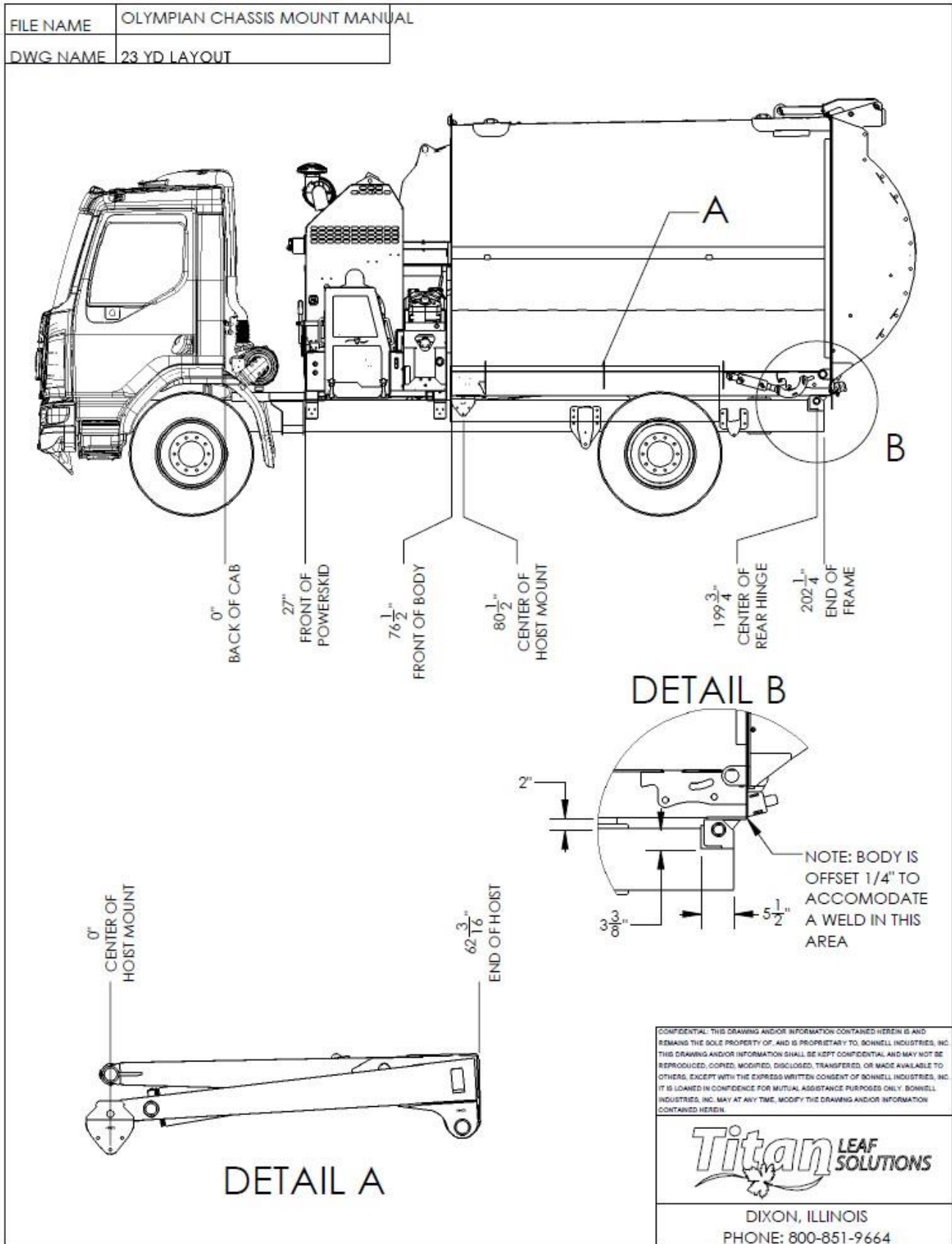
### 3.1.11 OPTIONAL REAR CAMERA

1. If supplied with rear camera, mount camera on rear of truck.
2. Connect camera to plug 9 of harness LV-4264.
3. Mount camera monitor inside vehicle cab and connect to 12V power.



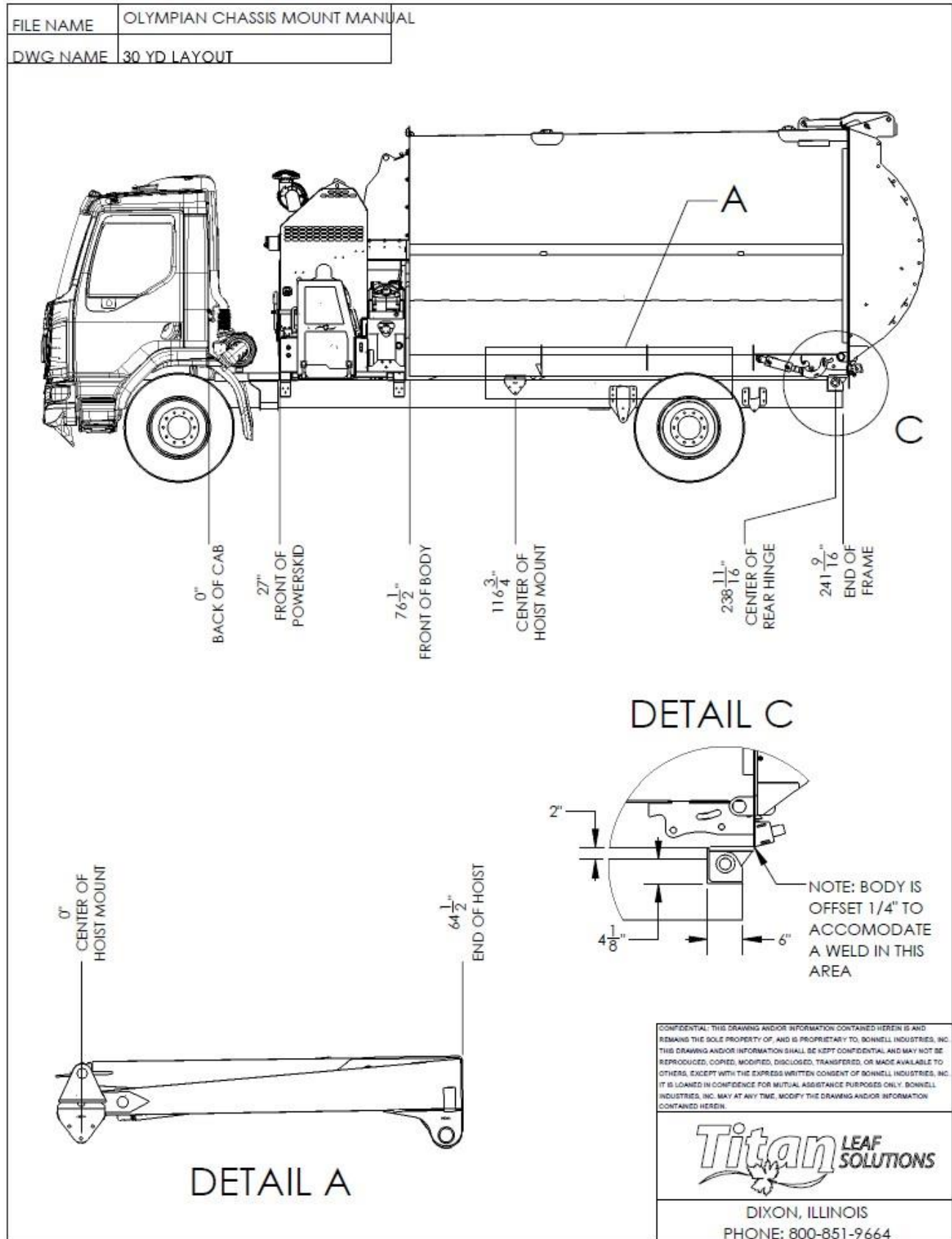
# Installation

## 3.1.12 23 YD OLYMPIAN LAYOUT



# Installation

## 3.1.13 30 YD OLYMPIAN LAYOUT



## 4 MAINTENANCE

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### 4.1.1 INITIAL SERVICING & BREAK-IN

The leaf vacuum equipment has been initially serviced at the factory and is ready to operate. Review engine manual for break-in procedures. Belt tension should be adjusted after the first hour of operation. See fan belt section for instructions.

### 4.1.2 LIST OF SUPPLEMENTAL MANUALS

Your manual packet includes supplemental manuals for some or all of the following components. Refer to these manuals for the service & operation of these items:

Engine .....	Supplement
Hoist .....	Supplement
Logan Hydraulic Clutch .....	Supplement
Logan Hydraulic Clutch Manifold .....	Supplement
QD & Split Taper Bushings .....	Page 58
Transfluid Coupler .....	Page 60
Lighting System .....	Page 67
Dust Control System Pump .....	Page 69
Minimizer Fenders .....	Page 74
Hoist .....	Page 78

### 4.1.3 ENGINE SERVICE AND SERVICE PARTS LIST

Refer to the engine manual for service information. Bonnell Industries does not service engines. Refer to your local engine dealer for service requirements.

#### Common engine service parts

Below is a list of common engine service parts that may be necessary for engine maintenance on your machine.

Kubota V3800 74HP Tier 4 Engine:	
Fuel Filter:	1K947-43172
Fuel Separator filter:	1J430-43060
Oil Filter:	HH1CO-32430
Inner Air Filter:	55231-26150
Outer Air Filter:	59700-26112

### 4.1.4 CLUTCH OR FLUID COUPLER SERVICE

**Hydraulic Clutch:** Self-adjusting design does not require adjustment. Replace inline hydraulic filter element annually. Refer to the clutch manufacturer's manual for detailed service & lubrication information. Bonnell Industries does not service clutches.

**TransFluid Coupler:** The transfluid coupler is filled from the factory with ISO 32 Oil. When put under extreme load, the oil in the coupler will heat up, and in some cases, the safety relief plug will melt, letting out the oil, and therefore stopping power transfer. **In this case, always replace plug with P/N 7018C. DO NOT USE STANDARD ALLEN HEAD PLUG.** Unit could overheat, and cause severe damage to engine, belts, or coupler.

# Hydraulic Schematics

When refilling oil (with coupler installed on engine), rotate inner housing until stamped "X" aligns in top vertical slot of outer housing. Fill inner housing with 5-6 quarts, until oil runs out of plug opening. Replace plug.

## 4.1.5 LUBRICATION

Type of grease: It is recommended that lithium complex grease with a thickness rating of NLGI 2 and operating temperature of -20 – 200 deg. F. be used.

### Daily:

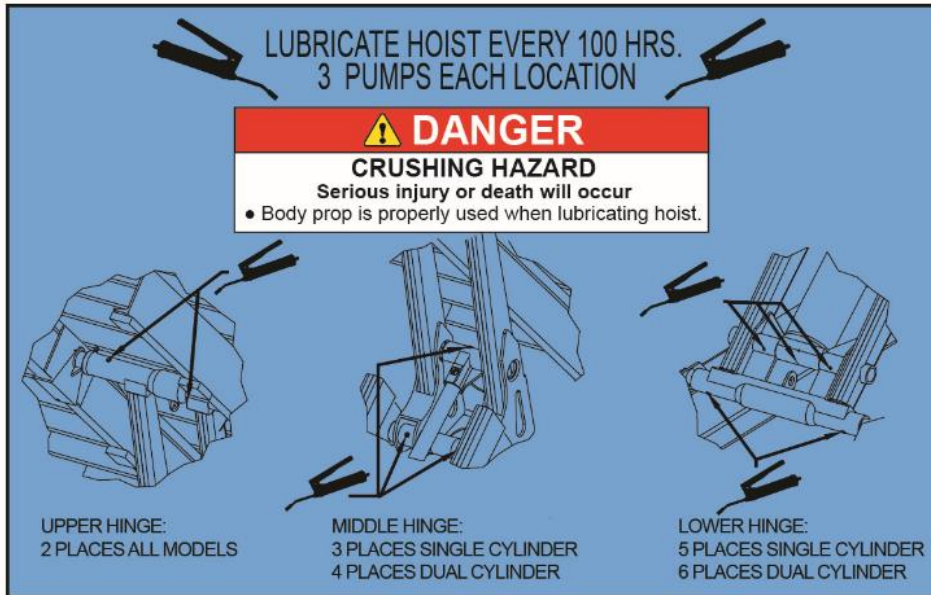
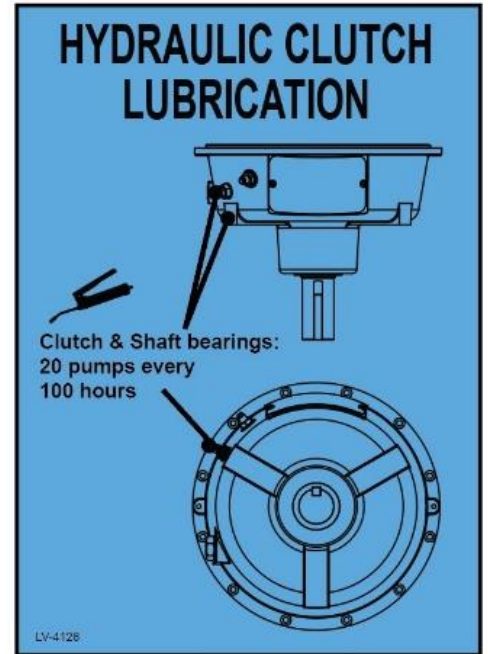
- Hose arm pivot, 2 pumps each fitting (4 places)

### Weekly:

- Transfluid coupler output shaft bearing (if equipped), 2 pumps
- Hoist hinges, 2

### Every 100 hours:

- Hydraulic clutch bearings, 1 oz (20 pumps)
- Hydraulic clutch shaft bearings, 1 oz (20 pumps)
- Hoist pivots, 3 pumps each location
- Hubs, 1 pump



## 4.1.6 RADIATOR SCREEN

Your leaf machine is equipped with an auxiliary magnetic radiator screen. This screen assists in keeping the engine radiator clean and the engine cool during operation. This screen needs to be checked regularly for debris buildup. **Remove screen and clean after each hour of operation!**



## 4.1.7 ENGINE COMPARTMENT

The engine cooling fan may cause chaff or debris to build up inside the engine compartment. Regular inspection and cleanout of the engine compartment is necessary to prevent an engine fire.



### 4.1.8 FAN

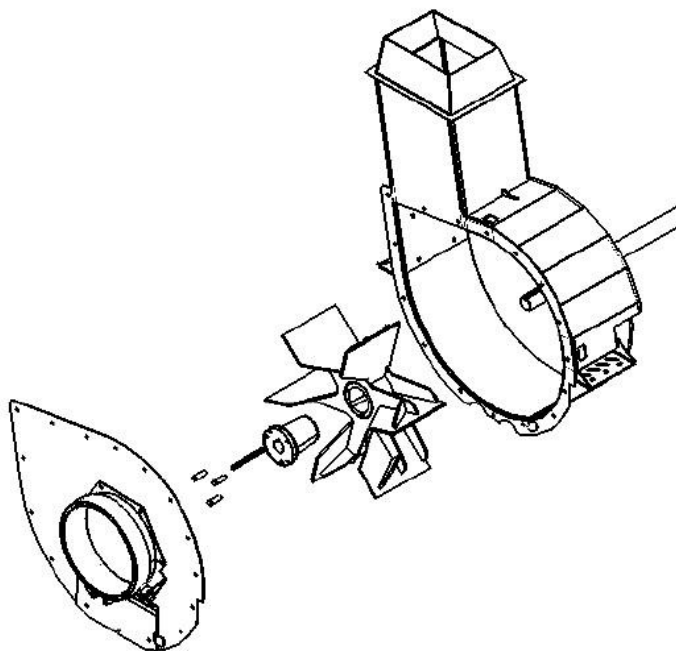
Your leaf machine is equipped with a 30" diameter balanced fan with AR400 impeller blades, mounted to the shaft with a split taper bushing. Inspect the fan regularly for cracks, deformations, and uneven wear. **DO NOT OPERATE THE MACHINE IF THE FAN IS OUT OF BALANCE.**

#### REMOVAL:

- Disconnect safety interlock
- Remove suction hose
- Remove fan cover face plate on inlet side
- Loosen & remove the three bolts on the split taper bushing that hold the fan in place.
- Reinsert the screws into the two tapped holes on the bushing and tighten. This will free the fan from the bushing, and the bushing will slide out.
- Slide fan off of shaft.

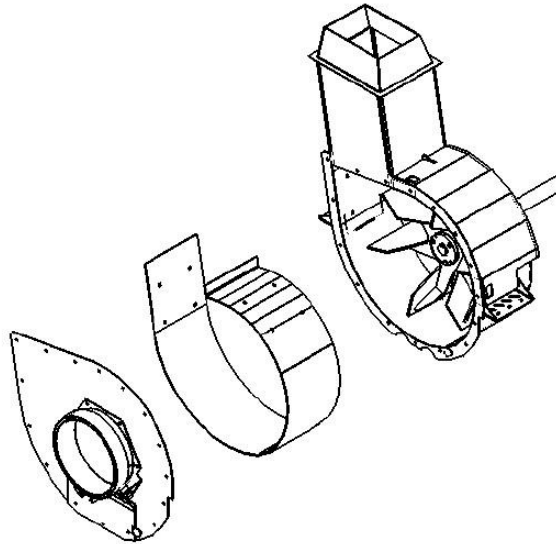
#### INSTALLATION:

- Clean tapered cone surfaces of taper bushing & fan.
- **NOTE: DO NOT USE ANTI-SIEZE LUBRICANT ON TAPERED CONE SURFACES OR BOLT THREADS.**
- Slide fan onto shaft, with tapped hole side of fan bushing facing out. Install impeller on shaft as far as possible, with approx..3/8" clearance to back wall.
- Slide split taper bushing onto shaft, insert key, position.
- Install 1/2x2-1/4 grade 8 bolts with alloy lock washers into tapped holes in coupler.
- Use blue Loctite on bolts.
- Tighten in circular pattern to **82 ft-lbs.** for 1/2" bolts
- Tap collet firmly or use air hammer in between bolts after each tightening.
- Do at least three circular tightening patterns until there is no rotation of the bolts at **82 ft-lbs.** for 1/2" bolts
- Start machine and run fan for several minutes at full RPM.
- Repeat torque procedure after shutting off machine.



### 4.1.9 BLOWER HOUSING LINER REMOVAL:

To remove the liner from the housing for service or replacement:



- Disconnect safety interlock
- Remove suction hose
- Remove fan cover face plate on inlet side
- Loosen & remove the eight bolts that hold the liner in place.
- Puller liner out.

### 4.1.10 SUCTION HOSE

To increase the life of the suction hose, the hose should be loosened, removed, and rotated  $\frac{1}{4}$  turn every 40 hours of operation. Inspect liner plate & fan for wear at this time.

### 4.1.11 HYDRAULIC SYSTEM (IF EQUIPPED)

**FILTER:** The hydraulic filter is equipped with an indicator gauge. Change filter accordingly.

**OIL:** The hydraulic oil should be changed annually. System capacity is approximately 22 gallons.

### 4.1.12 DUST CONTROL SYSTEM (IF EQUIPPED)

The dust control system is equipped with an 80-mesh strainer screen. Check the screen every 40 hours or as necessary, and clean as needed.

When the machine will be stored or parked in freezing temperatures, the pump and strainer need to be drained. To drain, shut off tank valve, and disconnect right hand pump fitting. Operate pump until line is empty. Shut off pump, and empty strainer canister.

## 4.1.13 OPERATING REAR DOOR PROP

Always use door prop when accessing body.

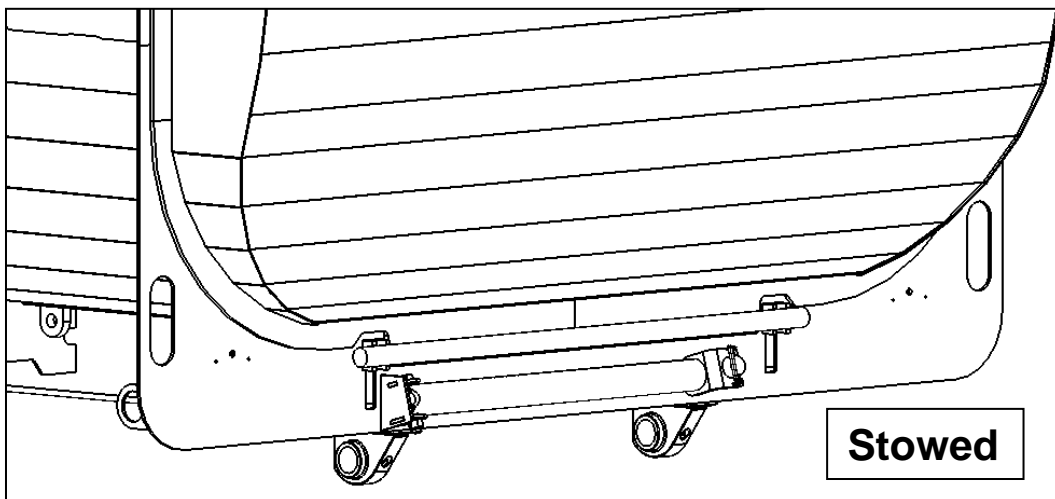
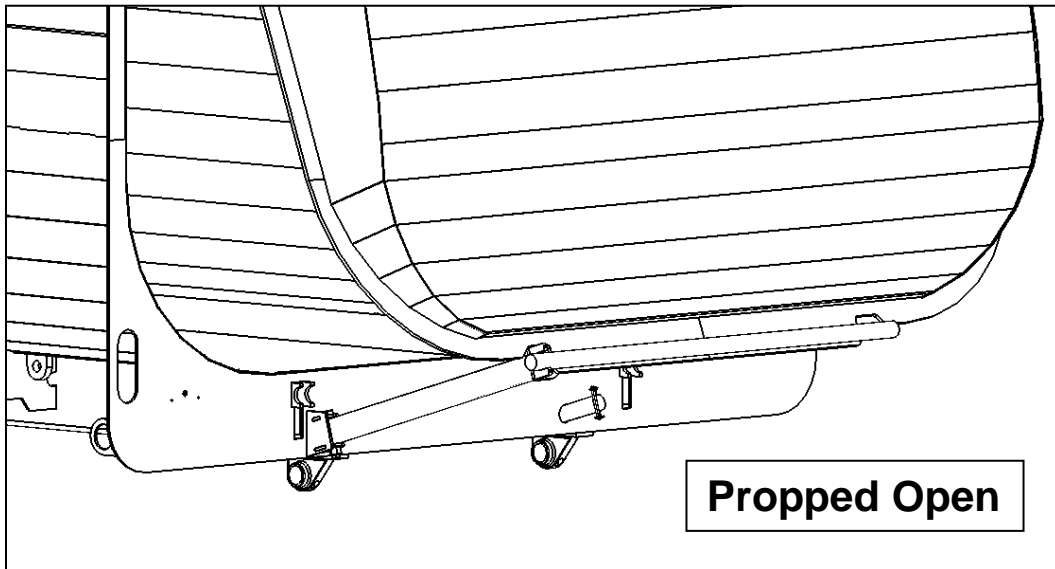
### **Caution**

#### TO USE DOOR PROP:

- Raise body to height where rear door swings open on its own.
- Unpin the prop, swing it out, and insert into door cutout as shown.

#### TO STOW THE PROP:

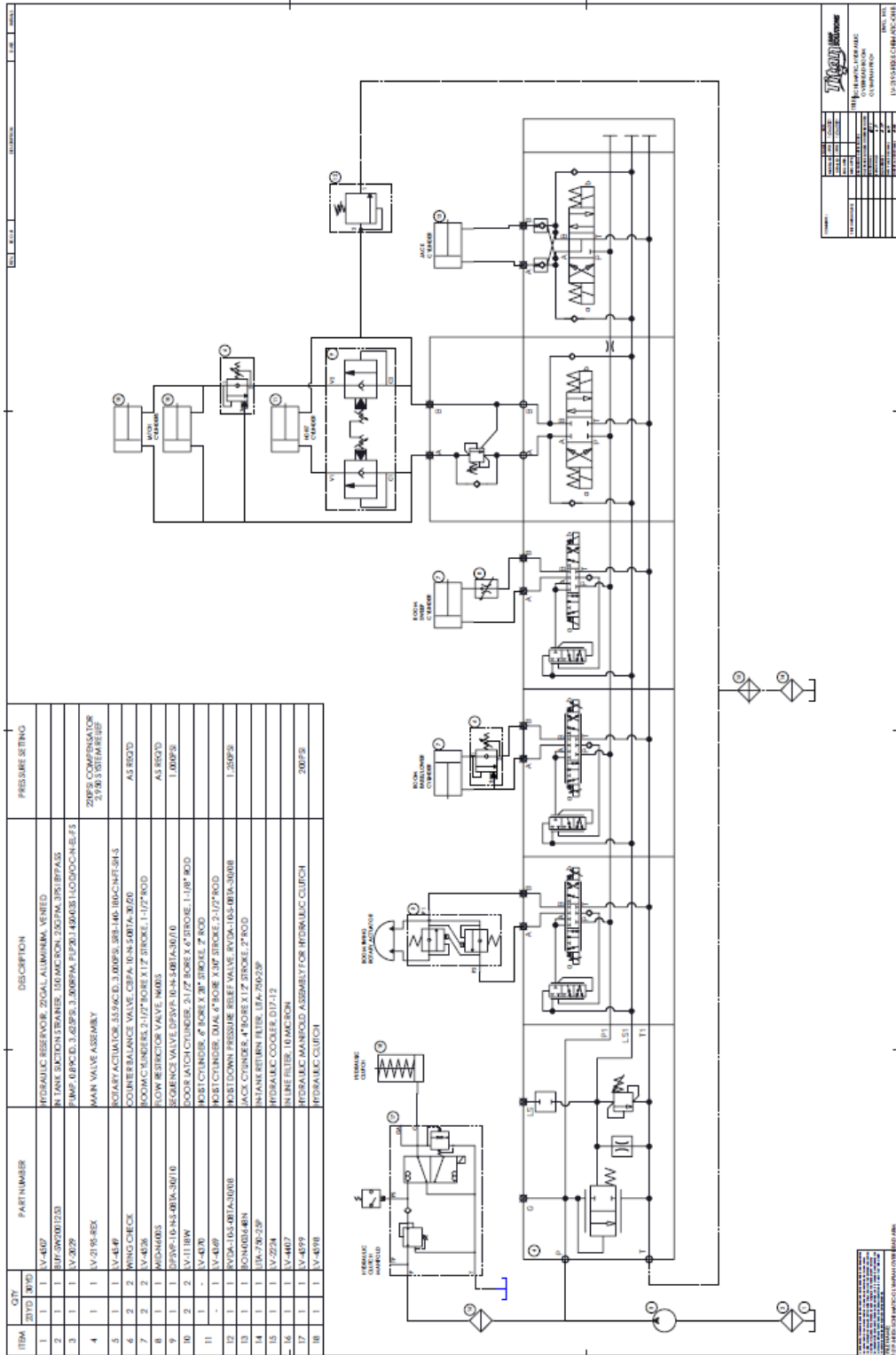
- Push door open and remove prop from door cutout.
- Swing prop in and re-insert pin to keep the prop in place.





## 5 HYDRAULIC SCHEMATICS

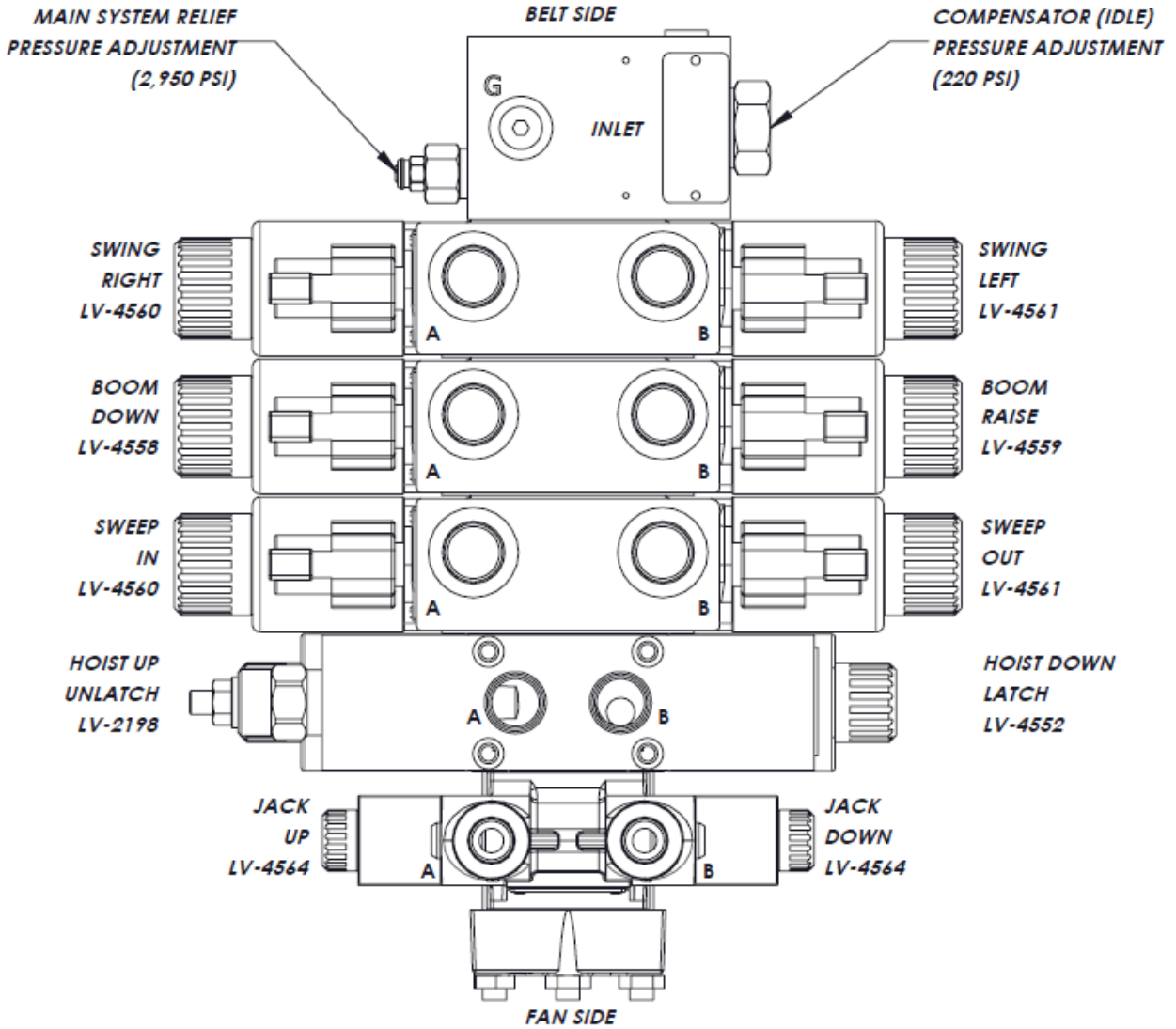
### 5.1.1 MAIN HYDRAULIC SCHEMATIC



# Hydraulic Schematics

## 5.1.2 MAIN VALVE LAYOUT

FILE NAME	Main Valve Layout - Olympian
DWG NAME	MAIN VALVE



**VIEWED FROM THE BOTTOM  
LOOKING UP**

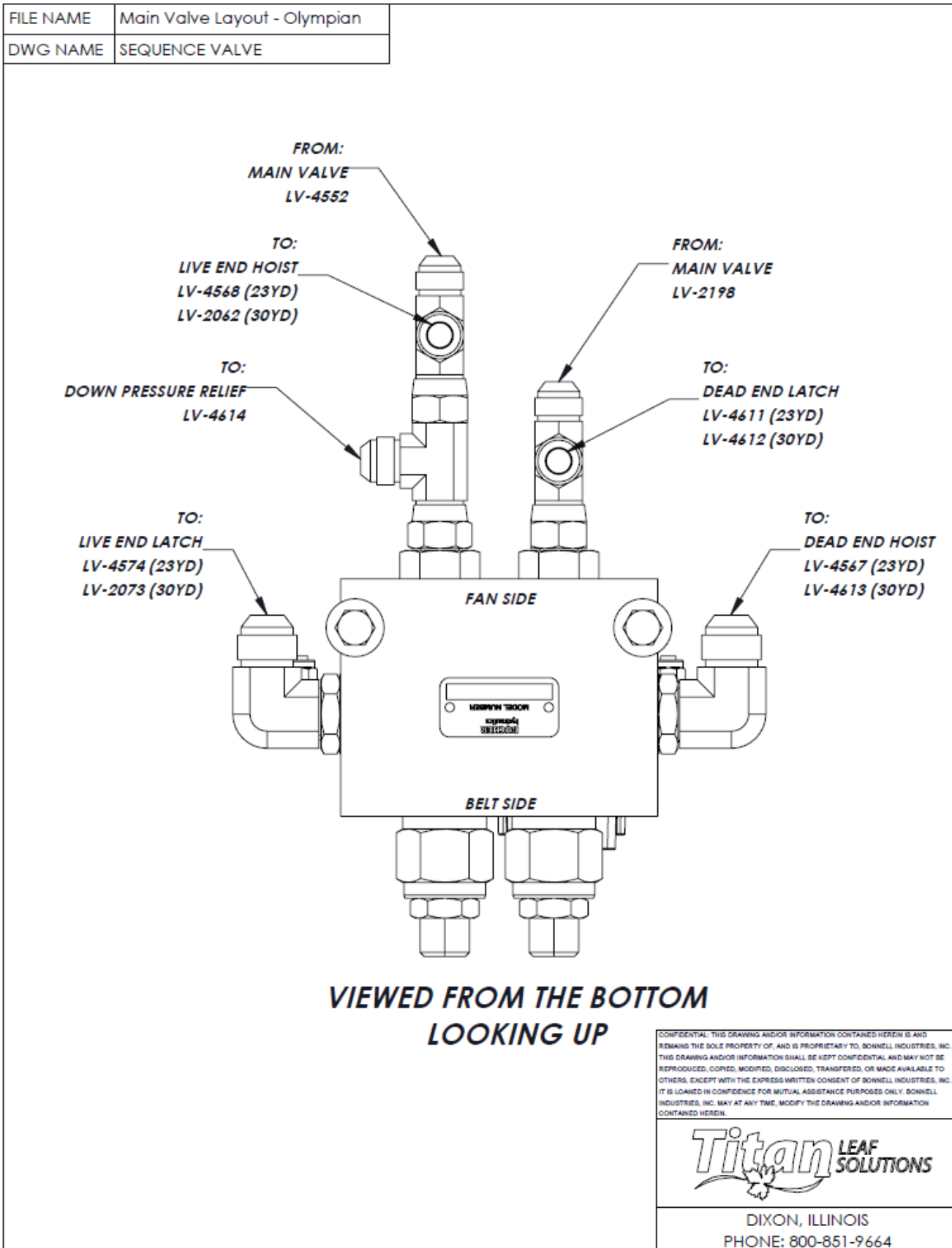
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# Hydraulic Schematics

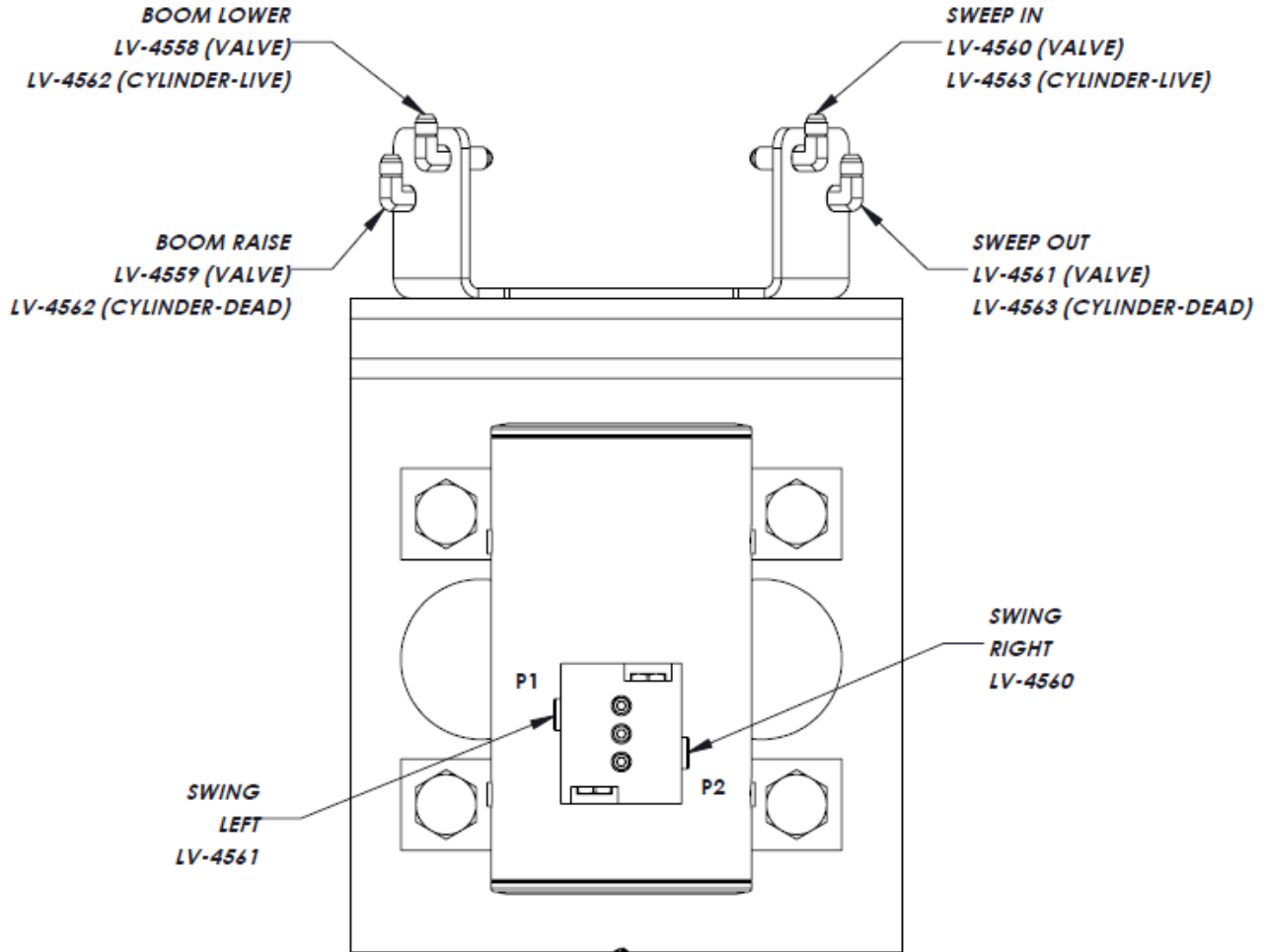
## 5.1.3 SEQUENCE VALVE LAYOUT



# Hydraulic Schematics

## 5.1.4 CONTROL ARM INTERFACE LAYOUT

FILE NAME	Main Valve Layout - Olympian
DWG NAME	CONTROL ARM INTERFACE



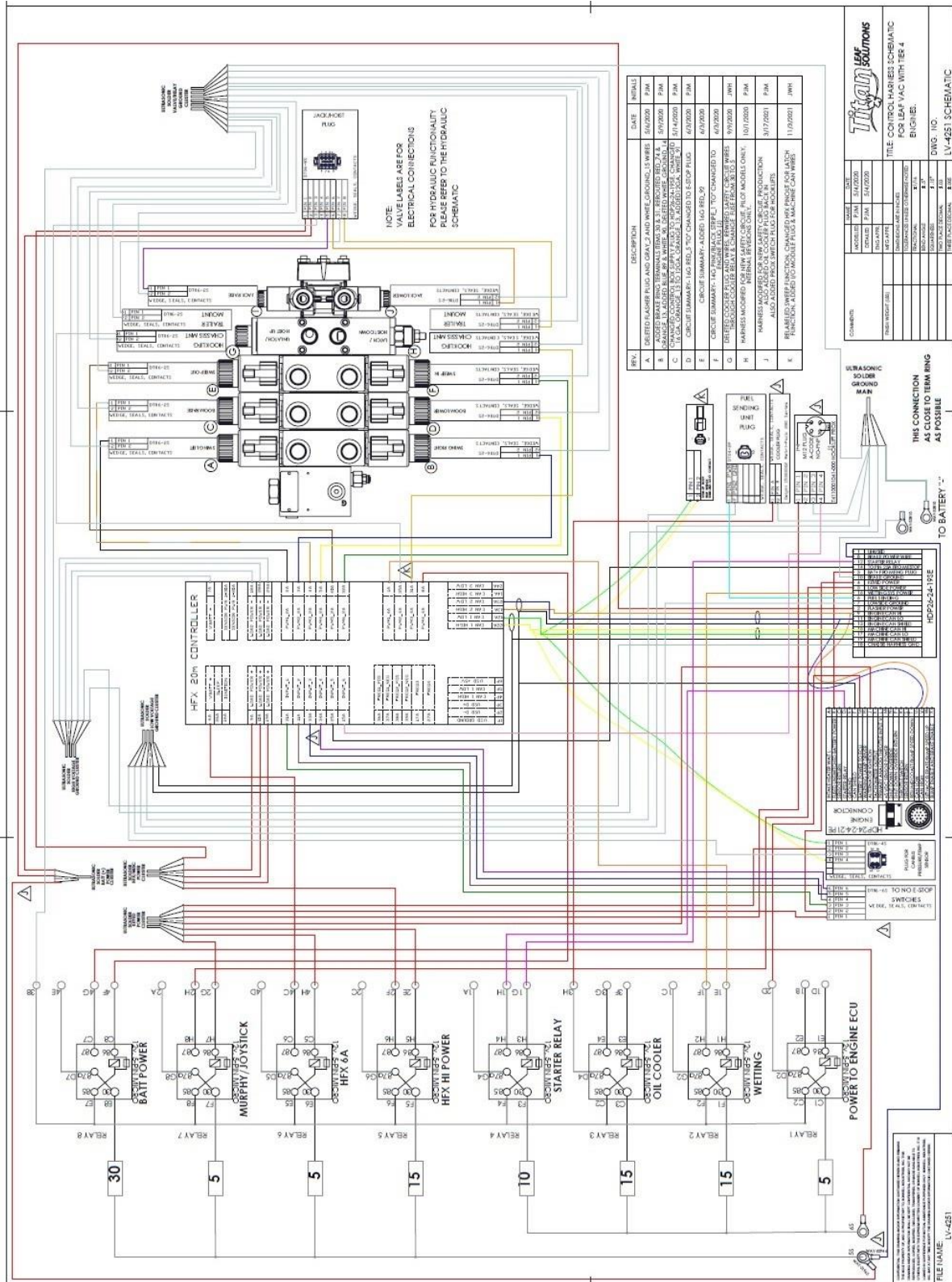
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## 6 ELECTRICAL SCHEMATICS

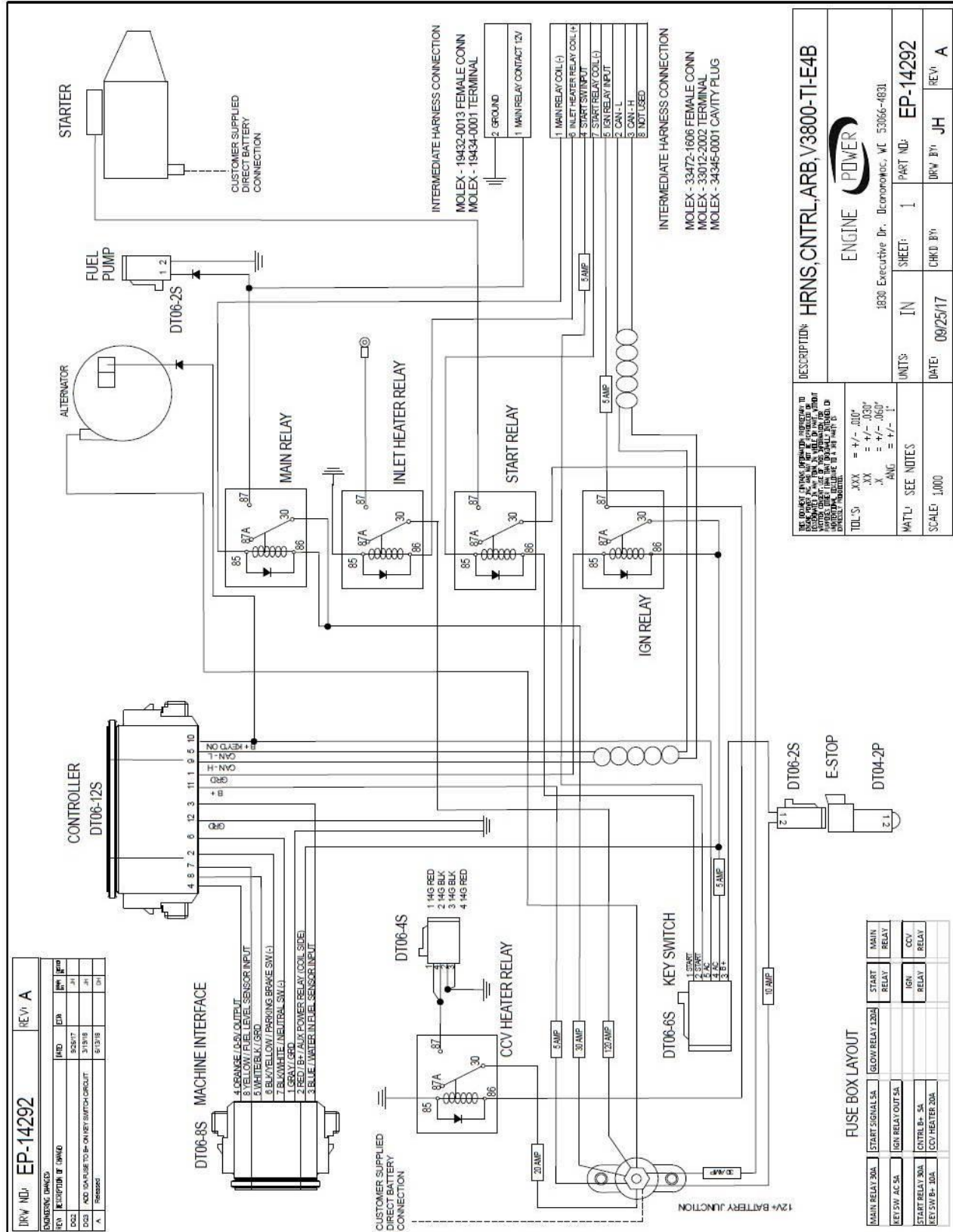
### 6.1.1 POWER SKID HARNESS





# Electrical Schematics

## 6.1.3 74 HP KUBOTA TIER 4 ENGINE

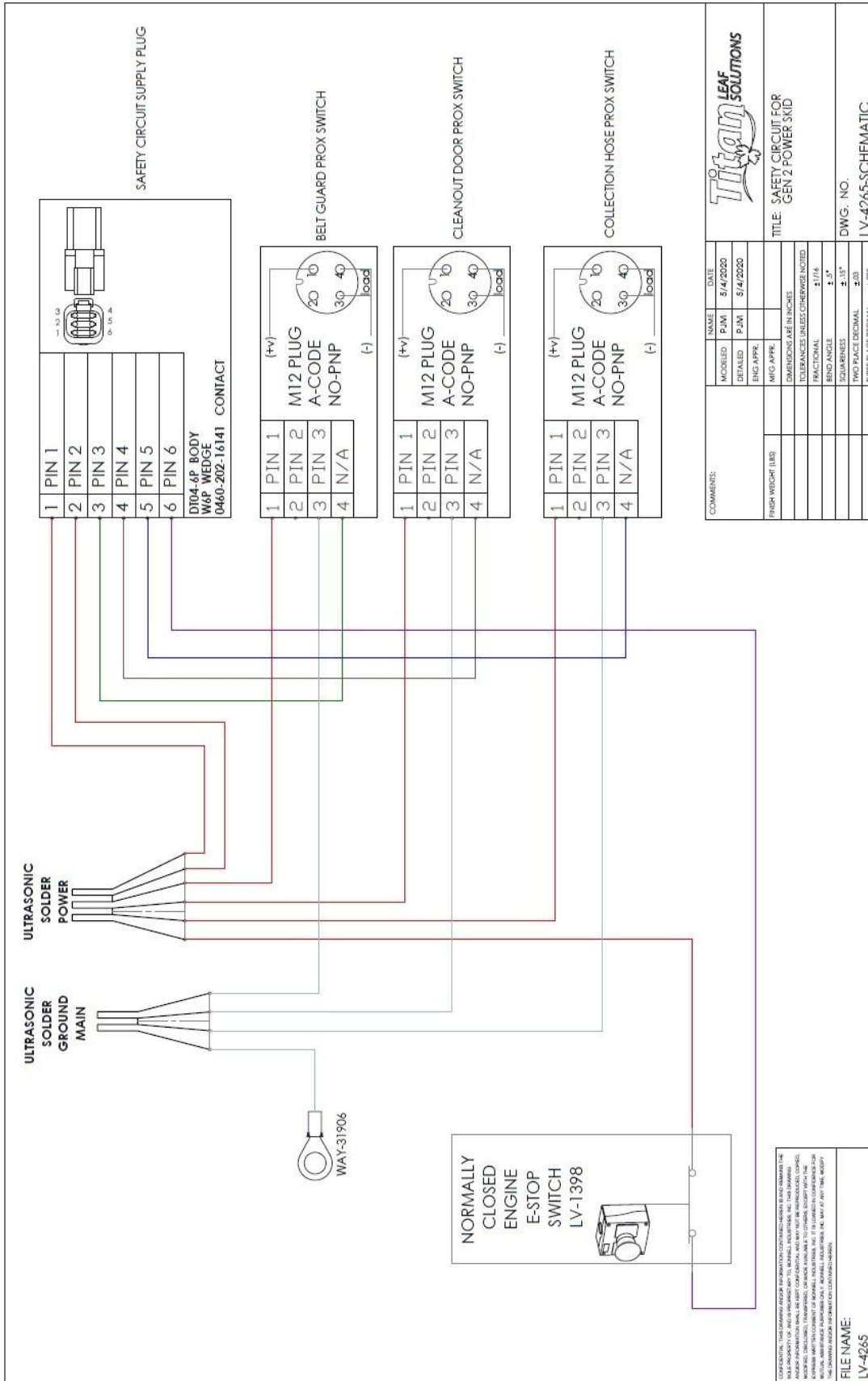









## 6.1.6 SAFETY CIRCUIT



# Electrical Schematics

## 6.1.7 E-STOP WIRING ASSEMBLY

FILE NAME	LV-1398 WIRING ASSY	REV.	DESCRIPTION	DATE	INITIALS
DWG NAME	LV-1398 WIRING ASSY	-	ORIGINAL	11/30/2020	LAJ



LV-1398


IF WIRING THRU BACK SIDE  
DRILL 1/2" HOLE.

**TERMINAL BLOCK 1 & 2**  
NORMALLY CLOSED  
(USE EITHER BLOCK)  
-OLYMPIAN (ALL MODELS)

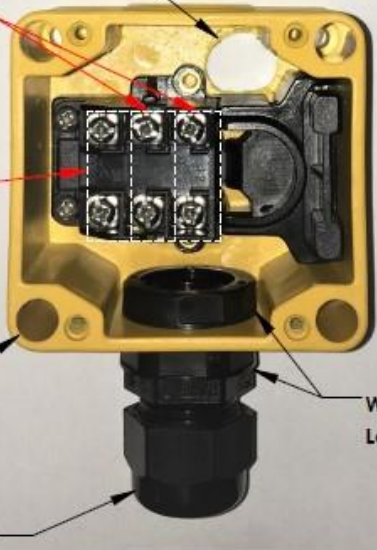
**TERMINAL BLOCK 3**  
NORMALLY OPEN  
-TITAN (ALL MODELS)  
-SPARTAN (ALL MODELS)

**FASTENING HARDWARE:**  
(OPPOSITE CORNERS ONLY)  
6-32 X 1" MACHINE SCREW  
6-32 NUT WITH STAR WASHER  
(3/16" DRILL)


WAY-24594  
STRAIGHT CORDGRIP



REPLACE ONLY E-STOPS WITH GREY BASES  
(E-STOPS WITH BLACK BASES DO NOT NEED REPLACED)



WAY-24612  
Locknut



**EXAMPLE ONLY: TERMINAL BLOCK 3**  
NORMALLY OPEN  
-TITAN (ALL MODELS)  
-SPARTAN (ALL MODELS)  
(USE BLOCK 1 OR 2 FOR OLYMPIAN)

**E-STOP INSTALLATION INSTRUCTIONS:**

**If wiring from the back:**

- Drill 1/2" hole as shown.


**If wiring from side:**

- Use knockout and install fittings as shown.

**Fastening E-Stop to mounting surface:**

- Transfer hole pattern (Opposite corners only)
- If field install - use one existing hole if possible.
- Drill 3/16" holes.
- Mount with 6-32 x 1" machine screws & nuts with star washers.

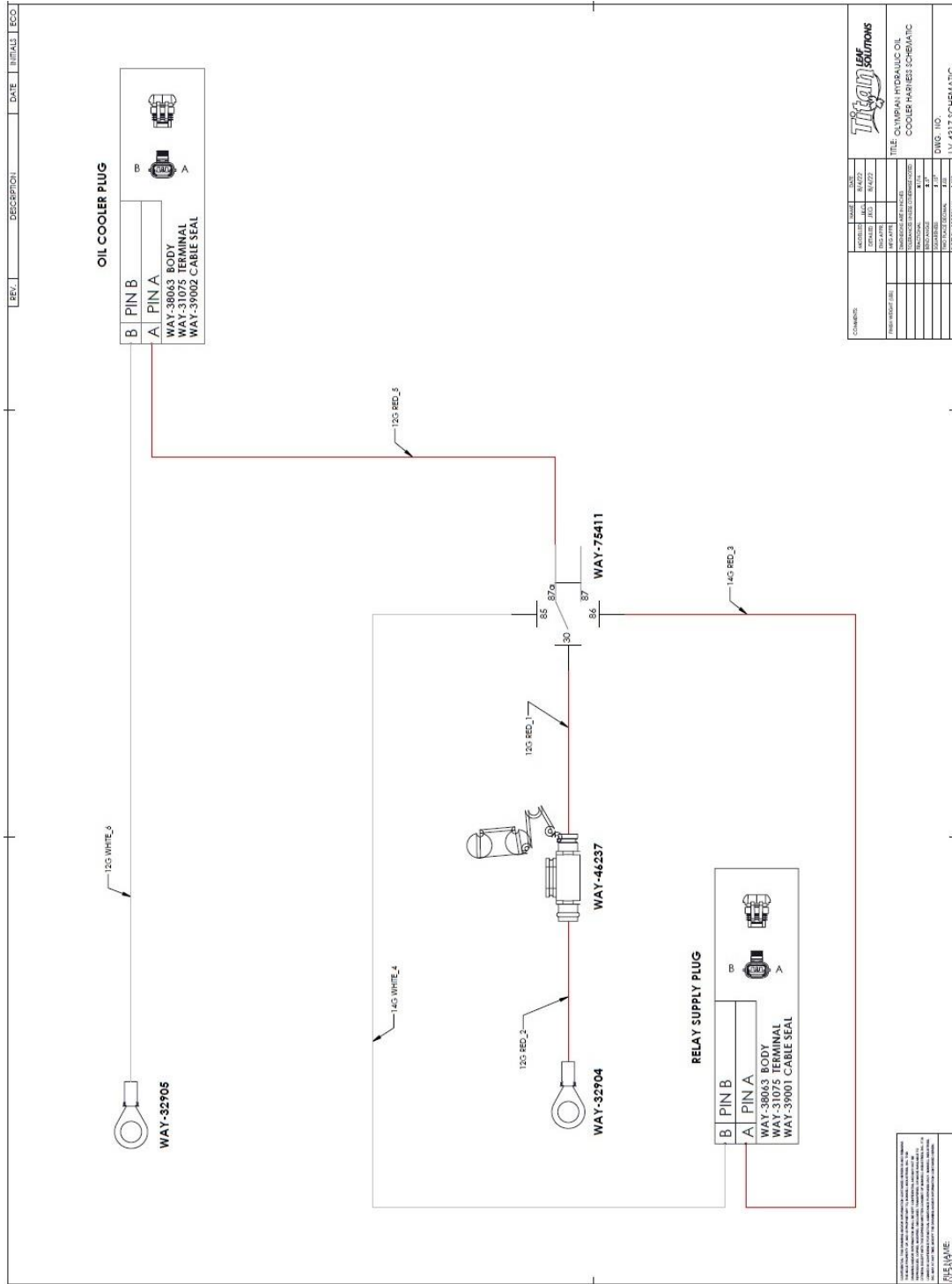
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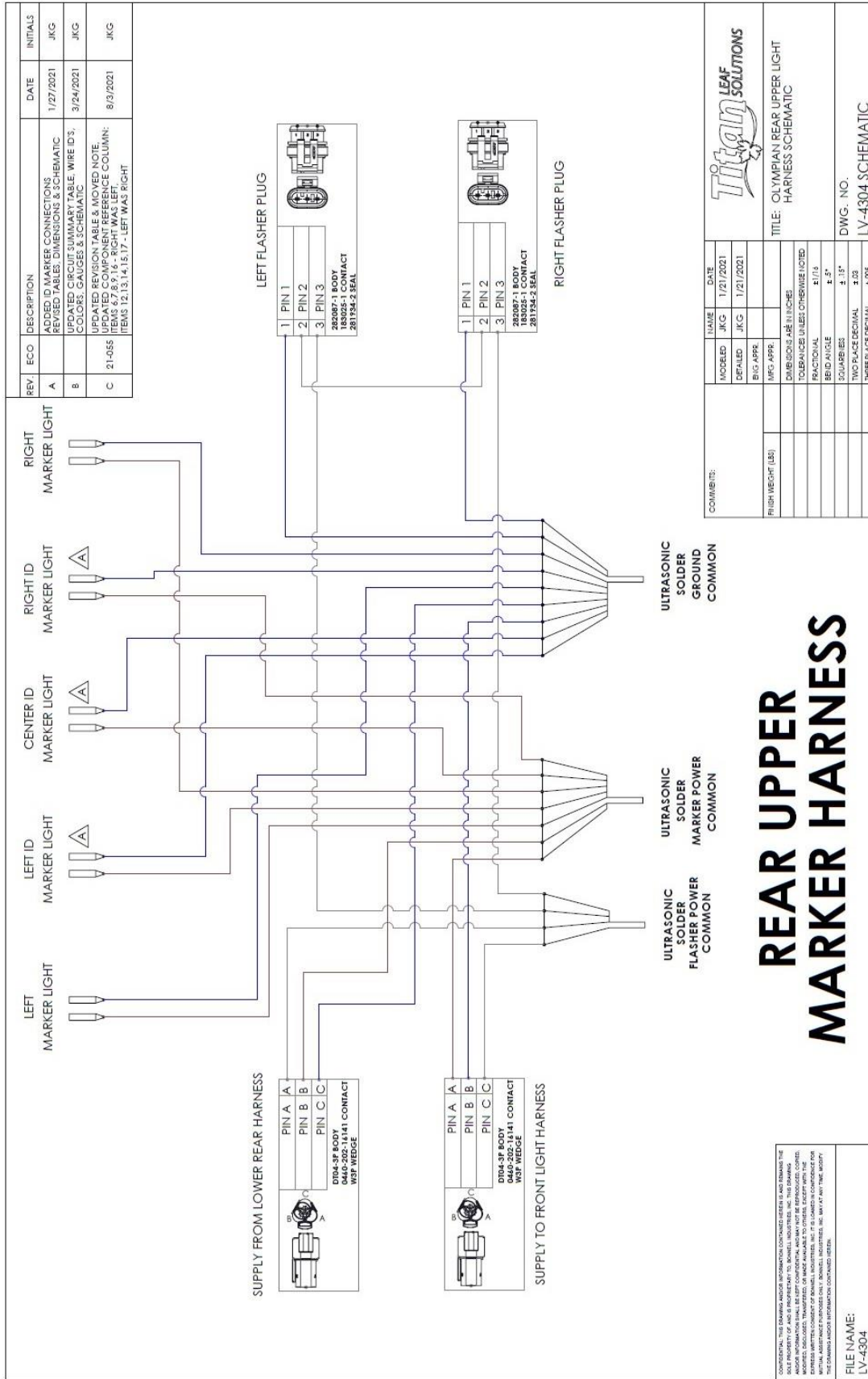
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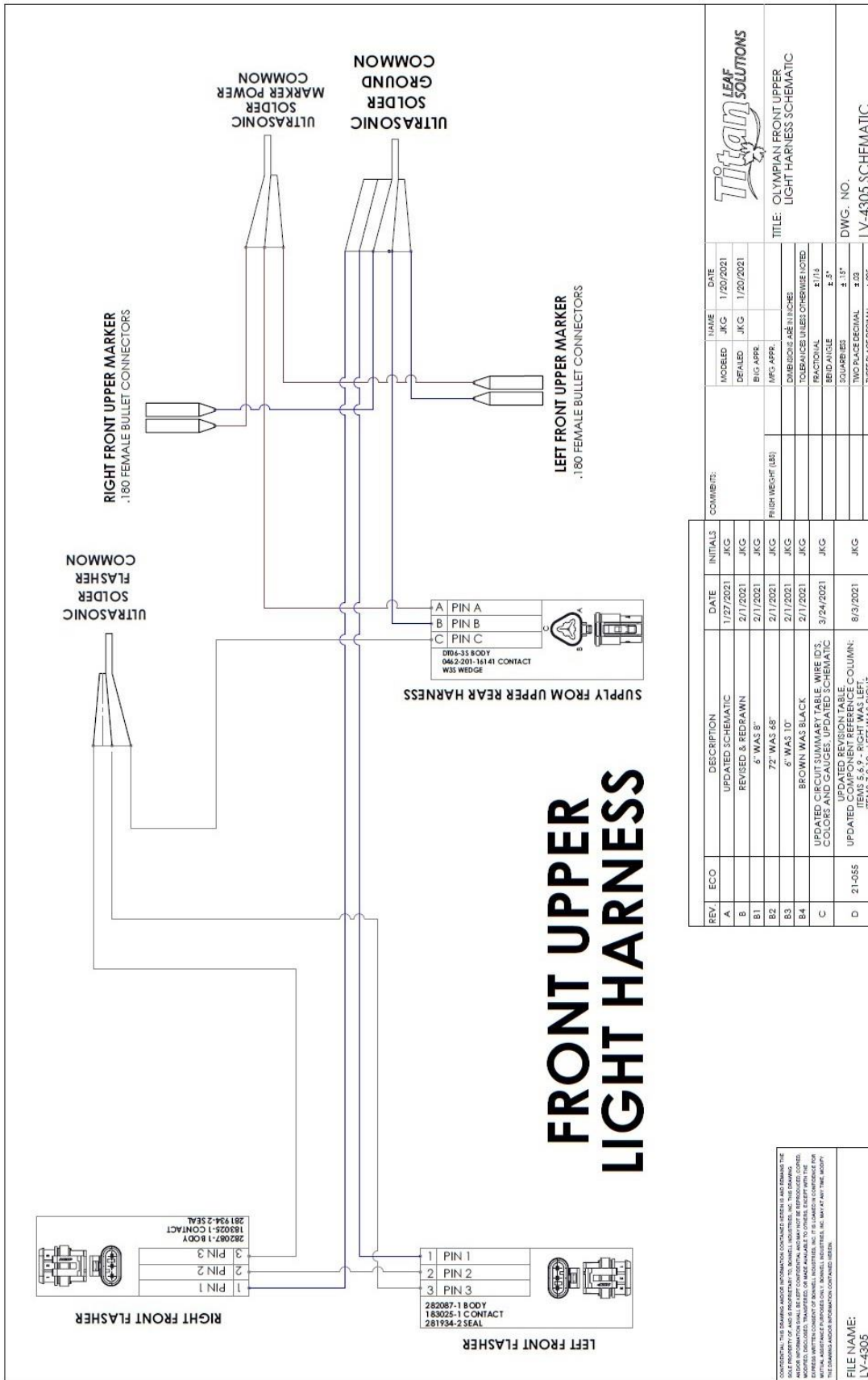
6.1.8 OIL COOLER HARNESS



6.1.9 LIGHTING HARNESS, BODY REAR UPPER



6.1.10 LIGHTING HARNESS, BODY FRONT UPPER



**Titan LEAF SOLUTIONS**

TITLE: OLYMPIAN FRONT UPPER LIGHT HARNESS SCHEMATIC

DWG. NO. LV-4305 SCHEMATIC

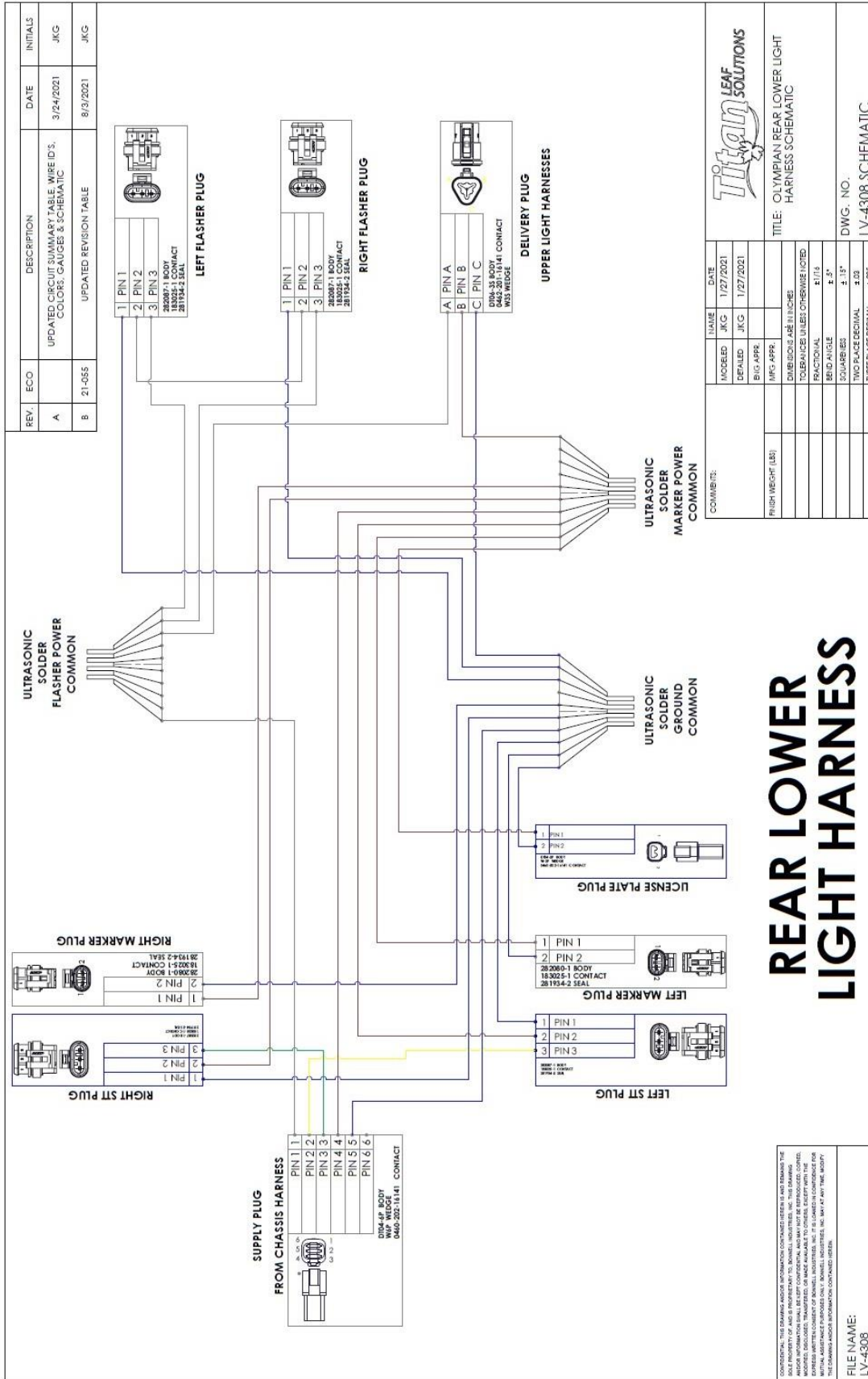
REV.	ECO	DESCRIPTION	DATE	INITIALS	COMMENTS:
A		UPDATED SCHEMATIC	1/27/2021	JKG	
B		REVISED & REDRAWN	2/1/2021	JKG	
B1		6" WAS 8"	2/1/2021	JKG	
B2		72" WAS 68"	2/1/2021	JKG	Finish weight (lb)
B3		5" WAS 10"	2/1/2021	JKG	Dimensions are in inches. Tolerances unless otherwise noted
B4		BROWN WAS BLACK	2/1/2021	JKG	FRACATIONAL
C		UPDATED CIRCUIT SUMMARY TABLE, WIRE IDS, COLORS AND GAUGES, UPDATED SCHEMATIC	3/24/2021	JKG	BEND ANGLE ±.5°
D	21-055	UPDATED REVISION TABLE, UPDATED COMPONENT REFERENCE COLUMN, ITEMS 2, 8, 10 - LEFT WAS RIGHT	8/3/2021	JKG	300 ARBS ±.15°
					TWO PLACE DECIMAL ±.03
					THREE PLACE DECIMAL ±.005

REV.	ECO	DESCRIPTION	DATE	INITIALS	COMMENTS:
A		UPDATED SCHEMATIC	1/27/2021	JKG	
B		REVISED & REDRAWN	2/1/2021	JKG	
B1		6" WAS 8"	2/1/2021	JKG	
B2		72" WAS 68"	2/1/2021	JKG	Finish weight (lb)
B3		5" WAS 10"	2/1/2021	JKG	Dimensions are in inches. Tolerances unless otherwise noted
B4		BROWN WAS BLACK	2/1/2021	JKG	FRACATIONAL
C		UPDATED CIRCUIT SUMMARY TABLE, WIRE IDS, COLORS AND GAUGES, UPDATED SCHEMATIC	3/24/2021	JKG	BEND ANGLE ±.5°
D	21-055	UPDATED REVISION TABLE, UPDATED COMPONENT REFERENCE COLUMN, ITEMS 2, 8, 10 - LEFT WAS RIGHT	8/3/2021	JKG	300 ARBS ±.15°
					TWO PLACE DECIMAL ±.03
					THREE PLACE DECIMAL ±.005

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FILE NAME: LV-4305

6.1.11 LIGHTING HARNESS, BODY REAR LOWER

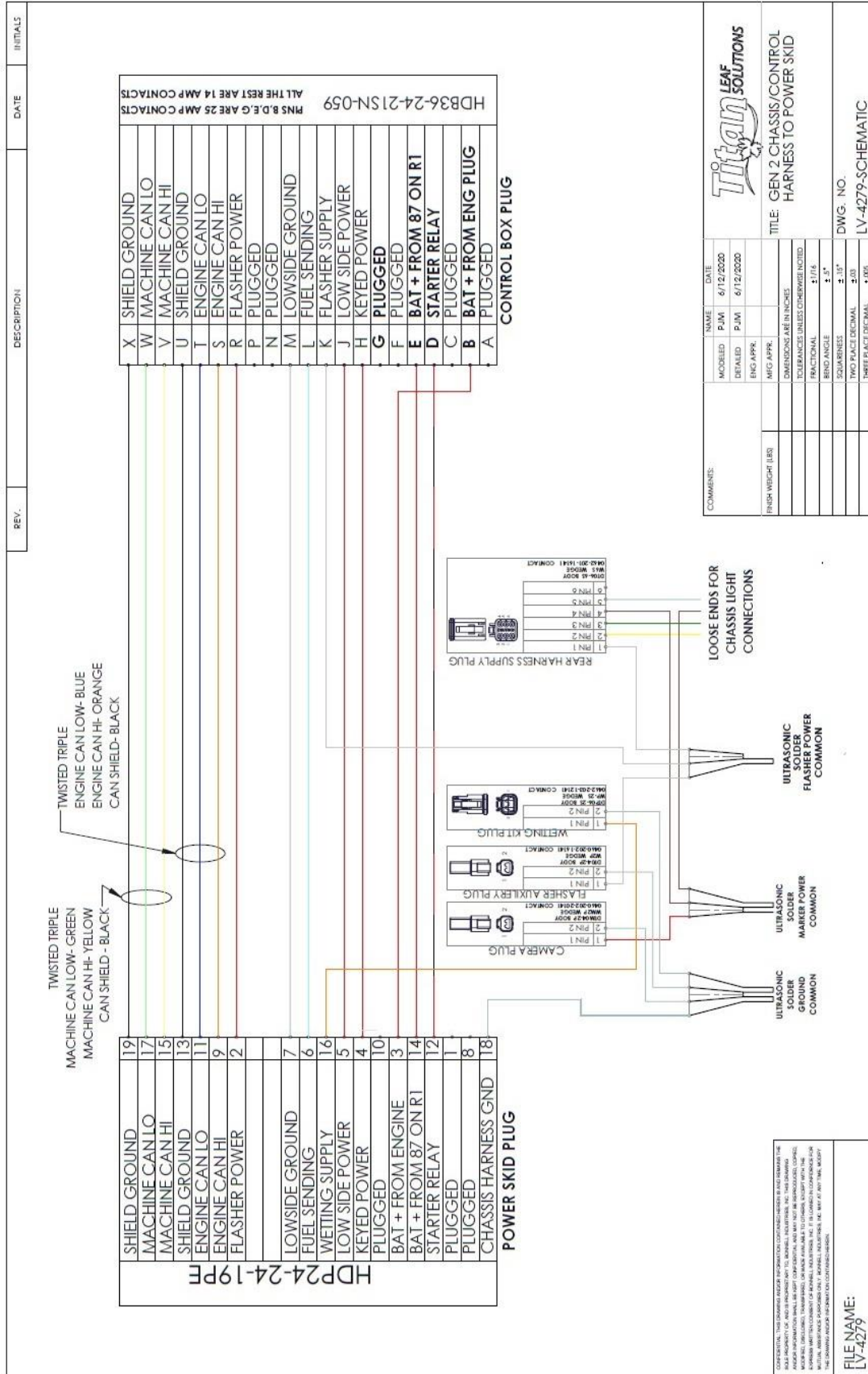


# REAR LOWER LIGHT HARNESS

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FILE NAME:  
LV-4308

## 6.1.12 CHASSIS HARNESS





## 7 GENERAL OPERATING INSTRUCTIONS

**SPECIAL NOTE:** this section of the manual is intended as a supplement to your specific municipal or business guidelines in leaf collection, and is not intended to be a *“complete leaf collection guide”*. Training is the key to safe and proper operation of this equipment. Ensure your operation is in compliance with all applicable codes and regulations.

### 7.1.1 PRESTART CHECKLIST

#### PRESTART CHECKLIST

- |                            |                       |
|----------------------------|-----------------------|
| ✓ INSPECT TIRES            | ✓ INSPECT HOSE        |
| ✓ ENGINE OIL & FUEL LEVELS | FOR WEAR              |
| ✓ CHECK ALL LIGHTS         | ✓ PICK-UP HOSE SECURE |
| ✓ HYDRAULIC OIL LEVEL      | ✓ CHECK BELT TENSION  |
| ✓ WATER LEVEL              | ✓ ALL GUARDS IN PLACE |
|                            | ✓ DISENGAGE CLUTCH    |

### 7.1.2 HYDRAULIC CLUTCH

Softkeys are provided on the control panel for engaging & disengaging the hydraulic clutch. The engine throttle will automatically be reduced to idle speed when the clutch is engaged or disengaged. After 5 seconds the engine can be manually throttled up to the desired RPM.



## Operating Instructions

---

### **Engage Clutch:**

Press and hold the clutch engage softkey for one second. The engine throttle will automatically reduce to idle speed. The clutch will engage and the clutch engaged indicator will be displayed.



**CLUTCH ENGAGED**

### **Disengage Clutch:**

Press the clutch disengage softkey. The engine throttle will automatically reduce to idle speed. The clutch will disengage and the clutch disengaged indicator will be displayed.



**CLUTCH DISENGAGED**

### **Clutch Adjustment**

The hydraulic clutch is a self-adjusting design which does not require adjustments.

### **7.1.3 ENGINE RPM**

Adjust engine RPM to match working conditions. Generally, lower RPM is better for dryer and dusty conditions. However, engines will have greater vibrations at certain rpms that vary by engine. For example, the vibration of the engine may be higher at 2000 rpm than it is at 2200 rpm. Never collect leaves while the engine is running in idle.

# Operating Instructions

## 7.1.4 E-STOP SWITCHES

Emergency stop locations are shown below. Press the red button to stop the engine if an emergency situation arises. The emergency stop will kill the engine and disable all hydraulic and joystick functions. To reset the system after an e-stop activation, twist the red button on the e-stop switch until it pops out. Then switch the ignition key off and back on to clear the fault. The engine can now be restarted and operation may continue. If the engine will not start make sure all e-stop switches are reset. See section 6.1.6 for additional safety circuit information.



ENG. ESTOP - ENGINE HOUSING

OP. ESTOP - CONTROL PANEL



# Operating Instructions

## 7.1.5 SAFETY SENSORS

The safety sensor locations are shown below. When activated the sensors will kill the engine and disable all hydraulic and joystick functions. To reset the system after a safety sensor activation, return the guard to its intended operating position. The engine can now be restarted and operation may continue. If the engine will not start, make sure all of the guards & covers are in their proper operating position. See section 6.16 for additional safety circuit information.



C.D. PROX  
(CLEANOUT DOOR)  
SAFETY SENSOR

C.H. PROX  
(COLLECTION HOSE)  
SAFETY SENSOR



B.G. PROX  
(BELT GUARD)  
SAFETY SENSOR

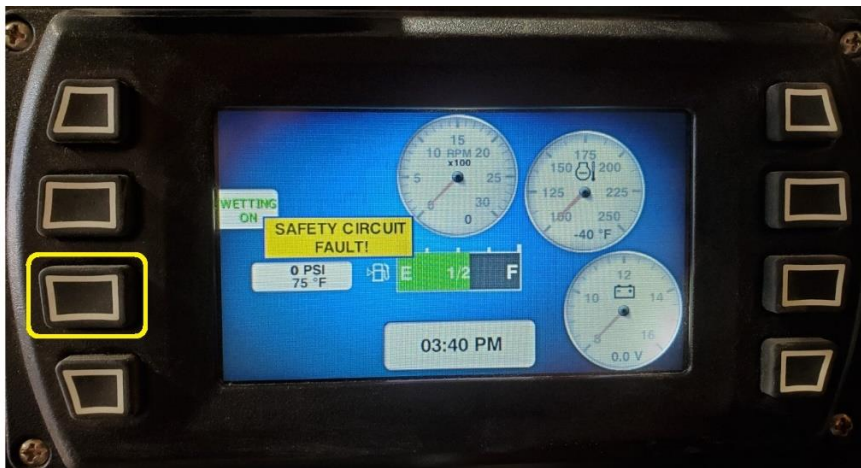
# Operating Instructions

## 7.1.6 SAFETY CIRCUIT OPERATION

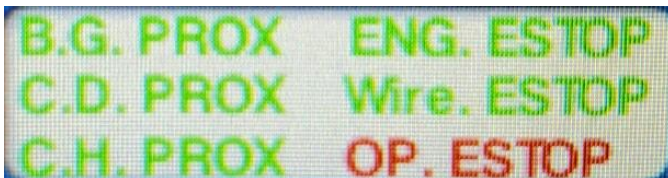
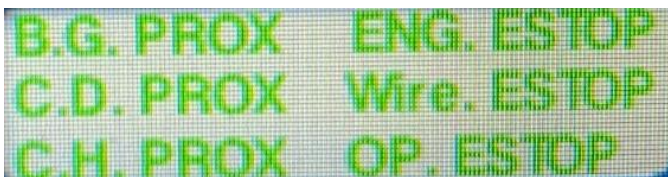
The safety circuit is comprised of safety sensors and emergency stop switches. Whenever a safety sensor or e-stop switch is activated all machine functions will be stopped and the engine will shut down. When a safety condition is encountered the control panel will display the message "SAFETY CIRCUIT FAULT!".



It can be determined which safety sensor or E-stop has been activated by viewing the diagnostic menu. Press the softkey shown below to access the diagnostics menu.



A list of safety components is shown within the diagnostics menu. The component causing the fault will be displayed in red.



- B.G. PROX = Belt guard safety sensor
- C.D. PROX = Cleanout door safety sensor
- C.H. PROX = Collection hose safety sensor
- ENG. ESTOP = Engine E-stop switch
- Wire. ESTOP = Wireless controller E-stop
- OP. ESTOP = Operator E-stop switch

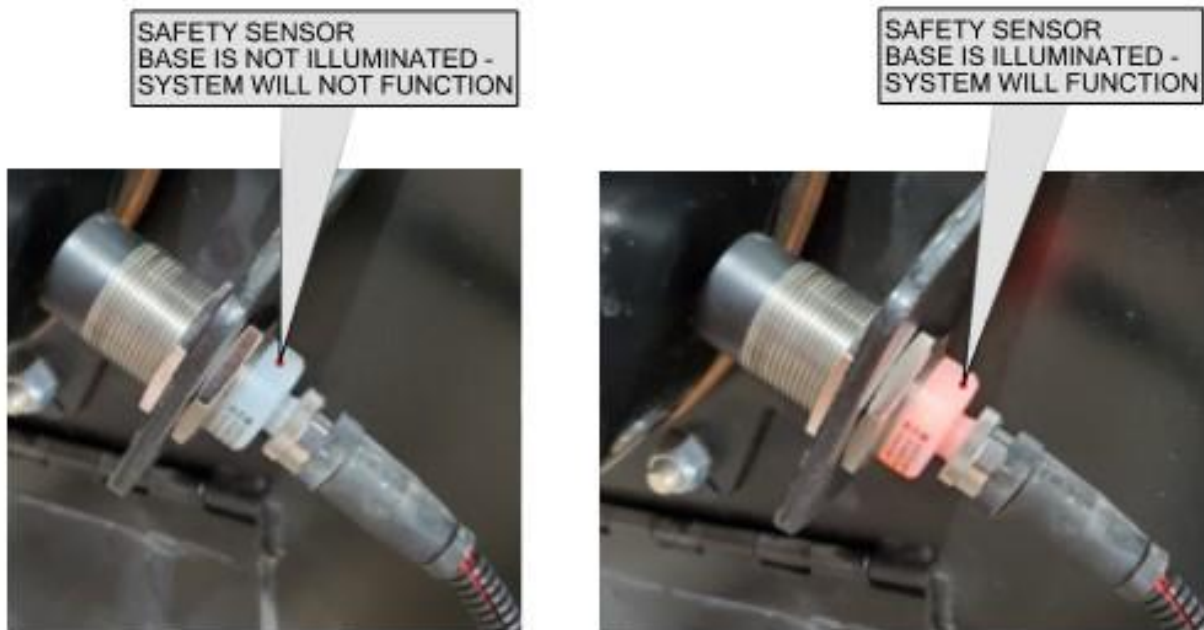
## Operating Instructions

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When a safety circuit fault has occurred the cause of the fault will need to be addressed before the machine can be operated again.

To clear the fault for e-stop activations, the e-stop switch must be reset by twisting the red button until it pops out, and then recycling the control system power by turning the ignition key switch off and back on again.

To clear the fault for safety sensor activations, the associated guard or cover must be returned to its intended operating position. The guard or cover is in the correct position when the base of the safety sensor is lit. The engine can then be restarted and operation may continue.



# Operating Instructions

---

## 7.1.7 HYDRAULIC BOOM OPERATION

The collection boom is equipped with two hydraulic cylinders for up & down and sweep angle movements. Boom is supplied with a hydraulic rotary actuator for left & right swing operation. These controls will provide the range of motion needed to operate on varying terrain and conditions.

- Raise Boom – depress trigger and pull joystick towards the operator
- Lower Boom – depress trigger and push joystick away from the operator
- Swing Left - depress trigger and move joystick to the operator's left
- Swing Right – depress trigger and move joystick to the operator's right
- Sweep Angle – depress trigger and move the thumb control left or right



## Operating Instructions

---

### 7.1.8 ENGINE THROTTLE CONTROLS

The engine throttle controls are controlled by the joystick buttons.

Throttle down – press and hold the throttle down button until desired RPM is achieved

Throttle up – press and hold the throttle up button until the desired RPM is achieved

Note: For machines equipped with a hydraulic clutch, when engaging or disengaging the clutch, the engine throttle will automatically be reduced to idle speed. After 5 seconds the engine can be manually throttled up to the desired RPM.



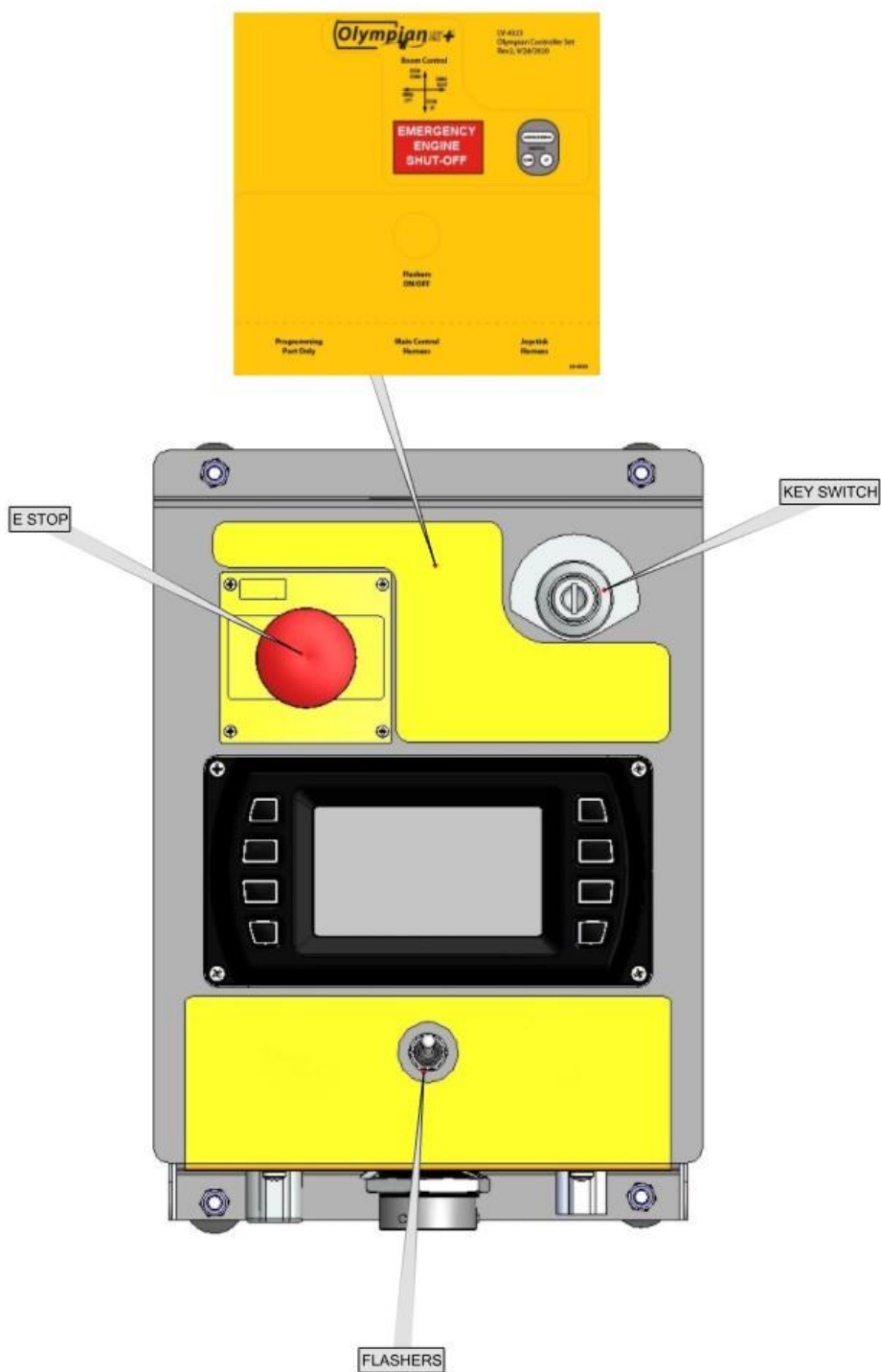


# Operating Instructions

## 7.1.9 CONTROL PANEL OPERATION

The control panel assembly contains the PV450 display, key switch and E stop.

1. Turn ignition key to the ON position.
2. Turn ignition key to start the engine.
3. Flip the toggle switch to turn the flashing lights on/off.

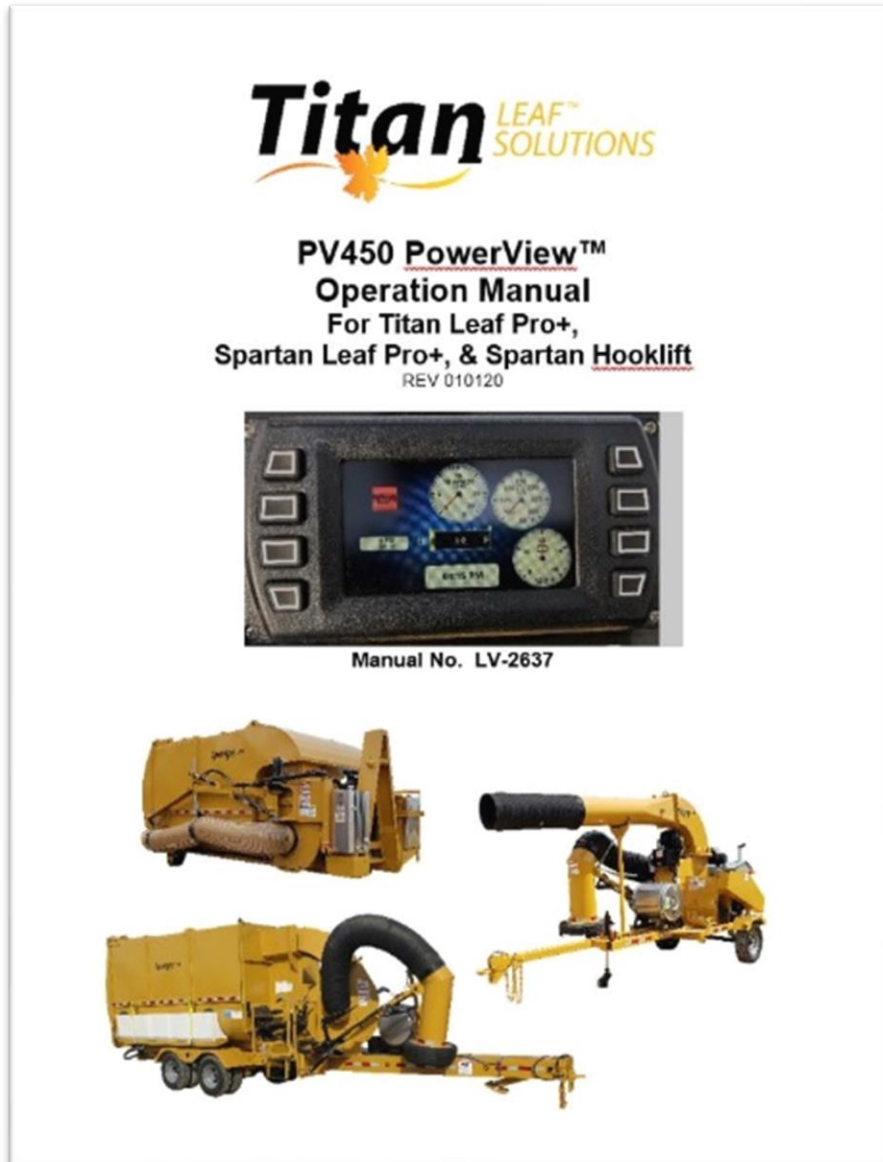


# Operating Instructions

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## 7.1.10 PV450 CONTROLLER ADJUSTMENTS

Refer to supplemental controller manual, part number LV-2637. Contact Bonnell Industries to obtain a copy.



## Operating Instructions

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### 7.1.11 ARM STORAGE

- To remove the arm from the storage position, remove the safety tie up chain from the arm.










- Lift using the joystick, lift the arm up before rotating the arm away from the body.
- To store the arm, rotate the arm until it is next to the body and lower it onto the storage bracket.
- The safety chain should be attached to the collection hose any time the unit is in transit.

# Operating Instructions

## 7.1.12 BODY HOIST OPERATION

The body hoist is operated at the control panel located inside the vehicle cab. To raise the body, press and hold the UNLOCK / UP softkey. To lower the body, press and hold the LOCK / DN softkey.

This hydraulic function is equipped with a sequence valve. When raising the body, the tailgate latch cylinders will unlock first, then the hoist will raise the body. When lowering, the reverse is true. In some cases, the door may touch the ground when dumping. The body is equipped with a double hinge mechanism to prevent damage to the door when this occurs.

 <b>Danger</b>
<b>Crush, pinch, and overhead clearance hazard!</b> Assure that all people and equipment are in the clear when raising the hoist! Also be aware of overhead obstructions such as power-lines. Failure to do so could result in severe injury or death.
 <b>WARNING</b>
<b>Engine must be at idle when dumping.</b> Failure to follow this procedure may cause debris to exit the blower housing, and cause injury.
 <b>WARNING</b>
<b>Do not back up while dumping.</b> Failure to follow this procedure may cause severe damage to the body or tailgate.
 <b>DANGER</b>
<b>DANGER</b> – Immediate hazards which WILL result in severe personal injury or death if the warning is ignored.
 <b>WARNING</b>
<b>WARNING</b> – Engine must be at idle when dumping. Failure to follow this procedure may cause debris to exit the blower housing, and cause injury.
 <b>WARNING</b>
<b>CAUTION</b> – Hazards or unsafe practices which could result in minor or moderate injury if the warning is ignored.
 <b>NOTICE</b>
<b>NOTICE</b> – Practices that could result in damage to the trailer or other property.

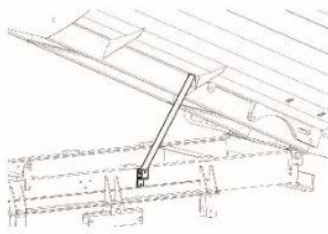
# Operating Instructions



## 7.1.13 BODY PROP OPERATION

The body prop(s) must always be used when working under or around a raised body.

**⚠ OPERATION OF BODY PROP**

<p>This machine is equipped with:</p> <ul style="list-style-type: none"><li>( ) 1 Body Prop</li><li>( ) 2 Body Props</li></ul> 	<p><b>TO USE BODY PROP(S):</b></p> <ol style="list-style-type: none"><li>1. Raise body to height where prop(s) can be swung upward into position. Place the hoist control valve in the neutral (hold) position.</li><li>2. Locate prop(s) (behind fender), and swing "up" to the support position.</li><li>3. Lower body slowly until prop(s) rests on prop receiver. Do not power hoist down. Place the hoist control valve in the neutral (hold) position.</li></ol> <p><b>TO STORE THE PROP(S):</b></p> <ol style="list-style-type: none"><li>4. Raise body to a height where the prop(s) will clear the prop receiver. Be sure the hoist control valve is in the neutral (hold) position.</li><li>5. Swing prop(s) down to transit position. Before lowering body be certain that the area is clear.</li></ol>
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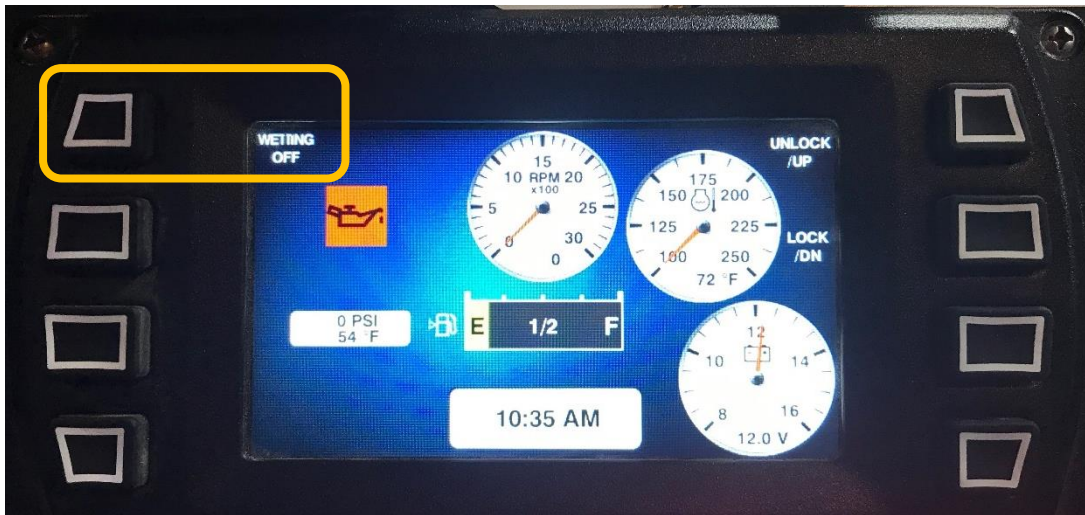
**⚠ Danger**

**Crush & pinch hazard!** Never work around or under a raised body without the body props engaged. Failure to do so could result in severe injury or death.

## Operating Instructions

### 7.1.14 DUST CONTROL SYSTEM

The dust control system is designed to reduce the amount of dust exiting the body. A softkey is provided on the control panel to switch the water pump on / off.



The dust control system consists of:

- 100-gallon water tank
- Electric pump
- Strainer
- 4 dust screens
- 8 spray nozzles

As air passes through the dust control module a water mist wets the dust particles allowing them to collect on the screens.

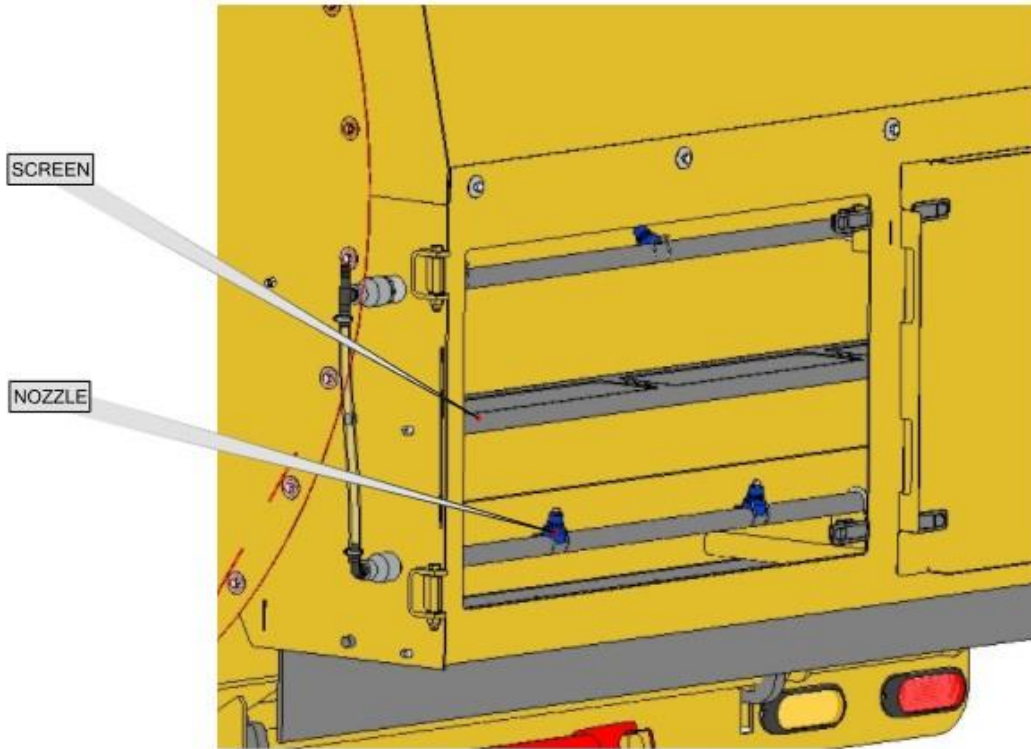
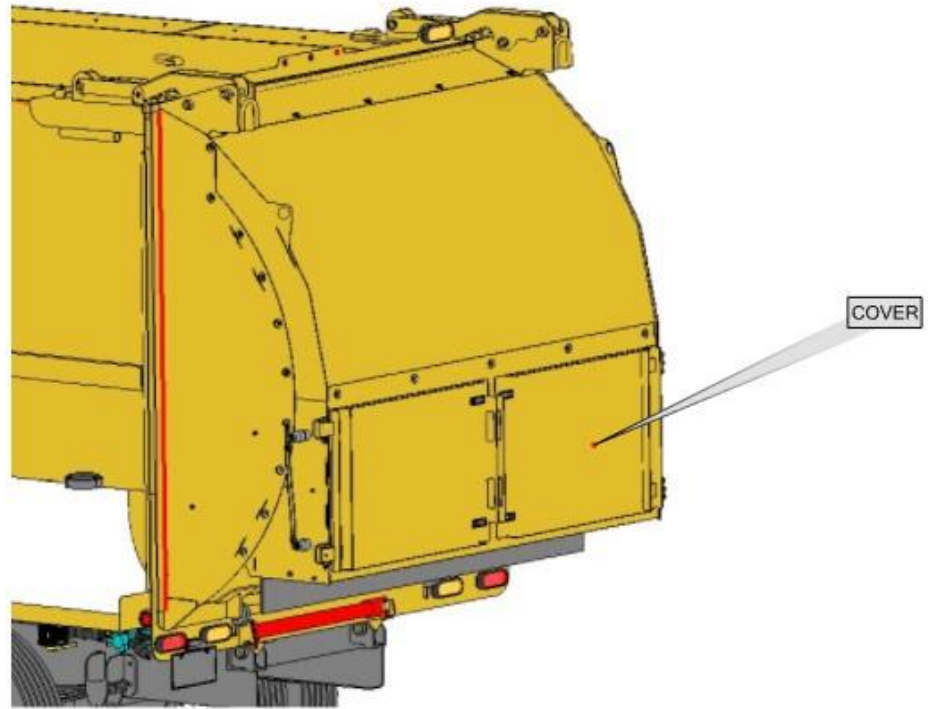
To conserve water only operate the water pump as needed. In addition, turning the water pump off when debris is not being collected will conserve water.

The dust control screens should be cleaned each time the body is emptied. To clean the screens, open both rear covers. Unlatch the screens allowing them to rotate to the vertical position and then hose the debris off the screens. Return the screens to the horizontal position and re-latch. Close both rear covers.

Periodically check and clean the strainer located near the water pump.

# Operating Instructions

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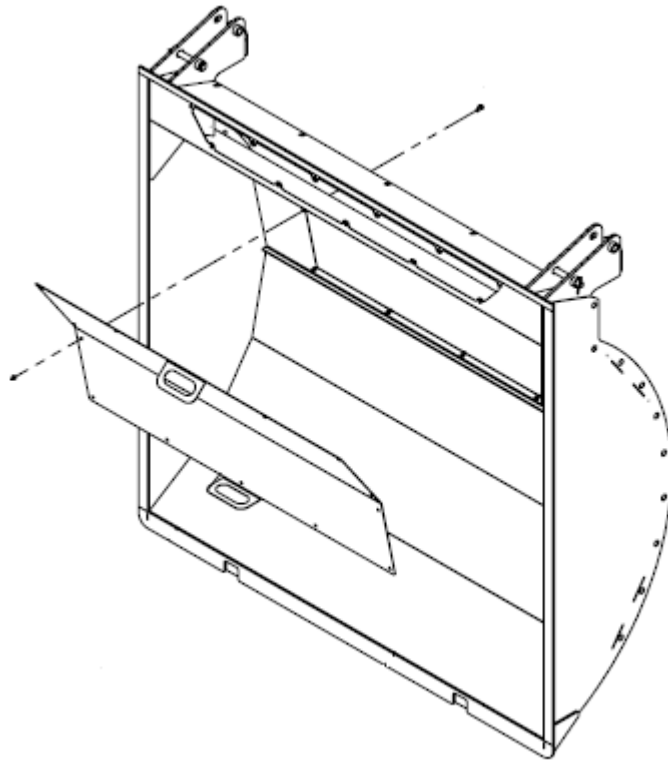


## Operating Instructions

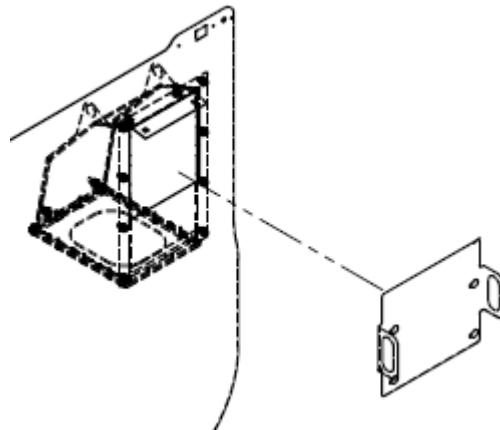
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### 7.1.15 CHIPPER DOOR OPTION

The leaf containment body can be converted for use with a wood chipper by removing the down draft module (if equipped). Unbolt the chipper opening cover plate and set aside.



Install the blower housing cover plate by loosening the middle four mounting bolts on the blower housing transition and sliding the cover plate into place. Re-tighten the mounting bolts.





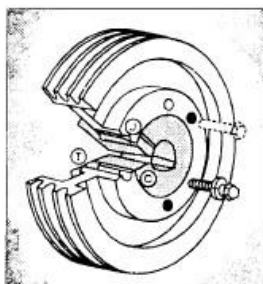
## 8 SUPPLEMENTAL MANUALS

### 8.1.1 QD & SPLIT TAPER BUSHINGS

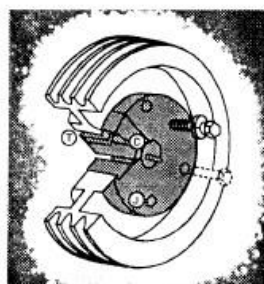
#### QD Bushing/Sheaves Installation



QD bushing sizes JA through N can be assembled in either of the two positions shown below. Sizes P through S should be assembled in position one. *Position One* is the conventional or standard mounting. *Position Two* (Reverse Mounting) may be necessary in some cases, such as mounting small sheaves with blind holes (not drilled through).



Position 1



Position 2

Bushing Size	Cap Screw Size-Thread	Foot Pounds Wrench Torque*
JA	10-24	3
SH-SDS-SD	1/4-20	6
SK	5/16-18	10
SF	3/8-16	20
E	1/2-13	40
F	9/16-12	50
J	5/8-11	90
M	3/4-10	150
N	7/8-9	200
P	1-8	300
W	1-1/8-7	400
S	1-1/4-7	500

\*For Normal Applications. For Severe (Rock-crusher type) applications these values can be increased by a maximum of 50%

Caution: Excessive cap-screw torque can cause sheave and/or bushing breakage. The use of lubricants can cause sheave breakage.

Therefore,

**DO NOT USE LUBRICANTS IN THIS INSTALLATION!**

#### INSTALLATION:

1. Make sure the tapered-cone surface of the bushing and the mating bore of the sheave are free of all foreign substances, such as dirt, excess paint accumulations, metal chips, lubricants, etc.
2. For position one or two (whichever applies), line up the unthreaded holes (C) with the threaded holes (t) and insert cap screws with lock washers engaging only two or three threads. (\*a)
3. With key in shaft keyway, slide the loosely-assembled unit onto shaft and position for good belt alignment. (\*b, \*c) Use no lubricants or anti-seize compound on threads or tapered surfaces.
4. Carefully tighten the capscrews alternately and progressively until the tapers are seated (at approximately half the recommended torque).
5. Check alignment and sheave runout (wobble) and correct as necessary.
6. Continue careful alternate and progressive tightening of the cap screws to the recommended torque values shown in the table. **Maximum torque should be achieved on each individual bolt only two times in the consecutive tightening.**

Note: When properly mounted, there will be a gap between the bushing flange and sheave after the screws are tightened.

Caution: Use of Lubricants and or excessive screw torque can cause breakage

7. Tighten the set screw, when available, to hold the key securely during installation and until cap screws are securely tightened.

#### REMOVAL

1. Loosen and remove all mounting cap screws.
2. Insert cap screws in all threaded jack screw holes (J).
3. Start with the screws furthest from the bushing saw slot and tighten all jack screws alternately and progressively. Keep turning the screws in small equal amounts until the tapered surfaces disengage.

(\*a) When mounting a sheave on M through W size bushing, position the threaded jack-apart hole (J) as far from the bushing saw as possible to reduce the possibility of bushing breakage.

(\*b) When installing large or heavy parts in *Position One*, it may be easier to mount the key and bushing on the shaft first. Then place the sheave on the bushing and align the holes.

(\*c) Caution: When mounting on a vertical shaft, provisions must be made, which will positively prevent the sheave and/or bushing from dropping during installation.



## MST® Bushings Instructions & Removal Instruction

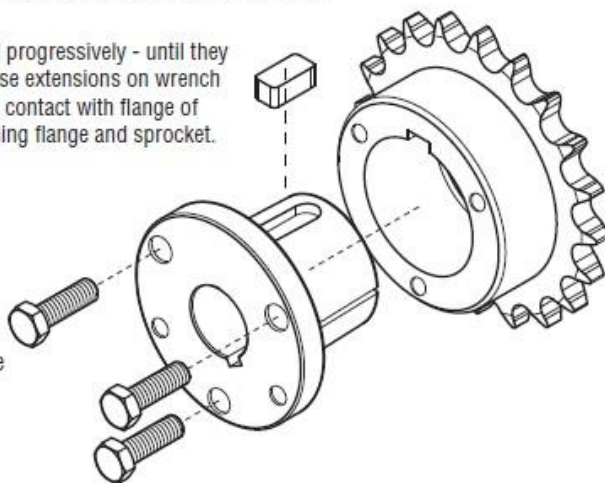
The MST® bushings are easy to install and remove. They are split through the barrel and have a taper to provide a true clamp on the shaft. They are keyed to both the shaft and the hub to help during “blind” installations.

### INSTALLATION

1. Be sure the tapered cone surfaces of the bushing and the inside of the driven product are clean and free of anti-seize lubricants.
2. Place bushing in sprocket or other *Martin* MST® part.
3. Place cap screws loosely in pull-up holes. Bushing remains loose to assure sliding fit on shaft
4. With key on shaft, slide sprocket to desired position on shaft. Be sure heads of cap screws are accessible.

5. Align sprocket. Tighten screws alternately and progressively - until they are pulled up tight (see table below). Do not use extensions on wrench handles. Do not allow sprocket to be drawn in contact with flange of bushing. There should be a gap between bushing flange and sprocket.

**CAUTION: THIS GAP MUST NOT BE CLOSED**



### REMOVAL

1. Loosen and remove cap screws.
2. Insert cap screws in tapped removal holes.
3. Tighten inserted screws until sprocket is loose on shaft.
4. Remove sprocket from shaft.

WRENCH TORQUE VALUE FOR TIGHTENING BUSHING		
MST® Bushing Size	Size of Cap Screw	Wrench Torque in/lb
G	.25 × .625	95
H	.25 × .75	95
P	.313 × 1	192
Q	.375 × 1.25	348
R	.375 × 1.75	348
S	.5 × 2.25	840
U	.625 × 2.75	1680
W	.75 × 3	3000

**CAUTION**

**WARNING: USE OF ANTI-SEIZE LUBRICANT ON TAPERED CONE SURFACE OR ON BOLT THREADS WHEN MOUNTING MAY RESULT IN DAMAGE TO SHEAVE AND SPROCKETS. THIS VOIDS ALL MANUFACTURER'S WARRANTIES**

**WARNING:** Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed: Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions given above must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. All rotating power transmission products when used in a drive are potentially dangerous and must be guarded by the user as required by applicable laws, regulations, standards, and good safety practice. (Refer to ANSI Standard B15.1.)

[martinsprocket.com](http://martinsprocket.com)

8.1.2 TRANSFLUID COUPLER



# TRANSFLUID

## trasmissioni industriali

### NORME D'INSTALLAZIONE E MANUTENZIONE

PRIMA DI MONTARE E METTERE IN FUNZIONE IL PRODOTTO, LEGGERE ATTENTAMENTE TUTTE LE ISTRUZIONI SULLA SICUREZZA ED IL FUNZIONAMENTO RIPORTATE NEL PRESENTE MANUALE.

SEGUIRE SEMPRE TUTTE LE AVVERTENZE ED ASSICURARSI CHE GLI OPERATORI PRESENTI IN PROSSIMITA' DELL'APPARECCHIATURA INDOSSINO TUTTI I DISPOSITIVI DI PROTEZIONE RICHIESTI PER LA SICUREZZA NELL'AMBIENTE DI LAVORO.

NON UTILIZZARE L'APPARECCHIATURA SE LE PRESENTI ISTRUZIONI NON DOVESSERO RISULTARE CHIARE, E CONTATTARE IMMEDIATAMENTE IL COSTRUTTORE O IL DISTRIBUTORE PER L'ASSISTENZA NECESSARIA.

IL PRODOTTO DEVE ESSERE PROTETTO DA UNA COPERTURA ADEGUATA PER EVITARE DANNI ALLE PERSONE.

LO SCHERMO DEVE SEMPRE PREVEDERE APERTURE ASSIALI E RADIALI PER LA VENTILAZIONE DEL GIUNTO.

SE FOSSE MONTATO IL TAPPO FUSIBILE, LE SUDETTE APERTURE NON DEVONO ESSERE ORIENTATE VERSO GLI OPERATORI, PARTI CALDE O COLLEGAMENTI ELETTRICI.

### INSTALLATION AND MAINTENANCE

BEFORE ASSEMBLING AND OPERATING THE PRODUCT, CAREFULLY READ ALL THE SAFETY AND OPERATING INSTRUCTIONS REPORTED IN THIS MANUAL.

ALWAYS FOLLOW ALL THE INSTRUCTIONS AND ASSURE THAT ALL THE OPERATORS STANDING BY THE MACHINERY ARE WEARING ALL THE PROTECTIVE EQUIPMENT NECESSARY FOR THE JOB TYPE AND APPLICATION BEING PERFORMED.

DO NOT USE THE MACHINERY IF YOU DO NOT UNDERSTAND THESE INSTRUCTIONS, AND IMMEDIATELY REFER TO THE MANUFACTURER OR THE CUSTOMER SERVICE DESK FOR ASSISTANCE.

THE PRODUCT MUST BE PROTECTED BY A CONVENIENT COVER GUARD TO AVOID PERSONAL INJURY TO PEOPLE.

AXIAL AND RADIAL VENTILATION OPENINGS SHOULD BE INCORPORATED IN THE GUARD FOR HEAT EXCHANGE.


IF THE PRODUCT IS FITTED WITH FUSIBLE PLUGS, THE SAID OPENINGS SHOULD NOT BE DIRECTED TOWARDS OPERATORS OR ANY HOT OR ELECTRICAL INSTALLATION.

GIUNTI IDRODINAMICI  
FLUID COUPLINGS

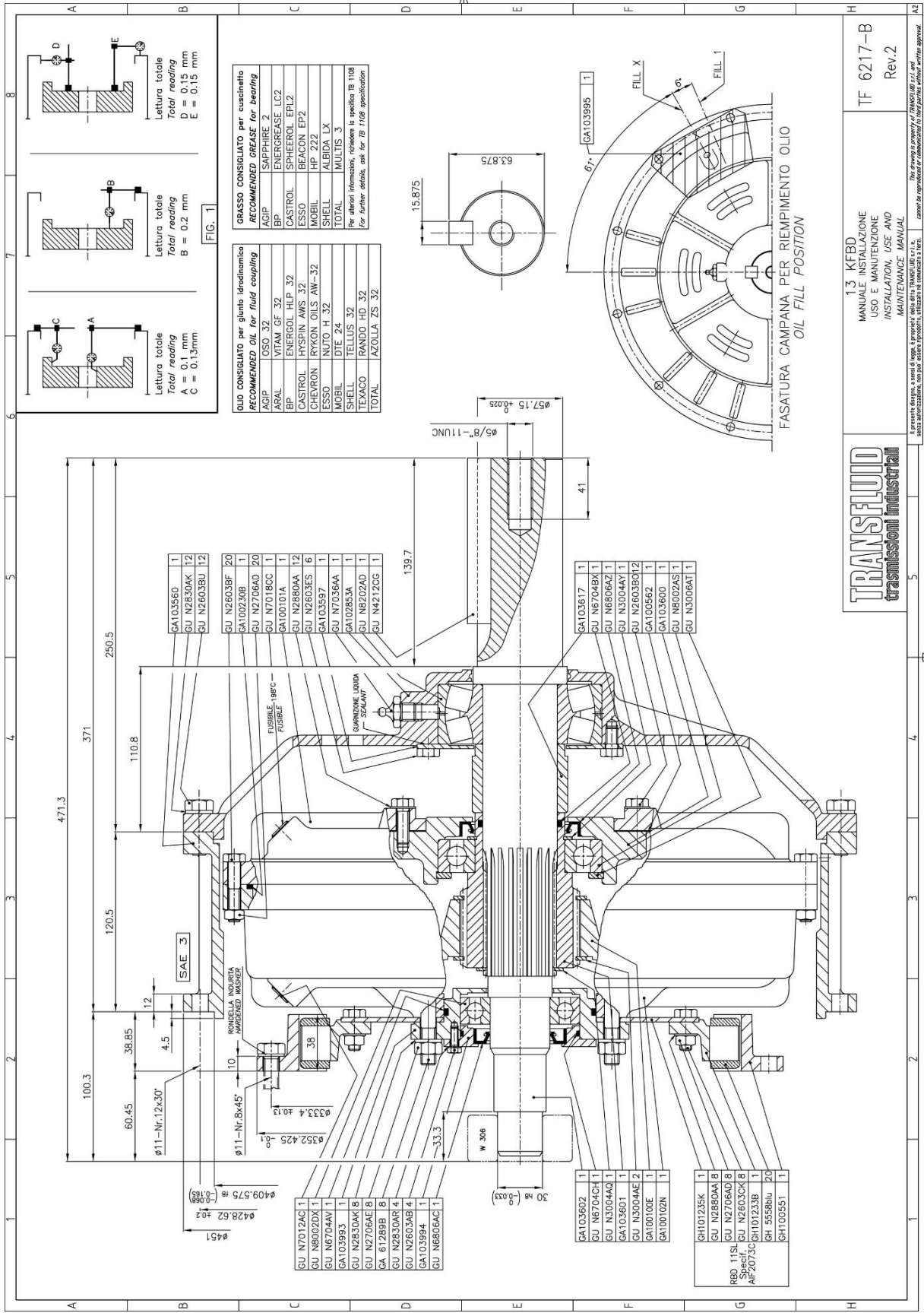
13 KFBD

drive with us

156 I - GB

 <p><b>trasmissioni industriali</b></p>	<p><b>13 KFBD</b>  <b>MANUALE INSTALLAZIONE, USO E MANUTENZIONE</b>  <b>INSTALLATION, USE AND MAINTENANCE MANUAL</b></p>	<p><b>TF 6217-A</b>  <b>Rev. 0</b></p>
<p>Questo manuale contiene le istruzioni per l'installazione, l'avviamento, l'uso e la manutenzione del giunto idrodinamico tipo KFBD. <b>CONSIGLIAMO CHE I RESPONSABILI DELL'USO E DELLA MANUTENZIONE DEL KFBD, VENGANO DOTATI DEL PRESENTE MANUALE. IL NON RISPETTO DELLE REGOLE CITATE IN QUESTO MANUALE, PROVOCA IL DECADERE DELLA GARANZIA.</b> Ricordiamo che, per ordinare le parti di ricambio, e' importante specificare, oltre al numero di dettaglio e quantita' richiesta, anche: TIPO - N° di SPECIFICA - N° di SERIE del KFBD, che si trovano stampigliati sulla targhetta di identificazione a bordo macchina.</p> <p><i>This manual contains instructions for installation, start up, working, and maintenance of KFBD fluid coupling. WE SUGGEST THAT ANY PERSON WHO IS RESPONSIBLE FOR USE AND/OR MAINTENANCE, SHOULD BE PROVIDED WITH THIS MANUAL. THE RESPECT OF RULES, CONTAINED IN THIS MANUAL, IS MANDATORY FOR WARRANTY VALIDITY. We recall that, for spare parts order, it is important to provide, besides detail number and quantity, even: TYPE - SPECIFICATION Nr. - SERIAL Nr. of KFBD that are stamped on identification metal plate.</i></p>		
<p style="text-align: center;"><b>DESCRIZIONE</b></p> <p>Il KFBD e' un giunto idrodinamico la cui parte esterna, motrice, e' collegata al volano di un motore endotermico mediante un giunto elastico ed il cui albero di uscita e' supportato da un cuscinetto orientabile a rulli, lubrificato ad olio, alloggiati in una campana di supporto flangiata al coprivolano del motore. Un secondo cuscinetto, alloggiato nel volano, sostiene l'albero di uscita dal lato motore. Il KFBD e' adatto per applicazioni con puleggia od i linea.</p>	<p style="text-align: center;"><b>DESCRIPTION</b></p> <p><i>KFBD is a fluid coupling having the outer driving impeller connected to the internal combustion engine flywheel through an elastic coupling. The output shaft is supported by a spherical roller bearing, oil lubricated, fitted in a cover flanged to the engine flywheel housing. Another bearing, fitted into the flywheel, supports the output shaft at the engine side. The KFBD is suitable for pulley or in line applications.</i></p>	
<p><b>Prima di iniziare il montaggio del KFBD sul motore, e' bene verificare che il volano rientri nelle tolleranze SAE. Questo e' importante soprattutto per il buon funzionamento del giunto elastico.(Vedere TF6217-B Fig.1)</b></p> <p><b><i>Before KFBD be mounted onto the engine, it is recommended to check that flywheel be within SAE tolerances. This is very important for elastic coupling good working.(see TF6217-B Fig.1)</i></b></p>		
<p style="text-align: center;"><b>INSTALLAZIONE (vedere TF6217-B)</b></p> <ol style="list-style-type: none"> <li>1 Montare l'anello di trascinamento del giunto elastico sul volano del motore.</li> <li>2 Montare il cuscinetto pilota, ingrassato a vita, sull'albero del KFBD.</li> <li>3 Montare la flangia SAE 3 sul coprivolano.</li> <li>4 Posizionare il gruppo completo, osservando con cura l'allineamento dell'albero nel cuscinetto pilota e dei blocchetti del giunto elastico con l'anello di trascinamento montato sul volano. La campana esterna deve essere orientata in modo da avere l'apertura per il riempimento dell'olio a circa 60° dalla verticale, in senso orario guardando il volano del motore. Così montato, si avra' l'apertura di drenaggio dell'olio in basso. Infine fissare il gruppo con le apposite viti sulla flangia esterna.</li> <li>5 Riempimento olio giunto (vedere tabella olii consigliati). Togliere il coperchio che protegge il tappo di carico. Ruotare il giunto sino a portare il tappo in corrispondenza del segno di riferimento X sulla verticale (X-1-2-3-4 dipende dall'applicazione). Togliere il tappo e riempire fino allo sbocco dal foro (13KFBD X=5,2 lt.), quindi chiudere utilizzando del sigillante sul filetto. La coppia di serraggio e' 30 Nm per tappo 3/8". Rimontare il coperchio di protezione.</li> <li>6 Riempimento grasso (vedere tabella grassi consigliati). Mediante l'apposito ingrasatore,, riempire la camera di lavoro del cuscinetto fino a far fuoriuscire il grasso attorno all'albero</li> <li>7 Dare alcuni colpi, con un martello non metallico, sull'estremita' dell'albero onde eliminare ogni eventuale tensione sui cuscinetti dovuta alla resistenza offerta dal cuscinetto pilota, quando esso viene montato forzato nella sede del volano. Al primo avviamento, far girare il gruppo innestato, per almeno</li> <li>8 10 minuti, con il motore alla meta' dei giri massimi.</li> </ol>	<p style="text-align: center;"><b>INSTALLATION (see sheet.TF6217-B)</b></p> <ol style="list-style-type: none"> <li>1 Mount elastic coupling driving ring, onto engine flywheel.</li> <li>2 Mount pilot bearing, greased for life, onto KFBD shaft.</li> <li>3 Mount SAE 3 flange onto flywheel housing.</li> <li>4 Install complete group paying attention at alignment between shaft and pilot bearing as well as alignment between rubber blocks and driving ring. <i>External housing must be orientated to get the oil fill opening at about 60° clockwise from vertical line, looking at the flywheel. In such a way, the oil drain opening will be downwards. Therefore tighten screws of external flange.</i></li> <li>5 Fluid coupling oil filling (see recommended oil table). Remove cover. <i>Turn fluid coupling untill X mark be on vertical line (X-1-2-3-4 depends on application). Remove plug and fill untill oil overflows (13KFBD fill X=5,2 lt.). Therefore fit the plug using sealent on thread. Tightening torque is 30 Nm for 3/8" plug .Fit again the cover.</i></li> <li>6 Grease filling (see recommended grease table). <i>Through the grease filler, fill grease untill it comes out around the shaft.</i></li> <li>7 Rap the shaft on the end to relieve any preloading that may result due to the resistance of pilot bearing when being pressed into the flywheel.</li> <li>8 At first start up, run the unit engaged and engine at half of max speed for not less than 10 minutes.</li> </ol>	

# Supplemental Manuals



# Supplemental Manuals

**TRANSFLUID**  
trasmissioni industriali

**13 KFB**  
**MANUALE INSTALLAZIONE, USO E MANUTENZIONE**  
**INSTALLATION, USE AND MAINTENANCE MANUAL**

**TF 6217-C**  
**Rev. 0**

### MANUTENZIONE

- Controllare, ogni 3 mesi, il livello dell'olio nel giunto.  
Cambiare l'olio ogni 4000 ore di funzionamento oppure una volta all'anno.
- Ingrassare il cuscinetto dell'albero di uscita ogni settimana.
- Controllare, periodicamente, lo stato dei blocchetti in gomma del giunto elastico.
- E' consigliabile, ogni 4000 ore di funzionamento, cambiare tutti gli anelli di tenuta rotante e controllare lo stato dei cuscinetti.
- Controllare, periodicamente, che la taratura del termostato, se installato, sia uguale al valore originariamente impostato (vedere certificato di collaudo e TF5941-O).
- Pulire periodicamente la sonda del termostato, se installato.

### MAINTENANCE

- Check, every 3 months, the fluid coupling oil level. Change oil every 4000 working hours or once a year, whichever occurs first.
- Grease output shaft bearing every week.
- Check, periodically, elastic coupling rubber blocks condition.
- It is advisable, every 4000 working hours, to change all rotating seals and to check bearings condition.
- Check, periodically, that temperature switch whether installed, set value be the same as originally adjusted (see test certificate and TF5941-O).
- Clean periodically the temperature switch bulb, whether installed.

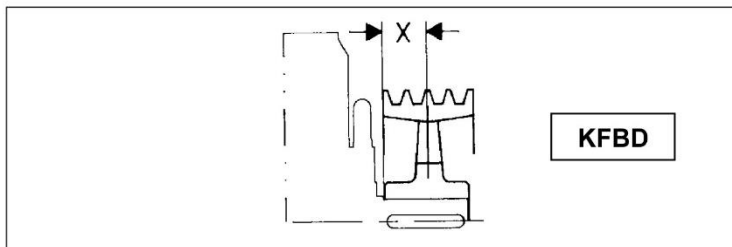
### TABELLA INCONVENIENTI

SINTOMO	CAUSA	RIMEDIO
Scarse prestazioni.	Livello olio.	Controllare il livello (olio freddo) ed aggiungere se necessario. Controllare la macchina condotta. Controllare i giri del motore.
	Tipo olio.	Utilizzare olio indicato in tabella.
Surriscaldamento.	Scorrimento eccessivo.	Controllare il livello olio. Verificare l'installazione. Controllare i giri del motore.
	Scarsa ventilazione.	Pulire le aperture per la ventilazione.
	Cuscinetto non lubrificato.	Verificare il livello olio ed eventualmente aggiungere.
	Cuscinetto in uscita danneggiato.	Sostituire.
Perdita olio lato motore.	Carico radiale eccessivo.	Ridurre la tensione delle cinghie.
	Tappo conico.	Rimontare con sigillante per filetti.
	Anello OR.	Sostituire.
Perdita olio lato uscita.	Tenuta rotante.	Sostituire. Controllare l'usura sull'albero.
	Tappo conico.	Rimontare con sigillante per filetti.
	Tappo fusibile se installato.	Sostituire.
	Anelli OR.	Sostituire.
Rumore.	Tenuta Rotante.	Sostituire. Controllare l'usura sull'albero.
	Rottura cuscinetto.	Sostituire.
	Olio con troppa schiuma.	Controllare il livello ed il tipo di olio.
	Usura eccessiva giunto elastico (vibrazioni torsionali?, temperatura eccessiva?, disallineamento?, olio.).	Smontare e sostituire i blocchetti od il giunto elastico completo.
Intervento termostato.	Usura della dentatura tra albero uscita mozzo, girante interna.	Smontare e sostituire le parti usurate.
	Alta temperatura olio.	Vedere "surriscaldamento".
	Errata taratura termostato.	Vedere certificato di collaudo e TF 5941-O.

### TROUBLE SHOOTING

SYMPTOM	CAUSE	REMEDY
Poor performances.	Oil level.	Check level (cold oil) and add as necessary. Check driven machine. Check engine rpm.
	Oil type.	Use recommended oil (see table).
Overheating.	High slip.	Check oil level. Check installation. Check engine rpm.
	Low ventilation.	Clean ventilation openings.
	No lubricated bearing.	Check oil level . Add oil if required .
	Damaged output bearing.	Replace.
Oil leakage at engine side.	Too high radial load.	Decrease belt tension.
	Taper plug.	Remount using thread sealant.
	O-ring.	Replace.
Oil leakage at output side.	Rotating seal.	Replace. Check shaft wear.
	Filling plug.	Remount using thread sealant.
	Fusible plug, whether installed.	Replace.
	O-ring.	Replace.
Noise.	Rotating seal.	Replace. Check shaft wear.
	Bearing failure.	Replace.
	Too much oil foam.	Check oil level and type.
	Elastic coupling wear. (Torsional vibration? high temperature? misalignment? oil ?).	Dismantle and replace rubber blocks or complete elastic coupling.
Temperature switch intervention.	Spline wear between output shafthub, inner impeller.	Dismantle and replace worn components.
	High oil temperature.	See "overheating".
	Wrong switch setting.	See test certificate and TF 5941-O.

- Calculated bearings life over 10.000 hours.
- Engine speed over those listed, needs approval by Transfluid.
- Pulley diameter is the minimum permissible. (Over 35 m/s, dynamic balancing is recommended).
- Belts nr. is maximum permissible (about belt width: 8V > SPC > 5V).
- Timing belts must be approved by Transfluid.
- "X" distance is according to belts type & number.
- Side load includes 2.5 belt tensioning factor.
- Pilot bearing speed = 5% of max. input speed.



**TRANSMITTABLE POWER CRITERIA: slip < 3%**  
**f.c. oil temperature < 50 °C over ambient**

**13 (pilot brg: dia 30 mm – 33500 N)**

Up to kW/rpm	Max "X" (mm) Max load (N)	Max belts nr Type - Min pulley Ø
90 / 2600	65 / 8300	7 x 5V - 200 mm

**15 (pilot brg: dia 30 mm – 33500 N)**

Up to kW/rpm	Max "X" (mm) Max load (N)	Max belts nr Type - Min pulley Ø
130 / 2400	92 / 13000	10 x 5 V - 200 mm

**17-19 (pilot brg: dia 35 mm – 40500 N)**

Up to kW/rpm	Max "X" (mm) Max load (N)	Max belts nr Type - Min pulley Ø
200 / 2200	110 / 22000	12 x 5 V - 200 mm
		6 x 8V - 315 mm
		7 x SPC - 315 mm
280 / 2200	130 / 22000	14 x 5 V - 280 mm
		8 x 8V - 315 mm
		9 x SPC - 315 mm

**21-24 (pilot brg: dia 45 mm – 58500 N)**

Up to kW/rpm	Max "X" (mm) Max load (N)	Max belts nr Type - Min pulley Ø
370 / 2000	150 / 28000	10 x 8V - 315 mm
		13 x SPC - 355
500 / 2000	177 / 29800	12 x 8V - 400 mm
		15 x SPC - 450 mm

**ASK TRANSFLUID FOR ANY APPLICATION DIFFERENT THAN ABOVE.**

## GARANZIA BASE, TERMINI E CONDIZIONI TF 6401-I - rev. 0

### 1) Premessa

TRANSFLUID garantisce che i propri prodotti, al momento della spedizione, sono conformi alle specifiche pubblicate nei propri cataloghi o documenti tecnici validi al momento della spedizione stessa e che sono esenti da difetti nei materiali e nella fabbricazione. Questi termini di garanzia sostituiscono tutte le altre garanzie, anche legali, espresse o implicite, comprese, a titolo esemplificativo e non esaustivo, le garanzie di commerciabilità e di idoneità ad un uso particolare (e qualsiasi garanzia implicita che sorga nel corso delle prestazioni, nel corso delle trattative o dell'uso commerciale). Fatti salvi i casi di dolo e colpa grave, in nessun caso TRANSFLUID sarà responsabile per danni diretti, indiretti, consequenziali, fortuiti od extracontrattuali basati su una richiesta d'indennizzo da parte del Compratore per violazione di garanzia, violazione di contratto, responsabilità oggettiva. In nessun caso il risarcimento da parte di TRANSFLUID potrà superare l'importo che il Compratore ha pagato per il prodotto fornito da TRANSFLUID.

### 2) Durata e limiti della garanzia

- a) La durata della garanzia è pari a diciotto (18) mesi dalla messa in servizio del prodotto fornito da TRANSFLUID e comunque non oltre ventiquattro (24) mesi dalla data di spedizione del prodotto originale dallo stabilimento TRANSFLUID.
- b) I prodotti, se inutilizzati e stoccati a lungo termine, devono essere immagazzinati e trattati in accordo alle linee guida redatte da TRANSFLUID per tipologia di prodotto che sono rese disponibili su richiesta.
- c) La garanzia per le parti la cui usura o deterioramento è fortemente legata alle condizioni di impiego (tensionamento delle cinghie, condizioni ambientali, urti e sovraccarichi non previsti), alla sensibilità dell'operatore (utilizzo entro i limiti approvati), ad eventi esterni (inceppamenti della macchina condotta), non opera se tali parti sono state utilizzate (non sono nuove), o se non viene chiaramente dimostrato dal Compratore un eventuale difetto di fabbricazione riconducibile a TRANSFLUID.  
Tipiche parti soggette ad usura o deteriorabili sono:
  - filtri, tenute e guarnizioni
  - molle, viti, tappi
  - interruttori e fusibili
  - materiali e superfici di attrito
  - cinghie e catene
  - lubrificanti in genere
- d) L'installazione e la manutenzione dei prodotti TRANSFLUID deve essere eseguita in conformità a quanto indicato nel manuale di installazione, uso e manutenzione che viene sempre fornito a corredo di ogni prodotto.
- e) In caso di fornitura di componenti sfusi/disassemblati, la garanzia copre solo ed esclusivamente eventuali difetti dei componenti stessi, relativamente al materiale o alle lavorazioni meccaniche effettuate da TRANSFLUID.

### f) La garanzia decade nei casi in cui:

- il prodotto venga utilizzato oltre i limiti indicati nei cataloghi o manuali di installazione o in applicazioni non approvate da TRANSFLUID;
- la rottura derivi da abuso, negligenza, omissione o inadeguata manutenzione, mancato collegamento o controllo dei dispositivi di protezione o a seguito di incidenti;
- il prodotto venga modificato o disassemblato senza approvazione scritta di TRANSFLUID.

### 3) Prestazioni incluse/escluse nella garanzia

- a) Eventuali prodotti o componenti i cui difetti, ad insindacabile giudizio di TRANSFLUID, sono coperti da garanzia, saranno riparati o sostituiti senza alcun addebito, salvo quanto stabilito ai punti successivi. Le parti sostituite saranno coperte dal residuo periodo della garanzia originale che resta in vigore sul prodotto inizialmente fornito (non decorrerà quindi un nuovo termine di garanzia).

## BASIC GUARANTEE, TERMS AND CONDITIONS TF 6401-GB - rev. 0

### 1) Preamble

TRANSFLUID guarantees that at the time of dispatch, its products comply with the specifications published in its catalogues or technical documents, which were valid at the time of dispatch, and that the products are free from defects in material and workmanship. These terms of guarantee substitute all other guarantees, including legal, expressed or implicit guarantees, including but not limited to, guarantees of saleability and suitability for a particular use (and any other implicit guarantee arising during the course of the services, negotiations or commercial use). Except in the event of serious negligence and fraud, under no circumstances will TRANSFLUID be held liable for direct, indirect, consequential, fortuitous or extra contractual damage based upon claims for compensation by the Buyer for violation of the guarantee, contract or objective responsibility. Under no circumstances can the compensation by TRANSFLUID exceed the amount paid by the Buyer for the product supplied by TRANSFLUID.

### 2) Duration and limits of the guarantee

- a) The duration of the guarantee is equal to eighteen (18) months from the time the product supplied by TRANSFLUID is commissioned, and nonetheless, no more than twenty-four (24) months from the date of dispatch of the original product from TRANSFLUID's plant.
- b) Product that are not used and stored for a long period must be kept and handled in keeping with the guidelines, which are available upon request, drawn up by TRANSFLUID according to product type.
- c) The wear or tear of parts, which is particularly due to conditions of use (tension of the belts, environmental conditions, unforeseen knocks and overloading), or to the sensitivity of the operator (use within the approved limits) or to external circumstances (jamming of the machine), is not covered by the guarantee if these parts have been used (are not new), unless the Buyer can clearly prove the manufacturing defect, which is ascribable to TRANSFLUID.  
Typical parts subject to wear or tear include:
  - filters, seals and gaskets
  - springs, screws, plugs
  - switches and fuses
  - material and friction surfaces
  - belts and chains
  - lubricants in general
- d) Installation and maintenance of TRANSFLUID products must be carried out following the installation, use and maintenance manual, which is always supplied with each product.
- e) With regard to the supply of loose/disassembled parts, the guarantee solely and exclusively covers faults of the components themselves, related to the material or mechanical workmanship carried out by TRANSFLUID.
- f) The guarantee is no longer valid when:
  - the product is used exceeding the limits stated in the catalogues or installation manuals, or in applications that are not approved by TRANSFLUID;
  - breakage results from abuse, negligence, omission or inadequate maintenance, failed connection or control of the protection devices or as a result of accidents;
  - the product is modified or disassembled without TRANSFLUID'S written approval.

### 3) Services included/excluded in the guarantee

- a) In TRANSFLUID'S final decision, products or components, whose faults are covered by the guarantee, will be repaired or replaced at no extra cost, with the exception of the subsequent points. The replaced parts will be covered from the remaining period of the original guarantee, which stays in force for the product initially supplied (a new guarantee period will therefore not come into effect).



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- b) Sono esclusi dalla garanzia, e pertanto restano a carico del Compratore, costi derivanti da:
- rimozione del prodotto TRANSFLUID dal macchinario in cui è inserito e relativa rimessa in servizio;
  - adeguato imballaggio ed oneri derivanti da trasporti di andata e ritorno del materiale;
  - ripristino di lubrificanti in genere, tubazioni, cofanature insonorizzanti, carter, ecc;
  - qualsiasi altro costo non espressamente approvato per iscritto da TRANSFLUID.
- c) Per le operazioni di smontaggio/reinstallazione/messa in servizio del prodotto, il Compratore potrà richiedere il supporto di un tecnico specializzato inviando un regolare ordine di acquisto. L'intervento sarà fatturato da TRANSFLUID applicando le correnti tariffe ASSIOT (Associazione Italiana costruttori organi di trasmissione, affiliata EUROTRANS).
- d) TRANSFLUID non potrà essere ritenuta responsabile per mancati o minori profitti, costi per macchinari sostitutivi, fermi macchina, danni ad apparecchiature o proprietà causati da un eventuale malfunzionamento dei propri prodotti.

### 4) Modalità di richiesta di prestazioni in garanzia

- a) Il Compratore, qualora intenda avvalersi della garanzia, dovrà informare TRANSFLUID per iscritto, entro 7 (sette) giorni dal momento in cui si è evidenziato un difetto, comunicando:
- descrizione del prodotto;
  - numero di serie (ove previsto), numero di specifica o codice articolo;
  - riferimento alla data ed al documento di acquisto o consegna;
  - ragionevole prova che il difetto rientri nelle condizioni di garanzia completata da una descrizione dettagliata dell'anomalia o malfunzionamento ed eventualmente supportata da fotografie.
- In caso di malfunzionamento occorso dopo la messa in servizio del prodotto, dovranno essere comunicati inoltre:
- tipo di applicazione;
  - potenza e giri del motore (in caso di motore endotermico anche marca e modello);
  - diametro, tipo, numero gole e posizione puleggia (se l'applicazione lo prevede);
  - ore di funzionamento.
- b) In base al prodotto coinvolto, al malfunzionamento segnalato, all'urgenza di intervento, TRANSFLUID indicherà se il prodotto stesso dovrà essere consegnato o spedito in porto franco ad un centro autorizzato o direttamente presso la propria sede.
- c) Una volta ricevuto il prodotto, TRANSFLUID o il distributore autorizzato provvederanno ad una approfondita analisi; se il prodotto sarà ritenuto coperto da garanzia:
- TRANSFLUID riparerà o sostituirà gratuitamente le parti necessarie al ripristino della piena e sicura funzionalità;
  - se il prodotto NON sarà ritenuto coperto da garanzia, TRANSFLUID:
    - invierà un rapporto tecnico motivando la decisione;
    - stilerà un preventivo di riparazione;
    - solo dopo aver ottenuto l'ordine dal Compratore, procederà con la riparazione.
- d) I prodotti riparati saranno restituiti al Compratore in porto assegnato, utilizzando lo stesso mezzo di trasporto con cui sono pervenuti (a meno che non sia diversamente specificato).
- e) Qualora il Compratore decida di non accettare il preventivo di riparazione, dovrà comunicare per iscritto la propria decisione chiedendo esplicitamente la rottamazione o la restituzione delle parti che saranno spedite nello stato in cui si trovano.

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- b) Excluded from the guarantee and remaining at the Buyer's expense are the costs resulting from:
- removal of the TRANSFLUID product from the machinery onto which it is fitted, and recommissioning;
  - suitable packing and charges resulting from the return transport of the material;
  - restoration of lubricants in general, piping, sound proof canopies, guards, etc.;
  - all other costs not expressly approved in writing by TRANSFLUID.
- c) The Buyer can request the support of a specialised technician to disassemble/re-install/recommission the product by sending a standard purchase order. TRANSFLUID will invoice the work, applying the current ASSIOT rates (Italian Association of Gears and Transmission Elements Manufacturers, a member of EUROTRANS).
- d) TRANSFLUID cannot be held liable for lost or reduced profit, costs for replaced machinery, still machinery, damage to equipment or property caused by failure of its products.

### 4) Conditions for requesting services under guarantee

- a) If the Buyer intends to take advantage of the guarantee, he must inform TRANSFLUID in writing within 7 (seven) days of discovering a fault, stating:
- product description;
  - series number (where foreseen), specification number or article code;
  - reference to the date and document of purchase or delivery;
  - reasonable proof that the fault falls within the conditions of guarantee, together with a detailed description of the irregularity or failure and where possible, supported by photographs.
- In the event of failure after commissioning the product, the following must also be communicated:
- type of application;
  - power and engine rpm (stating also the make and model for endothermic engines);
  - diameter, type, number of races and position of pulley (if foreseen by the application);
  - hours of operation.
- b) TRANSFLUID will indicate whether the product must be delivered or sent free port to an authorised centre or directly to its own plant depending on the product concerned, the failure indicated and the urgency of the intervention.
- c) On receiving the product, TRANSFLUID or the authorised distributor will carry out a thorough analysis; if the product is deemed to be covered by the guarantee:
- TRANSFLUID will repair or replace the parts needed to restore full and safe working at no cost;
- If the product is NOT deemed to be covered by the guarantee, TRANSFLUID:
- will send a technical report explaining its decision;
  - will draw up an estimate for the repair;
  - will carry out the repair upon receipt of the order from the Buyer.
- d) The repaired products will be returned to the Buyer freight collect, by the same means of transport that was used for the arrival (unless stated otherwise).
- e) Should the Buyer decide not to accept the estimate for the repair, he must communicate his decision in writing, explicitly asking for the parts to be scrapped or returned; the parts will be sent in their current state.

8.1.3 NORTH AMERICAN SIGNAL TRAFFIC ASSIST III



**LED Traffic Assist™III (12/24VDC)**

Installation and operating instructions for:  
 TA18LPS-A, TA36LP-A, TA36LP-A2  
 TA42LP-A, TA42LP-A2, TA52LP-A and TA52LP-A2

1. The package should contain the following:
  - a. LED Traffic Assist™ III light bar with 25 feet of cable and 12 pin connector taped to end of cable;
  - b. Control Head with 8 inches of cable;
  - c. 2, 3, or 4 - “L” brackets (depending on model) for optional mounting
  - d. Instruction sheet.
2. Attach the LED Traffic Assist Control Head to the dash using the bolts provided. Connect the red/black duplex wire to power (fused for a minimum of 5 Amps) and to a ground.
3. Install the LED Traffic Assist bar horizontally, with the curved side up (product label facing up and cable exiting the passenger side of the vehicle when installed in the rear of the vehicle), in one of the following two ways:
  - a. Attach to any vertical surface using the ¼” x 20 - 5/8 inch long stainless steel hex bolts coming out the rear of the bar; or
  - b. Mount the two “L” brackets on a horizontal surface and attach the Traffic Assist bar to the “L” brackets.
4. NOTE: For TA18LPS versions, 10’ of interconnect cable connects the two 4-segment heads, each half is clearly marked as “LEFT” & “RIGHT” sides. When positioned correctly the power cable runs up the passenger side of the vehicle for rear mount. Unit comes pre-assembled unless otherwise noted.
5. Run the 12 conductor cable from the LED Traffic Assist™ to the control head. Be sure to leave the connector off until cable is completely installed in the vehicle.
6. Plug the individual wire pins into the 12 pin connector taped to the end of the cable according to the color coded diagram shown below and also the diagram shown on the back of the LED Traffic Assist Control Head.

#	COLOR	#	COLOR	#	COLOR	#	COLOR
4	PINK	3	RED	2	BROWN	1	BLACK
8	TAN	7	WHITE	6	GREEN	5	VIOLET
12	YELLOW	11	ORANGE	10	GRAY	9	BLUE

## Supplemental Manuals

7. Assemble the two connectors together and verify everything is working properly.

### OPERATING INSTRUCTIONS

(Use the following diagram for mode operation)

Various functions for either the 7 or 8 segment system.

BUTTON NAME	PRESS ONCE	PRESS TWICE	PRESS THREE TIMES
<b>OFF</b>	Turns system off	N/A	N/A
<b>LEFT ARROW</b>	Lights sequence from right to left until all are on and turn off in the same sequence	Lights sequence from right to left until all are on and then turn off all at once	Lights sequence from right to left until all are on, then the last flashes three times, then all turn off at once
<b>CENTER ARROW</b>	Lights sequence from center out until all are on and the turn off in the same sequence	All lights are quad flashing with the last flash on a delay	Three lights rapidly move from left to right, generating an attention gathering pattern
<b>RIGHT ARROW</b>	Lights sequence from left to right until all are on and turn off in the same sequence	Lights sequence from left to right until all are on and then turn off all at once	Lights sequence from left to right until all are on, then the last flashes three times, then all turn off at once
<b>FAST / SLOW</b>	Fast	Slow	Fast

\* Custom Flash Patterns are available upon request. Please inquire at 1-877-246-6274 or [sales@nasig.com](mailto:sales@nasig.com).

### LIMITED WARRANTY

North American Signal Company warrants that the LED Traffic Assist™III will be free of defects in material and workmanship for a period of 5 years from date of manufacture, under normal use and service. This warranty does not cover ordinary wear and tear, abuse, misuse, overloading, altered products, or damage caused by the purchaser connecting the unit to the wrong voltage or polarity. All products in need of repair must be returned to our factory freight prepaid. North American Signal Company reserves the right to determine in its sole discretion, whether to repair or replace a unit found to be defective under this LIMITED WARRANTY, and will then return the unit freight prepaid. **THERE IS NO WARRANTY OF MERCHANTABILITY. THERE ARE NO WARRANTIES WHICH EXTEND THE DESCRIPTION HEREIN. THERE ARE NO WARRANTIES EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, EXCEPT AS SET FORTH HEREIN.**

In returning product, first try to determine if the controller and / or the Traffic Assist bar is not functioning. If only the bar is having problems, remove the end of the bar where the cable enters the unit and unplug the 12 pin connectors. Then detach the bar from its mounting and return this unit to the factory. If the controller is also not functioning, then detach the controller and bar and send them both to the factory.

North American Signal Company, 605 S. Wheeling Road, Wheeling, IL, 60090  
Toll free: 877-246-6274, Fax: 847-537-8895, Email: [sales@nasig.com](mailto:sales@nasig.com), [www.nasig.com](http://www.nasig.com)

Revision 2.7, 1/1/2018

### 8.1.4 SHURFLO DUST CONTROL SYSTEM PUMP

# SHURflo

## 2088 INDUSTRIAL SERIES PUMPS

### **Installation and Operation Manual**

SHURflo offers various pumps models for different applications. The information outlined by this manual is general, and not specific to all 2088 series pumps. Be certain the pumps' materials will be compatible with the fluid being pumped. 2088 series pumps are intended for intermittent or continuous duty when the proper operating criteria is met. Product Data Sheets outlining specific thermal limits, load, flow curves, and other technical information for a particular model are available. If unsure of the chemical compatibility with a given elastomer or the motors intended design, please call SHURflo for assistance.

**CAUTION:** "Intermittent Duty" is defined as; operated and/or frequently started within a period of time that would cause the motor to reach its maximum thermal limits. Once the maximum thermal limit is obtained, the motor must be allowed to return to ambient temperature before resuming operation.

**CAUTION:** *DO NOT* use to pump flammable liquids. Never operate the pump in an explosive environment. Arcing from the motor brushes, switch or excessive heat from an improperly cycled motor may cause an explosion.

**CAUTION:** *DO NOT* assume fluid compatibility. If the fluid is improperly matched to the pumps' elastomers, a leak may occur. Pumps used to transfer hazardous or hot (max. temperature 170°F [76°C] viton only) chemicals must be in a vented area to guard against the possibility of injury due to harmful or explosive liquid/vapors.

**CAUTION:** *DO NOT* operate the pump at pressures which cause the motor to exceed the amperes rating indicated on the name plate. Various pump models are equipped with thermal breakers to interrupt operation due to excessive heat. Once the temperature of the motor is within proper limits it will automatically reset, and the pump *will start operation without warning.*

**CAUTION:** To prevent electrical shock, disconnect power before initiating any work. In the case of pump failure, the motor housing and/or the pumped fluid may carry high voltage to components normally considered safe.

### **PRESSURE SWITCH OPERATION**

The pressure switch reacts to outlet pressure, and interrupts power at the preset shut-off pressure indicated on the pump label. When outlet pressure drops below a predetermined limit (typically 15-20 psi.[1-1.4 bar] less than the shut-off pressure), the switch will close and the pump will operate until the shut-off (high) pressure is achieved. The shut-off pressure is set to factory calibrated standards. See the motor label and Product Data Sheet for specific pump specifications.

**CAUTION:** Improper adjustment of the pressure switch, may cause severe overload or premature failure. Refer to SHURflo Service Bulletin #1031 for the adjustment procedure. Failures due to improper adjustment of the pressure switch will not be covered under the limited warranty.

If the plumbing is restrictive or the flow rate is very low, the pump may re-pressurize the outlet faster than the fluid is being released causing rapid cycling (ON/OFF within 2 seconds). If the pump is subjected to rapid cycling during normal operation, or for infrequent periods, damage may occur. Applications which exhibit rapid cycling should have restrictions in the outlet minimized. If not feasible considered a SHURflo Accumalator or a SHURflo "bypass" model pump.

### **BYPASS OPERATION**

A bypass pump may be used for applications that normally induce frequent start/stop of the motor, and thereby create a potential for overheating. Models equipped with an internal bypass are designed to pump at high pressure while at low flow rates. Bypass models equipped with a switch may operate for several seconds even though the outlet side has been closed off. Contact SHURflo for information regarding bypass pumps.

### **MOUNTING**

## Supplemental Manuals

---

- The 2088 series pumps are self priming. Horizontal and vertical prime vary depending on the fluid viscosity and pump configuration. Refer to the pumps Product Data Sheet.
- The pump should be located in an area that is dry and provides adequate ventilation. If mounted within an enclosure, provisions to cool the motor may be necessary. Heat sinks which attach to the motor are available from SHURflo if increased heat dissipation is necessary.

**CAUTION:** *DO NOT* locate the motor near low temperature plastics or combustible materials. The surface temperature of the motor may exceed 250°F [120°C]. Refer to the pumps Product Data Sheet.

- The pump may be mounted in any position. However, if mounting the pump vertically the pump head should be in the down position so that in the event of a leak, fluid will not enter the motor.
- Secure the rubber feet with #8 hardware. *DO NOT* compress the feet, doing so will reduce their ability to isolate vibration/noise.

### **PLUMBING**

- Flexible high pressure tubing compatible with the fluid should be used to connect the inlet/outlet ports. Tubing should be either 3/8" or 1/2" [10 or 13 mm] I.D., and at least 18 in. [46 cm] length is suggested to minimize stress on the fitting/ports and reduce noise. Allow for the shortest possible tubing route and avoid sharp bends that may kink over time.

**NOTE:** Restrictions on the inlet may cause vacuum levels to reach the fluid vapor pressure, causing cavitation, degassing, vapor lock and a loss in performance. Inlet pressure *must* not exceed 30 psi.[2.1 bar] maximum.

- **1/2" Male threaded models:** Are intended to be used with SHURflo Swivel Barb Fittings which seal with an internal taper when *hand tightened*. Standard 1/2" NPT fittings may be used when tightened to a maximum torque of 3.7 ft\Lb (45 in\Lb) [5 Nm].

**NOTE:** SHURflo does not recommend the use of metal fittings or rigid pipe to plumb the inlet/outlet ports. Standard plastic male and female threaded fittings can be acquired at commercial plumbing supply stores. SHURflo also distributes Swivel Barb Fittings, and special fitting through it's dealers (Form #07-010-0011).

**CAUTION:** Sealers and Teflon tape may act as lubricant causing cracked housings or stripped threads due to over-tightening. Care should be used when applying sealers. Sealers may enter the pump inhibiting valve action, causing no prime or no shut-off. *Failures due to foreign debris is not covered under warranty.*

- Installation of a 50 mesh strainer is recommended to prevent foreign debris from entering the pump.
- If a check valve is installed in the plumbing, it must have a cracking pressure of no more than 2 psi [.14 bar].

### **ELECTRICAL**

**CAUTION:** Electrical wiring should be performed by a qualified electrician, in accordance with all local electrical codes.

- The pump should be on a dedicated (individual) circuit, controlled with a double pole switch (U.L./C-UL certified) rated at or above the fuse ampere indicated by the pump motor label. Depending on distance of the power source from the pump and ampere load on the circuit, wire may need to be heavier than indicated by the chart.

**CAUTION:** All 115 VAC and 230 VAC pump motors and systems, *MUST* be ground per local and state electrical codes.

- Improper duty cycle and/or rapid start & stop conditons may cause the internal thermal breaker (if equipped) to trip, or can result in premature motor failure due to excessive heat. Refer to the pumps Product Data Sheet.
- For the pump to meet U.L./C-UL requirements the circuit *MUST be protected with a slow-blow fuse* (U.L./C-UL certified) or equivalent circuit breaker as indicated on the motor label. Use an approved wire of the size specified or heavier.

## Supplemental Manuals

VOLTAGE	WIRE LEADS	WIRE SIZE	FUSE RATING
12 DC	RED (positive +) BLACK (negative -)	#14 AWG [2.5 Mm <sup>2</sup> ] (or heavier)	SEE PUMP MOTOR LABEL
24 DC			
36 DC			
115 AC	BLACK (common) WHITE (neutral) GREEN (ground)	#16 AWG C-UL - TEW / UL 1015	
230 AC <sup>Ⓞ</sup>	BROWN (common) BLUE (neutral) GRN/YELL (ground)	(or heavier) [1 Mm <sup>2</sup> ]	

① VDE requires a fuse (slow blow) or equivalent circuit breaker.

**CAUTION:** Circuit protection is dependent on the individual application requirements. Failure to provide proper overload / thermal devices may result in a motor failure, which will not be covered under warranty.

### TROUBLESHOOTING

#### PUMP WILL NOT START:

- ✓ Fuse or breaker
- ✓ For correct voltage ( $\pm 10\%$ ) and electrical connections
- ✓ Pressure switch operation and correct voltage at switch or motor wires (as equipped).
- ✓ Rectifier or motor for open or grounded circuit
- ✓ For locked drive assembly

#### WILL NOT PRIME: (No discharge/Motor runs)

- ✓ Out of product
- ✓ Strainer for debris
- ✓ Inlet tubing/plumbing for severe vacuum leak
- ✓ Inlet/Outlet tubing severely restricted (kinked)
- ✓ Debris in pump inlet/outlet valves
- ✓ Proper voltage with the pump operating ( $\pm 10\%$ )
- ✓ Pump housing for cracks

#### LEAKS FROM PUMP HEAD OR SWITCH:

- ✓ For loose screws at switch or pump head.
- ✓ Switch diaphragm ruptured or pinched
- ✓ For punctured diaphragm if fluid is present at bottom drain

### SERVICE KITS

Kits are readily available to repair standard 2088 series pumps. Repair kits include simple illustrated instructions allowing easy installation. To insure that the correct kit is received the model numbered and all name plate data must be included with the order. Contact a SHURflo distributor or SHURflo directly to order the necessary repair kit.

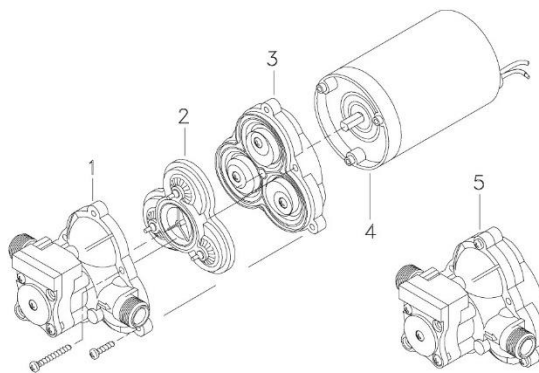
1	Switch / Check valve and Upper Housing Kit (Replaces all previous switch designs)
2	Valve plate assembly
3	Diaphragm / Drive assembly
4	Motor
5	Complete Pump Head assembly (includes parts # 1,2,3) (Replaces all previous switch designs)

#### PUMP WILL NOT SHUT-OFF: (Pressure switch equipped)

- ✓ Output line closed and no leaks
- ✓ For air trapped in outlet line or pump head
- ✓ For correct voltage to pump ( $\pm 10\%$ )
- ✓ Inlet/Outlet valves for debris or swelling
- ✓ For loose drive assembly or pump head screws
- ✓ Pressure switch operation/adjustment incorrect refer to S/B #1031 for differential and pressure adjustment procedure

#### NOISY / ROUGH OPERATION:

- ✓ Mounting feet that are compressed to tight
- ✓ Does the mounting surface multiply noise (flexible)
- ✓ For loose pump head or drive screws
- ✓ Is the pump plumbed with rigid pipe causing noise to transmit



### **RETURN POLICY**

All Industrial pumps/products **must** be flushed of **any** chemical (ref. OSHA Section 1910.1200 (d)(e)(f)(g)(h)) and hazardous chemicals **must** be labeled/tagged before being \*shipped to SHURflo for service or warranty consideration. SHURflo reserves the right to request a Material Safety Data Sheet from the returnee for any pump/product it deems necessary. SHURflo reserves the right to "disposition as scrap" pumps/products returned which contain unknown fluids. SHURflo reserves the right to charge the returnee for any and all costs incurred for chemical testing, and proper disposal of components containing unknown fluids. SHURflo request this in order to protect the environment and personnel from the hazards of handling unknown fluids.

### **LIMITED WARRANTY PROCEDURE**

SHURflo warrants Industrial 2088 series pumps to be free from material and workmanship defects (under normal use and service) for a period of one (1) year from the date of manufacture. or (1) one year use with proof of purchase, not to exceed (2) two years in any event.

The limited warranty will not apply to pumps that were improperly installed, misapplied, or incompatible with fluids or components not manufactured by SHURflo. SHURflo will not warrant any pump which is damaged or modified outside the SHURflo factory.

All Industrial pumps/products **must** be flush of **any** chemicals before \*shipping. All warranty considerations are governed by SHURflo's written Return Policy.

Returns are to be shipped postage prepaid to either service center; SHURflo Garden Grove, CA or Elkhart, IN. SHURflo shall not be liable for freight damage incurred during shipping. Package returns carefully.

Upon receiving a pump, it will be tested per SHURflo's test criteria. SHURflo's obligation under this warranty policy is limited to the repair or replacement of the unit. Pumps found not defective (under the terms of this limited warranty) are subject to charges to be paid by the returnee for the testing and packaging of "tested good" units.

No credit or labor allowances will be given to the returnee for pumps returned as defective. Warranty replacements will be shipped on a freight allowed basis. SHURflo reserves the right to choose the method of transportation.

This limited warranty is in lieu of all other warranties, expressed or implied, and no other person is authorized to give any other warranty or assume obligation or liability on SHURflo's behalf. SHURflo shall not be liable for any labor, damage or other expense, nor shall SHURflo be liable for any indirect, incidental or consequential damages of any kind incurred by the reason of the use or sale of any defective product or part. This limited warranty covers pumps distributed within the United States of America. Other world market areas should consult with the distributor for any deviation from this document.

\* Carriers, including U.S.P.S., airlines, UPS, ground freight, etc., require specific identification of any hazardous materials being shipped. Check with your shipping company for specific instructions. Failure to do so may result in a substantial penalties.



**SHURflo reserves the right to update specifications, prices, or make substitutions.**

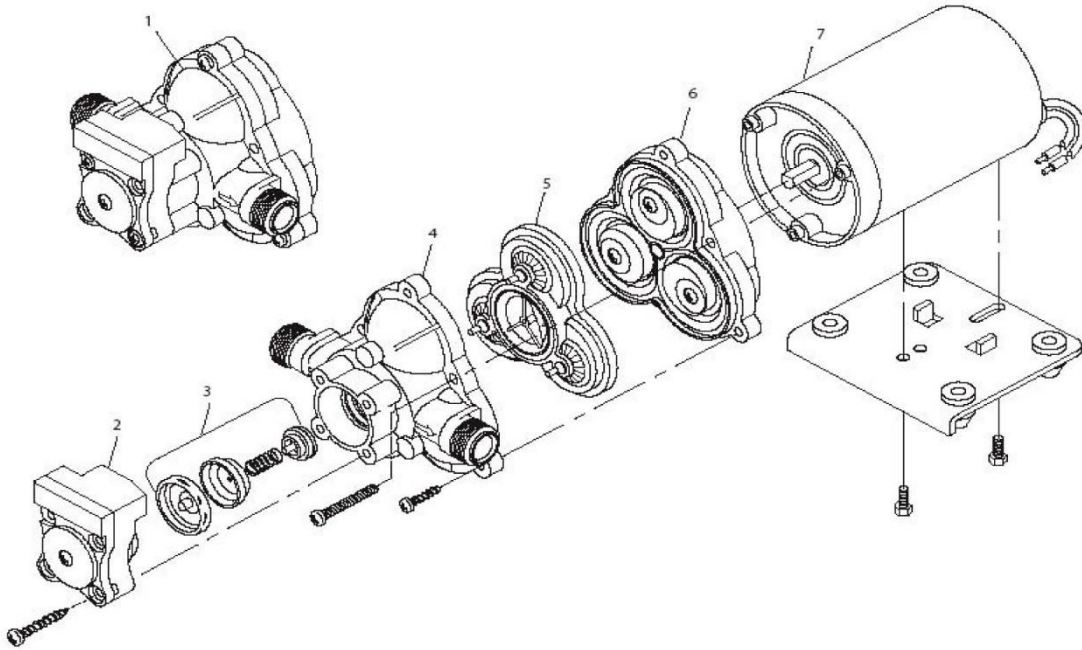
**SHURflo ★**  
12650 Westminster Ave.  
Santa Ana, CA 92706-2100  
(800) 854-3218 (714) 554-7709  
FAX (714) 554-4721  
**Shipping/UPS:** 12650 Westminster Ave.  
Garden Grove, CA 92843

**SHURflo East**  
52748 Park Six Court  
Elkhart, IN 46514-5427  
(800) 762-8094  
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+44 1293 424000  
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## 2088 Replacement Kits



	1	2	3	4	5	6	7
Model Number	Complete Pumphead Assembly	Switch Assembly	Check Valve Assembly	Upper Housing	Bypass/ Non Bypass Valve Assembly	Drive/Impeller Diaphragm Assembly	Motor
2088-514-500	N/A	N/A	N/A	94-238-00	94-232-00	94-238-03	11-226-07

SHURflo reserves the right to update specifications, prices, or make substitutions  
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8.1.5 MINIMIZER FENDERS



**B100BTPA**

Fender Mounting Instructions for MIN100, MIN150, MIN1600, MIN161200, MIN1900, MIN2200, MIN221800, MIN2260, MIN2480, MIN9950 & PM202/302/1021 Fenders

**STEP 1**

- A. Unpack all cartons and lay out parts.
- B. Compare the parts with hardware kit B100BTPA as shown in Figure 1.

PART NUMBER	DESCRIPTION	QTY
PB5015	4.25" SWIVEL BRACKET	4
I62C450BFL8/RBZFT	5/8-11 X 4 1/2 HEX FLANGE BOLT	4
I62CNCG/RBZ	5/8-11 CLASS G FLANGE LOCK N	4
PB1/2"SPACER	1/2" POLY SPACER	12
PB501026	26.5 COMPOSITE TAPERED BKT	4
PBLOCK	COMP BRACKET BACKING BLOCK	4
I31C300BSF/RBZ	5/16- X 18 X 3 HEX WASH HEAD B	16
I31C100BSF/RBZ	5/16-18 X 1 HEX WASHER HEAD BL	24
I31N150WFEZ	5/16 X 1 1/2 FENDER WASHER	24
I31CNCF/RBZ	5/16-18 CLASS G FLANGE LOCK	40



Figure 1

**STEP 2**

- A. Measure the suspension travel. This measurement is used to determine the distance between the fender and the wheel.
  - a. For air suspension systems, let the air out of the air bags.
  - b. For spring systems, measure from the stops on the springs to the bottom of the frame.

**NOTE: For air suspensions with travel exceeding 6":**  
 In some cases a travel stop may need to be installed to prevent such large gaps between the fenders & tires. This will help with alignment and 5<sup>th</sup> wheel plate clearance. (Please call Minimizer @ 800-248-3855 for questions regarding this issue).

- B. Gap the fenders  $\frac{3}{4}$ " over the maximum travel point of the suspension system. The goal is to make sure the fender does not rub on the tire. A gap larger than  $\frac{3}{4}$ " may be necessary if using worn tires.

**TIP:** Establish the  $\frac{3}{4}$ " minimum gap required in Step 2B.

- a. For an air suspension system, place a  $\frac{3}{4}$ " board on top of the tires after the air has been let out of the airbags (Figure 2). Place the fender on top of the board.
- b. For a spring suspension system, add  $\frac{3}{4}$ " to the measurement from Step 2A.

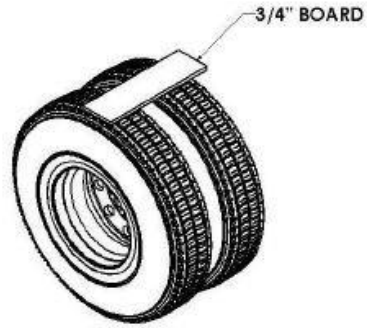


Figure 2

### **STEP 3**

- A. Position the fenders exactly where they will be mounted.
  - a. Visually pick and mark the locations that the brackets will bolt to the frame.
- B. Try to use existing holes in the frame to bolt through. It is possible to remove any existing frame bolt and replace it with the supplied bolt in the bracket kit.

**Tip:** It is common for the front bracket to align with the existing quarter fender holes and the rear bracket to align with the holes left from the mud flap hanger.



Figure 3

**NOTE:** Depending on the length of the truck frame and the placement of the mud flap hangers, the fender may tuck inside the mud flap hanger. Figure 3 shows a truck with flaps and fenders.

**NOTE:** Do not drill into the weld or any other part of the light box. If a mud flap is mounted to the light box style fender and the mud flap is backed over, it may cause the interior welded plate to become loose. Slot the mud flaps to prevent this issue. This is NOT covered under warranty.



Spacers are supplied to bring the steel swivel away from the frame in the event of any obstructions (Figure 4).

- a. The ideal setup is to mount the steel swivel directly to the frame.

**NOTE: Use spacers only when necessary.**

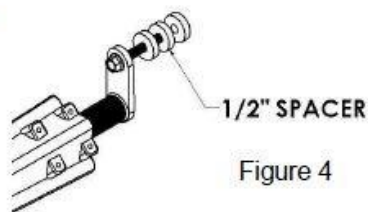


Figure 4

- C. If possible, position the mounting brackets so they are located within 15" of the bottom of the fender. This guards against wind blowing the leading edge of the fender back into the tire (Figure 5).

**Tip:** If the front fender bracket is mounted higher than 15", refer to <http://www.minimizer.com/instructions.html> for further suggestions on adding additional support.

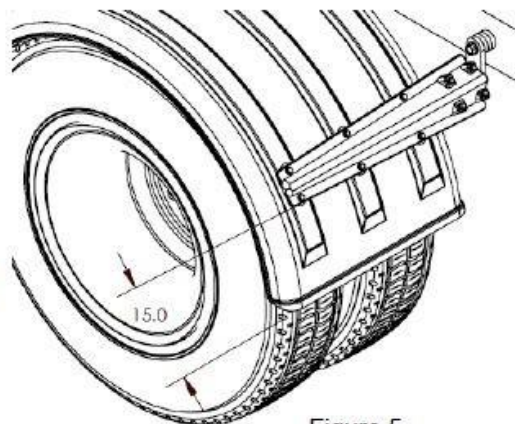


Figure 5

## STEP 4

- A. Use four 5/16" x 3" bolts to attach the bracket (part number PB501026) and the backing block (part number PBLOCK) to the steel swivel (part number PB5015). See Figure 6. **Make sure the pipe end of the PB5015 is fully engaged into bracket.**

**Tip:** Do not use tools at this point to tighten the bolts. This will allow the bracket to rotate on the swivel during installation.

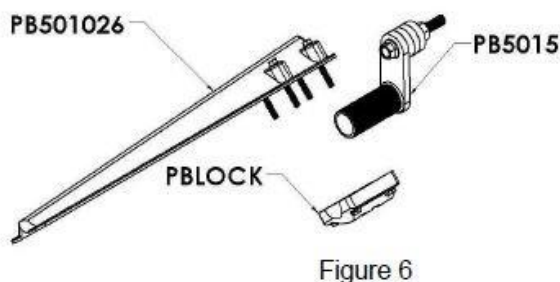


Figure 6

**TIP: USE CARE WITH POWER TOOLS AS OVERTORQUING WILL CAUSE CRACKS IN THE BRACKET. RECOMMENDED TORQUE IS 10-15 ft-lbs.**

**NOTE: DO NOT EXCEED RECOMMENDED TORQUE. THIS WILL VOID THE WARRANTY.**

**TIP:** Do not completely tighten one side of the backing block before moving to the other side. Alternate tightening bolts as pictured in Figure 8. Make sure to only tighten halfway and then repeat the pattern in Figure 7 until backing block is flush against the bracket (PB501026).

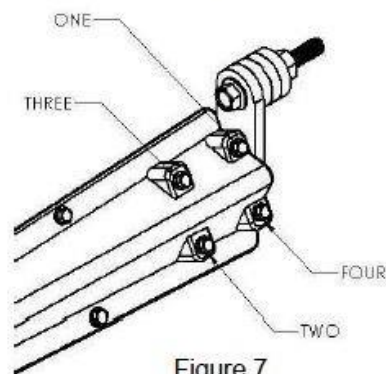
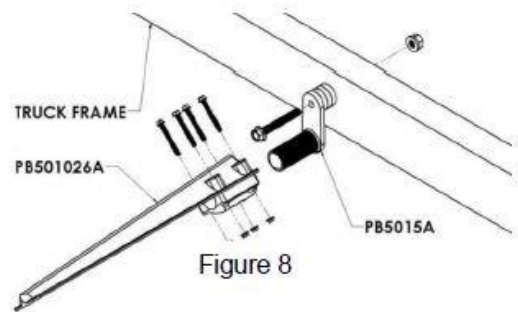


Figure 7

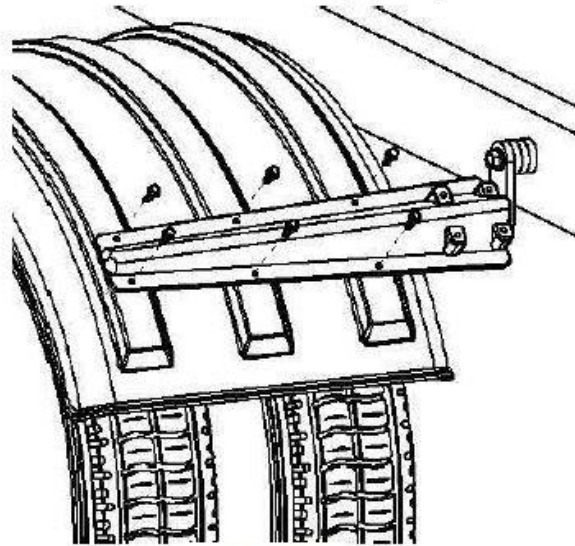
## STEP 5

- A. Once the brackets are placed in position with the fender, tighten the 5/8" x 4-1/2" bolts that go through the PB5015 steel swivel to attach the swivel securely to the frame (Figure 8). **Recommended torque is 160-170 ft-lbs.**



## STEP 6

- A. Attach the bracket (PB501026A) to the fender.
- Drill six 5/16" holes through the fender using the holes in bracket PB501026A as a guide.
  - Install the 5/16" x 1" bolts through the bracket and into the fender (Figure 9).
  - Use six 5/16" fender washers and 5/16" nuts provided with the kit on the underside of the fender.
  - Tighten the bolts to recommended torque of 10-15 FT-LBS.** Hand tightening with Torque wrench is recommended. **DO NOT EXCEED RECOMMENDED TORQUE.**
  - Make sure the fenders are square and aligned. Twists or bows in the fender will fatigue the material over time.



## STEP 7

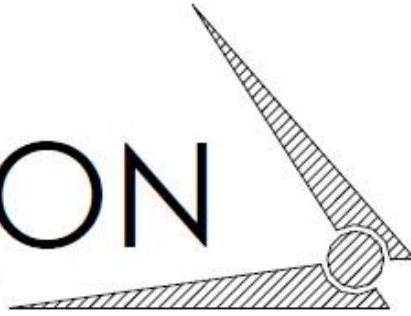
- A. For trucks with air suspension, raise and lower the suspension one final time to confirm that there is adequate clearance between the fenders and wheels.
- B. Recheck all brackets and bolts to ensure they are tightened to the recommended torque.

**NOTE: ONCE FENDERS ARE IN SERVICE OCCASIONALLY CHECK TORQUE ON 5/8" X 4-1/2" HEX BOLTS IN THE FRAME TO MAKE SURE THEY DO NOT LOOSEN OVER TIME.**

8.1.6 CHAMPION HOIST

# CHAMPION

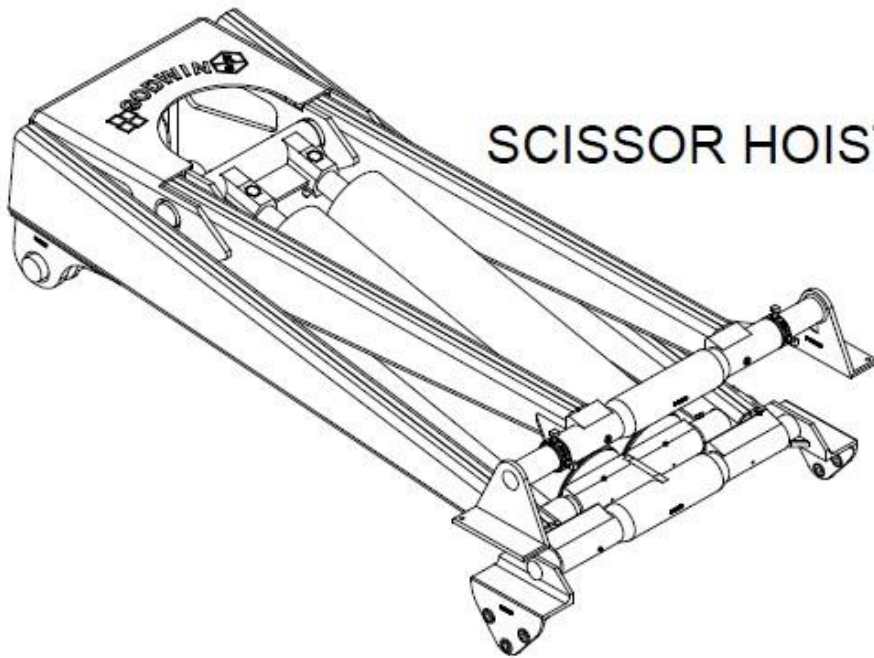
Hoist and Equipment



AN AFFILIATE OF

The **Godwin**  
 **Group**

200 CHAMPION DRIVE  
DUNN, NC. 28334  
(910) 897-4995 FAX: (910) 897-7306



SCISSOR HOIST

Operation & Installation Manual

OPERATIONS AND SERVICE INFORMATION

Do not operate this equipment without fully reading and understanding this manual.

Do not allow unauthorized personnel to operate this equipment.

Do not go underneath a loaded raised bed under ANY circumstances.



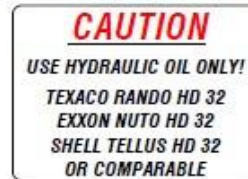
Be sure to.....

- \* Follow all Federal, State, Local regulations pertaining to this equipment.
- \* Keep unit properly maintained and serviced.
- \* Understand and follow all safety decals and keep them in good condition.
- \* Check hydraulic oil level each time truck is serviced.
- \* Add correct hydraulic oil to reservoir as needed.

ELECTRIC PUMP APPLICATIONS



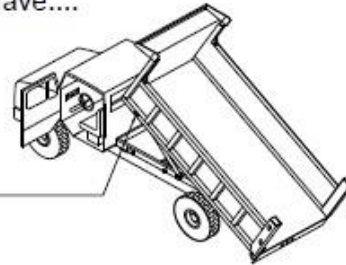
PTO PUMP APPLICATIONS



When calling for Parts/Service Be Sure To Have....

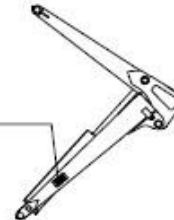
Body: model number  
serial number

Serial Plate Location



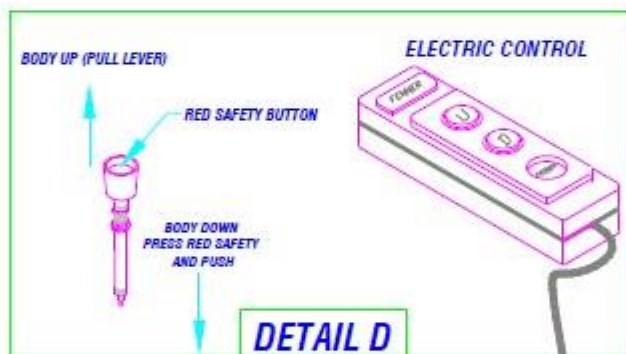
Hoist: model number  
serial number

Serial Plate Location



### To Operate the Hoist:

- (1) With engine running at idle speed, transmission in neutral, and the park brake set.
- (2) Depress clutch pedal.
- (3) Pull PTO control out until the red PTO light illuminates. Note: if light does not illuminate, and PTO does not engage, Slowly release the clutch pedal while pulling on the PTO control.
- (4) Once the PTO is engaged, release the clutch pedal to supply power to the pump.
- (5) The pump/hoist control should be in the neutral or "hold" position.
- (6) Depress the safety button and pull the pump/hoist control to raise the bed. See Detail D below.



- (7) When bed raises to desired height push the pump/hoist controls to the center neutral or "hold" position this will stop bed movement up or down.
- (8) To lower bed depress the safety button and push pump/hoist control .
- (9) Depress clutch pedal, and push PTO control to disengage.

### FOR ELECTRIC PUMP APPLICATION

#### To Operate the push button Hoist:

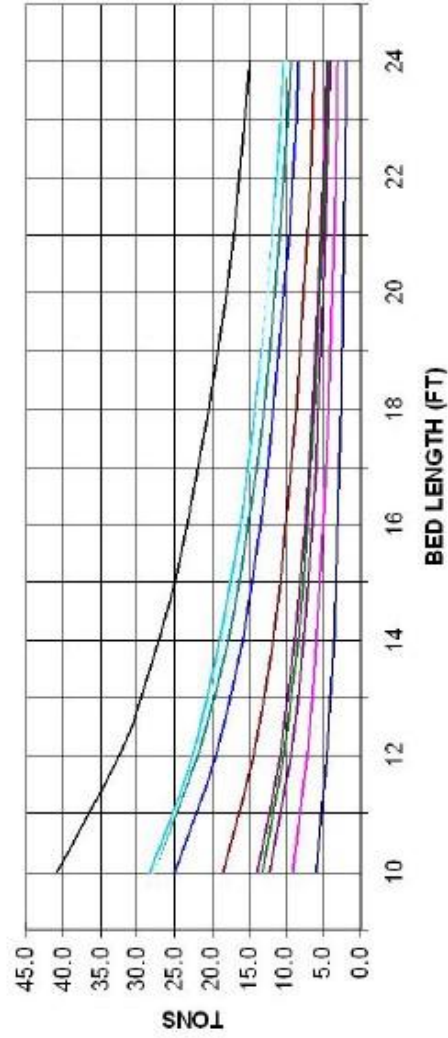
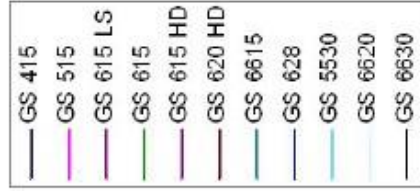
Press and hold appropriate button.

NOTE: Pump will stop when button is released.

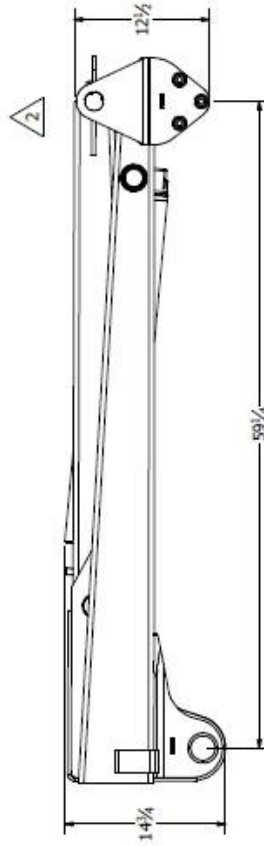
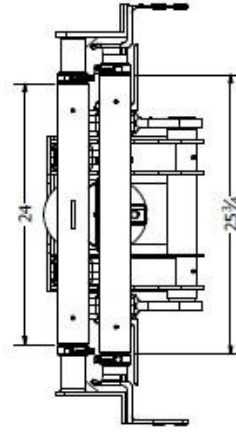
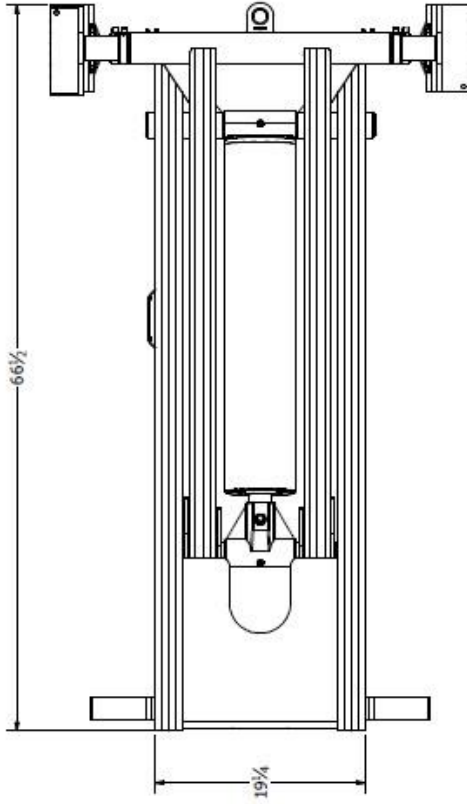
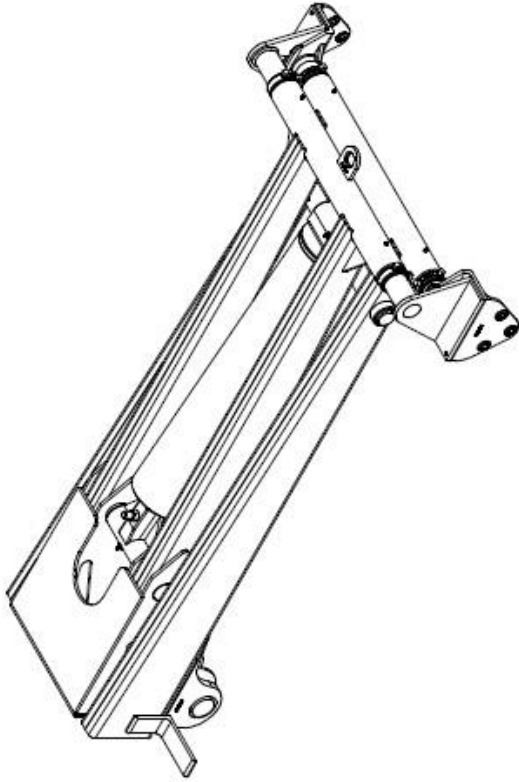
CHAMPION HOIST RATINGS

Hoist	NTEA Class	System Pressure	Capacity (TONS) - Truck Bed Length (FT) - 18 inches Overhang										
			10	12	14	16	18	20	22	24			
GS 415		3,000	5.9	4.6									
GS 515	C	3,000	9.2	7.2									
GS 615	C	3,000	13.2	10.3									
GS 615 HD	C	3,000	13.9	10.8									
GS 615 LS	C	3,000	12.2	9.5									
GS 620 HD	D	3,000		14.4	11.8	10.0							
GS 6615	E	3,000		21.8	17.8								
GS 628	G	3,000		19.5	16.0	13.5							
GS 5530	G	3,000						14.2	12.6	11.3			
GS 6620	G	3,000											
GS 6630	H	3,000						20.4	18.1	16.3			14.8

RATED CAPACITY  
18 INCHES OVERHANG







NOTE:  
LIFT POINTS MAY VARY DEPENDING  
ON CUSTOMER AND/OR APPLICATION.  
SEE LIFT POINT OPTIONS SHEET.

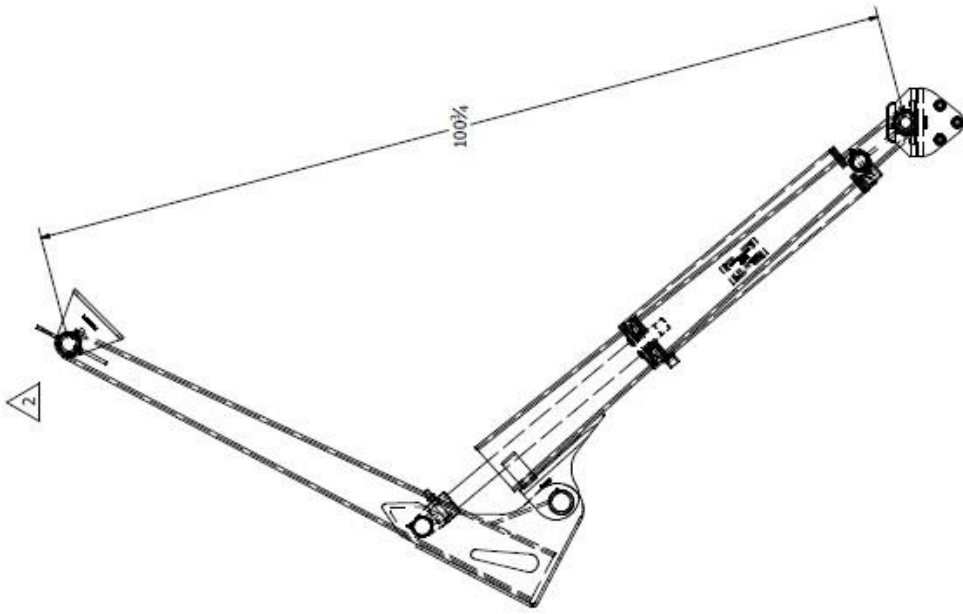
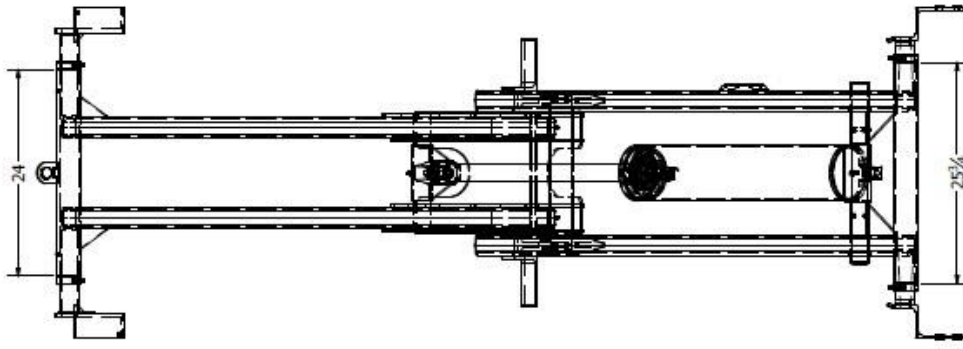
**DRAWING APPLIES TO:  
23 YD. MODEL OLYMPIAN**

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ON STRUCTURAL AND FABRICATED PARTS MUST BE HELD TO A TOLERANCE OF  $\pm 0.0625$  IN (0.0025 IN) FOR TWO PLACE DECIMALS, AND  $\pm 0.00125$  IN (0.0005 IN) FOR THREE PLACE DECIMALS. DIMENSIONS WITHIN PARENTHESES ( ) ARE MILLING FINISHES. WELDED JOINTS SHALL BE FINISHED TO BRUSH COIL FINISH. ALL SHARP CORNERS AND EDGES SHALL BE DEBURR TO A RADIUS OF 0.0625 IN (0.0025 IN). DO NOT SCALE THIS DRAWING FOR DIMENSIONS.

DESIGN	4/12/2013	<b>GODWIN MFG. CO. INC.</b>
DRAWN		DANN INC
CHECKED		TITLE
WEIGHT	591.4 lbmass	628 SCISSOR HOIST ASSEMBLY
MATERIAL		

SEE PARTS LIST SHEET 3		SIZE	SCALE	REV
		C		1
			A12554	
				SHEET 1 OF 3

REVISION HISTORY		DATE	APPROVED
ZONE	REV	DESCRIPTION	
B3	1	W131069 WAS PCL0626	LW
B3	2	PC10626 REPLACED W131069	LW



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ON STRUCTURAL AND FABRICATED PARTS MUST BE HELD TO A TOLERANCE OF ±.06 (1.58MM) FOR TWO PLACE DECIMALS, AND ±.00 (.25MM) FOR THREE PLACE DECIMALS DIMENSIONS WITH BRACKETS ( ) ARE MILLIMETERS. WELD SIZES ARE MINIMUM. USE IDENTICAL WELDS ON ALL PARTS UNLESS OTHERWISE SPECIFIED. DIMENSIONS ARE TO BE TAKEN FROM THE CENTER OF ALL HOLES, CORNERS AND EDGES. DEBURR ALL EDGES. DO NOT SCALE THE DRAWING FOR DIMENSIONS.

DATE: 4/12/2013  
 CHECKED: [Signature]  
 WEIGHT: N/A  
 MATERIAL: [Blank]

**GODWIN MFG. CO. INC.**  
 DMMH NC

TITLE: 628 SCISSOR HOIST ASSEMBLY

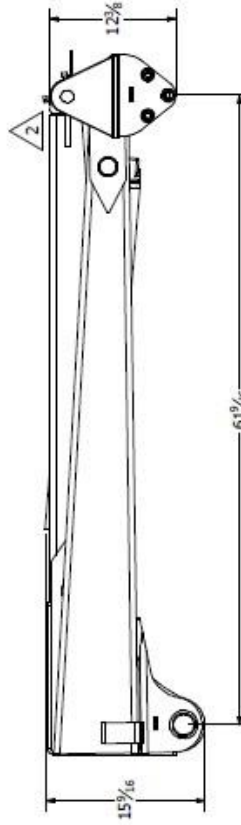
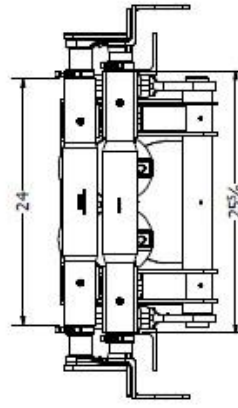
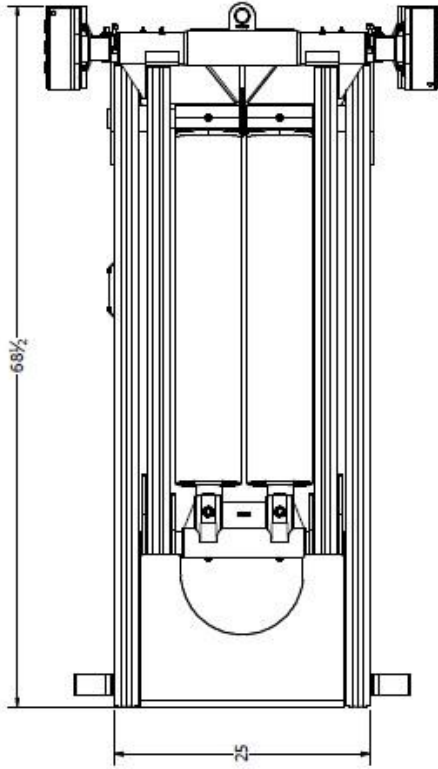
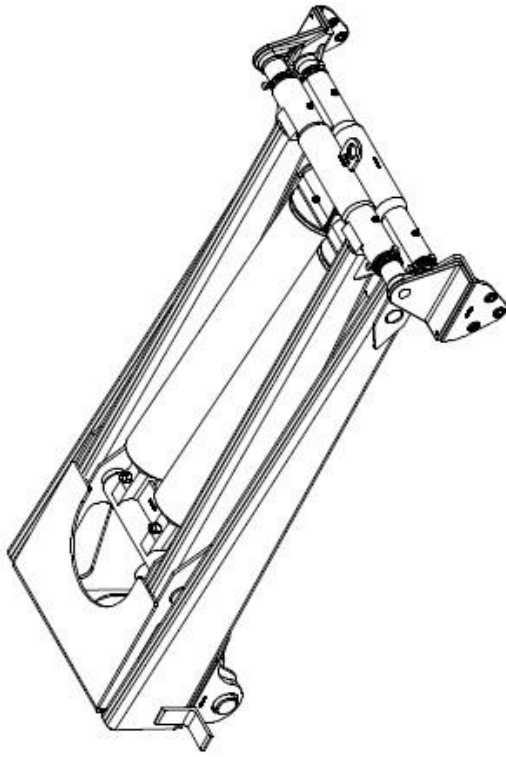
SEE PARTS LIST SHEET 3

SIZE: C  
 UNIT: IN  
 SCALE: A12554  
 SHEET: 2 OF 3

**DRAWING APPLIES TO:  
 23 YD. MODEL OLYMPIAN**

REVISION HISTORY		DATE	APPROVED
ZONE	REV	DESCRIPTION	
B3	1	W131069 WAS PC10626	LW
B3	2	PC10626 REPLACED W131069	LW





UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ON STRUCTURAL AND FABRICATED PARTS MUST BE HELD TO A TOLERANCE OF  $\pm 0.06$  (1.58mm) FOR TWO PLACE DECIMALS, AND  $\pm 0.03$  (0.76mm) FOR THREE PLACE DECIMALS. DIMENSIONS WITH IN BRACKETS ( ) ARE MILLIMETERS. WELD SIZES ARE MINIMUM. USE IDENTICAL WELDS ON SIMILAR ITEMS. ✓ INDICATES MACHINED SURFACES REQUIRING NO FINISH CONTROL. SKEW ALL SHARP CORNERS AND EDGES. REWORK ALL HOLES. DO NOT SCALE THIS DRAWING FOR DIMENSIONS.

DATE: 5/11/2012  
 CHECKED: [Signature]  
 WEIGHT: 914.4 lbmass  
 MATERIAL: [Blank]

DESIGNER: [Signature]  
 TITLE: [Blank]

SEE PARTS LIST SHEET 3

SCALE: C

UNIT: IN

REV: 2

SHEET 1 OF 3

GODWIN MFG. CO. INC.  
 GODWIN, NC

6630 SCISSOR HOIST ASSEMBLY

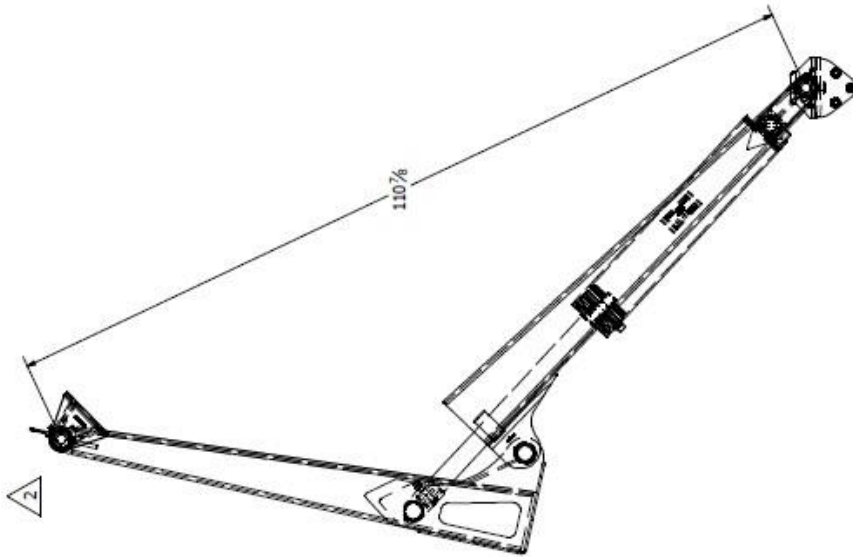
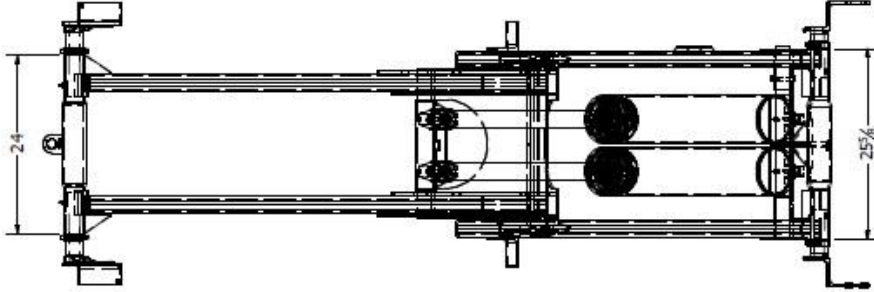
DATE: 11/17/2013  
 APPROVED: LW

DATE: 10/9/2014  
 APPROVED: LW

NOTE:  
 LIFT POINTS MAY VARY DEPENDING  
 ON CUSTOMER AND/OR APPLICATION.  
 SEE LIFT POINT OPTIONS SHEET.

**DRAWING APPLIES TO:**  
**30 YD. MODEL OLYMPIAN**

ZONE	REV	DESCRIPTION	DATE	APPROVED
B3	1	W131069 WAS PC10626	11/17/2013	LW
B3	2	PC10626 REPLACED W131069	10/9/2014	LW



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ON STRUCTURAL AND FABRICATED PARTS MUST BE HELD TO A TOLERANCE OF .006 (1/16th) INCH FOR TWO PLACE DECIMALS, AND .001 (1/32nd) INCH FOR THREE PLACE DECIMALS. DIMENSIONS ARE TO BE TAKEN FROM THE SURFACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO BE TAKEN FROM THE SURFACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO BE TAKEN FROM THE SURFACE UNLESS OTHERWISE SPECIFIED. ALL DIMENSIONS ARE TO BE TAKEN FROM THE SURFACE UNLESS OTHERWISE SPECIFIED.

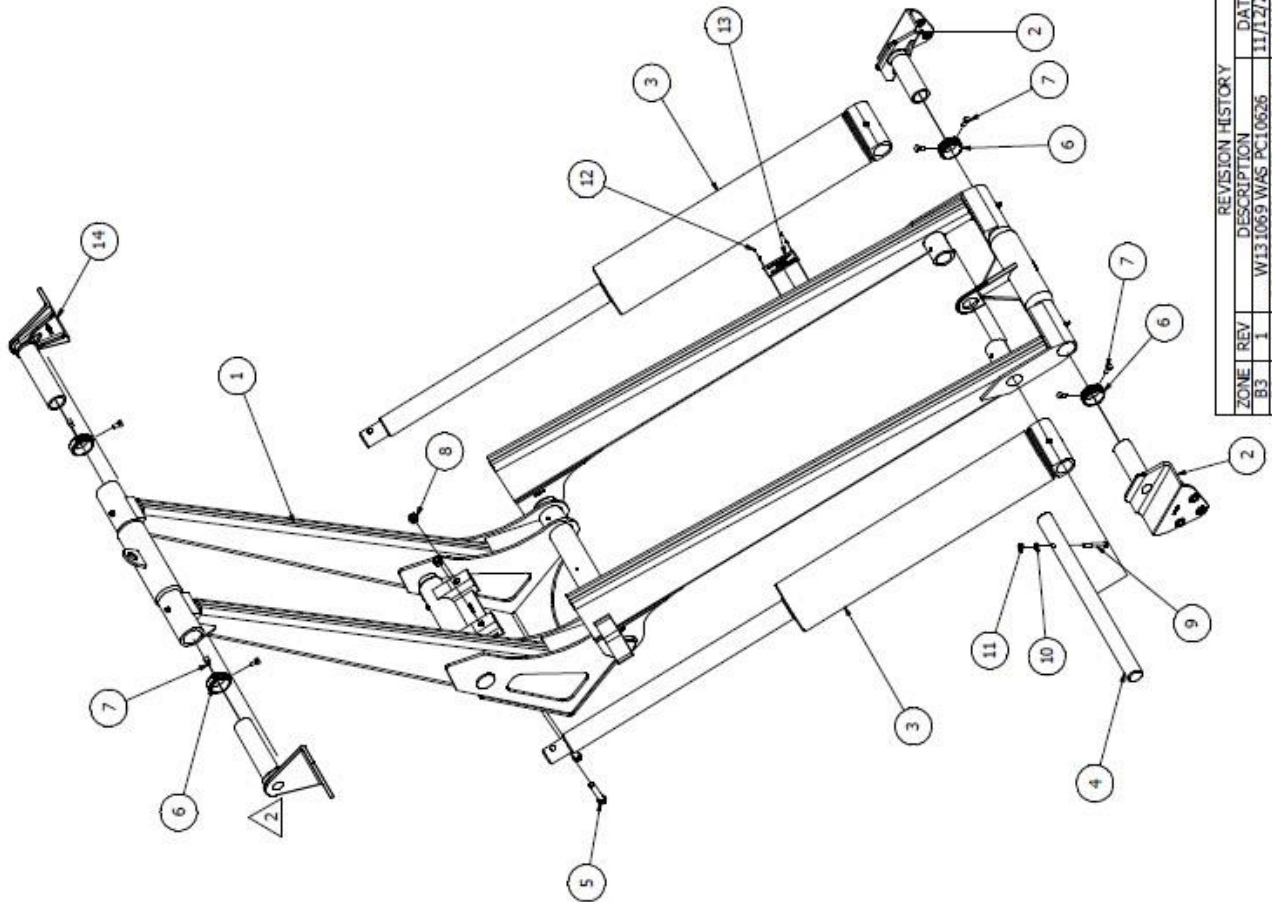
DESIGNED BY	Laura Whitman	DATE	5/11/2012
CHECKED			
WEIGHT	N/A		
MATERIAL			
<b>GODWIN MFG. CO. INC.</b> DUNN, NC			
6630 SCISSOR HOIST ASSEMBLY			
SIZE	C	DWG NO.	A12211
SCALE			
SEE PARTS LIST SHEET 3			REV
			2

**DRAWING APPLIES TO:  
30 YD. MODEL OLYMPIAN**

REVISION HISTORY		DATE	APPROVED
ZONE	REV	DESCRIPTION	
B3	1	W131069 WAS PC10626	LW
B3	2	PC10626 REPLACED W131069	LW

PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	W12507	SCISSOR HOIST WELDMENT, 5530/6630
2	2	PC13285	LOWER LIFT ARM, 2-1/4"
3	2	A21356	630 DA CYLINDER ASSEMBLY
4	1	SM12058	CYLINDER MOUNT SHAFT, 6615/6620/5530/6630/55207/6620T
5	2	102-615-L	5/8 x 3 1/2 L9 Hex Cap Screw
6	4	PC12157	SET COLLAR FOR 2-1/4" LIFT ARM
7	8	P34	SET SCREW 3/8"-16 x 3/4" SQHD
8	2	116-7-A1	HEX NUT, 5/8" UNC
9	1	102-213-A1	HEX BOLT, 3/8 X 3 LG. GR 8
10	1	118-3-A1	Lock Washer, 3/8
11	1	116-3-A1	Hex Nut, 3/8 UNC
12	4	PAAP43	RIVET, 1/8" CHERRY POP
13	1	P10100	SERIAL PLATE
14	2	PC10626	2-1/4" UPPER LIFT ARM



DRAWING APPLIES TO:  
30 YD. MODEL OLYMPIAN

**GODWIN MFG. CO. INC.**  
CLUMI NC

DATE	5/11/2012
CHECKED	
TITLE	6630 SCISSOR HOIST ASSEMBLY
WEIGHT	N/A
MATERIAL	

SEE PARTS LIST ABOVE

SIZE	C	REV	2
SCALE	A1:22:11		

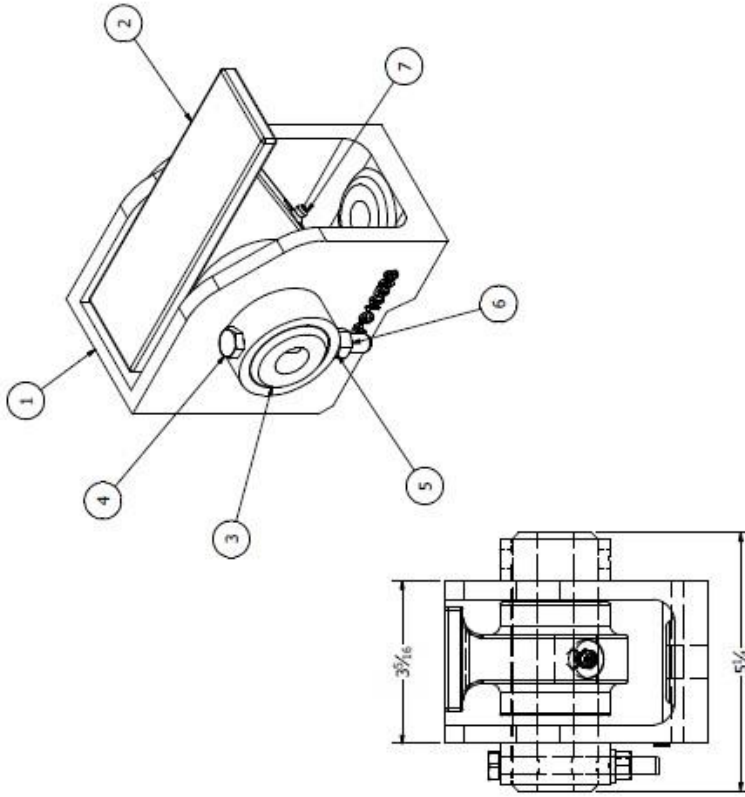
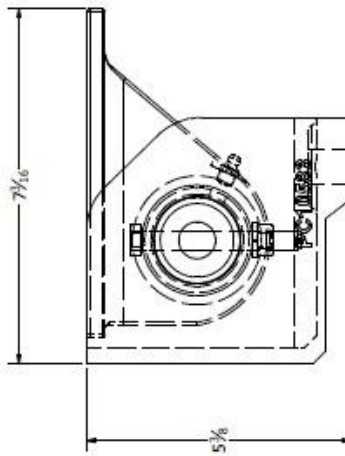
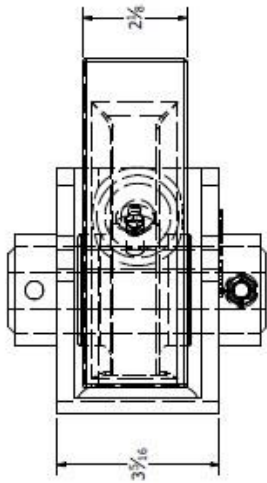
SHEET 3 OF 3

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ON STRUCTURAL AND FABRICATED PARTS MUST BE HELD TO A TOLERANCE OF +.006 (1/50th) FOR TWO PLACE DECIMALS, AND +.010 (.25mm) FOR THREE PLACE DECIMALS. DIMENSIONS WITHIN BRACKETS ( ) ARE MILLIMETERS. WELD SIZES ARE MINIMUM. USE IDENTICAL WELDS ON SIMILAR ITEMS. V INDICATES WELDED SURFACES REQUIRING NO FINISH CONTROL. BREAK ALL SHARP CORNERS AND EDGES. REBAR ALL HOLES. DO NOT SCALE THIS DRAWING FOR DIMENSIONS.

ZONE	REV	DESCRIPTION	DATE	APPROVED
B3	1	W131069 WAS PC10626	11/17/2013	LW
B3	2	PC10626 REPLACED W131069	10/9/2014	LW

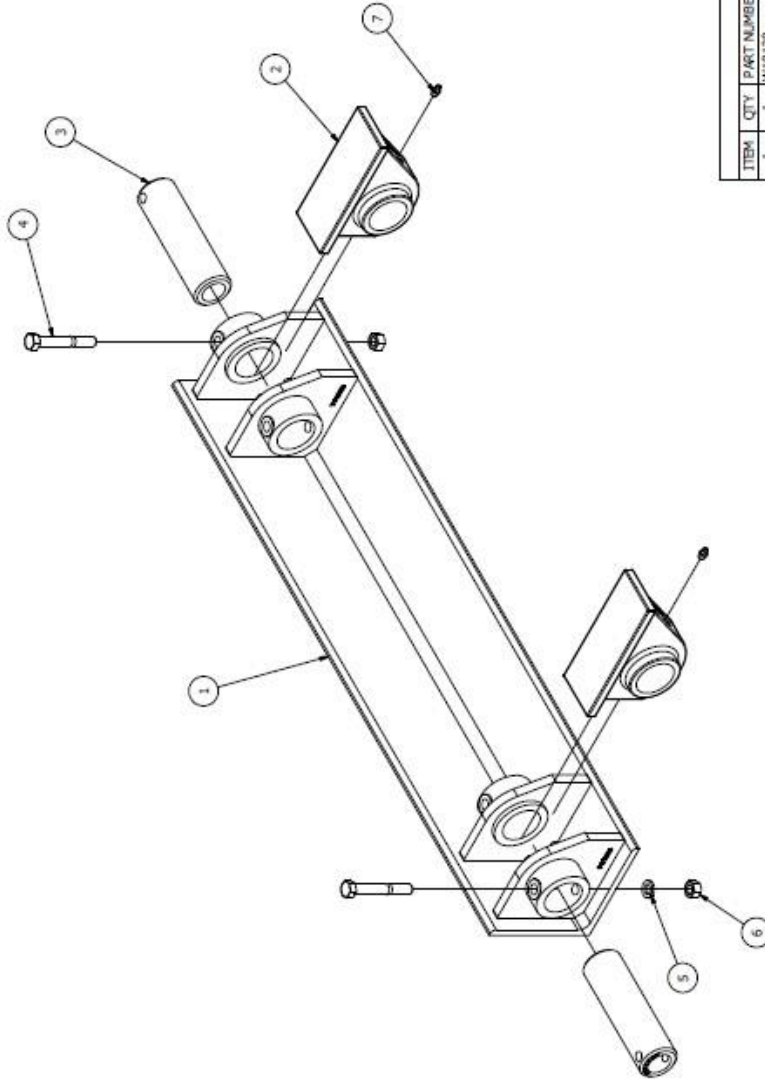
PARTS LIST

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	PC10583	REAR HINGE BLOCK, 1-3/4"
2	1	PC10636	HINGE FLIPPER, 1-3/4"
3	1	PC10816	1-3/4" REAR HINGE PIN, SHORT VERSION
4	1	102-214	Hex Cap Screw, 3/8 X 3 1/4
5	1	118-3-A1	Lock Washer, 3/8
6	1	116-3-A1	Hex Nut, 3/8 UNC
7	1	P800	1/8" PIPE THREAD GREASE FITTING



UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ON STRUCTURAL AND FABRICATED PARTS MUST BE HELD TO A TOLERANCE OF +.001 (-.000) FOR TWO PLACE DECIMALS, AND +.001 (-.001) FOR THREE PLACE DECIMALS. DIMENSIONS WITH BRACKETED ( ) FIGURES ARE THE MINIMUMS. ALL DIMENSIONS ARE TO BE TAKEN UNLESS OTHERWISE SPECIFIED. DIMENSIONS ON SMOOTH SURFACES ARE TO CENTER UNLESS OTHERWISE SPECIFIED. DIMENSIONS ON DIMENSIONED SURFACES ARE TO CORNERS AND EDGES. DEBURR ALL HOLES. DO NOT SCALE THE DRAWING FOR DIMENSIONS.	
DESIGN	8/22/2012
CHECKED	
<b>GODWIN MFG. CO. INC.</b>	
DMM:INC	
TITLE	
TRAILER HOIST REAR HINGE ASSEMBLY	
WEIGHT	15.8 lbmass
MATERIAL	
SEE PART'S LIST ABOVE	
SIZE	C
SCALE	
DWG. NO.	A13926
REV.	
SHEET 1 OF 1	

DRAWING APPLIES TO:  
23 YD. MODEL OLYMPIAN



PARTS LIST		DESCRIPTION
ITEM	QTY	PART NUMBER
1	1	W18128
2	2	PC10335
3	2	PC10523
4	2	102-415-A1
5	2	118-5-A1
6	2	116-5-A1
7	2	P800

TOLERANCES UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ON STRUCTURAL AND FABRICATED PARTS MUST BE HELD TO A TOLERANCE OF  $\pm 0.05$  (1.58mm) FOR TWO PLACE DECIMALS, AND  $\pm 0.10$  (2.54mm) FOR THREE PLACE DECIMALS. DIMENSIONS WITHIN BRACKETS ( ) ARE MILLIMETERS. WELD SIZES ARE MINIMUM. USE IDENTICAL WELDS ON SIMILAR ITEMS. ✓ INDICATES MACHINED SURFACES REQUIRING NO FINISH CONTROL. BRISK ALL SHIP CORNERS AND EDGES. DEBurr ALL PAIRS. DO NOT SCALE THE DRAWING FOR DIMENSIONS.

DATE	3/26/2012
BY	DANN NC
CHECKED	
WEIGHT	96.6 lbmss
MATERIAL	

**GODWIN MFG. CO. INC.**  
 DAWN NC  
 TITLE  
**ASSY., REAR HINGE, 2"**

SIZE	C
DWG NO	A18207
SCALE	

SHEET 1 OF 2

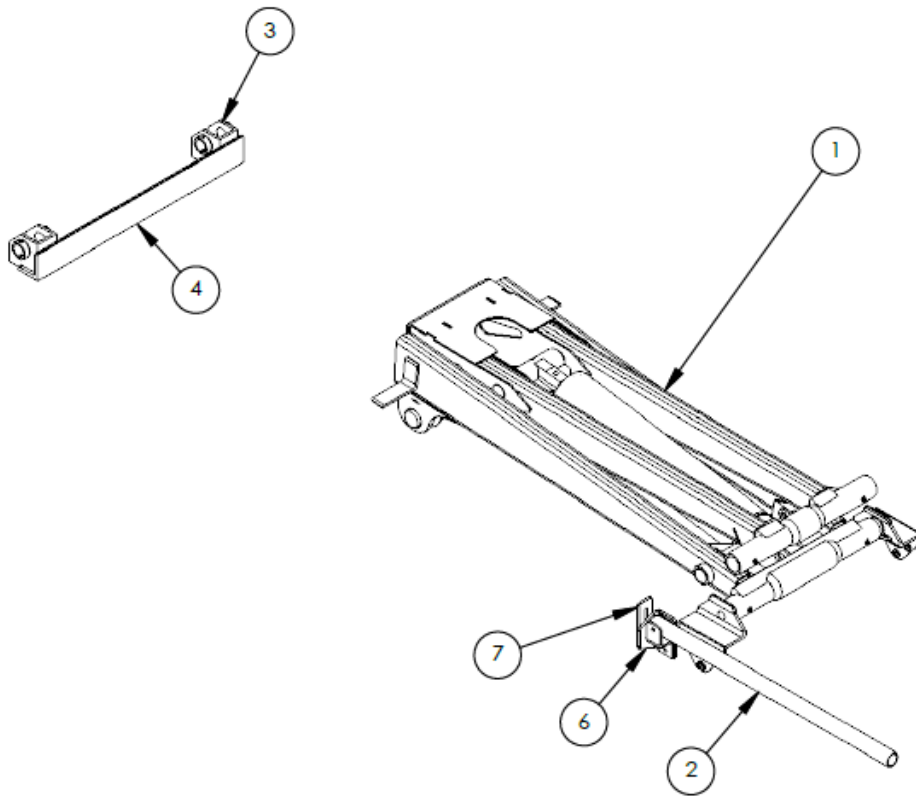
DRAWING APPLIES TO:  
 30 YD. MODEL OLYMPIAN



**9 PART BREAKDOWNS**

**9.1.1 HOIST**

FILE NAME	OLYMPIAN CHASSIS MOUNT MANUAL	<b>OLYMPIAN 23 YD HOIST</b>
DWG NAME		



7	1	LV-4401	BODY PROP, ADJUSTABLE STOP
6	1	LV-4400	BODY PROP, ADJUSTABLE STOP BRACKET
5	2	LV-2614	BODY GUIDE
4	3.3	L5X3-1/2X1/2	ANGLE, 5" X 3-1/2" X 1/2"
3	2	LV-2615	REAR HINGE BRACKET
2	1	LV-4412	BODY PROP & CUP
1	1	LV-4370	23 YD HOIST
ITEM	QTY	PART NUMBER	DESCRIPTION

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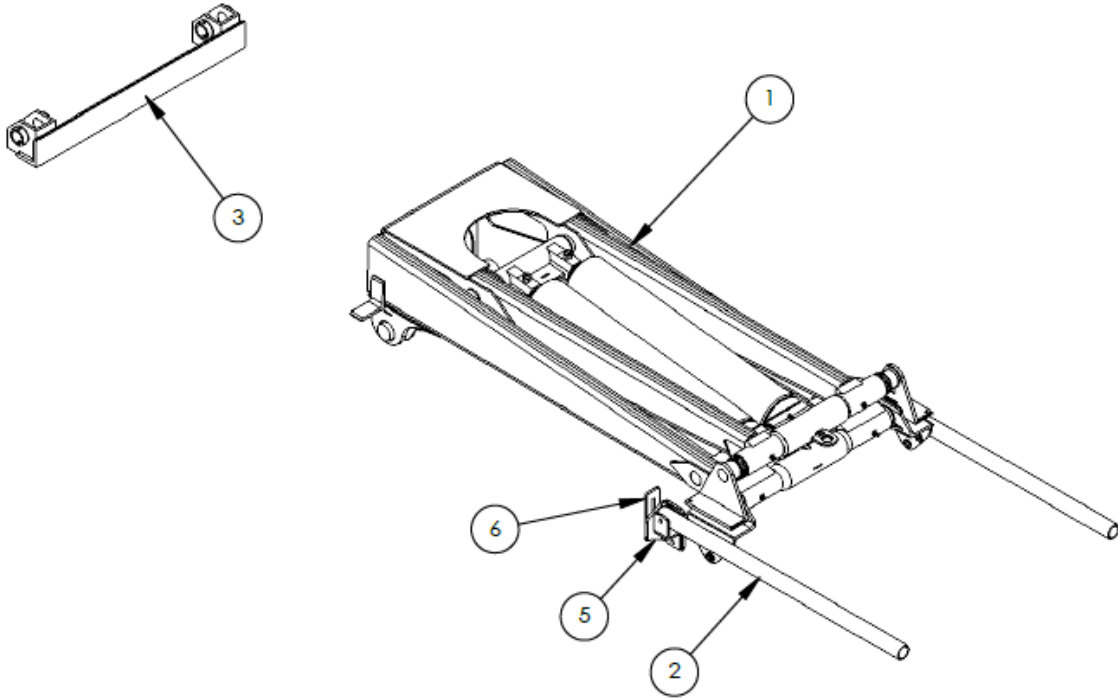


DIXON, ILLINOIS  
PHONE: 800-851-9664

# Parts Breakdowns

FILE NAME	OLYMPIAN CHASSIS MOUNT MANUAL
DWG NAME	

## OLYMPIAN 30 YD HOIST



6	2	LV-4401	BODY PROP, ADJUSTABLE STOP
5	2	LV-4400	BODY PROP, ADJUSTABLE STOP BRACKET
4	2	LV-2614	BODY GUIDE
3	1	LV-4616	REAR HINGE ASSEMBLY
2	2	LV-4413	BODY PROP
1	1	LV-4369	30 YD HOIST
ITEM	QTY	PART NUMBER	DESCRIPTION

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PHONE: 800-851-9664

# Parts Breakdowns

## 9.1.2 BODY TRANSITION

FILE NAME	OLYMPIAN BODY ASSY			<b>OLYMPIAN BODY TRANSITION</b>
DWG NAME	PG1			

ITEM	QTY	PART NUMBER	DESCRIPTION
16	1	LV-4831	TRANSITION LINER EXTENSION
15	14	BON-000006	BOLT, 1/4-20 X 1-1/4 HEX ZP
14	6	LV-4213	SEAL, D BULB X 1/2" WIDE
13	1	LV-4826	TRANSITION GASKET
12	1	LV-4825	TRANSITION SEAL FLANGE
11	16	BON-000340	FLATWASHER, 1/2 ZP
10	8	BON-000321	LOCKNUT, 1/2-13 NYLON ZP
9	24	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP
8	10	BON-000005	BOLT, 1/4-20 X 1 HEX ZP
7	8	BON-000107	BOLT, 1/2-13 X 1-1/2 HEX ZP
6	6	BON-000288	BOLT, 5/8-11 X 2 CARRIAGE ZP
5	6	BON-000341	FLATWASHER, 5/8 ZP
4	6	BON-000322	LOCKNUT, 5/8-11 NYLON ZP
3	1	LV-4824	TRANSITION LINER
2	1	LV-4823	TRANSITION
1	1	LV-4827	TRANSITION EXTENSION
ITEM	QTY	PART NUMBER	DESCRIPTION

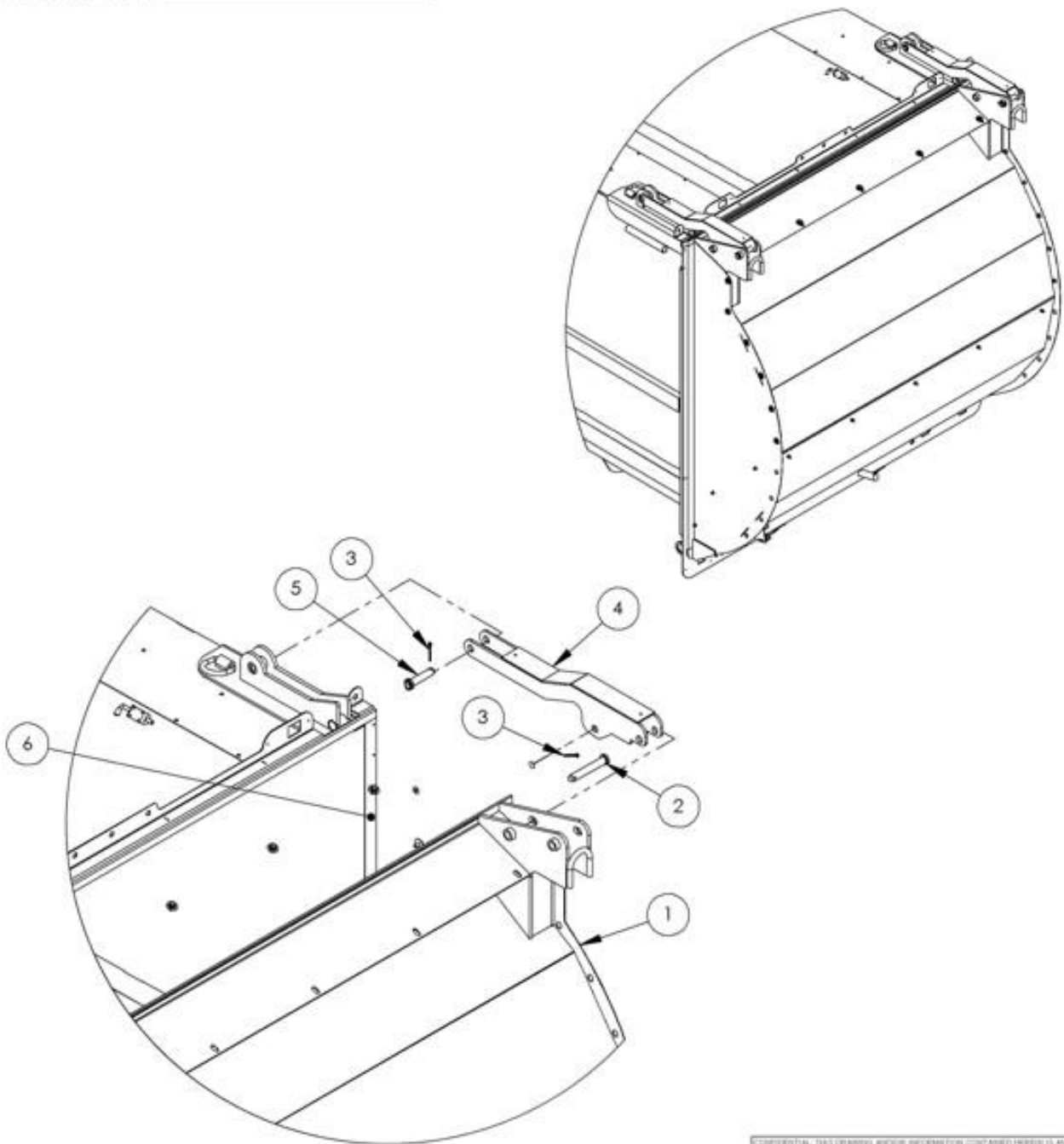
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**Titan** LEAF SOLUTIONS  
DIXON, ILLINOIS  
PHONE: 800-851-9664

9.1.3 TAILGATE AND HINGE

FILE NAME	OLYMPIAN BODY ASSY
DWG NAME	PG2

**OLYMPIAN TAILGATE & HINGE**



6	20'	LV-4213	SEAL, D BULB 1/2" WIDE
5	2	BON-000991	PIN, 1" DIA. x 4-1/4"
4	2	LV-4371	LATCH WELDMENT
3	4	BON-000385	COTTER PIN 1/4" X 2"
2	2	BON-000995	PIN, 1" X 6-3/8"
1	1	LV-4350	TAILGATE
ITEM	QTY	PART NUMBER	DESCRIPTION

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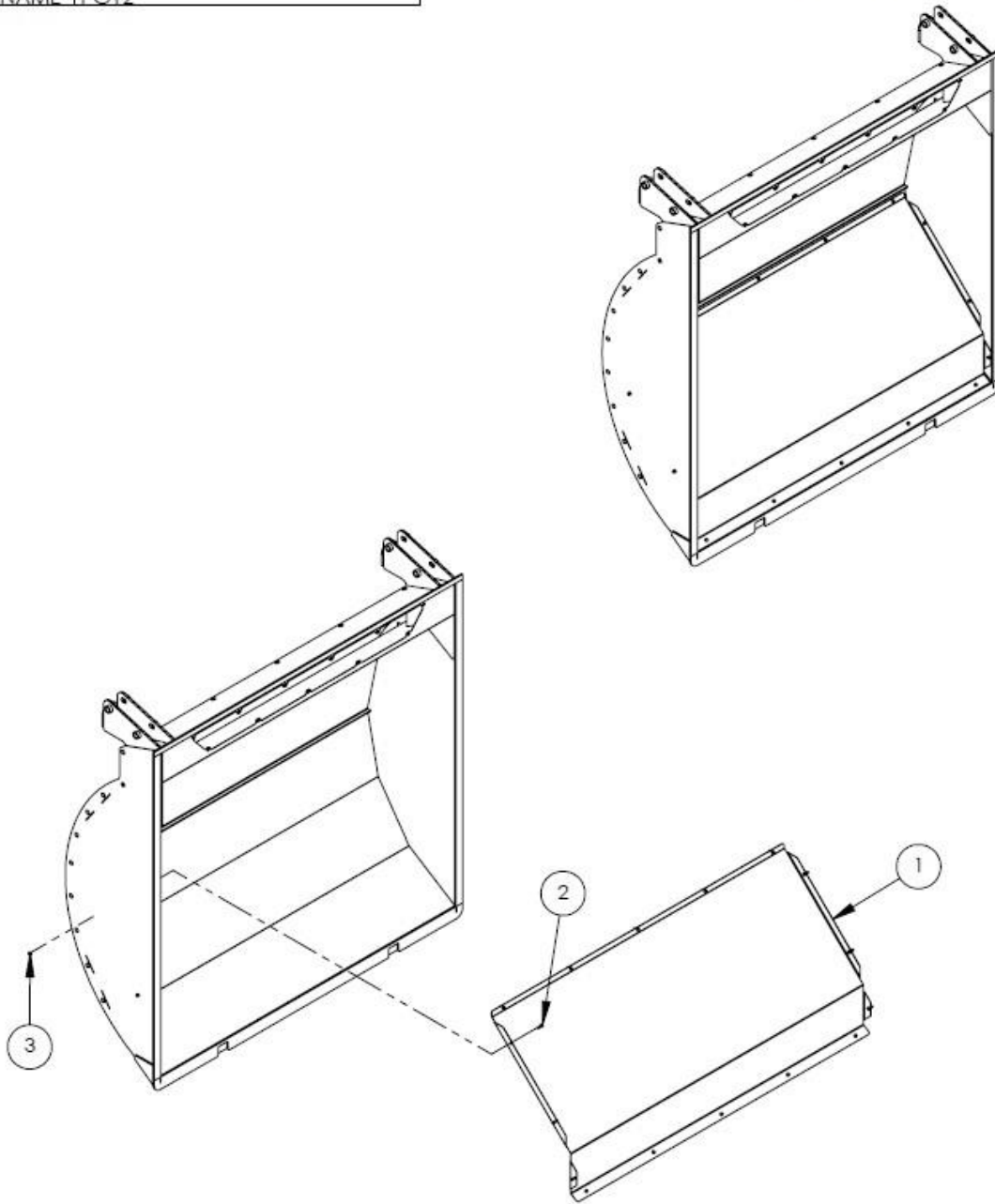


DIXON, ILLINOIS  
PHONE: 800-851-9664

9.1.4 TAILGATE BAFFLE

FILE NAME	OLYMPIAN BODY ASSY
DWG NAME	PG12

OLYMPIAN DOOR BAFFLE



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ITEM	QTY	PART NUMBER	DESCRIPTION
3	16	BON-000319	LOCKNUT, 3/8-16 VINYL ZP
2	16	BON-000057	BOLT, 3/8-16 X 1 HEX ZP
1	1	LV-4372	DOOR BAFFLE

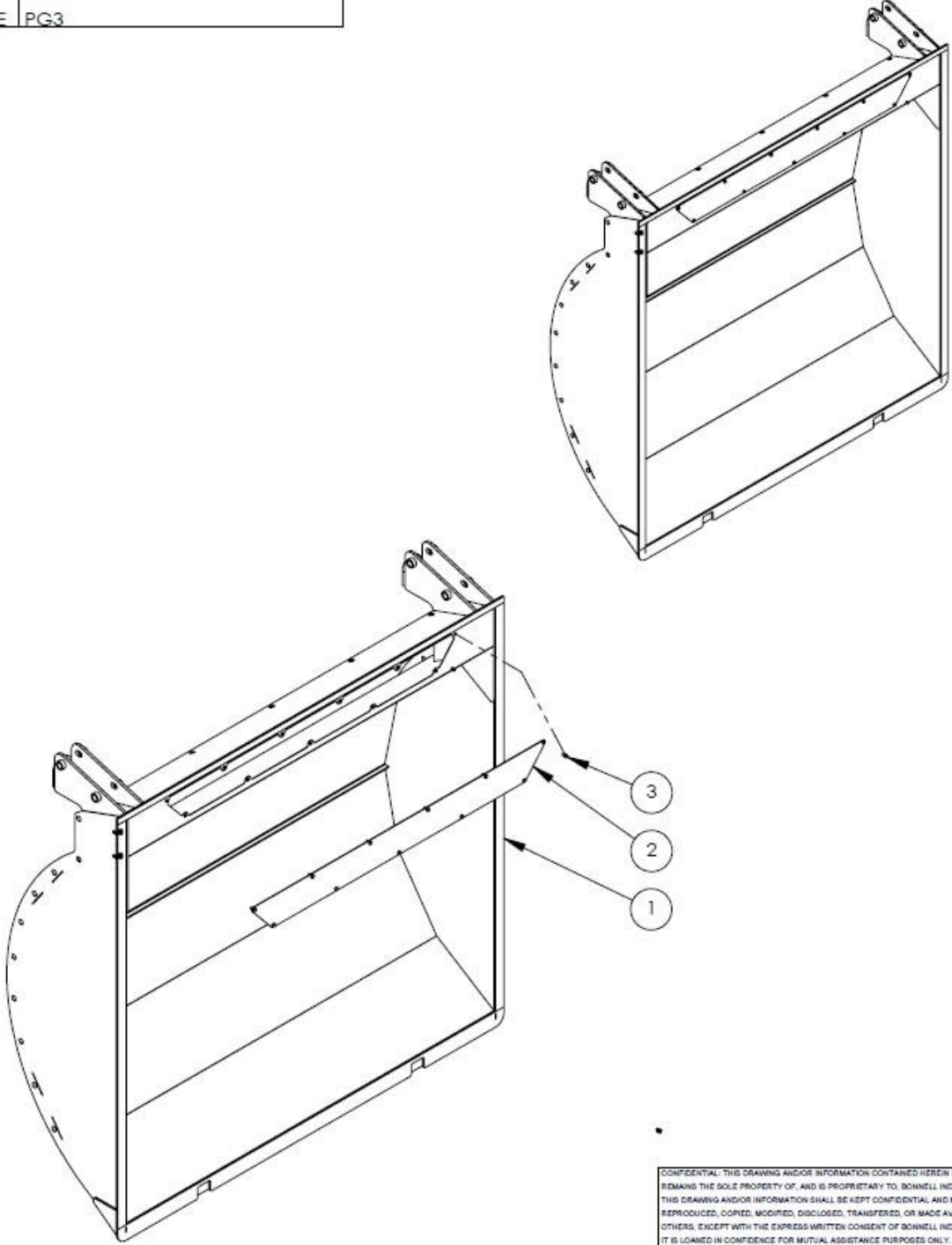


DIXON, ILLINOIS  
PHONE: 800-851-9664

9.1.5 TAILGATE EXHAUST COVER

FILE NAME	OLYMPIAN BODY ASSY
DWG NAME	PG3

OLYMPIAN TAILGATE EXHAUST COVER



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ITEM	QTY	PART NUMBER	DESCRIPTION
3	11	BON-000055	BOLT, 3/8-16 X 3/4 HEX ZP
2	1	LV-4357	TAILGATE EXHAUST COVER
1	1	LV-4350	TAILGATE

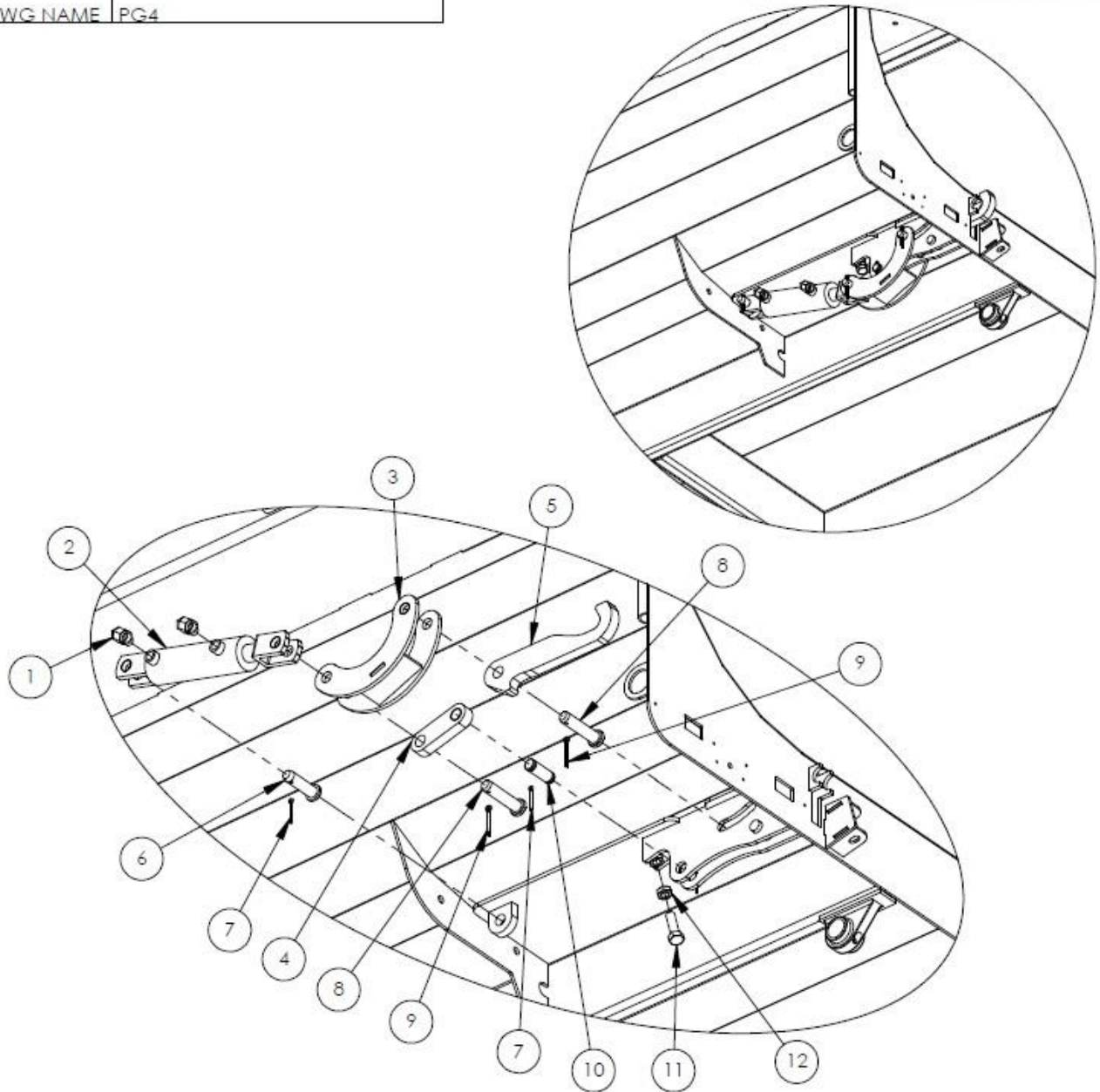


DIXON, ILLINOIS  
PHONE: 800-851-9664

9.1.6 TAILGATE LATCH

FILE NAME	OLYMPIAN BODY ASSY
DWG NAME	PG4

OLYMPIAN TAILGATE LATCH



12	2	BON-000333.3	NUT, 3/4-10 HEX JAM ZP
11	2	BON-000184	BOLT, 3/4-10 X 2-1/2 HEX ZP
10	2	PMC-190400005	CLEVIS PIN, 1" X 2-1/8"
9	4	BON-000385	COTTER PIN 1/4" X 2"
8	4	BON-000991	PIN, 1" DIA. x 4-1/4"
7	6	BON-000383	COTTER PIN 3/16" X 2"
6	2	WES-93079K	RIVET, 1" X 3-1/2"
5	2	LV-2107	DOOR LATCH
4	2	LV-2013	FRONT LATCH PIVOT
3	2	LV-2108	LATCH WELDMENT
2	2	LV-4594	CYLINDER, 2-1/2" BORE X 6" STROKE
1	4	60UB 08X08	MALE PIPE X 90DEG FEMALE PIPE 1/2" NPTF
ITEM	QTY	PART NUMBER	DESCRIPTION

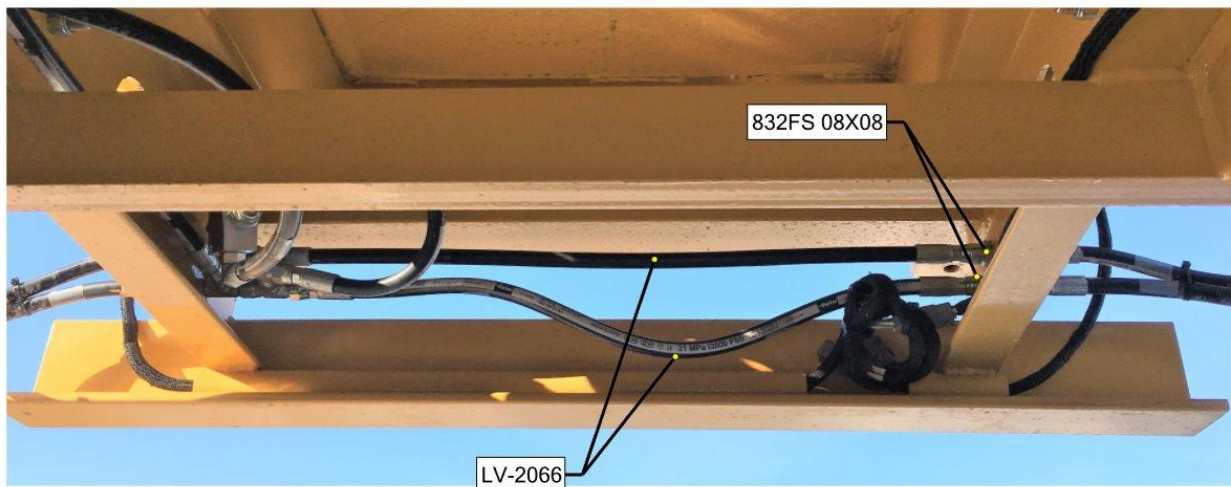
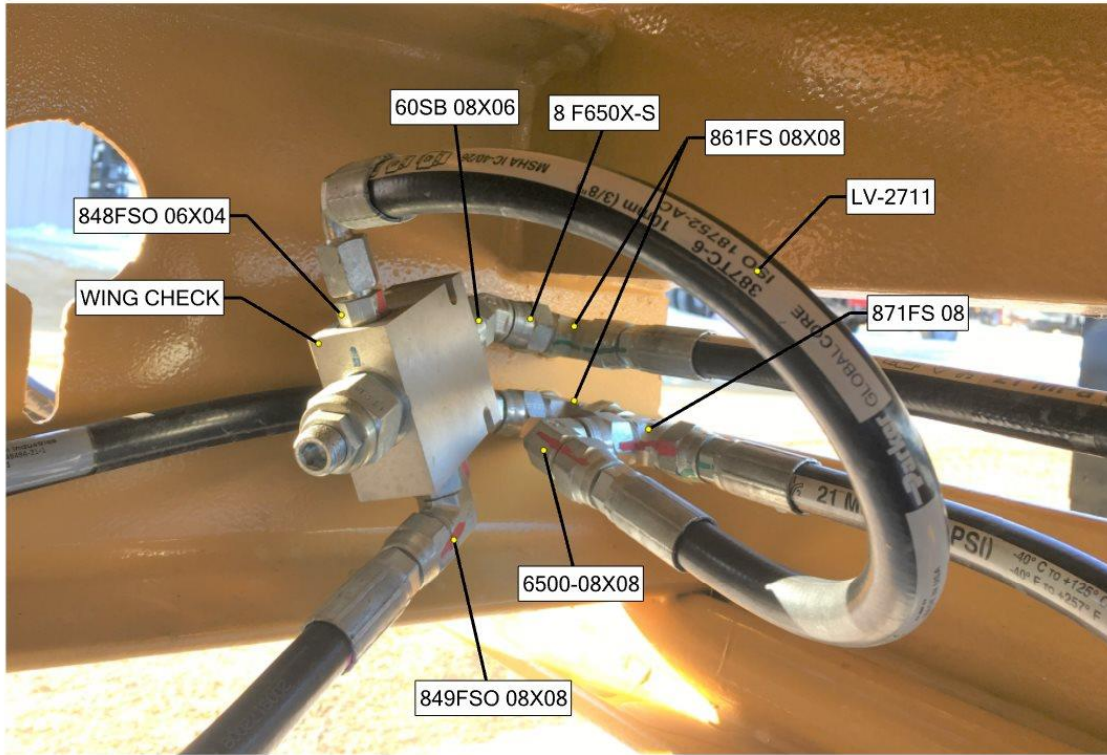
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## 9.1.7 TAILGATE LATCH HYDRAULIC HOSES & FITTINGS

HYDRAULIC DOOR CYLINDER FITTINGS AND HOSE ASSEMBLY  
SPARTAN LEAF VACUUM  
011221 LV-2002-HYDRAULICSREV1.SMG





## Parts Breakdowns

### 9.1.8 TAILGATE LATCH HYDRAULIC HOSES & FITTINGS

HYDRAULIC DOOR CYLINDER FITTINGS AND HOSE ASSEMBLY  
SPARTAN LEAF VACUUM  
021121 LV-2002-HYDRAULICSREV2.SMG

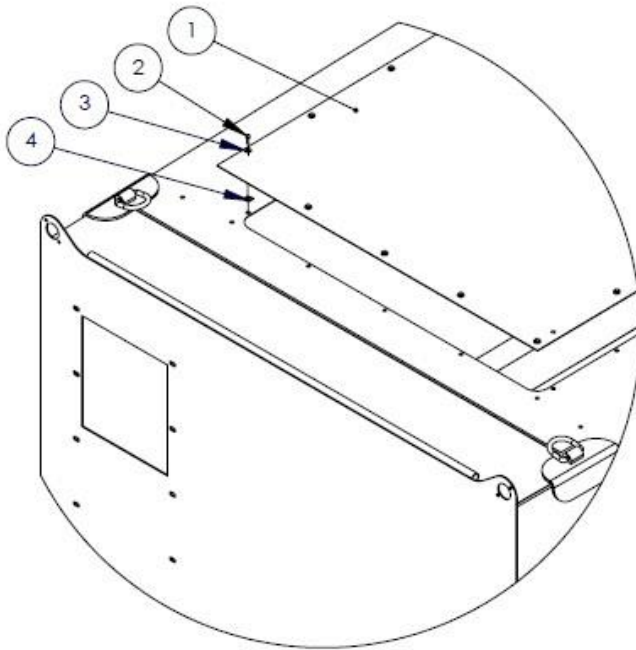
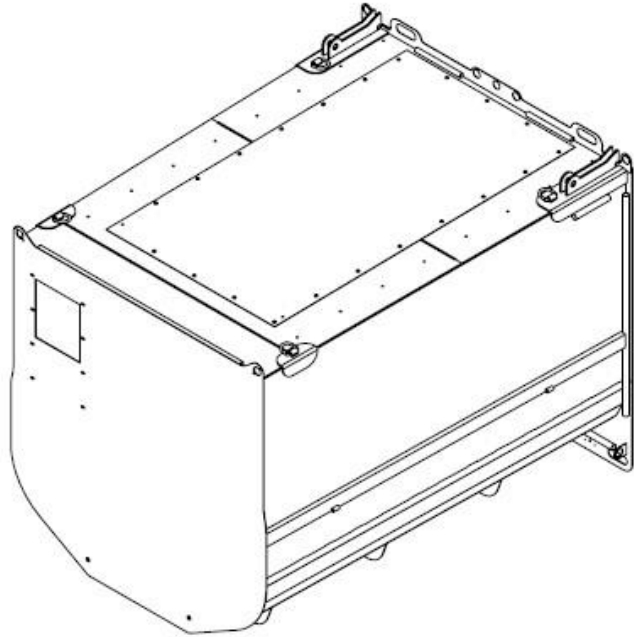


BOM	QTY.	PART NO.	DESCRIPTION:
1	2	LV-2112	REAR DOOR LATCH CYLINDER HOSE - SHORT
2	2	LV-2113	REAR DOOR LATCH CYLINDER HOSE - LONG
3	4	60UB 08X08	MALE ORB X 90DEG FEMALE PIPE SW 3/4-16TPI TO 1/2 NPSM

9.1.9 BOLT-IN TOP SCREEN

FILE NAME	GEN2 SPARTAN BODY ASSY
DWG NAME	PG5

OLYMPIAN BOLT-IN TOP SCREEN



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ITEM	QTY	PART NUMBER	DESCRIPTION
4	28	BON-000302C	NUT, 5/16-18 CLIP-ON
3	28	BON-000337	FLATWASHER, 5/16 ZP
2	28	BON-000030	BOLT, 5/16-18 X 1 HEX ZP
1	1	LV-4342	TOP SCREEN

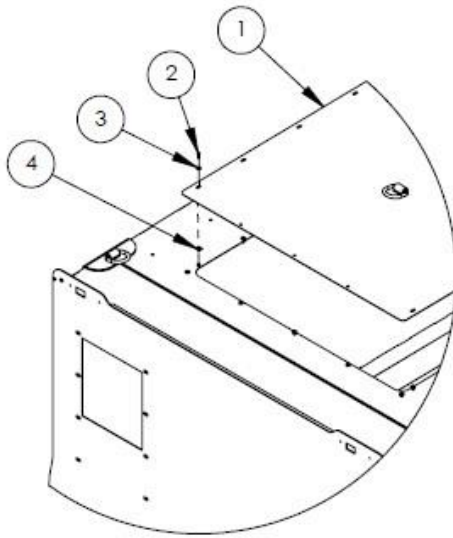
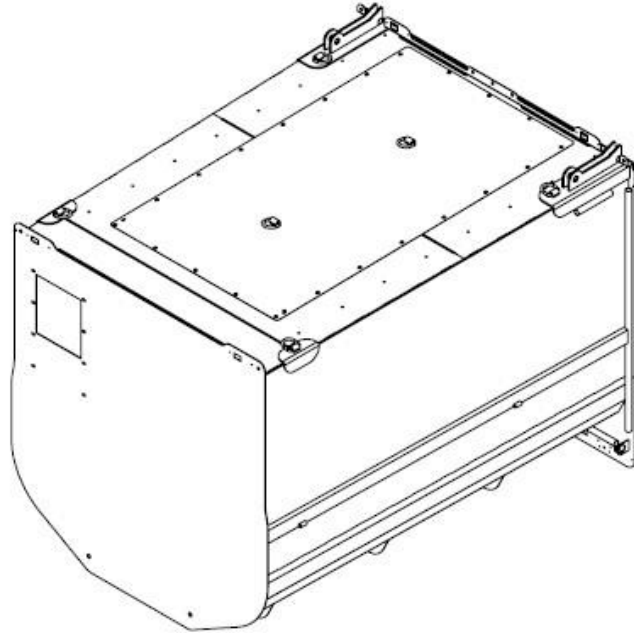


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9.1.10 ROOF EXHAUST COVER

FILE NAME	OLYMPIAN BODY ASSY
DWG NAME	PG6

OLYMPIAN ROOF EXHAUST COVER



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5	30'	LV-4213	SEAL, D BULB 1/2" WIDE
4	22	BON-000302C	NUT, 5/16-18 CLIP-ON
3	22	BON-000337	FLATWASHER, 5/16 ZP
2	22	BON-000030	BOLT, 5/16-18 X 1 HEX ZP
1	1	LV-4358	EXHAUST COVER
ITEM	QTY	PART NUMBER	DESCRIPTION



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9.1.11 REAR EXHAUST CONVERSION

FILE NAME	M1212
DWG NAME	M1212

NOTE:  
D-BULB SEAL (ITEM 16) IS  
INSTALLED ON BOTTOM OF  
DUST CONTROL MOUNTING  
BRACKETS (ITEMS 1, 3 & 13),  
AND ACROSS EDGE OF REAR  
SCREEN (ITEM 4)

16	LV-4213	24	SEAL, D-BULB
15	LV-4495	1	LOWER DEFLECTOR COVER PLATE
14	LV-4344	1	UPPER DEFLECTOR
13	LV-4162	2	DUST CONTROL MOUNTING BRACKET
12	BON-000352	8	3/8 LOCKWASHER ZP
11	BON-000338	34	3/8 FLAT WASHER
10	BON-000335	64	3/16 FLAT WASHER
9	BON-000319	21	3/8-16 NYLON HEX LOCKNUT
8	BON-000057	29	3/8-16 x 1 HEX BOLT
7	10-24 NYLOK	64	NYLON LOCKNUT, 10-24 UNC
6	LV-4158	64	10-24 x 3/4 MACHINE SCREW SS
5	LV-4362	16	SPRING LATCH 1/2" ZINC PLATED
4	LV-4185	4	DUST CONTROL SCREEN
3	LV-4190R	1	DUST CONTROL MOUNTING BRACKET, RH
2	LV-4496	1	LOWER DEFLECTOR
1	LV-4190L	1	DUST CONTROL MOUNTING BRACKET, LH
REF	PART NO.	QTY	DESCRIPTION

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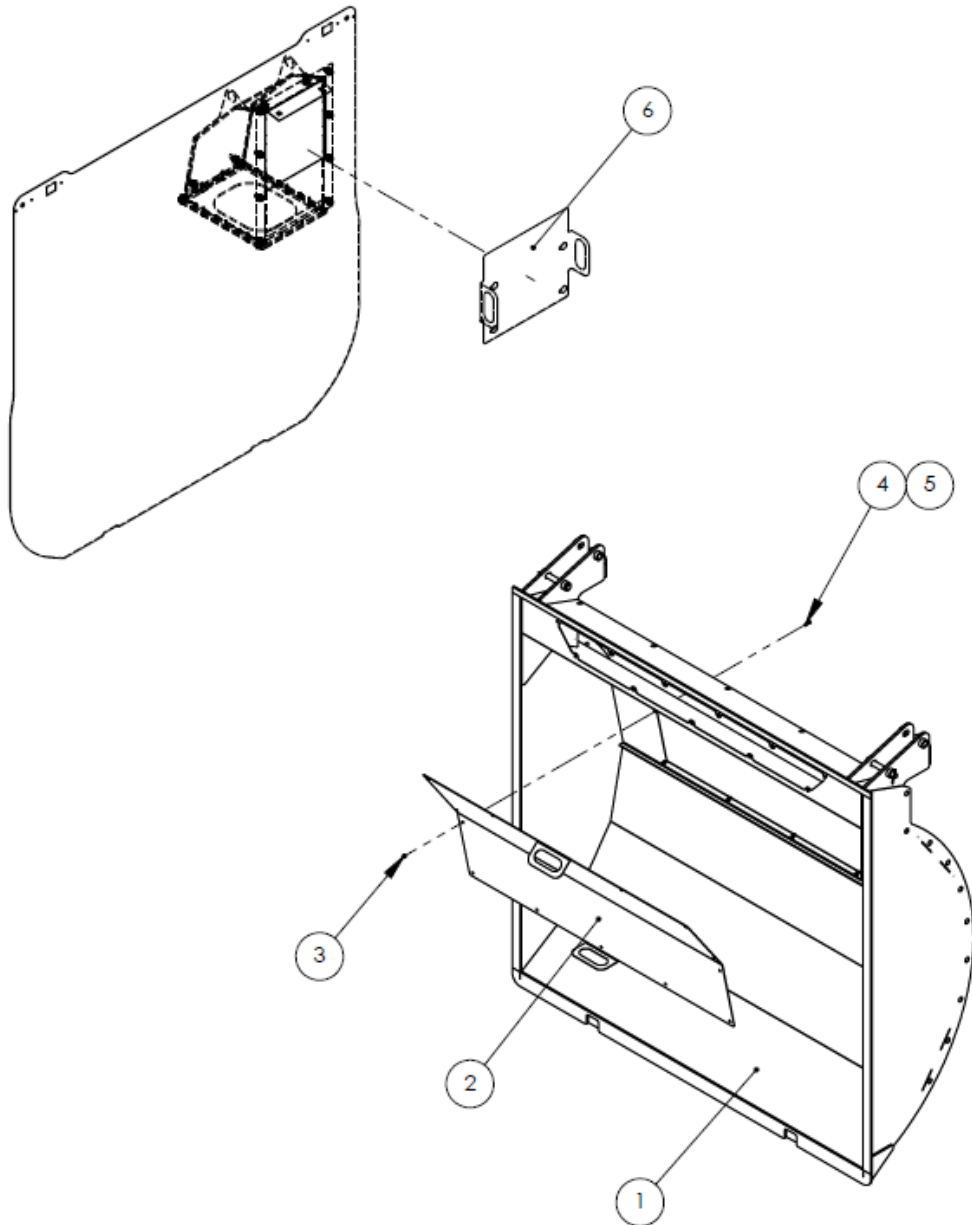
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# Parts Breakdowns

## 9.1.12 CHIPPER DOOR OPTION

FILE NAME	LV-4414 MANUAL
DWG NAME	Sheet1

### CHIPPER DOOR OPTION



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6	1	LV-4416	COVER PLATE, BLOWER HOUSING
5	14	BON-000319	3/8"-16 LOCKNUT, NYLON
4	14	BON-000338	3/8" FLAT WASHER
3	14	BON-000057	3/8"-16 X 1" LG HHCS
2	1	LV-4415	COVER PLATE, REAR DOOR CHIPPER OPENING
1	1	LV-4414	REAR DOOR WITH CHIPPER OPENING
ITEM	QTY	PART NUMBER	DESCRIPTION

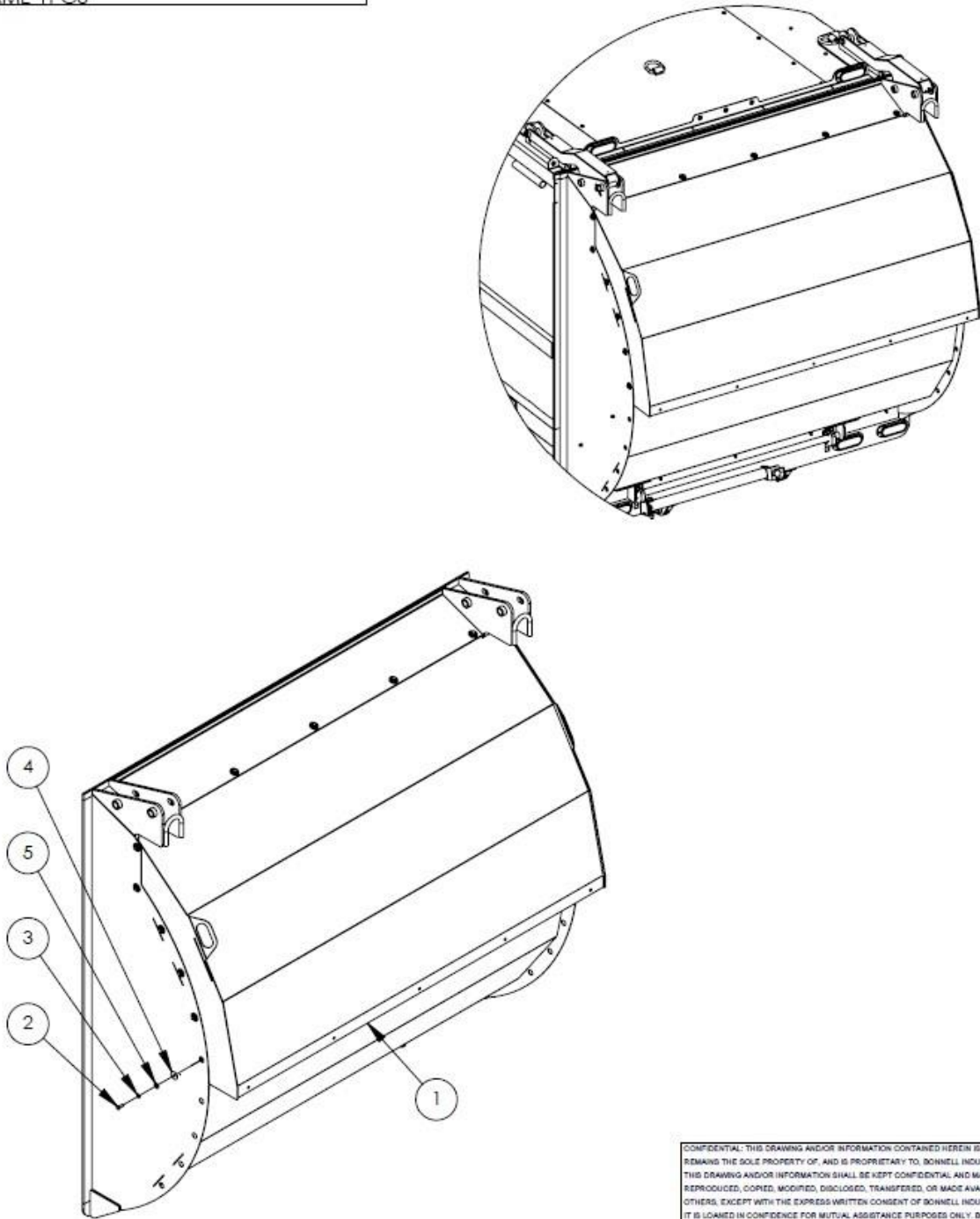


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9.1.13 TAILGATE DOWN DRAFT MODULE

FILE NAME	OLYMPIAN BODY ASSY
DWG NAME	PG8

OLYMPIAN TAILGATE DOWN DRAFT MODULE



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ITEM	QTY	PART NUMBER	DESCRIPTION
5	17	BON-000338	FLATWASHER, 3/8 ZP
4	17	91090A115	FENDER WASHER, 3/8 X 1-1/2 ZP
3	17	BON-000352	LOCKWASHER, 3/8 ZP
2	17	BON-000057	BOLT, 3/8-16 X 1 HEX ZP
1	1	LV-4351	GEN2 DOWN DRAFT MODULE

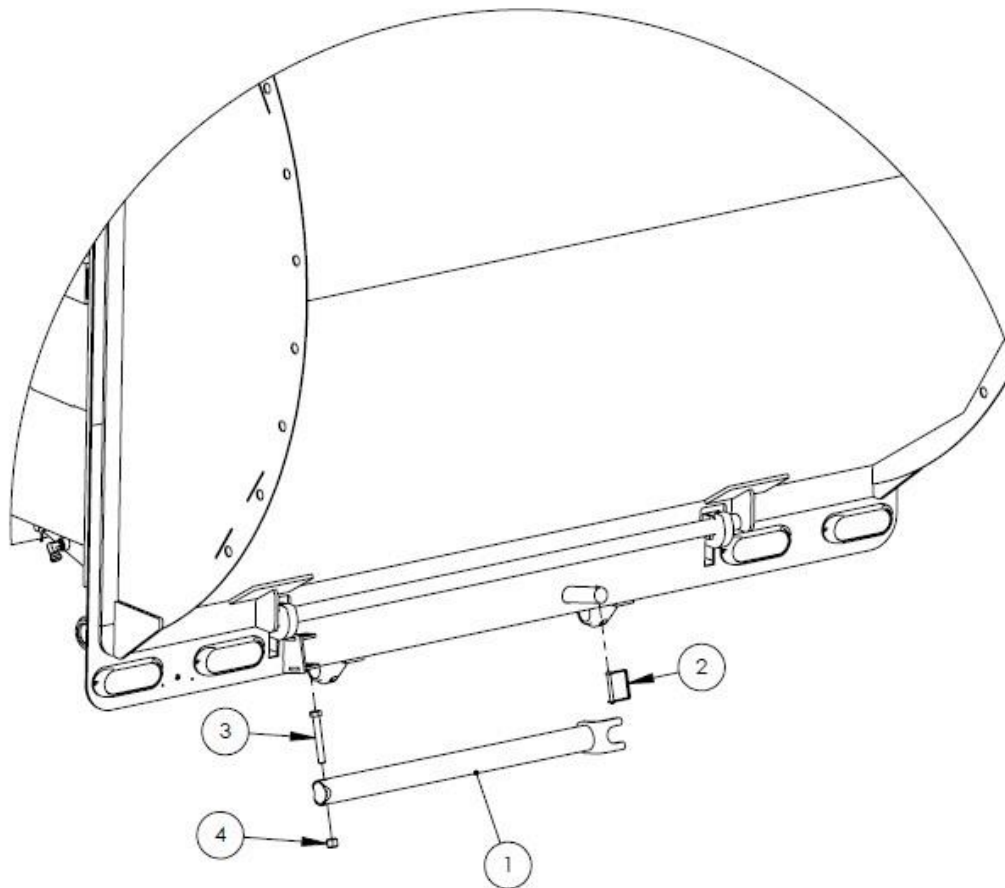
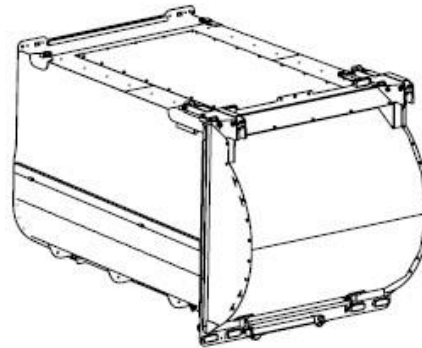


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9.1.14 REAR DOOR PROP

FILE NAME	OLYMPIAN BODY ASSY
DWG NAME	PG9

OLYMPIAN REAR DOOR PROP



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4	1	BON-000322	LOCKNUT, 5/8-11 NYLON ZP
3	1	BON-000162	BOLT, 5/8-11 X 4-1/2 HEX ZP
2	1	BUY-66053	SNAPPER PIN, 5/16" X 2-1/4"
1	1	LV-3041	DOOR PROP
ITEM	QTY	PART NUMBER	DESCRIPTION



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9.1.15 BODY LIGHTS AND LICENSE PLATE BRACKET

FILE NAME	OLYMPIAN BODY ASSY			<b>OLYMPIAN BODY LIGHTS &amp; LICENSE PLATE BRACKET</b>
DWG NAME	PG10			

ITEM	QTY	PART NUMBER	DESCRIPTION
13	3	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP
12	3	BON-00003	BOLT, 1/4-20 X 3/4 HEX ZP
11	3	WAY-25110	5/8" CABLE CLAMP
10	18		LOCKNUT, 10-24 NYLON
9	18		10-24 X 3/4" MACHINE SCREW
8	1	NAP-12250304	LICENSE PLATE BRACKET
7	6	PM-820SA-1	OVAL AMBER LED STROBE LIGHT
6	2	PM-M820R-10	OVAL RED LED ST&T LIGHT
5	8	PM-820-09	OVAL SURFACE MOUNT BRACKET
4	5	BUY-5627513	3/4" RED LED MARKER LIGHT
3	2	BUY-5627523	3/4" AMBER LED CLEARANCE LIGHT
2	2	PM-M194R	2" RED LED MARKER LIGHT
1	2	PM-146-18	GROMMET, 2"

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## 9.1.16 ENGINE ASSEMBLIES

FILE NAME	OLYMPIAN Engine Assy		
DWG NAME	PG1		

### OLYMPIAN ENGINE ASSEMBLY - 99 HP DEERE

NOTE:  
ALL CLUTCHES ARE SUPPLIED WITH  
PILOT BEARING & DRIVE RING

**FLUID COUPLER DETAIL**

**HYDRAULIC CLUTCH DETAIL**

**MANUAL CLUTCH DETAIL**

ITEM	QTY	PART NUMBER	DESCRIPTION
26	1	LV-4598	HYDRAULIC CLUTCH
25	1	848FSO 16X12	MALE 37° X MALE ORB, 1-5/16-12 X 1-1/16
24	1	60UB 10X08	M ORB X 90° F PIPE SW 7/8-14 X 1/2 NPSM
23	2	BON-000353	LOCKWASHER, 7/16 ZP
22	2	91290A520	BOLT, M10-1.5 X 25MM SHCS
21	1	LV-2029	HYDRAULIC PUMP
20	20	BON-000352	3/8 LOCKWASHER ZP
19	20	BON-000058	3/8-16 X 1 HEX BOLT ZP
18	1	LV-1089	FLUID POWER TAKE OFF
17	1	LV-1132	STEP KEY 1/2" X 5/8" X 2" LONG
16	1	LV-1273	ENGINE SHEAVE BUSHING
15	1	LV-1270	ENGINE SHEAVE
14	1	LV-1339	EXTENSION ARM WELDMENT
13	12	BON-000057	3/8-16 X 1 HEX BOLT ZP
12	8	BON-000059	3/8-16 X 1-1/2 HEX BOLT ZP
11	20	BON-000352	3/8 LOCKWASHER ZP
10	1	LV-4530	OVER CENTER CLUTCH
9	2		#6-32 HEX NUT W/ STAR WASHER ZP
8	2		#6-32 X 1 MACHINE SCREW ZP
7	1	LV-1398	EMERGENCY STOP SWITCH
6	1	LV-2454	MAGNETIC PRESCREEN
5	1	LV-4248	GEN2 ENGINE PLATE
4	6	BON-000323	3/4-10 LOCKNUT, NYLON ZP
3	12	BON-000341	FLATWASHER, 3/4 ZP
2	6	BON-000184	3/4-10 X 2-1/2 HEX BOLT
1	1	LV-4542	ENGINE, JOHN DEERE, 99 HP

**HYDRAULIC PUMP DETAIL**

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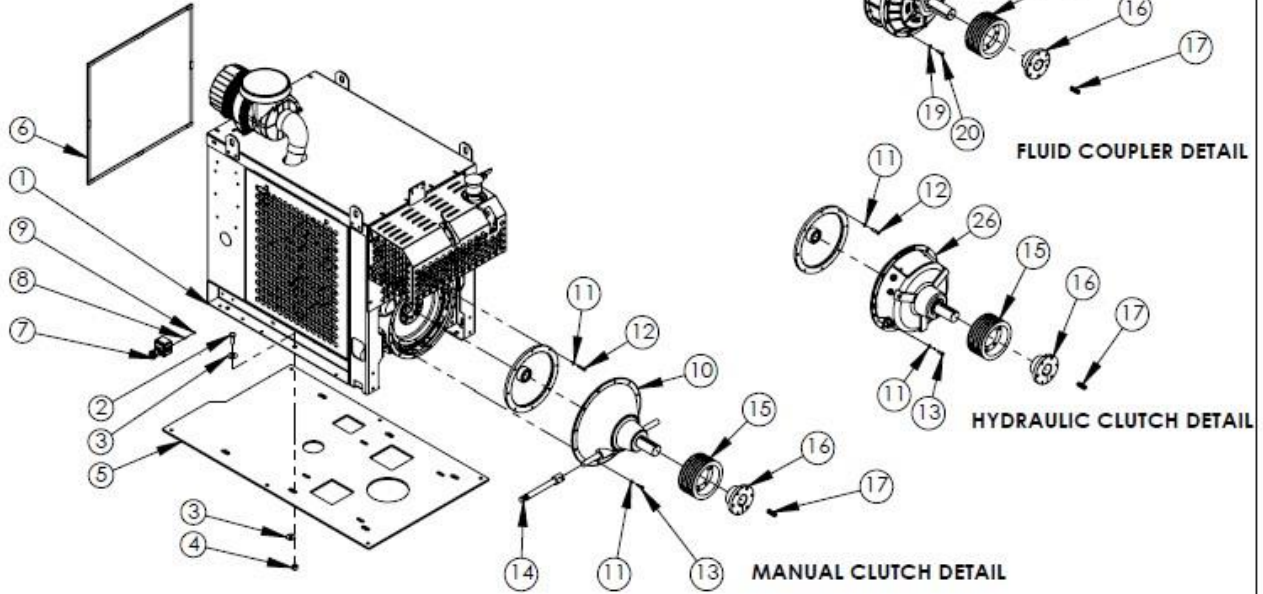
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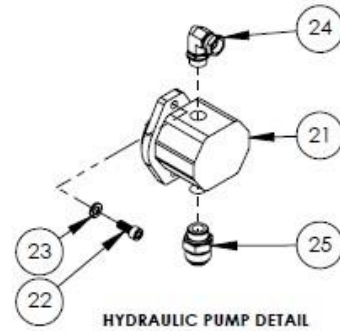
FILE NAME	OLYMPIAN Engine Assy
DWG NAME	PG2

## OLYMPIAN ENGINE ASSEMBLY - 74 HP DEERE

NOTE:  
ALL CLUTCHES ARE SUPPLIED WITH  
PILOT BEARING & DRIVE RING



26	1	LV-4598	HYDRAULIC CLUTCH
25	1	848FSO 16X12	MALE 37° X MALE ORB, 1-5/16-12 X 1-1/16
24	1	60UB 10X08	M ORB X 90° F PIPE SW 7/8-14 X 1/2 NPSM
23	2	BON-000353	LOCKWASHER, 7/16 ZP
22	2	91290A520	BOLT, M10-1.5 X 25MM SHCS
21	1	LV-2029	HYDRAULIC PUMP
20	20	BON-000352	3/8 LOCKWASHER ZP
19	20	BON-000058	3/8-16 X 1 HEX BOLT ZP
18	1	LV-1089	FLUID POWER TAKE OFF
17	1	LV-1132	STEP KEY 1/2" X 5/8" X 2" LONG
16	1	LV-1273	ENGINE SHEAVE BUSHING
15	1	LV-1270	ENGINE SHEAVE
14	1	LV-1339	EXTENSION ARM WELDMENT
13	12	BON-000057	3/8-16 X 1 HEX BOLT ZP
12	8	BON-000059	3/8-16 X 1-1/2 HEX BOLT ZP
11	20	BON-000352	3/8 LOCKWASHER ZP
10	1	LV-4530	OVER CENTER CLUTCH
9	2		#6-32 HEX NUT W/ STAR WASHER ZP
8	2		#6-32 X 1 MACHINE SCREW ZP
7	1	LV-1398	EMERGENCY STOP SWITCH
6	1	LV-2455	MAGNETIC PRESCREEN
5	1	LV-4249	GEN2 ENGINE PLATE
4	6	BON-000322	5/8-11 LOCKNUT, NYLON ZP
3	12	BON-000341	FLATWASHER, 5/8 ZP
2	6	BON-000152	5/8-11 X 1-3/4 HEX BOLT
1	1	LV-4540	ENGINE, JOHN DEERE, 74 HP
ITEM	QTY	PART NUMBER	DESCRIPTION



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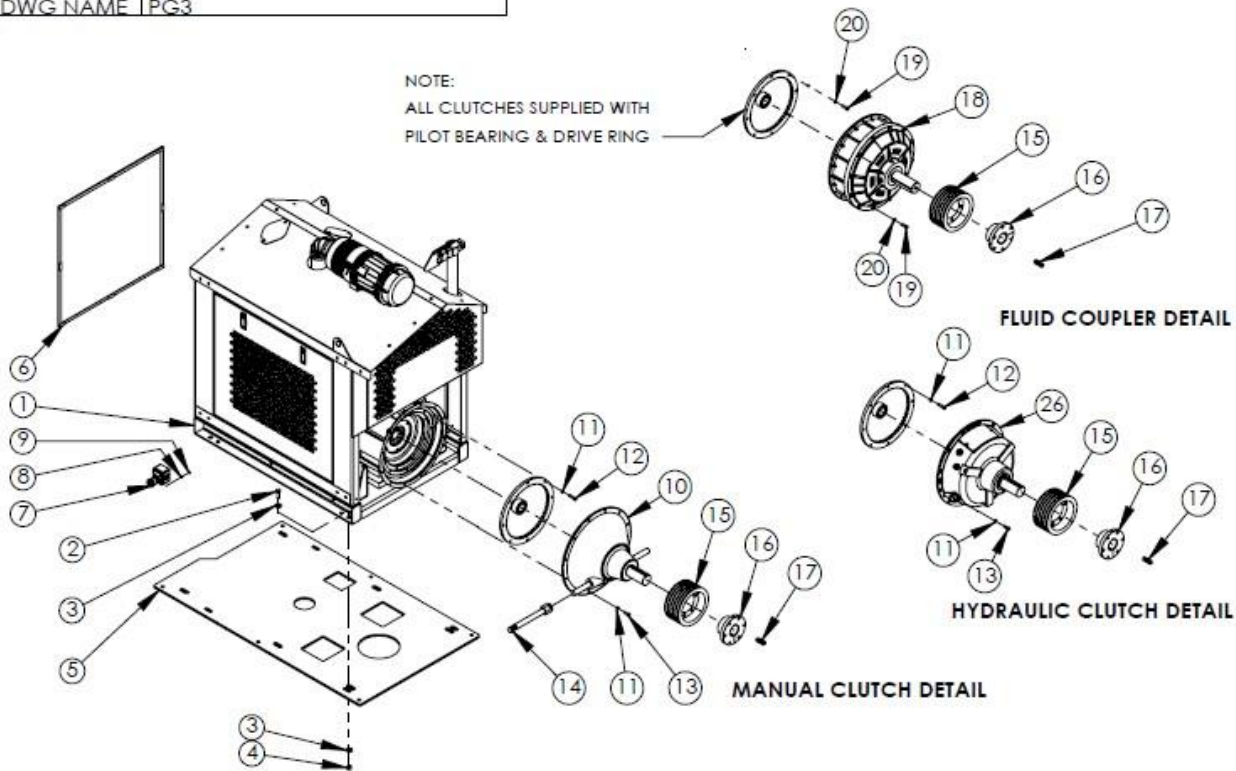
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# Parts Breakdowns

FILE NAME	OLYMPIAN Engine Assy
DWG NAME	PG3

## OLYMPIAN ENGINE ASSEMBLY - 87 HP KUBOTA



26	1	LV-4598	HYDRAULIC CLUTCH
25	1	854FSO 16X12	MALE 37° X MALE ORB, 1-5/16-12 X 1-1/16
24	1	60UB 10X08	M ORB X 90° F PIPE SW 7/8-14 X 1/2 NPSM
23	2	BON-000353	LOCKWASHER, 7/16 ZP
22	2	96144A256	BOLT, M10-1.25 X 25MM SHCS
21	1	LV-2029	HYDRAULIC PUMP
20	20	BON-000352	3/8 LOCKWASHER ZP
19	20	BON-000058	3/8-16 X 1 HEX BOLT ZP
18	1	LV-1089	FLUID POWER TAKE OFF
17	1	LV-1132	STEP KEY 1/2" X 5/8" X 2" LONG
16	1	LV-1273	ENGINE SHEAVE BUSHING
15	1	LV-1270	ENGINE SHEAVE
14	1	LV-1339	EXTENSION ARM WELDMENT
13	12	BON-000057	3/8-16 X 1 HEX BOLT ZP
12	8	BON-000059	3/8-16 X 1-1/2 HEX BOLT ZP
11	20	BON-000352	3/8 LOCKWASHER ZP
10	1	LV-4530	OVER CENTER CLUTCH
9	2		#6-32 HEX NUT W/ STAR WASHER ZP
8	2		#6-32 X 1 MACHINE SCREW ZP
7	1	LV-1398	EMERGENCY STOP SWITCH
6	1	LV-2455	MAGNETIC PRESCREEN
5	1	LV-4248	GEN2 ENGINE PLATE
4	6	BON-000321	1/2-13 LOCKNUT, NYLON ZP
3	12	BON-000340	FLATWASHER, 1/2 ZP
2	6	BON-000107	1/2-13 X 1-1/2 HEX BOLT
1	1	LV-4544	ENGINE, KUBOTA, 87 HP GASOLINE
ITEM	QTY	PART NUMBER	DESCRIPTION

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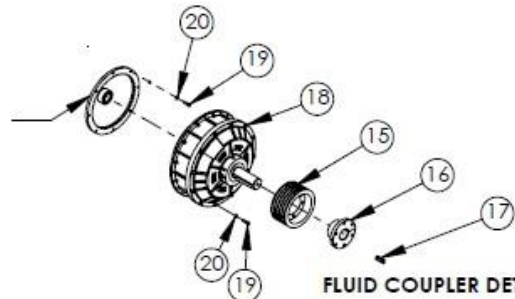
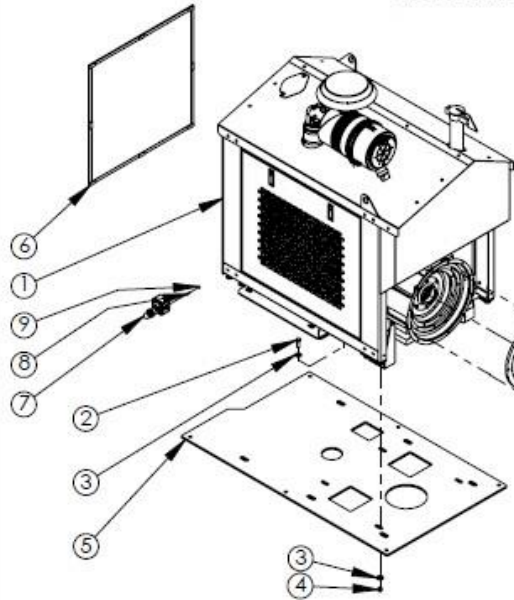
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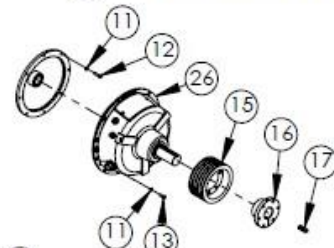
FILE NAME	OLYMPIAN Engine Assy
DWG NAME	PG4

## OLYMPIAN ENGINE ASSEMBLY - 74 HP KUBOTA

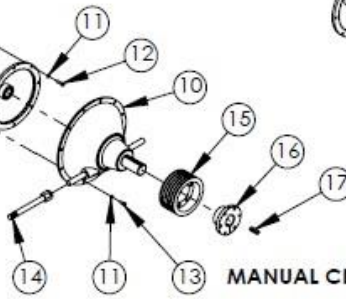
NOTE:  
ALL CLUTCHES SUPPLIED WITH  
PILOT BEARING & DRIVE RING



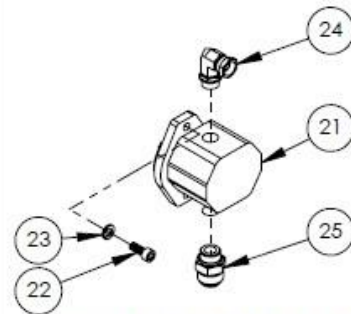
FLUID COUPLER DETAIL



HYDRAULIC CLUTCH DETAIL



MANUAL CLUTCH DETAIL



HYDRAULIC PUMP DETAIL

26	1	LV-4598	HYDRAULIC CLUTCH
25	1	848FSO 16X12	MALE 37° X MALE ORB, 1-5/16-12 X 1-1/16
24	1	60UB 10X08	M ORB X 90° F PIPE SW 7/8-14 X 1/2 NPSM
23	2	BON-000353	LOCKWASHER, 7/16 ZP
22	2	96144A256	BOLT, M10-1.25 X 25MM SHCS
21	1	LV-2029	HYDRAULIC PUMP
20	20	BON-000352	3/8 LOCKWASHER ZP
19	20	BON-000058	3/8-16 X 1 HEX BOLT ZP
18	1	LV-1089	FLUID POWER TAKE OFF
17	1	LV-1132	STEP KEY 1/2" X 5/8" X 2" LONG
16	1	LV-1273	ENGINE SHEAVE BUSHING
15	1	LV-1270	ENGINE SHEAVE
14	1	LV-1339	EXTENSION ARM WELDMENT
13	12	BON-000057	3/8-16 X 1 HEX BOLT ZP
12	8	BON-000059	3/8-16 X 1-1/2 HEX BOLT ZP
11	20	BON-000352	3/8 LOCKWASHER ZP
10	1	LV-4530	OVER CENTER CLUTCH
9	2		#6-32 HEX NUT W/ STAR WASHER ZP
8	2		#6-32 X 1 MACHINE SCREW ZP
7	1	LV-1398	EMERGENCY STOP SWITCH
6	1	LV-2455	MAGNETIC PRESCREEN
5	1	LV-4249	GEN2 ENGINE PLATE
4	6	BON-000321	1/2-13 LOCKNUT, NYLON ZP
3	12	BON-000340	FLATWASHER, 1/2 ZP
2	6	BON-000107	1/2-13 X 1-1/2 HEX BOLT
1	1	LV-2442	ENGINE, KUBOTA, 74 HP
ITEM	QTY	PART NUMBER	DESCRIPTION

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# Parts Breakdowns

## 9.1.17 HYDRAULIC CLUTCH MANIFOLD

FILE NAME	Olympian Power Skid Assy CM2		
DWG NAME	PG100		

**HYDRAULIC CLUTCH MANIFOLD**

ITEM	QTY	PART NUMBER	DESCRIPTION
19	1	LV-4481	HOSE, BULKHEAD TO TANK
18	1	832FS 08X08	FITTING, M37DEG X M37DEG BH
17	1	25UG 06	ELBOW, 3/8" NPT 90°
16	1	LV-4499	HOSE, MANIFOLD "C" TO CLUTCH
15	1	LV-4411	HOSE, MANIFOLD "P" TO PRESSURE
14	1	LV-4408	HOSE, MANIFOLD "T" TO BULKHEAD
13	2	6801-06X06	FITTING, M37DEG X MORB 90°
12	1	6402-06-06	FITTING, F37DEG X MORB STRAIGHT
11	2	879FS 06	FITTING, M37DEG X M37DEG 90°
10	2	848FSO 06X06	FITTING, M37DEG X MORB STRAIGHT
9	1	10-R6X-S	FITTING, F37DEG X M37DEG X M37DEG TEE
8	1	848FS 06X06	FITTING, M37DEG X 3/8" NPTM
7A	1	LV-4410	10 MICRON FILTER ELEMENT
7	1	LV-4407	INLINE HYD FILTER
6	2	BON-000319	LOCKNUT, 3/8-16 VINYL ZP
5	2	BON-000057	BOLT, 3/8-16 X 1" HEX ZP
4	2	BON-000003	BOLT, 1/4-20 X 3/4" HEX ZP
3	2	BON-000350	LOCKWASHER, 1/4 ZP
2	1	LV-4406	HYD MANIFOLD MTG BRACKET
1	1	LV-4599	HYD CLUTCH MANIFOLD
ITEM	QTY	PART NUMBER	DESCRIPTION

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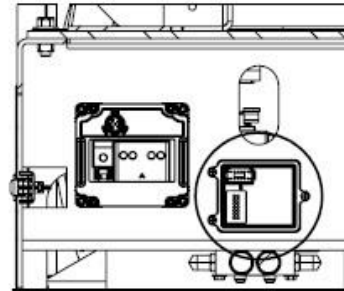
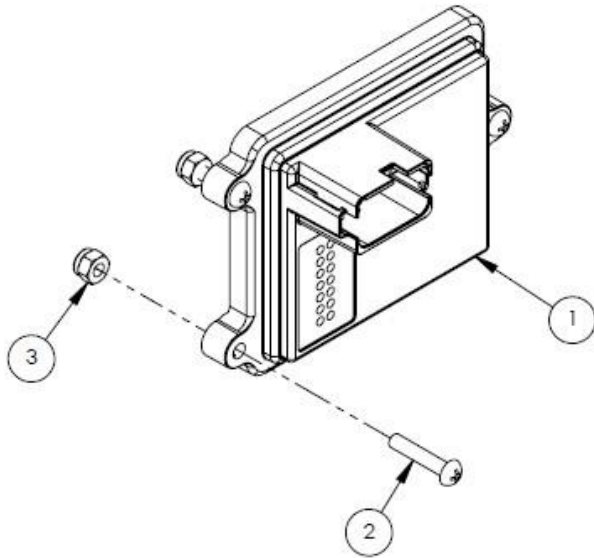
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9.1.18 I/O EXPANSION MODULE

FILE NAME	Olympian Power Skid Assy CM2
DWG NAME	PG101

I/O EXPANSION MODULE



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4	1	LV-4405	HARNESS, I/O MODULE
3	3		LOCKNUT, 10-24 VINYL ZP
2	3		10-24 X 1" MACHINE SCREW
1	1	LV-4404	I/O EXPANSION MODULE
ITEM	QTY	PART NUMBER	DESCRIPTION

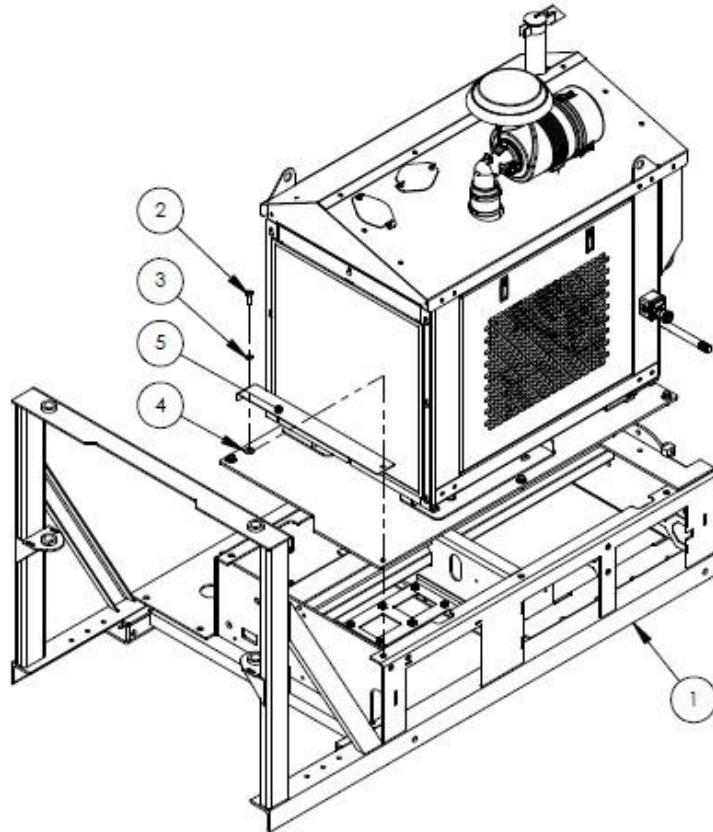


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9.1.19 POWERSKID FRAME & ENGINE PLATE MOUNTING

FILE NAME	OLYMPIAN Power Unit Skid Assy
DWG NAME	PG1

OLYMPIAN POWERSKID & ENGINE PLATE MOUNTING



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5	1	LV-4299	FAN BEARING COVER PLATE
4	6	BON-000340	FLATWASHER, 1/2 ZP
3	6	BON-000354	LOCKWASHER, 1/2 ZP
2	6	BON-000107	BOLT, 1/2-13 X 1-1/2 HEX ZP
1	1	LV-4290	POWERSKID WELDMENT
ITEM	QTY	PART NUMBER	DESCRIPTION



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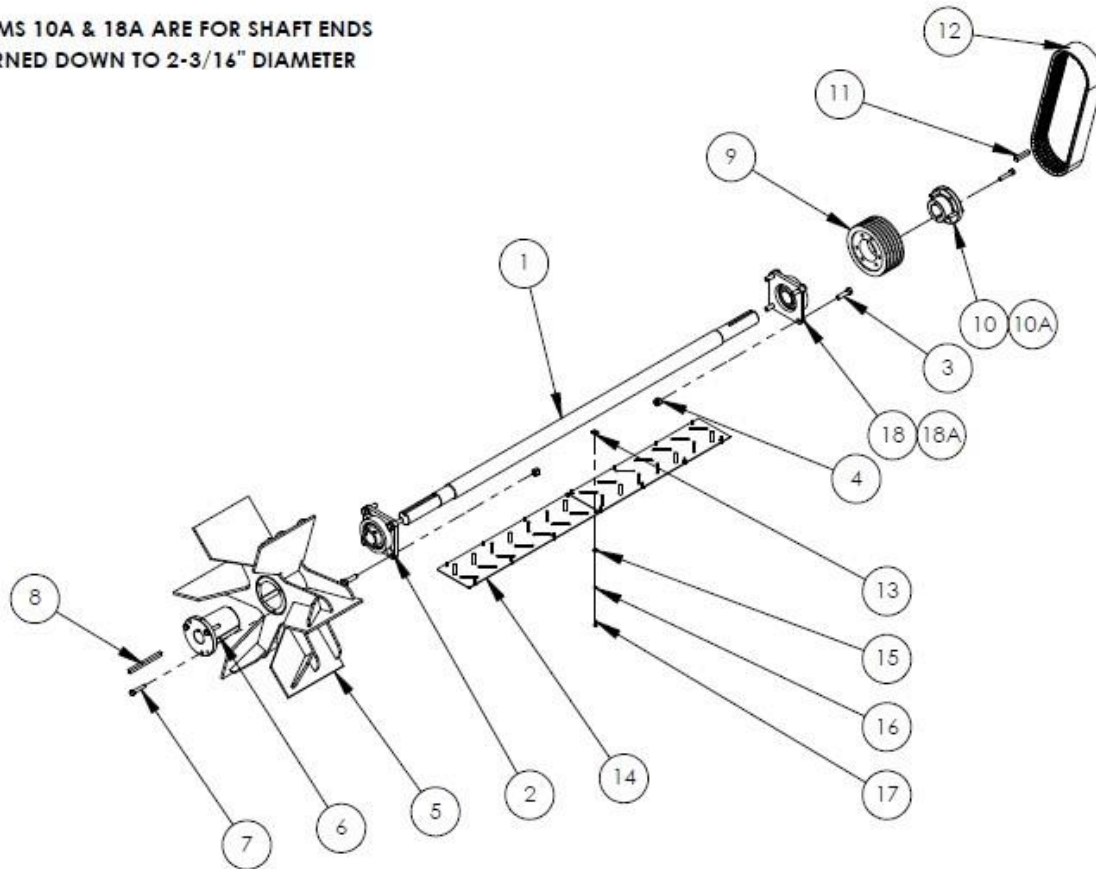
# Parts Breakdowns

## 9.1.20 JACKSHAFT, BEARINGS & FAN

FILE NAME	OLYMPIAN Power Unit Skid Assy
DWG NAME	PG2

### OLYMPIAN JACKSHAFT, BEARINGS & FAN

ITEMS 10A & 18A ARE FOR SHAFT ENDS  
TURNED DOWN TO 2-3/16" DIAMETER



18A	1	LV-4600	BEARING, 2-3/16" FLANGE
18	1	LV-4589	BEARING, 2-1/4" FLANGE
17	16	BON-000003	BOLT, 1/4-20 X 3/4 HEX ZP
16	16	BON-000350	LOCKWASHER, 1/4 ZP
15	16	BON-000336	FLATWASHER, 1/4 ZP
14	2	LV-4231	SHAFT GUARD COVER
13	16	BON-000301C	CLIP NUT, 1/4-20
12	1	LV-4458	5V600 V-BELT (SET OF 5 BELTS)
11	1	LV-4233	PULLEY DRIVE KEY
10A	1	LV-1272	SHEAVE BUSHING E 2-3/16
10	1	LV-1273	SHEAVE BUSHING E 2-1/4
9	1	LV-1271	FAN SHEAVE, (5 5V 925 E) 74 HP ENGINES
		LV-1280	FAN SHEAVE, (5 5V 900 E) 87 HP ENGINES
		LV-1279	FAN SHEAVE, (5 5V 850 E) 99 HP ENGINES
8	1	LV-4232	FAN DRIVE KEY
7	3	BON-000110	BOLT, 1/2-13 X 2-1/4 HEX ZP
6	1	LV-1633	2-3/16" SPLIT TAPER BUSHING
5	1	LV-1629	30" BELT DRIVE CW FAN
4	8	BON-000322	LOCKNUT, 5/8-11 NYLON ZP
3	8	BON-000154	BOLT, 5/8-11 X 2-1/4 HEX ZP
2	1	LV-4589	BEARING, 2-1/4" FLANGE
1	1	LV-4588	JACKSHAFT, POWERSKID
ITEM	QTY.	PART NUMBER	DESCRIPTION

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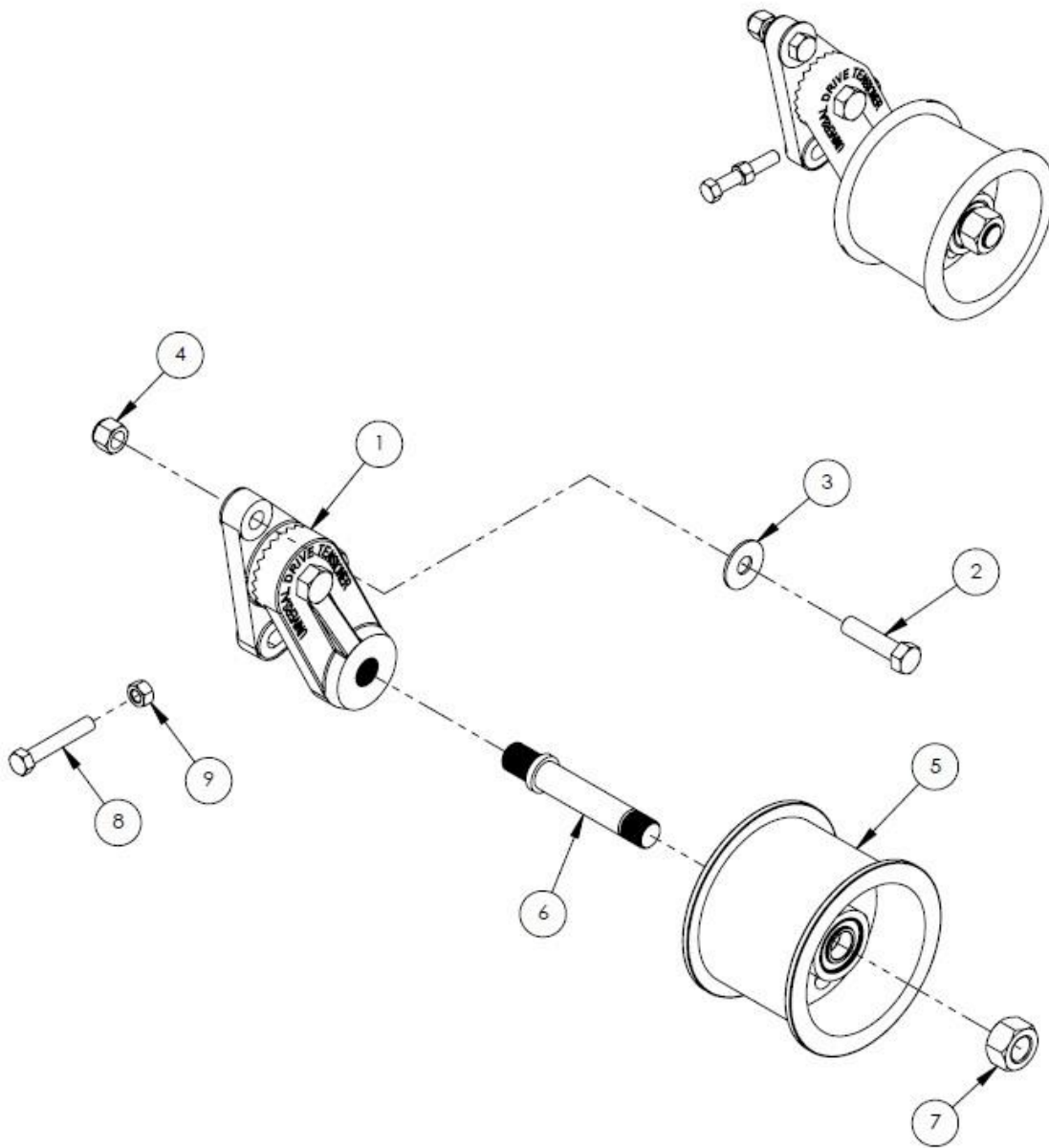
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9.1.21 BELT TENSIONER

FILE NAME	Gen2 Power Unit Skid Assy
DWG NAME	PG3

OLYMPIAN BELT TENSIONER



9	1	BON-000305	LOCKNUT, 1/2-13 NYLON ZP
8	1	BON-000115FT	BOLT, 1/2-13 X 3-1/2 HEX ZP
7	1	BON-000310	NUT, 1" HEX ZP
6	1	LV-1662	MACHINED SHOULDER STUD, 1"
5	1	LV-1661	FLANGED PULLEY IDLER, 7" OD
4	2	BON-000322	LOCKNUT, 5/8-11 NYLON ZP
3	2	BON-000341	FLATWASHER, 5/8 ZP
2	2	BON-000155	BOLT, 5/8-11 X 2-1/2 HEX ZP
1	1	LV-2491	BELT TENSIONER
ITEM	QTY	PART NUMBER	DESCRIPTION

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9.1.22 BELT GUARD


FILE NAME	OLYMPIAN Power Unit Skid Assy	<b>OLYMPIAN BELT GUARD</b>	
DWG NAME	PG4		

ITEM	QTY	PART NUMBER	DESCRIPTION
16	4	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP - CLUTCH ONLY
15	4	BON-000003	BOLT, 1/4-20 X 3/4 HEX - CLUTCH ONLY
14	1	LV-4298	BELT GUARD BACK PLATE - CLUTCH ONLY
13	4		#10-24 HEX NUT W/ STAR WASHER ZP
12	4		#10-24 X 1/2 MACHINE SCREW ZP
11	1	LV-4222	BELT GUARD COVER
10	1	LV-4519	PROXIMITY SENSOR
9	2	BON-000320	LOCKNUT, 5/16-18 NYLON ZP
8	2	BON-000028	BOLT, 5/16-18 X 3/4 HEX ZP
7	2	ORR-H-5800	RUBBER LATCH ASSEMBLY
6	2	BON-000319	LOCKNUT, 3/8-16 NYLON ZP
5	1	LV-4221	BELT GUARD BOTTOM
4	4	BON-000338	FLATWASHER, 3/8 ZP
3	4	BON-000352	LOCKWASHER, 3/8 ZP
2	6	BON-000058	BOLT, 3/8-16 X 1-1/4 HEX ZP
1	1	LV-4223	BELT GUARD BACK

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9.1.23 LUBRICATION COMPONENTS

FILE NAME	Olympian Power Skid Assy CM2	<b>OLYMPIAN LUBRICATION COMPONENTS</b>	
DWG NAME	PG13		

7	2	50785K81	GREASE FITTING, 45 DEG
6	1	BV2-002405	GREASE EXTENSION HOSE, 60"
5	1	BV2-002404	GREASE EXTENSION HOSE, 12"
4	2	BON-000652	GREASE FITTING, STRAIGHT 1/8 NPT
3	2	BON-000352	LOCKWASHER, 3/8 ZP
2	2	BON-000060	BOLT, 3/8-16 X 1-3/4 HEX, ZP
1	1	BV2-001827	MANIFOLD GREASE EXTENSION
ITEM	QTY	PART NUMBER	DESCRIPTION

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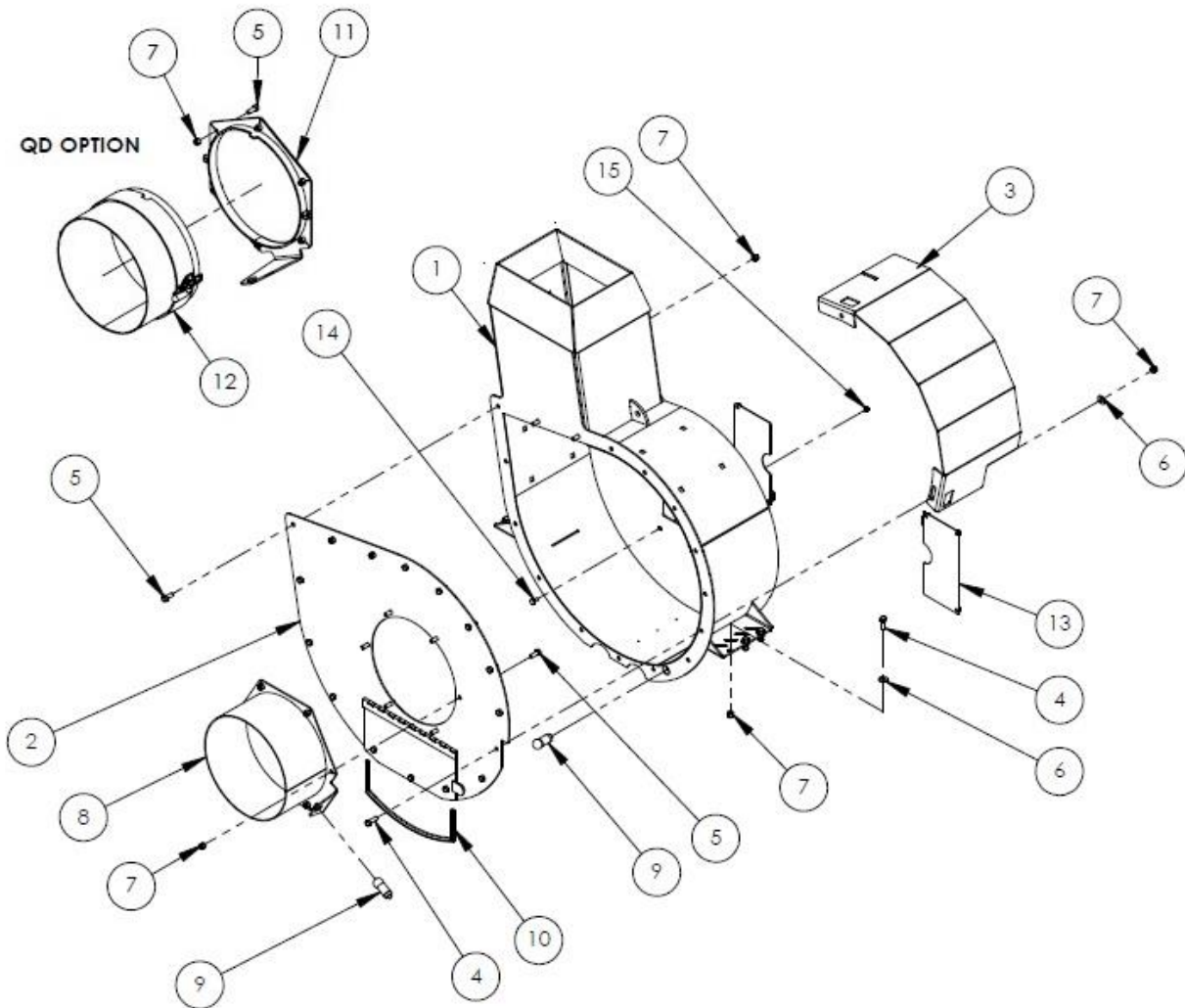
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# Parts Breakdowns

## 9.1.24 BLOWER HOUSING

FILE NAME	OLYMPIAN Power Unit Skid Assy
DWG NAME	PG6

### OLYMPIAN BLOWER HOUSING



15	6	BON-000319	LOCKNUT, 3/8-16 NYLON ZP
14	6	BON-000285.3	CARRIAGE BOLT, 3/8-16 X 1
13	2	LV-4289	BLOWER HOUSING BACK PLATE
12	1	LV-4283	QD SUCTION HOSE ADAPTER
11	1	LV-4282	QD SUCTION HOSE RECEIVER
10	2.5	LV-4213	SEAL, D BULB 1/2" WIDE
9	2	LV-4519	PROXIMITY SENSOR
8	1	LV-4239	SUCTION HOSE ADAPTER
7	28	BON-000321	LOCKNUT, 1/2-13 NYLON ZP
6	7	BON-000340	FLATWASHER, 1/2 ZP
5	17	BON-000106	BOLT, 1/2-13 X 1-1/4 HEX ZP
4	11	BON-000107	BOLT, 1/2-13 X 1-1/2 HEX ZP
3	1	LV-4218	BLOWER HOUSING SHIELD
2	1	LV-4217	BLOWER HOUSING COVER WITH DOOR
		LV-4216	BLOWER HOUSING COVER WITHOUT DOOR
1	1	LV-4291	BLOWER HOUSING WELDMENT
ITEM	QTY	PART NUMBER	DESCRIPTION

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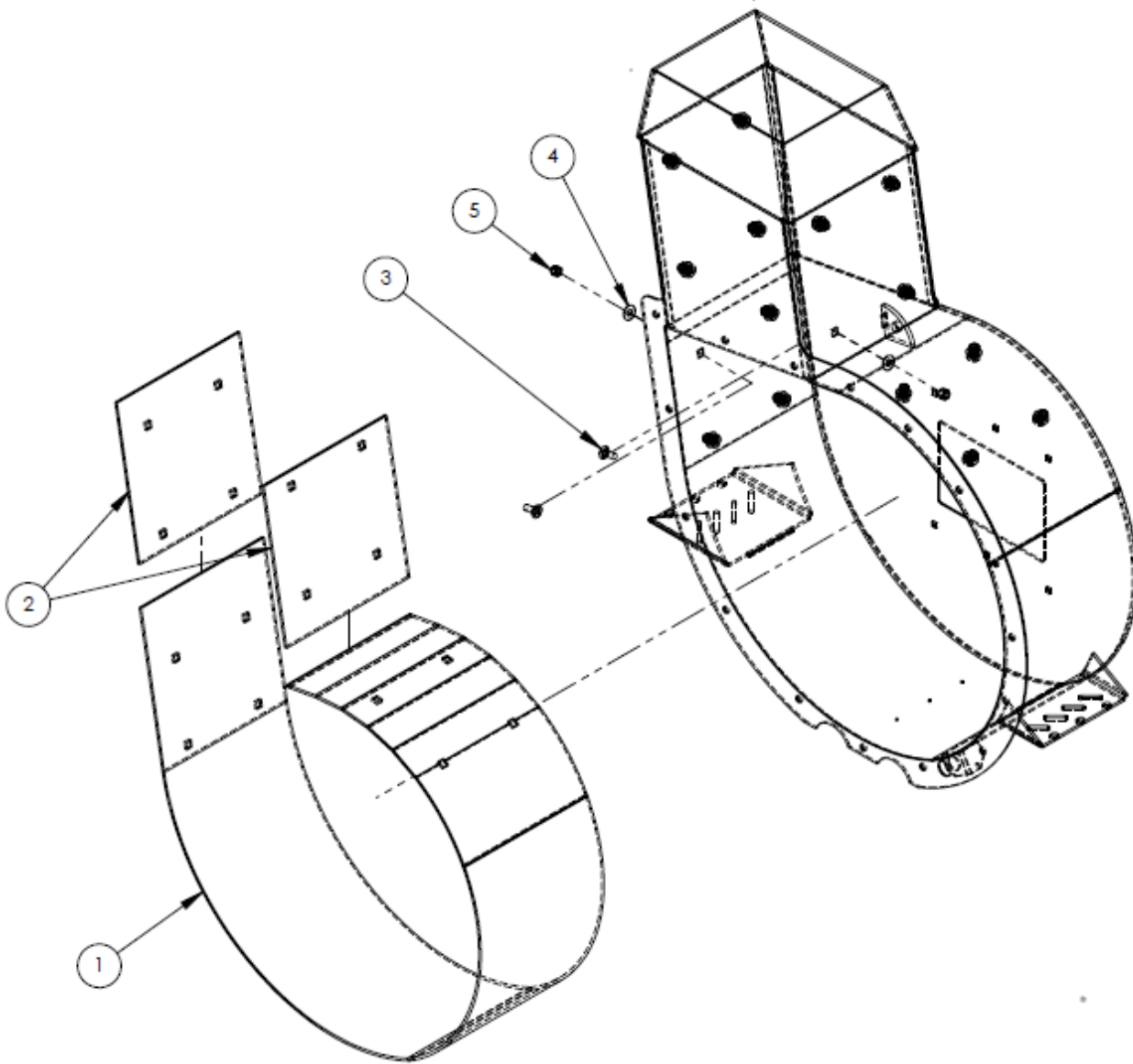


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9.1.25 BLOWER HOUSING LINER

FILE NAME	Blower Housing Assy
DWG NAME	Current Units

OLYMPIAN BLOWER HOUSING LINER



5	16	BON-000321	LOCKNUT, 1/2"-13 NYLON
4	16	BON-000340	WASHER, 1/2" FLAT
3	16	BON-000261.5	BOLT, 1/2"-13 X 1-1/2" CARRIAGE
2	2	LV-4311-AR	LINER, AR, BLOWER ELBOW
1	1	LV-3024-AR	LINER, AR, BLOWER HOUSING
ITEM	QTY	PART NUMBER	DESCRIPTION

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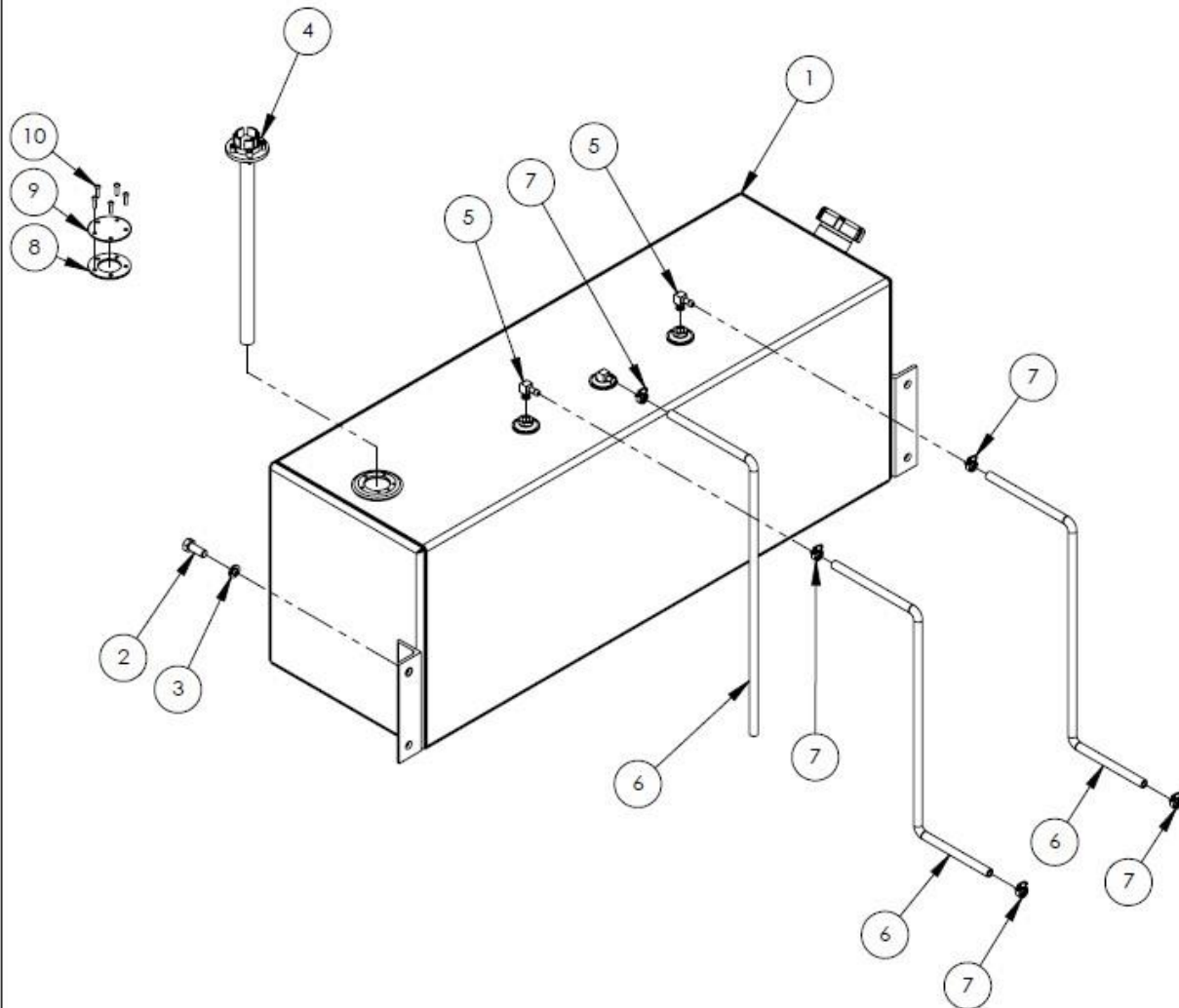


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9.1.26 DIESEL FUEL TANK ASSEMBLY

FILE NAME	Gen2 Power Unit Skid Assy
DWG NAME	PG9

**OLYMPIAN FUEL TANK ASSEMBLY  
KUBOTA 74 HP DIESEL ENGINE**



ITEMS 8 , 9 & 10 FOR UNITS WITHOUT A FUEL SENDING UNIT

ITEM	QTY	PART NUMBER	DESCRIPTION
10	1	LV-1374	HARDWARE KIT, FOR FUEL SENDING PORT
9	1	LV-1326	COVER PLATE, FUEL SENDING PORT
8	1	LV-1373	GASKET, FUEL SENDING PORT
7	5	VEL-022204	HOSE CLAMP, SAE 4 7/32-5/8
6	15	LV-1159	FUEL LINE, 5/16 IN. ID, SAE 30R7
5	2	LV-1161	1/4" NPTF MALE PIPE X 5/16" ID HOSE BARB
4	1	LV-4518	FUEL SENDING UNIT
3	4	BON-000354	LOCKWASHER, 1/2 ZP
2	4	BON-000106	BOLT, 1/2-13 X 1-1/4 HEX ZP
1	1	LV-4508	FUEL TANK, 40 GAL ALUMINUM DIESEL
ITEM	QTY	PART NUMBER	DESCRIPTION

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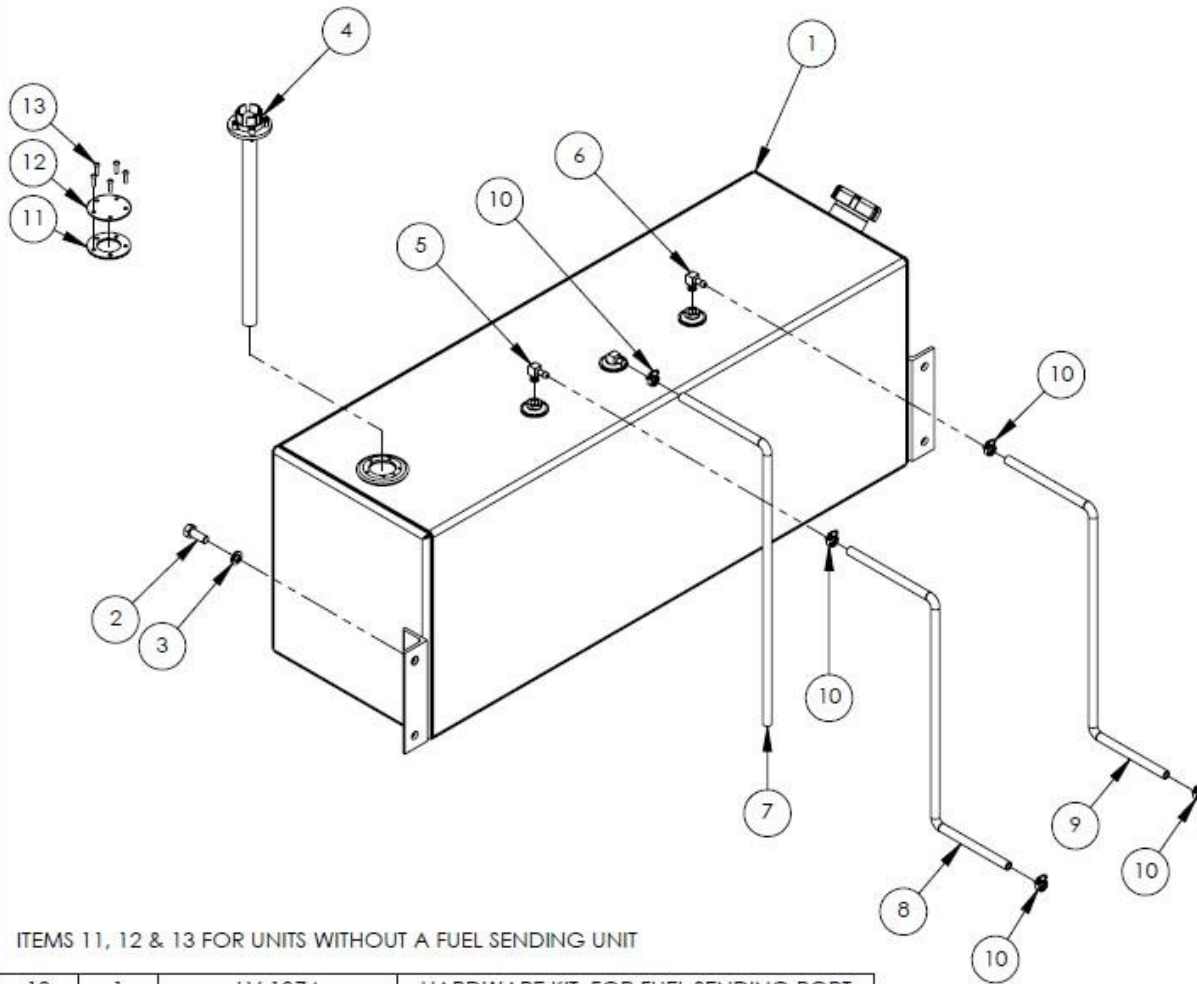


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# Parts Breakdowns

FILE NAME	Gen2 Power Unit Skid Assy 2
DWG NAME	PG10

## OLYMPIAN FUEL TANK ASSEMBLY JOHN DEERE 74 HP DIESEL ENGINE JOHN DEERE 99 HP DIESEL ENGINE KOHLER 74 HP DIESEL ENGINE



ITEMS 11, 12 & 13 FOR UNITS WITHOUT A FUEL SENDING UNIT

13	1	LV-1374	HARDWARE KIT, FOR FUEL SENDING PORT
12	1	LV-1326	COVER PLATE, FUEL SENDING PORT
11	1	LV-1373	GASKET, FUEL SENDING PORT
10	5	VEL-022204	HOSE CLAMP, SAE 4 7/32-5/8
9	6	LV-1444	FUEL LINE, 3/8 IN. ID, SAE 30R7
8	6	LV-1443	FUEL LINE, 1/4 IN. ID, SAE 30R7
7	3	LV-1159	FUEL LINE, 5/16 IN. ID, SAE 30R7
6	1	LV-1442	1/4" NPTF MALE PIPE X 3/8" ID HOSE BARB
5	1	LV-1441	1/4" NPTF MALE PIPE X 1/4" ID HOSE BARB
4	1	LV-4518	FUEL SENDING UNIT
3	4	BON-000354	LOCKWASHER, 1/2 ZP
2	4	BON-000106	BOLT, 1/2-13 X 1-1/4 HEX ZP
1	1	LV-4508	FUEL TANK, 40 GAL ALUMINUM DIESEL
ITEM	QTY	PART NUMBER	DESCRIPTION

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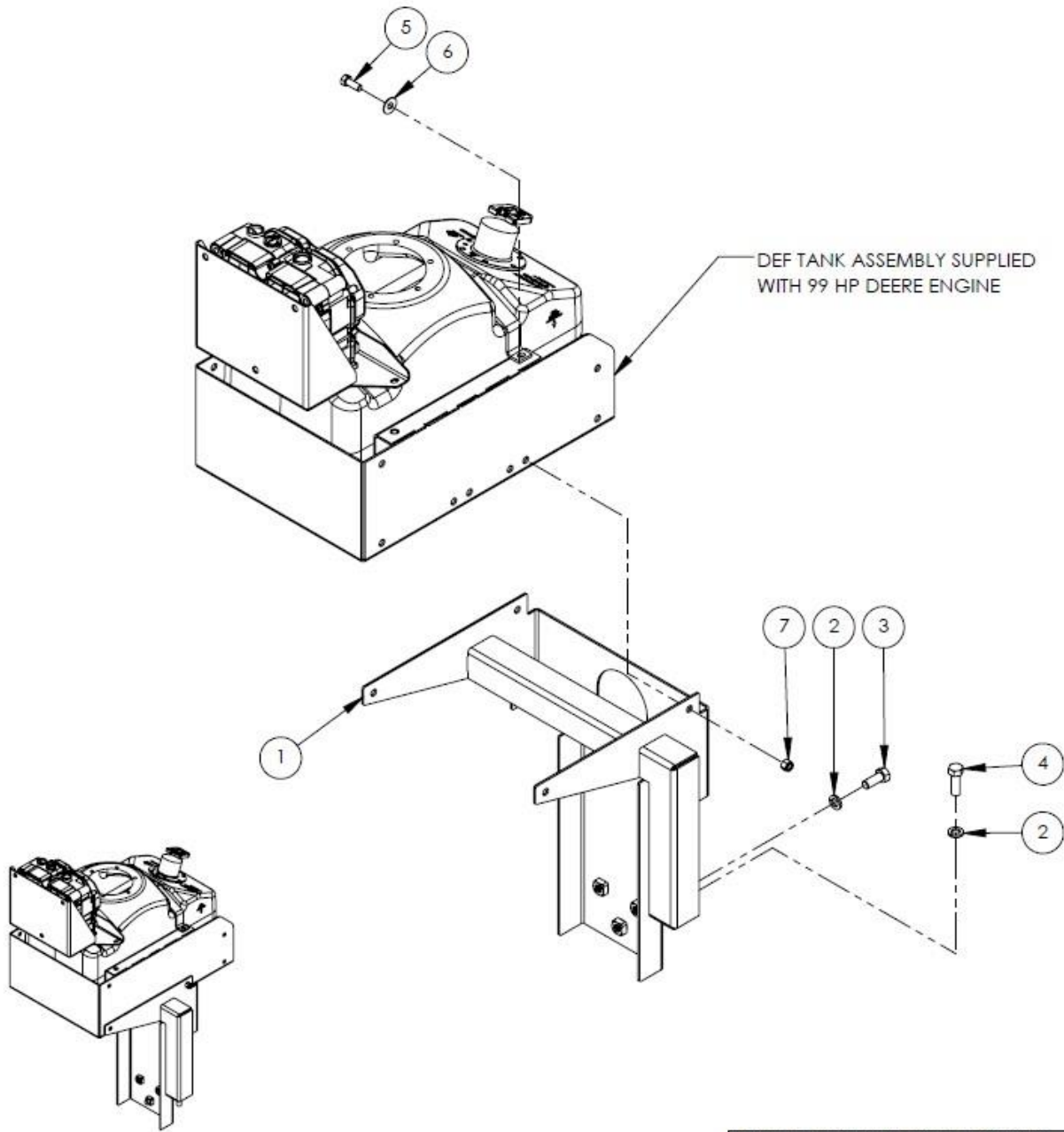
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9.1.27 DEF TANK MOUNTING

FILE NAME	Gen2 Power Unit Skid Assy 2
DWG NAME	PG15

**OLYMPIAN DEF TANK MOUNTING  
99 HP JOHN DEERE ENGINE**



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7	4	BON-000319	LOCKNUT, 3/8-16 NYLON ZP
6	4	BON-000338	FLATWASHER, 3/8 ZP
5	4	BON-000057	BOLT, 3/8-16 X 1 HEX ZP
4	1	BON-000107	BOLT, 1/2-13 X 1-1/2 HEX ZP
3	3	BON-000106	BOLT, 1/2-13 X 1-1/4 HEX ZP
2	4	BON-000354	LOCKWASHER, 1/2 ZP
1	1	LV-4226	DEF TANK MOUNTING BRACKET
ITEM	QTY	PART NUMBER	DESCRIPTION



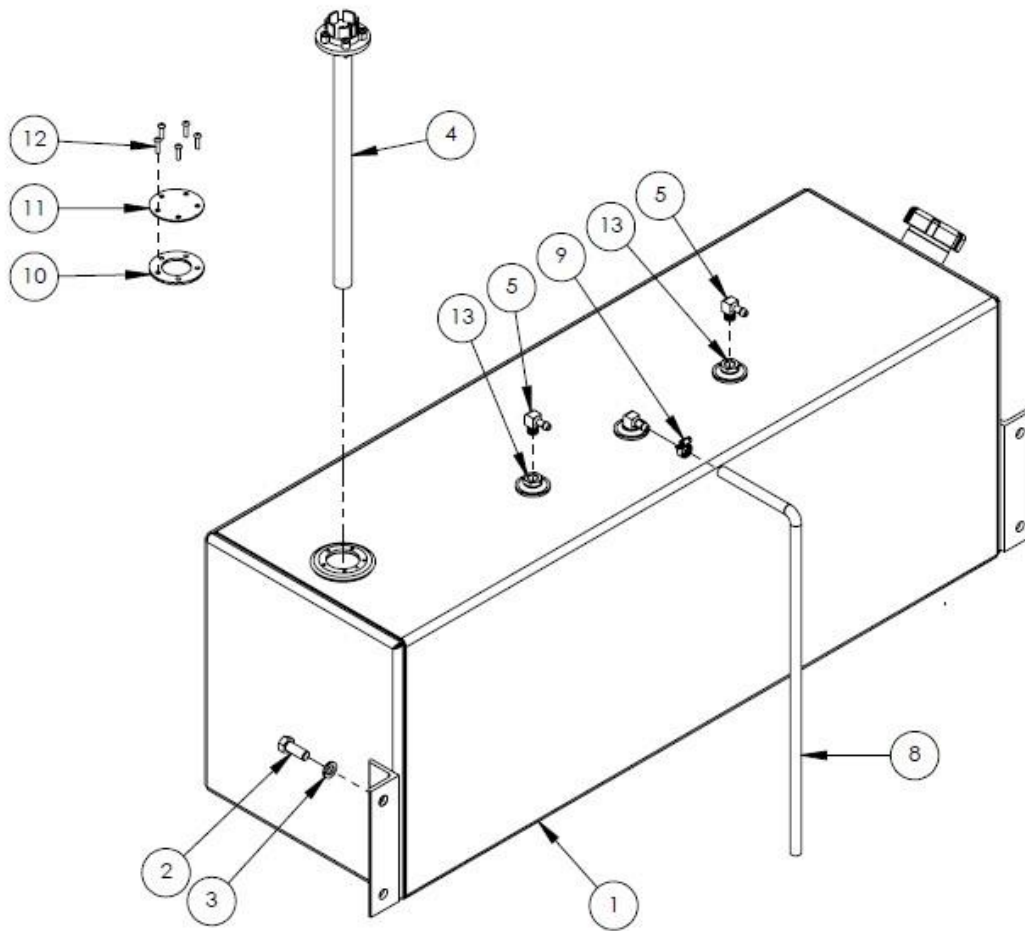
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9.1.28 GASOLINE TANK ASSEMBLY

FILE NAME	Gen2 Power Unit Skid Assy 2
DWG NAME	PG11

**OLYMPIAN FUEL TANK ASSEMBLY  
KUBOTA 87 HP GASOLINE ENGINE**



ITEMS 10, 11 & 12 FOR UNITS WITHOUT A FUEL SENDING UNIT

13	2	5406-06X04	3/8X1/4 REDUCER BUSHING
12	1	LV-1374	HARDWARE KIT, FOR FUEL SENDING PORT
11	1	LV-1326	COVER PLATE, FUEL SENDING PORT
10	1	LV-1373	GASKET, FUEL SENDING PORT
9	1	LV-4583	HOSE CLAMP
8	3	LV-4581	FUEL LINE, 5/16" 100 PSI
5	1	LV-4582	1/4" NPTF MALE PIPE X 5/16" ID HOSE BARB
4	1	LV-4518	FUEL SENDING UNIT
3	4	BON-000354	LOCKWASHER, 1/2 ZP
2	4	BON-000106	BOLT, 1/2-13 X 1-1/4 HEX ZP
1	1	LV-4517	FUEL TANK, 40 GAL ALUMINUM GAS
ITEM	QTY	PART NUMBER	DESCRIPTION

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9.1.29 FUEL COMPONENT GROUP

FILE NAME	Gen2 Power Unit Skid Assy 2	<p><b>OLYMPIAN FUEL COMPONENT GROUP</b> <b>KUBOTA 87 HP GASOLINE ENGINE</b></p>	
DWG NAME	PG12		

**FUEL HOSE ROUTING DETAIL**

FUEL FILTER, FUEL PUMP AND FUEL PRESSURE MANIFOLD ARE SUPPLIED WITH THE 87 HP KUBOTA ENGINE

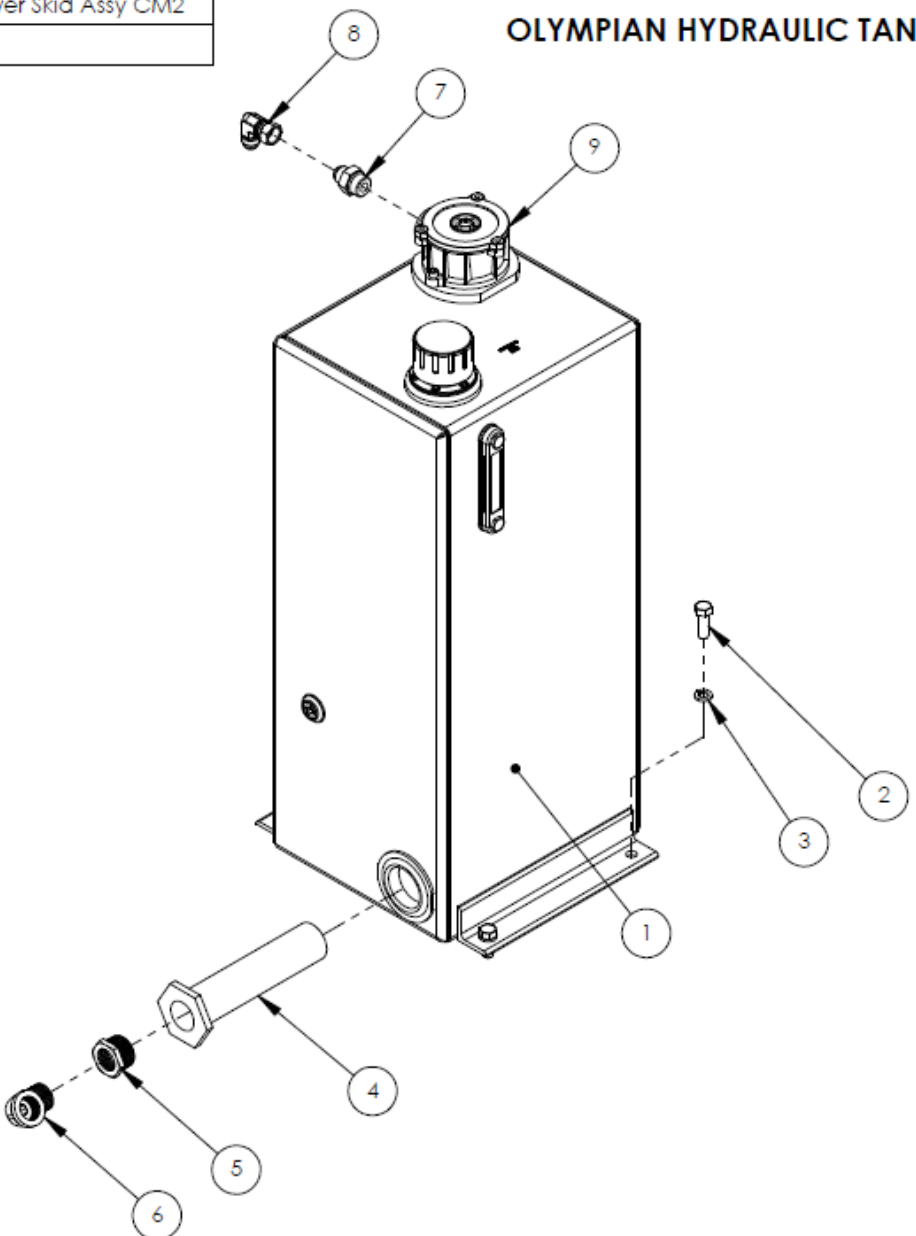
ITEM	QTY	PART NUMBER	DESCRIPTION
8	8	LV-4583	HOSE CLAMP
7	17	LV-4581	FUEL LINE, 5/16" 100 PSI
6	2	BON-000009	BOLT, 1/4-20 X 2 HEX ZP
5	4	BON-000320	LOCKNUT, 5/16-18 NYLON ZP
4	4	BON-000028	BOLT, 5/16-18 X 3/4 HEX ZP
3	6	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP
2	4	BON-000001	BOLT, 1/4-20 X 1/2 HEX ZP
1	1	LV-4280	FUEL COMPONENT MOUNTING BRACKET

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# Parts Breakdowns


## 9.1.30 HYDRAULIC TANK ASSEMBLY

FILE NAME	Olympian Power Skid Assy CM2	<div style="display: flex; justify-content: space-between;"> <div style="border: 1px solid black; padding: 2px;">                 FILE NAME Olympian Power Skid Assy CM2                  DWG NAME PG99             </div> <div style="text-align: right;"> <h3>OLYMPIAN HYDRAULIC TANK</h3>  </div> </div>	
DWG NAME	PG99		

ITEM	QTY	PART NUMBER	DESCRIPTION
9	1	LV-4575	FILTER, RETURN, IN-TANK, LITA-750-25
8	1	879FS 10	FITTING, M37DEG X F37DEG 90DEG
7	1	848FSO 10X12	ADAPTER, STRAIGHT M37DEG X MORB
6	1	BON-000442	PIPE FITTING, 1" 90DEG STREET ELBOW
5	1	BON-000472	PIPE FITTING BUSHING, 1-1/4X1
4	1	BUY-SW2001253	SUCTION STRAINER
3	4	BON-000354	LOCKWASHER, 1/2 ZP
2	4	BON-000107	BOLT, 1/2-13 X 1-1/2 HEX ZP
1	1	LV-4507	HYDRAULIC TANK 22GAL ALUMINUM
ITEM	QTY	PART NUMBER	DESCRIPTION

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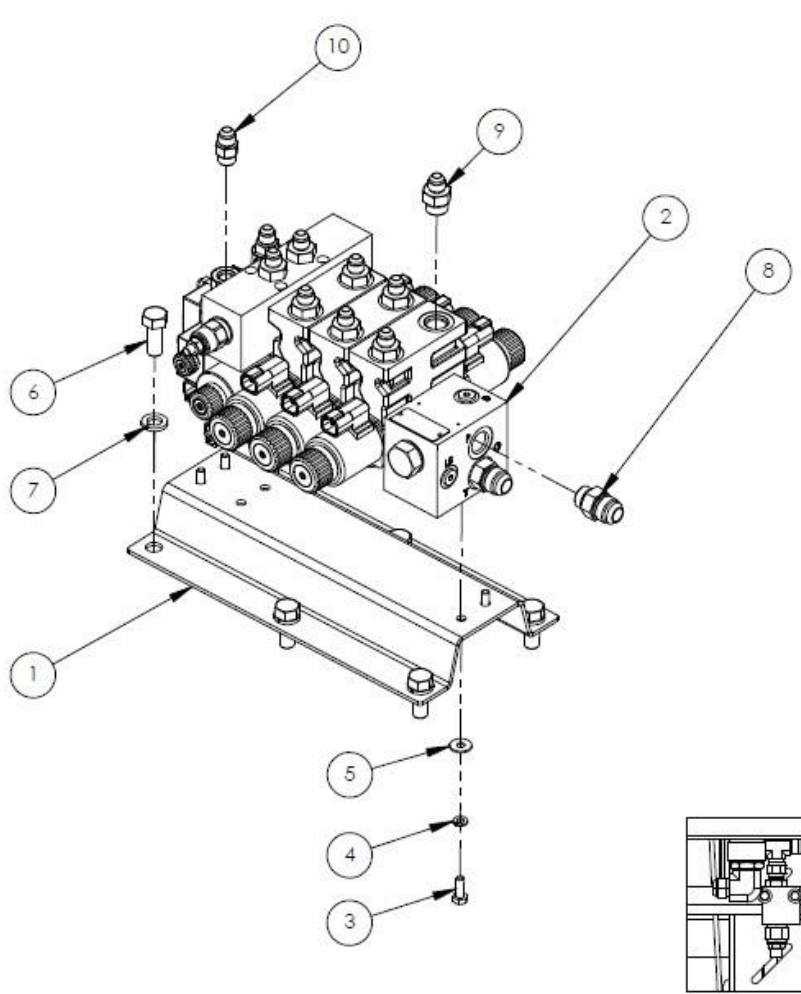
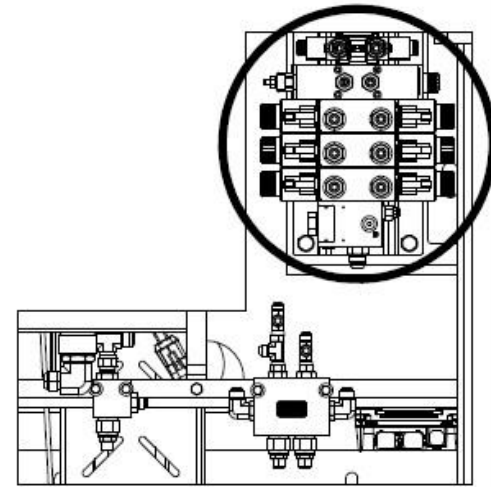
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## 9.1.31 HYDRAULIC PROPORTIONAL VALVE


FILE NAME	Olympian Power Skid Assy CM2			<b>OLYMPIAN MAIN VALVE ASSEMBLY</b>
DWG NAME	PG96			

ITEM	QTY	PART NUMBER	DESCRIPTION
10	2	839FS 06	PLUG, M37DEG, NO HYD JACK
	2	848FSO 06X06	FITTING, M37DEG X MORB, HYD JACK ONLY
9	8	848FSO 06X08	FITTING, M37DEG X MORB
8	2	848FSO 10X08	FITTING, M37DEG X MORB
7	6	BON-000354	LOCKWASHER, 1/2 ZP
6	6	BON-000106	BOLT, 1/2-13 X 1-1/4 ZP
5	4	BON-000336	FLATWASHER, 1/4 ZP
4	4	BON-000350	LOCKWASHER, 1/4 ZP
3	4	BON-000003	BOLT, 1/4-20 X 3/4 ZP
2	1	LV-2195-REX	VALVE, 5-SECTION PROPORTIONAL
1	1	LV-4230	BRACKET, MAIN VALVE

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# Parts Breakdowns

## 9.1.32 SEQUENCING VALVE

FILE NAME	Olympian Power Skid Assy CM2	<b>OLYMPIAN SEQUENCE VALVE ASSEMBLY</b>	
DWG NAME	PG98		


ITEM	QTY	PART NUMBER	DESCRIPTION	
7	3	871FS 06	FITTING, M37DEG X F37DEG X M37DEG TEE	CONFIDENTIAL: THIS DRAWING AND/OR INFORMATION CONTAINED HEREIN IS AND REMAINS THE SOLE PROPERTY OF, AND IS PROPRIETARY TO, BONNELL INDUSTRIES, INC. THIS DRAWING AND/OR INFORMATION SHALL BE KEPT CONFIDENTIAL AND MAY NOT BE REPRODUCED, COPIED, MODIFIED, DISCLOSED, TRANSMITTED, OR MADE AVAILABLE TO OTHERS, EXCEPT WITH THE EXPRESS WRITTEN CONSENT OF BONNELL INDUSTRIES, INC. IT IS LOANED IN CONFIDENCE FOR MUTUAL ASSISTANCE PURPOSES ONLY. BONNELL INDUSTRIES, INC. MAY AT ANY TIME, MODIFY THE DRAWING AND/OR INFORMATION CONTAINED HEREIN.
6	2	848FSO 06X08	FITTING, M37DEG X MORB STRAIGHT	
5	2	849FSO 08X08	FITTING, M37DEG X MORB 90DEG	
4	2	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP	
3	2	BON-000336	FLATWASHER, 1/4 ZP	
2	2	BON-000009	BOLT, 1/4-20 X 2 HEX ZP	
1	1	DPSVP-10-N-S-08TA-30/10	SEQUENCE VALVE	
				<p style="margin: 0;">DIXON, ILLINOIS PHONE: 800-851-9664</p>

# Parts Breakdowns

## 9.1.33 HOIST DOWN PRESSURE RELIEF

FILE NAME	Olympian Power Skid Assy CM2	<b>OLYMPIAN DOWN PRESSURE RELIEF VALVE ASSY</b>	
DWG NAME	PG97		

ITEM	QTY	PART NUMBER	DESCRIPTION	
7	1	10-R6X-S	FITTING, M37DEG X F37DEG X M37DEG TEE	CONFIDENTIAL: THIS DRAWING AND/OR INFORMATION CONTAINED HEREIN IS AND REMAINS THE SOLE PROPERTY OF, AND IS PROPRIETARY TO, BONNELL INDUSTRIES, INC. THIS DRAWING AND/OR INFORMATION SHALL BE KEPT CONFIDENTIAL AND MAY NOT BE REPRODUCED, COPIED, MODIFIED, DISCLOSED, TRANSFERRED, OR MADE AVAILABLE TO OTHERS, EXCEPT WITH THE EXPRESS WRITTEN CONSENT OF BONNELL INDUSTRIES, INC. IT IS LOANED IN CONFIDENCE FOR MUTUAL ASSISTANCE PURPOSES ONLY. BONNELL INDUSTRIES, INC. MAY AT ANY TIME, MODIFY THE DRAWING AND/OR INFORMATION CONTAINED HEREIN.
6	1	10-8-F650X-S	FITTING F37DEG X MORB	
5	1	848FSO 06X08	FITTING M37DEG X MORB	
4	2	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP	
3	2	BON-000336	FLATWASHER, 1/4 ZP	
2	2	BON-000009	BOLT, 1/4-20 X 2 HEX ZP	
1	1	RVDA-10-S-08TA-30/08	DOWN PRESSURE RELIEF VALVE	
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# Parts Breakdowns

## 9.1.34 ELECTRICAL COMPONENTS

FILE NAME	Olympian Power Skid Assy CM2		
DWG NAME	PG 14		

**OLYMPIAN ELECTRICAL COMPONENTS**

16	2	LV-4359	PUSH BUTTON LATCH
15	2	LV-4293	ACCESS PANEL
14	1	LV-4511	JUMPER TERMINAL, 6-36V, 250A BLACK
13	1	LV-4510	JUMPER TERMINAL, 6-36V, 250A RED
12	2		#10-24 HEX NUT W/ STAR WASHER ZP
11	2		#10-24 X 3/4 MACHINE SCREW ZP
10	1	WAY-47211	JUNCTION BLOCK, 3/8-16 STUD, BLACK
9	4	BON-000005	BOLT, 1/4-20 X 1 HEX ZP
8	1	LV-2532	HFX 20 I/O CONTROLLER 74HP KUBOTA
		LV-2685	HFX 20 I/O CONTROLLER 87HP KUBOTA
		LV-2684	HFX 20 I/O CONTROLLER 74HP DEERE
		LV-2600	HFX 20 I/O CONTROLLER 99HP DEERE
7	4	BON-000320	LOCKNUT, 5/16 ZP
6	4	BON-000031	BOLT, 5/16-18 X 1-1/4 HEX ZP
5	1	LV-2533	VEHICLE ELECTRICAL CENTER
4	6	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP
3	2	BON-0000003	BOLT, 1/4-20 X 3/4 HEX ZP
2	1	LV-4294	BATTERY RETAINER BRACKET
1	1	LV-1144	BATTERY, 12V
ITEM	QTY	PART NUMBER	DESCRIPTION

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9.1.35 CONTROL ARM PIVOT

FILE NAME	OLYMPIAN Power Unit Skid Assy 2		
DWG NAME	PG16 C		

**OLYMPIAN CONTROL ARM PIVOT**

NOTE:  
APPLY THREADLOCKER COMPOUND TO  
ITEMS 15, 16 AND 17

ITEM	QTY	PART NUMBER	DESCRIPTION
19	1	BON-000198	BOLT, 3/4-10 X 8 HEX ZP
18	4	LV-4446	1" SPACER
17	8	BON-000180	BOLT, 3/4-10 X 1-1/2 HEX ZP GR 8
16	1	BON-000232	BOLT, 1-8 X 2-1/2 HEX ZP GR 8
15	8	BON-000106	BOLT, 1/2-13 X 1-1/4 HEX ZP GR 8
14	3	BON-000322	LOCKNUT, 5/8-11 NYLON ZP
13	3	BON-00341SAEH	FLATWASHER, 5/8" SAE HARD ZP
12	3	BON-000155	BOLT, 5/8-11 X 2-1/2 HEX ZP
11	1	LV-4379	LOWER TORQUE BRACKET
10	1	LV-4378	UPPER TORQUE BRACKET
9	2	BON-000308	NUT, 3/4-10 HEX ZP
8	1	BON-000191	BOLT, 3/4-10 X 4-1/2 HEX ZP
7	4	BON-000310.3	LOCKNUT, 1-8 NYLON ZP
6	4	BON-000244	BOLT, 1-8 X 7 HEX ZP
5	1	LV-4549	HYDRAULIC ROTARY ACTUATOR
4	2	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP
3	2	BON-000008	BOLT, 1/4-20 X 1-3/4 HEX ZP
2	2	LV-4234	HINGE PIN
1	1	LV-4377	COLLECTION ARM PIVOT FRAME
ITEM	QTY	PART NUMBER	DESCRIPTION

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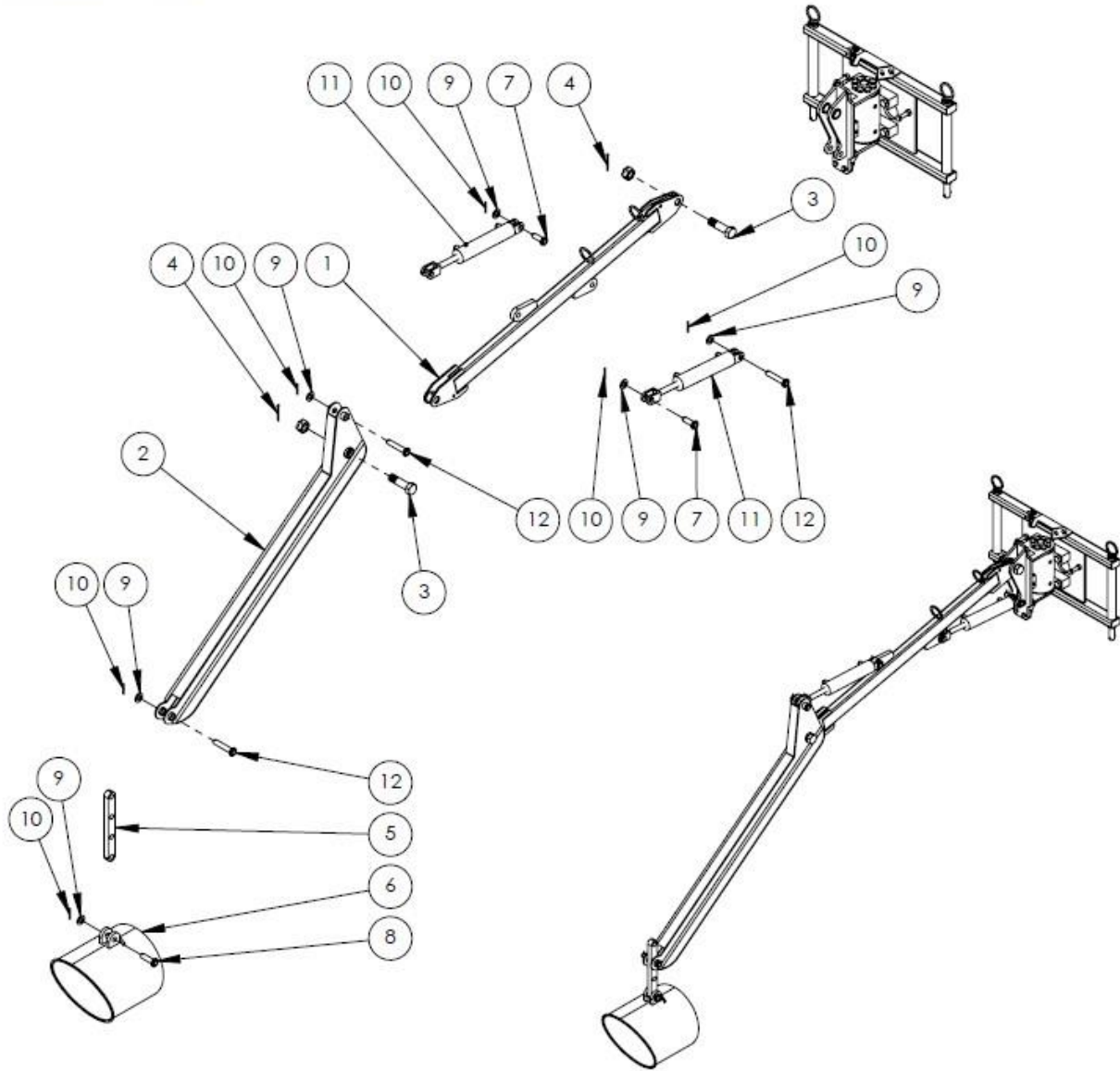
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9.1.36 CONTROL ARM ASSEMBLY

FILE NAME	OLYMPIAN Power Unit Skid Assy 2
DWG NAME	PG17 B

OLYMPIAN CONTROL ARM



ITEM	QTY	PART NUMBER	DESCRIPTION
12	3	BON-000993	PIN DRAG HITCH, 1" x 5-1/4"
11	2	LV-4526	CYLINDER, HYD 2-1/2" BORE X 12" STROKE
10	6	BON-000602	ROLL PIN 1/4" X 2-1/2"
9	6	BON-000345SAEH	FLATWASHER, 1" SAE HARD ZP
8	1	BON-000997	PIN LIFT RAM, 1" DIA. X 3-1/2"
7	2	BON-000999	PIN LIFT RAM, 1" DIA. X 3"
6	1	LV-1529	PICKUP NOZZLE
5	1	LV-1528	PIVOT BAR
4	2	BON-000386	PIN, 1/4 X 3 COTTER
3	2	BON-003681	SWIVEL BOLT ASSEMBLY
2	1	LV-1527	ARM, LENGTHENED FOR HL, 180°
1	1	LV-1526	SUPPORT, ARM, SUCTION HOSE, SHORT

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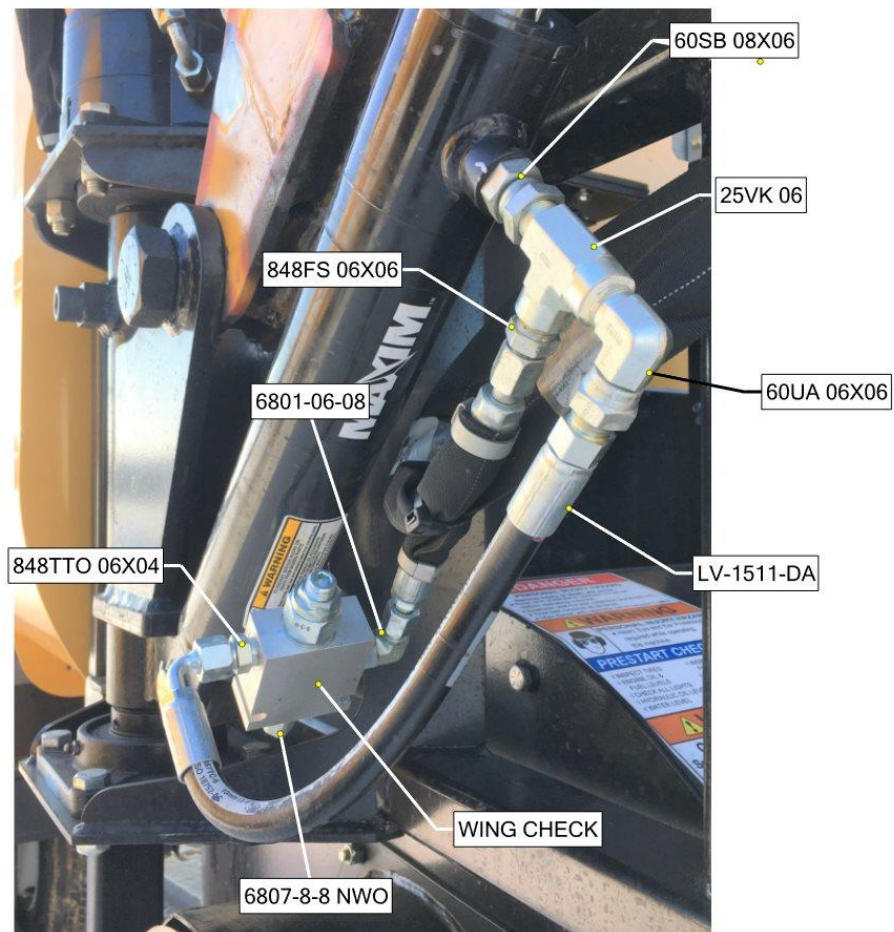
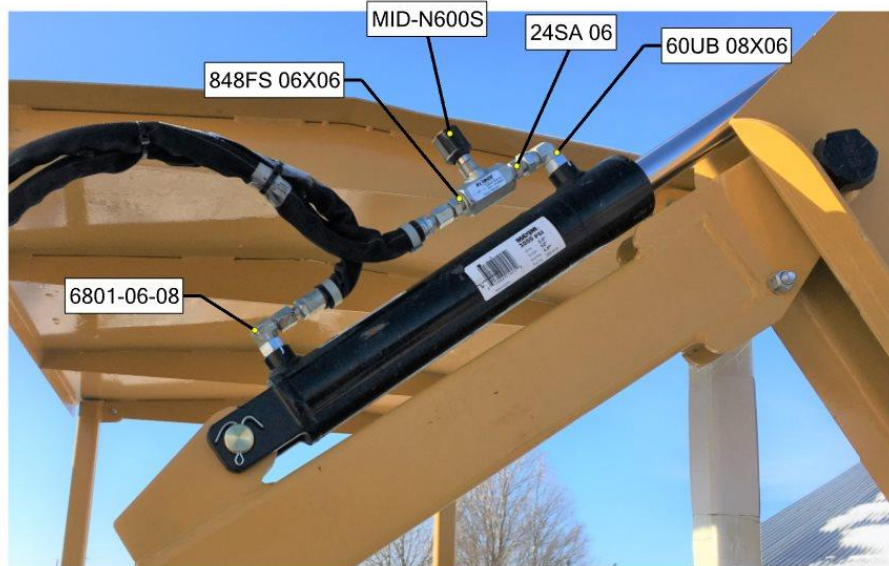


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9.1.37 CONTROL ARM HYDRAULIC CYLINDER ASSEMBLIES

OLYMPIAN ARM CYLINDER ASSEMBLIES

011221 OLYMPIAN ARM CYLINDER ASSEMBLIES.smg



# Parts Breakdowns

## 9.1.38 SUCTION HOSE

FILE NAME	OLYMPIAN Power Unit Skid Assy 2	<b>OLYMPIAN HEAVY DUTY SUCTION HOSE</b>			
DWG NAME	PG18				
ITEM	QTY			PART NUMBER	DESCRIPTION
10	2			BON-000319	LOCKNUT, 3/8-16 NYLON ZP
9	2			BON-000061	BOLT, 3/8-16 X 2 HEX ZP
8	2			LV-1313	OUTER CLAMP STRIP
7	1			LV-3040	RUBBER HOSE STRAP
6	1			BON-000321	LOCKNUT, 1/2-13 NYLON ZP
5	1			BON-000113	BOLT, 1/2-13 X 3 HEX ZP
4	1			LV-4247	HOSE SADDLE BRACKET
3	2			BK-1053	BOLT KIT, HOSE CLAMP
2	2	LV-4250	HOSE CLAMP		
1	1	LV-4534	16" X 13'-6" HEAVY DUTY SUCTION HOSE		

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# Parts Breakdowns

FILE NAME	HOSE CLAMP BREAK DOWN	<b>OLYMPIAN FLX-THANE SUCTION HOSE</b>	
DWG NAME	HOSE CLAMP BREAKDOWN OLYMPIAN		

- 1) CUT 48" LENGTH OF FIRE HOSE
- 2) SPLIT HOSE LENGTH WISE
- 3) TEST FIT ON INLET/NOZZLE
- 4) TRIM AS NEEDED
- 5) APPLY GORILLA TYPE GLUE ON HOSE AND EDGE OF INLET/NOZZLE
- 6) SLIDE HOSE ON
- 7) LET HOSE DRY

ITEM	QTY	PART NUMBER	DESCRIPTION
11	1	BON-000113	BOLT, 1/2-13 X 3 HEX ZP
10	2	BON-000319	LOCKNUT, 3/8-16 NYLON ZP
9	2	BON-000061	BOLT, 3/8-16 X 2 HEX ZP
8	1	LV-4247	HOSE SADDLE BRACKET
7	2	LV-1313	OUTER CLAMP STRIP
6	1	LV-3040	RUBBER HOSE STRAP
5	8FT	2 ML DISCHARGE	FIRE HOSE COVER
4	5	BON-000321	LOCKNUT, 1/2-13 NYLON ZP
3	2	LV-1669	HOSE CLAMP WELDMENT
2	2	LV-1668	HOSE CLAMP RING
1	1	LV-4533	FLX-THANE VHD 16" X 13' SUCTION HOSE

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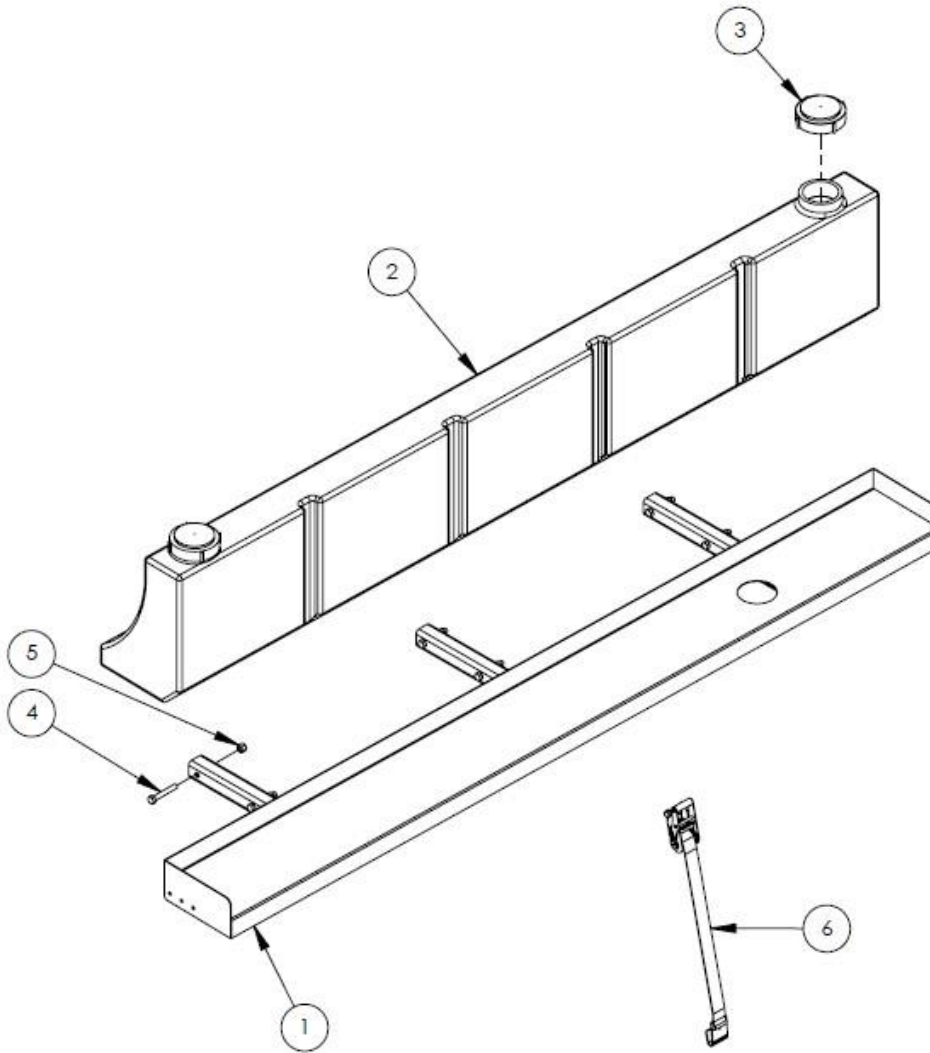
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9.1.39 DUST CONTROL SYSTEM

FILE NAME	OLYMPIAN BODY ASSY
DWG NAME	PG11

OLYMPIAN DUST CONTROL TANK & MOUNTING



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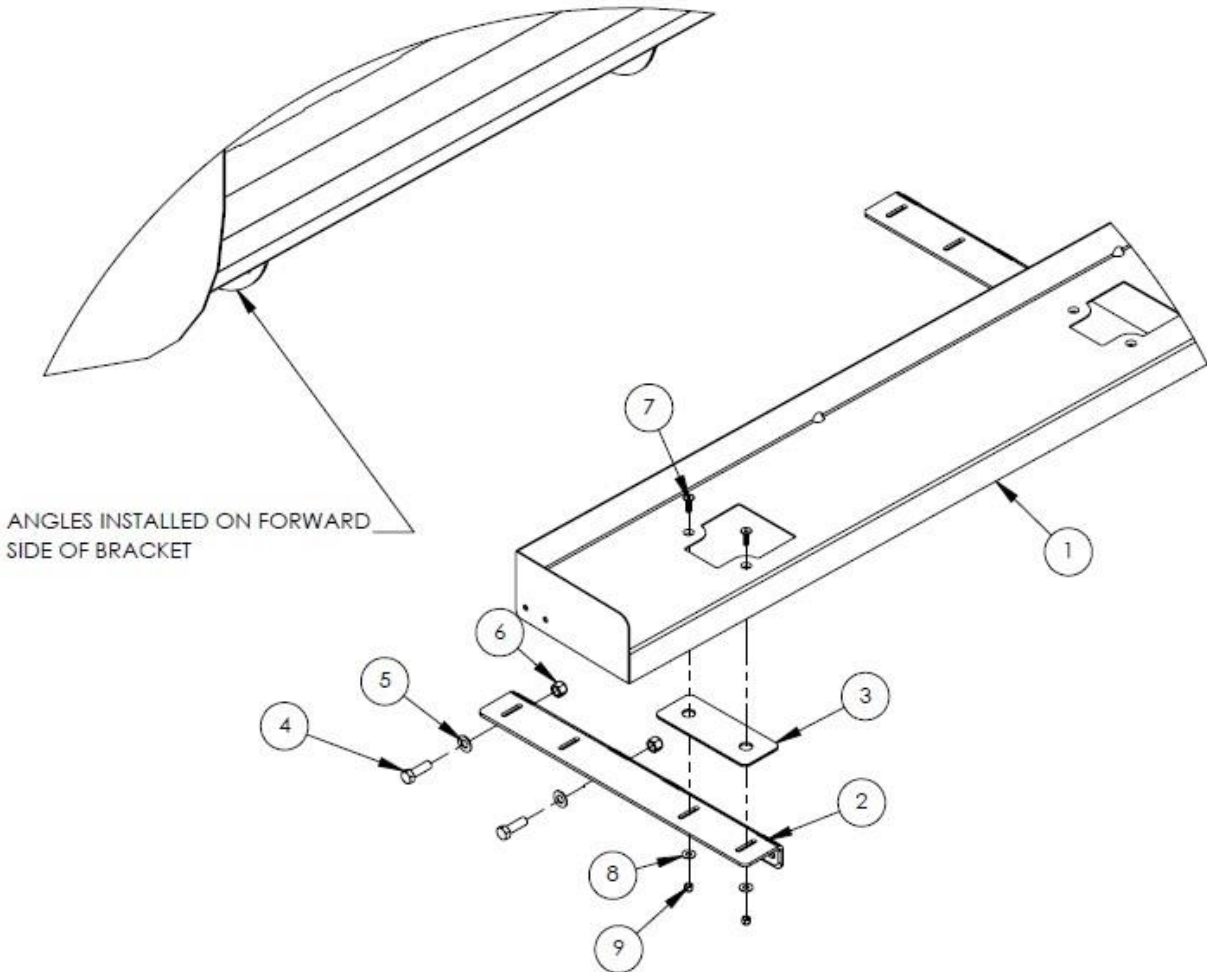
6	2	R2X7WFO	STRAP, RATCHET
5	6	BON-000322	LOCKNUT, 5/8-11 NYLON ZP
4	6	BON-000161	BOLT, 5/8-11 X 4 HEX ZP
3	2	LDS1003X001	TANK LID
2	1	LDS1001X008	95 GAL TANK
1	1	LV-4326	95 GAL TANK PAN WELDMENT
ITEM	QTY	PART NUMBER	DESCRIPTION



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# Parts Breakdowns

FILE NAME	SPARTAN ADJUSTABLE TANK PAN
DWG NAME	ADJ TANK PAN



9	6	BON-000319	LOCKNUT, 3/8-16 NYLON ZP
8	6	BON-000338	FLATWASHER, 3/8 ZP
7	6	BV2-001020	BOLT, 3/8-16 X 1-1/4 CS ZP
6	6	BON-000322	LOCKNUT, 5/8-11 NYLON ZP
5	6	BON-000341SAE	FLATWASHER, 5/8 ZP HARD
4	6	BON-000153	BOLT, 5/8-11 X 2 HEX ZP
3	3	LV-4335	TANK PAN SPACER
2	3	LV-4334	TANK PAN ANGLE
1	1	LV-4332	23YD RH TANK PAN
		LV-4332L	23YD LH TANK PAN
		LV-4333	30YD RH TANK PAN
		LV-4333L	30YD LH TANK PAN
ITEM	QTY	PART NUMBER	DESCRIPTION

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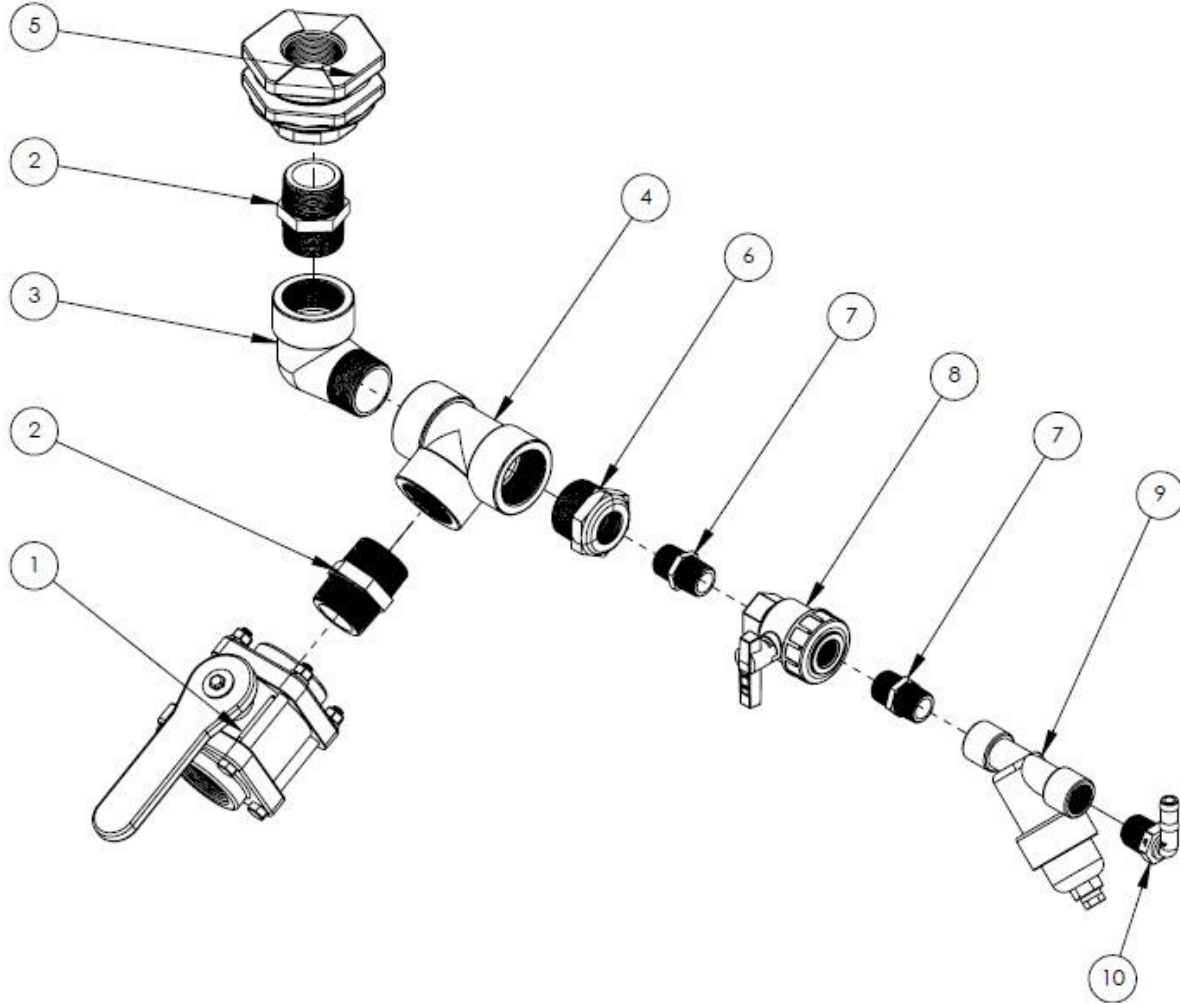


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# Parts Breakdowns

FILE NAME	LV-4365
DWG NAME	LV-4365 PG1

## OLYMPIAN DUST CONTROL SYSTEM TANK PLUMBING



10	1	HB-075/050-90	3/4" MALE THREAD X 1/2" HOSE SHANK 90
9	1	LS075 80	3/4" 80 MESH STRAINER
8	1	UV075FP	3/4" SINGLE UNION POLY VALVE
7	2	NIP075-SH	3/4" SHORT POLY NIPPLE
6	1	RB 150-075	1-1/2" X 3/4" POLY PIPE BUSHING
5	1	TF150	1-1/2" TANK FITTING
4	1	TEE150	1-1/2" POLY PIPE TEE
3	1	SL150-90	1-1/2" POLY PIPE STREET ELBOW 90°
2	2	NIP150-SH	1-1/2" SHORT POLY NIPPLE
1	1	V150	1-1/2" BALL VALVE RFD SYS
ITEM	QTY	PART NUMBER	DESCRIPTION

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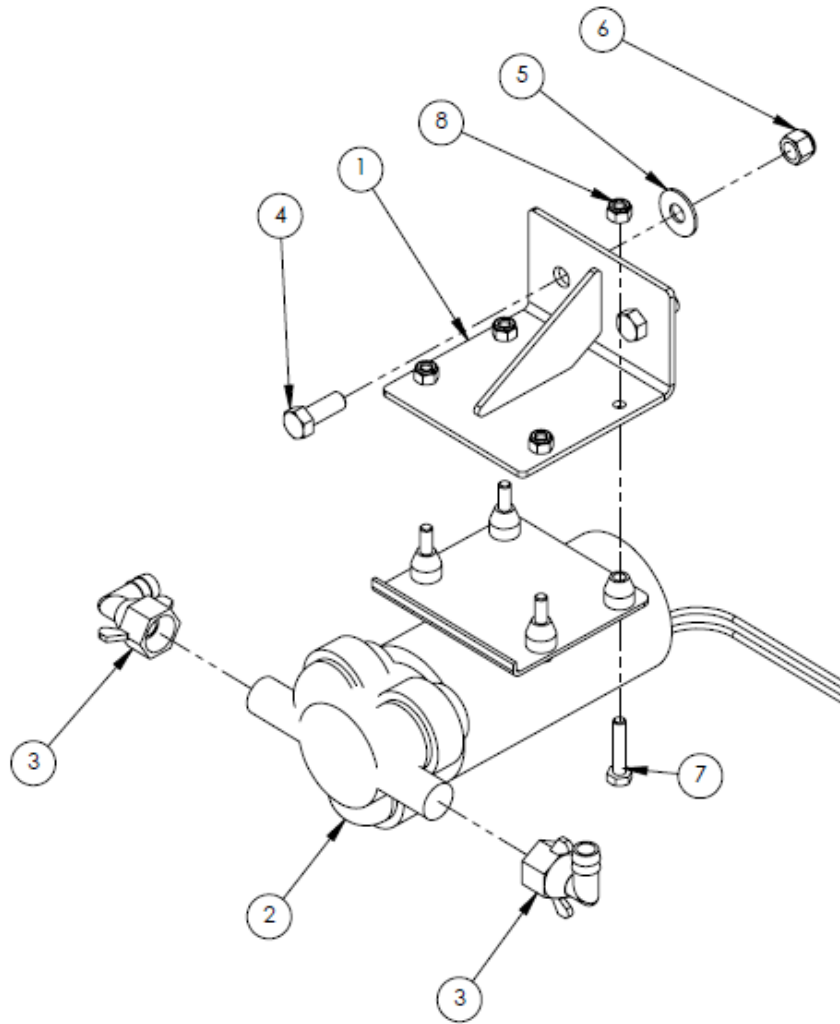


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# Parts Breakdowns

FILE NAME	LV-4365
DWG NAME	LV-4365 PG2

## OLYMPIAN DUST CONTROL SYSTEM PUMP ASSEMBLY



8	4	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP
7	4	BON-000006	BOLT, 1/4-20 X 1-1/4 HEX ZP
6	2	BON-000319	LOCKNUT, 3/8-16 NYLON ZP
5	2	BON-000338	FLATWASHER, 3/8 ZP
4	2	BON-000057	BOLT, 3/8-16 X 1 HEX ZP
3	2	LDS1070X001	1/2" FEMALE X 1/2" HOSE SHANK 90°
2	1	VAR-1066983	12V 4 GPM PUMP
1	1	LV-4327	PUMP MOUNTING BRACKET
ITEM	QTY	PART NUMBER	DESCRIPTION

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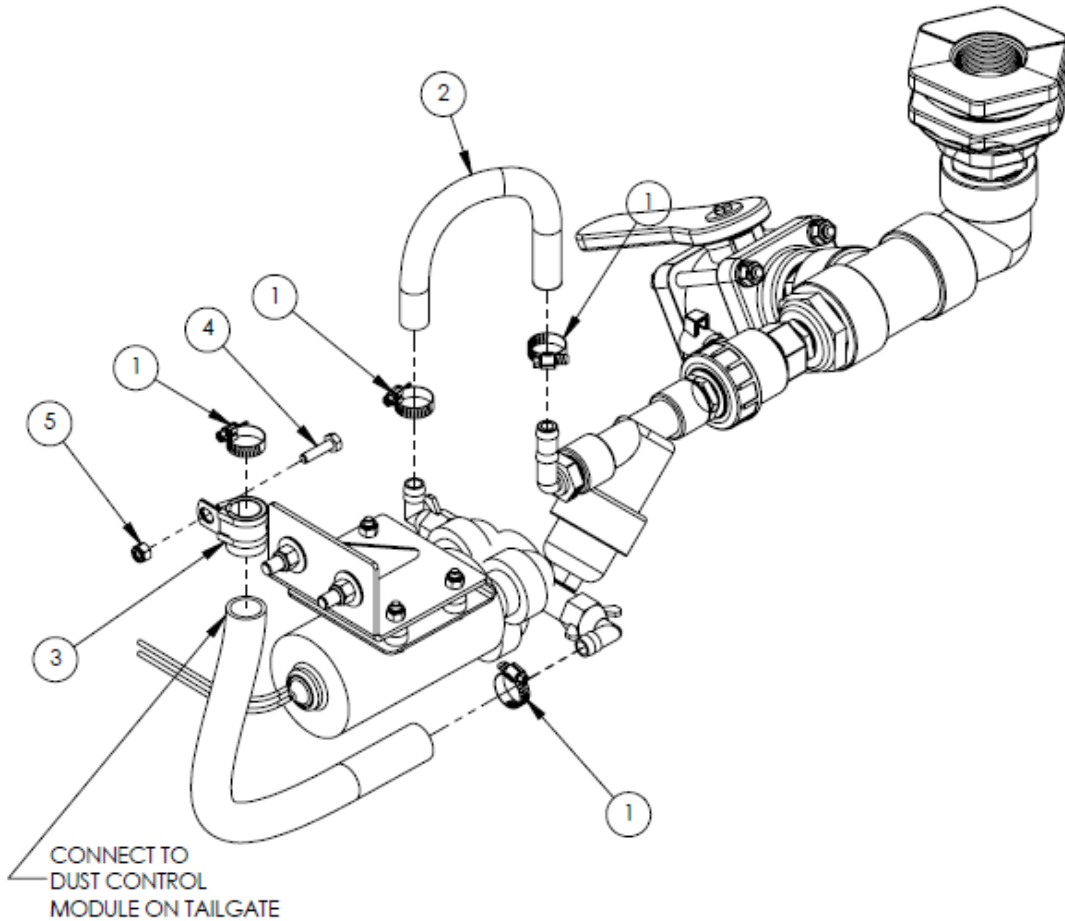


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FILE NAME	LV-4365
DWG NAME	LV-4365 PG3

**OLYMPIAN DUST CONTROL SYSTEM  
HOSE AND CLAMPS**



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5	3	BON-000318.5	LOCKNUT, 1/4-20 NYLON ZP
4	3	BON-000005	BOLT, 1/4-20 X 1 ZP HEX
3	3	WAY-25112	CUSHION CLAMP
2	11	LDS1009X001	HOSE, 1/2" NYLON BRAIDED
1	4	VEL-022308	HOSE CLAMP, SAE 8 1/2-29/32
ITEM	QTY	PART NUMBER	DESCRIPTION

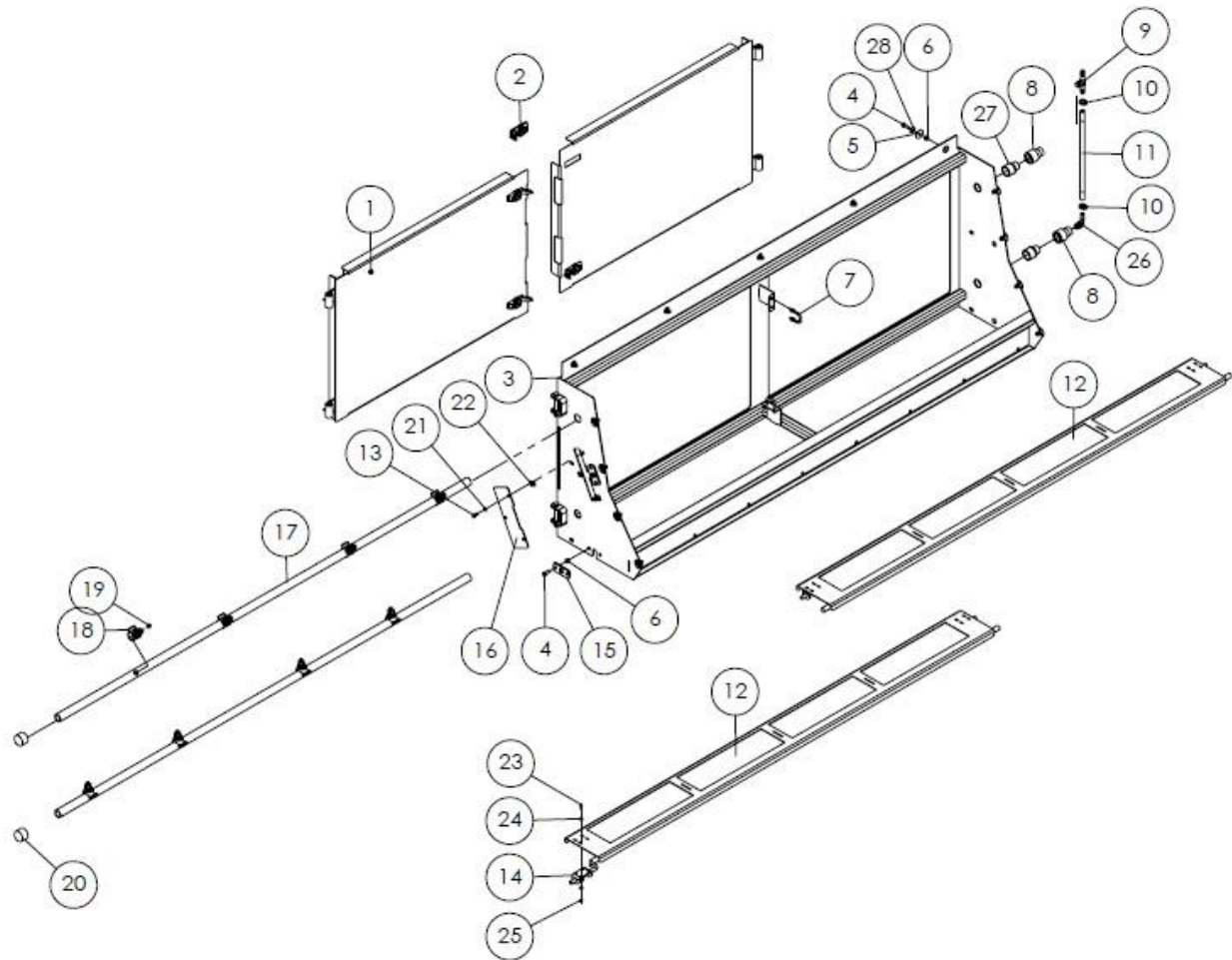


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# Parts Breakdowns

FILE NAME	M1213
DWG NAME	M1213 PG1 of 2

## OLYMPIAN REAR DUST CONTROL MODULE



13	BON-000028	3	5/16-18 x 3/4 HEX BOLT
12	LV-4151	2	OLYMPIAN REAR EXHAUST SCREEN
11	LDS1009X001	1	HOSE, 1/2" NYLON BRAIDED
10	VEL-022308	2	HOSE CLAMP, SAE 8, 1/2-29/32
9	LV-4363	1	1/2" NPT TO TWO 1/2" HOSE BARB POLY TEE
8	LV-4361	2	1" NPT TO 1/2 NPT POLY REDUCER COUPLER
7	3043T622	2	5/16-18 U-BOLT FOR 1" PIPE
6	BON-000319	17	3/8-16 NYLON HEX LOCKNUT
5	91090A115	13	3/8 x 1-1/2" FENDER WASHER
4	BON-000057	17	3/8-16 x 1" HEX BOLT
3	LV-4161	1	OLYMPIAN REAR EXHAUST DOOR FRAME
2	LV-4359	4	PUSH BUTTON LATCH
1	LV-4195	2	OLYMPIAN REAR EXHAUST ACCESS DOOR
REF	PART NO.	QTY	DESCRIPTION

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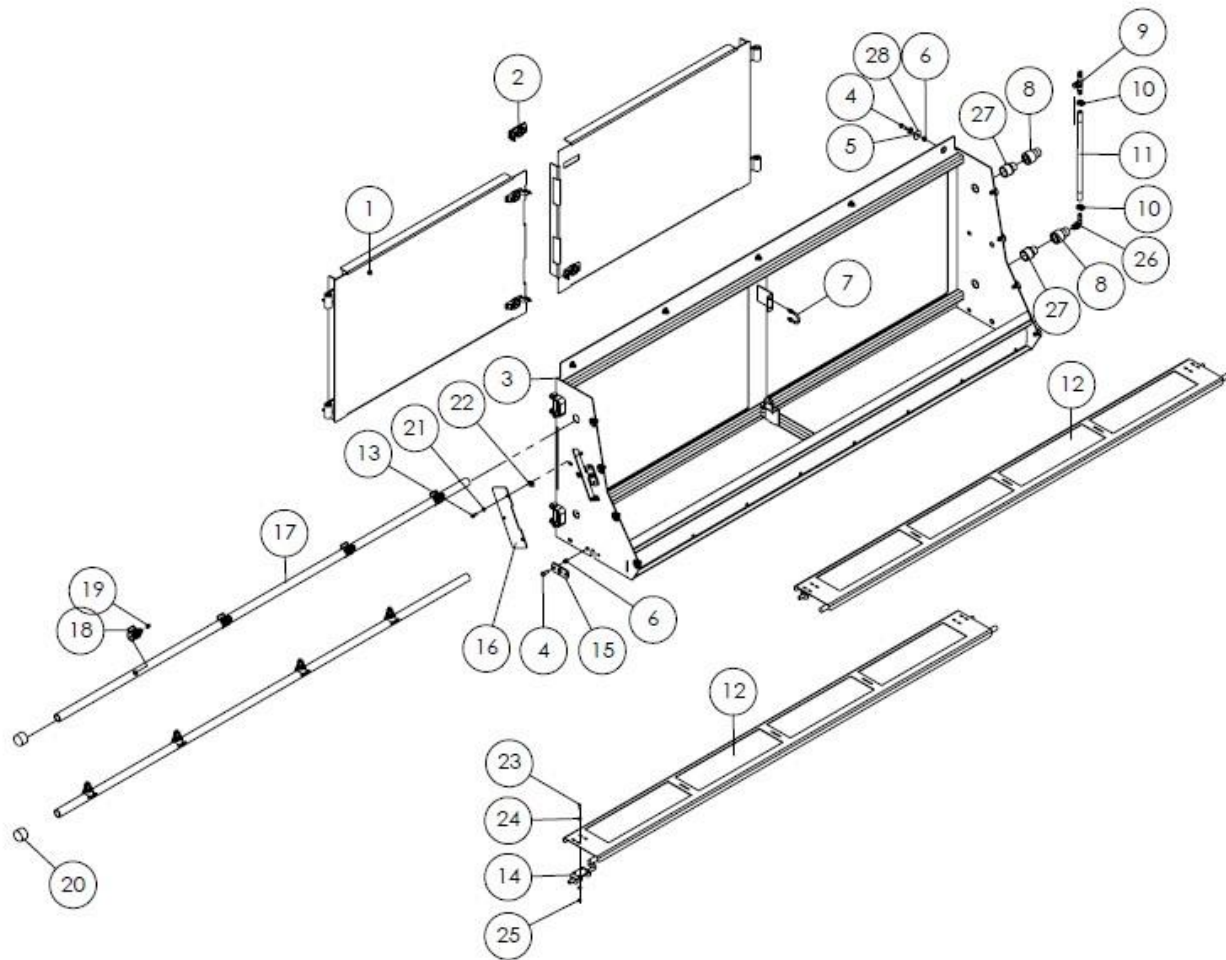


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# Parts Breakdowns

FILE NAME	M1213
DWG NAME	M1213 PG2 of 2

## OLYMPIAN REAR DUST CONTROL MODULE



28	BON-000338	13	FLATWASHER, 3/8 ZP
27	4596K856	2	STRAIGHT ADAPTER - 1" SCF x 1" NPTM
26	HB-050-90	1	1/2" MALE THREAD x 1/2" HOSE SHANK 90°
25	10-24 NYLOK	16	10-24 NYLON LOCKNUT
24	BON-000335	32	3/16 FLAT WASHER
23		16	10-24 x 3/4 MACHINE SCREW
22	BON-000302C	3	5/16-18 CLIP-ON NUT
21	BON-000351	3	5/16 LOCKWASHER
20	4881K53	2	1" POLY PIPE CAP
19	LV-4368	8	NOZZLE, BETE - 1/8 MPLO.21W@4
18	LV-4367	8	NOZZLE HOLDER, RIGID, 1/8" NPT FOR 1" PIPE
17	LV-4154	2	OLYMPIAN NOZZLE SPRAY BOOM
16	LV-4152	1	COVER - 3/12" x 10-12"
15	LV-4198	2	PLATE - OLYMPIAN REAR EXHAUST SCREEN PIVOT
14	LV-4362	4	SPRING LATCH, 1/2" ZP
REF	PART NO.	QTY	DESCRIPTION

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9.1.40 CONTROL PANEL ASSEMBLY

FILE NAME	LV-4256	<b>OLYMPIAN CONTROL PANEL ASSEMBLY</b>	
DWG NAME	LV-4256 CHASSIS MOUNT		

\* IGNITION KEY P/N RC101-53630 (NOT SHOWN)

20	LV-2274	1	CONTROL MOUNTING BRACKET
19	BON-000003	8	1/4-20 x 3/4 HEX BOLT
18	LV-4323	1	DECAL KIT, CONTROLLER
17	LV-4321	4	SCREW, M5-0.8 X 10MM PAN HEAD, ZP
16	DT6P-DC	1	DUST CAP, 6PIN RECEPTACLE
15	LV-2534	1	COLOR DISPLAY PV-450
14	BON-000318.5	12	LOCKNUT, 1/4-20 NYLON ZP
13		2	#6-32 X 1 MACHINE SCREW ZP
12		6	#6-32 HEX NUT W/ STAR WASHER ZP
11		4	#6-32 X 1/2 MACHINE SCREW ZP
10	EO2	1	IGNITION KEY SWITCH
9	2414-001-2486	1	WAVY LOCK WASHER, SIZE 24
8	2411-001-2405	1	PANEL NUT
7	LV-1173	1	TOGGLE SWITCH
5	LV-1398	1	EMERGENCY STOP SWITCH
4	LV-4254	1	HARNESS, PROGRAMMING EXTENSION
3	LV-4253	1	HARNESS, CONTROL BOX
2	LV-4255	1	FRONT PANEL
1	LV-3047	1	REAR PANEL

REF	PART NO.	QTY	DESCRIPTION
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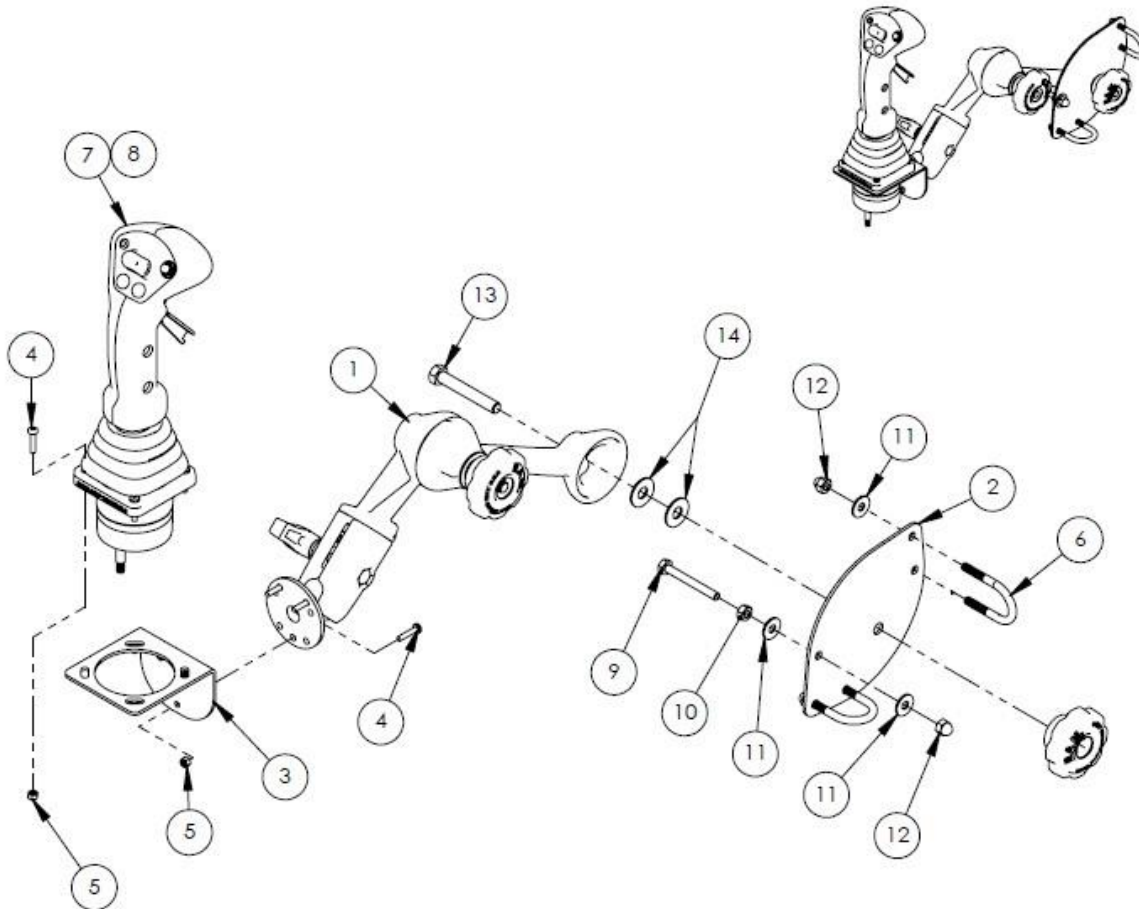
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# Parts Breakdowns

## 9.1.41 CONTROLLER - JOYSTICK

FILE NAME	M1474	REV.	DESCRIPTION	DATE	INITIALS
DWG NAME	M1474	-	ORIGINAL	12/10/2022	JKG

### OLYMPIAN CHASSIS MOUNT JOYSTICK



14	BON-000338	2	FLATWASHER, 3/8 ZP
13	BON-000062	1	BOLT, 3/8-16 X 2-1/4 HEX ZP
12	BON-000301ACSS	5	NUT, 1/4-20 ACORN SS
11	BON-000336SS	6	FLAT WASHER, 1/4 SS
10	BON-000301SS	1	NUT, 1/4-20 HEX SS
9	BON-000010SS	1	BOLT, 1/4-20 X 2-1/4 HEX SS
8	LV-4264	1	HARNESS, JOYSTICK
7	LV-4565	1	JOYSTICK
6	8896T104	2	U-BOLT, 1/4-20 X 2 X 1-1/8 ID SS
5	94205A230	7	LOCKNUT, M4 NYLON
4	90116A217	7	SCREW, M4 X 20 MACHINE
3	LV-3665	1	JOYSTICK MOUNTING BRACKET
2	LV-3664	1	GRAB HANDLE MOUNTING BRACKET
1	RAM-VP-SW1-1218	1	RAM DOUBLE SWING ARM
ITEM	PART NUMBER	QTY	DESCRIPTION

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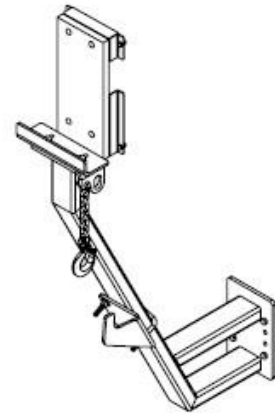
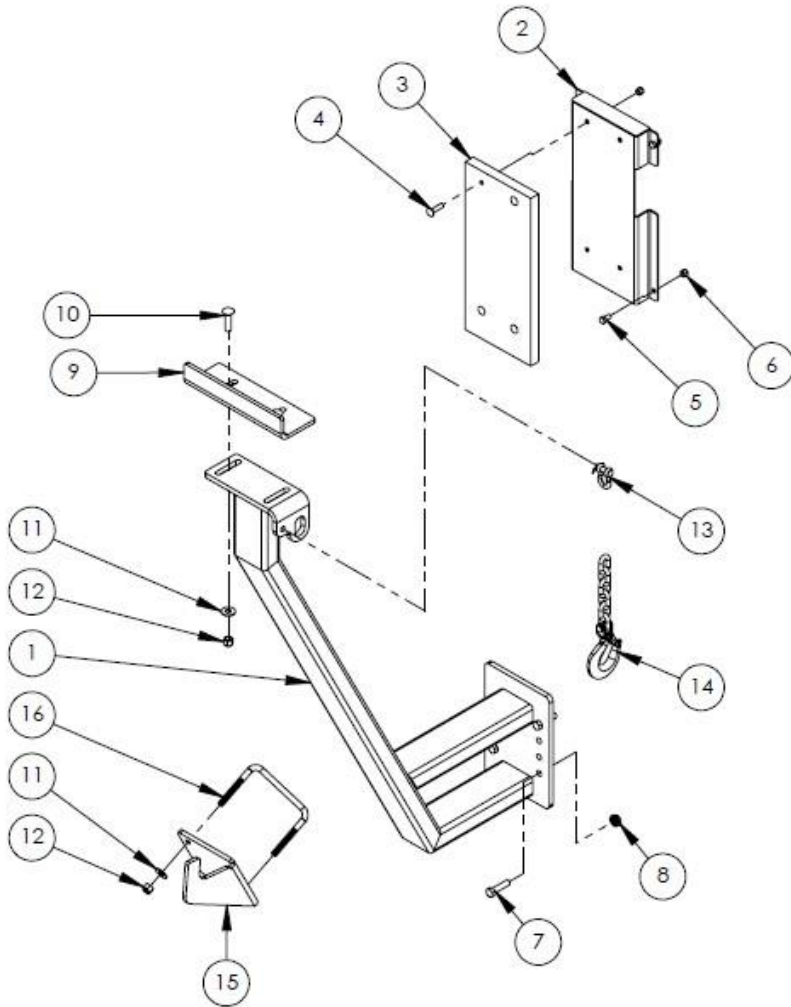
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# Parts Breakdowns

## 9.1.42 ARM STOW BRACKET & BUMPER

FILE NAME	M1473
DWG NAME	M1473

### OLYMPIAN ARM STOW & BUMPER



16	LV-4635	1	SQUARE U-BOLT 6" X 4-5/8" X 1/2"-13
15	LV-3090	1	ARM SHIPPING BRACKET
14	LV-2024	1	SAFETY CHAIN
13	BON-000660.6	1	CHAIN SHACKLE
12	BON-000321	4	LOCKNUT, 1/2 ZP
11	BON-000340	4	FLATWASHER, 1/2 ZP
10	BON-000261.5	2	BOLT, 1/2-13 X 1-1/2 CARR ZP
9	LV-4602	1	ARM STOW CATCH ANGLE
8	BON-000321F	4	LOCKNUT, 1/2-13 FLANGE ZP
7	BON-000109	4	BOLT, 1/2-13 X 2 HEX ZP
6	BON-000319	8	LOCKNUT, 3/8-16 NYLON ZP
5	BON-000057	4	BOLT, 3/8-16 X 1 HEX ZP
4	BON-000280	4	BOLT, 3/8-16 X 1-1/2 CARR ZP
3	LV-4587 MSB	1	RUBBER BUMPER
2	LV-4587	1	BUMPER BRACKET
1	LV-4586	1	ARM STOW BRACKET
ITEM	PART NUMBER	QTY	DESCRIPTION

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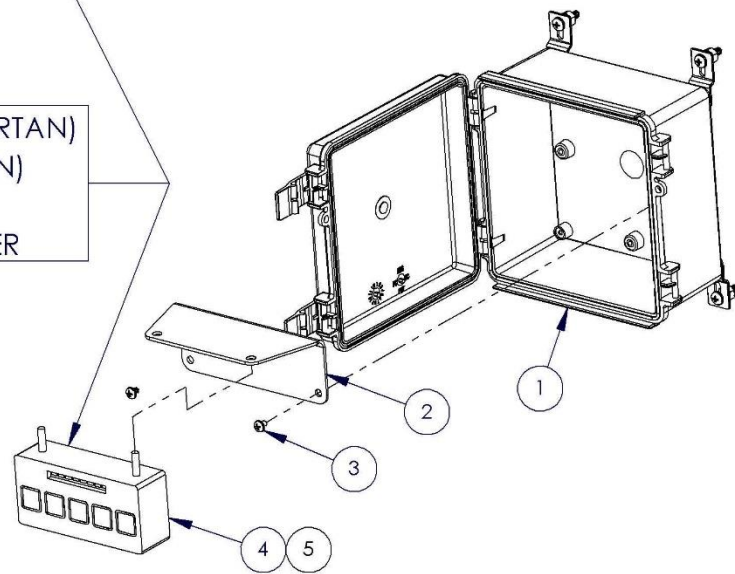
# Parts Breakdowns

## 9.1.43 DIRECTIONAL LIGHT BAR

FILE NAME	LV-2620 WITH CONTROLLER
DWG NAME	LV-2620 HOOKLIFT/CHASSIS/GEN2



LV-2621 LIGHTBAR KIT (SPARTAN)  
 LV-2622 LIGHTBAR KIT (TITAN)  
 INCLUDES:  
 HARNESS AND CONTROLLER



**INSTALL THE LIGHTBAR WITH THE CORD ON THE RIGHT SIDE**

1	1	LV-2620	ENCLOSURE, 6" X 6" X 3.5"
2	1	LV-2623	CONTROLLER BRACKET
3	2	LV-2625	SCREW, M4 X.7MM PITCH X 5MM LONG
4	AR	LV-2621	SPARTAN - LOW PROFILE LED, TOUCH PAD CONTROLLER
5	AR	LV-2622	TITAN - LOW PROFILE LED, TOUCH PAD CONTROLLER
ITEM	QTY	PART NUMBER	DESCRIPTION

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# Parts Breakdowns

## 9.1.44 SERVICE PLATFORM

FILE NAME	M1273	<b>SERVICE PLATFORM</b>	
DWG NAME	M1273		

MANUALLY ATTACHED TO ENGINE ENCLOSURE

12	BON-000106SS	2	1/2-13 x 1-1/4 HEX BOLT SS
11	BON-000340SS	2	1/2 STANDARD FLAT WASHER SS
10	BON-000321SS	2	1/2-13 NYLON HEX LOCKNUT SS
9	BON-000058SS	7	3/8-16 x 1-1/4 HEX BOLT SS
8	BON-000338SS	11	3/8 STANDARD FLAT WASHER SS
7	BON-000319SS	7	3/8-16 NYLON HEX LOCKNUT SS
6	LV-4360	1	CARBON STEEL WELD-ON PULL HANDLE
5	LV-4163	1	FILLER-SERVICE PLATFORM
4	LV-4165	1	LADDER-OLYM CHASSIS MNT SERVICE
3	LV-4164	1	BRKT-SERVICE PLATFORM CORNER
2	LV-4166	4	CLIP-SERVIE PLATFORM
1	LV-4175	1	PLATFORM-SERVICE, OLMP CHASSIS MNT
REF	PART NO.	QTY	DESCRIPTION

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9.1.45 DECALS

DECAL SHEET: P/N LV-1232

<b>! DANGER</b>	
	<b>ENTANGLEMENT HAZARD</b> Serious injury or death will occur <ul style="list-style-type: none"> <li>• Shut down engine &amp; disconnect safety interlock before removing hose or guards.</li> </ul>
<b>NOTICE</b>	
<ul style="list-style-type: none"> <li>• New belt tension must be checked after first hour of operation and daily thereafter.</li> <li>• Failure to do so will result in premature belt failure..</li> </ul>	

**Operation & Maintenance  
Manuals Inside**

<b>! DANGER</b>	
	<b>ENTANGLEMENT HAZARD</b> Serious injury or death will occur <ul style="list-style-type: none"> <li>• Shut down engine &amp; disconnect safety interlock before removing hose or guards.</li> </ul>
<b>! WARNING</b>	
	<b>PERSONAL INJURY HAZARD</b> <ul style="list-style-type: none"> <li>• Head, Eye and Ear Protection required while operating this machine.</li> </ul>
<b>! WARNING</b>	
<b>HEAVY IMPACT HAZARD</b> Serious injury or death could occur <ul style="list-style-type: none"> <li>• Inspect fan and liners for wear or damage every 80 hours.</li> <li>• Perform an inspection immediately if vibration occurs, or if large heavy debris is run through the machine.</li> </ul>	
<b>! WARNING</b>	
	<b>LOSS OF CONTROL HAZARD</b> <ul style="list-style-type: none"> <li>• Chock wheels when servicing or parking machine.</li> </ul>

<b>! WARNING</b>	
<b>COLLISION HAZARD</b> Serious injury or death could occur <ul style="list-style-type: none"> <li>• Secure Pick-up nozzle for transport.</li> </ul>	
<b>! WARNING</b>	
<b>SUCTION HAZARD</b> Serious injury or death could occur <b>HIGH VACUUM!</b> <b>KEEP CLEAR.</b>	

<b>! DANGER</b>	
	<b>ENTANGLEMENT HAZARD</b> Serious injury or death will occur <ul style="list-style-type: none"> <li>• Shut down engine &amp; disconnect safety interlock before removing hose or guards.</li> </ul>
<b>! WARNING</b>	
	<b>PERSONAL INJURY HAZARD</b> <ul style="list-style-type: none"> <li>• Head, Eye and Ear Protection required while operating this machine.</li> </ul>
<b>! WARNING</b>	
	<b>LOSS OF CONTROL HAZARD</b> <ul style="list-style-type: none"> <li>• Chock wheels when servicing or parking machine.</li> </ul>

# Parts Breakdowns

DECAL SHEET: P/N LV-4324

LV-4324\_rev0 4/30/20 DECAL SET FOR OLYMPIAN PRO PLUS

<small>[ APPLY TO FLUID COUPLER ZERK (IF EQUIPPED) ]</small> WEEKLY 2 PUMPS	<small>[ APPLY TO FENDERS ]</small> MONTHLY 1 PUMP	<small>[ APPLY NEAR IMPELLER BEARING ZERKS ]</small> DAILY 2 PUMPS
	MONTHLY 1 PUMP	DAILY 2 PUMPS

[ APPLY TO BOOM ]



SAFETY LATCH MUST BE RELEASED BEFORE OPERATING BOOM, AND SECURED BEFORE TRANSPORTING OR SERVICING MACHINE.

[ APPLY NEAR ENGINE CONTROLS ]

 **DANGER**

**PERSONAL INJURY HAZARD**  
 Serious injury or death will occur

- Read and understand operator's manual before operating machine.
- Operator seat for leaf collection purposes only.
- Seat belt required at all times.
- Max speed with operator not to exceed 5 MPH.

 **WARNING**



**PERSONAL INJURY HAZARD**  
 • Head, Eye and Ear Protection required while operating this machine.

**PRESTART CHECKLIST**

✓ INSPECT TIRES	✓ INSPECT HOSE FOR WEAR
✓ ENGINE OIL & FUEL LEVELS	✓ PICK-UP HOSE SECURE
✓ CHECK ALL LIGHTS	✓ CHECK BELT TENSION
✓ HYDRAULIC OIL LEVEL	✓ ALL GUARDS IN PLACE
✓ WATER LEVEL	✓ DISENGAGE CLUTCH

 **WARNING**

**COLLISION HAZARD**  
 Serious injury or death could occur

- Secure Pick-up nozzle for transport.



SAFETY LATCH MUST BE RELEASED BEFORE OPERATING BOOM, AND SECURED BEFORE TRANSPORTING OR SERVICING MACHINE.

 **WARNING**



**FIRE HAZARD**  
 • Keep engine and engine area free of leaf debris buildup.

[ APPLY TO HYDRAULIC OIL TANK ]

**HYDRAULIC FLUID ONLY. FILL LINE:**

 **CAUTION**

**EQUIPMENT DAMAGE HAZARD**  
 Serious injury or death could occur

- Do not operate engine with ball valve closed.
- Close valve to change hydraulic filter.

↑  
ALIGN ARROW ↑ BELOW TOP OF SIGHT GLASS WINDOW.

[ APPLY TO TOP OF BLOWER HOUSING GUARD ]

 **WARNING**

**HEAVY IMPACT HAZARD**  
 Serious injury or death could occur

- Inspect fan and liners for wear or damage every 80 hours.
- Perform an inspection immediately if vibration occurs, or if large heavy debris is run through the machine.

[ APPLY TO TOP OF BLOWER HOUSING, UNDERNEATH GUARD ]

 **WARNING**

**HEAVY IMPACT HAZARD**  
 Serious injury or death could occur

- Shield missing. DO NOT operate.

[ APPLY NEAR FUEL FILL ]

 **DANGER**

 	<p><b>EXPLOSION HAZARD</b>                  Serious injury or death will occur</p> <ul style="list-style-type: none"> <li>• No smoking.</li> <li>• Keep open flame away.</li> <li>• Do no weld, cut or burn on or near fuel tank.</li> </ul>
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ULTRA LOW SULFUR DIESEL FUEL ONLY

<small>[ APPLY TO SPARTAN HOIST HINGES ]</small> WEEKLY 2 PUMPS	<small>[ APPLY TO PIVOT ARM ]</small> DAILY 2 PUMPS
WEEKLY 2 PUMPS	DAILY 2 PUMPS

[ APPLY TO PREWET TANK (IF EQUIPPED) ]

**NOTICE**

WATER ONLY

DRAIN WETTING SYSTEM PUMP & INLINE STRAINER TO PREVENT FREEZING.

[ APPLY TO BLOWER HOUSING ]

**NOTICE**



[ APPLY TO BELT GUARD NEAR CLUTCH (IF EQUIPPED) ]

**NOTICE**

**TO OPERATE THE CLUTCH:**

Make sure that there is free play in the engagement handle prior to operation of the power take-off.

If no free play is evident, see adjustment procedure in manual.

1. Engine should be started and running at low idle speed, 1000 rpm or less.
2. Engage the PTO clutch with one single hand lever movement.

Do not slip the clutch for longer than one or two seconds without completely engaging it or disengaging it and allowing it to cool.

Set engine to idle speed before disengaging clutch.

**CLUTCH ADJUSTMENT:**


Clutch adjustment should be checked after the first eight hours of operation.

Adjustments should be made at the ten to fifteen hour intervals thereafter until the new plates are worn in.

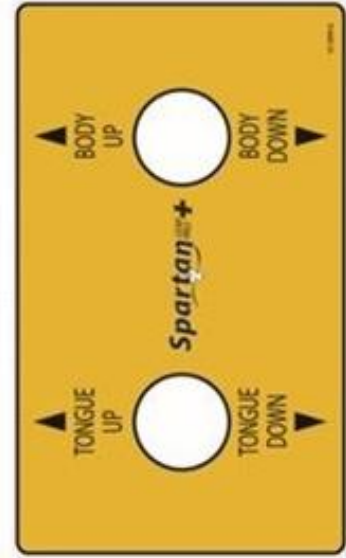
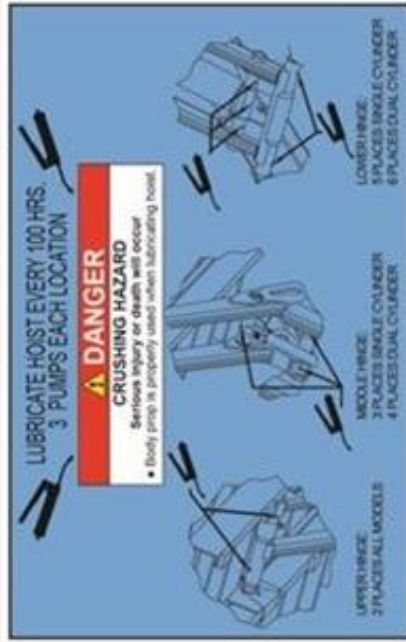
Refer to clutch manual for proper adjustment procedures.

DECAL SHEET: P/N LV-4323



 <b>DANGER</b>	
	<p style="text-align: center;"><b>CRUSHING HAZARD</b>  <b>Serious injury or death will occur</b></p> <ul style="list-style-type: none"> <li>• Stay clear of a raised dump body. If service work is required, make sure the body prop is properly used.</li> <li>• Dump body must be empty when using body prop.</li> <li>• Return the body prop to its storage position after service work is completed.</li> <li>• Body must be completely lowered when unattended.</li> </ul>
	BON-011376

DECAL SHEET: P/N LV-2093



**⚠ OPERATION OF BODY PROP**

This machine is equipped with:  
( ) 1 Body Prop  
( ) 2 Body Props

**TO USE BODY PROP(S):**

1. Raise body to height where prop(s) can be swung upward into position. Place the hoist control valve in the neutral (hold) position.
2. Locate prop(s) (behind fender), and swing "up" to the support position.
3. Lower body slowly until prop(s) rests on prop receiver. Do not power hoist down. Place the hoist control valve in the neutral (hold) position.

**TO STORE THE PROP(S):**

4. Raise body to a height where the prop(s) will clear the prop receiver. Be sure the hoist control valve is in the neutral (hold) position.
5. Swing prop(s) down to transit position. Before lowering body be certain that the area is clear.

**⚠ OPERATION OF BODY PROP**

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( ) 2 Body Props

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**⚠ DANGER**

- Do not operate or service hoist until you have read and understood the manual supplied with the hoist.
- Do not leave body raised or partly raised while vehicle is unattended or while performing maintenance or service under body unless body is propped to prevent accidental lowering.
- Do not attempt to raise a loaded body when vehicle is on unlevel ground.
- Operator must remain at controls during all operations.

**CAP. 15 GAL.**

INDIVIDUAL DECALS SOLD SEPARATELY

DECAL SHEET: P/N LV-2152



INDIVIDUAL DECALS SOLD SEPARATELY

Titan LEAF™ SOLUTIONS FUSE GUIDE						
SPARE	RELAY 2	WETTING	E-STOP	RELAY 1	E-STOP 10 AMP RUBOTA 20 AMP DEERE/KOHLER	F1
	RELAY 3	ALTERNATOR IGNITION	OIL COOLER	RELAY 3	WETTING 15 AMP	F2
SPARE	RELAY 4	HFX LO POWER	HFX HI POWER	RELAY 6	OIL COOLER 30 AMP	F3
SPARE	RELAY 5	BATTERY POWER	DISPLAY/ JOYSTICK	RELAY 8	ALTERNATOR/ IGNITION 15 AMP	F4
SPARE	RELAY 7				HFX HI POWER 15 AMP	F5
					HFX LO POWER 5 AMP	F6
					DISPLAY/JOYSTICK 5 AMP	F7
					BATTERY POWER 15 AMP	F8

LV-2254

NOTICE

Bonnell Industries is not an authorized service center for engines, nor do we stock parts for these engines. Please refer to your engine manual, the yellow pages or internet to find your local authorized engine service center.

BJV-1660

LV-2254

BJV-1660

CAUTION

- Read and understand Operator's Manual before operating unit. Free replacement manuals are available from Bonnell Industries.
- Keep all shields and guards in place and in good working condition. Keep hands, feet, and clothing away from all moving parts.
- Keep others away while operating or loading equipment. Do not allow children or untrained persons to operate or play on equipment.
- Stop vehicle, disengage power, stop engine, set parking brake and remove key before leaving vehicle. Make sure all movement has stopped before servicing machine.
- Failure to follow safety rules can result in serious injury or death.

BON-011377

BON-011377

WARNING



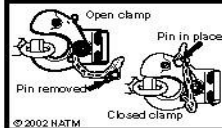
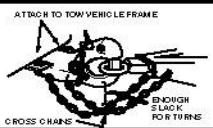
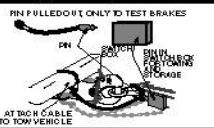
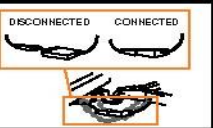

CRUSHING HAZARD

Serious injury or death can occur

- Stay clear while loading, unloading, raising, or lowering dump body.

BON-011375

BON-011375

▲ WARNING	▲ WARNING	▲ WARNING	▲ WARNING	▲ WARNING
<p>Uncoupling will cause trailer to come loose from tow vehicle.</p> <ol style="list-style-type: none"> <li>1. CHECK that pintle LOAD RATING is same or greater than ring LOAD RATING.</li> <li>2. LOCK the clamp in place using a pin or lock.</li> </ol>	<p>ALWAYS use safety chains. Chains hold trailer if connection fails. You must:</p> <ol style="list-style-type: none"> <li>1. CROSS chains underneath coupler.</li> <li>2. ALLOW slack for trailer to turn.</li> <li>3. ATTACH chain hooks securely to tow vehicle frame.</li> </ol>	<p>Trailer can roll if it comes loose. Electric safety brake applies when cable pulls pin out of switch box.</p> <ol style="list-style-type: none"> <li>1. PULL hard to get pin out of switch box.</li> <li>2. CHECK brake by PULLING TRAILER with tow vehicle.</li> <li>3. ATTACH pin CABLE to tow vehicle so pin will be pulled out if trailer separates.</li> <li>4. Promptly REPLACE pin in switch box.</li> </ol>	<p>Lights can prevent trailer from being hit by other vehicles. You must:</p> <ol style="list-style-type: none"> <li>1. CONNECT trailer and tow vehicle electrical connectors.</li> <li>2. CHECK all lights: tail lights, turn signal, and brake lights.</li> <li>3. DO NOT TOW if lights are not working.</li> </ol>	<p>Tire, wheel or lug nut failure can cause loss of control. Before towing, you must CHECK:</p> <ol style="list-style-type: none"> <li>1. Tire pressure and tread.</li> <li>2. Tires and wheels for damage.</li> <li>3. Lug nuts for tightness.</li> </ol> <p>For new and remounted wheels, re-tighten lug nuts at the first 10, 25 and 50 miles of driving.</p>
 <p>Open clamp Pin in place Pin removed Closed clamp</p>	 <p>ATTACH TO TOW VEHICLE FRAME ENOUGH SLACK FOR TURN</p>	 <p>PIN PULLED OUT ONLY TO TEST BRAKES AT TOW VEHICLE TO TOW VEHICLE</p>	 <p>DISCONNECTED CONNECTED</p>	 <p>Lug Nuts TIGHT? Tires and Wheels OK? UT0038</p>

LV-1208

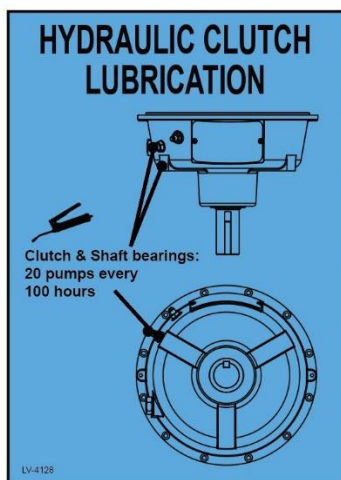
INDIVIDUAL DECALS SOLD SEPARATELY



BON-011376



LV-1680



LV-4128

10 WARRANTY



# WARRANTY

Issued: January 1, 2010

Bonnell Industries, Inc. warrants to the original purchaser that if any part of the product proves to be defective in workmanship or material within one year of the date of original installation and is returned to us freight prepaid within 30 days after such defect is discovered and notification thereof is provided Bonnell, we will either replace or repair the defective part (our option). This warranty does not apply to damage resulting from neglect, misuse, accident or improper installation or maintenance. Charges for field service, labor, or other expenses not previously authorized and approved in writing by Bonnell Industries, Inc. will not be accepted. This warranty is exclusive and in lieu of all other warranties whether expressed or implied. Bonnell Industries, Inc. neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with this warranty, and will not be liable for consequential damages. This warranty applies only to products made and/or supplied by Bonnell Industries, Inc. and does not apply to other products not made or supplied by us and to which our products may be attached, such as trucks. We accept no responsibility for damages to such other products, even if our product is alleged to have contributed to the damage of the other product.

Engines, drive line components, hydraulic, electrical, or other components furnished by other manufacturers and used with our products are warranted by that manufacturer and not by Bonnell Industries, Inc. the manufacturer's own warranty will apply to these parts. Hydraulic or electrical components are not to be disassembled without the express written permission of Bonnell Industries, Inc.

All defective parts returned from an end user must include the unit model, serial number, date installed, and dealer from whom purchased.

Bonnell Industries, Inc. reserves the right to make changes or improvements to its products without incurring any liability or obligation and without being required to make corresponding changes or improvements to products manufactured or sold prior to those changes or improvements.

The Bonnell Industries, Inc. Warranty Policy is subject to change without notice.

## Product Information

When ordering parts, please refer to the information below.

INSTALLATION DATE:

This product was manufactured by Bonnell Industries, Inc.,  
located at 1385 Franklin Grove Rd.,  
in the city of Dixon, Illinois, U.S.A.

MADE IN THE USA 