

PENBPAC IMPAC™

MAINTENANCE MANUAL



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Labrie **Enviro**quip Group



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IMPAC™

MAINTENANCE MANUAL



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Introduction

About this Manual

This manual is designed to help qualified maintenance personnel repair, service and maintain the IMPAC™.

What You Will Find in this Manual

This manual outlines maintenance procedures related to the lifting mast, body and packer components.

Topics not Included in this Manual

Maintenance of the chassis

This is dealt in the chassis manufacturer's service manual.

Cameras and backing-accident prevention systems

For these options, refer to the appropriate manufacturer's service manual.

Operating the IMPAC™

For procedures related to the operation of the IMPAC™, please refer to the Operator's Manual.

Parts and assemblies

For parts and assemblies found on the IMPAC™, along with their respective number for ordering purposes, please refer to the IMPAC™ Parts Manual.

About the Schematics

For schematics of all the body parts, refer to the IMPAC™ Parts Manual;

For frame schematics, refer to the schematics provided with your IMPAC™ unit;

For electrical schematics, refer to the schematics provided with your IMPAC™ unit;

For pneumatic and hydraulic schematics, refer to the schematics provided with your IMPAC™ unit.

NOTE: A number of system schematics are included in this manual.

Introducing the IMPAC™

The IMPAC™ is a side loading compaction system perfect for commercial side load containers. Thanks to its fully automated design and its large hopper area, it helps to keep overhead down allowing for more time spent picking up and less time dumping.

The IMPAC™ is a perfect solution for those seeking the most from their waste transportation systems. This commercial side loader has been developed based on years of experience and a wise choice of components. Everything has been foreseen to achieve excellent reliability while keeping construction simple yet robust.

The IMPAC™ is manufactured in a variety of capacities from 20 to 33 cubic yards. You also have a choice of right or left side pickup methods with many standard features that are usually optional on other vehicles.

The IMPAC™ is quick with cycle times less than 30 seconds when handling steel or plastic containers, from 24" to 55" in diameter.

The IMPAC™ arm motion is fluid and constant with smooth transitions on pickup loads of up to 400 gallons, reducing both driver fatigue and repetitive motion injuries due to rocking.

Warning

Your IMPAC™ unit **MUST BE COMPLETELY LUBRICATED** before its first use.

Initial lubrication carried out by Labrie Enviroquip Group is sufficient for production and transport purposes **ONLY**.

A Word about Safety

With your safety in mind, we would like to remind you that **ONLY QUALIFIED PERSONNEL** should service the hydraulic, electrical, and pneumatic systems on your side loader. In addition, they should also be fully knowledgeable of the operation of this unit. Please read the *Operator's Manual* carefully prior to attempting any maintenance work on your IMPAC™ unit.

Parts

Pendpac refuse vehicle parts are offered exclusively through LabriePlus and LabriePlus authorized dealers. The quality and reliability of Pendpac parts are second to none in the industry.

To Contact Labrie Plus

In the U.S.

Address: 1981 W. Snell Road
Oshkosh, WI 54904

Toll Free: 1-800-231-2771

Telephone: 1-920-233-2770

General Fax: 1-920-232-2496

Sales Fax: 1-920-232-2498

Parts and warranty: During business hours, 7:00 AM to 7:00 PM Central Standard Time

Technical Support Service: Available 24 hours

In Canada

Address: 175 Route du Pont
St-Nicolas, QC G7A 2T3

Toll Free: 1-877-831-8250

Telephone: 1-418-831-8250

Service Fax: 1-418-831-1673

Parts Fax: 1-418-831-7561

Parts and warranty: During business hours, 8:00 AM to 5:00 PM Eastern Standard Time

Technical Support Service: Available 24 hours

Website: www.labriegrup.com

E-mail (Sales Dept.): sales@labriegrup.com

E-mail (Customer Service): service@labriegrup.com

IMPORTANT: For technical support and parts ordering, the serial number of your vehicle is required. Therefore, Labrie Enviroquip Group recommends to keep record of the information found on the VIN plate, which is located in the cab.

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Safety

It is mandatory to read the entire *Operator's Manual* before performing any maintenance task on this vehicle.

Conventions

Danger!



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

Warning!



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

Caution!



Indicates a hazardous situation which, if not avoided, could result in **minor or moderate injury**.

Basic Safety Notions

The following safety notions are related to the use of the IMPAC™. It is important to point out that the safe use of the vehicle remains the user's responsibility. He must heed all safety notions explained in this manual and on the decals affixed to the vehicle.

Danger!



Always be aware of the vehicle's surroundings to make sure that no pedestrians, passersby, bystanders, or other people or vehicles are in any way exposed to any danger caused by the use of the IMPAC™.

Danger!

Never get in the packer area when the engine is running. Only authorized personnel may do so following a lockout/tagout procedure (see *Lockout/Tagout Procedure* on page 11). Failure to follow the lockout/tagout procedure may result in serious injury or death.

Responsibilities

Safety is everybody's responsibility. Both employer and employee must play their part to ensure the safety of the operator, the vehicle and its immediate surroundings.

Employer Responsibilities

It is the responsibility of the employer:

- ◆ To ensure that the IMPAC™ is operated in accordance with all safety requirements and codes, including all applicable regulations, the Occupational Safety and Health Act (OSHA), and the American National Standards Institute (ANSI).
- ◆ To ensure that employees are qualified for operating the vehicle and its equipment, and that they all take safety measures before using them.
- ◆ To properly maintain all mobile equipment to meet all state/provincial and federal safety standards.
- ◆ To provide employees with safety instructions and training (including manufacturer's procedures) on operation, maintenance, service, and repair of equipment.
- ◆ To monitor employee's operation (periodic and regular inspection) of equipment, including adherence to safety practices.
- ◆ To keep the vehicle maintained and properly adjusted to meet the manufacturer's standards and recommendations. For help or for more information, please contact the manufacturer or any of its authorized representatives.
- ◆ To keep records of all vehicle breakdowns and malfunctions, as well as any inspection and maintenance.
- ◆ To ensure that all failures or malfunctions that may be affecting the safe use of the vehicle are repaired before the vehicle is put back into operation.
- ◆ To meet the appropriate lighting requirements for night shift work (if permitted).
- ◆ To regularly accompany the vehicle operator and take measures to ensure the smooth and safe operation of the vehicle.
- ◆ To make sure that the backup alarm works properly when the vehicle is in reverse.
- ◆ To take necessary measures in response to any damage or malfunction reported by employees.
- ◆ To ensure the proper use of a "lockout/tagout" procedure (see page 11) any time inspection, repair or maintenance is performed on the vehicle, regardless of whether it takes place on the road or in the garage.
- ◆ To make sure the access door is maintained in place and equipped with a functioning safety interlock switch while vehicle is in use.

Safety Precautions for the Employee

As an operator or maintenance employee, it is your responsibility to follow these guidelines:

- ◆ Ensure that you have been provided with safe operating and/or maintenance service training and procedures by your employer prior to operating the vehicle or performing maintenance service.
- ◆ Carefully read this manual.
- ◆ Obey proper operating procedures, safety guidelines and warning decals.
- ◆ Use the vehicle only as intended.
- ◆ Perform a daily vehicle inspection that includes all operating systems, all vehicle safety equipment and safety decals. Ensure that the inspection is documented and bring any defects to the attention of your supervisor.
- ◆ Ensure the access door is latched with a functioning safety interlock switch.
- ◆ Make sure all safety interlock systems are functioning properly.
- ◆ Prior to operating the vehicle, ensure that all mirrors, windows and lights are clean and properly adjusted. Ensure that all cameras and monitors, if installed, are properly adjusted and function correctly.
- ◆ Do not operate machine in an unsafe manner.
- ◆ Use extreme caution when operating machine in dangerous areas such as: slopes, overhangs, high walls, ridges or ditches.
- ◆ During all phases of the collection process, ensure area is clear of persons.
- ◆ Instruct persons not to cross under open tailgate.
- ◆ Keep hands, floors, and controls free from water, grease, and mud to assure non-slip control.
- ◆ Do not leave machine unattended. All keys from the equipment control panel should be removed.
- ◆ Do not park vehicle with tailgate in the UP position.
- ◆ On your daily route, or during your service duties, stay safe; obey all safety decals and safe operating procedures. Watch for other people, obstructions and overhead hazards.
- ◆ Before moving or operating machine, including tailgate, make sure area is clear.
- ◆ Always utilize the vehicle's safety features, such as tailgate props.
- ◆ Before opening tailgate, make sure no one is behind the truck.
- ◆ Do not walk or stand under an open tailgate.
- ◆ Tailgate area must be clear before dumping.
- ◆ Shut down vehicle when cleaning, servicing, adjusting and lubricating equipment (see *Lockout/Tagout Procedure* on page 11).
- ◆ Be alert for falling or flying objects.
- ◆ Remember to wear all safety equipment prescribed by your employer (safety glasses, gloves, footwear, etc.).
- ◆ Enforce all safety measures to meet the requirements set by the employer.
- ◆ While machine is running, do not enter any pinch area. Do not enter refuse body.
- ◆ Your unit is equipped with proximity/limit switches to ensure your safety. Periodic inspection and testing of these switches are essential to prevent injury or death. **NEVER DISABLE OR BYPASS THESE SWITCHES.**

- ◆ Listen for strange or above normal sounds when machine is being moved or operated. Shut down machine when safe to do and report problems to your supervisor.
- ◆ Make sure that no one is near the vehicle before activating any of the controls, and be prepared to stop at any indication of possible danger.
- ◆ Sound horn before moving vehicle.
- ◆ Do not operate vehicle if gauges and indicator lights are not working properly.

IMPORTANT: Under no circumstances should you operate damaged or malfunctioning equipment. Report all malfunctions to your supervisor immediately.

IMPORTANT: Be extremely cautious in areas where small children may be present.

- ◆ When two or more people are testing a hydraulic system, be sure that each person is informed of the procedure to be followed. Avoid contact with rotating couplings between hydraulic motors, pumps, power-take-offs, etc.
- ◆ Hydraulic oil under pressure can be dangerous. Care should be taken when bleeding or opening a high pressure line (release pressure slowly), as a thin stream of oil can inflict injury. Unauthorized pressure settings of relief valves can burst lines, valves, pumps or cylinders.
- ◆ If repairing tailgate, packer panel, cylinders, mast, etc., provide proper supports or safety chains to prevent these heavy component parts from slipping or falling. This could cause damage to the unit and/or severe injury to the person making the repairs.

IMPAC™ Road Rules

Rule the road with safety. Stay safe and help keep those around you safe. Prior to performing your daily route, know and obey the route rules and regulations provided by your employer and follow these important guidelines. As an operator you should never do the following:

1. Drive with the tailgate raised.
2. Drive without the tailgate lock hooks in place or with the tailgate ajar.
3. Exit the cab without engaging the chassis parking brake.
4. Back up the truck while unloading refuse.
5. Raise the tailgate while on uneven ground.
6. Drive with the mast not securely fixed to the body.
7. Enter the main body unless the engine is shut off, the key is removed and there is an out-of-service tag on the steering wheel. Refer to “Lockout/Tagout Procedure” on page 11.

Safety Controls

Safety should be your number one priority. Before operating or servicing the IMPAC™, the operator/mechanic must be completely familiar with the location, operation and function of all controls and indicators related to the operation of the unit.

General Precautions

Warning!



Prior to its first use, your IMPAC™ *must be completely lubricated*. Initial lubrication carried out by Labrie Enviroquip Group is sufficient for production and transport purposes *only!*

Danger!



Do not ride, sit or stand on unit. Riding on unit could result in bodily harm or fatal injury. Use extreme caution when unit is in use or in motion.

Danger!



Operator and maintenance personnel must adhere to the following precautions *at all times*. Failure to do so may result in vehicle and/or property damage, personal injury, or even death.

- ◆ Only qualified personnel should service this vehicle, especially for the hydraulic, electrical and pneumatic systems. They should also be fully versed in operating the vehicle.
- ◆ Training is mandatory before operating and/or servicing the IMPAC™.
- ◆ Read and make sure that you fully understand this manual and all safety decals on the unit before performing maintenance on it. Maintenance personnel must also read and understand the IMPAC™ *Operator's Manual*. In case of doubt, ask a supervisor for clarifications.
- ◆ Before every work day, inspect body, packing and loading systems, and any system that might compromise public and/or operator safety.
- ◆ Check the accelerator pedal, the steering wheel, mirrors, brakes, lights, horns, tires, back-up alarms, turn signals, etc. for any malfunction or adjustment that needs to be corrected before vehicle is operated.
- ◆ Never operate the IMPAC™ with damaged or missing safety decals. Replace them immediately.
- ◆ When driving the vehicle, keep both hands on the steering wheel at all times.
- ◆ Before leaving the driving position, stop the vehicle completely and put on the parking brake.
- ◆ When the vehicle is parked, the parking brake *must* be applied.
- ◆ Always wear proper safety equipment when operating or servicing the unit.
- ◆ Before activating the tailgate, operators/mechanics shall make sure that people and obstructions are far away from the vehicle.
- ◆ Do not operate this vehicle if there are any signs of damage or incomplete repairs.
- ◆ Avoid operating the unit if excessive vibration is detected.
- ◆ Report any doubts that you might have and any safety service requirements regarding this vehicle to a supervisor.
- ◆ Do not operate the unit while under the influence of alcohol or medication.
- ◆ Do not run engine in an enclosed area.

- ◆ Do not place hands or feet near moving or rotating parts.
- ◆ For any maintenance, cleaning or inspection work, the vehicle *must* be on solid, level ground.
- ◆ If any safety devices such as proximity/limit switches are not in proper working order, the unit must be taken out of service until the device is properly repaired.
- ◆ Always check for damage or leakage. In case of damage/leakage, the unit must be taken out of service for immediate repair.
- ◆ Do not smoke near the vehicle.
- ◆ Do not get into the body or try to repair anything behind the packer when it is moving or when the hydraulic pump is still running. Personnel authorized to get into the body *must* first lock out and tag out the vehicle, as required by the employer. For more information, see *Lockout/Tagout Procedure* on page 11.
- ◆ Do not operate mast until you know it is clear.
- ◆ Do not leave unit unattended while in operation.
- ◆ Do not park unit on a slope.
- ◆ Follow PTO and engine manufacturer's operating and maintenance instructions.
- ◆ Often check fuel lines and fittings for cracks and leaks. Replace if necessary.
- ◆ Perform complete inspection of the unit before leaving the service garage.
- ◆ Mast and tailgate will fall if hydraulic pressure is lost. Do not walk or stand under the mast or tailgate.
- ◆ Be attentive to the surrounding area while collecting waste. Watch for pedestrians, animals and foreign material.
- ◆ Use a low speed range and periodic brake application to control unit speed when descending a steep slope.

Danger! Bodily injury or death will result if proximity switches are de-activated.



NOTE: Report any problems to your supervisor and **DO NOT OPERATE** this unit if not functioning properly. Contact Labrie Enviroquip Group if new switches or safety decals are needed.

Welding

Danger!



Remove paint before welding or heating. Do not weld near lines that are pressurized or contain flammable fluids.

Caution!



Disconnect all batteries and electronic modules prior to welding on packer body.

If welding hydraulic equipment, care should be exercised so that accumulated dirt and oil do not become ignited. Cleaning the area before welding would be a good practice. Keep fire extinguisher close to working area. Good housekeeping is a must.

Gasoline fuel tanks should be removed and located outside of the welding area. Diesel fuel tanks should be covered with a wet tarp to prevent fumes from causing an explosion or fire. If the battery of the truck is located near the repair area where sparks can fall on the battery, it is possible to blow up the battery from the acid fumes.

If it becomes necessary to weld or braze a hydraulic reservoir, hydraulic oil when sufficiently heated and in the presence of air is a powerful explosive. Any method of brazing, welding, or open flame soldering without proper preparation is hazardous.

Safety equipment should be worn when working under conditions that require its use.

Fire

The employer must inform and train all personnel on the measures that must be taken in case of a vehicle and/or body catching fire.

Anytime a loaded vehicle is *brought inside a garage*, fire extinguishers shall be close at hand.

Danger!



Do not perform any repair or maintenance on a vehicle that has not been unloaded.

The employer must also inform employees of an appropriate place to unload the body near the maintenance facility (preferably away from traffic, surface drains, and ditches).

Lockout/Tagout Procedure

The lockout/tagout procedure should be followed whenever you are inspecting, cleaning or repairing your IMPAC™.

Figure 2-1 Lockout/tagout tag


IMPORTANT: Failure to follow the lockout/tagout procedure may result in serious injury or death. Prior to performing work under the tailgate, it is necessary to set the tailgate prop. See *Setting the Tailgate Prop* on page 13.

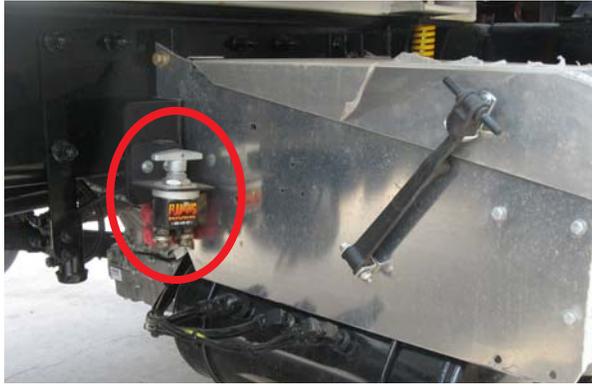
The following is the lockout/tagout procedure:

1. Set the chassis parking brake.
2. Turn off the hydraulic pump by pressing the Emergency Stop button.

Figure 2-2 Emergency Stop button


3. Activate one of the hydraulic controls to relieve any residual pressure in the system.
4. Turn off engine, remove keys from the ignition and store the keys in a safe, controlled area. It is recommended that you keep the keys on your person.
5. Place an Out-of-Service tag (see Figure 2-1) on the steering wheel using a non-reusable fastener and place an Out-of-Service sign in the front window.
6. Turn off the truck disconnect switch (see Figure 2-3).

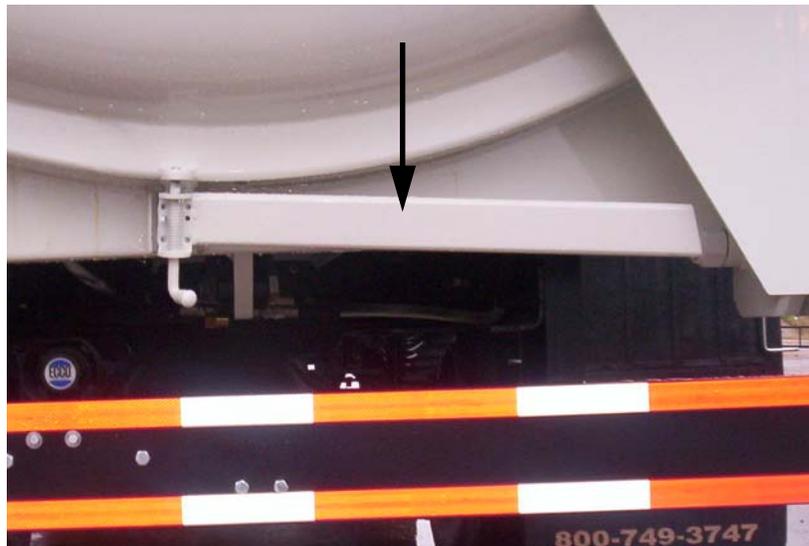
Figure 2-3 Truck disconnect switch



7. Chock the wheels.

Setting the Tailgate Prop

Figure 2-4 Tailgate prop



NOTE: Never walk or work under the tailgate without first positioning the tailgate prop!

To set the tailgate prop:

1. Ensure that there is adequate clearance behind the vehicle to open the tailgate.
2. Open the tailgate by approximately 3 feet (.91 M).
Hooks will automatically disengage to let tailgate move outward.
3. Unlatch prop from its stored position and swing into the open position. Reset the latch.
4. Close the tailgate as much as possible. Prop should fit securely into the tailgate prop socket.

5. Complete the lockout/tagout procedure before working under propped tailgate. Refer to “Lockout/Tagout Procedure” on page 11.

Tailgate Lock Hooks



The tailgate lock hooks, one on each side, are automatically engaged when the tailgate is closed. This is to prevent unintentional opening of the tailgate, which could cause serious damage to the tailgate.

Shut Down Procedure

If your IMPAC™ is parked for an extended period of time, follow the chassis manufacturer’s shutdown procedure and ensure that their maintenance requirements are met.

Also, apply the following procedure:

1. Park your IMPAC™ on hard level ground.
2. Apply the parking brake.
3. Make sure that all moving parts (tailgate, packer panel, mast, etc.) are in their “home” position.
4. Turn off the hydraulic pump.
5. Turn off the electrical system.
6. Turn off the engine.
7. Turn off the truck disconnect switch (see Figure 2-3).

Prior to Start Up

Before starting the IMPAC™, ensure that no system will engage and begin to operate as you are starting the engine. All electrical controls should be turned off and the hydraulic pump disengaged.

The main valve on the hydraulic suction line must be open (see Figure 2-5).

Figure 2-5 Main valve on suction line



3

Maintenance

Danger!



Always lock out and tag out the vehicle when inspecting or performing maintenance on it (see *Lockout/Tagout Procedure* on page 11).

Always maintain cleanliness of the truck for safety and better performance.

As such:

- ◆ Clean all vehicle lights, warning lights and safety decals so that you and anyone in the vehicle's surroundings (pedestrians/other drivers) are safe at all times.
 - ◆ Clean battery and connections.
 - ◆ If required, clean engine radiator properly.
 - ◆ Clean hopper and radiator screens.
 - ◆ Remove all accumulated waste behind the packer panel. Use pressurized water if needed.
 - ◆ Clean out the air filter housing once a week.
 - ◆ Pre-cleaner should be cleaned daily.
 - ◆ The instrument panel and circuit board should be cleaned daily using compressed air.
 - ◆ Remove debris and oil from boom solenoid and pump each day.
 - ◆ Clean hydraulic pump motor and connections.
 - ◆ Make sure the cab steps are clean and free of any slippery material.
-

Danger!



Use a stepladder to reach higher parts of the vehicle. Be extremely cautious if you have to work on the roof.

Caution!



Keep the cab floor dry and clean to prevent slippage and accidents.

Caution! For maintenance procedures not covered in this manual, please consult Labrie*Plus* (see contact information on page 3).



Warning! Maintenance or repair that is not properly done may result in equipment damage and/or personal injuries.



Hydraulic System

As with all hydraulic systems, it may be necessary to periodically check and adjust the pressure relief settings. It may be that a major hydraulic component has been changed, that the vehicle is not performing in terms of payload, or that the vehicle has recently been put into service and the system requires adjustment following a run-in period.

Danger! Always lock out and tag out the vehicle when inspecting or performing maintenance on it (see *Lockout/Tagout Procedure* on page 11).



Danger! Human skin can be easily penetrated by high pressure oil (2,000 psi and above). Failure to take appropriate safety precautions may result in serious injury or death.



Danger! Because of extreme overhead dangers, equipment must be properly supported when servicing sections on the hydraulic system.



NOTE: The ball valve on the hydraulic tank must be completely open before engaging the pump or starting the engine.

Labrie Enviroquip Group requires that the hydraulic fluid and return oil filter be changed and that the strainer be cleaned before changing the hydraulic pump.

Manufacturer's warranty on hydraulic pumps provided or sold by Labrie Enviroquip Group could be declared void if the hydraulic fluid and return oil filter are not changed, and if the strainer is not cleaned prior to replacing the hydraulic pump.

Therefore, it is mandatory to change the return oil filter and clean the strainer after the *first* 50 hours of use and then once a year. The hydraulic fluid must be changed once a year. Hydraulic fluid contamination will severely damage hydraulic components.

It is recommended to have the hydraulic fluid tested and analyzed by a lab to prevent hydraulic system or pump breakdown. This will also optimize the frequency of hydraulic fluid changes.

NOTE: Evidence of maintenance and/or fluid samples could be requested when filing warranty claims concerning the hydraulic system or the pump.

Inspecting the Pump

The IMPAC™ may have a standard front-mounted pump which is engine-powered or an optional PTO-mounted pump which is powered by the vehicle transmission. The pump should be visually inspected every working day.

Figure 3-1 Front-mounted pump (left)/pto-mounted pump (right)



When inspecting the pump:

1. Start the engine and engage the hydraulic pump.
The pump should turn freely without excessive noise or vibrations.
2. Check for oil leaks under the pump and at connection points.

Priming a New Pump

To prevent cavitation or air in the hydraulic system after installing a new pump or even when flushing the hydraulic system, make sure to prime the pump before starting the engine.

Apply the following procedure for any new installed pump:

1. Make sure the parking brake is applied and the vehicle is tagged out for maintenance purposes (refer to “Lockout/Tagout Procedure” on page 11).

Danger!

Apply the lockout / tagout procedure at all times when maintenance or inspection is carried out on the unit.

2. With the ball valve closed, fill the suction line before installing it on the pump.
3. Fill the pump housing with new oil.
4. Reinstall the pressure hose on the pump housing.
5. Open the ball valve on the suction line.
6. Crank the engine repeatedly — about five times — without letting it start in order to fill the suction hose and the pump with hydraulic oil and to push the air back into the tank.
7. Start the engine. You can slowly raise the engine RPM only after 5 minutes. When you raise the RPM, always make sure that the pump does not make excessive noise.
8. Before putting the vehicle back in service, recalibrate the system pressures.

Pump Cavitation

Cavitation is defined as the formation of air pockets in a moving fluid. Air in the hydraulic oil causes excessive wear and noise. Make sure to prime the pump properly after its replacement or after flushing the hydraulic system (refer to “Priming a New Pump” on page 19). When the pump is properly primed, cavitation disappears after a short period of time because air is returning to the hydraulic tank.

If the pump is still generating unusual noise after performing the priming procedure, you will have to bleed the hydraulic system.

To do so:

1. Apply all safety measures to ensure safety around the vehicle at all times.
2. If not already installed, connect a 0–3,000 psi gauge to the main valve to ensure that no pressure has built up in the system (see Figure 3-2).
3. Apply the parking brake and start the engine.
4. Engage the hydraulic pump.
5. Place a rag around the plug located on the output section of the main control valve and slowly loosen the plug (see Figure 3-3).

A mixture of oil and air will come out. Keep bleeding the oil until the pump noise stops.

Figure 3-2 Gauge installed on main valve

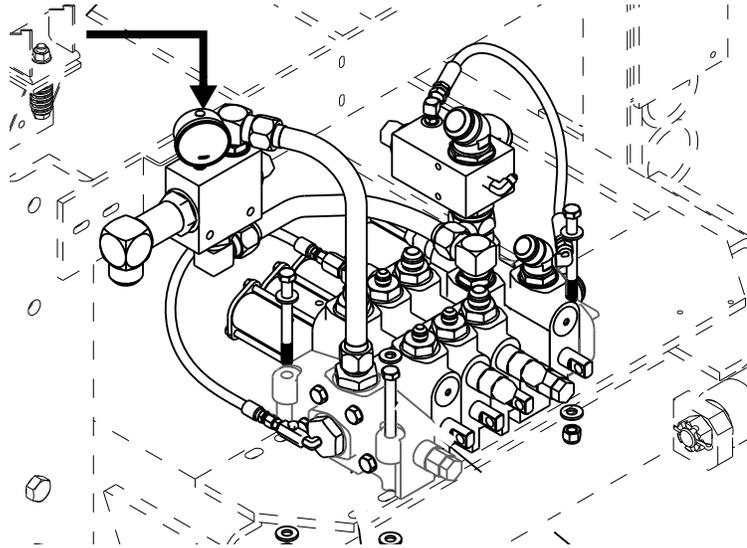
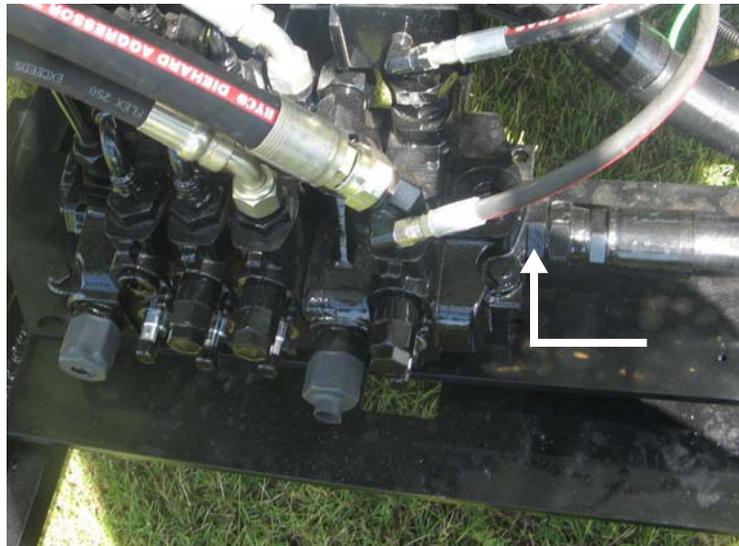


Figure 3-3 Plug to loosen



IMPORTANT: Do not activate any hydraulic function during system bleeding.

6. When the noise stops, tighten the pipe/hose fitting.
7. Cycle the packer to ensure that there are no leaks and the pump is running smoothly.
8. Disconnect the gauge, if not permanently installed.

Inspecting the Hydraulic Tank

Verify that the oil in the tank is clean (not colored) and always at the appropriate level.

Caution! Maximum temperature for hydraulic oil is 77 °C (180 °F).



To inspect the hydraulic tank:

1. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 11).
2. Clean the strainer and replace the filter element inside the tank after the first 50 hours of service (see *Cleaning the Strainer* on page 24 and *Replacing Filter Elements* on page 24).

Figure 3-4 Filter housing element



3. Make sure that the hydraulic oil is clean (not colored) and at least at $\frac{3}{4}$ on the oil level gauge (with all cylinders retracted) [see Figure 3-5].

The complete system requires between 50 and 60 gallons of oil.

Figure 3-5 Oil temp/level gauge



Emptying the Hydraulic Tank

To empty the hydraulic tank:

1. Prepare the vehicle:
 - 1 a. Apply the parking brake
 - 1 b. Start the engine
 - 1 c. Engage the hydraulic pump
 - 1 d. Retract all cylinders (packer, tailgate locking mechanism, etc.)
 - 1 e. Disengage the hydraulic pump
 - 1 f. Stop the engine
2. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 11).
3. Clean around the filler cap and remove it.

Caution! Some hydraulic tanks are pressurized (from 3 to 5 psi). Open the filler cap slowly.



-
4. Place a clean container (minimum capacity: 60 gallons) under the drain plug.
 5. Remove the drain plug under the tank and let the tank drain completely.
 6. Reinstall the drain plug.

Cleaning the Strainer

To clean the strainer:

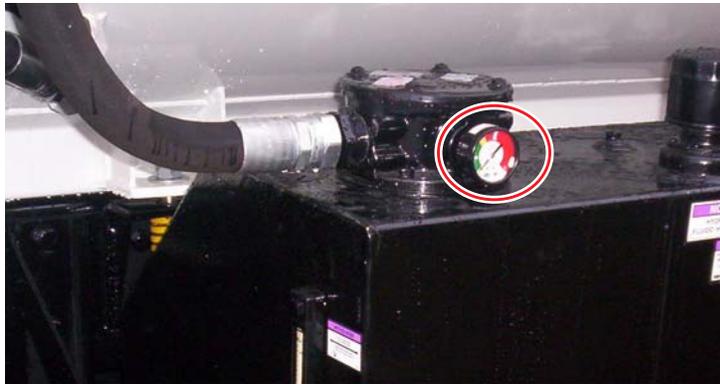
1. Empty the hydraulic tank (see *Emptying the Hydraulic Tank* on page 23).
2. Remove the hose clamp from the suction hose.
3. Slide the hose over the pipe until it clears the nipple (slide towards the frame of the vehicle).
4. Remove the strainer from the tank port.
5. Clean the strainer using solvent, and check for damage; replace if necessary.
6. Replace the seal (if necessary).
7. Re-install the strainer.

Replacing Filter Elements

IMPORTANT: To protect new components of the hydraulic system, the return filter element must be changed after the *first 50 hours of operation of the vehicle. Change the element twice a year afterwards.*

The filter restriction indicator will indicate, when the engine is running, if the filter needs to be changed (see Figure 3-6). Replace the filter before the indicator reaches the red zone. This will keep the oil clean, extend component life expectancy and reduce failures.

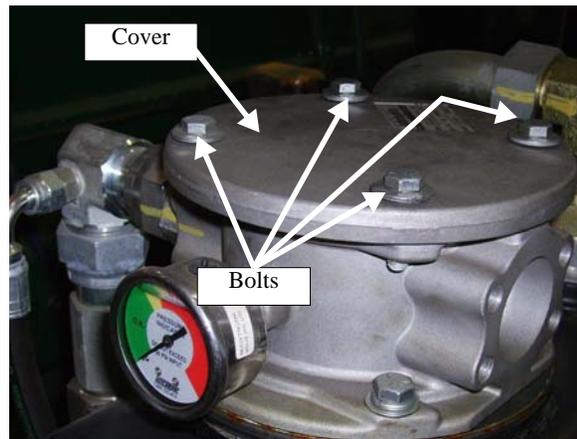
Figure 3-6 Filter restriction indicator (steel tank)



To replace the hydraulic filter:

1. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 11).
2. Prepare a pan or a bucket to collect the oil that will come out of the filter housing (two gallons of oil).
3. Remove all 4 filter head cover bolts (see Figure 3-7).

Figure 3-7 Filter head cover and retaining bolts (rectangular tank)



4. Replace the filter element with a new one.

Figure 3-8 Filter element



5. Reinstall the filter head cover.

Replacing Hydraulic Oil

Caution!



Highly contaminated hydraulic fluid must be changed promptly to avoid damaging the hydraulic system.

To do so:

1. Empty the hydraulic tank (see *Emptying the Hydraulic Tank* on page 23).
2. Clean the strainer (if necessary) [see *Cleaning the Strainer* on page 24].
3. With a clean dry cloth attached to a stick, remove all metal particles and debris accumulated at the bottom of the hydraulic tank:

- 3 a. Remove the screws retaining the access panel.
- 3 b. Insert your hand inside and clean the interior with a dry clean cloth.
4. Change the return filter element (see *Replacing Filter Elements* on page 24).
5. Using a filtering screen, refill the tank with high-quality oil until it reaches the $\frac{3}{4}$ mark on the oil gauge.

The entire system will require between 50 and 60 gallons of hydraulic oil.

Caution! It is not recommended to mix different brands and/or grades of oil in the hydraulic tank.



-
6. If the suction line has been replaced, fill the line until oil reaches the pump (see *Pump Cavitation* on page 20).
 7. Reinstall the filler cap and fully open the ball valve.

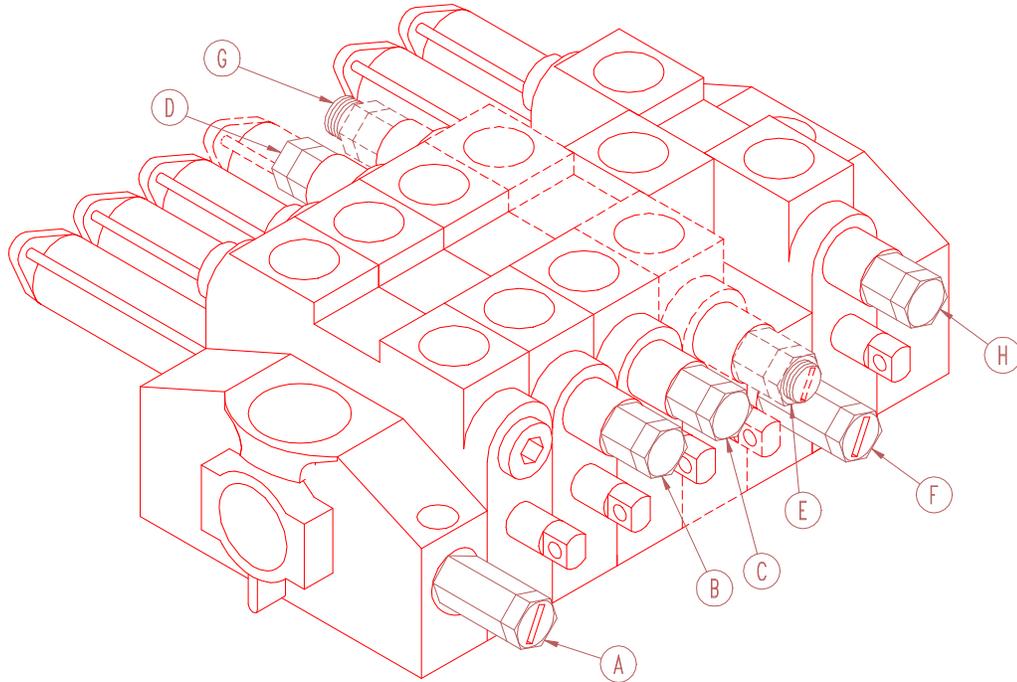
Caution! Failure to open the ball valve may seriously damage the pump and the hydraulic system.



-
8. Start the engine.

Pressure Settings

Figure 3-9 Main valve



NOTE: OPTIONAL GRABBER SECTION DEPICTED WITH DASHED LINE.

Caution!

Excessive pressures will cause damage to components and can cause injury to persons. Read instructions carefully!



Caution!

If equipped with a grabber arm attachment, the grabber arms should remain closed at all times. Personnel should be aware of moving parts at all times.



NOTE: All pressure settings in this system require that:

1. The system is activated (main switch pulled up) and PTO, if employed in the system, is engaged.
2. When making pressure reading, the engine speed should be 1200 - 1400 RPM unless otherwise specified.
3. All pressures can be read on the pressure gauges located on the valve body or control box

outside.

A. Main Inlet Relief Valve Setting

To set the main inlet relief valve:

1. Loosen jam nut on adjustment “A” (see Figure 3-9).
2. Hold the TAILGATE lever to the closed position and verify that the tailgate is fully closed.
3. With the TAILGATE lever continuously held in the closed position, increase engine RPM to between 1200 - 1400 RPM.

NOTE: Recommended pressure is 2500 ± 50 PSI. Adjust “A” as required.

4. After setting pressure, tighten adjustment jam nut and repeat steps 2 and 3 to verify pressures. Re-adjust as required.

NOTE: Units are equipped with non-adjustable work port reliefs in the IN, UP and DOWN hydraulic circuits. The pressures for these three functions are factory set, but can be verified by performing steps 1, 2, and 3 of items B, C, and D.

B. “IN” Pressure Relief Adjustment

To adjust the “IN” pressure relief:

1. Have operator activate the IN/OUT control lever to “OUT” until the IN/OUT cylinder is extended (mast extended away from body).
2. Continue to hold the control lever in the “OUT” position and increase the engine speed to 1200 - 1400 RPM.
3. Recommended pressure is 2100 ± 50 PSI.

Caution! The lift should be fully extended for adjustment steps C and D.



C. “UP” Pressure Adjustment

To adjust the “UP” pressure:

1. Have operator activate the UP/DOWN control lever to the “UP” position.
2. Continue to hold the control lever in the “UP” position and increase engine speed to 1200 - 1400 RPM.
3. Recommended pressure is 2000 ± 50 PSI for 30” reach and 1700 ± 50 PSI for 48” reach.

D. “DOWN” Pressure Adjustment

To adjust the “DOWN” pressure:

1. Have operator activate the UP/DOWN control lever to the “DOWN” position.

2. Continue to hold the lever in the “DOWN” position and increase engine to 1200 - 1400 RPM.
3. Recommended pressure is 2000 ± 50 PSI for 48” reach and 1700 ± 50 PSI for 30” reach.

NOTE: If unit is not equipped with a grabber arm attachment, proceed to item “F”.

E. Grabber Arm Pressure Adjustment

To adjust the grabber arm pressure:

1. Have operator close grabber arms and hold lever in the “GRAB” position.
2. With engine at idle, the recommended pressure is 1300 ± 50 PSI.
3. Adjust pressure adjustment “E” as required (see Figure 3-9).
4. Have operator open grabber arms and hold lever in the “RELEASE” position.
5. With engine at idle, the recommended pressure is 1000 ± 50 PSI.
6. Adjust pressure adjustment “G” as required (see Figure 3-9).

F. Compact and Timer Pressure Switch Adjustments

NOTE: For the following procedure, it is recommended that it is done by two persons. Adjustments need to be completed correctly as machine failure, personal injury, or death could result if improperly done (see *Proximity and Limit Switches* on page 48 for description of and how to adjust pressure limit/proximity switches).

To adjust the compact and timer pressure switches:

1. Open the cover on the chassis mounted control box located on the outside of the truck near the IMPAC™ control valve body. Exercise care not to drop anything into it or short any electrical connections.
2. Start engine, engage PTO, and increase engine RPM to 1200 - 1400 RPM.
3. Open the tailgate and fully extend the packer.
4. Block the tailgate proximity switch so that the indicator in the cab shows that it is closed.
5. Have the operator depress the COMPACT button.
6. Decrease engine RPM to idle, disengage PTO, and shut off engine.
7. Repeat Step 2 and set the compact pressure on the pressure limit switch to 2150 ± 50 .
8. With the packer at full compact, adjust the pressure limit switch which controls the timer to approximately 2100 ± 50 PSI.
9. Adjust the limit switch so that the timer disengages (Increase Pressure), then turn back until the timer has just engaged (Decrease Pressure).

NOTE: The packer panel must begin to return after 3 seconds.

G. Mid-Inlet Pressure Adjustment

To adjust the mid-inlet pressure:

1. Open tailgate and extend packer until fully extended.

2. Have operator turn the EXTEND/RETRACT button to “EXTEND” and hold.
3. Increase engine speed to 1200 - 1400 RPM.
4. Adjust “F” as required (see Figure 3-9). Recommended pressure setting is 2450 ± 50 PSI.
5. Tighten jam nut on adjustment “F”.
6. Repeat steps 3 and 4 to verify pressure again. Re-adjust as required.

Inspecting Hydraulic Cylinders

Danger!



Always lock out and tag out the vehicle when inspecting or performing maintenance on it (see *Lockout/Tagout Procedure* on page 11).

You must inspect the hydraulic cylinders at least once a month.

When you do so:

1. Make sure that the ball valve on the suction line is completely open before starting the engine.

Warning!



Failure to open the ball valve may damage the hydraulic system.

2. Make sure that connections between all hoses and pipes are tight, and that no oil is leaking. Leaking or otherwise faulty cylinders must be repaired or replaced immediately.
3. Make sure that all cylinder caps are firmly set and that there are no leaks.
4. Using a straight edge, make sure that cylinder rods are straight.
5. Lubricate and inspect all cylinder mounting points (pins, retaining bolts, etc.).

Detecting Cylinder Internal Leaks

An internal leak is caused by a damaged seal inside the hydraulic cylinder (see no 1 in Figure 3-10). Because the cylinder is leaking oil inside (bypassing), a certain amount of pressure is lost, reducing the efficiency of the cylinder and its capacity to push and/or pull.

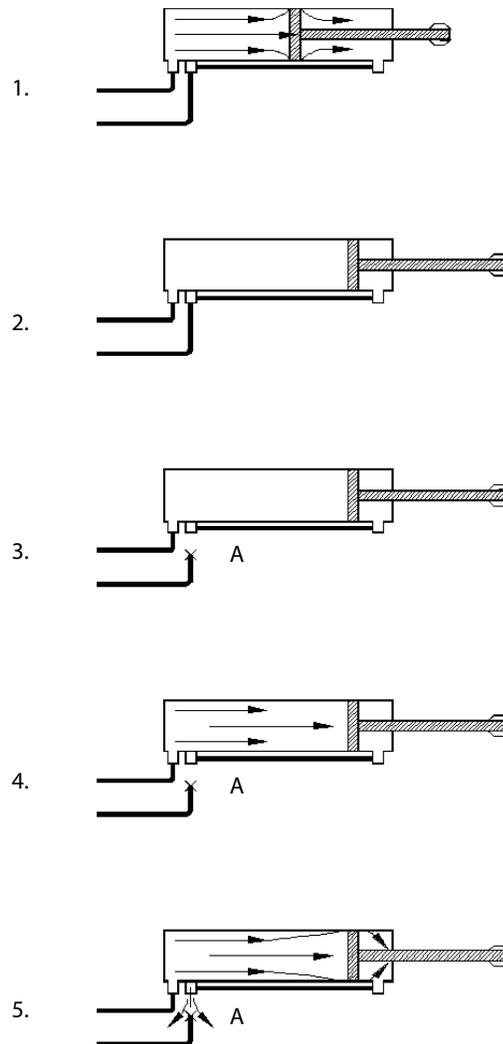
If the packer cylinders are bypassing, the seal inside the cylinders may need to be replaced.

To detect internal leaks in packer cylinders:

1. Apply all safety measures, and set the parking brake.
2. Start the engine and engage the hydraulic pump by pulling up the red Emergency Stop button on the in-cab control box (see page 30 in the *Operator's Manual*).
3. Fully extend the packer cylinder (see no 2 in Figure 3-10), then disengage the hydraulic pump by pressing the red Emergency Stop button.

4. Disconnect and plug hose “A” (see no 3 in Figure 3-10).
5. Engage the hydraulic pump by pulling up the red Emergency Stop button.
6. Push the packer button (see no 4 in Figure 3-10) and see if oil is leaking from port “A” (see no 5 in Figure 3-10), then push the red Emergency Stop button to disengage the hydraulic pump. If oil leaks out of port “A” when pressure is applied, there might be an internal leak; replace or repair the faulty cylinder.

Figure 3-10 Detecting cylinder internal leaks



Servicing Truck Chassis

For servicing the truck chassis, refer to the service schedule recommended by the truck chassis manufacturer.

Servicing Auxiliary Engines

Refer to the service schedule recommended by the engine manufacturer. You will also find some of the more critical items relisted in the Central Tank system schedule.

Servicing IMPAC™ System

Service periods referred to in this manual should be related to hours of service.

Daily service should be done after eight (8) hours or one shift of operation.

Weekly service should be done after forty (40) hours or five (5) shifts of operation.

MAINTENANCE	INTERVAL				
	Daily	Weekly	Every 2 Weeks	Monthly	Yearly
Drive Shaft:					
Check all drive shafts, universal joints, and attaching bolts (including PTO).	X				
Visually inspect drive shafts and report defects immediately.	X				
Mast and Mast Frame:					
Lube mast.	X				
Lube frame.	X				
Lube optional attachments.	X				
Check tightness of cam followers and nuts.	X				
Check tightness of all mast hanger bolts.	X				
Check all pivots and hydraulic pressure.	X				
Limit/proximity switches:					
Proper adjustment of all limit/proximity switches is imperative.		X			
Check and clean area around switches.	X				
Lubrication:					
Lubricate the packer and its accessories.	X				
Lube tailgate hinge.		X			

MAINTENANCE	INTERVAL				
	Daily	Weekly	Every 2 Weeks	Monthly	Yearly
Lube tailgate lock shaft.		X			
Clean and lube the limit wheel on the top of the body.		X			
Lubricate main shaft bearings.	X				
Lubricate PTO bearings (if installed).	X				
Battery:					
Ensure battery cables are not coming in contact with an area that could rub through the insulation.				X	
Clean and check battery and connections.		X			
Operator control:					
Check for proper operation.	X				
Air tanks:					
Drain.	X				
Air system:					
Check for leaks.		X			
Safety systems:					
Check for proper operation (tailgate, alarm and special devices).		X			
Engine:					
Check engine oil level.	X				
Check coolant level.	X				
Check engine as described in the engine owner's manual.	X				
Ejection mechanism:					
Check cylinder for leaks. Repair or replace if required.		X			

MAINTENANCE	INTERVAL				
	Daily	Weekly	Every 2 Weeks	Monthly	Yearly
Check pressure. Adjust if necessary.				X	
Wiring System:					
Check for damaged harnesses and/or bad connections.					X
Compactor:					
Lube skid track.	X				
Hydraulic System:					
Check oil level in tank, and refill if necessary.	X				
Check all hoses for leaks.	X				
Check if the shut-off valve is open on main tank.	X				
Check on ground for overnight leaks.	X				
Check cylinders, pumps, control valve and system for leaks. Repair or replace if required.		X			
Clean strainer and refill.					X
Check pressure.				X	
Change hydraulic system filter after the first forty (40) hours of operation ^a .		X			
Hopper area:					
Clean dirt under or behind the compactor.	X				
Electrical Wire:					
Check for bare spots or broken wires.	X				
Check connections.	X				
Body:					
Check for corrosion.				X	

MAINTENANCE	INTERVAL				
	Daily	Weekly	Every 2 Weeks	Monthly	Yearly
Visual inspection:					
Packer wear pads, hydraulic cylinders and cylinder pins, hoses, pipes and connections, wear of floor and hopper sides.	X				
Others:					
Check all nuts and bolts for tightness.	X				
Inspect radiator for leaks and trash build-up. Clean radiator screen.	X				
Check air intake filter.	X				
Check fuel filter sediment bowl.	X				
Inspect intake and exhaust hoses.		X			
Inspect all ducts for damage.		X			
Inspect fuel lines for leaks or wear.			X		
Check/clean pre-filter.	X				

a. Change on a 13-week (or 520-hour) schedule thereafter.

Lubrication

LUBRICATE, LUBRICATE, LUBRICATE!

Insufficient lubrication is a major cause of component failure on all refuse vehicles. The IMPAC™, like most equipment, has many points that require grease.

Lubricating the IMPAC™ as part of the regular maintenance is a very important task to ensure its efficiency and durability. Keeping the IMPAC™ lubricated is essential for optimal operation.

Caution! Remove the negative battery terminal before performing any lubrication procedures.



Warning! The Safety section of this manual and the Operating section of the IMPAC™ *Operator's Manual* must be thoroughly read and understood before performing any lubrication procedures.



IMPORTANT: Bearings must always be lubricated at the end of each day of work. Also, thorough lubrication is required before extended shutdown or storage.

Approved Lubricants:

Hydraulic system - Type "AW" or I.S.O. grade 32.

S.U.S. @ 100° F __155; @ 210° F __44

Pour point -25° F

Mast, compactor, and other body parts - Use the same lubricant recommended by your chassis manufacturer.

Engine Oil

Refer to the engine manufacturer's maintenance manual for recommended type of engine oil.

Transmission Oil

Refer to the transmission manufacturer's maintenance manual for recommended type of transmission oil.

Type of Grease to be Used

Any lithium-base commercial multipurpose grease may be used.

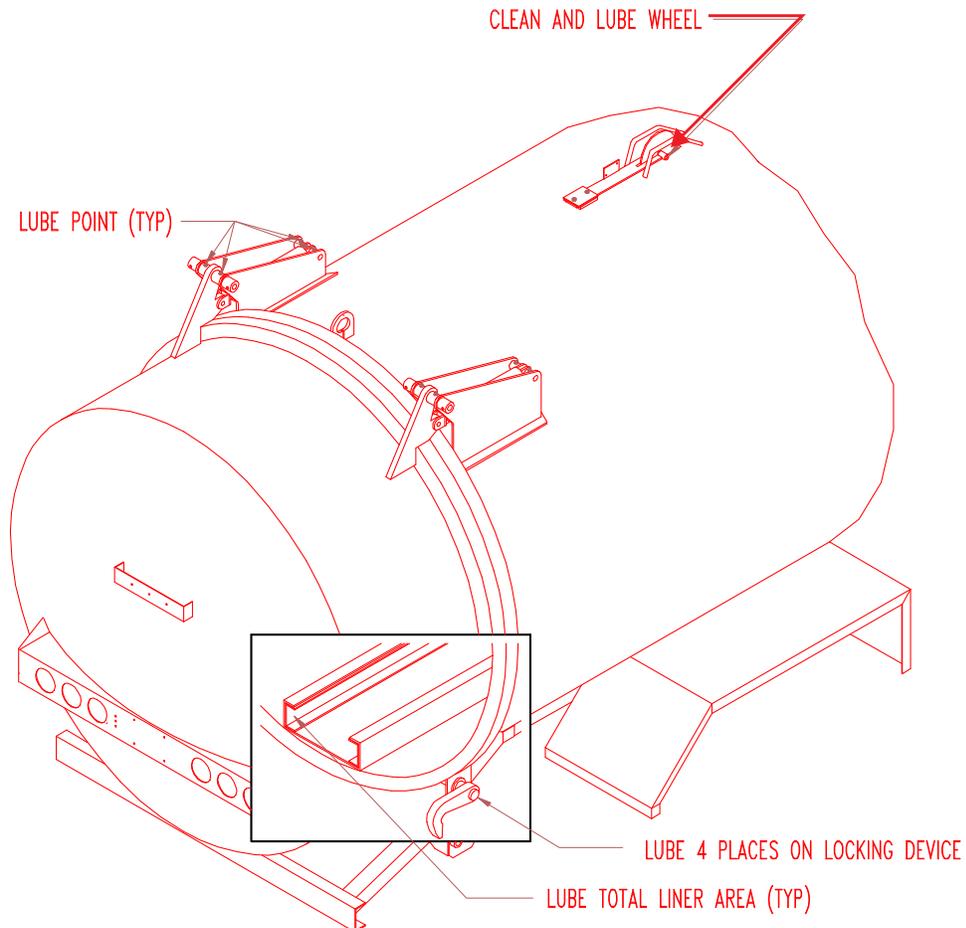
Caution!



Do not mix different types of grease. In doubt, purge the old grease before using a different type of grease.

Lubrication Points on Dump Body

Figure 3-11 Body group



NOTE: Liner area is only lubricated for break-in point. No lubrication should be done afterward.

Packer Lubrication Points

Caution! Because of their intensive use, the packer and its accessories must be lubricated every working day.



Caution! Before you proceed with lubrication, make sure all safety measures have been properly taken.



Tailgate

Greasing Tailgate Hinges and Locking Mechanism

It is important to lubricate the tailgate hinges, and locking mechanism with multi-purpose grease as per the lubrication schedule.

Caution! Excessive wear might compromise the proper working condition of the tailgate.



Also, inspect the welds around hinges. The proper working condition of the following components is also to be checked:

- ◆ Tailgate hydraulic cylinders
- ◆ Cylinder pins and circlips
- ◆ Tailgate hinges and pins
- ◆ Wear on the locking mechanism
- ◆ Wear on the tailgate lock pins
- ◆ Tailgate rubber seal

Danger! Do not operate this equipment if there are any signs of damage or incomplete repairs.



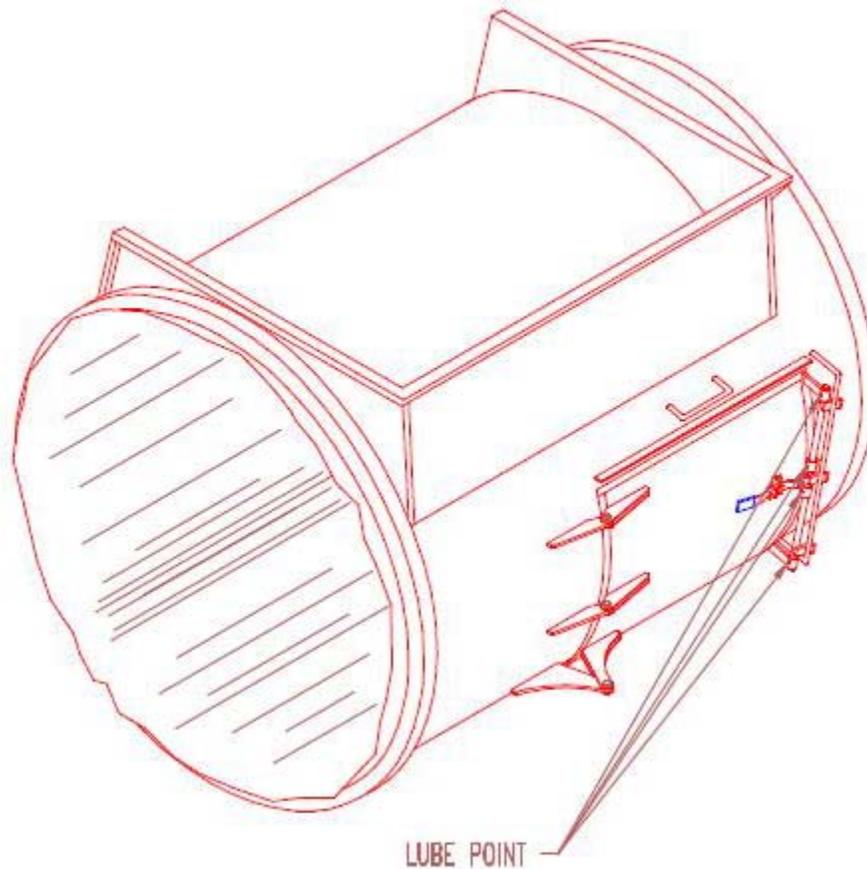
Access Door Hinges

To protect and reduce wear on access door hinges, lubricate them regularly with multi-purpose grease.

To lubricate the access door hinges:

1. Disengage the hydraulic pump by pressing the red Emergency Stop button on the in-cab control box.
2. Turn off the engine.
3. Proceed with the lockout procedure. See *Lockout/Tagout Procedure* on page 11.
4. Fully open the access door.
5. Locate the grease fitting on top of each door hinge.
The access door has 3 hinges.
6. Apply lubricant with a grease gun.
7. Close the access door.

Figure 3-12 Access Door



Mast and Lifting Attachments

Caution! Because of their intensive use, the mast and lifting attachments must be lubricated every working day.



Caution! Before you proceed with lubrication, make sure all safety measures have been properly taken.



To lubricate the mast and lifting attachments:

1. Start the engine and engage the hydraulic pump by pulling up the red Emergency Stop button on the in-cab control box.

2. Extend the mast.

Caution! Make sure that no one is around the mast area before moving or operating this mast. Failure to do so may result in severe injury or even death.



-
3. Disengage the hydraulic pump by pressing the red Emergency Stop button on the in-cab control box.
 4. Turn off the engine.
 5. Proceed with the lockout procedure. See *Lockout/Tagout Procedure* on page 11.
 6. Locate the grease fittings on various parts of the mast and mast frame (see Figure 3-13).

Caution! Be careful when moving around the mast. Failure to do so may result in severe injury.



-
7. Apply lubricant with a grease gun.

NOTE: If the mast is fitted with a grabber, lube points of this grabber must also be greased regularly.

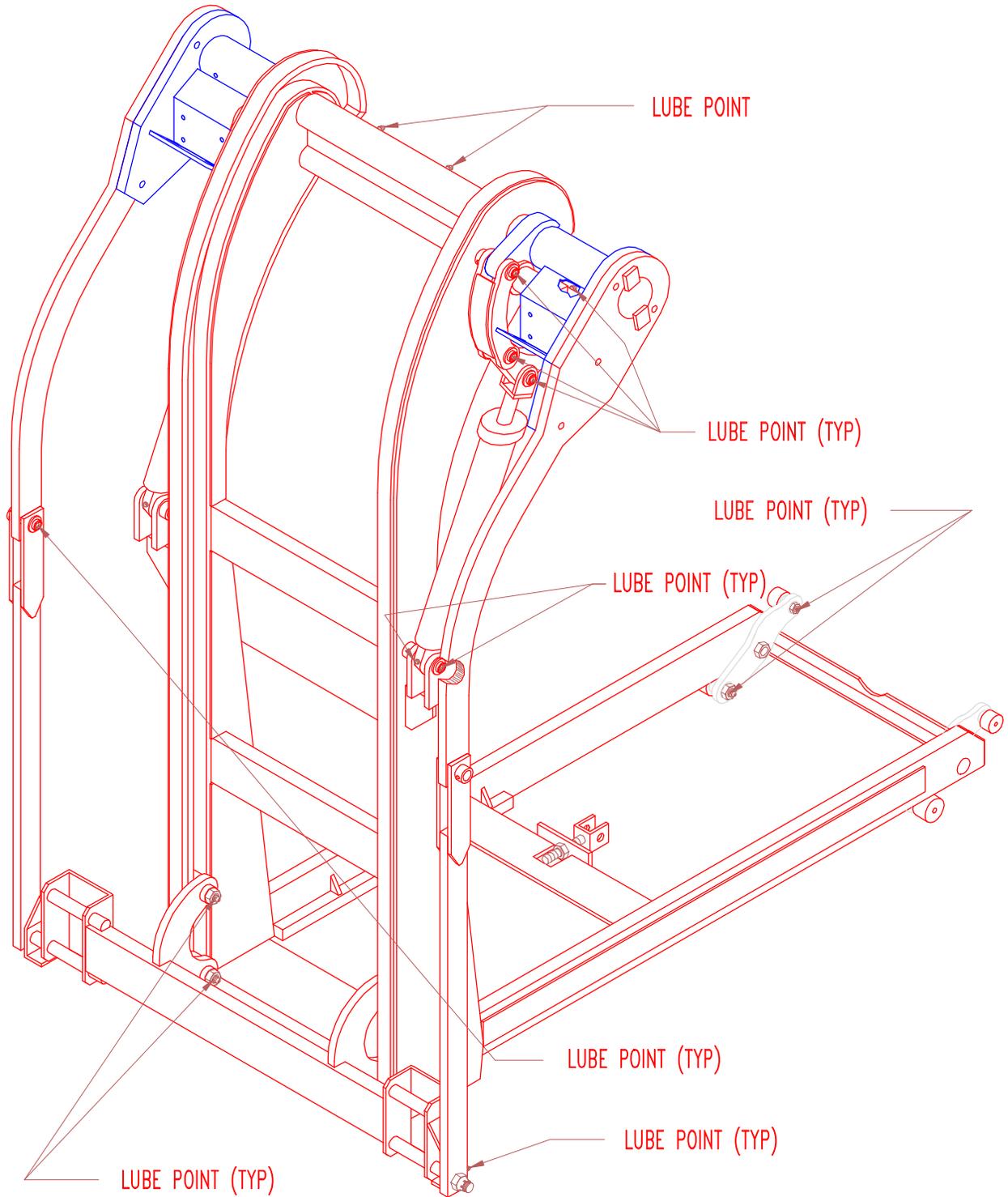
-
8. Once the lubrication process is completed, fully retract the mast. To do so:
 - 8 a. Start the engine.
 - 8 b. Engage the hydraulic pump by pulling up the red Emergency Stop button.
 - 8 c. Move the mast backwards until it touches the side of the dump body.

Caution! Make sure that no one is around the mast area before moving or operating this mast. Failure to do so may result in severe injury or even death.



-
- 8 d. Disengage the hydraulic pump by pressing the red Emergency Stop button.
 - 8 e. Turn off the engine.

Figure 3-13 Mast lube points



Packer Maintenance

Just like lubrication, packer maintenance is valuable in that it helps reduce the probability of failure or the degradation of this equipment. It also helps the packer last longer and function properly.

Warning!



The Safety section of this manual and the Operating section of the IMPAC™ *Operator's Manual* must be thoroughly read and understood before performing any maintenance procedures.

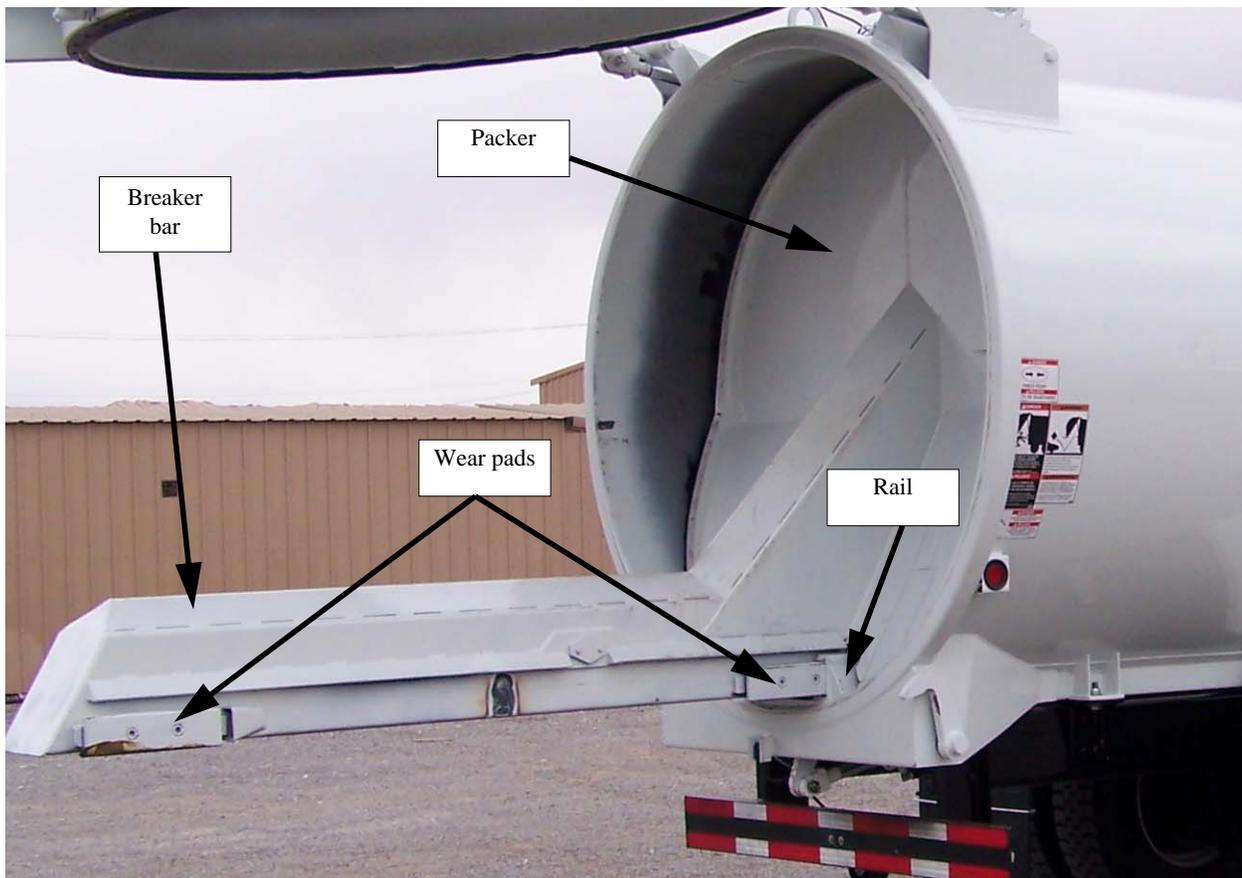
Danger!



Always wear gloves, safety boots, shirt, full-length pants and safety glasses when cleaning the hopper and dump body.

The IMPAC™ packing system relies on a heavy-duty guiding system and high-strength steel wear plates. Because the packing system is put to such intensive use (1,000 to 2,000 cycles per day), Labrie Enviroquip Group recommends that *operators* perform a daily visual inspection of the packer and its components.

Figure 3-14 Packer



Maintenance personnel *must* perform weekly inspection and maintenance. Greasing all moving parts on a daily basis is very important and proper adjustment of limit and proximity switches is mandatory. For more information on lubrication, see *Lubrication* on page 35.

Caution!

Do not grease the rails: Abrasive material sticks to the grease and can cause premature wear of the rails.



Any problems found on the packing system must be corrected immediately. In case of problem, contact your distributor.

Danger!

Always lock out and tag out the vehicle when inspecting or performing maintenance on this vehicle (see *Lockout/Tagout Procedure* on page 11).



To prepare the packer for inspection:

1. Start the engine and engage the hydraulic pump by pulling up the red Emergency Stop button on the in-cab control box.
2. Open the tailgate and fully extend the packer (see Figure 3-14).
3. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 11).

Danger!

Apply the lockout/tagout procedure to prevent any engine start-up.



Caution!

Before opening the tailgate, make sure no one is behind the truck.



Inspecting the Packer

Do the following when inspecting the packer:

1. Inspect all wear pads (white nylon strip) on the breaker bar (see Figure 3-14). Wear pads need to be replaced when the packer shows vertical or horizontal movement. So take the time to check the packer for vertical and horizontal movements, and replace wear pads when required.
2. Check out for leaks on hydraulic hoses and tubes.
Tighten leaking connections and/or replace defective hoses. Also, change o-rings if damaged.
3. Verify cylinder rods:

- 3 a. Make sure that cylinder rod ends are clear of debris.
- 3 b. Make sure that cylinder rods have no scratches that may cause the cylinder to leak oil. Should you find oil leaks, the cylinder must be replaced immediately.

IMPORTANT: During the warranty period, *do not* attempt to change cylinder seals and packing.

- 4. Verify packer panel adjustment for knocking noises.
Knocking noises indicate that the limit switch requires adjustment. Proper adjustment is necessary to prevent cylinder from bottoming out under pressure.
- 5. Make sure that the hydraulic cylinder is not leaking internally (resulting in insufficient packing power). For more information, see *Detecting Cylinder Internal Leaks* on page 30.

Packer Cylinder

Packer cylinder that becomes defective through time needs to be replaced. To do so, you have to remove the packer, replace the faulty cylinder, and then properly finish the installation. These steps are explained below.

Before Removing the Packer Panel

Before removing the packer panel, do the following:

1. Start the engine and engage the hydraulic pump by pulling up the red Emergency Stop button on the in-cab control box.
2. Fully open the tailgate.

Caution! Before opening the tailgate, make sure no one is behind the truck.



Removing the Packer Panel

Caution! Packer must be removed with a proper lifting device. This task must be performed by two people.



To remove the packer panel:

1. Turn off the hydraulic pump by pressing the red Emergency Stop button.
2. Turn off the engine.
3. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 11).
4. Remove both access cover plates on each side of the breaker bar (see Figure 3-15).

Figure 3-15 Access cover plate



5. Remove the rear cylinder pins.
6. Remove the case-end pin of the cylinder.
7. Attach a suitable chain/cable to the packer panel and pull the panel towards the rear of the body.

Replacing the Packer Cylinder

Caution!

Packer cylinder must be removed with a proper lifting device. This task must be performed by two people.



To replace the packer cylinder:

1. Exit the hopper.
2. Start the engine and engage the hydraulic pump by pulling up the red Emergency Stop button.

Caution!

Make sure no one is in the hopper before engaging the hydraulic pump.



Caution!

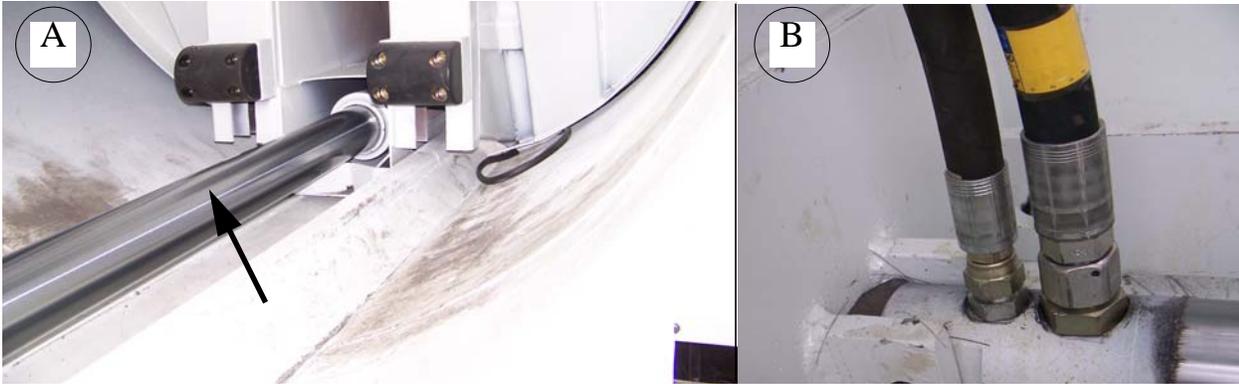
Make sure the ball valve on the suction line is open before starting the truck.



3. Fully retract the cylinder.
4. Proceed with the tagout/lockout procedure. Refer to “Lockout/Tagout Procedure” on page 11.

5. Enter the hopper.
6. Remove both hydraulic hoses from the cylinder (use absorbent material to catch oil spills).

Figure 3-16 Packer cylinder: (A) Rod; (B) Hose fittings



7. Remove the rod end pin that holds the cylinder to the front of the body.
8. Attach and secure the cylinder to an appropriate lifting device.

IMPORTANT: Protect the limit switch during removal of the cylinder.

9. Replace the faulty cylinder with a new one. If covered by warranty, contact LabriePlus for replacement.

Caution!



Installation of the new cylinder must be performed by two people. Use an appropriate lifting device to perform this task.

Finishing Up Packer Cylinder Replacement

To finish up cylinder replacement:

1. Properly position the new cylinder.
2. Reinstall the packer panel.

Caution!



Packer must be reinstalled with a proper lifting device. This task must be performed by two people.

Caution!



The vehicle must be tagged out and locked out while doing this task.

3. Install the case-end pin (inside breaker bar).
4. Grease the cylinder pins and check for proper operation.
5. Put back both access cover plates on breaker bar (see Figure 3-15).
6. Reinstall the rod end pin to secure the cylinder to the front of the body.
7. Hook up both hydraulic hoses to the cylinder.
8. Exit the hopper.

Cleaning Behind the Packer

Caution! Never enter the packer area without performing a lockout/tagout procedure. See *Lockout/Tagout Procedure* on page 11



Warning! Failure to follow the lockout/tagout procedures may result in serious injury or death.



If your unit is equipped with an optional clean-out door, follow the lockout/tagout procedure before performing any internal cleaning.

Your unit is equipped with proximity switches and limit switches to ensure your safety. Periodic inspection and testing of these switches are essential to prevent injury or death. **NEVER DISABLE OR BYPASS THESE SWITCHES.**

Tailgate Seals and Hinges

Tailgate hinge pins must not show any sign of wear or metal fatigue. The retaining bolts must be kept tight. The tailgate rubber seal must not show *any* signs of damage. Replace if necessary.

Proximity and Limit Switches

Proximity and limit switches act as remote electrical on/off switches and must be adjusted properly.

Warning



Proximity and limit switches must function properly. Serious damage to the equipment, injuries or death may occur if you operate the unit with improperly adjusted switches.

Figure 3-17 and Figure 3-18 show where the proximity/limit switches are installed on the truck.

Figure 3-17 Switches on the curbside

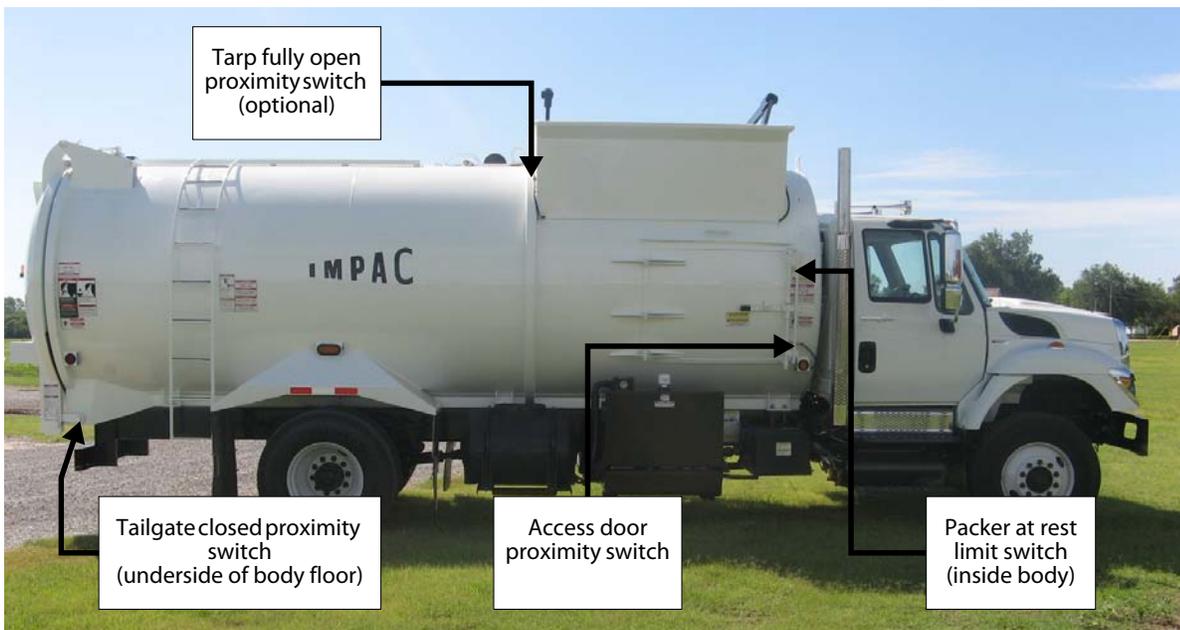
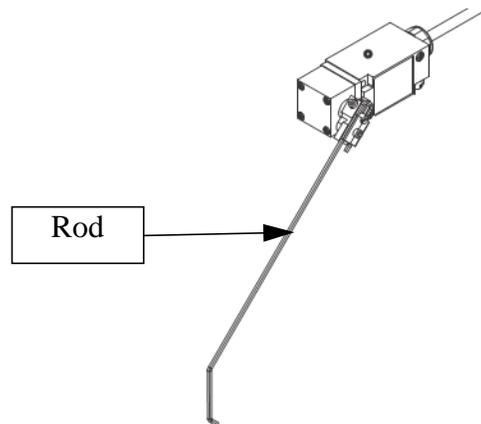


Figure 3-18 Switches on the streetside



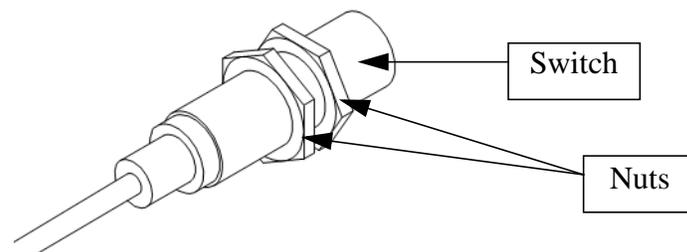
Limit Switch Adjustment



To adjust the limit switch:

1. Loosen limit switch nut.
2. Move the lever arm to the approximate position where the switch is to be triggered.
3. Tighten nut.
4. To fine tune the adjustment, loosen nut slightly.
5. With a flathead screwdriver, turn the adjusting screw located at the center of the nut until a click is heard.
6. Tighten the nut.
7. Test the operation.
8. If necessary, repeat steps 1 through 7.

Proximity Switch Adjustment



To adjust the proximity switch:

1. Loosen the proximity switch nuts.
2. Adjust the proximity switch so that there is a gap of approximately $\frac{3}{16}$ of an inch (4.8 mm) between the plate (target) and the switch.
3. Tighten up the nuts.
4. Test the operation.

The proximity switch light should turn on when the target is detected; if not, repeat the adjustment procedure.

Adjusting Packer At Rest Limit Switch

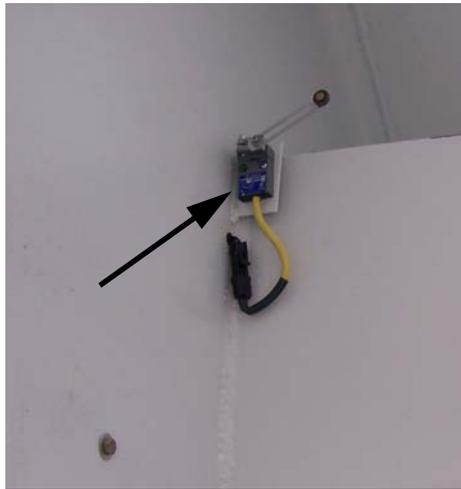
Danger!



Always lock out and tag out the vehicle when inspecting or performing maintenance on this vehicle (see *Lockout/Tagout Procedure* on page 11).

The packer at rest limit switch (see Figure 3-19) was adjusted at the factory for optimal efficiency. If the area behind the packer is not properly cleaned *daily*, the packer may not retract far enough to trigger this limit switch, preventing the mast from being enabled.

Figure 3-19 Packer at rest limit switch



Furthermore, over time, misalignment of the components may occur due to the frequent back and forth motion of the packer. An adjustment of the limit switch may be necessary to prevent malfunction.

The packer at rest limit switch sends a signal to the controller module that the packer panel has reached its fully retracted position. Once the signal from this limit switch is received, the module enables the mast to operate if activated, provided the tailgate is closed and the optional tarp is open.

If no signal is sent by the limit switch, it may be that the packer cannot reach its fully retracted position due to waste pile-up behind the packer or that the limit switch itself is misaligned.

To remedy this situation, do the following procedure:

1. Set the parking brake.
2. Turn on the engine and engage the hydraulic system by pulling up the red Emergency Stop button on the in-cab control box.

3. Fully open the tailgate.

Caution! Make sure no one is behind the truck before opening the tailgate.



-
4. Extend the packer sufficiently in order to have access to the area behind the packer.

Danger! Do not enter the hopper while the packer is moving.



-
5. Proceed with the tagout/lockout procedure. Refer to “Lockout/Tagout Procedure” on page 11.
 6. Enter the hopper.
 7. Remove any waste pile-up that is behind the packer.
 8. Finish up cleaning by using compressed water.
 9. Exit the hopper.
 10. Test operation.

If there is still no signal sent by the limit switch, do the following procedure.

To adjust the packer at rest limit switch:

1. Set the parking brake.
2. Turn on the engine and engage the hydraulic system by pulling up the red Emergency Stop button.
3. Fully open the tailgate.

Caution! Make sure no one is behind the truck before opening the tailgate.



-
4. Extend the packer sufficiently in order to have access to the area behind the packer.

Danger! Do not enter the hopper while the packer is moving.



-
5. Proceed with the tagout/lockout procedure. Refer to “Lockout/Tagout Procedure” on page 11.
 6. Enter the hopper.

7. Adjust the limit switch lever so that it comes in contact with the target on the packer.
The length of the roller lever can also be adjusted for more precision.
8. Once the adjustment is done, exit the hopper.
9. Test operation.
10. If necessary, repeat procedure.

Adjusting Access Door Proximity Switch

This proximity switch turns off all hydraulic power when the access door is not closed.

Figure 3-20 Access door proximity switch



The switch is located on the lower access door frame (see Figure 3-20).

Testing procedure:

1. Open the access door by approximately 2 inches (5 cm) and try to operate any hydraulic function. No hydraulic function should be working.

Warning

Injury or death may occur if you attempt to enter the body while the packer or the mast is in operation.



2. If not all hydraulic functions are disabled, the proximity switch is faulty and must be replaced.

Adjustment procedure:

1. Loosen the proximity switch nuts.
2. Adjust the proximity switch so that there is a gap of approximately 3/16 of an inch (4.8 mm) between the plate and the switch.
3. Tighten the nuts.

4. Test operation to make sure the proximity switch light comes on when the target is detected and the proximity switch itself works properly.

Adjusting Tailgate Locking Proximity Switch

The tailgate locking proximity switch (see Figure 3-21) allows you to enable the ejection cycle when the tailgate is fully open.

This proximity switch is located underneath the dump body near the bumper.

Figure 3-21 Tailgate locking proximity switch



Testing procedure:

1. Lock the tailgate locking mechanism.
Tailgate lock hooks must be engaged.
2. Activate the “Eject” function.
3. Move panel off packer rest (about 3 inches).
4. Release switch.
Packer should continue to cycle to packer return switch.

Adjustment procedure:

1. Start the engine and engage the hydraulic pump by pulling up the red Emergency Stop button on the in-cab control box.
2. Lock the tailgate locking mechanism.
Tailgate lock hooks must be engaged.
3. Proceed with the tagout/lockout procedure. Refer to “Lockout/Tagout Procedure” on page 11.
4. On the proximity switch, loosen the nuts located on each side of the proximity switch bracket.
5. Push or pull the proximity switch until there is a gap of 3/16 of an inch between the plate and the switch.
6. Tighten up both nuts.

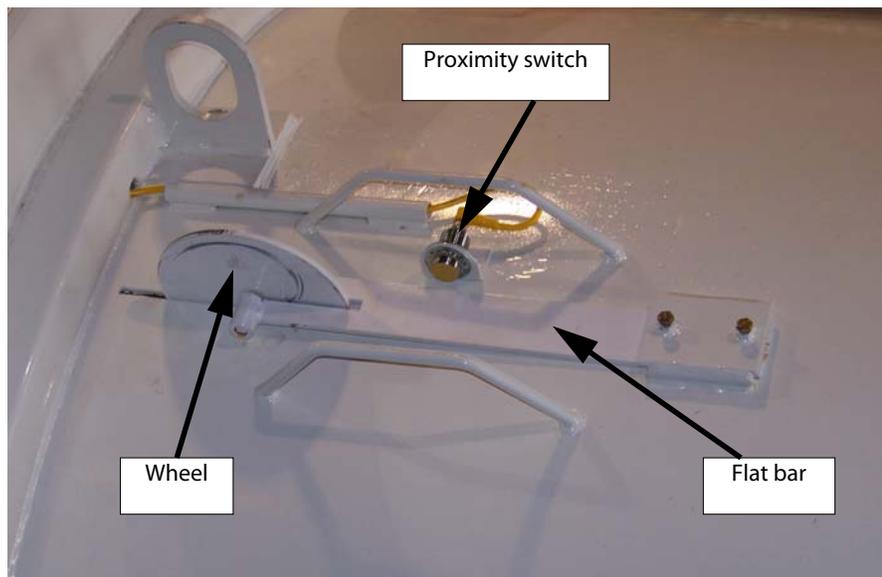
7. Test operation to make sure the proximity switch light comes on when the target is detected and the packer panel does not move.
8. Repeat testing procedure, if necessary.

Adjusting Half Extended Proximity Switch (in autopack mode)

In autopack mode, when the packer travels to approximately midway down the body, it stops before returning back to its fully retracted position. What makes the packer stop is the half extended proximity switch located on top of the dump body (see Figure 3-22). This proximity switch is a normally open switch.

When the packer reaches about midway down the body, the top edge of the packer raises the wheel, causing the flat bar to rise in front of the proximity switch. The flat bar that the wheel is attached to is what triggers the proximity switch. When this switch is triggered, the packer stops and returns to its home position.

Figure 3-22 Half extended proximity switch



To verify that the half extended proximity switch needs adjusting, switch to autopack mode, start a pack cycle, and observe the half extended position of the packer.

In autopack mode, the packer should stop at the half extended position and then go back to its home position.

If the packer fails this test, adjust the switch as follows:

1. Set the parking brake.
2. Turn on the engine and engage the hydraulic system by pulling up the red Emergency Stop button located on the in-cab control box.
3. Switch to "Autopack" mode.
Ensure that the tailgate is closed.

4. Start a pack cycle.

Danger! Do not enter the hopper while the packer is moving.



5. When the packer reaches its half extended position and raises the wheel to its upmost position, stop the pack cycle.

Caution! This task is best performed by two people.



6. Proceed with the tagout/lockout procedure. Refer to “Lockout/Tagout Procedure” on page 11.
7. Use a stepladder/ladder to reach the half extended proximity switch located on top of the dump body.

IMPORTANT: Use extreme caution when doing so. Ask a helper to firmly hold the base of the stepladder/ladder to ensure stability and use safety harness to prevent falling.

8. Proceed with adjustment of the half extended proximity switch.
 - 8 a. On the proximity switch, loosen the nuts located on each side of the proximity switch bracket.
 - 8 b. Push or pull the proximity switch until there is a gap of 3/16 of an inch between the plate (flat bar) and the switch.
 - 8 c. Tighten up both nuts.
9. Test operation to make sure the packer operates properly in autopack mode. If required, repeat the adjusting procedure.

Adjusting Tarp Fully Open Proximity Switch (optional)

When installed, the tarp fully open proximity switch controls the cutout of the mast function if the tarp is not completely open. This lockout feature prevents dumping of waste onto the tarp.

This proximity switch is located on top of the dump body next to the tarp air cylinder (see Figure 3-23).

Figure 3-23 Optional tarp fully open proximity switch


Testing procedure:

1. Set the parking brake.
2. Turn on the engine and engage the hydraulic system by pulling up the red Emergency Stop button located on the in-cab control box.
3. Completely close the tarp.
4. Try to raise the mast.

IMPORTANT: Be sure that the tailgate and side access door are closed and the packer is at rest.

The mast should not move. If it does, proceed with the adjustment of the tarp fully open proximity switch.

Adjustment procedure:

1. Set the parking brake.
2. Proceed with the tagout/lockout procedure. Refer to “Lockout/Tagout Procedure” on page 11.
3. Use a stepladder/ladder to reach the tarp fully open proximity switch located on top of the dump body (see above picture).

IMPORTANT: Use extreme caution when doing so. Ask a helper to firmly hold the base of the stepladder/ladder to ensure stability and use safety harness to prevent falling.

4. Proceed with the adjustment of the tarp fully open proximity switch.
 - 4 a. On the proximity switch, loosen the nuts located on each side of the proximity switch bracket.
 - 4 b. Push or pull the proximity switch until there is a gap of 3/16 of an inch between the plate and the switch.
 - 4 c. Tighten up both nuts.

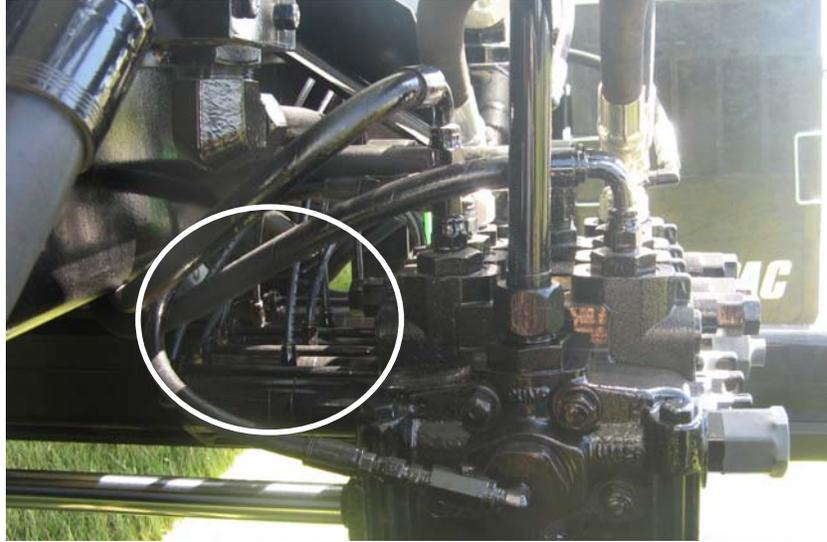
5. Test operation to make sure the mast does not rise. If required, repeat the adjusting procedure.

Pneumatic System

The air (pneumatic) system is crucial for efficient brake and body operation.

The main hydraulic valve, which controls body functions, is activated by air actuators.

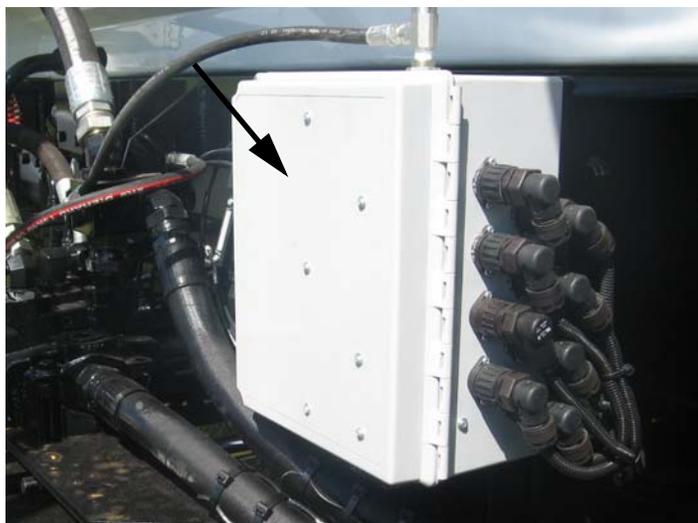
Figure 3-24 Air actuators



Solenoid Valves

When the body switch on the control panel is activated, the corresponding solenoid valve in the air control box (see Figure 3-25) sends air to the corresponding air actuator on the main valve. This results in a movement of the hydraulic spool inside the valve.

Figure 3-25 Air control box



Every function signal goes through the electronic module, located on the truck body, before reaching the air control box.

Air System Maintenance

To ensure adequate control of the vehicle air systems (especially under cold weather conditions), you must maintain them regularly, and that includes draining the air tanks, the water trap, and the air filter at the end of every workday. The air filter element must be replaced every 1,000 hours.

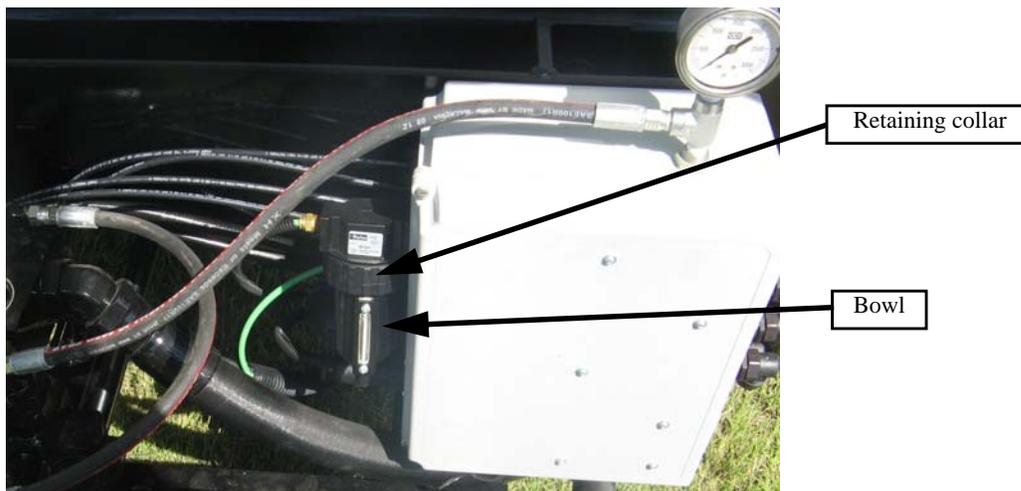
To do so:

1. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 11).
2. Shut off air supply and depressurize the unit before servicing.
3. Unscrew the retaining collar (see Figure 3-26).
4. Unscrew the bowl.

NOTE: Avoid scratching internal surfaces.

5. Replace the air filter element.
6. Reverse the procedure to reinstall the other components (bowl and retaining collar).
7. Apply system pressure.
8. Check for air leaks.
9. In case of air leaks, *do not* operate. Conduct servicing again.

Figure 3-26 Air filter



To bleed the water trap, do the following:

1. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 11).
2. Using a rag, unscrew the drain cock (see Figure 3-27).

This will bleed all the water from the water trap and the air filter bowl. This water trap helps keep residual moisture out of the body air system.

Figure 3-27 Bleeding the water trap



3. Drain all air tanks.

Figure 3-28 Drain valve



IMPORTANT: Pay particular attention to the dryer cartridge. On this type of equipment, the compressor works all the time (frequent use of the brake system). As a result, lots of moisture is injected into the air system. For more information, see *Air Dryer* on page 59.

Air Dryer

Some units are equipped with an air dryer (see Figure 3-29) and/or alcohol evaporator.

These devices are used to reduce water in the air system, preventing corrosion or freezing of the air components in cold weather.

Maintenance on the air dryer and/or alcohol evaporator is covered in the chassis manufacturer's maintenance manual.

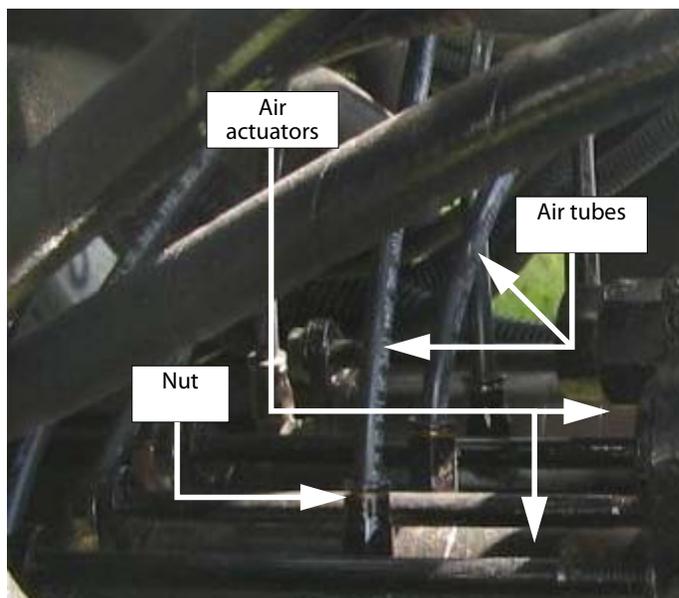
Figure 3-29 Air dryer

Packer Air System

If the packer does not complete a full cycle, the problem may be related to the air system.

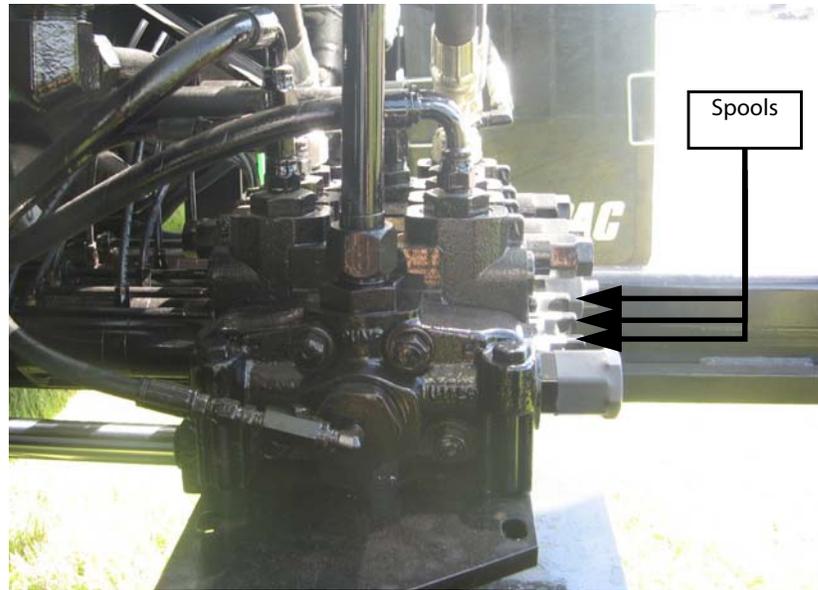
To fix the problem:

1. Apply all safety measures to ensure safety around the vehicle at all times.
2. Remove the optional cover (if applicable) over the valve to get access to the air tubes.
3. Remove the air tube from the packer valve section actuator by unscrewing the nut and lifting up the tube (refer to your hydraulic schematic for the exact location of the packer valve section).

Figure 3-30 Air tubes and actuators

4. Inject compressed air on one side of the actuator to ensure that the spool moves freely inside the valve (the same process will have to be done for the other side of the actuator).
 - If the spool is not moving freely, lubricate or replace the air actuator.
 - If the spool is moving freely, try injecting air in the tube and see if air is exiting from the quick exhaust valves on the packer valve section actuator.
 - If not, check that air lines are not blocked or bent, and if necessary, replace the quick exhaust valves.

Figure 3-31 Spools



IMPORTANT: If air is leaking by the opposite port of the pressurized side of the actuator when both hoses are removed, this could indicate that the o-ring on the air actuator piston is leaking. If needed disassemble, clean, and lubricate with grease, or replace the o-ring.

Troubleshooting

Table 1 Troubleshooting guide

Problems	Solutions																							
Both compactor and lift not operating or not operating properly	Check air pressure (air pressure must be 75 PSI minimum).																							
	Check access door and proximity switch on door.																							
	If applies, check optional clean-out door and proximity switch on door.																							
	Check hydraulic fluid for proper level.																							
	Check reservoir valve for open position.																							
	Check pump operation.																							
	Check coupling or drive shaft.																							
	<p>Test cylinders for internal leakage. To do so:</p> <ol style="list-style-type: none"> 1. Run cylinder to maximum out position. 2. Remove hose from retract end (head end) of the cylinder. 3. Place control to extend (out) position. <p>If oil flows from the open port, replace seals.</p>																							
	<p>Test pressures. To do so:</p> <ol style="list-style-type: none"> 1. Install test gauge. 2. Activate the circuit to be checked and hold until cylinder bottoms out. Maximum pressure is reached at this point. 																							
	<p>3. <u>Proper Pressures</u></p> <table border="0" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;"></th> <th style="width: 35%; text-align: center;">(30" Reach)</th> <th style="width: 35%; text-align: center;">(48" Reach)</th> </tr> </thead> <tbody> <tr> <td>Mast Up</td> <td style="text-align: center;">2000 PSI</td> <td style="text-align: center;">1700 PSI</td> </tr> <tr> <td>Mast Dn</td> <td style="text-align: center;">1700 PSI</td> <td style="text-align: center;">2000 PSI</td> </tr> <tr> <td>Mast In</td> <td style="text-align: center;">2100 PSI</td> <td style="text-align: center;">2100 PSI</td> </tr> <tr> <td>Mast Out</td> <td style="text-align: center;">2100 PSI</td> <td style="text-align: center;">2100 PSI</td> </tr> <tr> <td>Compact</td> <td style="text-align: center;">2100 PSI</td> <td style="text-align: center;">2100 PSI</td> </tr> <tr> <td>Tailgate Up</td> <td style="text-align: center;">1200 PSI</td> <td style="text-align: center;">1200 PSI</td> </tr> <tr> <td>Tailgate Dn</td> <td style="text-align: center;">2000 PSI</td> <td style="text-align: center;">2000 PSI</td> </tr> </tbody> </table>		(30" Reach)	(48" Reach)	Mast Up	2000 PSI	1700 PSI	Mast Dn	1700 PSI	2000 PSI	Mast In	2100 PSI	2100 PSI	Mast Out	2100 PSI	2100 PSI	Compact	2100 PSI	2100 PSI	Tailgate Up	1200 PSI	1200 PSI	Tailgate Dn	2000 PSI
	(30" Reach)	(48" Reach)																						
Mast Up	2000 PSI	1700 PSI																						
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Mast In	2100 PSI	2100 PSI																						
Mast Out	2100 PSI	2100 PSI																						
Compact	2100 PSI	2100 PSI																						
Tailgate Up	1200 PSI	1200 PSI																						
Tailgate Dn	2000 PSI	2000 PSI																						

Table 1 Troubleshooting guide (cont'd)

Problems	Solutions
Low lift power	Check pressure.
	Check air controls.
	Check cylinder seals.
Container stays in dump position	Check air controls.
	Check cylinder seals.
	Check pressure.
Low in, out power	Check pressure.
	Check air controls.
	Check cylinder seals.
Tailgate will not raise	Check control valve pressure.
	Check cylinder seals.
	Check top tailgate hinges for lubrication.
Tailgate latch not operating properly	Check control valve pressure.
	Check cylinder seals.
In-cab tailgate control	Manually operate tailgate switch. 1. If tailgate does not operate, refer to problems #5 and #6 of this section. 2. If tailgate operates: a. Check electrical circuits. b. Check air solenoids.
Normal compact, slow return, low or no power	Check electrical circuits.
	Check air solenoids.
Slow (without load) compactor operation	Check compactor valve pressure.
	Check compactor cylinder. To do so: 1. Run cylinder to maximum out position. 2. Remove small compactor hose from the front of the body. 3. Plug hose end. 4. Activate compactor. If oil flows from the open port, repair or replace cylinder.

Table 1 Troubleshooting guide (cont'd)

Problems	Solutions
Power source continues to load with compactor in full retract position	Check limit switch operation and adjust.
	Check for waste build up behind compactor blade.
Compactor does not retract automatically	Check micro switch on top of the body for operation and proper contact.
	Check switch body for cracks.
	Check control valve.
	Retract limit switch inside body.
Compact operation stops when compact button is released	Check packer rest switch in front of body for operation and proper contact.
	Check switch body for cracks.
Mast will not raise	Check front limit switch inside body.
	Check air solenoids.
	Check pneumatic activator.

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