TOP SELECT™

Maintenance Manual

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Thank you for your purchase of a new Labrie™, Leach™ or Wittke™ product. To ensure maximum reliability, insist on genuine **labrie*plus*** replacement parts. LabriePlus replacement parts are designed and manufactured to exacting standards. The use of counterfeit, will-fit or substitute parts may effect the operation and performance of the unit.

Visit our Website at usa.labrieplus.com or canada.labrieplus.com, or contact us at 1-800-231-2771 (in the U.S.) or 1-877-452-2743 (in Canada), twenty-four hours a day, seven days a week. We are available to help you with any questions or concerns.

LABRIE LEACH WITTKE

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Labrie Enviroquip Group assumes no liability for any incidental, consequential, or other liability that might result from the use of the information contained in this document.

All risks and damages, incidental or otherwise, arising from the use or misuse of the information contained herein are entirely the responsibility of the user.

Although careful precaution has been taken in the preparation of this document, Labrie Enviroquip Group assumes no responsibility for errors or omissions.

NOTE

Only body and Maximizer components maintenance guidelines are outlined in this manual. For maintenance on the chassis, refer to the chassis manufacturer's service manual.

January 2021

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CAPSCREW MARKING AND TORQUE VALUES

Usage	**Much Used**	**Used at Times**	**Used at Times**
Capscrew Diameter & Minimum Tensile Strength PSI	To 3/4 - 120,000 To 1 - 115,000	To 5/8 - 140,000 To 3/4 - 133,000	150,000
Quality of Material	Min. Commercial	Med. Commercial	Best Commercial
SAE Grade Number	5	6 or 7	8
CAPSCREW HEAD MARKINGS Manufacturers marks may vary. These are all SAE Grade 5 (3-line.)			
Capscrew Body Size (Inches) - (Thread)	Torque Ft-Lb (kg m)	Torque Ft-Lb (kg m)	Torque Ft-Lb (kg m)
1/4 - 20	8 (1.11)	10 (1.38)	12 (1.66)
- 28	10 (1.38)		14 (1.94)
5/16 - 18	17 (2.35)	19 (2.63)	24 (3.32)
- 24	19 (2.63)		27 (3.73)
3/8 - 16	31 (4.29)	34 (4.70)	44 (6.09)
- 24	35 (4.84)		49 (6.78)
7/16 - 14	49 (6.78)	55 (7.61)	70 (9.68)
- 20	55 (7.61)		78 (10.79)
1/2 - 13	75 (10.37)	85 (11.76)	105 (14.52)
- 20	85 (11.76)		120 (16.60)
9/16 - 12	110 (15.21)	120 (16.60)	155 (21.44)
- 18	120 (16.60)		170 (23.51)
5/8 - 11	150 (20.75)	167 (23.10)	210 (29.04)
- 18	170 (23.51)		240 (33.19)
3/4 - 10	270 (37.34)	280 (38.72)	375 (51.86)
- 16	295 (40.80)		420 (58.09)
7/8 - 9	395 (54.63)	440 (60.85)	605 (83.67)
- 14	435 (60.16)		675 (93.35)
1 - 8	590 (81.60)	660 (91.28)	910 (125.85)
- 14	660 (91.28)		990 (136.92)

NOTES:

1. *Always use the torque values listed above when specific torque values are not available.*
2. *The above is based on use of clean, dry threads.*
3. *Reduce torque by 10% when engine oil is used as a lubricant.*
4. *Reduce torque by 20% if new plated capscrews are used.*
5. *General Formula for calculating Torques is as follows: Torque in Inch Lbs. = .2 x Nominal Diameter of Screw x Loads in Lbs., where Load = 80% of Yield Strength, expressed in Lbs., not pounds per square inch.*

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Introduction

About This Manual

This manual contains information regarding the correct maintenance of your TOP SELECT™ recycling unit. Maintenance personnel should read and understand this information before doing repairs and maintenance on the vehicle. For information on how to safely and efficiently operate the TOP SELECT™, please refer to the related *Operator's Manual* that is provided with your unit.

Topics not Included in this Manual

Maintenance of the chassis

This is dealt with 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 TOP SELECT™

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

Parts and assemblies

For parts and assemblies that make up the TOP SELECT™, and for their respective part number for ordering purposes, please refer to the *TOP SELECT™ Parts Manual*.

About the Illustrations in this Manual

Because Labrie Enviroquip Group is constantly updating its products, illustrations used in this manual may differ from those of the actual product and accessories, depending on the model or options that come with your vehicle.

Schematics

For schematics related to body parts, refer to the *TOP SELECT™ Parts Manual*;

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

As for pneumatic and hydraulic schematics for your TOP SELECT™ unit, copies are available from Labrie*Plus* Service Department.

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

Warranty Registration Form

Do not forget to complete the owner registration form and to send it to Labrie Enviroquip Group. Make sure to fill out the in-service date. This date will be used as the start date of the warranty period. If the in-service date is not indicated, the warranty period will start 30 days after the delivery date.

Introducing the TOP SELECT™

The TOP SELECT™ is a recycling unit built for manual and semi-automated collection of residential recyclable material.

The TOP SELECT™ optimizes collection operations by offering 2 to 7 compartments for pick-up of different streams at curbside, for precise on-site sorting. The body-mounted partitions are put on rollers for easy adjustability every 6 inches.

The TOP SELECT™ ensures smooth operation of the loading bucket through fully-adjustable hydraulic cushioning found at each end of the dump-and-return cycles.

The TOP SELECT™ can be configured through a variety of options such as wider loading buckets and auto-lock attachments for carts.

TOP SELECT™ units are designed to be operated by only one person at a time, and they use a series of hydraulic, mechanical, and electrical systems to perform their work routine.

WARNING! The TOP SELECT™ unit must be operated by *only one person*.

Service and Maintenance on the TOP SELECT™

Maintenance on the TOP SELECT™ is of paramount importance to ensure long-lasting durability of all its moving parts as well as optimum performance in heavy work. Maintenance has to be done on almost every system involved in the operation of the TOP SELECT™, such as the hydraulic, electrical and mechanical systems. Some parts are subjected to more wear and tear than others. Therefore, these parts need regular maintenance and routine check-up to prevent signs of deterioration as soon as possible.

NOTE: Any time you have a problem with a Labrie unit, you should contact your Labrie authorized dealer first. They should be able to provide you with the proper help that you need, whether it is for parts or technical service.

In this manual you will find the most common maintenance and inspection procedures required for the TOP SELECT™.

Parts

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

Warning

Your TOP SELECT™ unit MUST BE COMPLETELY LUBRICATED before its first use. Refer to the lube chart (see Figure 1-1) on the front right side corner of the body to know where the lubrication points are located on the vehicle and how often the parts should be lubricated.

Figure 1-1 Lube chart

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

With your safety in mind, we would like to remind you that ONLY QUALIFIED PERSONNEL should service the hydraulic, electrical, and pneumatic systems of your TOP SELECT™ unit. 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 TOP SELECT™ unit.

IMPORTANT: TOP SELECT™ units must be operated *by only one operator*.

Top Select™ Basic Maintenance

Top Select™ recycling trucks require routine maintenance to ensure product longevity as well as dependability. Various components have specific needs. A detailed portion of these items is listed below:

1) **Body**

The body contains grease fittings for every operating cylinder as well as all linkages.

Without proper lubrication and maintenance, these parts can become seized, galled, and/or break resulting in equipment damage or injury.

2) **Maximizer (optional)**

One of the most commonly overlooked wear items involves the optional Maximizer, part of the space maximizing system.

Improperly maintained Maximizer can result in, but are not limited to: holes worn in the floor liner and/or floor itself, binding of the access door due to uneven wear against the body side walls, etc.

For proper Maximizer wear diagnosis and servicing, please go to Chapter 10.

3) **Lubrication**

Your Top Select™ 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.

All moving parts require lubrication for continued operation, longevity and dependability.

Maintenance intervals should be adjusted according to the truck's route. Proper greasing ensures the maximum life from the moving parts as it flushes out water and contaminants from the joint.

When greasing it is important to understand that providing the proper amount of grease is a delicate balance between over greasing, which can result in seal damage as well as wasted lubricant. Only pump enough grease until the air purges from the joint. Commonly, a "popping" sound can be heard as the old grease begins to evacuate the seal. Equally important is to remove the excess grease from the component you are maintaining. Leaving the excess grease will attract dirt and contaminants which could work themselves into the joint causing potential future issues.

4) **Hydraulic Fluid and Filter**

Hydraulic fluid is the lifeblood of the Top Select™ recycling truck. Regular maintenance of the hydraulics will ensure long, trouble-free life.

As directed in all service training, the hydraulic filter needs to be replaced **after the initial 50 hours of new truck operation and then again every 6 months**. **The hydraulic fluid needs to be replaced once a year** along with the suction screen being removed, inspected, cleaned and/or replaced.

5) **Air system**

All air tanks on the chassis must be drained after each working day.

6) **Hardware**

Hardware needs to be verified that it is present and tight. Loose or missing hardware can cause severe damage and/or unsafe operational conditions.

7) **Proximity and Limit Switches**

Proximity and limit switches are used to limit travel of moving parts and/or to ensure conditions are safe for operation.

If these switches are not adjusted properly, damage to the equipment may occur as well as poor or dangerous functionality.

8) **Leaks**

Verify that there are not any leaking hydraulic cylinders, hoses, tubes, valves, or pumps. Leaks in the hydraulic system are an indicator of possibly overheating hydraulics, damage to a seal, over-pressurization, or general wear. To avoid costly and premature replacement of parts, ensure all leaks are addressed properly and timely.

9) **Cracks**

Ensure that there are not any cracks forming along the body floor edge, tailgate, loading buckets, etc. This is an indicator that something is worn, not adjusted properly or damaged.

10) **Bushings**/**Bearings**

Check for play in any bushing or bearing. This may require the use of a pry bar or a lifting device.

Our Office Addresses and Phone Numbers

In the U.S.

Address:	1198 Shattuck Industrial Blvd. LaFayette, GA 30728
Toll Free:	1-800-231-2771
Telephone:	1-706-591-8764
General Fax:	1-706-639-9275
Oshkosh General Fax:	1-706-591-8766
Parts and warranty:	During business hours, 8:00 AM to 6:00 PM Eastern Standard Time
Technical Support Service:	Available 24 hours

In Canada

Address:	175A Route Marie-Victorin Levis, 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.labriegroup.com
E-mail:	sales@labriegroup.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

Important Safety Notions

DANGER, WARNING, CAUTION notations appear throughout this manual and on labels on and inside the vehicle.

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.***

The word ***NOTE*** also appears in this manual and precedes information, which is vital to the proper operation and maintenance of the vehicle equipment.

The operator's safety certainly depends on the precautionary measures taken while operating or servicing the vehicle. If in doubt, ask your supervisor or contact *Labrie Plus* for any technical support you may require.

Establish and apply a periodic inspection program to keep moving parts in good working order, properly adjusted and safe. It is recommended that a brief inspection be done by the operator ***EVERYDAY*** and any detected malfunctions must be reported for repair ***BEFORE*** using the equipment.

Once a month, inspect the chassis and the body for breaks, cracks or any potential problems. Any defects found must be repaired without delay. To ensure the good working order of the equipment, a particular attention should be paid to structural components in

order to prevent deterioration due to corrosion; touchups and/or complete paint jobs should be done when necessary.

Safety Precautions for the Employer

Labrie Enviroquip Group strongly believes that safety is a team effort. With this in mind, we encourage the employer to implement the following guidelines:

- Provide all employees – both operators and maintenance personnel – with proper safety procedures and training. Ensure that they are provided with the proper vehicle operation training and continually monitor their operational procedures. It is necessary that they have reviewed the TOP SELECT™ Manuals and are familiar with all the warning decals on the vehicle.
- Provide operators with the necessary route rules and regulations. Instruct operators on awareness to road hazards such as people, obstructions and overhead hazards. Please ensure that all vehicle safety features, such as body safety prop and tailgate prop, are utilized by your personnel when operating or servicing the TOP SELECT™.
- Provide and inform employees to wear the necessary safety equipment.
- Ensure that a vehicle and safety equipment inspection is performed daily. Document the inspections, including all maintenance, repair and malfunction items. Keep inspection documents complete and current.

IMPORTANT: Under no circumstances should your TOP SELECT™ unit be operated if damaged or malfunctioning. Have all repairs performed immediately.

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 the body and all operating systems, all vehicle safety equipment and safety decals located on and in your vehicle. Ensure that the inspection is documented and bring any defects to the attention of your supervisor.
- Prior to leaving for your daily route, ensure that all mirrors, windows and lights are clean and properly adjusted. Ensure that all cameras and monitors are properly adjusted and operating correctly.
- Do not operate any vehicle while under the influence of alcohol, narcotics or other intoxicants.
- Do not leave the vehicle before it is brought to a complete stop and work brake or parking brake is applied.
- Know where to get assistance in the event of an emergency.
- 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.

- Always utilize the vehicle safety features, such as tailgate prop and hoisted body prop.
- Remember to wear all safety equipment when loading recycling and organic materials or while performing service duties.

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

General Responsibilities of the Employer

It is the responsibility of the employer:

- To make sure that the employees are qualified and capable of operating/servicing the TOP SELECT™ and related equipment safely.
- To ensure that all employees take safety measures before operating/servicing this vehicle.
- To properly maintain all mobile equipment to meet all provincial/state and federal safety standards.
- To supply the operator with adequate knowledge and skills to operate the vehicle and related equipment safely.
- 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 to correct any damage or malfunction reported by an employee.
- To establish a "lockout/tagout" procedure and ensure its application any time inspection, repair or maintenance is performed on the vehicle, regardless of whether it takes place on the road or in the garage.

WARNING!

Before doing any maintenance on the vehicle, all safety precautions mentioned in this manual must be observed, especially the lockout/tagout procedure.

CAUTION!

Maintenance and repairs carried out on this vehicle must only be done by qualified personnel who is familiar with the equipment. Labrie Enviroquip Group declines any responsibility for failures resulting from unproper repairs performed by the end-user.

IMPORTANT: Under no circumstances should your TOP SELECT™ unit be operated if damaged or malfunctioning. Have all repairs performed immediately.

General Responsibilities of the Employee

It is the responsibility of the employee:

- To enforce all safety measures to meet the requirements established by the employer.
- To operate the TOP SELECT™ only after having received instructions and training.
- To perform routine daily unit inspections.
- To make sure that nobody is near the vehicle before activating any of the controls, and to be prepared to stop at any indication of possible danger.
- To immediately report any damage or malfunction of the vehicle to the employer or supervisor.
- To know where to get assistance in the event of an emergency.

IMPORTANT: Do not use damaged equipment.

CAUTION!

Maintenance personnel shall not do any maintenance on the equipment if they are not familiar with how it works and the related safety precautions. Be sure to read the TOP SELECT™ Operator's Manual thoroughly before attempting any work on the unit.

Things to Do

- Make sure that the area is clear of people or possible obstructions.

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

- Wear safety footwear, gloves, and any other safety equipment when loading recycling and organic materials.
- Check if mirrors, windows, lights, and monitor equipment are clean and properly adjusted.
- Use caution when driving with an unevenly distributed load.
- Inspect for overhead hazards (e.g. power lines) prior to hoisting the body.
- Always use the body safety prop when servicing under the body.
- Always use the tailgate safety prop before entering the area between the main body and the tailgate.
- Obey all warning and operation stickers.

Things to Avoid

- Do not operate any vehicle while under the influence of alcohol, narcotics or other intoxicants.

- Do not talk on a cell phone or listen to loud music while driving.
- Do not wear jewelry or loose clothing.
- Do not leave the vehicle before it is brought to a complete stop and work brake or parking brake is applied.
- Do not enter the body unless the engine is shut off, the key is removed and there is an out-of-service tag on the steering wheel (see *Lockout/Tagout Procedure* on page 22).
- Do not hoist the body on uneven ground.
- Do not back up the vehicle when the body is raised.
- Do not drive with the tailgate fully open.
- Do not use the body safety prop to prop a *loaded* body.

General Precautions

The following are general safety rules and operational precautions which should be observed by all operators and/or maintenance personnel.

DANGER!

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

- Do not operate or service this vehicle before having read and completely understood this manual and the safety decals on the vehicle. Maintenance personnel must also read and understand the TOP SELECT™ Operator's Manual.
- The operator must be in full and clear view of the operation of the moving hydraulic systems at all times. The operator must be able to stop the motion of the hydraulic systems at any time in order to prevent injury to surrounding people or damage to property.
- The operator of the TOP SELECT™ unit shall make sure that people or obstructions are far away from the loading bucket before moving it.
- At the beginning of every workday, inspect the body, the Maximizer (if equipped) and any system that might endanger the safety of the public and/or the operator.
- Verify that the mirrors, brakes, accelerator pedal, steering wheel and turn signals are in good working order.
- Do not operate this equipment if there are any signs of damage or incomplete repairs.
- Report any doubts and any equipment safety service requirements to your supervisor.
- Maximum speed, if permitted, while right-hand side driving is 20 MPH or 32 km/h.
- Keep both hands on the steering wheel at all times for better control.
- Do not leave the driving position until the vehicle is completely stopped and the parking brake applied.
- When the vehicle is parked, the parking brake must be applied.

- Watch for and be absolutely sure that there are no people at the rear of the vehicle when opening and closing the tailgate and/or when raising the body.

DANGER!

Do not get into the body or try to repair anything behind the Maximizer when it is working or when the hydraulic pump or engine is still running. Personnel authorized to get into the body MUST first complete the lockout/tagout procedure required by the employer.

WARNING!

While collecting recycling and/or organic materials, watch for explosive objects such as television tubes, fluorescent tubes, cans under pressure, etc. The operator MUST wear safety equipment such as safety gloves and protective footwear at all times.

- Prior to leaving any malfunctioning unit, the parking brakes must be set, the pump switch disengaged, the engine turned off, the ignition key removed, and using a non-reusable fastening device, place a sign on the steering wheel indicating the unit is inoperative. For more information, see *Lockout/Tagout Procedure* on page 22.
- Know your machine. Know the location and function of all controls, gauges, instruments and protective devices.
- It is the operator's responsibility to ensure that operation of the unit is in accordance with the guidelines contained in the Operator's manual and in accordance with all applicable codes, including the Occupational Safety and Health Act (OSHA) and the American National Standards Institute (ANSI) regulations.
- Start the engine following the manufacturer's recommended procedure.
- *Never* drive this vehicle with the tailgate unlocked.
- TOP SELECT™ vehicles are primarily designed to be operated *by only one person.* However, if Labrie Enviroquip Group customers elect to operate the vehicle with more than one worker, additional safety items shall be installed *to protect the co-worker* from hazardous situations.

IMPORTANT: In such cases, Labrie Enviroquip Group *must be informed* of every and all units that will be operated by more than one worker. Labrie Enviroquip Group will then determine and supply, at the customer's expense, the required safety items. For additional information, please contact Labrie*Plus* at 1-877-831-8250 in Canada or 1-800-231-2771 in the U.S.

- For any work (including cleaning and inspecting) that has to be done between the body and the chassis, *always* use the body safety prop. Also, the vehicle *must* be on level ground.
- Before opening and closing the tailgate and/or raising the body, make sure no one is behind the vehicle.
- Stand clear when the tailgate is being raised or lowered and during the unloading cycle. If it is necessary to manually clear the debris from the tailgate, use a long metal probe and DO NOT stand under the tailgate.
- Do not get into the hopper compartment or try to repair anything inside when the hydraulic pump is still running. Personnel authorized to get into the hopper *must* first lock out and tag out the vehicle, as required by the employer. For more information, see *Lockout/Tagout Procedure* on page 22.

- *Never* stand near or underneath a raised bucket.
- *Never, under any circumstances* (maintenance or otherwise), stand underneath a *loaded* body.

Hydraulics

- Hydraulic fluid operates under high temperatures. Avoid contact with piping, hoses or cylinders to prevent burns.
- Never use hands to check for leaks. Hydraulic fluid escaping under pressure may cause injury.
- In case of injury seek proper medical treatment immediately.

Fire Protection

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

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

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).

TOP SELECT™ vehicles are equipped with a 5-lb fire extinguisher, which is located inside the cab. A 20-lb fire extinguisher may also be installed as an option. Each fire extinguisher must be checked regularly by qualified personnel.

Figure 2-1 20-lb fire extinguisher (left); 5-lb fire extinguisher (right)

NOTE: Location of fire extinguisher may vary according to chassis model.

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

Summary of Daily Maintenance

There are basic steps to be performed daily in maintaining your TOP SELECT™ unit. Any other necessary maintenance operations are presented further on in this guide. You must first be familiar with all the precautions outlined in this manual before going any further.

When a TOP SELECT™ unit is brought in for daily maintenance, you must:

1. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
2. Perform daily cleaning by following the instructions in section *General Cleanliness* on page 27.
3. Perform the daily inspection as instructed in the *Operator's Manual*.

   If anything wrong comes up, perform a visual inspection (refer to "Monthly Visual Inspection" on page 33).
4. Carry out the necessary maintenance operations following the visual inspection.
5. Review the preventive maintenance chart and perform any due care.
6. If any issue has been reported as wrong, go through the troubleshooting chart to fix the problem.

Safety Features

Safety Kits

A first aid kit and a triangle kit are provided with the truck.

Safety Decals

Pay careful attention to all safety and warning decals while operating/working in and around your TOP SELECT™ unit. Keep your decals clean and in good condition at all times. For replacement decals, either individual or complete decal kits, call Labrie*Plus* at 1-800- 231-2771 in the U.S. or 1-877-831-8250 in Canada, and order using the part numbers as printed on the bottom of the decal. Bilingual decals are available in English/Spanish or English/French versions.

See your *Top Select™ Operator's Manual* for a list of decals that are used on the truck. Be sure to familiarize yourself with those decals.

Body Safety Prop

Safety props ensure that heavy body parts will not move inadvertently.

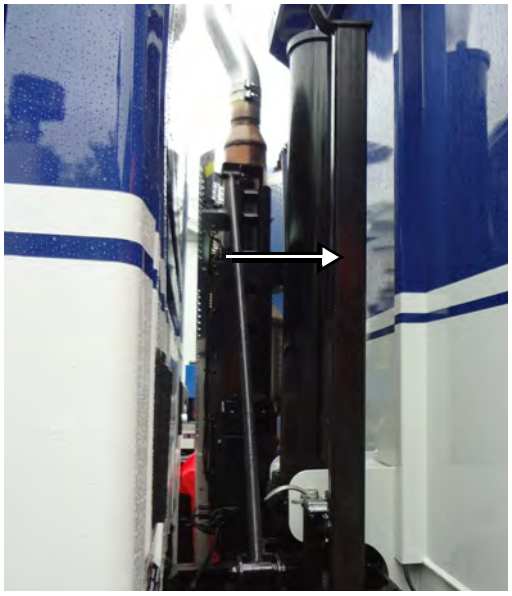
Setting the Body Safety Prop

The body safety prop ensures that an ***empty*** body will not lower when you are working underneath it.

DANGER!

Always set the body safety prop when performing maintenance underneath a raised body. Failure to do so may result in severe injury, or even death.

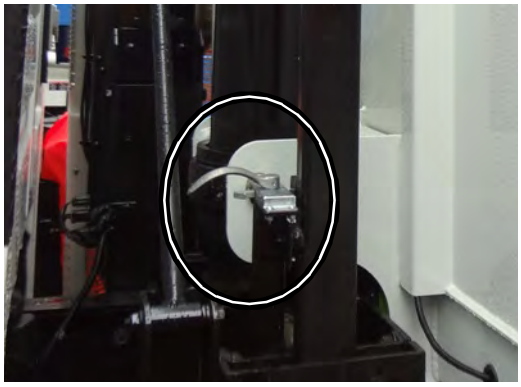
Figure 2-2 Body safety prop



To set the body safety prop:

1. Make sure that there is enough clearance above the body to raise it safely.
2. Start the engine.
3. Turn ON the pump switch.
4. Raise the body until the safety prop is free to tilt under it.
5. Release the safety prop using the safety prop handle and position it adequately.

Figure 2-3 Safety prop handle



6. Lower the body until it rests on the safety prop.
7. Turn OFF the pump switch.
8. Stop the engine.
9. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 22).

You can now work safely underneath the body.

Putting the Body Safety Prop Back in Place

To put the body safety prop back in place:

1. Make sure that there is enough clearance above the body to raise it safely.
2. Start the engine.
3. Turn ON the pump switch.
4. Raise the body until the safety prop can move freely.
5. Put the safety prop back in its place.
6. Lower the body completely.
7. Turn OFF the pump switch.
8. Stop the engine.

Tailgate Safety Prop

The tailgate safety prop is used to support and keep the tailgate open during inspection or maintenance procedures. It is mandatory to set the safety prop every time the tailgate is open for such purposes.

IMPORTANT: Make sure that the body is empty before using safety props.

WARNING!

The tailgate safety prop shall be set each time the tailgate is open for inspection or maintenance purposes.

WARNING!

Always use the tailgate safety prop when working under a raised tailgate. The prop must be used even if the tailgate is fully raised. Failure to do so may cause serious injury or even death.

Setting the Tailgate Safety Prop

To set the tailgate safety prop:

1. Make sure that the body is empty.
2. Remove the tailgate-locking safety pin.

Figure 2-4 Safety pin

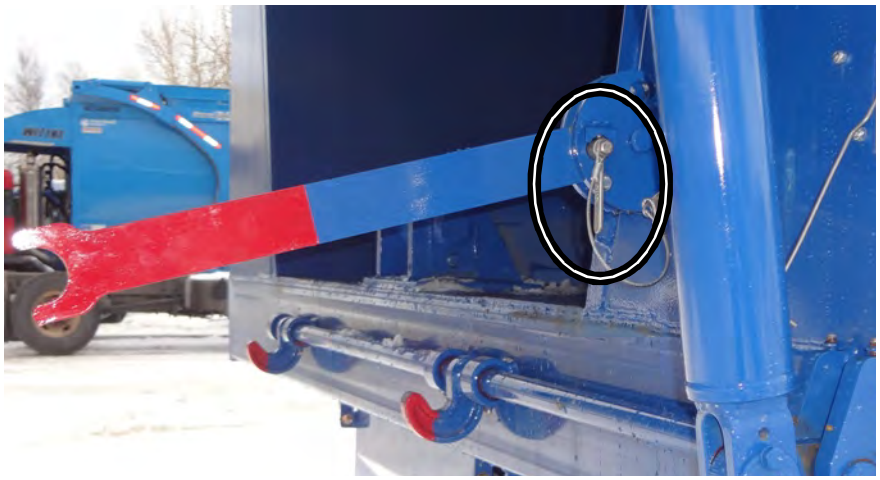
3. Start the engine.
4. Turn ON the pump switch.

DANGER! Prior to raising the tailgate, make sure that no one is standing behind the vehicle and that the body is empty.

5. With the TAILGATE control lever on the cab console, open and raise the tailgate by about 3 feet (enough to tilt the safety prop).
6. Tilt the prop into position and install the safety pin (see Figure 2-5).

DANGER! Stand clear of tailgate path while setting the safety prop.

Figure 2-5 Prop safety pin



7. Lower the tailgate onto the safety prop using the TAILGATE control lever on the cab console.
8. Turn OFF the pump switch.
9. Stop the engine.
10. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 22).

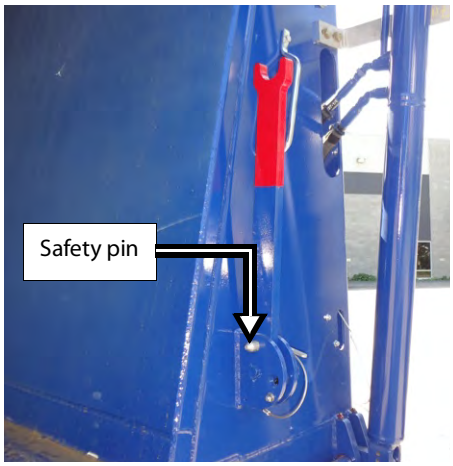
Putting the Tailgate Safety Prop Back in Place

To put the tailgate safety prop back in its home position:

1. Start the engine.
2. Turn ON the pump switch.
3. Raise the tailgate by about 3 feet.
4. Remove the prop safety pin (see Figure 2-5).
5. Raise the tailgate safety prop up to its storage position (see Figure 2-6).

DANGER! Stand clear of tailgate path while putting the safety prop back in its home position.

Figure 2-6 Tailgate safety prop in storage position



6. Reinstall the safety pin into the base upper hole to secure the tailgate safety prop (see Figure 2-6).
7. With the TAILGATE control lever on the cab console, lower and close the tailgate completely. The TAILGATE UNLOCKED/BODY RAISED light indicator should turn off (see Figure 2-7).
8. Turn OFF the pump switch.
9. Stop the engine.
10. Put back the tailgate-locking safety pin (see Figure 2-4).

Figure 2-7 TAILGATE UNLOCKED/BODY RAISED indicator light

Securing Tailgate Safety Pin

The tailgate safety pin ensures that the tailgate cannot be opened accidentally. This pin must be in place unless you are unloading refuse or servicing the tailgate. Remember these two (2) critical points:

- Before operating the TOP SELECT™, secure tailgate with the provided safety pin (located on the lower-right corner of the tailgate) [see Figure 2-8].
- Before opening the tailgate, remove the tailgate safety pin (see Figure 2-9).

WARNING!

Any vehicle with a tailgate not properly secured by a manual locking device (i.e. a tailgate safety pin) is considered unsafe and may not be operated on the highway.

Figure 2-8 Tailgate safety pin in locking position

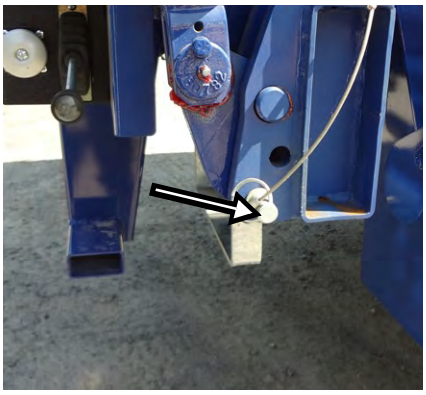
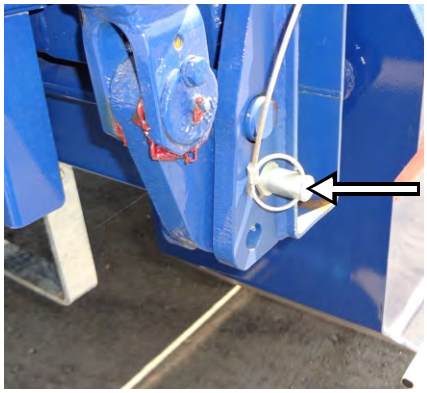


Figure 2-9 Tailgate safety pin in storage position



Loading Bucket Safety Pins

The loading bucket can be locked and secured at the end of its tracks (Figure 2-10 and Figure 2-11) to allow access to the chassis components.

The upper parts of the unit should be accessed by maintenance personnel only and must be reached only with a guarded platform that meets OSHA regulations regarding elevated working stations.

Once engaged, the safety pins mechanically prevent any unwanted downward movement of the loading bucket.

WARNING! Always install the safety pins in both front and rear loading tracks.

To install the loading bucket safety pin:

1. Start the truck's engine.
2. Turn ON the pump switch to engage the hydraulic system.

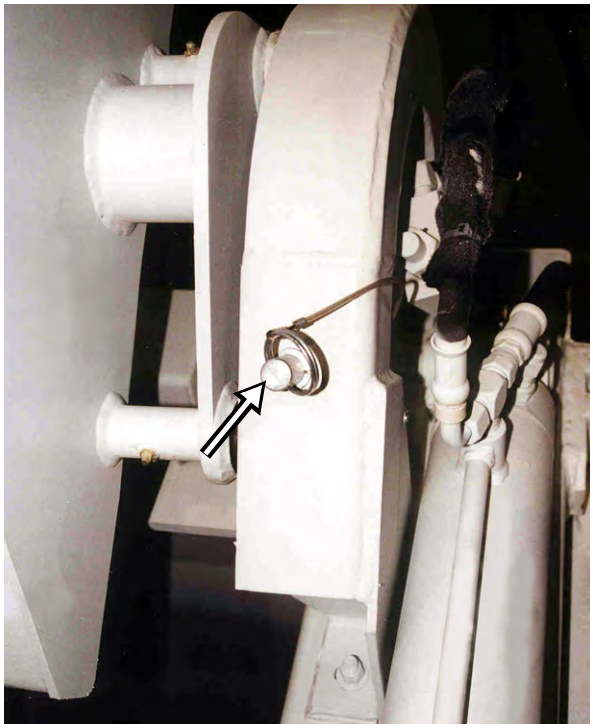
NOTE: Loading bucket has to be empty and in rest down position. Unload prior to continuing.

3. Lift the bucket until it is in full dump position.
4. Turn OFF the pump switch.
5. Stop the engine.
6. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
7. Use a ladder to climb and get to where the safety pins are in stored position, then remove them.

Figure 2-10 Safety pins in stored position

8. Install front and rear safety pins in the tracks.
   Make sure they are firmly held in place.
9. When service is completed, remove the safety pins.
10. Start the truck's engine.
11. Turn ON the pump switch.
12. Slowly lower the bucket to its down position.

Figure 2-11 Safety pin for bucket in full dump position



13. Turn OFF the pump switch.
14. Stop the engine.

Lockout/Tagout Procedure

This recommended lockout/tagout procedure should be followed whenever inspection, repair or general maintenance work is being done on your TOP SELECT™ unit, whether on the road or at the shop.

NOTE: Before the lockout/tagout procedure is applied, the body must be unloaded.

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

To lock out and tag out a TOP SELECT™ vehicle:

1. Park the vehicle on safe level ground and apply the parking brake (see Figure 2-12).

Figure 2-12 Parking brake button

2. Make sure that the body is completely unloaded.
3. Switch OFF the hydraulic pump.
4. Move any of the hydraulic or pneumatic controls to relieve any residual pressure in the system.
5. Turn OFF the engine, remove the key from the ignition, store it in a safe and controlled area (preferably on yourself), and tape over the ignition switch.
6. Turn OFF and lock the master switch.

IMPORTANT: The battery set of the TOP SELECT™ is equipped with a master switch (see Figure 2-13) that must be turned off.

Figure 2-13 Master switch

7. Chock all wheels.
8. Put an "OFF SERVICE" tag on the driver's wheel and on the front windshield.
9. Use safety props to block any system that could move by gravity (open tailgate, raised body, etc.).
10. Drain all air tanks (see Figure 2-14).
11. Verify and inspect any security device and/or mechanism to make sure that there is no bypass and that they are all functional.

DANGER!

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

DANGER!

Before performing any type of welding, remove all remaining residues stuck between the Maximizer and the body using water to prevent fire.
(for units equipped with the optional Maximizer)

Shutting Down the Vehicle

If the vehicle has to be stored for an extended period of time, follow the chassis manufacturer's shutdown and maintenance requirements.

Also:

1. Park the vehicle on hard level ground, and apply the parking brake (see Figure 2-12).
2. Make sure that all moving parts are in their "home" position (tailgate, loading bucket, body, etc.).
3. Turn OFF, in sequence, the hydraulic pump, the electrical system, the engine and the master switch (see Figure 2-13).
4. Drain all air tanks.

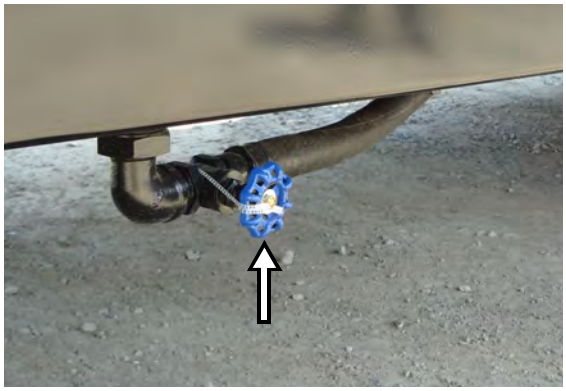
Figure 2-14 Air-tank drain valves (optional setup)

Prior to Start Up

Before starting the vehicle:

- Turn the master switch ON (see Figure 2-13).
- Make sure no system will engage and/or start to operate as you start the engine.
- Make sure the shut-off valve on the hydraulic tank is fully open before starting the vehicle (see Figure 2-15).

Figure 2-15 Suction line shut-off valve



NOTE: The hydraulic tank model may vary according to the options installed on the vehicle.

WARNING!

Failure to fully open the main valve will cause immediate damage to the pump, even if the pump is turned off.

- Make sure the hydraulic pump is disengaged (see Figure 2-16).

Figure 2-16 Hydraulic pump switch

Once the engine is started, wait for the air pressure to build up to *at least* 70 psi.

Figure 2-17 Air pressure indicator

NOTE: Do not operate or move the vehicle until the air pressure has reached 70 psi.

3

General Cleanliness

Cleanliness is part of safety.

Ensure the equipment continues to work properly by removing any stacked garbage around the Maximizer (if installed) or around the separators. Clean all truck lights, warning lights and safety stickers, so you and the surrounding pedestrians and vehicles can be safe around the truck at all times.

Keep the contact surface between the body and the chassis clean. Labrie Enviroquip Group recommends to clean the chassis after every unloading.

Make sure that the side step and other steps (if installed) are clean and free of any slippery material.

WARNING!

Keep the right- and left-hand side cab floor dry and clean to prevent risk of slipping or having an accident.

DANGER!

Use a stepladder to work on higher parts of the vehicle. Remember that the roof is not meant to be walked on. Be very cautious if you have to work on the roof area.

DANGER!

Always use a safety harness when working or walking on the roof of the vehicle.

The next sections will describe how to clean the following parts:

- body (including partitions)
- loading bucket
- chassis

If the Maximizer system is installed on your TOP SELECT™ unit, refer to “Maximizer Maintenance” on page 97.

Daily Cleaning of TOP SELECT™ Body

After dumping all the recycling materials out of the TOP SELECT™ body, perform the following procedure:

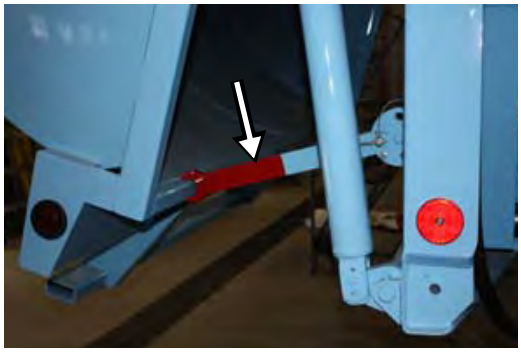
WARNING! Apply the Lockout/Tagout procedure before carrying out body cleaning operations.

WARNING! Be sure to install the tailgate safety prop before entering the body.

NOTE: For a TOP SELECT™ unit with a Maximizer installed, proceed to page 97.

1. Start the truck's engine.
2. Turn ON the pump switch.
3. Open the tailgate enough to set the safety prop in place.

Figure 3-1 Tailgate safety prop



4. Set the tailgate safety prop (see Figure 3-1).
5. Raise the body about twelve (12) inches to help the water evacuate.
6. Lift the loading bucket(s) to open the roof.
7. Install the loading bucket safety pins (see Figure 2-11).
8. Turn OFF the pump switch.
9. Stop the truck's engine.
10. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
11. Enter the body and proceed with the cleaning of the first partition (at the body front-end).
    Using a shovel and a broom, remove as much residues as possible.
    Use pressurized water to clean the rest.

12. When the first partition is clean, release its locks to help the water evacuate.
13. Repeat Steps 11 and 12 to clean the remaining partitions.

    Progress towards the rear of the body until you reach the tailgate.
14. Once all partitions have been properly cleaned up, exit the body
15. Start the truck's engine.
16. Turn ON the pump switch.
17. Lower the body.
18. Put the tailgate safety prop back to its home position.
19. Close the tailgate
20. Turn OFF the pump switch.
21. Stop the engine.
22. Clean the body's exterior walls with water and soap.
23. Rinse.

WARNING!

Be careful not to use pressurized water on cylinder heads, joints or electrical devices such as limit/proximity switches.

Loading Bucket Daily Cleaning

After emptying the TOP SELECT™ unit of all its contents, perform the following bucket cleaning procedure:

1. Start the truck's engine.
2. Turn ON the pump switch.
3. Set the loading bucket to its resting place.
4. Turn OFF the pump switch.
5. Stop the engine.
6. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
7. Remove all the separators and clean them thoroughly (see *Loading Bucket Partition Adjustment* on page 62).
8. Using a shovel and a broom, remove as much dirt and materials as possible.
9. Use pressurized water to wash the loading bucket.
10. When most of the water has drained out of the bucket, put the separators back in place.

NOTE: If your TOP SELECT™ unit has two loading buckets, proceed with the cleaning of the other loading bucket using same procedure.

WARNING!

Be careful not to use pressurized water on cylinder heads, joints or electrical devices such as limit/proximity switches.

WARNING!

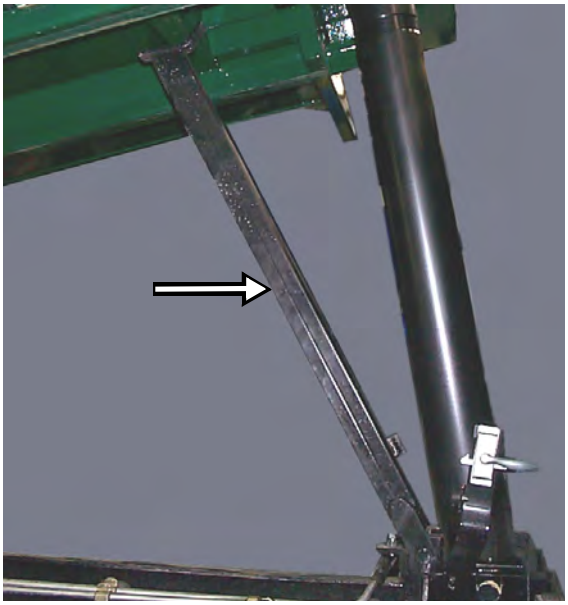
Apply the Lockout/Tagout procedure to prevent accidental/unintentional/unauthorized engine start-up.

Chassis Daily Cleaning

To clean the chassis, do the following:

1. Make sure that there is enough clearance above the body to raise it safely.
2. Start the truck's engine.
3. Turn ON the pump switch.
4. Raise the body until the safety prop is free to tilt under it.
5. Release the safety prop using the safety prop handle (Figure 2-3) and position it adequately.
6. Lower the body until it rests on the safety prop.
7. Turn OFF the pump switch.
8. Stop the engine.
9. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 22).

Figure 3-2 Body Safety Prop



10. Refer to the chassis manufacturer's manual for the proper chassis/rear of cab cleaning procedure.
11. Finish cleaning with pressurized water.

    Be sure the section between the body and frame is clean and free of debris.
12. Start the truck.
13. Turn ON the pump switch.
14. Raise the body to remove the safety prop.
15. Put the safety prop back to its original position.
16. Lower the body completely.
17. Turn OFF the pump switch.
18. Stop the engine.

4

Monthly Visual Inspection

This chapter outlines the general visual inspection procedure for the TOP SELECT™.

NOTE: This procedure may vary depending on what type of options are installed on the vehicle (units may be equipped with a Maximizer hydraulic system, a series of bucket separators, and one or two loading buckets). For more details on each of these options, refer to the appropriate section in this Manual.

While the body and loading buckets should be cleaned out daily, the visual inspection should be done on a monthly basis. This inspection includes the following items:

- the loading bucket
- the roof
- the tailgate
- the body, and
- the chassis

Before carrying out the monthly visual inspection, apply the following procedure:

1. Park the vehicle on safe, level ground and in a place where it can be cleaned out.
2. Ensure that the parking brake is applied.
3. Make sure no one will come close to the vehicle while you perform the visual inspection.

   This inspection includes moving different pieces of equipment such as the loading bucket(s), the tailgate and the body, which can represent a risk to anyone that comes too close to the truck.

The monthly visual inspection should take around half an hour and should take place once the truck has been cleaned up. If performed along with the preventive maintenance program, it will help you keep the TOP SELECT™ in good running and working condition.

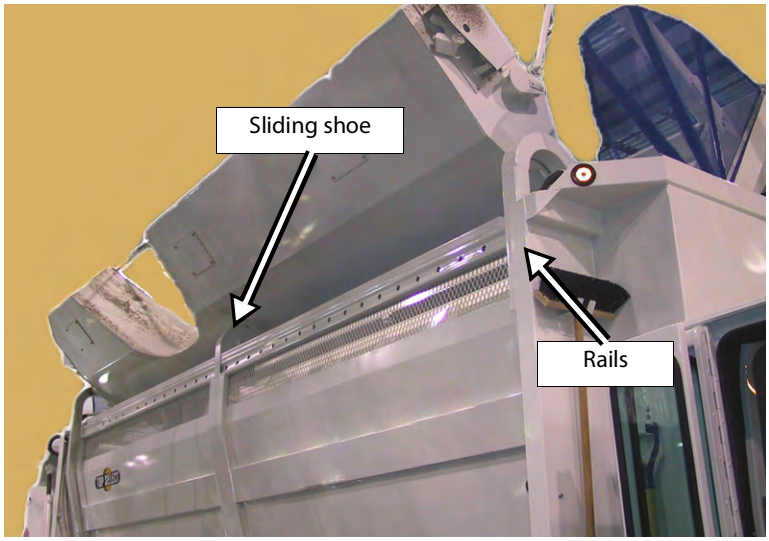
Visual Inspection of the Loading Bucket

To visually inspect the loading bucket, proceed this way:

1. Follow the three preparation steps as described on page 33 before carrying out the visual inspection operations.
2. Start the truck's engine.
3. Turn ON the pump switch to engage the hydraulic system.
4. Move the bucket up and down and look for any irregular movement or improper cushioning.

   If the bucket makes irregular movements or stops abruptly at either end of its up and down movement, any of the following parts may need to be replaced:

Figure 4-1 Bucket Moving Parts

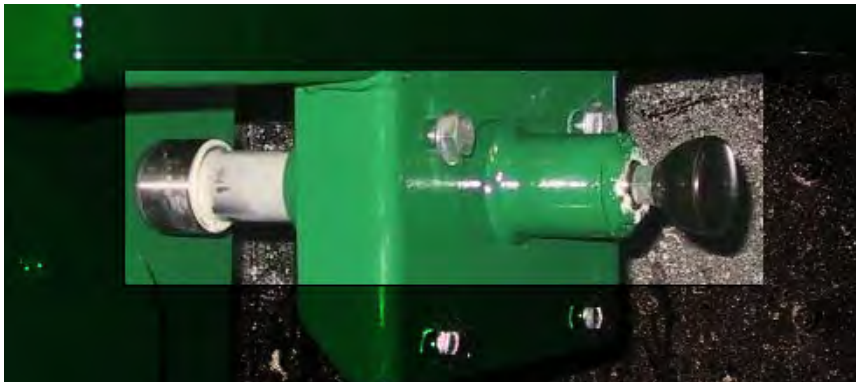


- Rollers (there are 4 rollers; 2 inside each rail at each end of the bucket) - They should be rolling smoothly. If movement is not regular, see *Replacing or Cleaning Container Rollers* on page 46.
- Sliding shoe (see Figure 4-1) - This part is made out of teflon. Check if there are signs of wear on it. Replacement must be done before it is completely worn out. See *Sliding Shoe Replacement Procedure* on page 47.
- Rails (there are 2 rails - one at each end of the bucket) - Look for dirt or any small object that could cause premature wear. There should be no grease in the rails, because grease can cause glass, grit and other deposits to stick inside the rails causing premature wear of the rollers. Remove grease using pressure steam or solvent.
- Rods between the bucket and the cylinder (2) - Check for loose linkages, locknuts or bad threads. Check all missing anchor bolts or cotter pin. For rod maintenance and repair, see *Replacing Bucket Rod Ends* on page 48.

WARNING!

Apply the Lockout/Tagout procedure before carrying out inspection, parts replacement or maintenance.

Figure 4-2 Grab handle

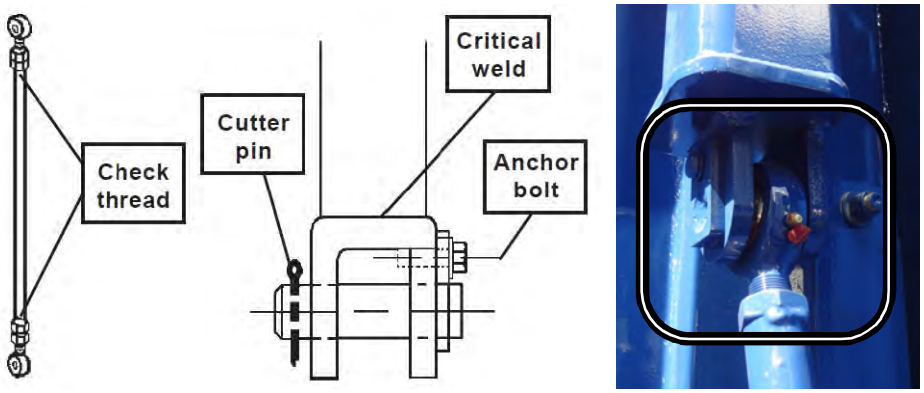


- Optional automatic cart latch - Make sure the manual release slides easily. Verify if the bearing hitting the latch turns freely. That bearing must be close enough to the latch to allow efficient movement of the latching system, otherwise it will need adjustment (see *Adjusting Optional Automatic Cart Latches* on page 51). Check the ball joint for unusual wear. Look inside the bucket at the ball joint's level and inspect the pin joint.

5. Repeat Step 4 if your TOP SELECT™ unit has another loading bucket (i.e. unit with 2 loading buckets).

Figure 4-3 Automatic latch inspection

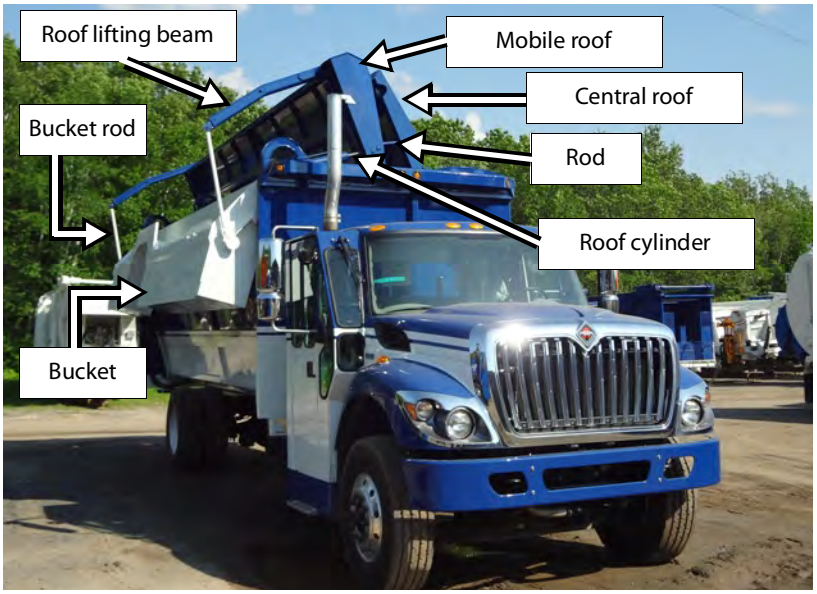
Figure 4-4 Rod end inspection



Visual Inspection of the Roof

On a TOP SELECT™ equipped with one bucket, the roof consists of the following components: two cylinders (one at each end of the mobile roof), two rods (one at each end of the bucket) used to lift the bucket and two moving roofs (mobile and central roofs). A safety pin system is provided to secure the roof for maintenance or inspection purposes when the bucket is up.

Figure 4-5 Roof components



On a TOP SELECT™ equipped with two buckets, the roof consists of the following components: two cylinders (one at each end of the mobile roof, on both sides of the truck), two rods (one at each end of the bucket, on both sides of the truck) used to lift the buckets and two moving roofs (one on each side of the truck). A safety pin system is provided to secure the roof for maintenance or inspection purposes when either or both buckets are up.

To perform the visual inspection of the roof, do the following:

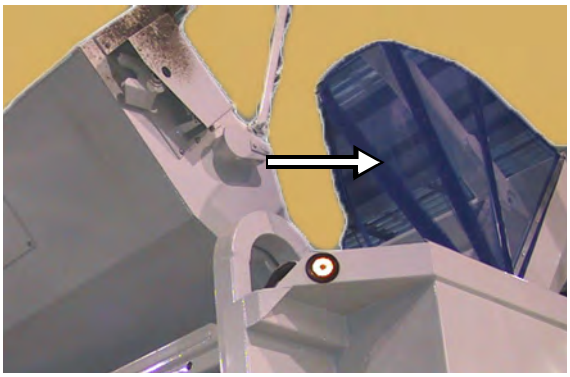
1. Follow the three preparation steps as described on page 33 before carrying out the visual inspection operations.
2. Start the truck's engine.
3. Turn ON the pump switch to engage the hydraulic system.
4. Move the bucket up and down and check the movement of the rod that is connected to the roof lifting beam (see Figure 4-5).

   The rod should not swing sideways. If so, go to the rod adjustment procedure (see *Replacing Rod Ends of Mobile Roof* on page 53).
5. Check the movement of both cylinders.
6. If the bucket tends to go back down or if the lifting force seems to be decreasing, go to *Detecting Internal Leak in Cylinders* on page 122.
7. Move the bucket all the way up and install the safety pins (see *Loading Bucket Safety Pins* on page 20).

8. Turn OFF the pump switch.
9. Stop the engine.
10. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
11. Take a ladder of appropriate size and bring it close to the front roof lifting beam.
12. Climb up to inspect the front cylinder.
13. Check for dirt on the front beam.

    If you find some, determine if that dirt is of greasy type. If so, refer to the *Troubleshooting* section.
14. If a spillage deflector is present (Figure 4-6), make sure it is not ripped.
15. Visually inspect the weld on the lifting beam.
16. Repeat Steps 11 - 15 for the bucket back end.
17. If your TOP SELECT™ unit has two buckets, repeat Steps 2 - 16 for the other bucket.

Figure 4-6 Spillage deflector



Visual Inspection of the Tailgate

WARNING!

Always set the tailgate safety prop when the tailgate is open for inspection or maintenance purposes.

WARNING!

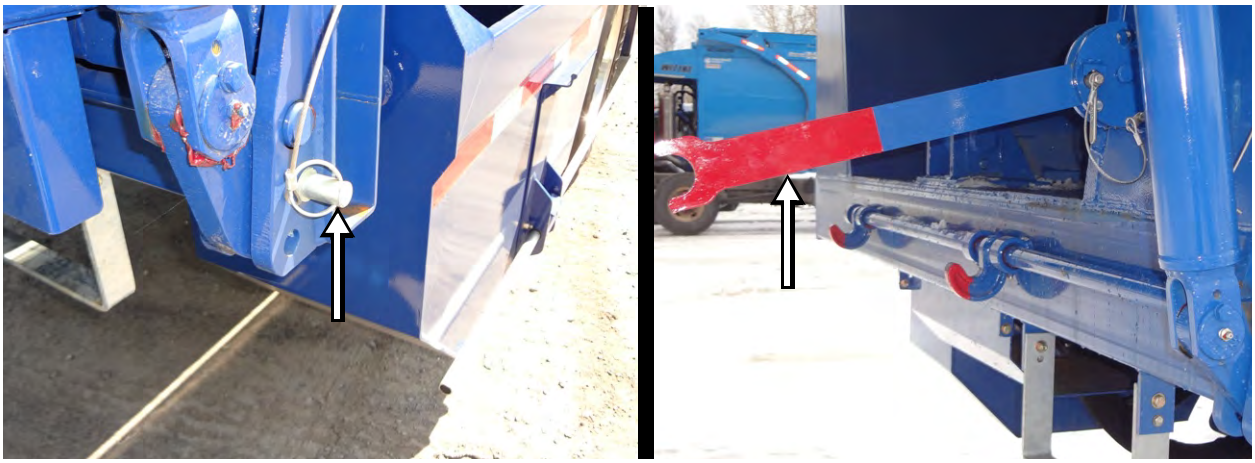
Always use the tailgate safety prop when working under a raised tailgate. The prop must be used even if the tailgate is fully raised. Failure to do so may cause serious injury or even death.

To perform the visual inspection of the tailgate, apply the following procedure:

1. Follow the three preparation steps as described on page 33 before carrying out the visual inspection operations.
2. Inspect the welding area around the hinges.
3. Check tailgate hinges and pins.

4. Check tailgate safety pins for signs of wear.
5. Check cylinder pins and circlips.
6. Start the truck's engine.
7. Turn ON the pump switch to engage the hydraulic system.
8. Ask a helper to activate the tailgate.
9. While the tailgate is moving up and down, check the tailgate cylinder.
10. If the tailgate tends to go back down or if the lifting force seems to be decreasing, go to *Detecting Internal Leak in Cylinders* on page 122.
11. Check the bottom end of the tailgate cylinder and if you find some grease there, this could be a sign of an oil leak. Refer to the *Troubleshooting* section for a list of probable causes and solutions.
12. Open the tailgate and set the safety prop (see *Tailgate Safety Prop* on page 16).
13. Check the tailgate rubber seal (optional).
14. Put the safety prop back to its storage position.
15. Close the tailgate completely.
16. Turn OFF the pump switch.
17. Stop the engine.

Figure 4-7 Safety pin (left) and safety prop (right)



Visual Inspection of the Body

DANGER!

Always set the body safety prop when performing inspection or maintenance underneath a raised body. Failure to do so may result in severe injury, or even death.

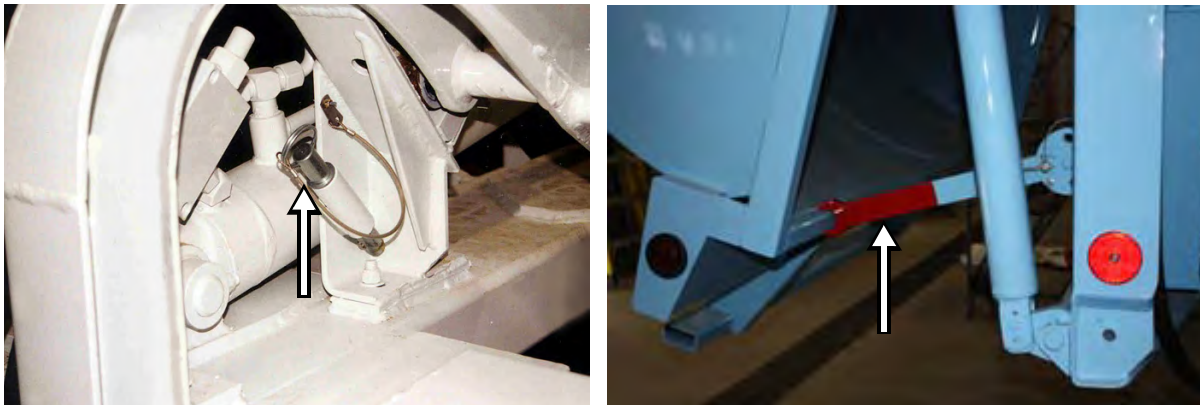
To carry out the visual inspection of the body, do the following:

1. Follow the three preparation steps as described on page 33 before carrying out the visual inspection operations.

2. Start the truck's engine.
3. Turn ON the pump switch to engage the hydraulic system.
4. Fully raise the loading bucket and set the bucket safety pins.

   On a TOP SELECT™ unit with 2 loading buckets, raise both buckets completely and set all bucket safety pins.
5. Open the tailgate and set the safety prop.

Figure 4-8 Loading bucket safety pin (left) and safety prop (right)



6. Turn OFF the pump switch.
7. Stop the engine.
8. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
9. Inspect the rail stoppers (Figure 4-9).

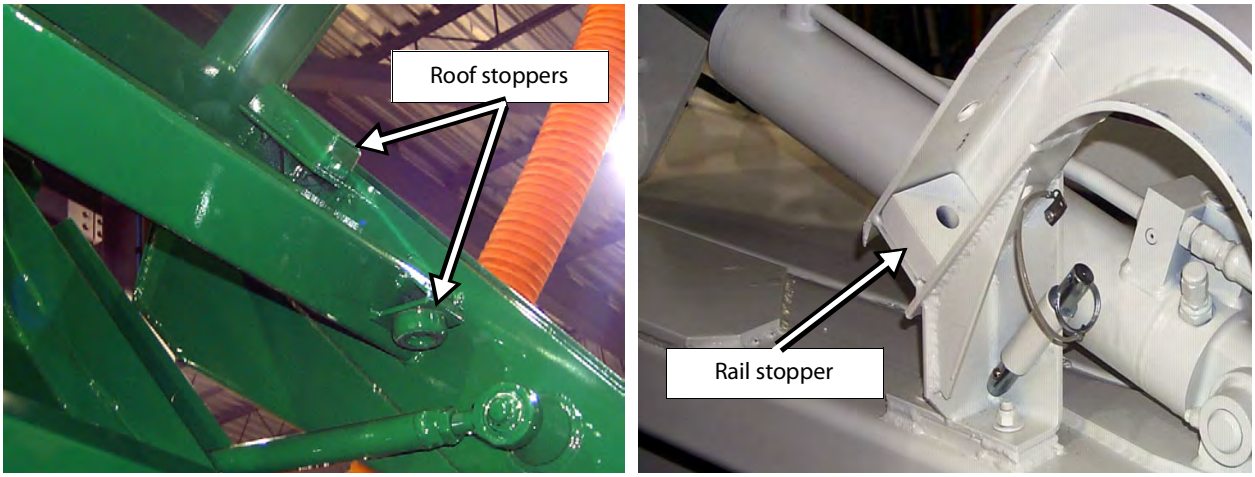
   If they are damaged, replace them both.

NOTE: When replacing the stoppers, the total shim thickness must stay the same.

10. Check the roof stoppers (Figure 4-9) and replace them as needed.

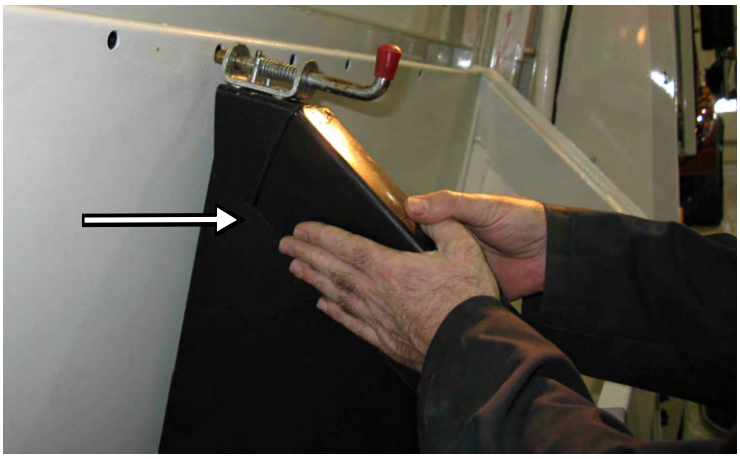
    Up to 5 roof stoppers can be installed on a TOP SELECT™ unit.

Figure 4-9 Roof and rail stoppers



11. Make sure all bucket partitions (Figure 4-10) can be released and adjusted properly.
12. Inspect access doors and rollers on the top sides.
13. Make sure the manual release works properly.
14. Inspect the side wall seals and the bottom seal. Make sure they are in good condition.

Figure 4-10 Bucket partition



15. If the truck is equipped with partitions with air-actuated release, check the air distribution system. Make sure the air hoses are in good condition (see Figure 4-11).

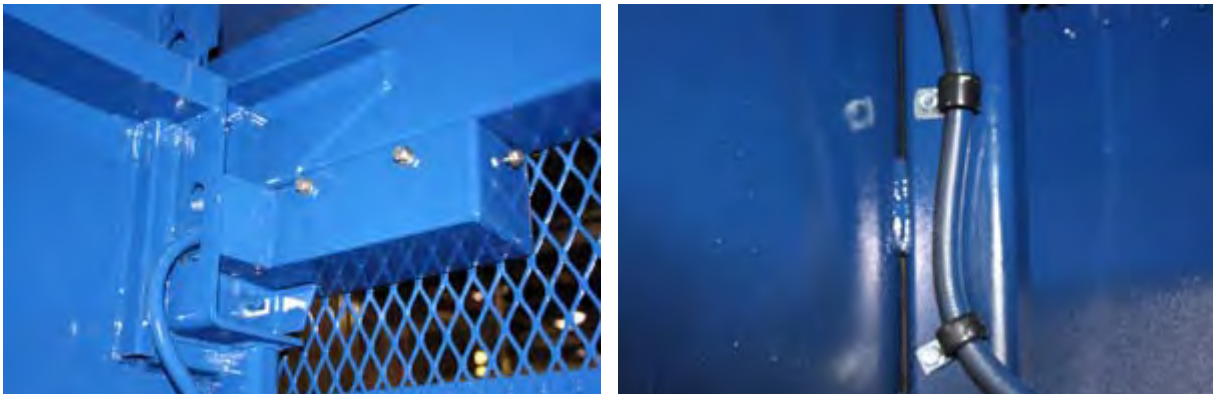
WARNING! Apply the Lockout/Tagout procedure before performing the visual inspection.

DANGER!

Do not use props with a loaded body.

Never stand under a loaded body.

Figure 4-11 Air hose



Visual Inspection of the Chassis

WARNING!

Always set the body safety prop when performing inspection underneath a raised body. Failure to do so may result in severe injury, or even death.

NOTE: Refer to the chassis manufacturer's manual for information on how to proceed with the inspection of the chassis.

To prepare the truck for the chassis inspection, do the following:

1. Follow the three preparation steps as described on page 33 before carrying out the visual inspection operations.
2. Start the truck's engine.
3. Turn ON the pump switch to engage the hydraulic system.
4. Raise the body high enough to set the body safety prop (see *Body Safety Prop* on page 14).
5. Lower the body so that it rests on the prop.
6. Turn OFF the pump switch.
7. Stop the engine.
8. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).

9. Carry out the inspection of the chassis as per the guidelines outlined in the chassis manufacturer's manual.

WARNING! Apply the Lockout/Tagout procedure when carrying out visual inspection.

10. Make sure that connections between all hoses and pipes are tightened and there are no oil leaks.
11. Check the body hoist cylinder. Make sure no leaks occur.

NOTE: If the cylinder tends to come back down slowly or seems to have lost strength, the cause may be an oil leak somewhere on the cylinder or at the hose fittings. Go to *Troubleshooting* on page 117 for possible solutions.

12. Once the inspection is complete, start the truck's engine.
13. Turn ON the pump switch.
14. Raise the body high enough to put the safety prop back to its original position.
15. Lower the body completely.
16. Turn OFF the pump switch.
17. Stop the engine.

5

Loading Container Maintenance

This section outlines the maintenance procedures related to the loading container and its components.

General Maintenance on the Loading Container

Safe operation of the loading container is very important. On a daily basis, check all pin joints for missing anchor bolts and cotter pins. Verify all critical welds on the lifting arms. Check the linkages for loose nuts or bad threads; replace or repair all faulty items immediately. Call factory for any structural problem that may endanger the operator's safety.

NOTE: Locknuts must be properly torqued and may be tack welded for increased resistance.

Figure 5-1 Locknuts on bucket rod

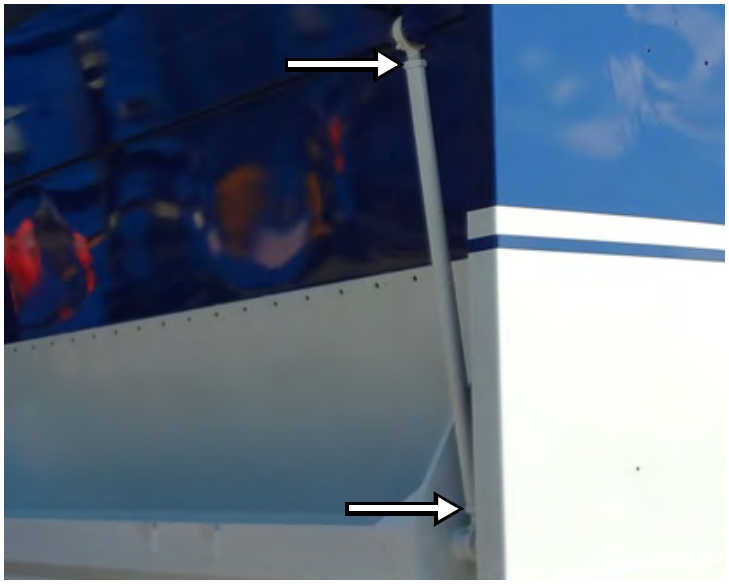
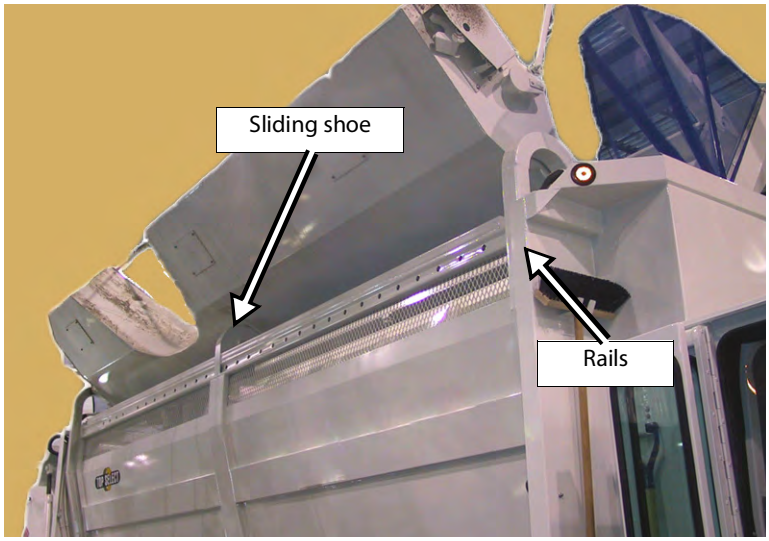


Figure 5-2 Bucket up



Bucket Swing Out Procedure

There are at least two reasons to have the bucket taken out of the rails. The first is to change the rollers and the second, to remove the bucket.

WARNING!

At least 2 people are needed to safely perform this procedure.

Bucket swing out procedure:

1. Locate the rail access cover.

Figure 5-3 Rail access cover

2. Raise the bucket so that the rollers are in the middle of the access trap.
3. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).

4. Take a 4-foot, 2 in. x 4 in. wood beam (see Figure 5-4) and set one end in the rail, at least 4 inches below the rollers.
5. Apply a lever force against the loading bucket to push it towards the body.

   This will reduce pressure from the rollers against the access cover.

WARNING!

Be very careful while performing this step. Failure to do so could result in death or in serious injury.

Figure 5-4 Using a wood beam

6. Have a helper open up the access cover while you maintain the bucket pushed inwards.
7. Slowly step back with the beam to let the rollers swing out of the rail.

Figure 5-5 Bucket rollers and rail

8. Repeat Steps 3 to 6 for the two rollers located at the other end of the loading bucket.
9. Clean the rails with pressurized steam or any grease cleaning device.
10. When the maintenance is completed, use the beam to push the bucket back in the rail and have a helper put the covers back in place.

Replacing or Cleaning Container Rollers

The container rollers should be checked on a daily basis. Replace them as soon as they stop rolling properly or show signs of wear and tear either on the rollers themselves or on their shaft. Examples of signs of wear and tear could include: oval, uneven and bumpy surfaces.

To replace or clean the rollers, do the following:

1. Follow the *Bucket Swing Out* procedure (see *Bucket Swing Out Procedure* on page 44).
2. Pull rollers to take them out.

Figure 5-6 Sliding out a roller

3. If you keep the rollers that you have just taken out, wash them with solvents in a small-parts washer.

   Make sure you clean out all the old lubrication on the shaft of the roller using a rag damped in solvent.

Figure 5-7 Parts washer

4. Reinstall the recently cleaned-out rollers or install new ones.

5. Follow the last step of the *Bucket Swing Out* procedure (see Step 10 on page 45).
6. Grease the roller at the grease point next to it using general-purpose water resistant grease.
7. Verify both rubber stoppers inside the tracks as they may be the cause of roller failure.

   Always secure the roof before attempting any work (see *Loading Bucket Safety Pins* on page 20).

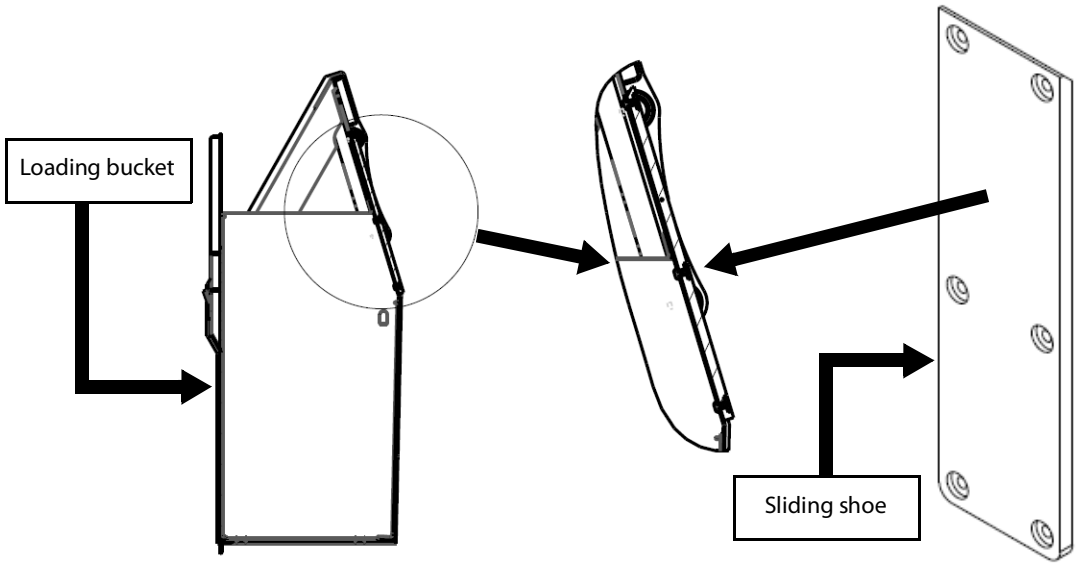
Sliding Shoe Replacement Procedure

The container sliding shoe is made of teflon and should be checked on a daily basis. Replace it as soon as thickness goes under ¼ inch.

To replace the sliding shoe, proceed as follows:

1. Start the truck's engine.
2. Turn ON the pump switch to engage the hydraulic system.
3. Raise the bucket completely.
4. Turn OFF the pump switch.
5. Stop the engine.
6. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
7. Use a ladder to install the loading bucket safety pins (see *Loading Bucket Safety Pins* on page 20).
8. Use same ladder to gain access to the sliding shoe located at the rear of the bucket.
9. Remove the T-nuts and then the sliding shoe.

Figure 5-8 Loading bucket and sliding shoe



10. Clean up both sides thoroughly around the holes to remove rust or remaining paint from the screws.
11. Look at the surface and remove dirt stuck around that could prevent the proper operation of the sliding shoe.
12. Replace the sliding shoe and reinstall the T-nuts.

Replacing Bucket Rod Ends

If maintenance or replacement of the bucket rod ends is required, apply the following procedure:

1. Ensure that the parking brake is applied and the vehicle is locked out and tagged out for maintenance purposes. Refer to “Lockout/Tagout Procedure” on page 22.

DANGER! At least 2 people are required for this procedure.

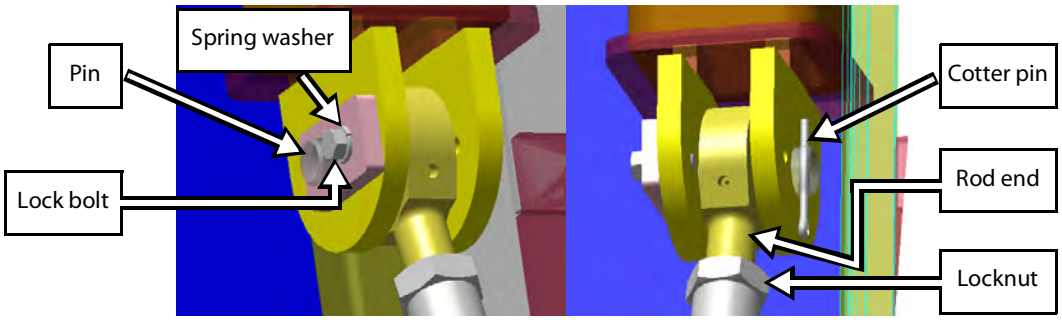
NOTE: Perform this procedure on one rod at a time.

2. Place a jack under the bucket.

Figure 5-9 Jack placed under bucket

3. On the upper end of the rod, remove the cotter pin, pin, lock bolt and spring washer.

Figure 5-10 Rod end attachment hardware



4. Lower the rod by swiveling it downward.
5. Loosen the locknut and unwind to remove the rod end.
6. Perform maintenance or reinstall a new rod end.
7. Reverse this procedure to reinstall the upper end of the rod.

You can refer to the above procedure to remove the lower end of the rod.

Adjusting Length of Bucket Rods

The adjustment of the bucket rods is done to correct the bucket unloading angle which must be between 45° and 50° and the horizontal level of the bucket.

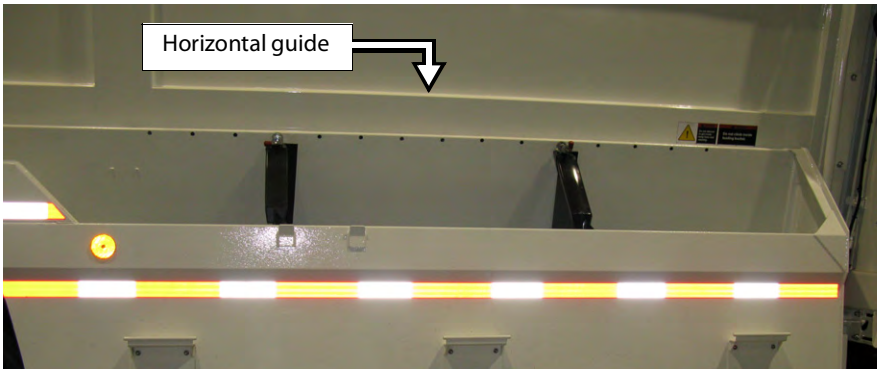
NOTE: The tolerance in the horizontal plane of the bucket is ½ inch.

To adjust the length of the rods:

1. Set the bucket in parallel position with the body.

NOTE: You can use a pair of jacks, one at one end of the bucket and one at the other end, and use the horizontal guide on the body as reference (see Figure 5-11).

Figure 5-11 Setting bucket in horizontal position



2. Make sure the stoppers are installed and leveled on the roof.
3. Set the length of the rods by loosening the locknuts at both the upper and lower ends (see Figure 5-10).

NOTE: Locknuts may have been tack welded. If so, you will have to remove the welds before proceeding further with the procedure.

4. Turn the rods to adjust the length until both rods reach the horizontal alignment of the bucket.

DANGER! The rod end must always be inserted a minimum of 1 inch into the rod.

5. Tighten the locknuts.
6. Remove the jacks or any other means you used to set the bucket straight.
7. Raise and lower the bucket a few times.

- If the unloading angle is smaller than 45° when the bucket reaches the stoppers, you will need to shorten the length of the rods to meet the angle requirement (angle must be set between 45° and 50°).
- If the bucket slams on the sliding shoe on its way up, you will need to lengthen the rods to correct this.

Once you reach a good compromise between those two references (that is the unloading angle and the free course of the bucket), the adjustment process is completed.

NOTE: Make sure to tack weld the locknuts once you are finished with the adjustment.

DANGER!

Always apply the Lockout/Tagout procedure before doing any adjustment or repair (see *Lockout/Tagout Procedure* on page 22).

Adjusting Bucket Limit Switch

The backup alarm should sound as soon as the bucket starts moving. If this is not the case, you must adjust the bucket limit switch using the following procedure.

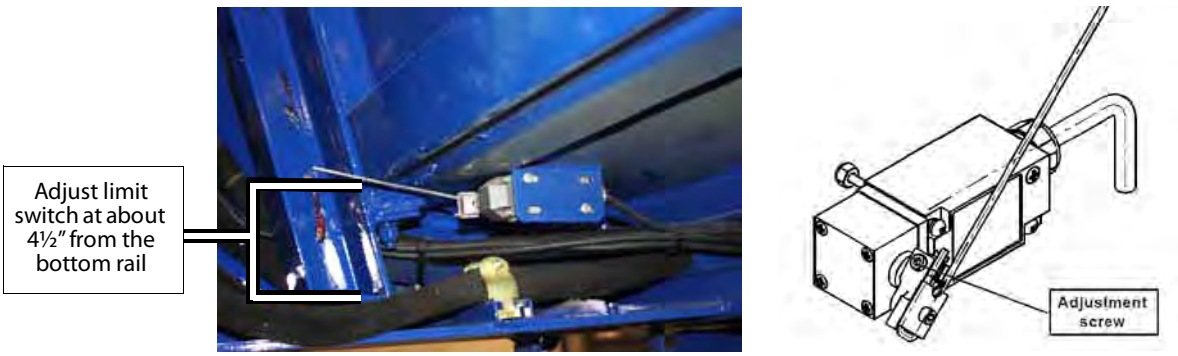
To adjust the bucket limit switch:

1. Raise the loading bucket and locate the corresponding limit switch.
2. Use an Allen key to adjust the length and angle of the limit switch arm.

   The limit switch must be adjusted in such a way that the backup alarm starts sounding as soon as the loading bucket starts rising.

   This safety feature is provided to warn people around to stay away from the vehicle to avoid possible injury and to remind the operator that the loading bucket is still raised.
3. Move the bucket up and down a few times to test the adjustment.
4. Readjust if necessary.

Figure 5-12 Bucket limit switch



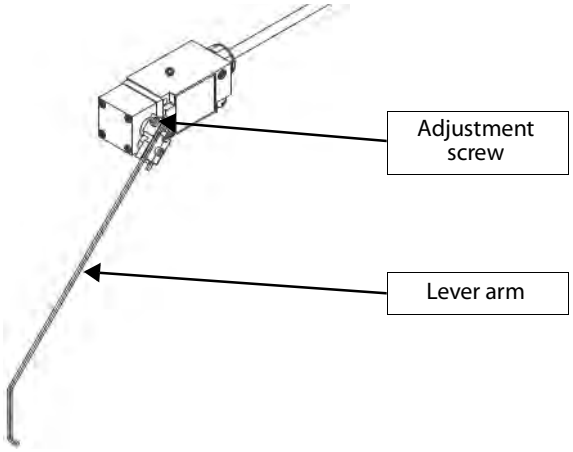
Adjusting Limit Switch Arm

Your TOP SELECT™ unit is equipped with three (3) limit switches: each one is used to detect the movement of a particular moving part: bucket, tailgate or body.

To adjust the limit switch:

1. Loosen the limit switch nut.
2. Move the lever arm to the approximate position where the switch is to be triggered.
3. Tighten up the nut.
4. To fine tune the adjustment, loosen the 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 up the nut.
7. Test the operation.
8. If necessary, repeat steps 1 through 7.

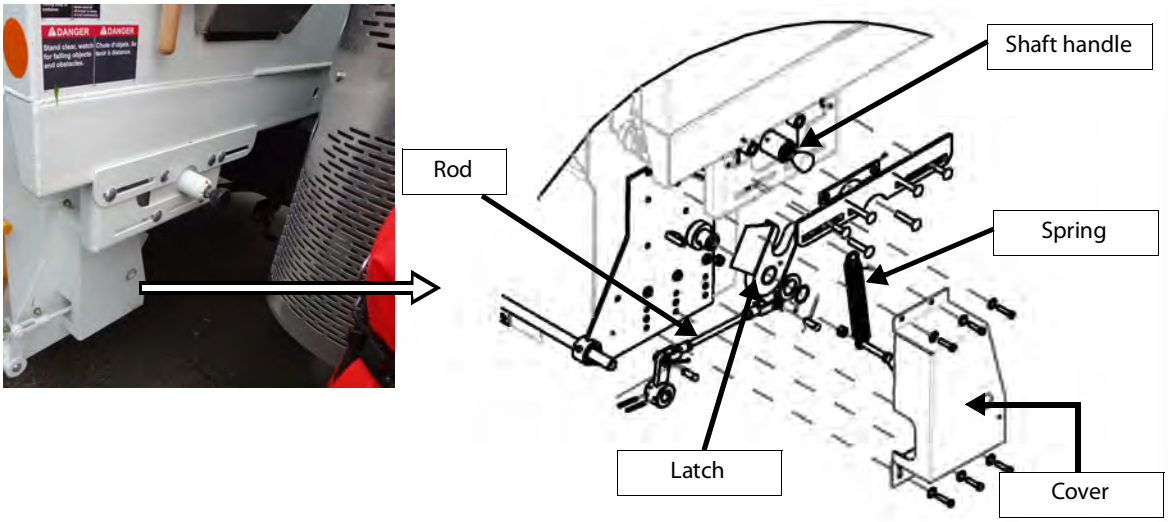
Figure 5-13 Limit switch



Adjusting Optional Automatic Cart Latches

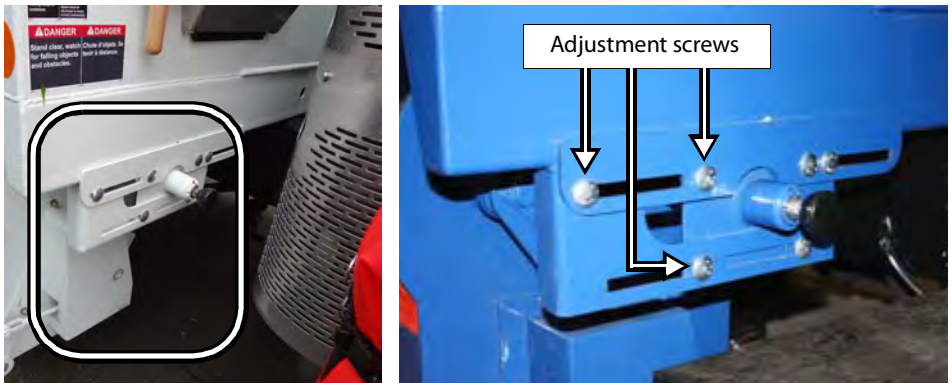
On a daily basis check all components of the bucket latch system are working properly. Make sure the latch goes all the way up. A failure may lead to an operator injury if a fully-loaded roller cart falls off on its way up.

Figure 5-14 Components of the latch system



Verify that the overcenter locking system is properly locked before the bucket goes up. The shaft must be lined up with the center of the latch mechanism.

Figure 5-15 Automatic Cart Latch System



Should the mechanism not be aligned and the latch (see Figure 5-16) not be in the fully up position, apply the following adjustment procedure.

To adjust the automatic latch:

1. Move the bucket to the same height as shown in Figure 5-15 (left picture).
2. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
3. Use the adjustment screws (Figure 5-15, right picture) to align the shaft with the latch.
4. Once the alignment is done, tighten the screws.
5. Start the truck's engine.

6. Engage the pump.

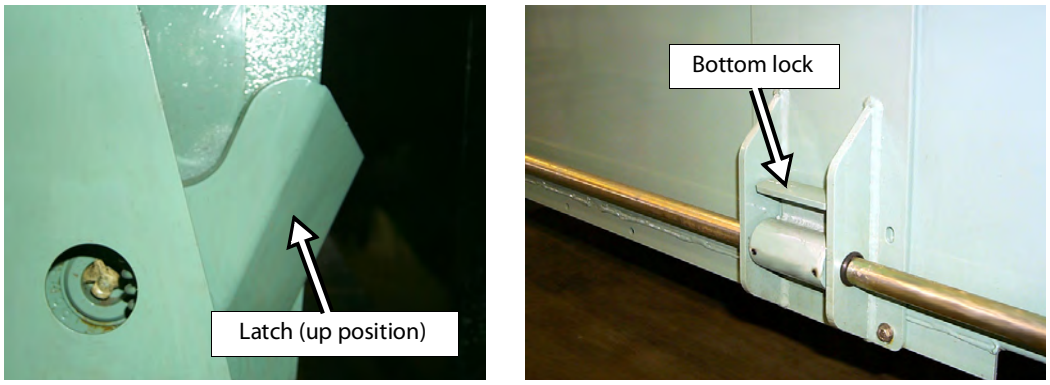
WARNING!

Do not forget to fully open the hydraulic shut-off valve before starting the engine (see *Prior to Start Up* on page 24).

7. Test the system to make sure the cart latch comes back up.
8. Cycle the loading bucket 2 or 3 times.
9. If the latch system is properly adjusted, check the screws are correctly tightened.
10. Make sure the shaft moves smoothly and the bearing turns easily. Add lubrication if needed.

NOTE: If the latch system is not properly aligned, repeat the procedure.

Figure 5-16 Latch mechanism



Replacing Rod Ends of Mobile Roof

NOTE: This procedure only applies to units equipped with one loading bucket.

To replace both rod ends of the mobile roof:

1. Ensure the parking brake is applied.

DANGER!

At least 2 people are required for this procedure.

NOTE: Perform this procedure one rod at a time.

2. Start the truck's engine.
3. Engage the hydraulic pump.

4. Raise the loading bucket completely.
5. Disengage the hydraulic pump.
6. Stop the engine.
7. Apply the Lockout/Tagout procedure (refer to "Lockout/Tagout Procedure" on page 22).
8. Install the loading bucket safety pin (refer to "Loading Bucket Safety Pins" on page 20).

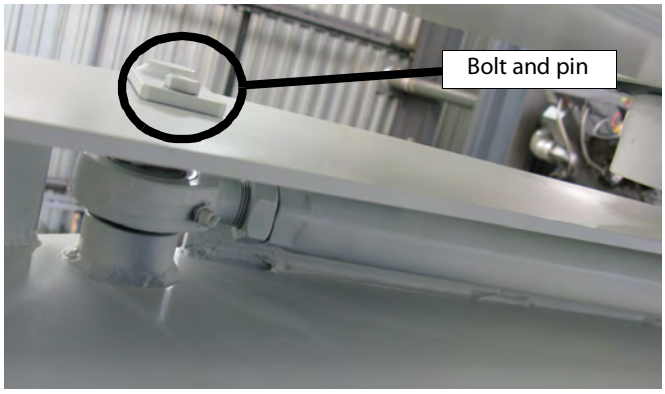
DANGER! Always wear a safety harness when doing any maintenance on the roof.

9. On one end of the rod, remove the snap ring and the pin.

Figure 5-17 Roof mechanism - rod end A

10. On the other end of the rod, remove the lock bolt and the pin to release the rod.

Figure 5-18 Roof mechanism - rod end B



11. Remove the rod and make the necessary adjustment or replacement.
12. Reverse the removal steps to reinstall the rod.

NOTE: Perform this procedure for the other mobile roof rod, if need be.

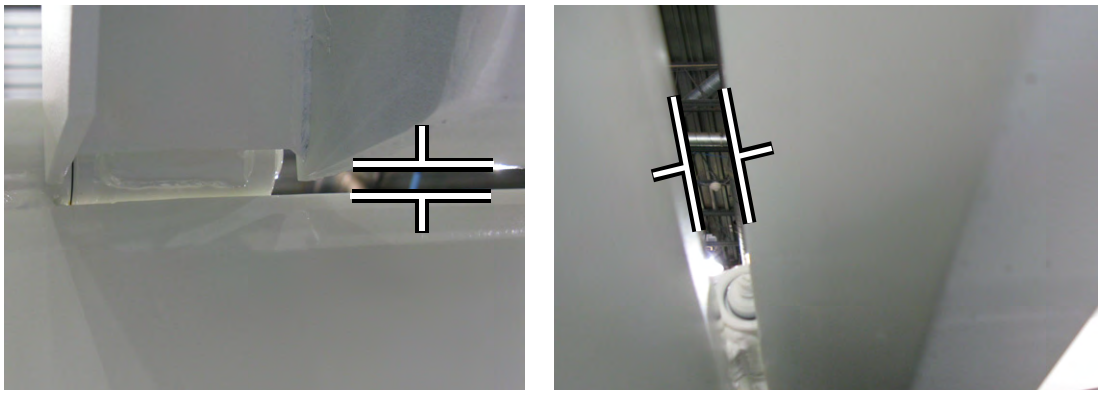
Adjusting Length of Mobile Roof Rods

The adjustment of the rods on the mobile roof is done to make sure the mobile roof position is horizontally parallel to the adjacent roofs and its movement is free and smooth.

To adjust the length of the mobile roof rods:

1. Ensure the roof is set horizontally parallel to the other roof structures on both ends, rear and front, as well as on both sides.

Figure 5-19 Setting roof parallel to other roof structures



2. Adjust the length of both rods to meet the requirement of horizontal alignment of the roof.

Replacing Loading Bucket Hydraulic Cylinders

When the hydraulic cylinders that operate the loading bucket need maintenance or replacement, perform the following procedure.

To replace the loading bucket cylinders, do the following:

1. Ensure the parking brake is applied.

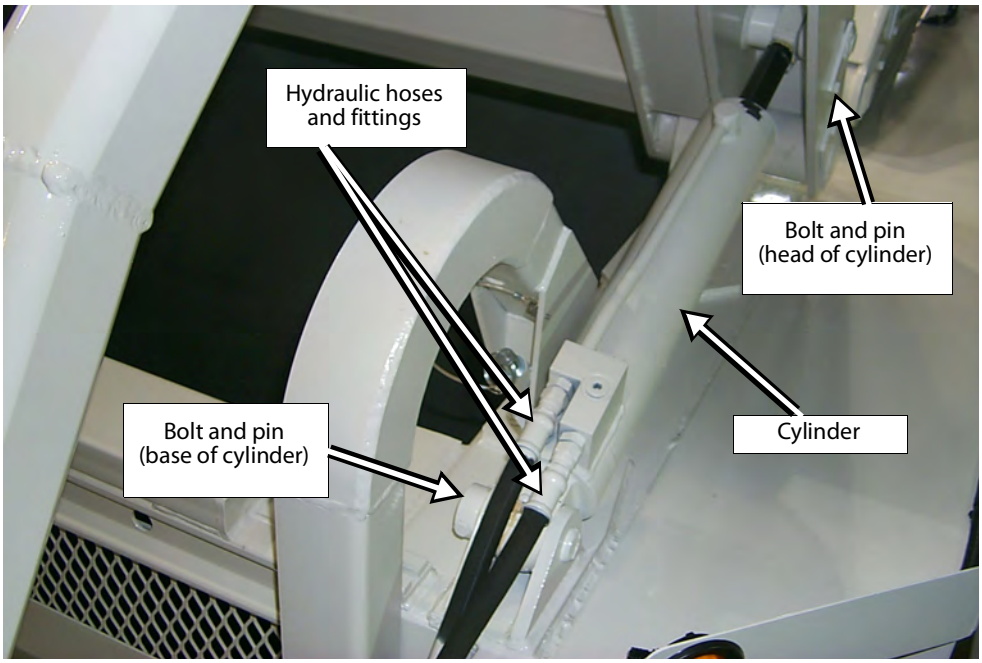
DANGER! At least 2 people are required for this procedure.

NOTE: Perform this procedure one cylinder at a time.

2. Start the truck's engine.
3. Engage the hydraulic pump.
4. Raise the bucket to the fullest.
5. Disengage the hydraulic pump.
6. Stop the engine.
7. Apply the Lockout/Tagout procedure (refer to "Lockout/Tagout Procedure" on page 22).

8. Install the loading bucket safety pins (see *Loading Bucket Safety Pins* on page 20).
9. Remove both hydraulic hoses (see Figure 5-20) from the cylinder.

Figure 5-20 Bucket cylinder



10. At the base of the cylinder, remove the lock bolt and the pin.
11. At the head of the cylinder, attach the head to an appropriate lifting device then remove the lock bolt and the pin to release the cylinder.

Figure 5-21 Removing base and head pins

12. Carefully lift the cylinder and move it to the maintenance bay.
13. With the same lifting device, lift the new cylinder and set it in its operating position.
14. Reverse the removal steps to reinstall the new cylinder.

Removing the Roof Pivot

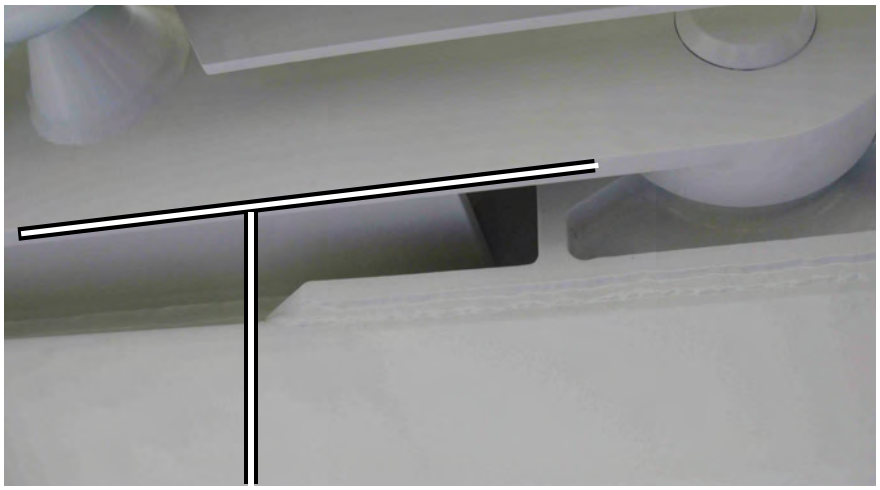
It may be necessary to remove the roof pivot to do maintenance or replacement work.

To remove the roof pivot, proceed as follows:

1. Ensure that the parking brake is applied.

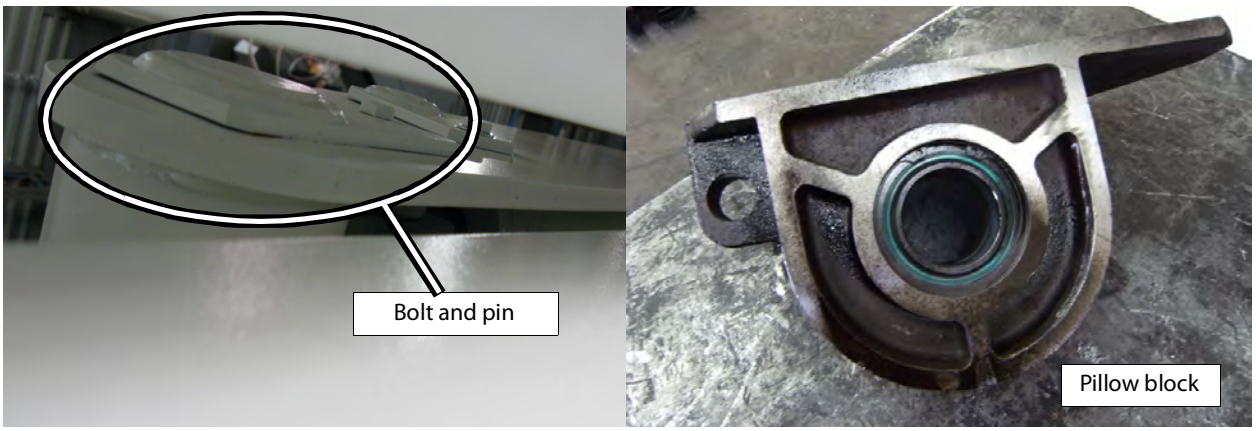
2. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
3. Safely remove the loading bucket rod on the side corresponding to the pivot (see *Replacing Bucket Rod Ends* on page 48)
4. Use a jack or any safe device that can support the roof on one end near the pivot.

Figure 5-22 Roof needing to safely rest on a jack



5. On the side facing out the body, remove the pivot bolt and pin.

Figure 5-23 Pivot bolt, pin and pillow block



6. Use any safe lifting device to safely lift the roof high enough to clear the pillow block area.
7. Once you gain access to the pivot mechanism inside the block on the same side you removed the pin, remove the snap ring and then the pivot.

Adjusting Loading Bucket Cylinder Cushion

This feature aims at providing cushioning at the end of the extension and retraction strokes of the cylinder and at assisting in the unloading of the bucket when it reaches the raised position.

Correct cylinder cycle times are needed when making cushion adjustments. For Labrie recommended cycle times, see *Hydraulic Cycle Time* on page 76.

To adjust the loading bucket cylinder cushion, do the following:

1. Ensure that the parking brake is applied.

DANGER! At least 2 people are required for this procedure.

NOTE: Perform this procedure alternating and testing both cylinders.

2. Start the truck's engine.
3. Engage the hydraulic pump.
4. Raise the bucket half way to verify it is parallel to the body.

   If you notice any horizontal unbalance while raising the bucket, you need to adjust the holding valve to correct it. To do so:

   4 a. Raise the loading bucket all the way up to gain access to the cylinder.

   4 b. Turn OFF the hydraulic pump.

   4 c. Turn OFF the engine.

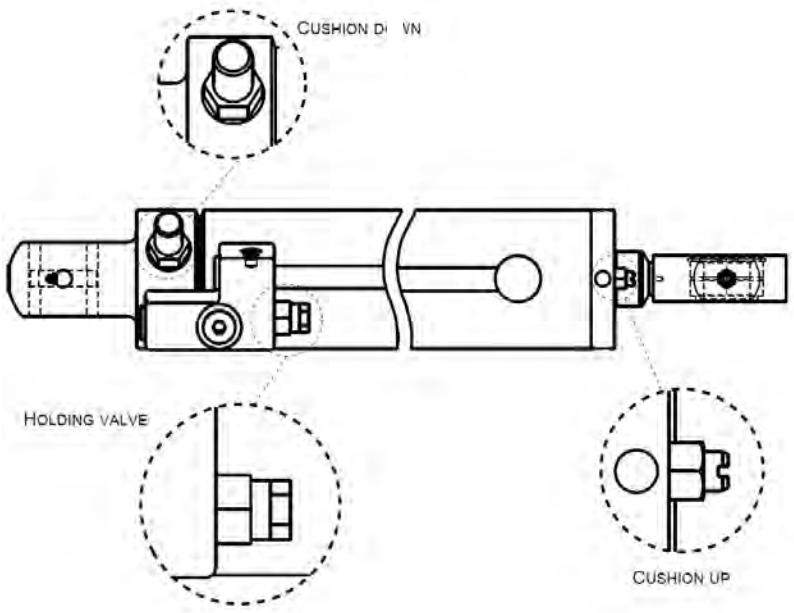
   4 d. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).

   4 e. Install the loading bucket safety pins (see *Loading Bucket Safety Pins* on page 20).

   4 f. Target the end of the bucket that is lower than the other end (due to unbalanced bucket ends).

   4 g. Locate the holding valve on the corresponding bucket cylinder and turn it ½-turn counter-clockwise.

Figure 5-24 Bucket cylinder



4 h. Remove the safety pins.

4 i. Start the truck's engine.

4 j. Engage the hydraulic pump.

WARNING!

Do not forget to fully open the hydraulic shut-off valve before starting the engine (see *Prior to Start Up* on page 24).

4 k. Lower the bucket and do a test by lifting it up.
Use the body guide as reference (see Figure 5-11).

NOTE: The tolerance for the horizontal alignment is ½".

DANGER!

Always turn OFF the engine and the hydraulic system when performing tasks on the roof.

DANGER!

Always install the bucket safety pins when the bucket is raised and adjustments are being done on the cylinders.

CAUTION!

Do not forget to remove the bucket safety pins when you need to test the cylinders by moving the bucket.

4 l. If the adjustment of the holding valve is overdone, turn its adjustment screw ¼-turn clockwise and test again.

5. Raise the loading bucket to assess the amount of cushion needed at the upper end.

6. Lower the loading bucket to assess the amount of cushion needed at the lower end.

7. Lift the loading bucket all the way up to gain access to the cylinder.

8. Turn OFF the hydraulic pump.

9. Turn OFF the engine.

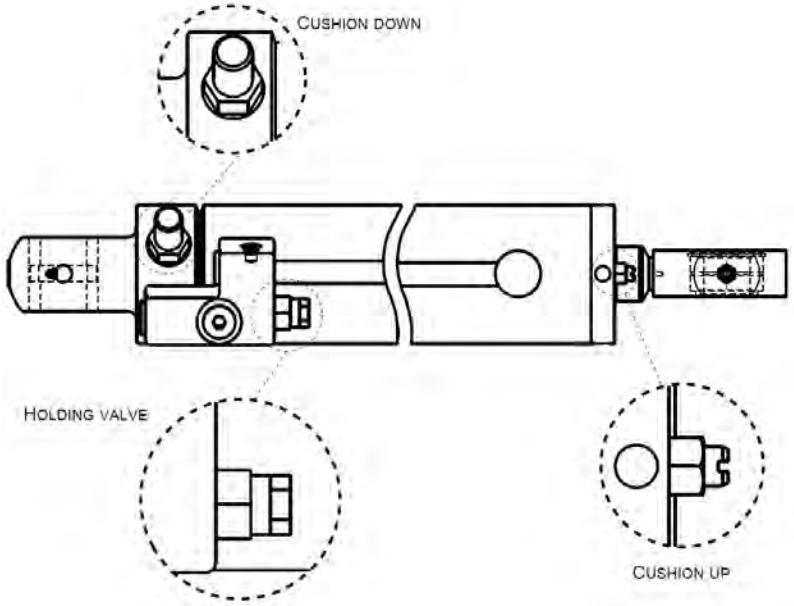
10. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).

11. With the bucket fully raised, install the safety pins (see *Loading Bucket Safety Pins* on page 20).

12. If adjustment is needed on the upper end:

12 a. Locate the adjustment screw on the cylinder near the head.

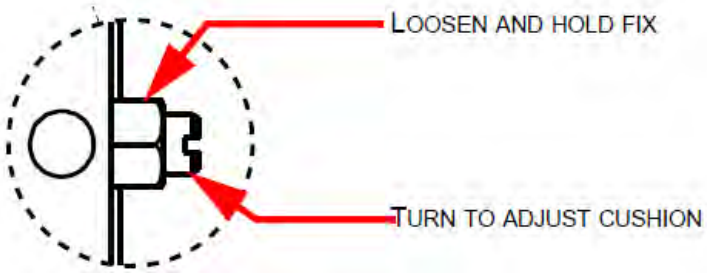
Figure 5-25 Location of adjustment screws on bucket cylinder



12 b. Adjust cushion by loosening and holding the locknut in place and by turning the adjustment screw.

Turning the screw clockwise increases the cushion effect while turning it counter-clockwise reduces the cushion effect.

Figure 5-26 Upper cushion adjustment



12 c. Once the adjustment is done, tighten back the locknut.

13. If adjustment is needed on the lower end:

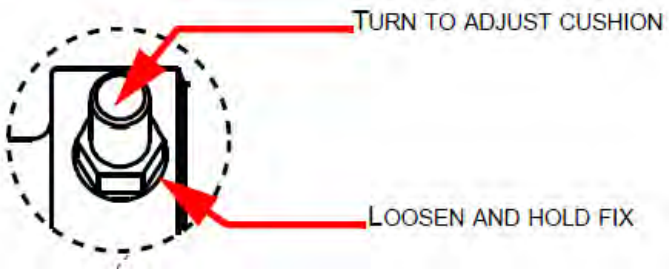
13 a. Locate the adjustment screw on the cylinder near the base.

See Figure 5-25 for the location of the adjustment screw.

13 b. Adjust cushion by loosening and holding the locknut in place and by turning the adjustment screw.

Turning the screw clockwise increases the cushion effect while turning it counter-clockwise reduces the cushion effect.

Figure 5-27 Lower cushion adjustment



13 c. Once the adjustment is done, tighten back the locknut.

14. Remove the bucket safety pins.

15. Start the truck's engine.

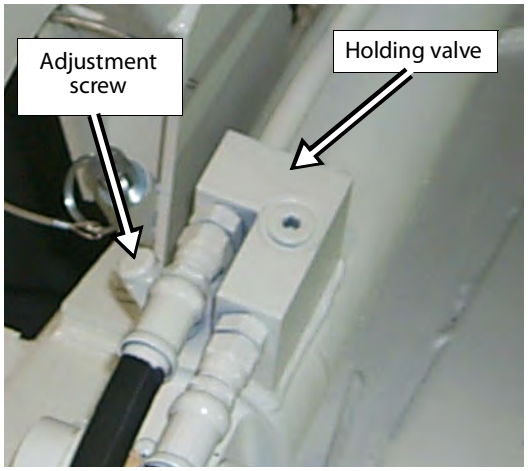
16. Turn ON the hydraulic pump.

WARNING!

Do not forget to fully open the hydraulic shut-off valve before starting the engine (see *Prior to Start Up* on page 24).

17. Move the bucket up and down a few times to test the lower-/upper-end cushioning and verify the overall performance of the loading bucket mechanism.

Figure 5-28 Bucket cushion adjustment screw and holding valve



18. Turn OFF the hydraulic pump.

19. Turn OFF the engine.

Repeat the adjustment procedure on both cylinders to obtain the desired cushion effect.

DANGER! Always turn OFF the engine and the hydraulic system when performing tasks on the roof.

DANGER! Always wear a safety harness when performing any maintenance on the roof.

DANGER! No one should be on the roof or in the body when the engine is on and the hydraulic system is engaged.

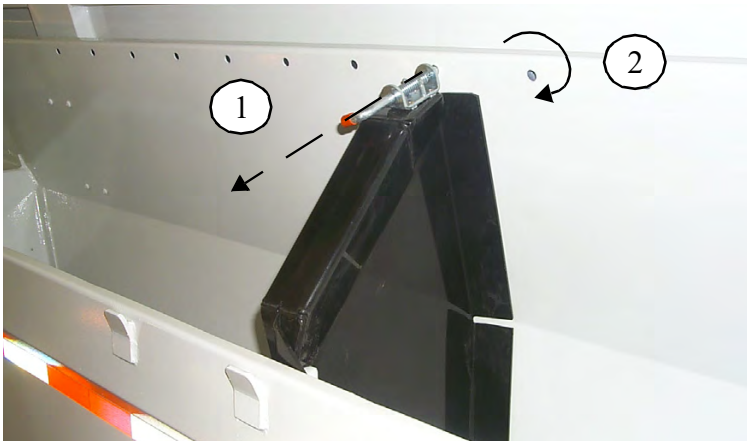
Loading Bucket Partition Adjustment

The loading bucket is equipped with "readily movable" partitions. The bottom lock is held by a vertical pin going through the bottom of the bucket while two side pins hold them at the top.

To adjust the loading bucket partitions, proceed as follows:

1. Pull the handle.
2. Rotate the partition towards the right to release the top side pin.

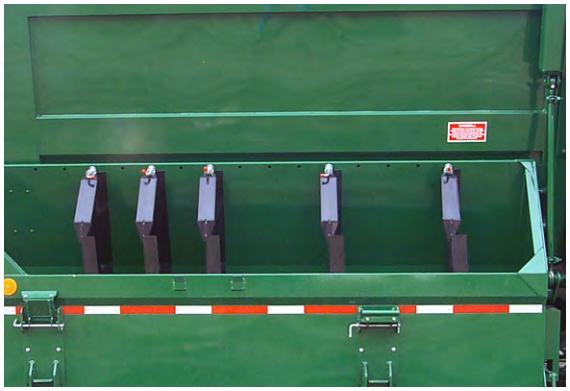
Figure 5-29 Adjusting partition



3. Slide up the partition to free the bottom pin.
4. Move the partition to the desired position.

Figure 5-30 Small partition over rear wheel

Figure 5-31 Multiple partitions



NOTE: Multiple partition configuration requires the body to be divided according to the number of partitions in the bucket (up to seven).

NOTE: Align the body and bucket partitions so that no cross-contamination can occur when unloading the bucket.

6

Tailgate and Body Maintenance

Tailgate Locking Mechanism

It is important to lubricate the tailgate hinges and the locking mechanism with multipurpose grease as per the lubricating schedule (see Figure 11-7).

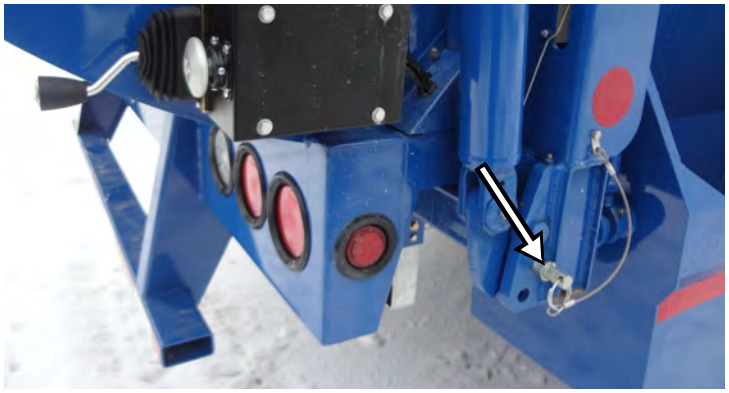
Also, check the welding around hinges. The proper working order of the following components is also to be checked:

- ✓ Tailgate hydraulic cylinders
- ✓ Cylinder pins
- ✓ Tailgate hinges and pins
- ✓ Wear on the locking mechanism
- ✓ Wear on the tailgate safety pins
- ✓ Tailgate rubber seals

CAUTION!

Excessive wear might be dangerous and harmful to the proper working order of the tailgate.

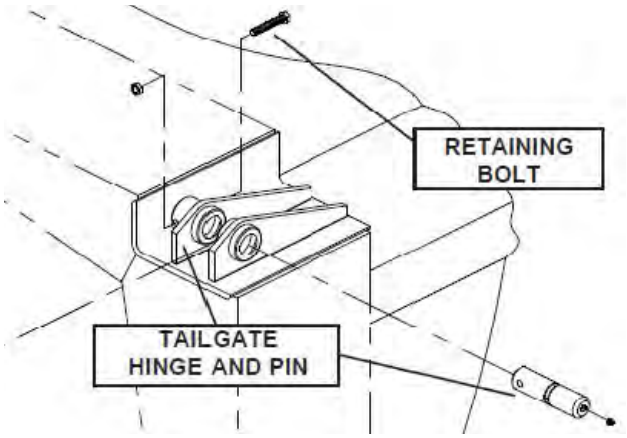
Figure 6-1 Tailgate safety pin



Tailgate and Hinge Inspection

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

Figure 6-2 Tailgate hinges and cylinder



Replacing Tailgate Cylinder

To replace a faulty tailgate cylinder with a new one, proceed as follows:

1. Ensure the parking brake is applied.
2. Start the truck's engine.
3. Turn ON the hydraulic pump.
4. Raise the tailgate and install the safety prop (see *Tailgate Safety Prop* on page 16).

   Having the tailgate slightly raised and resting on the safety prop allows you to have better access to the different parts of the cylinder.
5. Turn OFF the hydraulic pump.
6. Stop the engine.
7. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
8. Disconnect the hydraulic hoses (see Figure 6-3).
9. On the cylinder base, remove the lock bolt and the pin (see Figure 6-3).
10. Attach the cylinder head to an appropriate lifting device (see Figure 6-4).
11. On the cylinder head, remove both the lock bolt and the pin to release the cylinder (see Figure 6-4).
12. Carefully lift the cylinder out of the unit and to a maintenance facility area.
13. Carefully lift a new cylinder and set it into place on the unit.
14. Reverse the removal steps to reinstall the new cylinder.

Figure 6-3 Hydraulic hoses and cylinder base pin

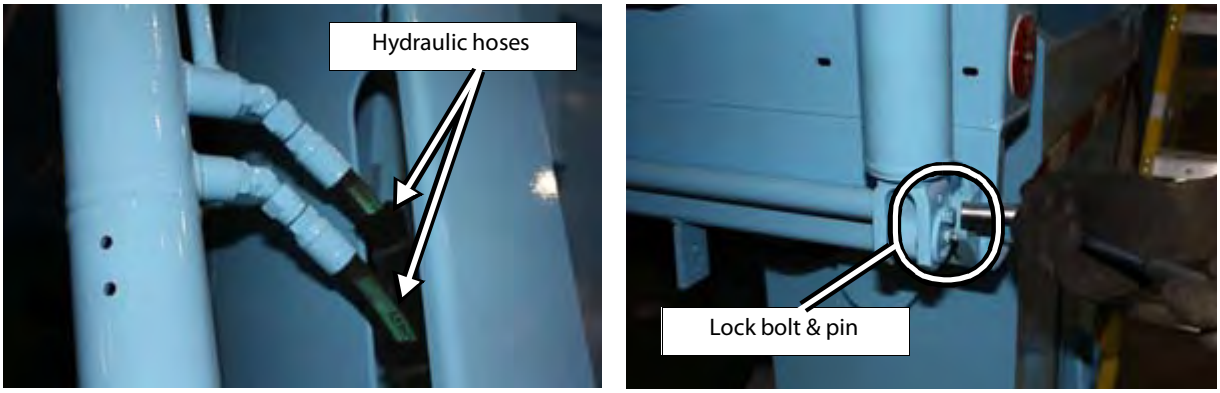


Figure 6-4 Tailgate cylinder head attached

Tailgate Limit Switch Adjustment

TOP SELECT™ units are equipped with a tailgate limit switch located at the bottom right-hand side of the tailgate (see Figure 6-6). While the operator unlocks the tailgate, the cylinder releases the limit switch lever which causes the backup alarm and the in-cab warning buzzer to sound. Unlocking the tailgate also turns on a warning light inside the cab. As the tailgate moves up, both the warning buzzer and the backup alarm continue to sound.

WARNING!

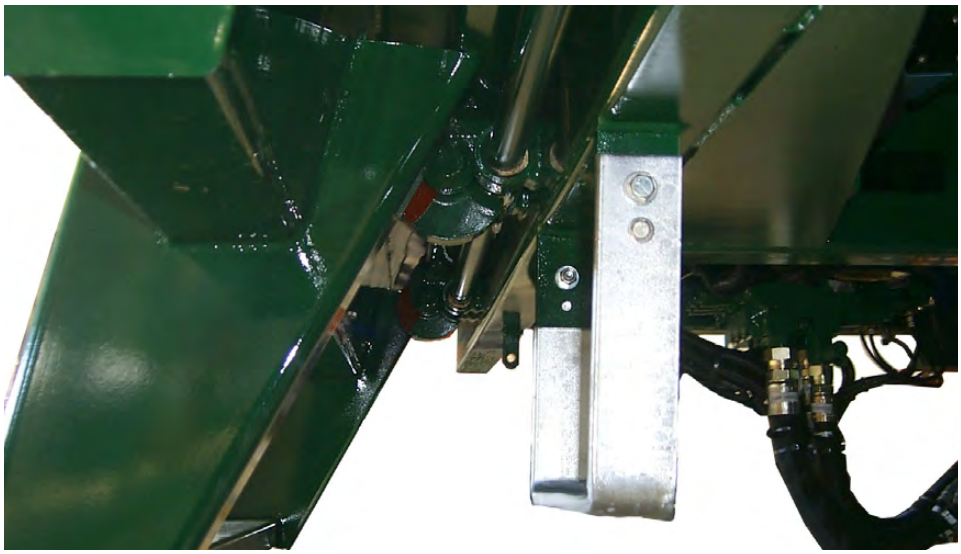
Ensure that no one is standing behind or near the tailgate when this procedure is carried out.

To adjust the tailgate limit switch, proceed as follows:

1. Ensure that the parking brake is applied.
2. Start the engine and engage the hydraulic pump.
3. Open the tailgate using the lever on the console and listen for the warning buzzer and the backup alarm.

They should go off as soon as the tailgate unlocks.

Figure 6-5 Tailgate locked



4. If no sound is heard, adjust the limit switch arm so that the limit switch will "click" as the cylinder head is moving down (see *Adjusting Limit Switch Arm* on page 51).

Figure 6-6 Tailgate limit switch

Inspecting Body Chassis Hinges

Lubrication of the body-chassis hinges should be done monthly. Also, inspect for cracks or corrosion. Any crack must be reported and repaired by qualified personnel. Contact LabriePlus for technical support if needed.

Keep the contact surface clean between the body and the chassis. Labrie recommends cleaning after every unloading.

Figure 6-7 Clean area between chassis and body

Adjusting Body-Raised Limit Switch

DANGER!

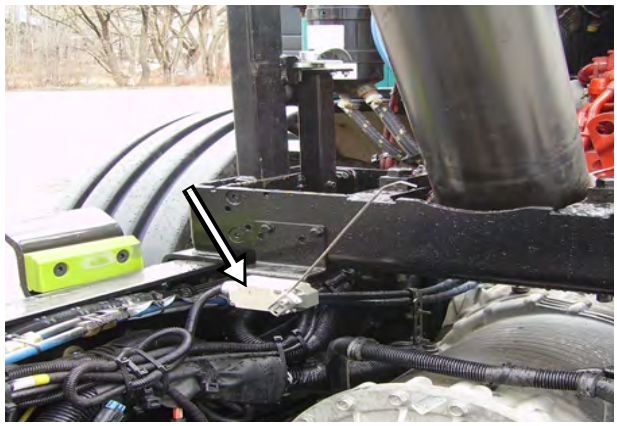
Always lock out and tag out the vehicle during inspection and maintenance (see *Lockout/Tagout Procedure* on page 22).

DANGER!

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

A limit switch located on the vehicle chassis near the body hoist cylinder activates the backup alarm and the in-cab warning buzzer, and turns on a warning light inside the cab as soon as the body is raised to a certain height from the chassis. Adjust this limit switch accordingly if needed (see procedure below).

Figure 6-8 Body-raised limit switch



This safety feature is provided to warn people around that the vehicle is in the process of being unloaded and to remind the operator that the body is still raised.

To adjust the body raised limit switch:

1. Loosen the limit switch nut.
2. Move the body to the approximate position where the switch is to be triggered. The warning buzzer shall sound as soon as the body has reached a certain height above the chassis (usually about 12 inches above the chassis).
3. Tighten the nut.
4. To fine tune the adjustment, loosen the 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.

Adjusting Body Partitions

The TOP SELECT™ can be equipped with up to seven (7) air-operated opening body partitions, giving eight (8) adjustable compartments for recyclable materials.

To adjust a body partition, do the following:

1. Make sure the body is empty before performing this procedure.
2. Apply the parking brake.
3. Start the truck's engine.
4. Turn ON the hydraulic pump.
5. Open the tailgate and set the tailgate safety prop (see *Tailgate Safety Prop* on page 16).
6. Turn OFF the hydraulic pump.
7. Stop the engine.
8. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
9. Enter the body.
10. Slide off the partition's top locking pin (see Figure 6-9).
11. Release the floor locking pins using the manual locking-unlocking system (see Figure 6-10).
    - **11 a.** Pull the lever to the left.
    - **11 b.** Use the hook to block the lever.

Figure 6-9 Top locking pin

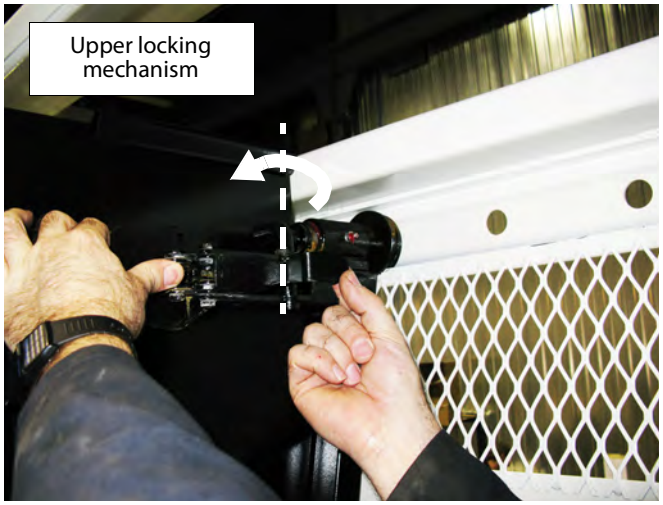


Figure 6-10 Releasing floor locking pins

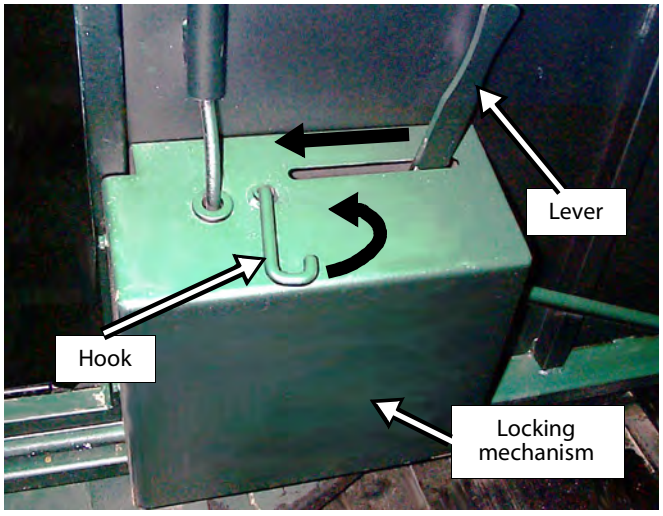


Figure 6-11 Locking mechanism

NOTE: If a partition needs to be moved over some distance, it may be necessary to disconnect the partition pneumatic hose (located on the roof) and plug it into another pneumatic coupler. Each partition (if more than one) has its own pneumatic hose, and there may be more than one coupler per partition.

In this case, the couplers are connected to the same control system (cab console).

Figure 6-12 Partition pneumatic hose

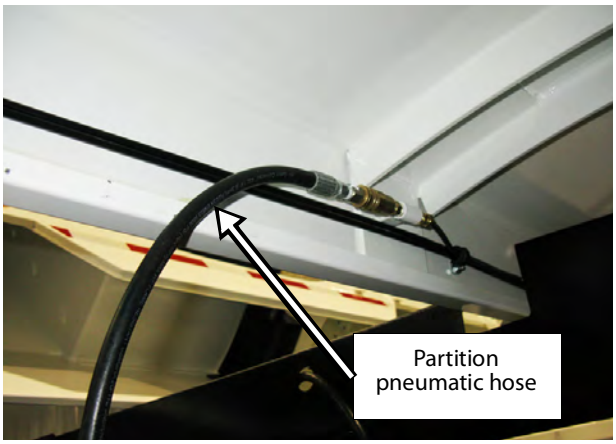
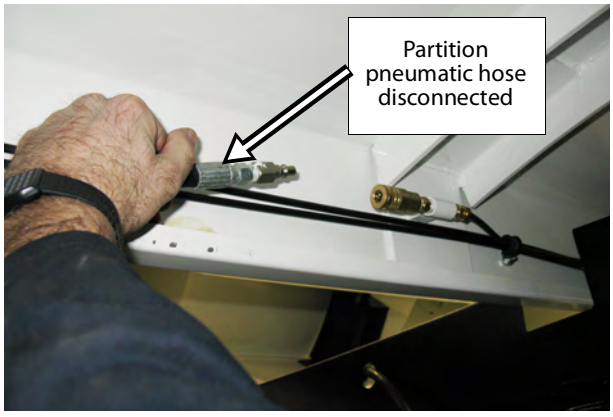


Figure 6-13 Disconnecting pneumatic hose



12. Slide the partition to the desired position.

13. Lock both top and bottom pins.

14. Repeat this procedure for each partition.

7

Hydraulic System Maintenance

General Maintenance

The following are guidelines to keep the hydraulic system efficient and reliable.

- Perform a general inspection of the hydraulic system.
- For new vehicle, change the return filter element after 50 hours of use, and twice a year afterwards (see *Replacing Filter Elements* on page 81).
- Hydraulic oil must be replaced at least once a year or when contaminated (see *Changing Hydraulic Oil* on page 78).
- When maintenance is carried out, protect all hoses, fittings and pipes or any other holes from dirt that would eventually get into the oil. Use plugs to block hoses that are not connected.
- Monthly inspect and adjust (if necessary) the oil pressure of the hydraulic system (see *Hydraulic Gear Pump System* on page 82).
- On a daily basis, inspect the hydraulic lines and connections for leaks, and correct if necessary.
- Inspect the pump for leaks or unusual noise.
- The shut-off valve on the hydraulic tank must be completely open before engaging the pump or starting the engine (see *Prior to Start Up* on page 24).

Hydraulic Cylinder Inspection

To maintain proper working order and extend cylinder life, it is essential to inspect the hydraulic cylinders at least once a month. Make sure that the connections between all hoses and pipes are tightened, and that there are no oil leaks.

DANGER!

Apply the Lockout/Tagout procedure at all times when maintenance or inspection is performed on the vehicle.

Lubricate and inspect all cylinder mounting points (pins, retaining bolts, etc.).

WARNING!

Check the shut-off valve on the suction line is completely open before engaging the hydraulic system.

To perform an external inspection, do the following:

1. Verify that all hose and pipe connections are tight and that there are no external leaks.
2. Inspect all cylinder heads for any leaks.
3. Inspect the surface of all the cylinder rods for unusual wear or scratches.
4. On the hoist cylinder, inspect the air bleeder for any leaks. Tighten if necessary.

Main Hydraulic Valve

Located underneath the body floor rear section, the main hydraulic valve that is used on the TOP SELECT™ integrates all hydraulic functions into one assembly. This valve is air-actuated with in-cab and outside control levers.

The number of work sections composing this valve goes from 3 to 5, depending on the truck's configuration and the optional equipment chosen.

Figure 7-1 Main valve (3 sections)

Figure 7-2 3-section valve with corresponding functions

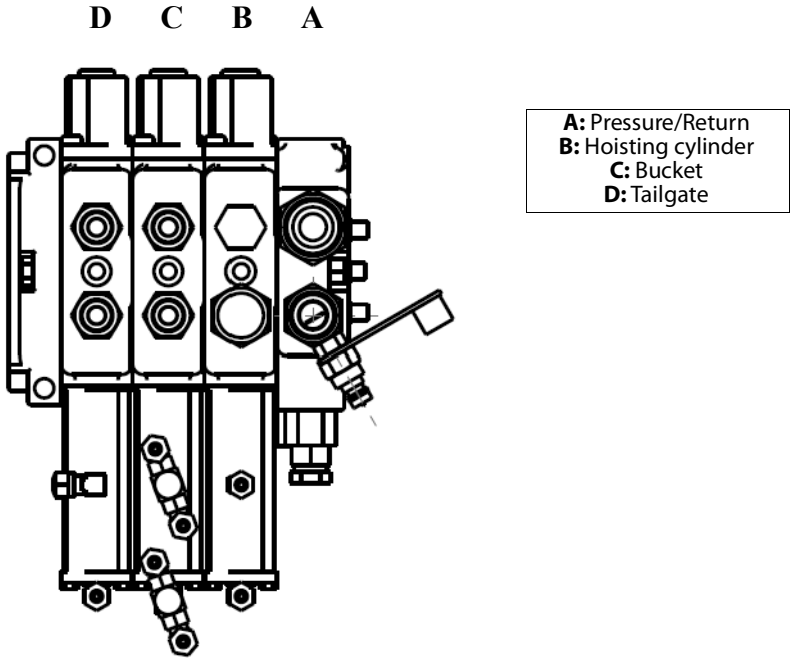
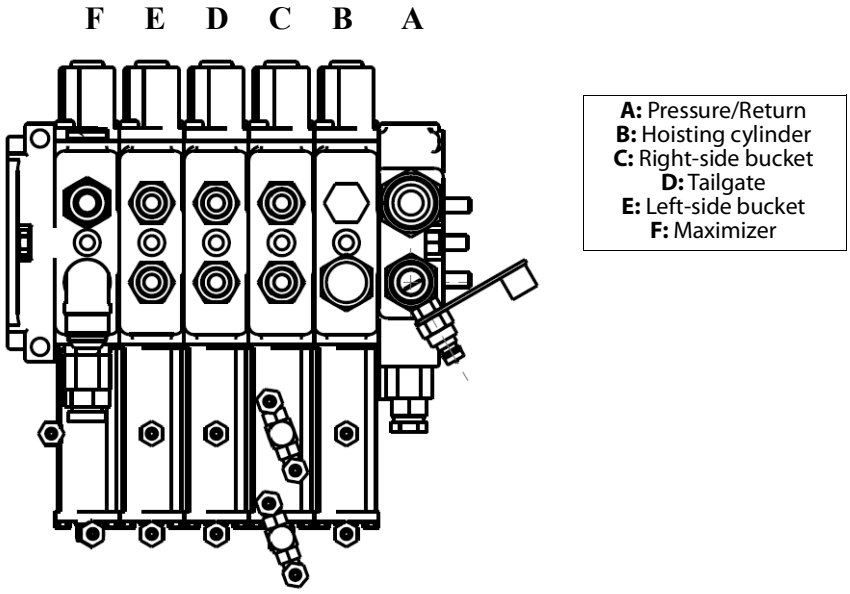


Figure 7-3 5-section valve with corresponding functions



Hydraulic Cycle Time

Function	Engine RPM	Cycle Time (min.)	Cycle Time (max.)
Body hoist up (standard body)	1500	20.0 sec.	30.0 sec.
Body hoist up (long body)	1500	30.0 sec.	45.0 sec.
Body hoist down (standard body)	700	20.0 sec.	60.0 sec.
Body hoist down (long body)	700	30.0 sec.	100.0 sec.
Complete cycle side bucket	700	15.0 sec.	17.0 sec.
Maximizer - 84" stroke - complete cycle	700	28.0 sec.	35.0 sec.
Tailgate up	700	14.0 sec.	18.0 sec.
Tailgate down	700	15.0 sec.	20.0 sec.

Hydraulic Tank

Here are some recommendations to follow regarding the hydraulic oil and tank:

- Verify that the oil in the tank is clean and always at approximately ¾ of the level gauge (all cylinders must be retracted before reading the gauge). The oil must be clean and not colored.

CAUTION! The temperature of the hydraulic oil must never exceed 180°F (82°C).

- Replace the filter element after 50 hours of service (see *Replacing Filter Elements* on page 81).
- Ensure the proper operation of the filler cap; see that it has no obstruction whatsoever.

NOTE: The whole hydraulic system requires approximately 50 gallons of oil.

NOTE: Some vehicles have an optional strainer in the hydraulic tank that needs to be cleaned when oil change is done (see *Cleaning the Strainer (optional)* on page 79).

Figure 7-4 Oil gauge

Figure 7-5 Hydraulic tank

Emptying the Hydraulic Tank

To empty the hydraulic tank:

1. Prepare the vehicle accordingly:
   - **1 a.** Apply the parking brake.
   - **1 b.** Start the engine.
   - **1 c.** Engage the hydraulic pump.
   - **1 d.** Retract all cylinders (roof, loading bucket(s), tailgate, etc.).

NOTE: With the loading bucket cylinder completely retracted, the bucket is found completely lowered. To access the hydraulic tank, raise the bucket about 4 feet and block it to prevent it from moving down.

   - **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 22).

3. Clean around the filler cap and remove it.

CAUTION!

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

4. Place a clean container (minimum capacity: 40 US gallons) under the drain plug.
5. Remove the drain plug under the tank and let the tank drain completely.
6. Before reinstalling the drain plug, clean it of any metal particles.

Changing Hydraulic Oil

CAUTION!

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

CAUTION!

It is not recommended to mix different brands or grades of hydraulic fluid in the same tank.

To change the hydraulic oil, proceed as follows:

1. Empty the hydraulic tank (see *Emptying the Hydraulic Tank* on page 77).
2. If necessary, clean the strainer, if the truck is so equipped (see *Cleaning the Strainer (optional)* on page 79).
3. Change the return filter element, if necessary (see *Replacing Filter Elements* on page 81).

   It should be changed twice a year.
4. Refill the tank until it is ¾ full according to the oil gauge.

   Preferably use an ISO Grade 32 hydraulic oil. This type of hydraulic oil provides excellent wide temperature range working condition.

   For northern regions, a hydraulic oil specific to these regions is strongly recommended.

NOTE: The oil must be clean and free of any contamination, metal particles, sand, etc. The use of a filtering screen is strongly recommended while filling the tank with new oil.

Cleaning the Strainer (optional)

NOTE: The following procedure only applies to units equipped with a strainer in their hydraulic tank.

To clean the optional strainer, apply the following procedure:

1. Ensure that the parking brake is applied.
2. Start the truck's engine.
3. Turn ON the hydraulic pump.

DANGER!

Always apply the Lockout/Tagout procedure when maintenance or inspection is done on the vehicle.

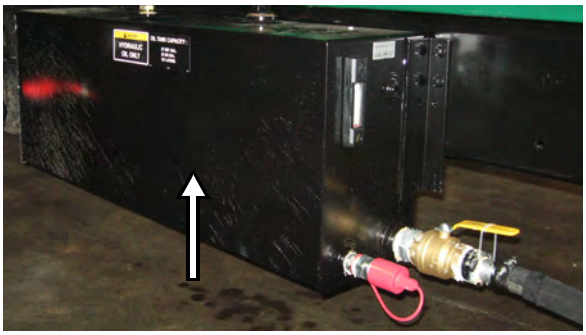
4. Extend all cylinders (tailgate, loading bucket, etc.).
5. Raise the body and install the safety prop.
6. Disengage the hydraulic pump.
7. Turn OFF the engine.
8. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
9. Clean around the filler cap and remove it.

CAUTION!

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

10. Empty the hydraulic tank completely (see *Emptying the Hydraulic Tank* on page 77).
11. Once the tank is completely empty, reinstall the drain plug.

Figure 7-6 Hydraulic tank



12. Remove the hose clamp from the suction hose (see Figure 7-7).
13. Slide the hose over the pipe until it clears the ball valve (slide towards the frame of the vehicle).
14. Remove the strainer (see Figure 7-8) from the tank port.

The strainer has to be turned counterclockwise to be removed.

15. Clean the strainer using solvent, and check for damage; replace if necessary.
16. Replace the seal (if necessary) [see Figure 7-9].
17. Reinstall the strainer.
18. Refill the tank making sure there are no leaks.

Figure 7-7 Suction hose

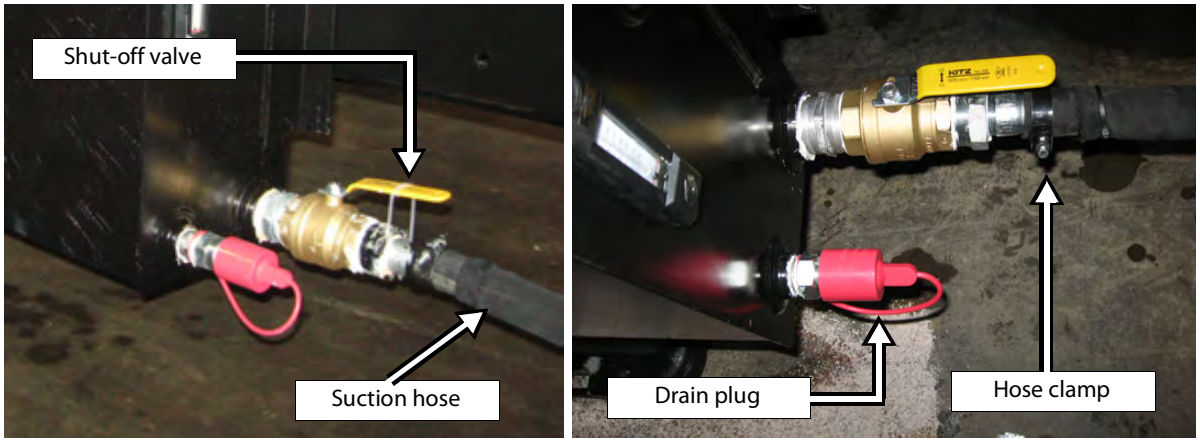


Figure 7-8 Strainer

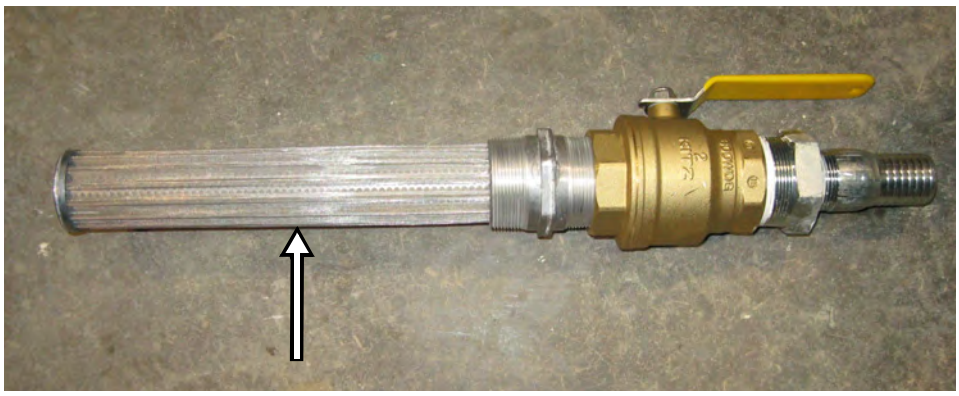
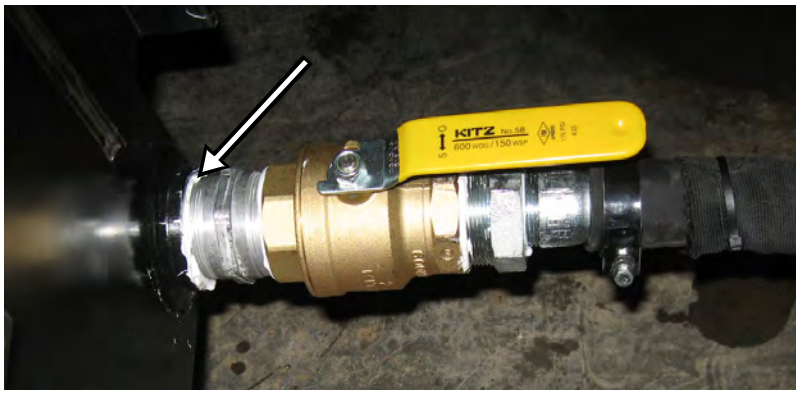


Figure 7-9 Seal



Replacing Filter Elements

NOTE: 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. This will help keep the oil clean, extend component life and reduce breakdowns.

CAUTION! Change the return filter element after the first 50 hours of operation.

To replace the hydraulic filter:

1. Ensure that the parking brake is applied.
2. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 22).
3. Prepare a pan or a bucket to collect the oil that will come out of the filter housing (two gallons of oil).
4. Also, have a filter wrench and a new filter element within your reach.
5. Remove the filter element.

   The return filter system contains a check valve that closes when the cartridge is removed, thus preventing the whole tank from draining.
6. Replace the filter element with a new one.
7. Be sure to hand tight the new filter.

Figure 7-10 Filter element

NOTE: The filter must be correctly "hand-tightened".

Hydraulic Gear Pump System

The TOP SELECT™ is equipped with a gear type hydraulic pump (see Figure 7-12). With this type of pump, all functions on the truck require the engine to run at idle except for the body hoist and for the Maximizer system (see Figure 7-13) if the unit is so equipped. In fact, the engine needs to run at 1500 RPM to make the Maximizer move rearwards/forwards and to make the body hoist move upwards. The main pressure setting is 2000 psi for a unit with a standard body and 2300 psi for a unit with a long body.

The pump is part of a hot-shift PTO/pump system and is connected to the truck's transmission via a PTO unit. The pump provides automatic clutching at any time.

Figure 7-11 Hot-shift pump

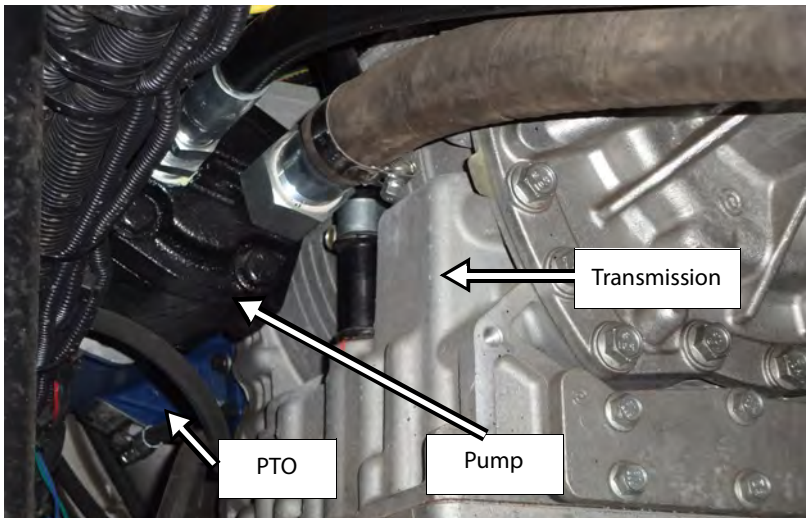


Figure 7-12 Gear pump

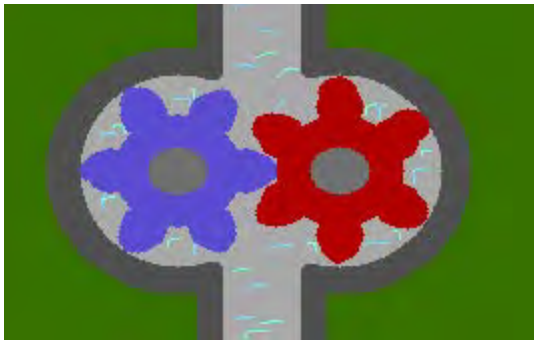
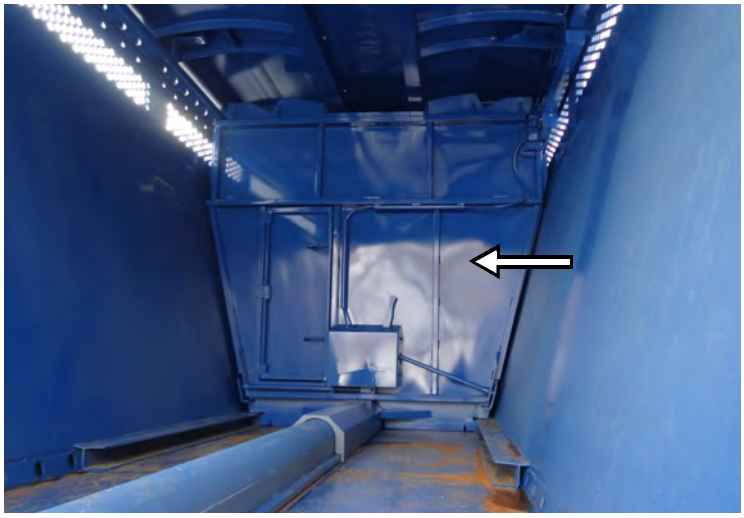


Figure 7-13 Optional Maximizer



Inspecting the Pump

If the pump is adequately maintained and works smoothly, it will provide a satisfactory output.

However, if the pump whines, vibrates or rattles, apply the following inspection procedure.

To inspect the pump, proceed as follows:

1. Ensure that the parking brake is applied and that the vehicle is tagged out for maintenance purposes.
2. Start the engine and engage the hydraulic pump.

NOTE: The pump should turn freely without any excessive noise or vibrations.

3. Inspect the connections for any loose fittings.
4. Check underneath the pump for any oil leaks.
5. If there is no electrical power, refer to the electrical schematics provided with the truck.

Adjusting Main Relief Valve Pressure

It is recommended to verify the pressure setting once every month to prevent damage to the equipment and make sure it operates as efficiently as possible. If the pressure is not at the recommended setting, the main relief valve needs to be readjusted. Refer to the pressure adjustment table (see *Pressure and RPM Table* on page 85) for proper settings.

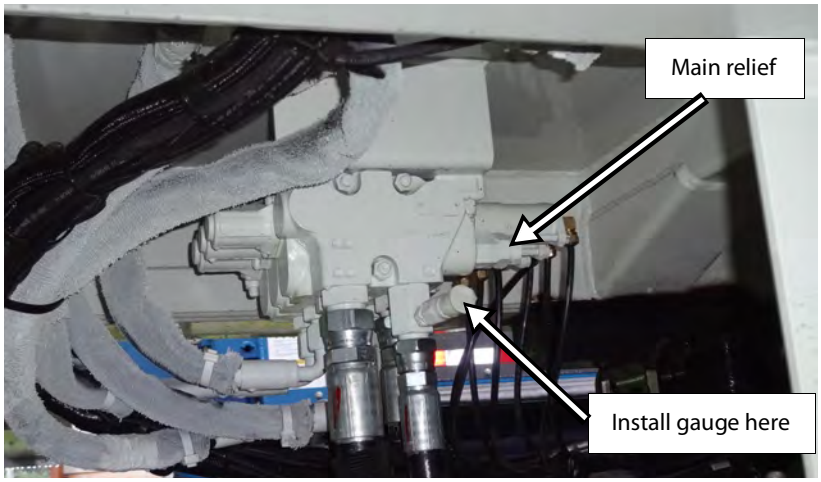
Most of the hydraulic valve sections operate at 2000 psi except for the Maximizer section, if equipped. For details, refer to the hydraulic system schematics.

CAUTION! Do not adjust the main relief valve higher than recommended.

To adjust the pressure on the main relief valve, do the following:

1. Ensure that the parking brake is applied.
2. Start the engine and engage the hydraulic pump.
3. Connect a 0-3000 psi pressure gauge to the quick-connect located on the hydraulic valve (see Figure 7-14).

Figure 7-14 Location of the main relief valve



4. Using the bucket lever raise the bucket until it reaches the end of its stroke. Keep holding the lever in order to make the pressure build up in the system.
5. Ask a helper to check on the gauge.

   If the gauge reads 2000 psi, no adjustment is necessary.
6. Proceed with adjusting the main relief valve if the gauge does not read 2000 psi. To do so:
   - **6 a.** Loosen the locknut.
   - **6 b.** Turn the adjustment screw clockwise to increase the pressure or counter-clockwise to reduce it.
   - **6 c.** When finished, hold the adjustment screw and tighten the locknut.

NOTE: While doing this adjustment, it is important to keep the bucket lever engaged.

Pressure and RPM Table

Function	Pressure Setting (PSI)	Engine RPM
Main relief valve (standard body)	2000 ± 50	700
Main relief valve (long body)	2400 ± 50	700
Main relief valve (standard body) w/ Euro cart tipper on bucket	2400 ± 50	700
Main relief valve (long body) w/ Euro cart tipper on bucket	2750 ± 50	700
Body hoist up (standard body)	System pressure	1500
Body hoist up (long body)	System pressure	1500
Body hoist down (standard body)	System pressure	700
Body hoist down (long body)	System pressure	700
Complete cycle side bucket	System pressure	700
Top roof holding valve	See procedure	700
Maximizer (towards the front end)	2000 ± 50	1500
Maximizer (towards the rear end)	1400 ± 50	1500
Maximizer (84” stroke - complete cycle)	n/a	700
Tailgate up	System pressure	700
Tailgate down	System pressure	700

Body Hoist

Because of its frequent use, the body hoist needs to be inspected to ensure proper operation at all times.

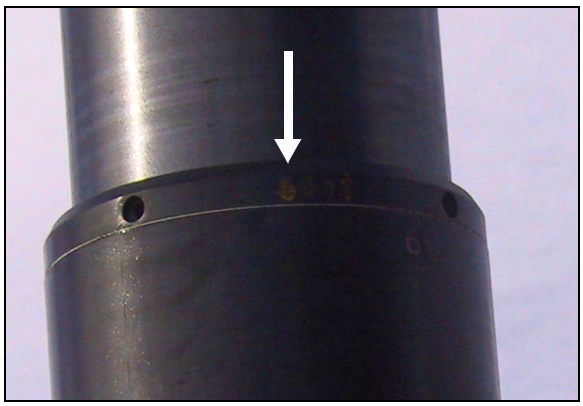
Figure 7-15 Body hoist

Inspecting the Body Hoist

The body hoist should be visually inspected every week as part of regular maintenance.

Check for leaks, cracks and loose parts that could cause failure. When the body is raised, you will see a steel gland at the top of each cylinder section. They must be inspected as well.

Figure 7-16 Cylinder gland



To inspect the body hoist:

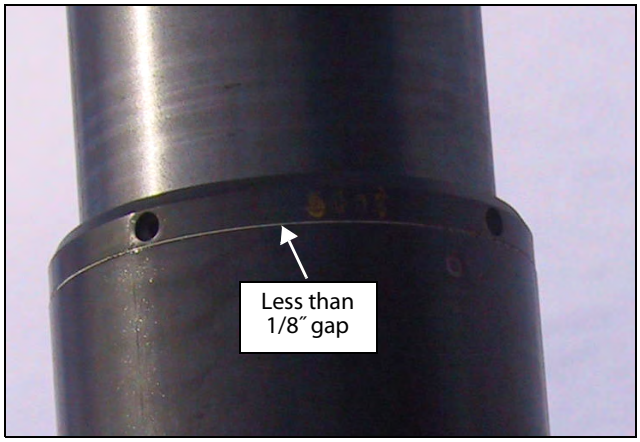
1. Park the vehicle on safe, level ground and check the overhead clearance.
2. Fully raise the body and set the body safety prop (see *Body Safety Prop* on page 14).
3. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 22).
4. Check the cylinder for scratches or leaks, and make sure that the pivots at the base of the cylinder are greased and that the bolts are tight.
5. Check the gland on each cylinder section.

If the gap between the gland and the tube is wider than 1/8 inch, you must call Labrie*Plus* immediately. Should the gap between the tube and the gland be wider than 1 inch, you must stop using the vehicle immediately and replace the cylinder (see *Replacing the Body Hoist* on page 88).

DANGER!

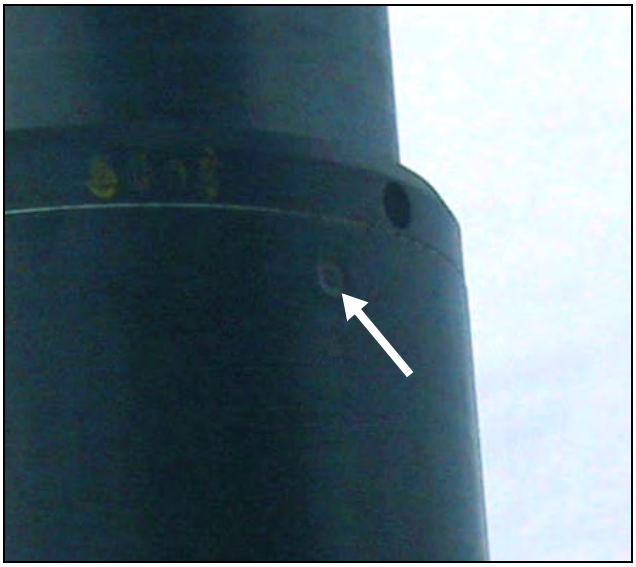
It is mandatory to inspect cylinder gland weekly. If the cylinder gland is unscrewed from the body hoist, it will cause separation of the hydraulic cylinder, and the body will suddenly drop.
This type of accident can lead to damage, serious injury, and even death.

Figure 7-17 Gap



6. Make sure that the gland safety pins are in place.

Figure 7-18 Safety pin



NOTE: Not all hoist cylinders have this type of safety pin.

7. When the inspection is completed, put back the safety prop and lower the body.

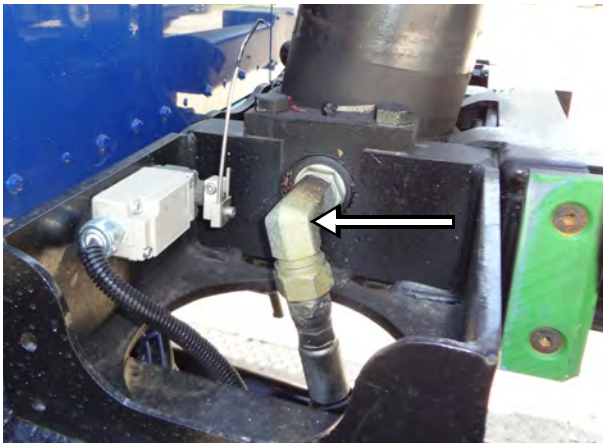
Replacing the Body Hoist

DANGER! Never prop a loaded body. Unload the body prior to doing any repairs.

To replace the body hoist:

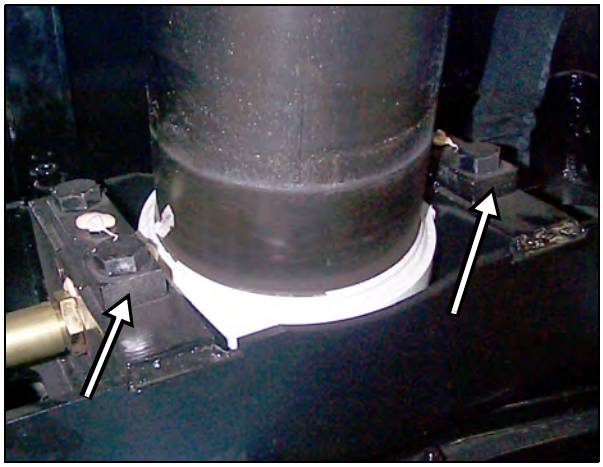
1. Lock out and tag out the vehicle (see *Lockout/Tagout Procedure* on page 22).
2. Disconnect the hydraulic hose and fitting.

Figure 7-19 Hydraulic fitting



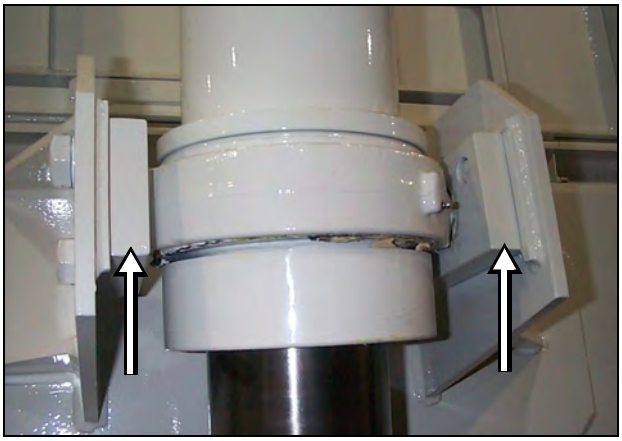
3. Remove the 2 cylinder base pillow blocks (see Figure 7-20) by unscrewing the bolts that hold them in place.

Figure 7-20 Base pillow blocks



4. Remove the four bolts from the cylinder cover pillow blocks (see Figure 7-21).
   Both pillow blocks will remain in place.

Figure 7-21 Cover pillow blocks



5. Using a lifting device, lift the body just enough to be able to tilt the safety prop under the body.
   The cylinder will remain in place.

IMPORTANT: Ensure that the cylinder remains in vertical position while lifting the body.

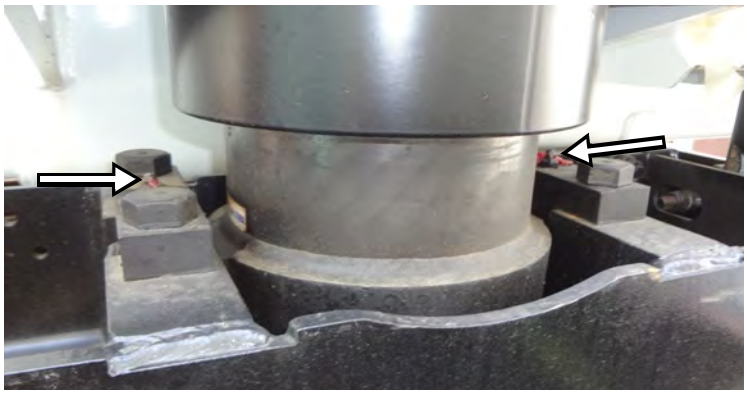
6. Install the safety prop.
7. Lower the body on the safety prop.
8. Using a lifting device, remove the body hoist cylinder carefully.
   Save both pillow blocks for the replacement cylinder (see Figure 7-21)
9. Place the pillow blocks that were set aside on the pins of the new cylinder.
10. Using a lifting device, install the new body hoist cylinder on the base support and reinstall both base pillow blocks (see Figure 7-20).
11. Put back all 4 bolts and tighten them up to hold both base pillow blocks in place (see Figure 7-20).
12. Using a lifting device, extend the cylinder in order to fix it properly to the body.

Figure 7-22 Securing cylinder to support

The pillow blocks that are attached to the cylinder must be correctly positioned to allow insertion of the bolts through the support threaded holes (see Figure 7-22).

13. Put back the 4 bolts and tighten them up to properly secure the cylinder to the support on the body front.
14. Reconnect the hydraulic hose.
15. Lubricate all cylinder grease fittings.

Figure 7-23 Grease fittings



16. Start the truck and engage the pump.
17. Slowly operate the body raise function.

    Raise the body just enough to be able to move the safety prop.
18. Move the safety prop back to its storage position.
19. Check for proper operation.

    Cycle the cylinder approximately 5 times to remove air.

8

Air System Maintenance

Air system is crucial for the brakes to operate with maximum efficiency. All air tanks on the chassis must be drained after each working day.

Figure 8-1 Air tanks

Figure 8-2 Air dryer

All TOP SELECT™ units are equipped with an air dryer to reduce as much as possible the humidity in the air system and prevent components from rusting and freezing in cold weather.

To perform maintenance on the air dryer, refer to the chassis manufacturer's maintenance manual.

DANGER!

Apply the Lockout/Tagout procedure at all times when maintenance and inspection are performed on the vehicle.

Air-Actuated Main Hydraulic Valve

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

Figure 8-3 Air actuators

When the tailgate or body lever on the console is actuated, air pressure passing through the lever will activate the corresponding air actuator on the main valve resulting in a movement of the hydraulic spool inside the valve.

To avoid affecting control air systems on the vehicle (especially in cold weather conditions), apply the following procedure:

1. Ensure that the parking brake is applied.
2. Drain all air tanks on a daily basis.
3. Change the cartridge in the air dryer according to the chassis manufacturer's recommendations.

   On this type of equipment, the compressor works all the time mostly due to the frequent use of the brake system. As a result, a lot of moisture is injected into the air system.
4. Twice a year, lubricate the air actuators on the main control valve with light oil (low temperature).

NOTE: For vehicle equipped with an alcohol evaporator, please refer to the chassis manufacturer dealer for proper maintenance instructions.

9

Preventive Maintenance

The TOP SELECT™ has been designed for long periods of efficient uninterrupted operation. Careful attention to proper preventive maintenance, as described in this chapter, will ensure and extend trouble-free operation of the unit. Particular attention to correct lubrication of the unit and maintenance of the return filter, are probably the two most vital areas of preventive maintenance required. The objective of preventive maintenance is to anticipate and prevent operational difficulties before they require extended shut down for costly repairs.

Operating and Maintenance Records

Prepare and adhere to a maintenance schedule. Keep detailed records of all maintenance performed. Regularly inspect operating and maintenance records for deviations from normal operating conditions. Analyze the records for indications of potential trouble.

NOTE: Occasionally distributors will receive Service Bulletins from Labrie Enviroquip Group concerning updated maintenance information. Keep those bulletins with this manual and make notes at the appropriate places in the manual referencing the updated information.

Top Select™ Preventive Maintenance Chart

Component/System	Task	Daily	Weekly	Monthly	Yearly	Page
Limit switches	Proper adjustment of all limit switches is imperative		X			See page 50
	Check and clean area around limit switches	X				
Rollers, hydraulic cylinders and cylinder pins, hoses, pipes and connections wear of floor and side separators	Do a visual inspection of these components	X				See page 33
Body and chassis	Check for corrosion			X		See page 38
	Keep the contact surfaces clean between the body and the chassis	X				See page 30
Wiring System	Check for damaged harnesses and/or bad connections				X	
Lubrication	Lubricate thoroughly	X				
	See Lubrication Chart on side of truck		X			
Operator's controls	Check for proper operation	X				
Air tanks	Drain air tanks	X				See page 91
Air system	Check for leaks		X			See page 91
Safety systems	Check for proper operation (tailgate alarm and special devices)		X			

Component/System	Task	Daily	Weekly	Monthly	Yearly	Page
Hydraulic system	Check oil level in tank, and refill if necessary	X				See page 76
	Check if the shut-off valve on the hydraulic tank is open	X				See page 24
	Check ground for overnight leaks	X				
	Check cylinders, pump, control valve and system for leaks. Repair or replace if required		X			See page 73
	Replace hydraulic filter[a]				Twice a year	See page 81
	Clean strainer (optional) and refill				X	See page 79
	Check pressure			X		See page 73

a. **Also replace the return filter after the first 50 hours of operation.**

10 Maximizer Maintenance

The Maximizer is an optional equipment that is used to *maximize* the space available in compartments inside a TOP SELECT™ body. It is a moveable partition that can be advanced or retracted, depending on the quantity of load that is found on either side of the Maximizer. Maintenance of the Maximizer is quick and easy, but there are basic rules to follow.

The Maximizer is activated from the outside by means of a handle (see Figure 10-1). Pulling up this handle will cause the Maximizer to go backwards inside the compartment, pulling it down will make the Maximizer go forwards.

Figure 10-1 Maximizer control handle

Also, the operator can lock or unlock the Maximizer from inside the cab by means of a button on the control panel (see Figure 10-2).

Figure 10-2 Locking/unlocking button

NOTE: The Maximizer is NOT a packer and CANNOT be used as such.

General Cleanliness

Cleanliness is an important part of safety. Ensure the equipment works properly by removing any stacked garbage around the Maximizer and the separators. Clean all truck lights, warning lights and safety stickers, so you and the surrounding pedestrians and vehicles will be safe around the truck at all times.

Keep clean the contact surface between the body and the chassis. Labrie recommends cleaning the chassis after every unloading.

Make sure that the side step and other steps (if installed) are clean and free of any slippery material.

DANGER!

Use a step ladder to work on higher parts of the vehicle. Remember that the roof is not meant to be walked on. Be very cautious if you have to work on the roof area.

WARNING!

Thoroughly soak paper stuck between the Maximizer and the body before performing any repair with a welding device or any heat source.

DANGER!

Always use a safety harness when working or walking on the roof of the vehicle.

WARNING!

Apply the Lockout/Tagout procedure during daily cleaning.

WARNING!

Always install the tailgate safety prop before entering the body.

Maximizer Daily Cleaning

NOTE: The Maximizer is NOT a packer and CANNOT be used as such.

If the TOP SELECT™ is equipped with the optional Maximizer, apply the following cleaning procedure:

1. Start the truck's engine and turn ON the hydraulic pump.
2. Fully move the Maximizer panel to the front of the body (cylinder fully extended).
3. Open the tailgate and set the tailgate safety prop.
4. Turn OFF the pump and stop the engine.
5. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
6. Enter the body and remove any bulky piece of garbage inside.
7. Clean up the section between the Maximizer panel and the tailgate with pressurized water and rinse.
8. Start the engine et engage the hydraulic pump.

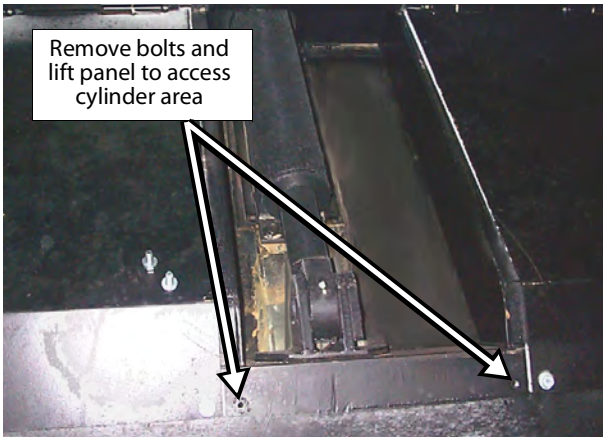
WARNING! Do not forget to open the shut-off valve on the suction line before starting the truck's engine.

9. Fully retract the Maximizer panel (cylinder fully retracted).
10. Turn OFF the pump and stop the engine.
11. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
12. Open the Maximizer access door.
13. Clean up the section between the front bulkhead and the Maximizer panel with pressurized water and rinse.
14. Once a month, open the cylinder access trap by removing its two screws (see Figure 10-3) and clean thoroughly.
15. Once the cleaning is completed, put back the screws that have been removed.
16. Exit the body.
17. Start the engine et engage the hydraulic pump.

WARNING! Do not forget to open the shut-off valve on the suction line before starting the truck's engine.

18. Slightly raise the body and release the Maximizer swing door to let the water out.
19. Finish cleaning with pressurized water.

Figure 10-3 Accessing Maximizer cylinder head



Maximizer General Maintenance

The Maximizer that is on the TOP SELECT™ (if this optional equipment has been chosen) has a heavy-duty guiding system using high-strength steel wear plates. Labrie recommends that a visual inspection of the Maximizer and its components be performed daily by the operator. Also, a weekly inspection and maintenance of the Maximizer by maintenance personnel is mandatory.

Greasing all moving parts on a daily basis is very important, and proper adjustment of the limit switches is imperative. Refer to the *Lubrication* section for detailed diagrams of greasing points and lubrication schedule.

NOTE: Do not grease the side rails. Abrasive material sticks to the grease and can cause premature wear of the rollers and/or the side rails.

Any problems affecting the space maximizing system must be corrected immediately.

NOTE: The Maximizer is part of the space maximizing system on a TOP SELECT™ unit. Unlike the packer, the Maximizer is used SPECIFICALLY to maximize the space available inside the body.

DANGER!

Apply the Lockout/Tagout procedure at all times when maintenance or inspection is carried out on the vehicle.

Maximizer Monthly Visual Inspection

This section outlines the general visual inspection procedure for the TOP SELECT™ Maximizer.

Before performing the visual inspection, apply the following procedure:

1. Park the vehicle on safe, level ground where it can be cleaned up.
2. Ensure that the parking brake is applied.
3. Make sure no one will get close to the vehicle since you will be moving the loading bucket(s), the tailgate and the body.

DANGER! Apply the Lockout/Tagout procedure to prevent any accidental engine start-up.

WARNING! Be careful not to direct pressurized water toward the cylinder heads and joints or on electrical devices such as limit switches.

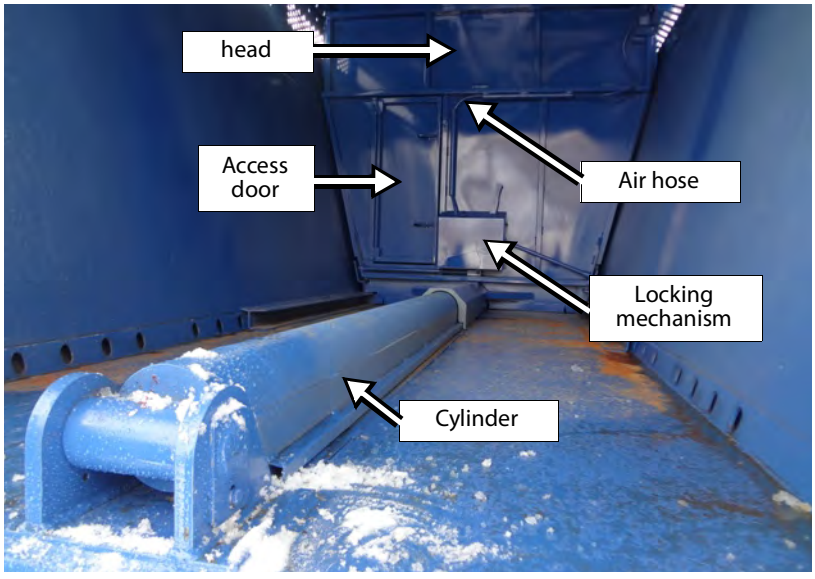
Apply the following step-by-step inspection procedure to prevent breakdowns and reduce maintenance expenses.

To inspect the Maximizer, do the following:

1. Apply the above procedure to prepare the truck accordingly.
2. Start the engine, engage the hydraulic pump and disable the speed-up system.
3. Fully extend the Maximizer (cylinder fully extended).
4. Check for horizontal movement of the Maximizer.

   If there is excessive sideways movement or even up and down movement, the rails should be inspected for wear.

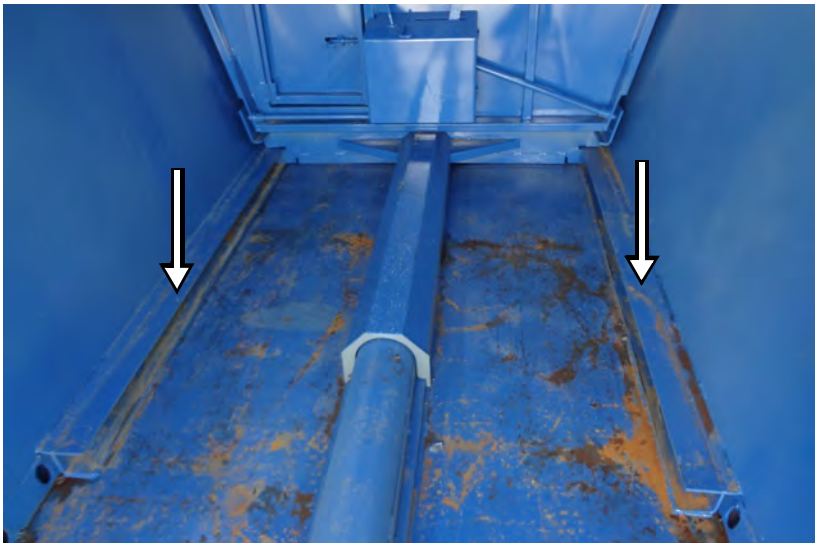
Figure 10-4 Maximizer assembly



5. Turn OFF the hydraulic pump and stop the engine.
6. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
7. Inspect both Maximizer rails.

   Make sure the rails do not show signs of wear.

Figure 10-5 Maximizer rails



8. Check if the Maximizer cylinder is internally leaking.

   Refer to "Hydraulic Cylinder Inspection" on page 73.

   Also, see Figure 10-3.

NOTE: The Maximizer is NOT a packer and CANNOT be used as such.

Pressure Adjustment

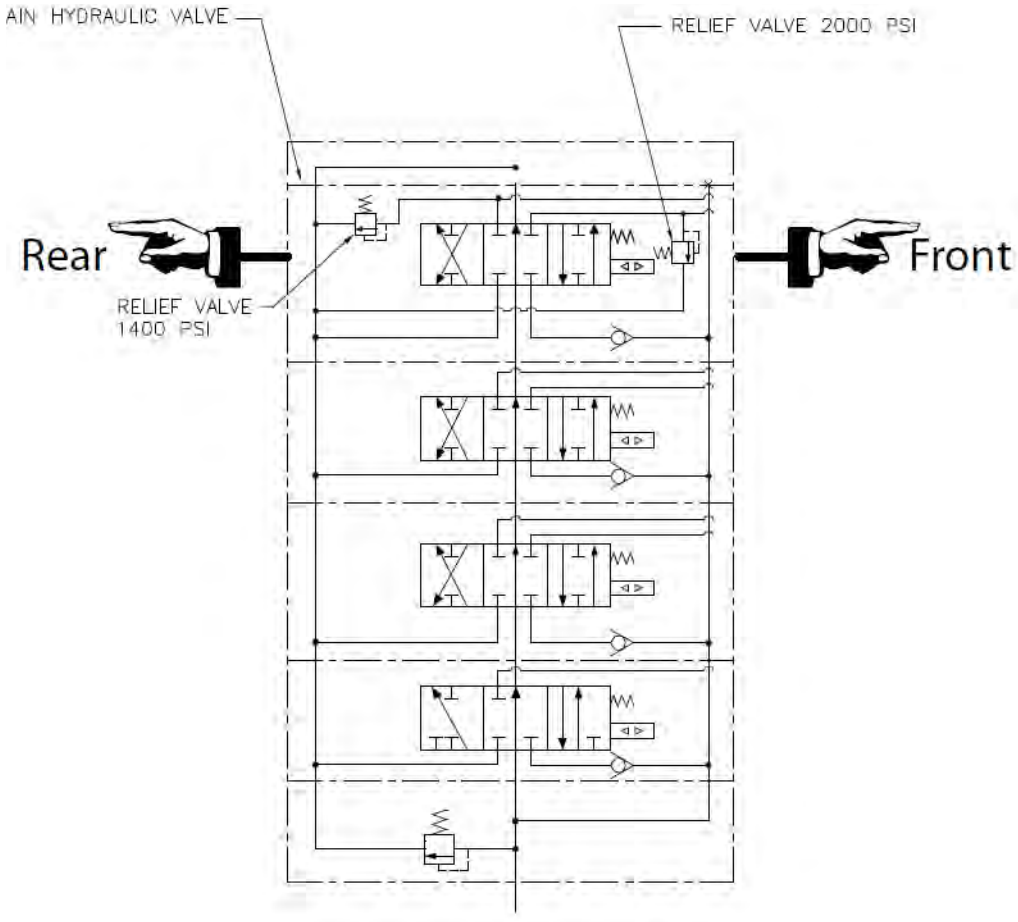
The Maximizer has its own hydraulic pressure, which is different from the rest of the hydraulic circuit.

To correctly adjust this pressure, apply the following procedure:

1. Install a 0-3000-psi gauge with a quick coupler on the pressure port of the directional control valve.
2. With an appropriate wrench, loosen the valve adjustment screw locknut on the Maximizer work section relief valve (see Figure 7-3).

Figure 10-6 Connecting gauge to port

Figure 10-7 Adjusting Maximizer hydraulic pressure



3. Start the engine and engage the hydraulic system.
4. While a helper is operating the Maximizer by pulling up the corresponding lever (see Figure 10-1) and is holding it in this position to let the pressure build up (the Maximizer is at the end of the rear stroke), adjust the screw to set the correct backward pressure on the gauge at 1400 psi.

5. While a helper is operating the Maximizer by pulling down the corresponding lever (see Figure 10-1) and is holding it in this position to let the pressure build up (the Maximizer is at the end of the front stroke), adjust the screw to set the correct forward pressure on the gauge at 2000 psi.

NOTE: Backward pressure is used to move the Maximizer panel toward the tailgate; forward pressure is used to move the Maximizer panel toward the front bulkhead.

NOTE: Turn the adjustment screw clockwise to increase pressure or counter-clockwise to reduce it.

6. Once the correct pressure has been set, tighten the adjustment screw locknut.

Replacing the Maximizer Cylinder

If you detect potential problems with the Maximizer cylinder, you might have to remove it and replace it.

Also, if the Maximizer panel needs to be removed and replaced, you will have to remove the cylinder too.

DANGER!

Apply the Lockout/Tagout procedure at all times when maintenance or inspection is carried out on the vehicle.

Removing the Cylinder Guard

You need to remove the cylinder guard first in order to remove the Maximizer cylinder.

NOTE: 2 people are required to carry out this procedure.

To remove the cylinder guard, apply the following procedure:

1. Ensure that the parking brake is applied.
2. Start the engine.
3. Engage the hydraulic pump.
4. Open the tailgate and set the tailgate safety prop.
5. Fully move the Maximizer towards the front bulkhead to clear the cylinder guard.
6. Turn OFF the hydraulic pump and stop the engine.
7. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
8. Use a zip cutter to cut through the tacks lined along the cylinder guard.
9. Remove the guard once all the tacks have been cut.

Figure 10-8 Zip cutting guard tacks

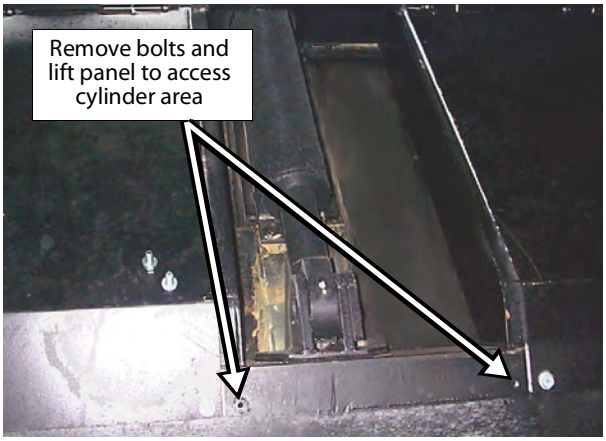
Removing the Cylinder

Now that the cylinder guard has been removed, proceed with the removal of the Maximizer cylinder.

To remove the Maximizer cylinder, apply the following procedure:

1. Access the cylinder head area through the Maximizer door (see Figure 10-4).
2. Remove the bolts from the cylinder head cover (see Figure 10-9) and lift the cover to gain access to the cylinder head.

Figure 10-9 Accessing Maximizer cylinder head



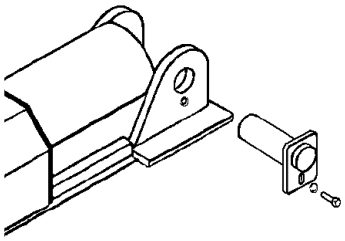
3. Remove the head pin.
4. Start the engine and engage the hydraulic system.

WARNING! Check the shut-off valve on the suction line is completely open before engaging the hydraulic system.

5. Fully retract the cylinder using the Maximizer control handle (see Figure 10-1).

6. Turn OFF the hydraulic pump and stop the engine.
7. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
8. Disconnect all hydraulic hoses and fittings from the cylinder.
   Save these for the new cylinder to be installed.
9. At the cylinder base, remove the bolt retaining the pin to the pillow block.
10. Remove the pin.
11. Attach the cylinder to a safe lifting device and slowly lift it out of the body.

Figure 10-10 Removing pin



Installing a New Cylinder

NOTE: 2 people are required to carry out this procedure.

To install a new Maximizer cylinder, proceed as follows:

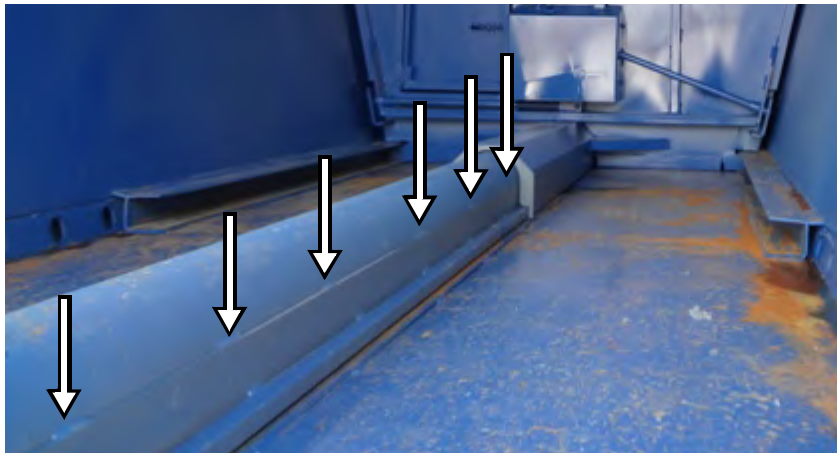
1. Make sure the Maximizer panel is positioned to the far front of the body.
2. Use a safe lifting device to carefully slide the cylinder into position.
3. Put back the pin at the base of the cylinder.
4. Put back the bolt securing the pin to the pillow block.
5. Connect the hydraulic hoses and fittings that were set aside to the newly installed cylinder.
6. Free the cylinder from the lifting device.
7. If needed, remove the bolts from the cylinder head cover and lift up the cover (see Figure 10-9).
8. Start the engine and engage the hydraulic system.

WARNING! Check the shut-off valve on the suction line is completely open before engaging the hydraulic system.

9. Have a helper move the Maximizer control handle (see Figure 10-1) to fully extend the cylinder while you make sure the cylinder head is correctly aligned with the opening at the base of the Maximizer panel and correct it if needed.
10. Once the cylinder head has correctly been installed on its bracket, turn OFF the hydraulic pump and stop the engine.

11. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
12. Install the cylinder head pin that locks the cylinder to the Maximizer panel.
13. Put back the cylinder guard into position.
14. Tack weld the guard on both sides (see Figure 10-11).

Figure 10-11 Tack welds on cylinder guard



15. Make sure the cylinder is tightly secured on both ends.
16. Start the engine and engage the hydraulic system.

WARNING!

Check the shut-off valve on the suction line is completely open before engaging the hydraulic system.

17. Move the Maximizer back and forth a few times to check the safe operation of the installation.

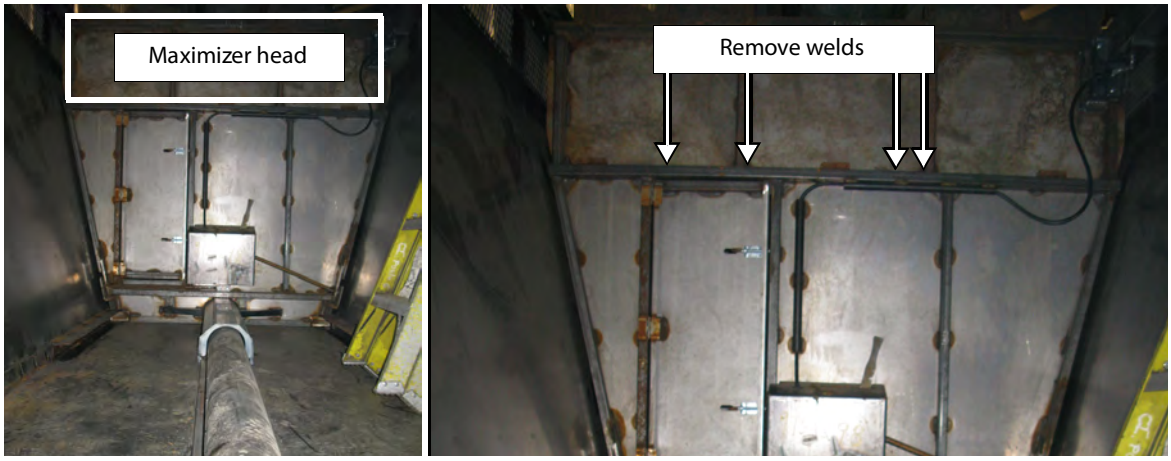
Replacing the Maximizer

If for any reasons you need to remove the Maximizer, make sure you follow the instructions below.

To remove the Maximizer, proceed as follows:

1. Remove the Maximizer cylinder.
   See *Removing the Cylinder Guard* on page 104 and *Removing the Cylinder* on page 105.
2. Apply the Lockout/Tagout procedure (see *Lockout/Tagout Procedure* on page 22).
3. Disconnect all air hoses.
4. Release the Maximizer head using a blow torch to remove welds (see Figure 10-12) and free the rest of the Maximizer.

Figure 10-12 Maximizer head



5. Slide the Maximizer out of its rails.
6. Using a lifting device with a 500-pound capacity, run the chain through the opening in the roof and attach it to the Maximizer.
7. Lift the Maximizer and move it as far as you can towards the exterior of the body.

   The beam at the back will eventually block your progress.
8. Bring a forklift to set the Maximizer on it.
9. Once the Maximizer rests safely on the forklift, remove the chains and pull it out.
10. Set the Maximizer on blocks so you can pick it up again with the forklift later on.

WARNING!

Thoroughly soak paper stuck between the Maximizer and the body before performing any repair with a welding device or any heat source.

To reinstall the Maximizer, proceed as follows:

1. Use the same forklift you used to remove the Maximizer to bring it to the body and align it so it can be slid in.
2. Attach the Maximizer with a chain through the roof opening to a lifting device.
3. Once it is safely attached, release it from the forklift and slide it in with the lifting device to set it on the rails (see Figure 10-5).
4. Move the Maximizer until it meets the head section and align the two structures.
5. Weld the head to the rest of the Maximizer.
6. Reinstall all air hoses.
7. Reinstall the Maximizer cylinder.

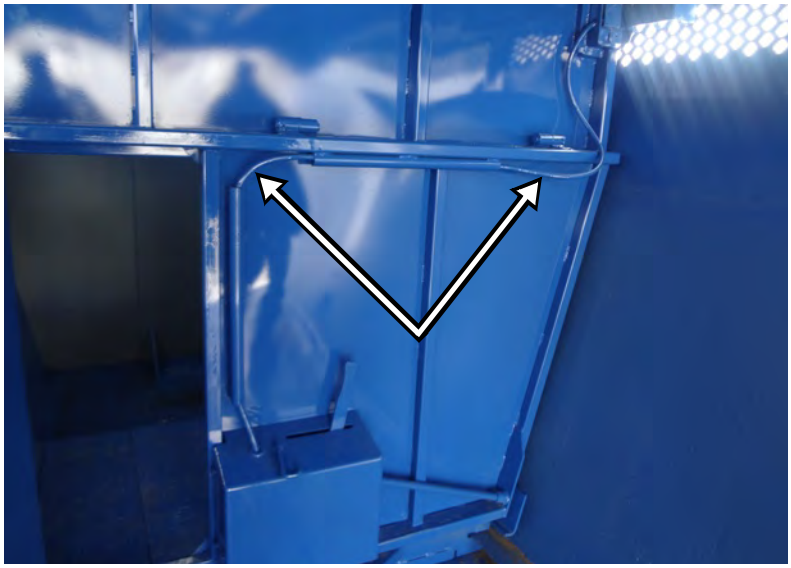
   See “Installing a New Cylinder” on page 106.

NOTE: The Maximizer is NOT a packer and CANNOT be used as such.

Replacing the Maximizer Extensible Air Hose

There is an extensible air hose that runs along the upper beam (see Figure 10-13) to provide air supply as the Maximizer moves back and forth.

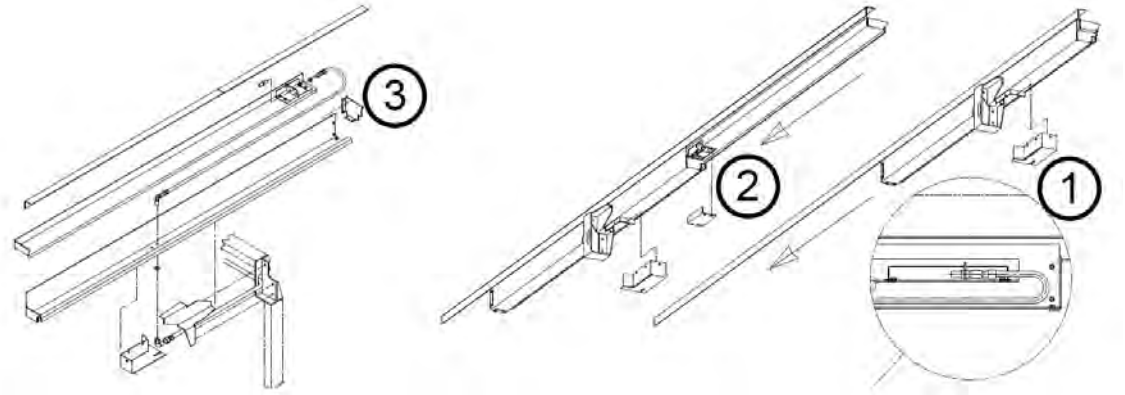
Figure 10-13 Air hose



To remove the extensible air hose:

1. With the Maximizer completely retracted, remove the cover that provides access to the hose connector leading to the Maximizer.
2. Fully extend the Maximizer to gain access to the cover of the hose connector on the other end leading to the air system and remove it.
3. Remove the cover on the side that will provide access to the hose.
4. Once you have gained access to the hose and its connectors, disconnect the hose on both ends and pull it out from the side.

Figure 10-14 Extensible air hose mechanism



To reinstall the extensible air hose:

1. With the Maximizer extended, connect the hose on the end leading to the air system.
2. Insert the hose in the sliding mechanism and connect it on the other end fixing the bulkhead connector in place.
3. Reinstall the side cover.
4. Reinstall the cover on the connector leading to the air system.
5. Reinstall the cover on the connector leading to the Maximizer.
6. Move the Maximizer back and forth a few times to test the installation.

11

Lubrication

To help the various systems of your truck run smoothly and extend the life time of the many critical parts that affect performance, there is one thing that you must do and that is:

LUBRICATE, LUBRICATE AND LUBRICATE!

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

See the following sections for detailed lubrication points on bucket(s), cylinder pins, tailgate hinges and body-chassis hinges.

Also, refer to the lubrication chart located on the side of the vehicle for a complete list of lube locations and the frequency with which they should be greased.

Recommended Lubricants

You will find below the recommended types of lubricants.

Grease

Any lithium-based commercial multipurpose grease may be used.

Hydraulic Oil

Minimum requirements for hydraulic oil:

- Any ISO Grade 32 hydraulic oil. This type of hydraulic oil provides excellent wide temperature range working condition.
- Viscosity of 32.0 cSt at 104 °F (40 °C).
- Viscosity index: 145 minimum.
- Pour point: -40 °C.
- The oil must contain anti-wear and anti-foam additives, rust and oxidation neutralizers and self-protecting agents.
- It must also meet MIL-H-5606 or SAE IOW "MS" standards.
- Finally, it must be absolutely clean and free of contaminants.

Any hydraulic oil that possesses such properties may be used with the TOP SELECT™. For northern regions, a hydraulic oil specific to these regions is strongly recommended.

IMPORTANT: It is the customer's responsibility to use oil that is appropriate to the climate.

CAUTION! Do not mix different brands of oil. In doubt, drain and refill with new oil.

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.

Grease Fittings on Chassis

Figure 11-1 Body hoist hinges

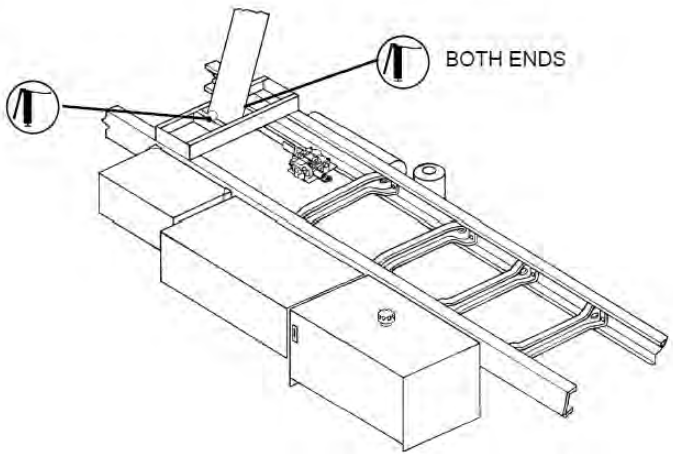
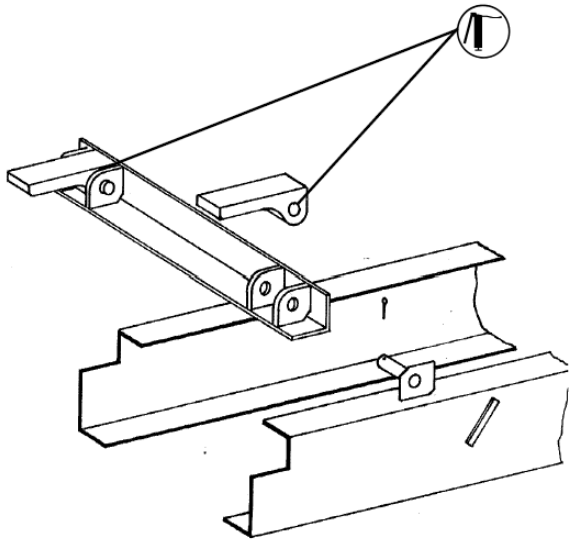


Figure 11-2 Body hinges



Grease Fittings on Body

Figure 11-3 Tailgate and hooks

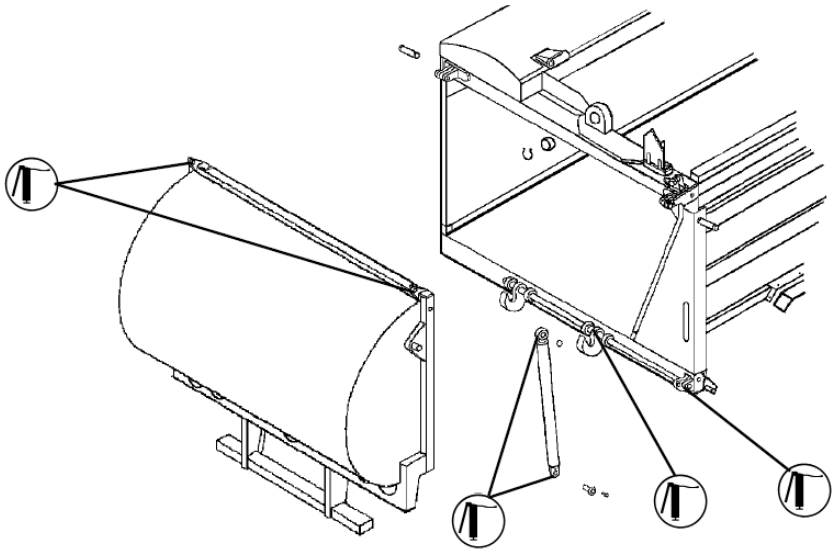


Figure 11-4 Partition

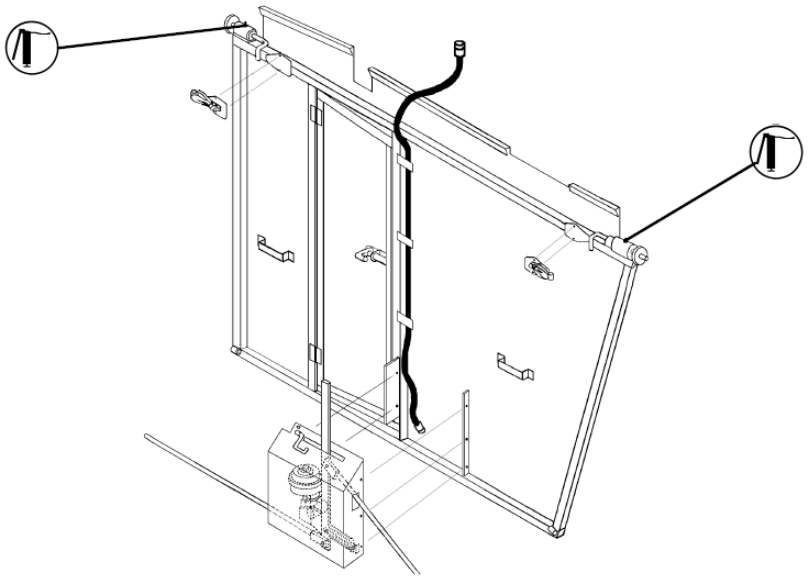


Figure 11-5 Optional Maximizer - Location of lube zerks

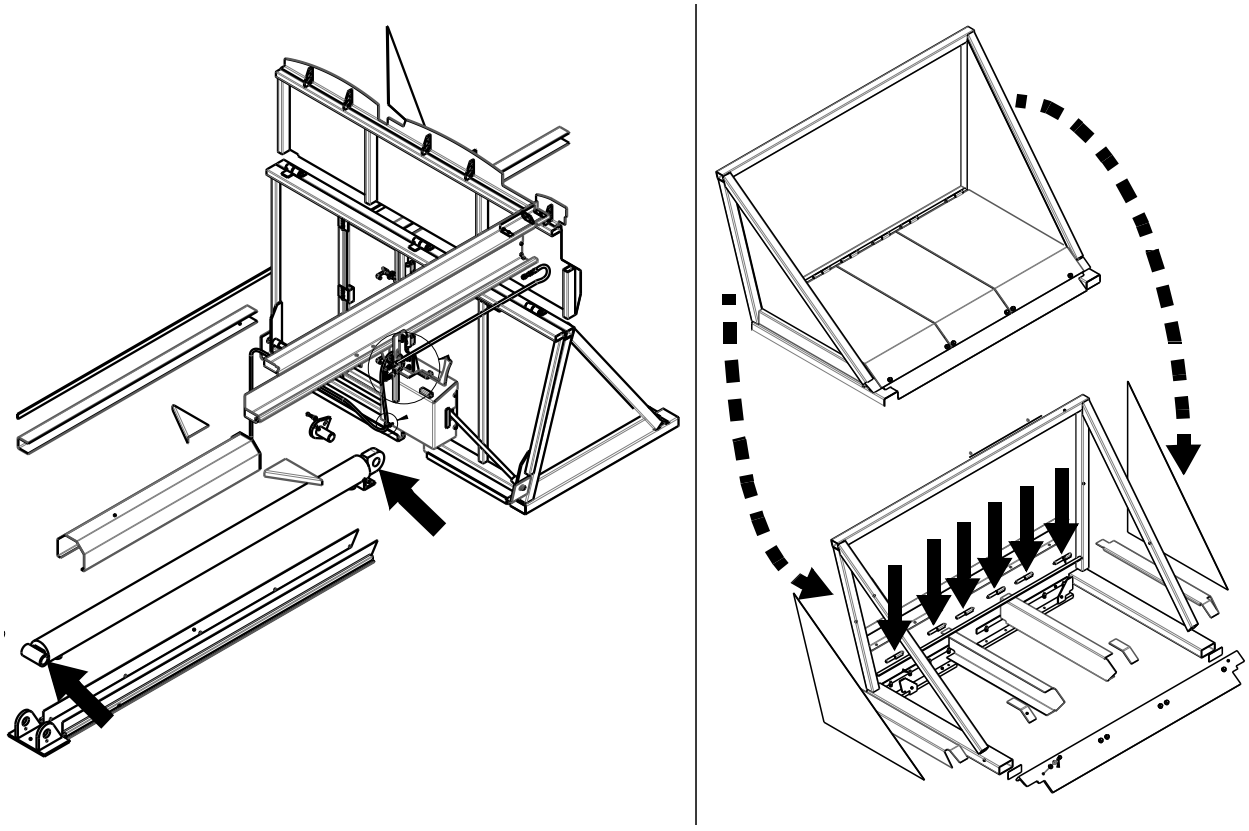


Figure 11-6 Roof hinges and loading cylinders

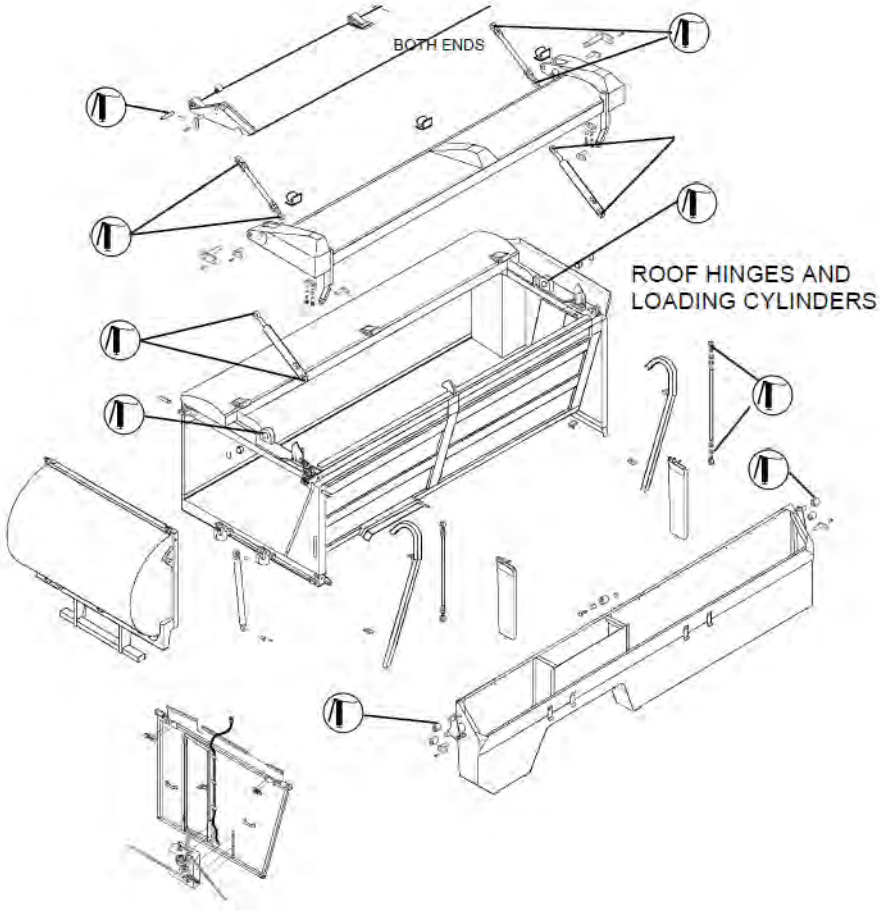
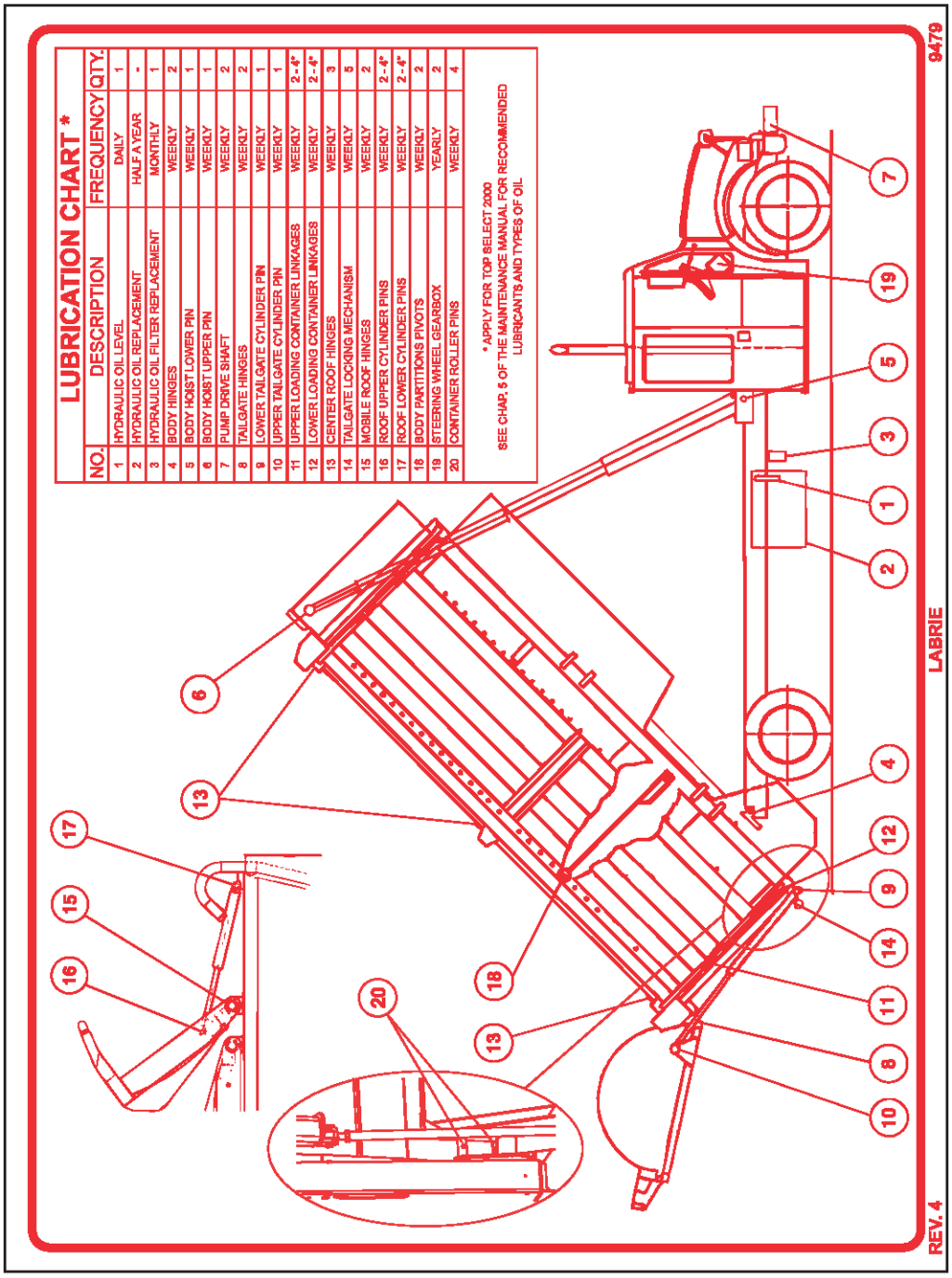


Figure 11-7 Lube chart



12

Troubleshooting

Troubleshooting is a matter of quickly and logically isolating the cause of a problem and taking corrective action. Factory trained mechanics, experienced operators, a thorough understanding of the information in this manual and accurate maintenance records are the best troubleshooting tools available. Occasionally it may be best for a service person, who is trying to isolate a problem, to go "on the route" or consult with operators to determine how the unit is acting under actual working conditions.

For the most part, problems with the unit will be limited to hydraulic and electrical system component malfunction or control linkage adjustment.

Troubleshooting Tables

Use the following troubleshooting tables (starting next page) to find remedies to problems that have identifiable signs.

NOTE: The following troubleshooting tables will help you identify a faulty element. It is not a detailed troubleshooting guide for complex components like pumps or valves. For any assistance, call LabriePlus (see *Our Office Addresses and Phone Numbers* on page 6).

OIL-RELATED PROBLEMS		
Problem	Cause	Remedy
Oil becomes excessively hot	Faulty pump	Repair, adjust or replace
	Faulty control valve	Repair, adjust or replace
	Wrong relief pressure setting	Check for proper adjustment of the relief valve
	Contaminated oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Wrong type of oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Excessive resistance to oil flow in the system	Hydraulic circuit has to be thoroughly inspected
Oil foaming	Air suction	All or any of the following: - Check for leaks and tighten all fittings - Fill hydraulic tank - Bleed hydraulic system - Check pump and valves for worn gaskets
	Wrong type of oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)

PUMP-RELATED PROBLEMS		
Problem	Cause	Remedy
Noisy pump	Cavitation	All or any of the following: - Replace filter (see page 81) - Clean supply line - Change hydraulic oil - Hydraulic oil is too cold
	Air in the hydraulic system	All or any of the following: - Check for leaks and tighten all fittings - Fill hydraulic tank - Bleed hydraulic system - Check pump and valves for worn gaskets
	Faulty pump	Repair, adjust or replace
Overheating pump	Faulty pump	Repair, adjust or replace
	Cavitation	All or any of the following: - Replace filter (see page 81) - Clean supply line - Change hydraulic oil - Hydraulic oil is too cold
	Air in the hydraulic system	All or any of the following: - Check for leaks and tighten all fittings - Fill hydraulic tank - Bleed hydraulic system - Check pump and valves for worn gaskets
	Contaminated oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Wrong type of oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Excessive load	Ensure that the bucket or body is not overloaded

PUMP-RELATED PROBLEMS		
Problem	Cause	Remedy
Scanty flow - low pressure	Faulty pump	Repair, adjust or replace
	Wrong type of oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Bad oil feed	See "Oil-Related Problems" Table above
	Slipping clutch	See *Hydraulic System Maintenance* on page 73

INTERNAL PUMP-RELATED PROBLEMS		
Problem	Cause	Remedy
Deep grooves on components	Contaminated oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
Erosion of casting	Cavitation	All or any of the following: - Replace filter (see page 81) - Clean supply line - Change hydraulic oil - Hydraulic oil is too cold
Blue or black components	Overheating oil	Add oil to the required level; Check for proper adjustment of the relief valve; Change for recommended oil; Clean the strainer (optional) and change the return filter element; Check all hydraulic components for debris that could cause restriction in the system.

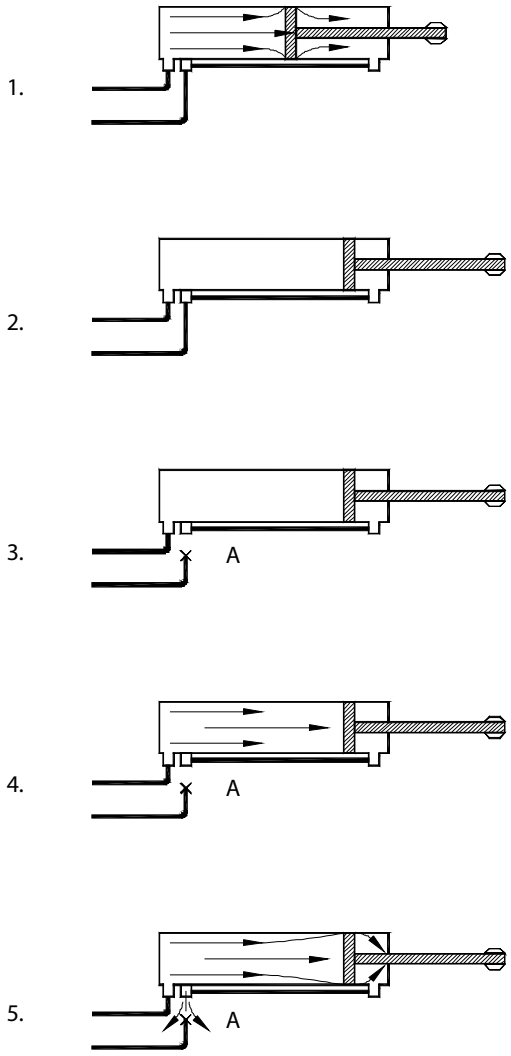
CYLINDER-RELATED PROBLEMS		
Problem	Cause	Remedy
No lifting force	Contaminated oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Wrong type of oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Scanty flow	See "Pump-Related Problems" Table above
	Internal leaking	See *Hydraulic System Maintenance* on page 73
	Excessive load	Ensure that the bucket or body is not overloaded; Also, see *Hydraulic System Maintenance* on page 73
	Wrong relief pressure setting	Check for proper adjustment of the relief valve
No control on loading cylinders	Low air pressure	Check air system - See *Air System Maintenance* on page 91
	Faulty control valve	Repair, adjust or replace
No control on unloading cylinders	Broken control cable	Repair, adjust or replace
	Faulty control valve	Repair, adjust or replace

CYLINDER-RELATED PROBLEMS		
Problem	Cause	Remedy
No control on all cylinders	Hydraulic system off	Engage the hydraulic system
	Slipping clutch	See *Hydraulic System Maintenance* on page 73
	Oil supply	All or any of the following: - Replace filter (see page 81) - Clean supply line - Change hydraulic oil - Hydraulic oil is too cold
	No flow or pressure	See "Pump-Related Problems" Table above
	Contaminated oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Wrong type of oil	Change filter and oil (see *Changing Hydraulic Oil* on page 78 and *Replacing Filter Elements* on page 81)
	Faulty control valve	Repair, adjust or replace
	Wrong relief pressure setting	Check for proper adjustment of the relief valve

Detecting Internal Leak in Cylinders

An internal leak is caused by a damaged seal inside the hydraulic cylinder (see #1 in Figure 12-1). 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.

Figure 12-1 Detecting cylinder internal leaks



If the cylinders are bypassing, the seal inside the cylinders may need to be replaced. If an internal leak is suspected, apply the following procedure.

To detect internal leaks in cylinders:

1. Apply all safety measures and set the parking brake.
2. Start the engine and engage the hydraulic pump.
3. Fully extend the faulty cylinder, then disengage the hydraulic pump.
4. Disconnect and plug hose "A" (see Figure 12-1).
5. Engage the hydraulic pump.
6. Activate the cylinder by putting pressure on the piston end and see if oil is leaking from port "A", then 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 cylinder.

13

Hydraulic and Pneumatic Circuit Diagrams

The following schematics show you the hydraulic and pneumatic circuits and the various components that are connected to them.

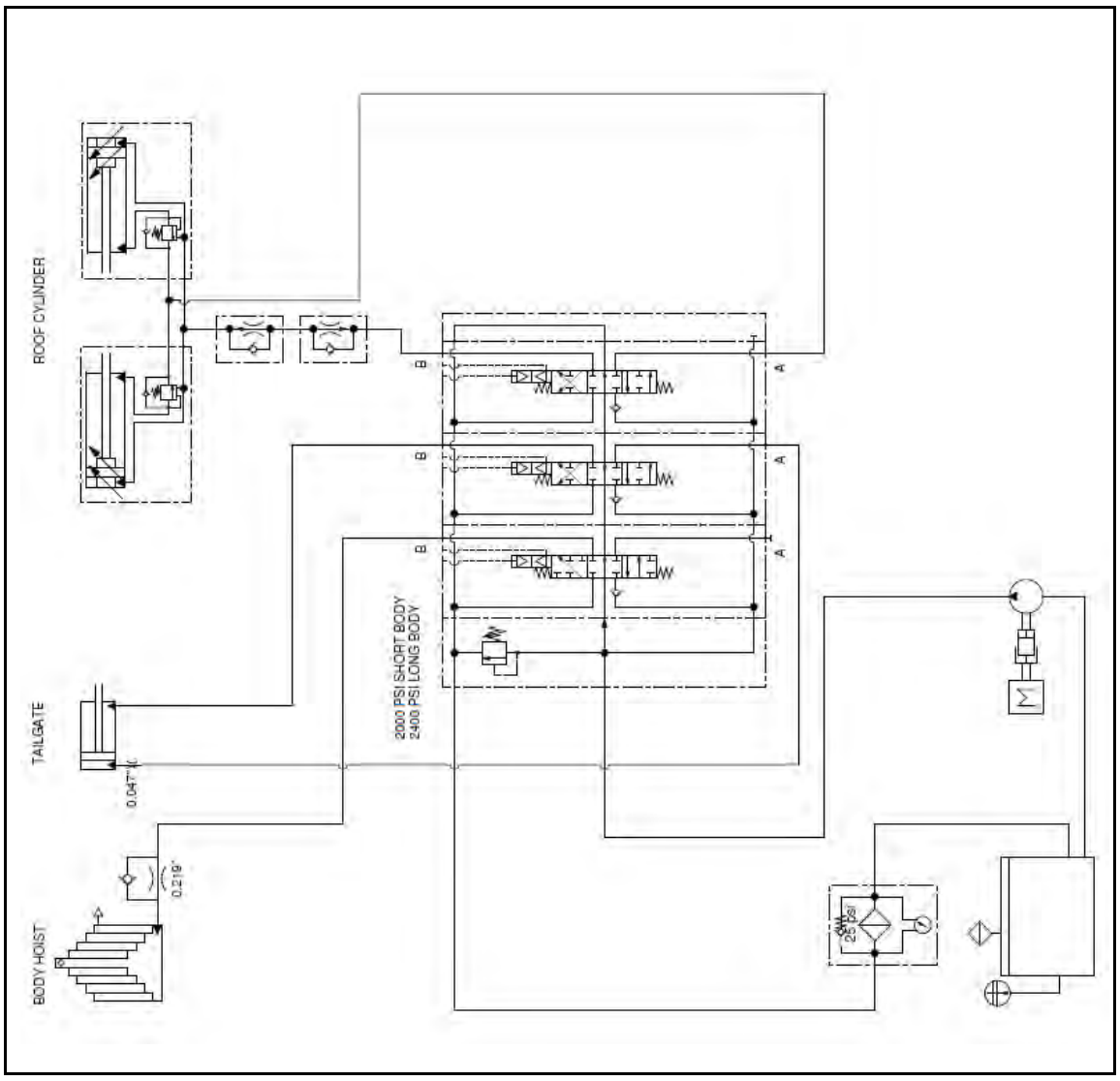
These schematics can be used to locate a particular components and can be helpful for troubleshooting.

The first set of schematics is related to the hydraulic system and the second set to the pneumatic (air) system.

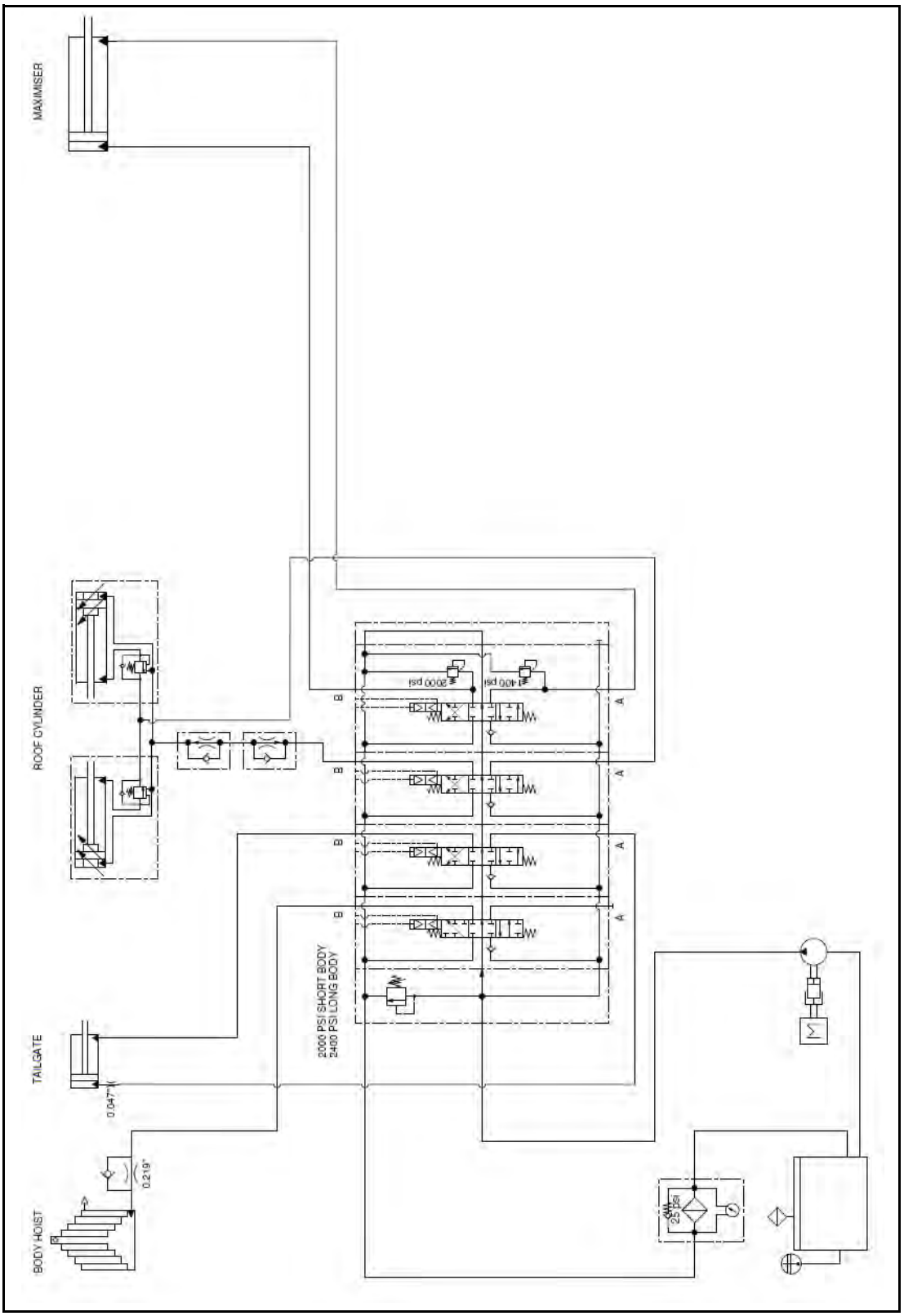
NOTE: The following schematics vary according to the truck configuration and the options that have been chosen.

Hydraulic Schematics

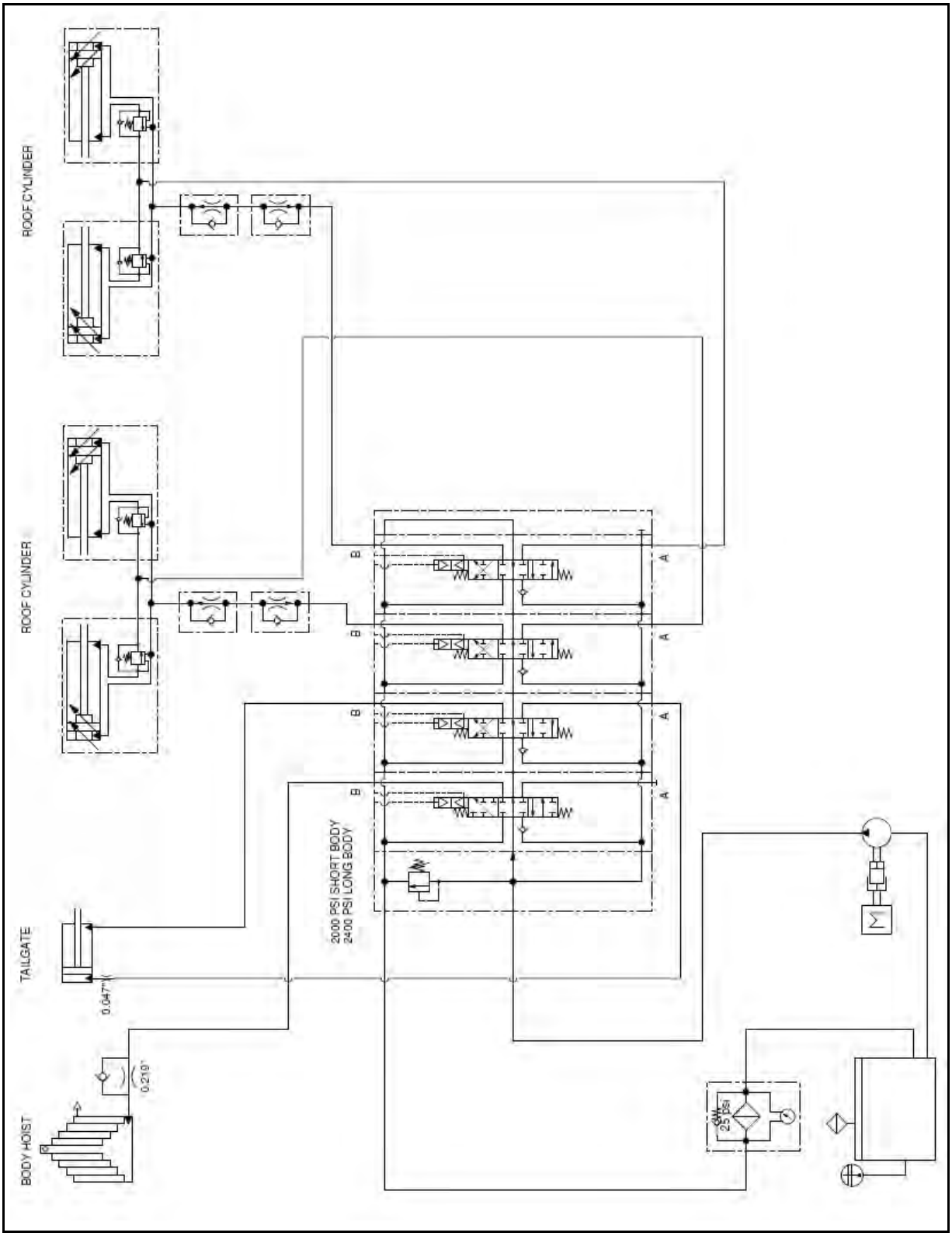
Single Side Bucket



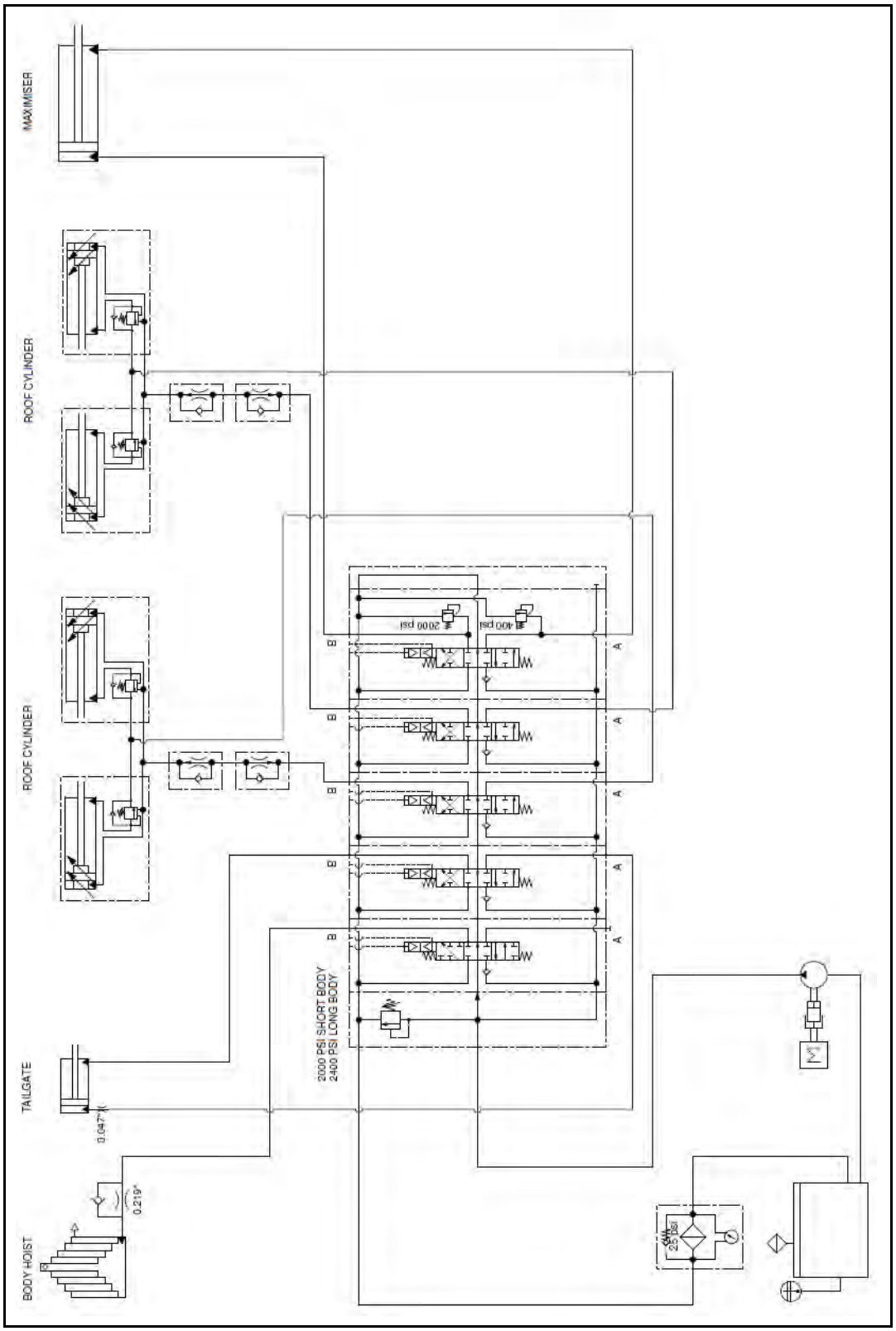
Single Side Bucket w/ Maximizer



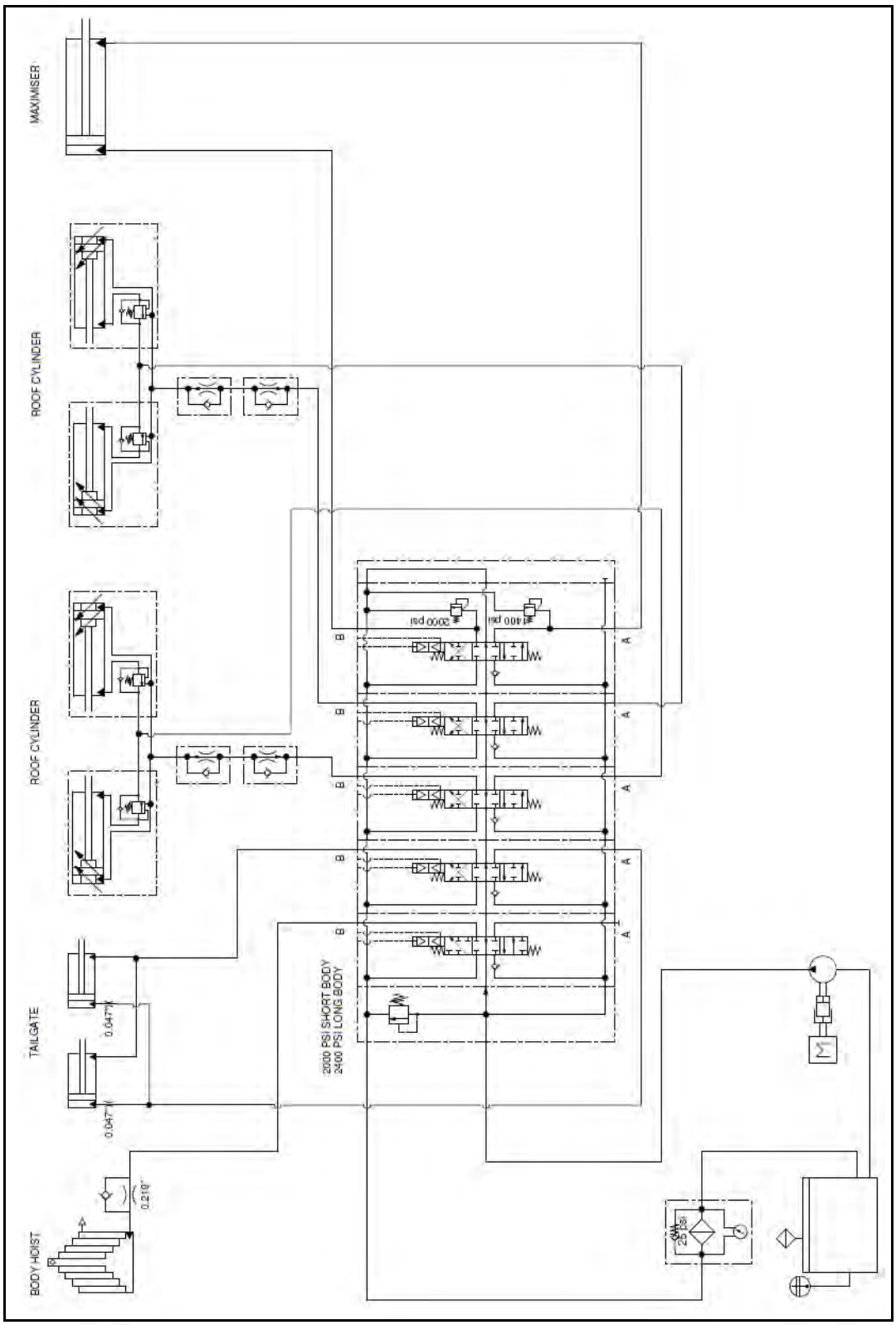
Dual Side Bucket



Dual Side Bucket w/Maximizer

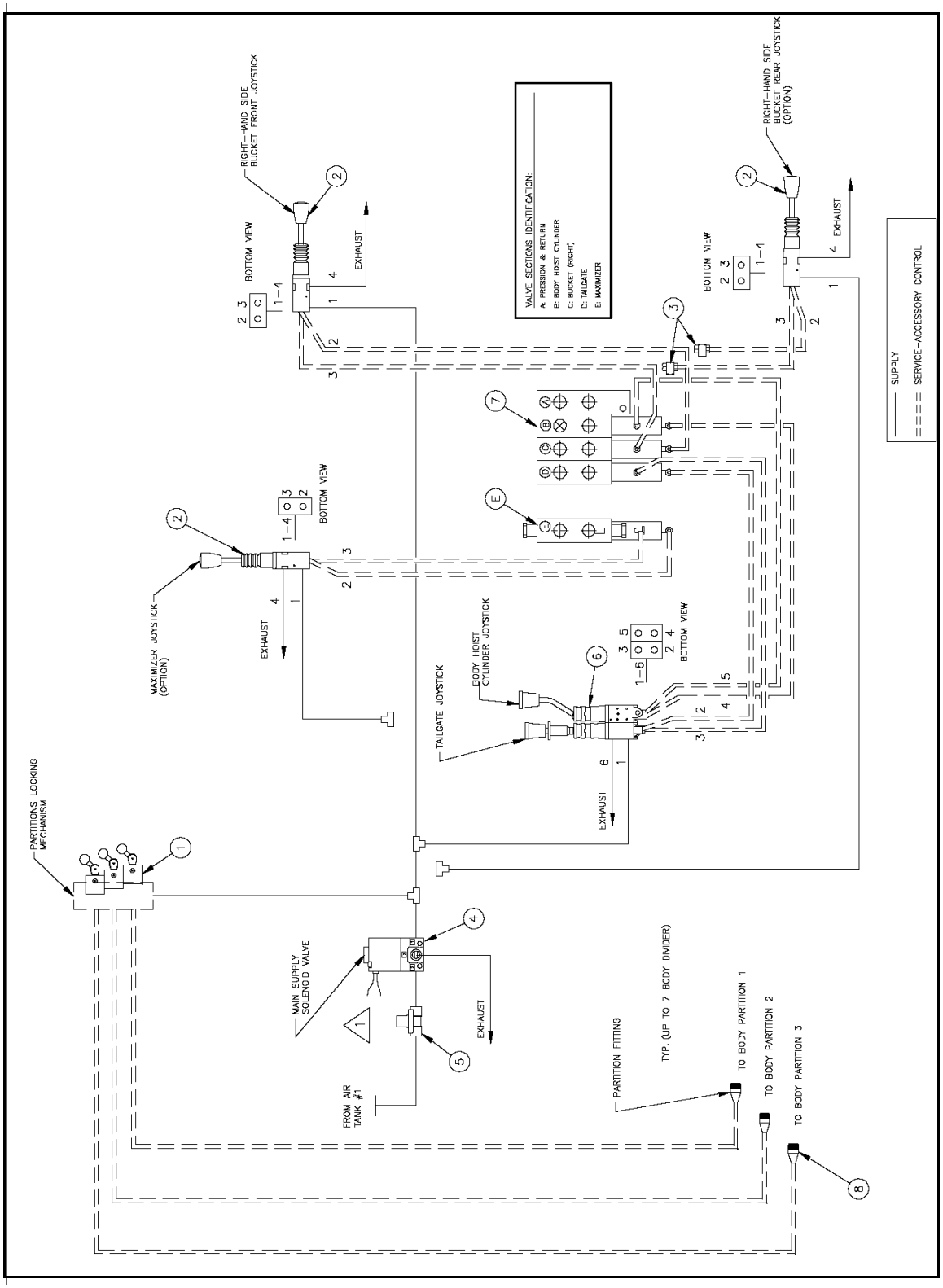


Dual Side Bucket w/ Maximizer and Dual Tailgate Cylinder

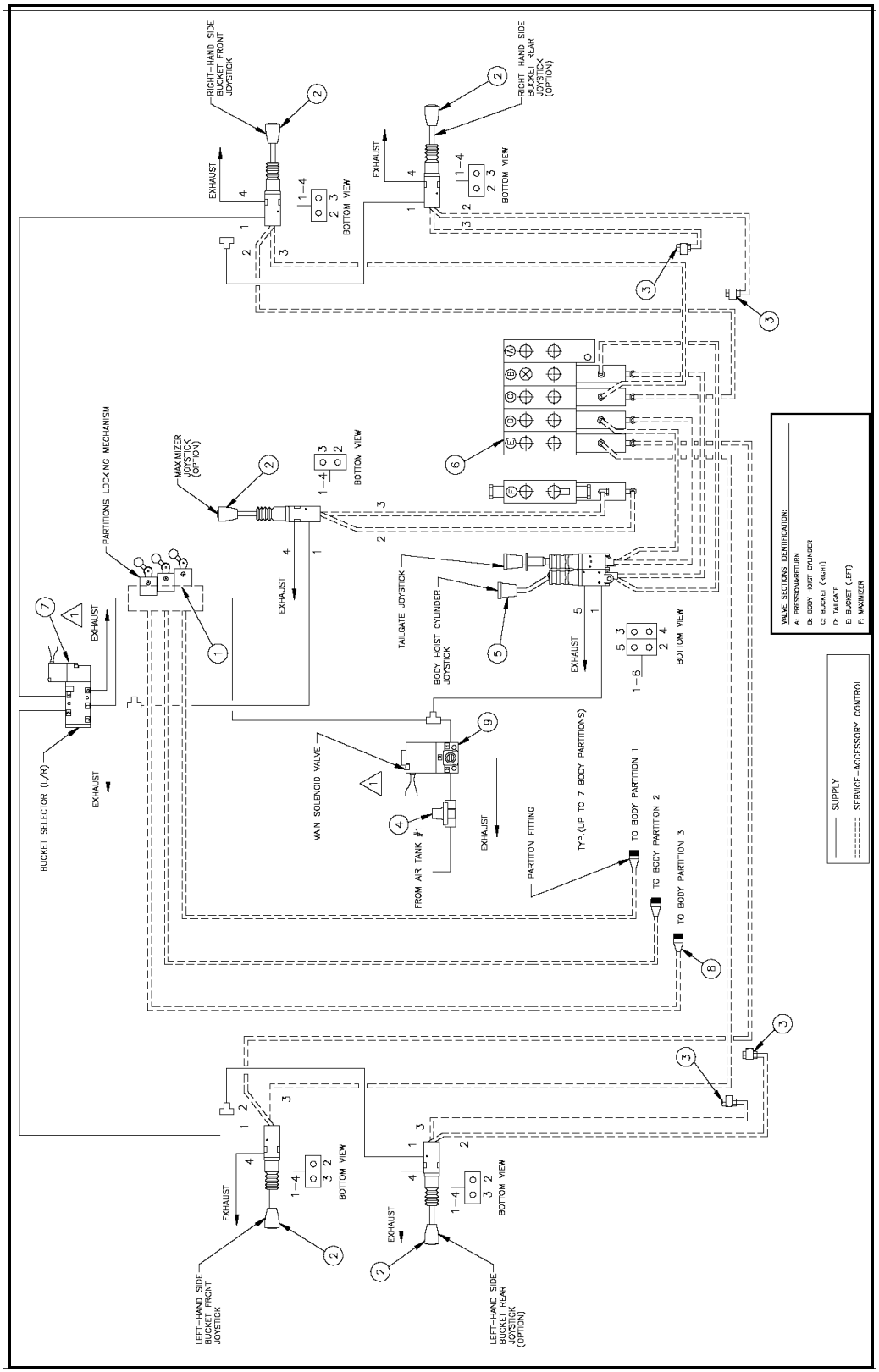


Air System Schematics

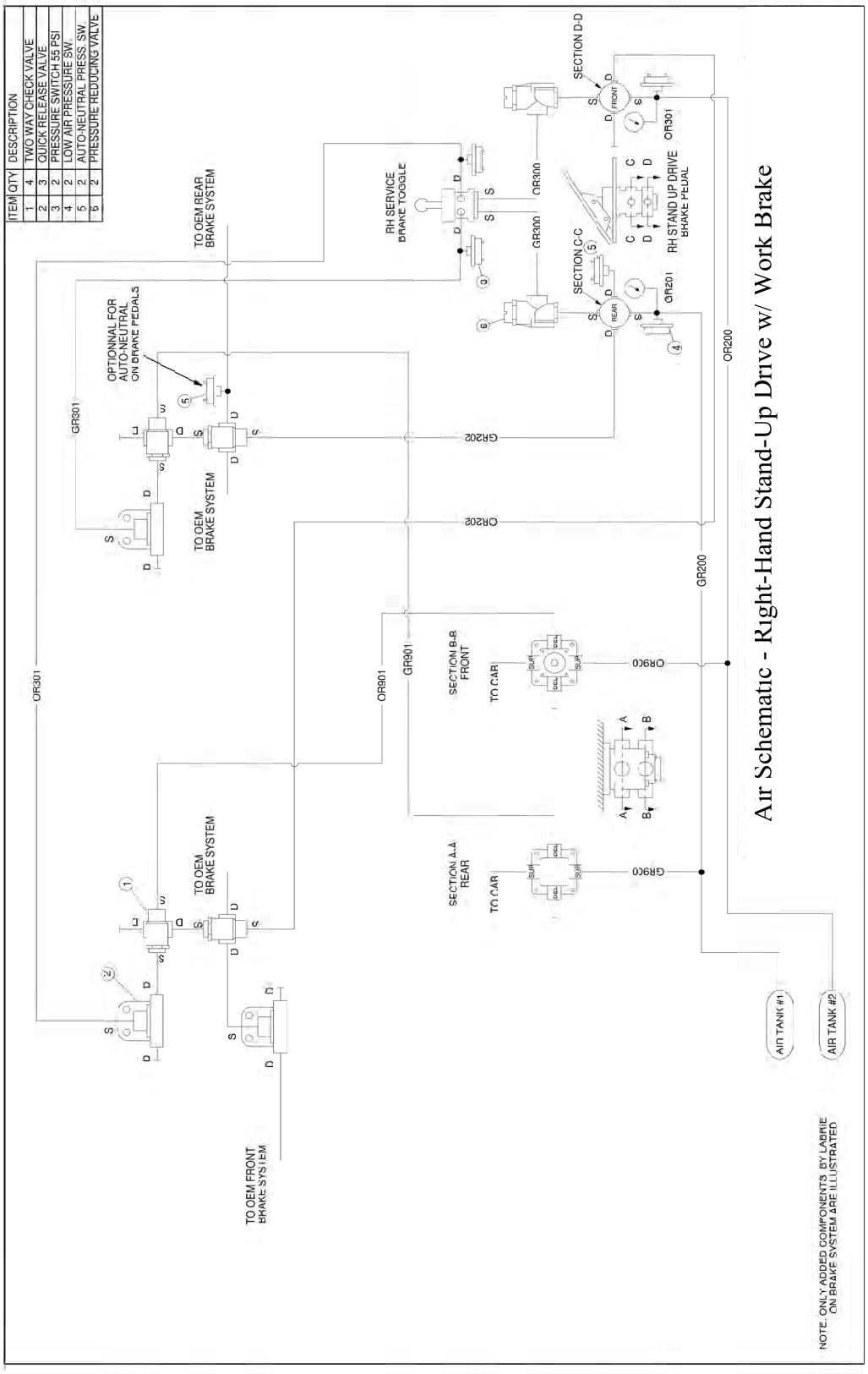
TS 1000 w/ Options



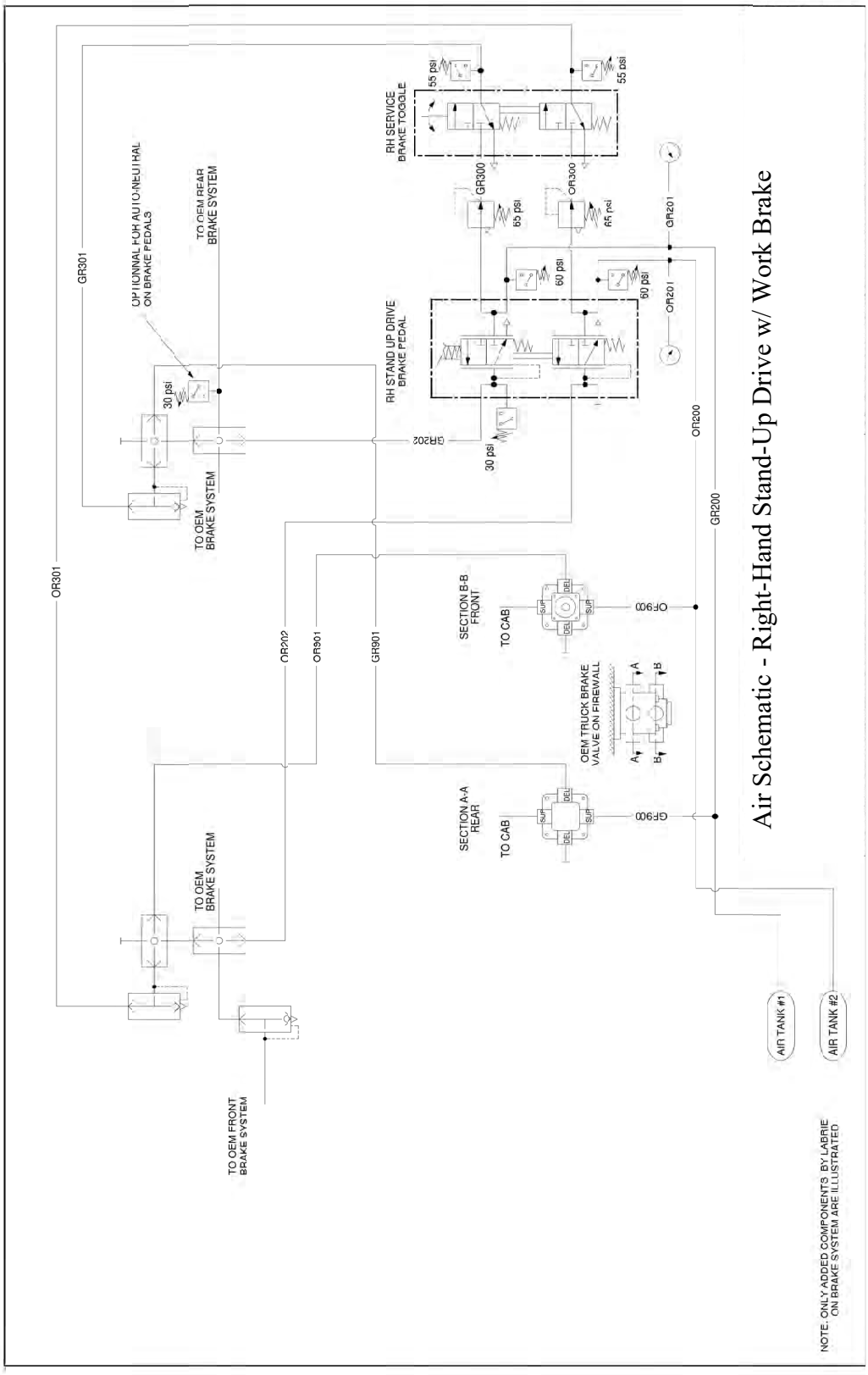
TS 2000 w/ Options



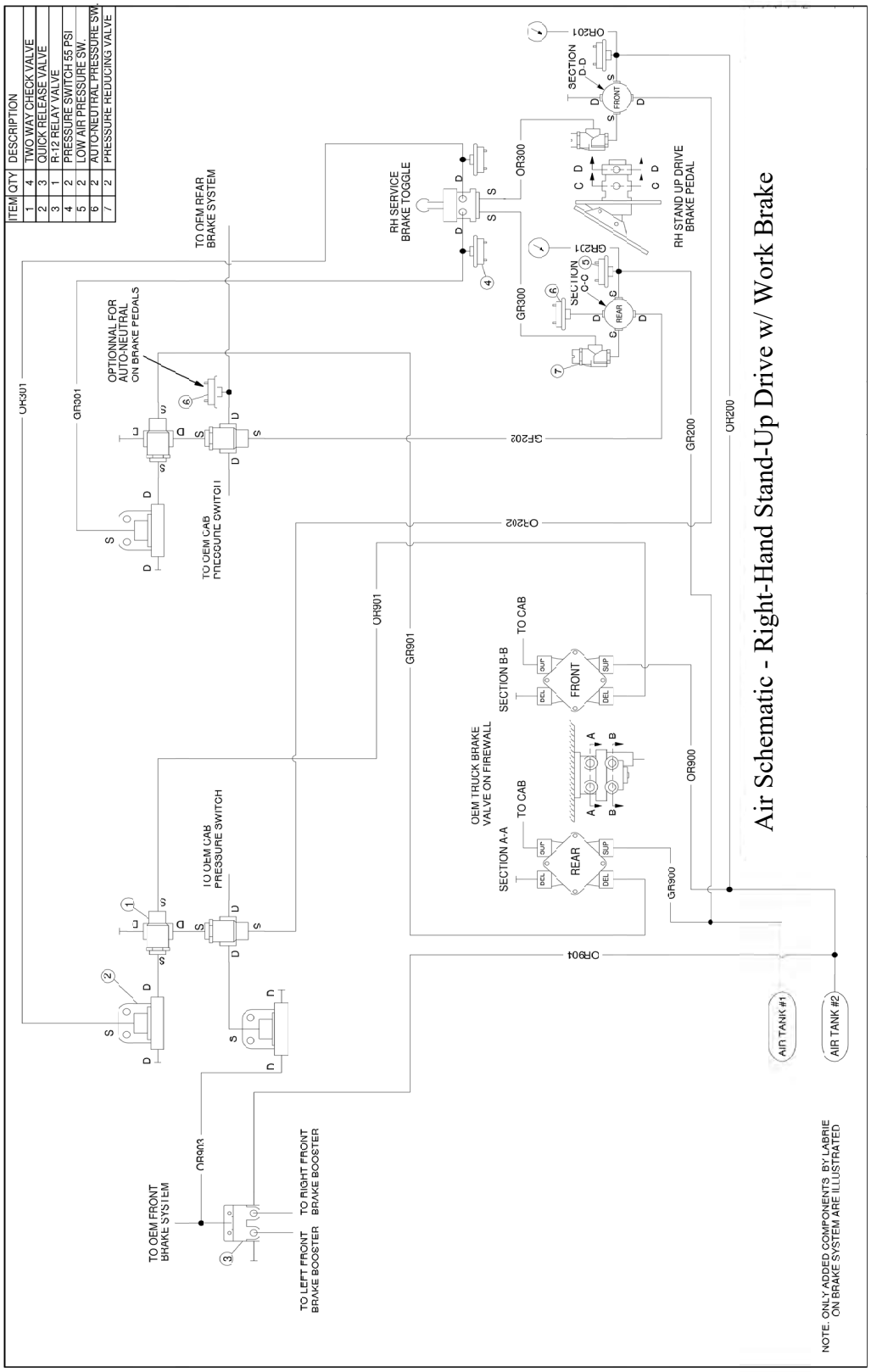
Air Brake System (Freight Cab) - Part 1



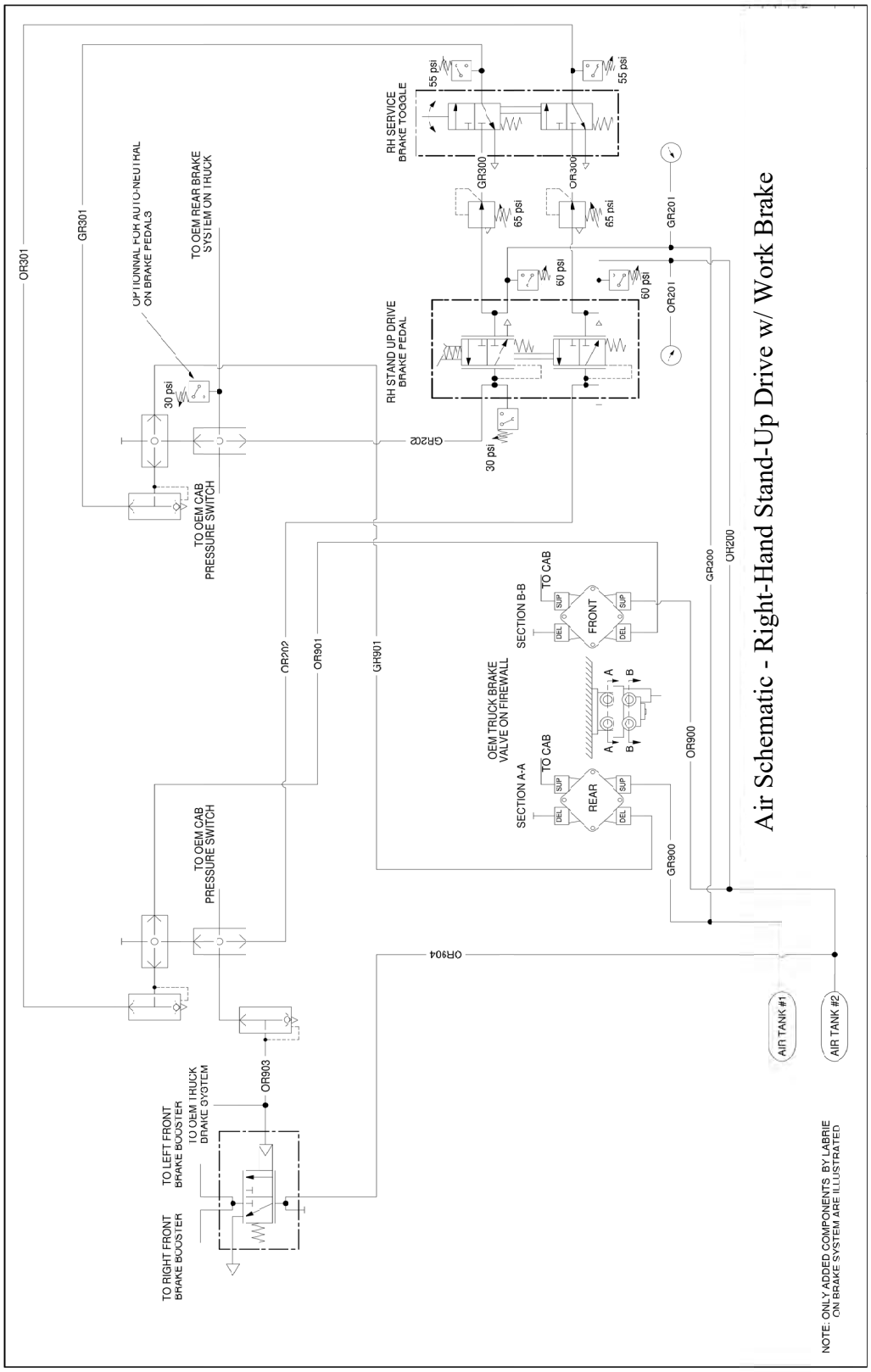
Air Brake System (Freight Cab) - Part 2



Air Brake System (Inter Cab) - Part 1



Air Brake System (Inter Cab) - Part 2



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