



AUTOMIZERTM RECYCLER

MAINTENANCE MANUAL



 **labrie**



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AUTOMIZER™ RECYCLER
MAINTENANCE MANUAL



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Safety

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

Conventions

Danger!



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

Warning!



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

Caution!



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

Basic Safety Notions

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

Danger!



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

Danger!

Never get in the hopper area when the engine is running.
Only authorized personnel may do so following a lockout/tagout procedure (See *Locking out and Taging Out the Vehicle* on page 6.)

Responsibilities

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

Employer Responsibilities

It is the responsibility of the employer:

- ◆ To ensure that the AUTOMIZER™ RECYCLER is operated in accordance with all safety requirements and codes, including all applicable regulations, the Occupational Safety and Health Act (OSHA), and the American National Standards Institute (ANSI).
- ◆ To ensure that employees are qualified for operating the vehicle and its equipment, and that they all take safety measures before working with them.
- ◆ To properly maintain all mobile equipment to meet all state/provincial and federal safety standards.
- ◆ To supply adequate instructions and training for the safe use of the vehicle and equipment before assigning an employee to such equipments.
- ◆ 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 that follow any damage or malfunction reported by any employee.
- ◆ To establish and ensure the application of a "lockout/tagout" procedure (see page 6) any time inspection, repair or maintenance is performed on the vehicle, regardless of whether it takes place on the road or in the garage.

Employee Responsibilities

It is the responsibility of the employee:

- ♦ To enforce all safety measures to meet the requirements established by the employer.
- ♦ To operate the AUTOMIZER™ RECYCLER only after having received instruction and training.
- ♦ To immediately report to the employer or supervisor any damage or malfunction to the vehicle.
- ♦ 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.

Things to Do

- ♦ Inspect the body and all systems at the start of each day.
- ♦ Make sure that the area is clear of any people or possible obstructions.

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

- ♦ Wear safety glasses, gloves, safety footwear, and any other safety equipment when loading and packing refuse.
- ♦ Make sure that mirrors, windows, lights, and monitor equipment are clean and properly adjusted.
- ♦ Check for explosive trash (for example, televisions, paint cans, fluorescent light tubes, etc.).
- ♦ Drive carefully when carrying an unevenly distributed load.
- ♦ Inspect for overhead hazards (power lines) prior to hoisting the body or using the hopper bucket.
- ♦ Use the body safety prop when servicing under the body.
- ♦ 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 the work or parking brake is engaged.
- ♦ Do not enter the hopper or main body unless the engine is shut off, the key is removed and there is an out-of-service tag on the steering wheel. Refer to the lockout/tagout procedure on page 6.
- ♦ Do not hoist the body if the vehicle is standing on uneven ground.
- ♦ Do not back up the vehicle when the body is raised.
- ♦ Do not drive with the tailgate fully open unless it is to unload refuse at the landfill.

- ♦ Do not use the body safety prop to prop a *loaded* body.

Warning!



Prior to its first use, your AUTOMIZER™ RECYCLER *must be completely lubricated*, as shown on the lube sticker located curb-side, near the hopper. Initial lubrication carried out by Labrie Environmental Group is sufficient for production and transport purposes *only*!

Only qualified personnel should service the hydraulic, and electrical systems of this vehicle. They should also be fully versed in operating the vehicle.

General Precautions

Danger!



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

It is the employer's responsibility to ensure that *only* qualified employees operate and maintain this vehicle.

- ♦ Read and make sure that you fully understand this manual and all safety labels before performing maintenance on the vehicle. Maintenance personnel must also read and understand the vehicle *Operator Manual*. In case of doubt, ask a supervisor for clarifications.
- ♦ Before every work day, inspect the body, the packing system, and any system that might compromise public and/or operator safety.
- ♦ Verify that the accelerator pedal, the steering wheel, mirrors, brakes, and turn signals are in good working order.
- ♦ When driving the vehicle, keep both hands on the steering wheel at all times.
- ♦ Stop the vehicle completely and put on the parking brake before leaving the driving position.
- ♦ When the vehicle is parked, the parking brake *must* be applied.
- ♦ Vehicle operators must have a clear view of hopper bucket operations at all times. To prevent injury to surrounding people, and damage to property and/or to the bucket itself, operators must be able to stop bucket movement at any time.
- ♦ Before activating the hopper bucket, operators shall make sure that people and obstructions are far away from the vehicle.
- ♦ AUTOMIZER™ RECYCLER vehicles are primarily designed to be operated *by only one person*. However, if Labrie Environmental 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 Environmental Group *must be informed of every and all units that will be operated by more than one worker*. Labrie Environmental Group will then determine and supply, at the customer's expense, the required safety items. For additional information, please contact LabriePlus at 1-877-831-8250.

- ♦ Do not operate this vehicle if there are any signs of damage or incomplete repairs.
- ♦ Report to a supervisor any doubts that you might have, and any safety service requirements regarding this vehicle.
- ♦ When removing nylon locknuts, *always* replace them by new ones.
- ♦ For any work, cleaning or inspecting that has to be done between the body and chassis, *always* use the body safety prop. Also, the vehicle *must* be on level ground.
- ♦ Before opening and closing the tailgate(s) and/or raising the body, make sure that there is no one behind the vehicle.
- ♦ Do not get into the hopper compartment or try to repair anything behind the packer when it is moving or when the hydraulic pump is still running. Personnel authorized to get into the hopper *must* first lock out and tag out the vehicle, as required by the employer. For more information, see *Locking out and Tagging Out the Vehicle* on page 6.
- ♦ *Never* stand underneath a raised hopper bucket.
- ♦ *Never, under any circumstances* (maintenance or otherwise), stand underneath a *loaded* body.

Welding

Danger!



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

Caution!



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

Fire

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.

Danger!

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



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

Locking out and Taging Out the Vehicle

For any inspection, repair or general maintenance being done on the vehicle, whether on the road or at the shop, it is the employer's responsibility to establish and see to the application of a proper lockout and tagout procedure.

To lock out and tag out a AUTOMIZER™ RECYCLER vehicle:

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

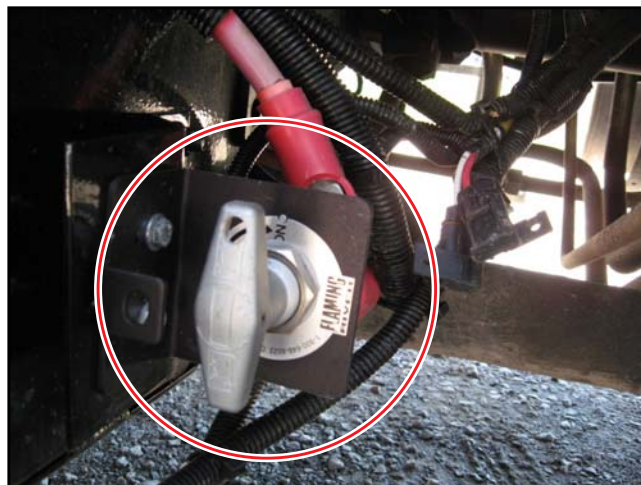
Figure 1-1 Parking brake sign



2. Make sure that the body is completely unloaded.
3. Switch off the hydraulic pump.
4. 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.
5. Turn off and lock the master switch.
6. Chock all wheels.

IMPORTANT: If the AUTOMIZER™ RECYCLER battery set is equipped with a master switch (see Figure 1-2), you must turn it off.

Figure 1-2 Master switch



7. Put an “OFF SERVICE” tag on the driver’s wheel and on the front windshield.
8. Use safety props to block any system that could move by gravity (open tailgate, etc.)
9. Drain all air tanks.
10. Verify and inspect any security device and/or mechanism to make sure that there is no bypass and that they are all functional.

Setting the Body Safety Prop

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

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 1-3 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. Raise the body until the safety prop is free to tilt under it.
4. Release the safety prop using the safety prop handle and position it adequately.

Figure 1-4 Safety prop handle

5. Lower the body until it rests on the safety prop.
 6. Lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).
- 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. Raise the body until the safety prop can move freely.
4. Release the safety prop using the safety prop handle and put it back in its place.
5. Lower the body.
6. Lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).

Setting the 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 installing safety props.

Figure 1-5 Tailgate safety prop



Danger!



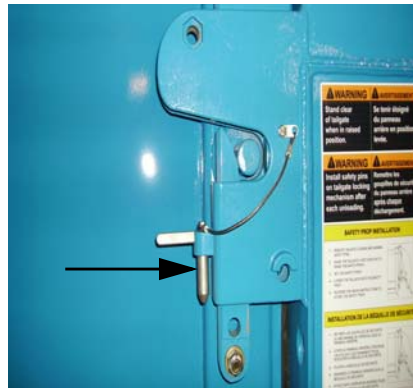
The safety prop shall be set each time the tailgate is opened for inspection and maintenance purposes.

To set the tailgate safety prop:

1. Make sure that the body is empty.

2. Remove the tailgate-locking mechanism safety pin.

Figure 1-6 Safety pin



3. Start the engine.
4. Turn on the pump.

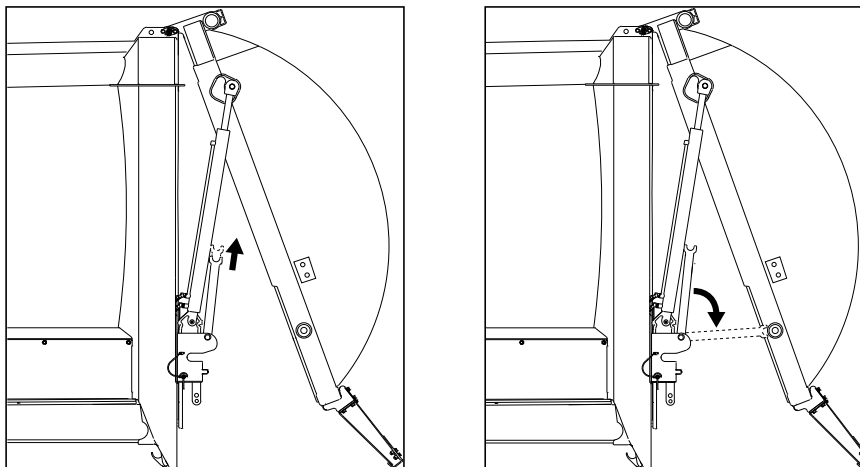
Danger!



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 in the cab control panel, raise the tailgate about 3 feet (enough to raise the safety prop).
6. Pull the safety prop upward and set it down (see Figure 1-7).

Figure 1-7 Pulling the safety prop upward (left) and setting it down (right)



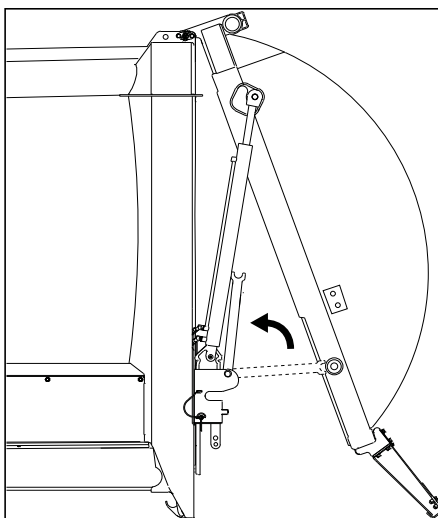
7. Lower the tailgate onto the safety prop.

Putting the Tailgate Safety Prop Back in Place

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

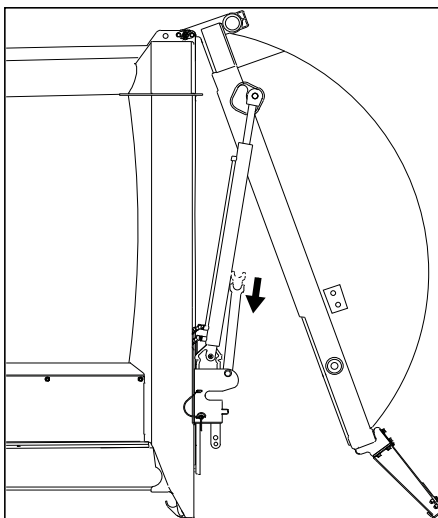
1. Start the engine.
2. Turn on the pump.
3. Raise the tailgate by about 3 feet.
4. Raise the tailgate safety prop.

Figure 1-8 Raising the tailgate safety prop



5. Release your grip on the safety prop to set it in its home position.

Figure 1-9 Setting the safety prop in its home position



6. With the tailgate control lever on the cab control panel, completely close the tailgate.
The TAILGATE OPEN light indicator should turn off.

7. Put the safety pin back in place.

Shutting Down the Vehicle

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

Also:

1. Park the vehicle on a hard and level surface, and apply the parking brake.
2. Make sure that all moving parts are in their home position (tailgate, hopper bucket, body, crusher panels, packer, etc.)
3. Turn off, in sequence, the hydraulic pump, the electrical system, the engine and (if installed), the master switch.
4. Drain all air tanks.

Figure 1-10 Drain valve on air tank



Prior to Start Up

Before starting the vehicle:

1. Make sure that no system will engage and/or start to operate as you start the engine.
 - 1 a. Turn off all electrical components.
 - 1 b. Disengage the hydraulic pump.

Figure 1-11 Hydraulic pump ON/OFF switch and indicator light



2. Make sure that the main valve (ball valve) on the hydraulic tank is fully open before starting the vehicle (see Figure 1-12).

NOTE: The hydraulic tank model can 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.

3. Engage the hydraulic system as explained in the Operator Manual.
Once the engine is started, wait for air pressure to build up to *at least* 70 psi.

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

Figure 1-12 Suction line mounted valve (steel tank)



2

General Maintenance

Danger!



Always lock out and tag out the vehicle when inspecting or performing maintenance on the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).

Cleanliness is part of safety.

As such:

- ♦ Clean all vehicle lights, warning lights and safety stickers, so that you and the vehicle surroundings are safe at all times.
 - ♦ Clean the contact surface between the body and chassis. Labrie Environmental Group recommends cleaning the chassis after every unloading.
 - ♦ Remove any stacked garbage in the hopper area.
 - ♦ Make sure that the side step and/or hopper step (if installed) are clean and free of any slippery material.
-

Danger!



Always use the stepladder to reach higher parts of the vehicle. As the roof is not designed to be walked on, be extremely cautious if you have to work there.

Caution!



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

AUTOMIZER™ RECYCLER Preventive Maintenance Chart

Component/System	Verification	Daily	Weekly	Monthly	Yearly	Page
Limit and proximity switches	Proper adjustment of the limit and proximity switches is imperative		X			See page 51
	Check and clean area around switches	X				
Lubrication	Lubricate the packer and its accessories. See lubrication chart on side of the vehicle	X				See page 73
Wiring System	Check for damaged harnesses and/or bad connections				X	See page 111
Battery Cables	Ensure cables are not coming in contact with an area that could rub through the insulation			X		
Operator control	Check for proper operation	X				
Air tanks	Drain	X				
Safety systems	Check for proper operation (tailgate alarm and special devices)		X			
Lifting	Check all pivots and hydraulic pressure	X				

Component/System	Verification	Daily	Weekly	Monthly	Yearly	Page
Hydraulic system	Check oil level in tank, and refill if necessary	X				See page 92
	Check if the ball valve is open on main tank	X				See page 106
	Check on ground for overnight leaks	X				
	Check cylinders, pump, control valve and system for leaks. Repair or replace if required		X			See page 106
	Replace hydraulic filter ^a				Twice a year	See page 103
	Drain, flush, clean and refill strainer				X	See page 102
	Check pressure			X		See page 85
Hopper area	Clean traps on each side	X				See page 20
	Clean dirt under or behind the packer	X				See page 24
Visual inspection	Rollers, hydraulic cylinders and cylinder pins, hoses, pipes and connections, wear of floor and hopper sides.	X				See page 18
Body and chassis	Check for corrosion			X		
	Keep the contact surfaces clean between the body and the chassis.	X				

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

Hopper Bucket

Maintenance personnel must be familiar with the operation of the hopper bucket, the safety around it and the maintenance procedure in this section as well.

Daily Inspection

On a daily basis, perform a visual inspection of the hopper bucket, looking for leaks, cracks or premature wear of the moving parts.

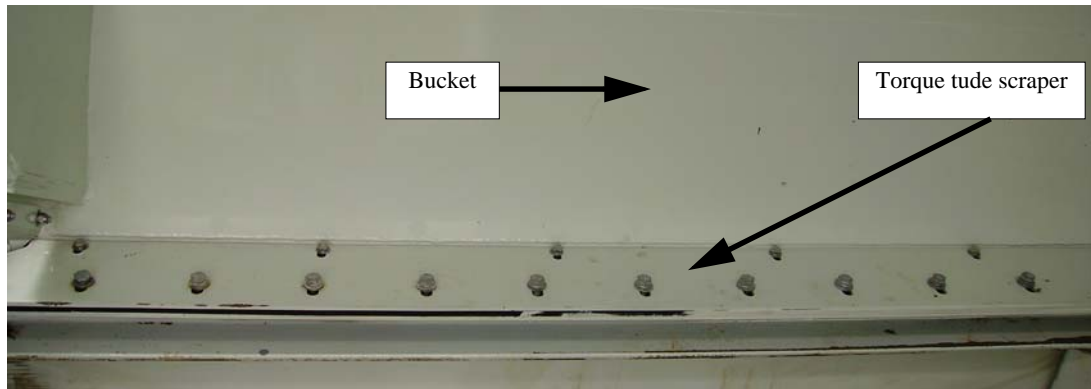
Apply the following inspection procedure:

1. Make sure to park the vehicle on a safe and level ground.
2. Make sure the parking brake is applied and the vehicle is tagged out for maintenance purposes.
3. Start the engine and engage the hydraulic pump (PTO on).
4. Fully lower the hopper bucket.
5. Turn off the hydraulic pump and the engine.
6. Perform a visual inspection of the following item:
 - Mounting bolts;
 - Rollers and bearings;
 - Bolt locks;
 - Pivots;
 - Cylinders;
 - Bucket torque tube scraper;
 - Hydraulic hoses;
7. Check for loose nuts and bolts.
8. Check proximity switches.
9. Lubricate moving parts as per the lubrication chart. See “Lubrication” on page 67.

Bucket Torque Tube Scraper

The bucket torque tube scraper has to be checked and readjusted during periodical maintenance work.

Figure 2-1 Bucket torque tube scraper



Hopper

The area behind the packer must be cleaned out every day. The packer will not work properly if waste accumulates in this area; it could cause severe damage to the packer and other related parts. Cleaning the hopper consists of three steps:

- ♦ Preparing for clean-up
- ♦ Cleaning up
- ♦ Inspecting after the clean-up

Before Cleaning the Hopper Area

To prepare the hopper for clean-up:

1. Start the engine and engage the hydraulic pump.
2. Lower the hopper bucket.
3. Close the hopper door.

NOTE: The hopper door *MUST* be closed in order to move the packer.

4. Fully extend the packer (see Figure 2-2) and stop it in this position by pushing the red emergency STOP button (see Figure 2-3).

Figure 2-2 Fully extended packer

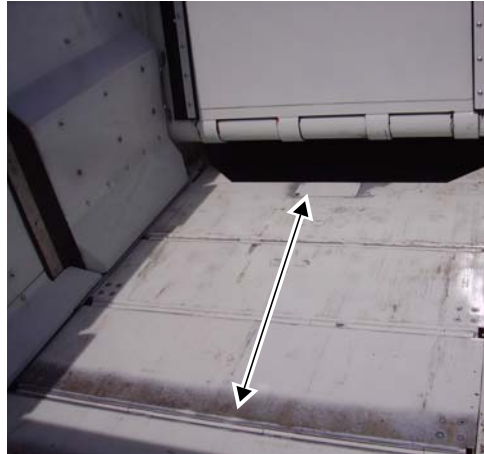


Figure 2-3 Emergency STOP button



5. Lower both crusher panels completely.
6. Turn off the hydraulic pump and stop the engine.
7. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).

Cleaning the Hopper Area

Once the hopper has been prepared for clean-up:

1. Open the clean-out traps on each side of the hopper (see Figure 2-4).

Figure 2-4 Clean-out trap

2. Open the hopper door.
3. Climb inside the hopper using the stepladder (see Figure 2-5).

Figure 2-5 Stepladder

4. With the crusher panels already lowered, proceed towards the front of the body to get access to the area behind the packer.
5. With a scraper or pressurised water, remove all accumulated dirt under the cylinder brackets and side rails.
6. Exit the hopper and proceed towards the access panels, located on each side of the body front (see Figure 2-6).

Figure 2-6 Access panel

7. Use the access panels to continue cleaning the area behind the packer.
8. Remove debris through the clean-out traps (see Figure 2-7).

Figure 2-7 Removing debris through the clean-out trap

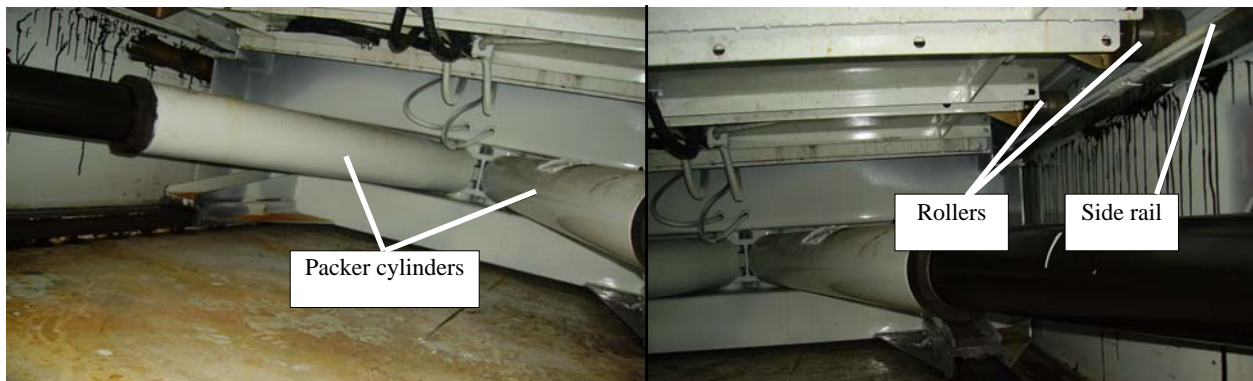
9. Finish cleaning the area with pressurized water.

Inspecting After Clean-up

Once you are finished cleaning the hopper area, inspect your work:

1. Through the access panels and with a flashlight, check the following components for proper working order and/or alignment:
 - Rollers
 - Cylinder pins
 - Hoses, pipes, connections, and cylinders (for leaks, etc.)
 - Bolts (for tightness)
 - Hopper floor and sidewalls (for excessive wear)

Figure 2-8 Area behind the packer



2. Then, climb inside the hopper and continue your inspection of the area behind the packer.
3. After inspection, exit the hopper.
4. Close the hopper door and retract the stepladder.
5. Start the engine, engage the hydraulic system and fully raise both crusher panels.
6. Retract the packer completely.
7. Raise the hopper bucket.

Packer

The AUTOMIZER™ RECYCLER packing system relies on a heavy-duty guiding system and high-strength steel wear plates. Because the packing system is put to such intensive use (100 to 300 cycles per day), Labrie Environmental Group recommends that *operators* perform a daily visual inspection of the packer and its components.

Maintenance personnel *must* perform weekly inspection and maintenance. Greasing all moving parts on a daily basis is very important and proper adjustment of the proximity switches is mandatory. For more information on the lubrication schedule, See *Lubrication* on page 67.

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

Danger!



Always lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6) when inspecting or performing maintenance on the vehicle.

Preparing for Packer Inspection

To prepare the packer for inspection:

1. Start the engine and engage the hydraulic pump.
2. Fully extend the packer (see Figure 2-2) and stop it in this position by pushing the red emergency STOP button (see Figure 2-3).

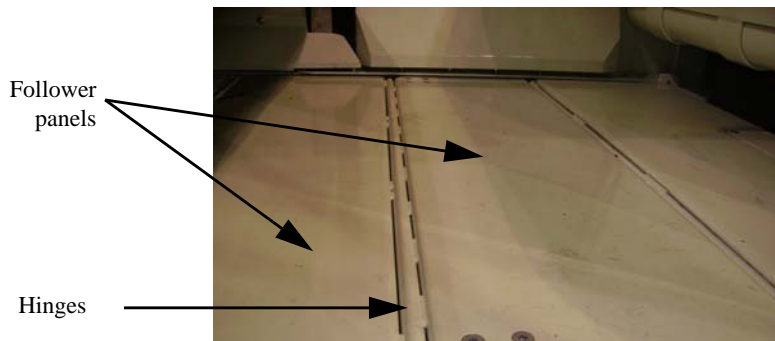
3. Lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).

Inspecting the Packer

To inspect the packer:

1. Check the follower panel hinges and verify that there is no wear on the panel surface.

Figure 2-9 Inside the packer



2. Visually inspect both hopper side rails (see Figure 2-10) and packer rollers.
If signs of premature wear are apparent, replace the faulty parts (see *Sliding Shoes* on page 29, *Follower Panel Roller Assemblies* on page 40, and/or *Rollers* on page 42).

Figure 2-10 Hopper side rails



3. Check out for leaks on hydraulic hoses and tubes.
Tighten leaking connections and/or replace defective hoses.
4. Verify cylinder rods:
 - 4 a. Make sure that cylinder rod ends are clear of debris.
 - 4 b. Make sure that cylinder rods have no scratches that may cause the cylinder to leak oil.
Should you find oil leaks, the cylinder must be replaced immediately.

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

5. Check the packer for vertical and horizontal movements.

If the packer shows vertical or horizontal movement, wear pads need to be replaced. Extensive wear on the hopper floor also suggests that sliding shoes require immediate replacement (see *Sliding Shoes* on page 29).

6. Verify packer panel adjustment for knocking noises.
Knocking noises indicate that both proximity switches may require adjustment (see *Adjusting the Packer Extend Proximity Switch* on page 52 and *Adjusting the Packer Retract Proximity Switch* on page 54). Proper adjustment is necessary to prevent cylinders from bottoming out under pressure.
7. Make sure that hydraulic cylinders are not leaking internally (resulting in insufficient packing power). For more information, see *Inspecting Hydraulic Cylinders* on page 106.

Before Removing the Packer Panel

To do so:

1. Start the engine and engage the hydraulic pump.
2. Using the control lever, lower the hopper bucket.

Danger!

Secure the area around the path of the hopper bucket when performing maintenance or repair.



3. Extend the packer panel to within 12 inches of the end of the stroke.

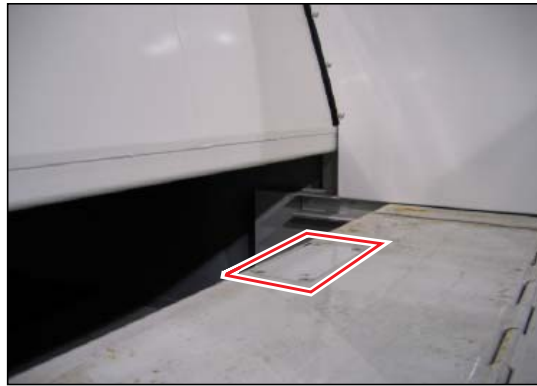
NOTE: To extend (or retract) the packer over a short distance, push the green (or yellow) button and then push the red button immediately. Repeat the process until the packer has reached the desired position.

Danger!

Do not enter the hopper while the packer is moving.



4. Turn off the hydraulic pump and the engine.
5. Lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).
6. Remove the packer cylinder access cover on the packer panel.

Figure 2-11 Packer cylinder access cover

7. Remove the rear cylinder pins.

Removing the Packer Panel

Once you have prepared the packer panel for removal, you can now proceed with the removal.

To do so:

1. Attach a suitable chain/cable to the packer panel and pull the panel towards the rear of the body.

NOTE: When pulling the follower panels, they must be properly supported.

2. If necessary, carry out the procedure for replacing floor guides (see *Floor Guides* on page 37).
3. Re-assemble in reverse order.

Packer Cylinders

Packer cylinders that become defective through time need to be replaced. To do so, you first have to access the cylinder, remove it, and then properly finish the installation. These steps are explained in the following pages.

Accessing the Packer Cylinders

Caution!



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

To access the packing cylinder:

1. Start the engine and engage the hydraulic pump.

2. Using the control lever, lower the hopper bucket.

Danger!

Secure the area around the path of the hopper bucket when performing maintenance or repair.

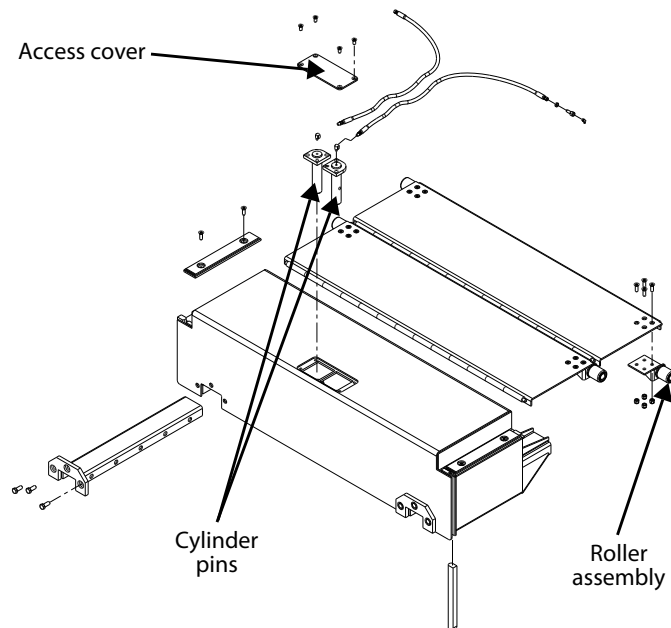
3. Fully extend the packer.

Danger!

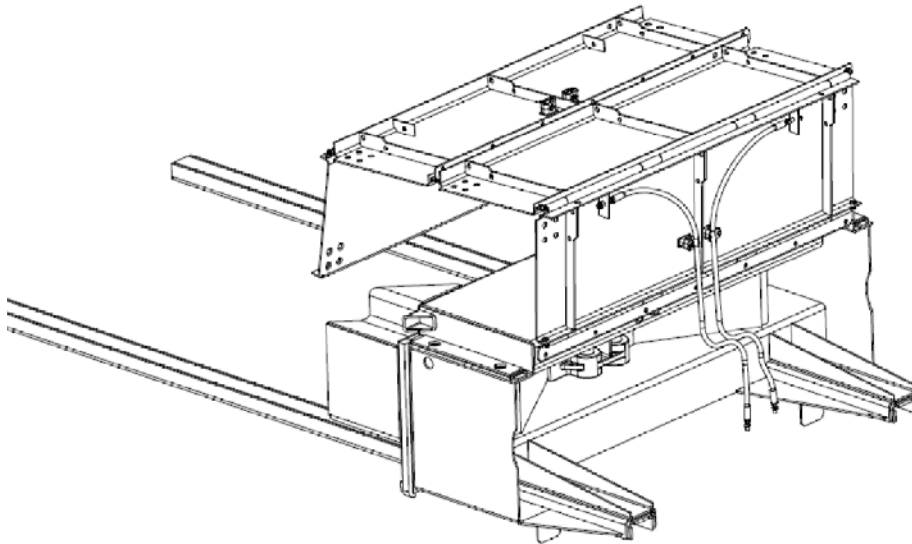
Do not enter the hopper while the packer is moving.

4. Disengage the pump and stop the engine.
5. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
6. Open the access cover, remove both cylinder pins and retract the cylinder.

Figure 2-12 Removing cylinder pins



7. Remove the roller assemblies on the follower panels (see *Follower Panel Roller Assemblies* on page 40).
8. Fold the follower panels over the packer (see Figure 2-13).

Figure 2-13 Folded follower panel

Removing the Packer Cylinders

Caution!



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

To remove the packer cylinder:

1. Retract the cylinders.
2. Stop the hydraulic pump and the engine.
3. Remove the hydraulic hoses from the cylinder (use absorbent material to catch oil spills).
4. Enter the hopper to attach and secure the cylinder to an appropriate lifting device.
5. Remove the piston side pin that holds the cylinder to the front of the body.

IMPORTANT: Protect the proximity switches during removal of the cylinder.

6. Remove the proximity switch target and save it for the new cylinder.
7. Replace the faulty cylinder with a new one. If covered by warranty, contact LabriePlus for replacement.
8. Install the cylinder fingers on the new cylinder. The proximity switches may need to be readjusted afterwards (See *Adjusting the Packer Extend Proximity Switch* on page 52 and *Adjusting the Packer Retract Proximity Switch* on page 54).

Finishing Up Packer Cylinder Replacement

To finish up cylinder replacement:

1. Reinstall the piston pin and the hydraulic hoses.
2. Extend the cylinders.
3. Install the pins.
4. Unfold the follower panels and install the roller assemblies.
5. Grease the cylinder pins and check for proper operation (see *Packer Lubrication Points* on page 81).

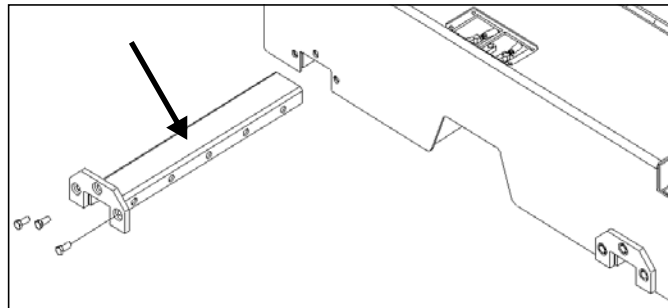
Sliding Shoes

The packer guiding system is made of two different types of steel; sliding shoes are made of a softer steel type to wear out before the floor guides.

To keep the packer in good working order and prevent unnecessary down time, replace sliding shoes and wear pads (see page 34) before extensive wear or damage can be seen on the hopper floor and walls.

NOTE: It is not necessary to remove the packer to perform this procedure.

Figure 2-14 Sliding shoe



Testing for Excessive Wear

To test for excessive wear:

1. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
2. With a pry bar, try to move the packer vertically and horizontally.

It should not move vertically by more than 3/16 inch, and horizontally by more than 1/8 inch. If movement is greater than the values indicated above, check for excessive wear on both packer sliding shoes and on the wear pads found under the side rails (see page 34).

Before Replacing the Sliding Shoes

Apply the following procedure:

1. Start the engine and engage the hydraulic pump.
2. With the control lever, lower the hopper bucket.

Danger!

Secure the area around the hopper bucket when performing maintenance or repair.



-
3. Push the yellow button on the packer control station to fully retract the packer.

Danger!

Never enter the hopper while the packer is moving.



-
4. Turn off the hydraulic pump and the engine.
 5. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).

Accessing the Sliding Shoes

To do so:

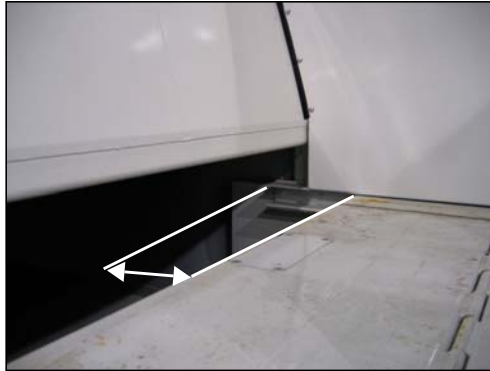
1. Go behind the packer and, with a grinder or cutting tools, remove the welds from both sliding shoes (see Figure 2-15).

Figure 2-15 Welds to remove



2. From the cab, start the engine, engage the hydraulic pump and extend the packer to about 18 inches before the end of the stroke.

Figure 2-16 Packer extended by 18 inches



Danger!

Never enter the hopper while the packer is moving.



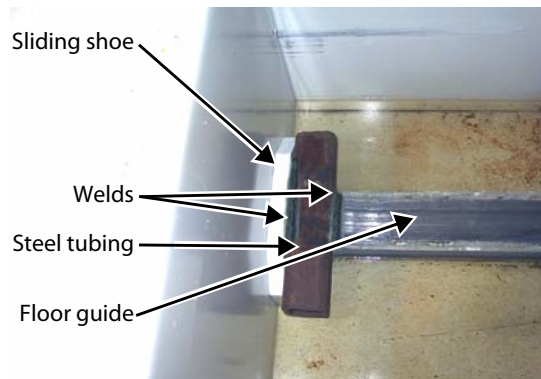
-
3. Turn off the hydraulic pump and the engine.
 4. Remove the three bolts retaining each sliding shoe.

Figure 2-17 Retaining bolts



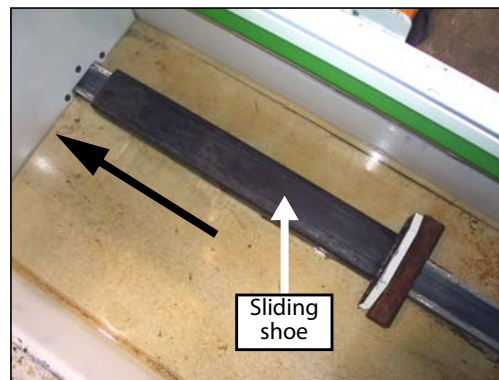
NOTE: To extend (or retract) the packer over a short distance, push the green (or yellow) button and then push the red button immediately. Repeat the process until the packer has reached the desired position.

5. Tack weld a piece of steel tubing to the floor rail and to the front of both sliding shoes.

Figure 2-18 Tack welding

6. Start the engine, engage the hydraulic pump, and press the yellow button to slowly retract the packer.

The sliding shoes will come out under the packer as it is retracting (see Figure 2-19).

Figure 2-19 Packer retracting, exposing the sliding shoe

Replacing the Sliding Shoes

Once you gained access to the sliding shoe, as explained above:

1. Remove the old sliding shoe and tubing.
2. With a grinder, make sure to remove the welds on the floor guide.
3. Align the new sliding shoe in front of the packer and slowly extend the packer to make the sliding shoe go under the packer.

Danger!

Never enter the hopper while the packer is moving.



4. When the sliding shoes are back in place, tighten all retaining bolts.
5. If the wear pads at the top of the packer need to be replaced, see *Upper Wear Pads* on page 34.

6. Retract the packer.
7. Weld both sliding shoes to the packer.

Figure 2-20 View from behind the packer (packer fully retracted)



Testing for Proper Sliding Shoe Installation

To do so:

1. Run the packer a few times.

Danger!

Never enter the hopper while the packer is moving.

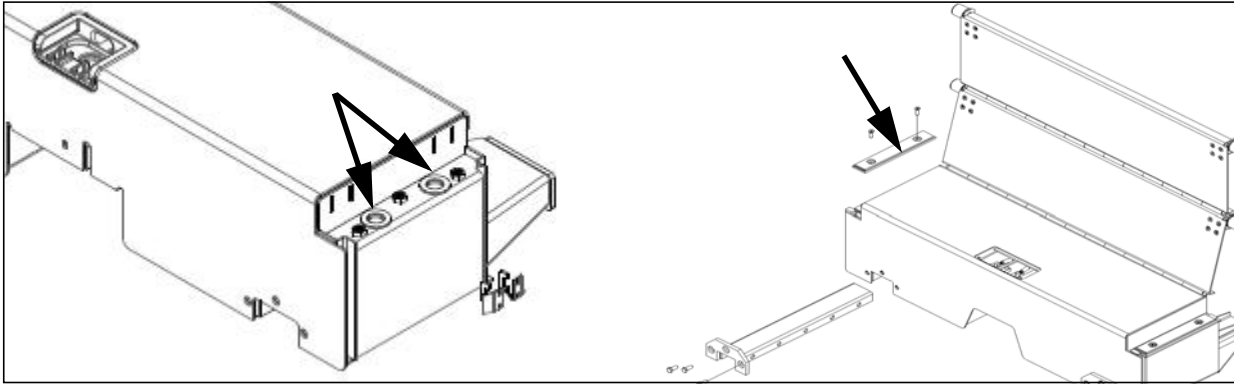


-
2. If the packer is binding, apply primer paint on the floor guide to find out where the interference is.
 3. Once more, run the packer a few times. The location where the paint comes off indicates the surface that must be grinded.

Upper Wear Pads

When the packer moves vertically by more than 3/16 inch (check with a pry bar), the upper wear pads must be replaced.

Figure 2-21 Adjustment shims (left) and upper wear pad (right)



Before Replacing the Upper Wear Pads

Make sure that you perform the following steps:

1. Start the engine and engage the hydraulic pump.
2. Using the control lever, lower the hopper bucket.

Danger!

Secure the area around the hopper bucket when performing maintenance or repair.



3. Extend the packer panel to within 12 inches of the end of the stroke.

NOTE: To extend (or retract) the packer over a short distance, push the green (or yellow) button and then push the red button immediately. Repeat the process until the packer has reached the desired position.

Danger!

Do not enter the hopper while the packer is moving.



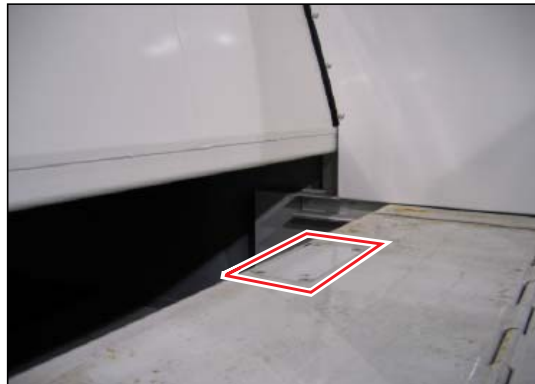
4. Turn off the hydraulic pump and the engine.
5. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).

Replacing the Upper Wear Pads

To do so:

1. Prepare for replacement (see *Before Replacing the Upper Wear Pads* on page 34).
2. Once this is done, remove the packer cylinder access cover on the packer panel.

Figure 2-22 Packer cylinder access cover



3. Remove the rear cylinder pins.
4. Start the engine and turn on the hydraulic pump.
5. Open the tailgate and install the safety prop (see *Setting the Tailgate Safety Prop* on page 9).
6. Turn off the hydraulic pump and the engine.
7. Attach a suitable chain/cable to the packer panel and pull the panel towards the rear of the body until the upper wear pads are accessible.
8. Replace the upper wear pads.
9. Re-assemble in reverse order.

Lower Wear Pads

Danger!



Always lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6) when inspecting or performing maintenance on the vehicle.

Before Removing the Lower Wear Pads

When preparing to remove the lower wear pads:

1. Start the engine and engage the hydraulic pump.

2. Using the control lever, lower the hopper bucket.

Danger!

Secure the area around the hopper bucket when performing maintenance or repair.



-
3. Fully retract the packer and push the red emergency STOP button to keep it at this position.
 4. Disengage the hydraulic pump and stop the engine.
 5. Lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).

Removing the Lower Wear Pads

To remove the lower wear pads:

1. Take off the bolts that keep the scraper support in place (2 bolts on each side).
2. Pull the scraper support towards you (see Figure 2-23).

Figure 2-23 Scraper support



3. Remove the retaining screws holding the lower wear pad to the scraper support (see Figure 2-24 and Figure 2-25).
4. Pull down the wear pad.
5. Install a new wear pad.
6. Check for even contact between wear pad, packer blade and follower panels.
7. Put back the retaining screws and tighten them up.
8. Put back the bolts to keep the scraper support in place and tighten them up.

Figure 2-24 Crusher panel with scraper support

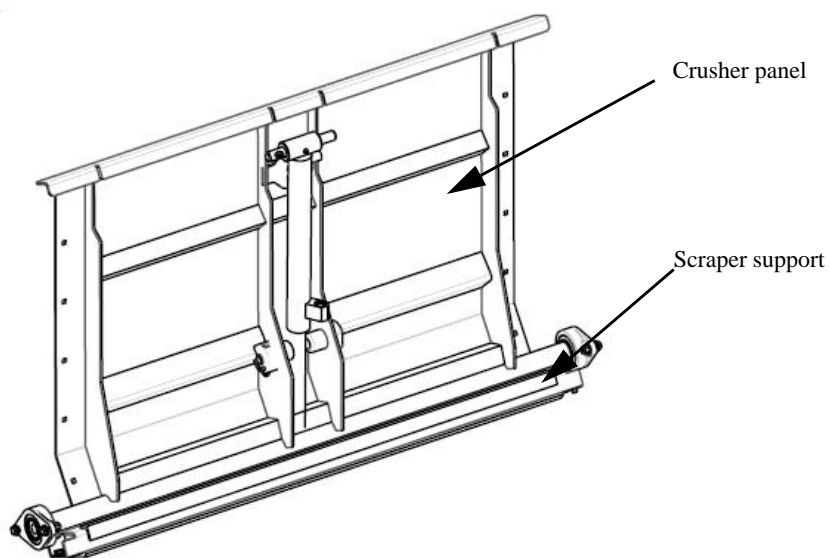
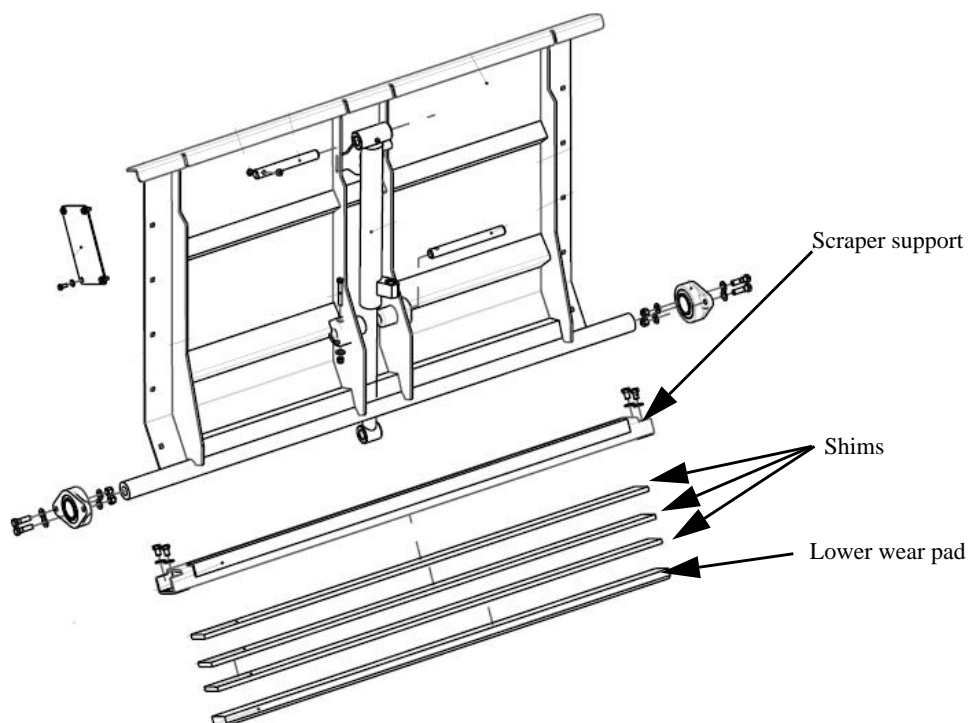


Figure 2-25 Lower wear pad



Floor Guides

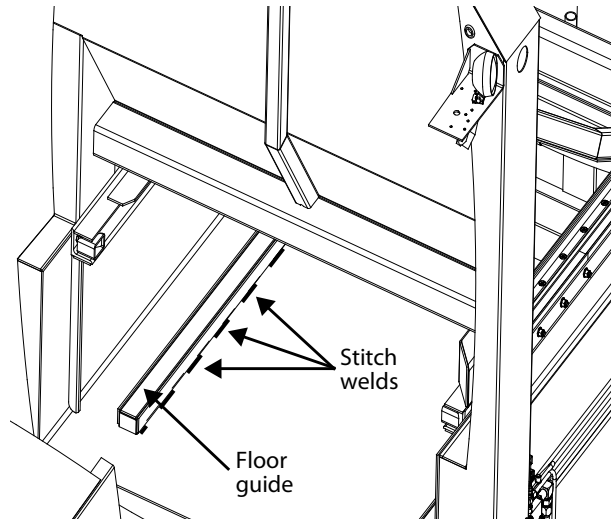
After continuous use over an extended period of time, floor guides may need to be replaced.

Replacing the Floor Guides

To replace the floor guides:

1. Remove the packer panel (see *Removing the Packer Panel* on page 26).
2. Mark the *exact* location of both floor guides.
3. Using a grinder or cutting tool, remove the floor guides by cutting the stitch welds.

Figure 2-26 Stitch welds



4. Clean the hopper floor and wall surfaces.
5. Position the new guides on the hopper floor using the marks made in step 2 (do not tack or weld yet).

Figure 2-27 Packer sitting on the floor guide



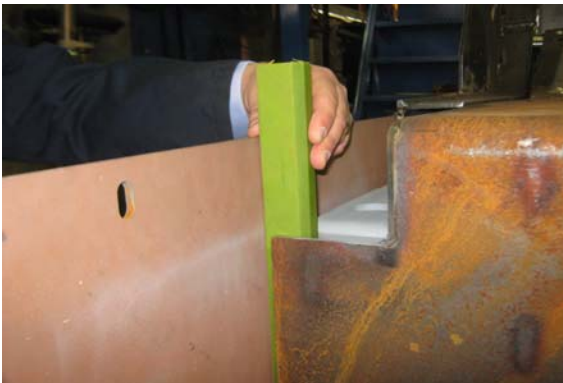
6. Pull the packer towards the rear of the body
7. Tack weld the floor guides to the hopper floor.

Figure 2-28 Welds on both sides of the floor guide



8. Adjust the packer wipers on both sides (UHMW plastic).

Figure 2-29 Packer wipers



9. Reinstall the packer cylinder pins.

Finishing Floor Guide Replacement

To do so:

1. Slowly retract the packer under the rails until the end of the packer stroke.
2. Tack weld the floor guides to the hopper floor behind the packer.

Figure 2-30 Welds on both sides of the floor guide

3. Extend the packer to the middle of the hopper and verify the alignment with the hopper side rails.
4. Stitch weld the floor guides.

Figure 2-31 Welds on both sides of the floor guide

FCAW $\frac{3}{8}$ " V 3-12



5. Fully extend the packer to finish welding under it.
6. Check for proper operation.

Follower Panel Roller Assemblies

Packer rollers need to be replaced when damaged or when showing excessive wear or flat spots. When performing this procedure, you need to remove both bottom and top rollers.

Replacing the Bottom Roller Assembly

To replace the follower panel bottom roller assembly:

1. Fully retract the packer.
2. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
3. Remove the left-hand side bottom roller and replace it:
 - 3 a. Using a 5/16-inch Allen wrench and a 3/4-inch box, remove the four bolts that keep the roller in place (see Figure 2-32).

Figure 2-32 Removing the four bolts



- 3 b. Remove the roller assembly and replace it with a new one.
 - 3 c. Place the four bolts in their respective holes before tightening them up.
4. Remove the right-hand side bottom roller and replace it by repeating step 3.
5. Run full cycle to check for proper operation.

Replacing the Top Roller Assembly

To replace the follower panel top roller assembly:

1. Once you have replaced the bottom rollers (see above), start the engine and engage the hydraulic pump.
2. Extend the packer until the top rollers are at the same height as the bottom rollers in the previous steps.
3. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
4. Replace both top rollers (one at a time):
 - 4 a. Using a 5/16-inch Allen wrench and a 3/4-inch box, remove the four bolts that keep the roller in place (see Figure 2-32).
 - 4 b. Remove the roller assembly and replace it with a new one.
 - 4 c. Place the four bolts in their respective holes before tightening them up.
5. Run full cycle to check for proper operation.

Rollers

If the roller itself has to be replaced because of wear:

1. Once the roller has been removed from the follower panel (see *Follower Panel Roller Assemblies* on page 40), remove the external snap ring.

Figure 2-33 Removing the external snap ring



2. Remove the washer.

Figure 2-34 Removing the washer



3. Slide out the roller.
4. Reverse the previous steps to reinstall the roller.

Body Hoist

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

Figure 2-35 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 2-36 Cylinder gland



To inspect the body hoist:

1. Park the vehicle on a safe and level ground, and check the overhead clearance.
2. Fully raise the body and set the body safety prop (see *Setting the Body Safety Prop* on page 7).
3. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
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 LabriePlus immediately. Should the gap between the tube and the gland be wider than 1 inch, you must stop using the vehicle immediately and repair the cylinder (see *Replacing the Body Hoist* on page 45).

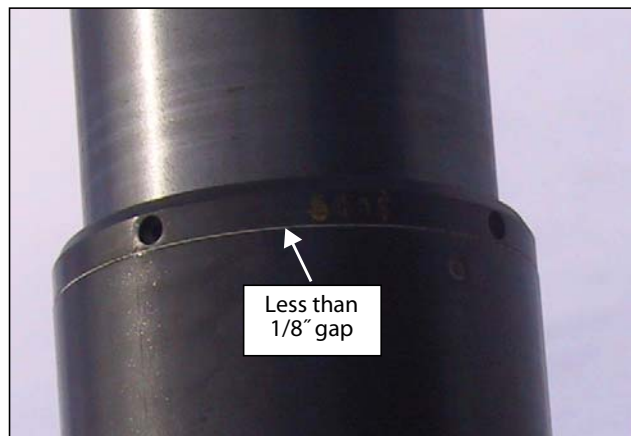
Danger!



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 2-37 Gap



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

Figure 2-38 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:

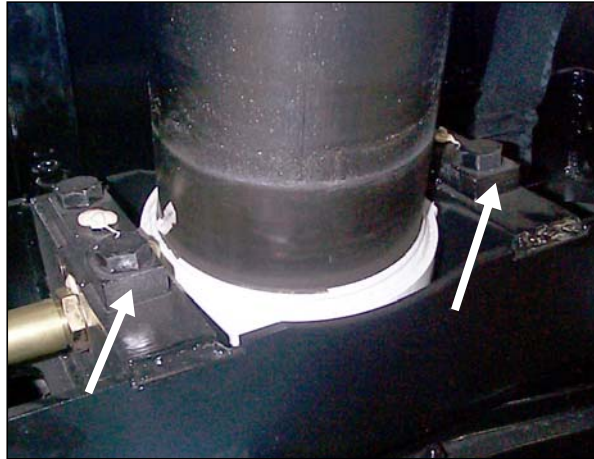
1. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
2. Disconnect the hydraulic hose and fitting.

Figure 2-39 Hydraulic fitting



3. Remove the cylinder base pillow blocks.

Figure 2-40 Base pillow blocks



4. Remove the four bolts from the cylinder cover pillow block.
The pillow block will remain in place.

Figure 2-41 Cover pillow blocks



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

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

6. Install the safety prop.
7. Lower the body on the safety prop.
8. Using a lifting device, remove the cylinder with the cover and install the new cylinder and cover.
9. Reinstall the cylinder base pillow.
10. Put the cylinder cover pillow block on the new cylinder.
11. Using a lifting device, lift the body, and remove the safety prop.

- 12.** Align the pillow block with the body and lower the body back in place.
- 13.** Install the bolts on the cover pillow block.
- 14.** Reconnect the hydraulic hose.
- 15.** Lubricate the cover and the base pillow blocks.
- 16.** Check for proper operation.

Tailgate Seals and Hinges

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

Figure 2-42 Rubber seal



Proximity and Limit Switches

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

Warning



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

Figures 2-38, 2-39, 2-40, and 2-41 show the location of the proximity switches that are related to the operation of the hopper bucket.

Figure 2-43 Bucket fully up proximity switch

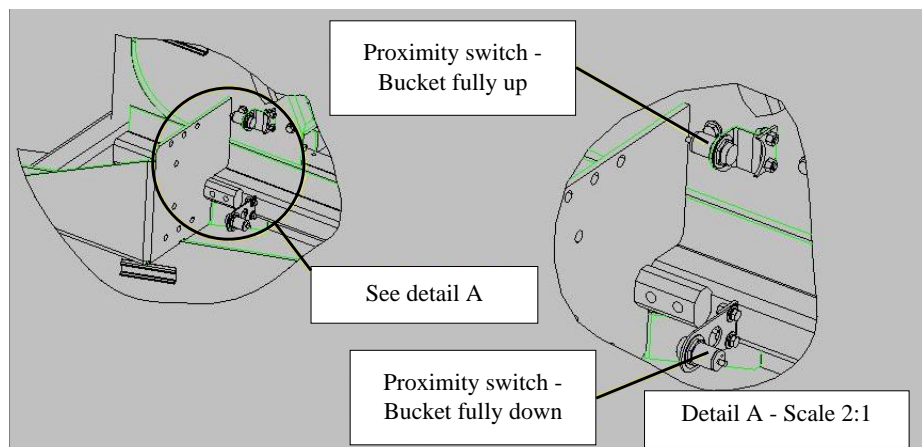


Figure 2-44 Control arm proximity switch

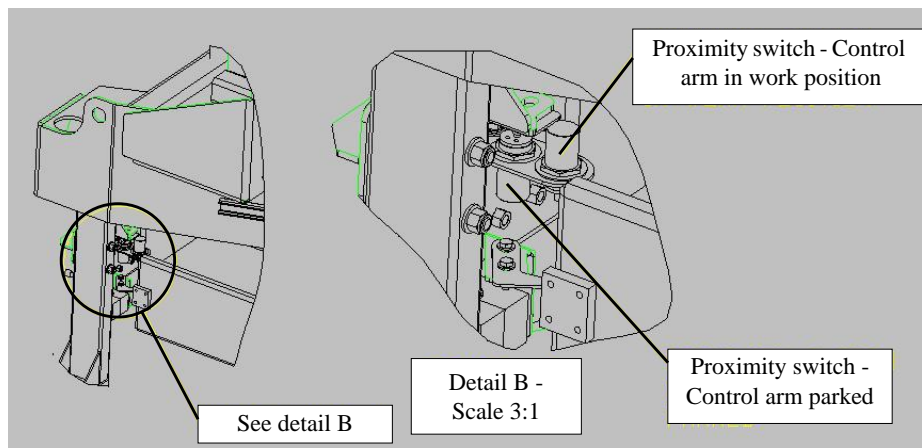


Figure 2-45 Front crusher panel fully up proximity switch

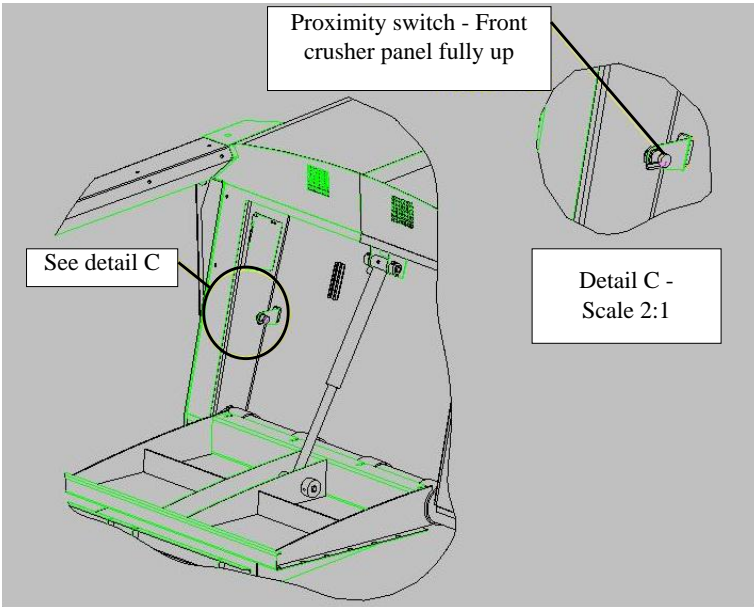
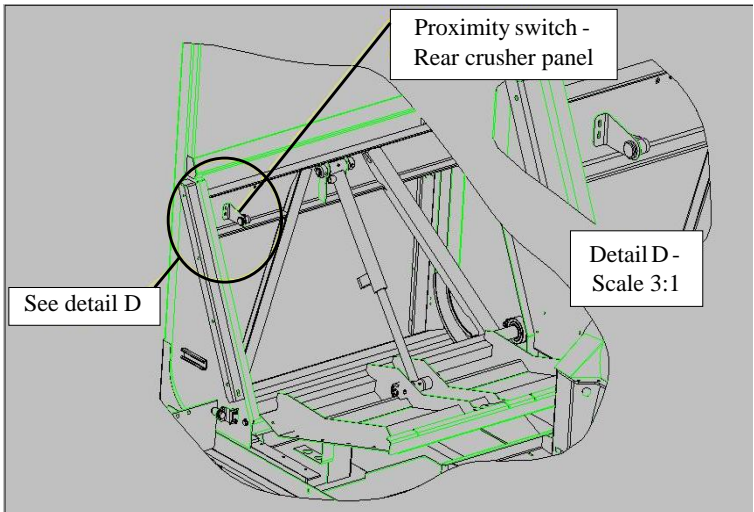
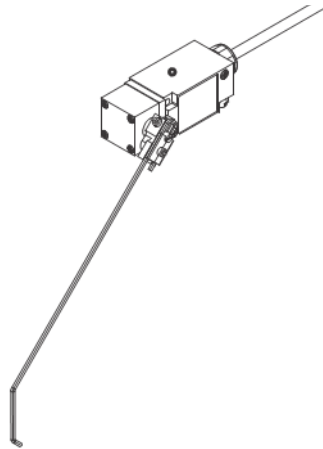


Figure 2-46 Rear crusher panel proximity switch



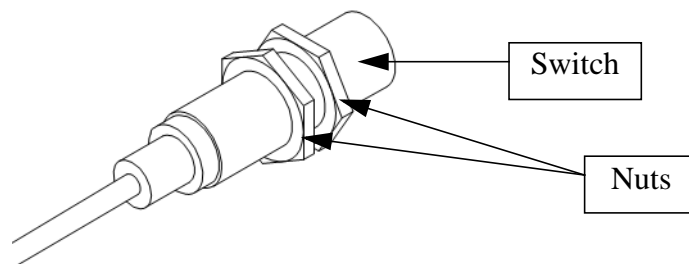
Limit Switch Adjustment



To adjust the limit switch:

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

Proximity Switch Adjustment



To adjust the proximity switch:

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

Adjusting the Packer Extend Proximity Switch

Danger!



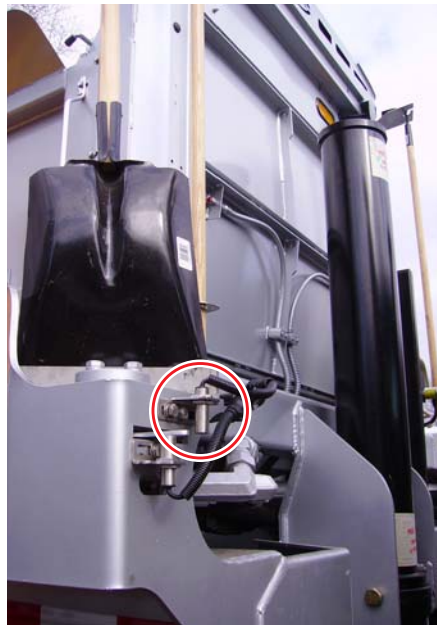
Always lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6) when inspecting or performing maintenance on the vehicle.

Packer proximity switches were adjusted at the factory for optimal packer operation. If the area behind the packer is not properly cleaned *daily*, proximity switches may no longer stop the packer, creating a knocking noise when the packer reaches the end of a stroke (bottoming out). The packer may also not retract far enough to trigger the proximity switch, preventing automatic cycles from working properly.

Furthermore, over time, misalignment of the components may occur due to the frequent back and forth motion of the packer. An adjustment might be necessary to prevent cylinders from completely extending and retracting to the end of their strokes.

Two proximity switches control the packer range of motion. The proximity switch that stops the packer during extension (packer extend) is located on front right-hand side body corner to the right of the packer retract proximity switch (see Figure 2-47). The other proximity switch (packer retract) is also located on front right-hand side body corner to the left of the packer extend proximity switch.

Figure 2-47 Packer extend proximity switch



To verify that the switch needs adjusting, empty all refuse/recycling materials from the body, start a pack cycle and observe the fully extended position of the packer.

If the packer stops before or after reaching the fully extended position, adjust the switch as follows:

Important This procedure must be performed by two people.



To adjust the packer extend proximity switch:

1. Start the engine and engage the hydraulic pump.
2. Push the green button on the packer control station to extend the packer about one inch back from the fully extended position.

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



Figure 2-48 Packer extended back by about one inch



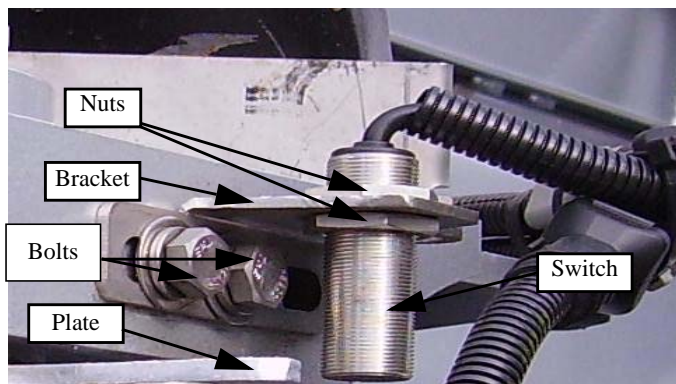
3. When the packer reaches the correct position, push the red emergency STOP button.
4. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
5. Locate the packer extend proximity switch on the right-hand side of the body (see Figure 2-47).
6. Loosen both bolts and adjust the proximity switch so it is active (the amber light on the proximity switch turns on) when the packer reaches this position (see Figure 2-49). The switch should be over the plate.
7. Tighten back up both bolts.
8. Make sure that the proximity switch detects the plate properly.

Ideally, there should be a gap of approximately 3/16 of an inch between the proximity switch and the plate. If this is not the case, apply the following procedure:

To adjust the gap between the proximity switch and the plate:

1. On the proximity switch, loosen the nuts located on each side of the proximity switch bracket (see Figure 2-49).
2. Push or pull the proximity switch until there is a gap of 3/16 of an inch between the plate and the switch.
3. Tighten up both nuts.
4. Make sure that the proximity switch detects the plate properly.
5. Test the packer for a full cycle.

Figure 2-49 Proximity switch



Adjusting the Packer Retract Proximity Switch

Danger!



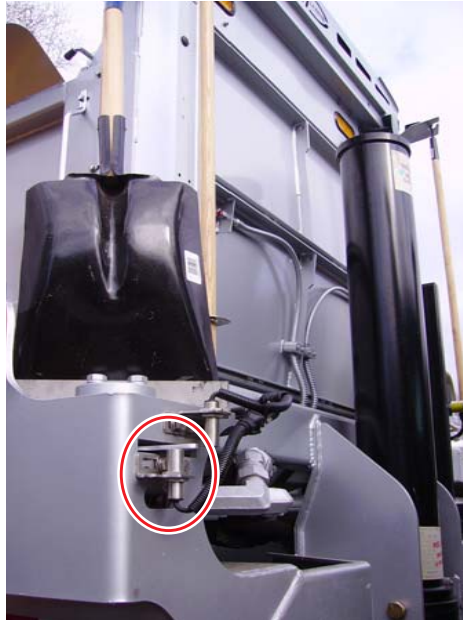
Always lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6) when inspecting or performing maintenance on the vehicle.

Packer proximity switches were properly adjusted at the factory for optimal packer operation. If the area behind the packer is not properly cleaned *daily*, proximity switches may no longer stop the packer, creating a knocking noise when the packer reaches the end of a stroke (bottoming out). The packer may also not retract far enough to trigger the proximity switch, preventing automatic cycles from working properly.

Also, over time, misalignment of the components may occur due to the frequent back-and-forth movement of the packer. An adjustment might be necessary to prevent cylinders from completely extending and retracting to the end of their strokes.

Two proximity switches control the packer range of motion. Both are located on front right-hand side body corner. The proximity switch that allows lowering the crusher panel when the packer is in the home position and stops the packer during retraction (packer retract) is located to the left of the packer extend proximity switch (see Figure 2-50).

Figure 2-50 Packer retract proximity switch



To verify that the switch needs adjusting, empty all refuse/recycling materials from the body, start a pack cycle and observe the home position of the packer when the cycle is complete.

If the packer stops before reaching the home position or the packer cylinders remain pressured up or abruptly bottom out at the home position, adjust the switch as follows.

Important This procedure must be performed by two people.



To adjust the packer retract proximity switch:

1. Start the engine and engage the hydraulic pump.
2. Push the yellow button to retract the packer to one inch before the fully retracted position.

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



Figure 2-51 Packer retracted about one inch before end of stroke

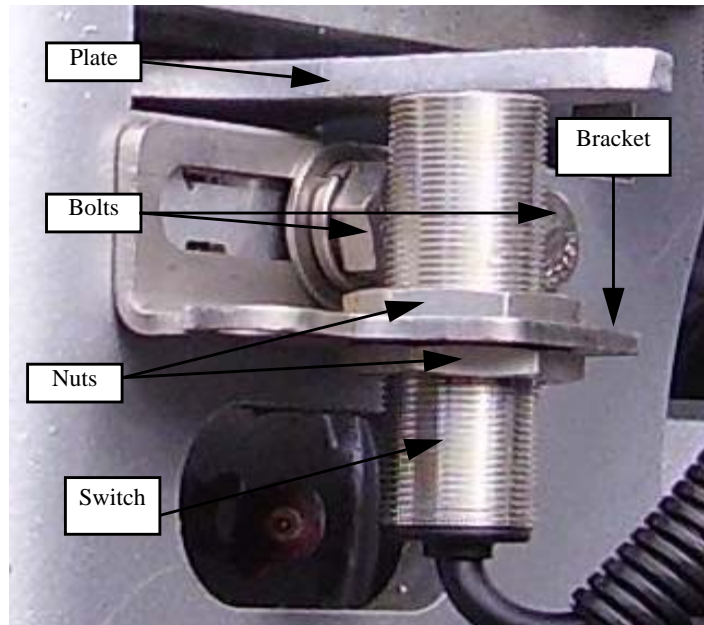
3. When the packer reaches the correct position, push the red emergency STOP button.
4. Lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).
5. Locate the packer retract proximity switch on the right-hand side of the body (see Figure 2-50).
6. Loosen both bolts and adjust the proximity switch so it is active (the amber light on the proximity switch turns on) when the packer reaches this position (see Figure 2-52). The switch should be under the plate.
7. Tighten back up both bolts.
8. Make sure that the proximity switch detects the plate properly.

Ideally, there should be a gap of approximately $\frac{3}{16}$ of an inch between the proximity switch and the plate. If this is not the case, apply the following procedure:

To adjust the gap between the proximity switch and the plate:

1. On the proximity switch, loosen the nuts located on each side of the proximity switch bracket (Figure 2-52).
2. Push or pull the proximity switch until there is a gap of $\frac{3}{16}$ of an inch between the plate and the switch.
3. Tighten up both nuts.
4. Make sure that the proximity switch detects the plate properly.
5. Test the packer for a full cycle.

Figure 2-52 Proximity switch



Adjusting the Body-Raised Limit Switch

Danger!



Always lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6) when inspecting or performing maintenance on the vehicle.

A limit switch located on the vehicle chassis activates the backup alarm and a warning buzzer, and turns on a warning light inside the cab as soon as the body is raised about 12 inches from the chassis. It can also be combined to different interlocks, such as air suspension, tag axle, etc. Adjust this limit switch accordingly.

Figure 2-53 Body-raised limit switch



This safety feature is provided to warn people around that the vehicle is unloading and to tell the operator that the body is still raised.

To adjust the body raised limit switch:

1. Loosen 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 is about 12 inches above the chassis.
3. Tighten nut.
4. To fine tune the adjustment, loosen nut slightly.
5. With a flathead screwdriver, turn the adjusting screw located at the center of the nut until a click is heard.
6. Tighten the nut.
7. Test the operation.
8. If necessary, repeat steps 1 through 7.

Adjusting the Tailgate Unlocked Proximity Switch

Warning!

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



AUTOMIZER™ RECYCLER vehicles are equipped with a tailgate proximity switch located on back left-hand side body corner (one on each side in co-mingle units). When the tailgate is unlocked (see Figure 2-55), the cylinder pushes the plate downward that triggers the proximity switch. This switch then activates the backup alarm and a warning buzzer inside the cab. It also turns on the TAILGATE UNLOCKED warning light in the cab and disables packing.

When the tailgate is locked, the plate goes upward (see Figure 2-54). As the proximity switch is no more triggered by the plate, the warning buzzer and backup alarm should not be heard, and the TAILGATE UNLOCKED warning light turns off and packing operation can resume.

Figure 2-54 Tailgate proximity switch (locked position)

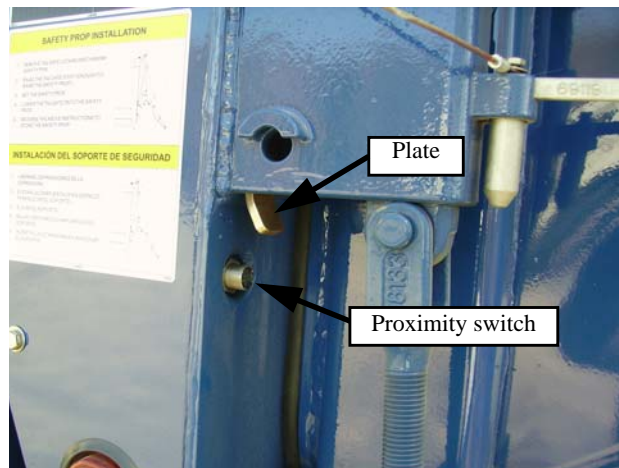
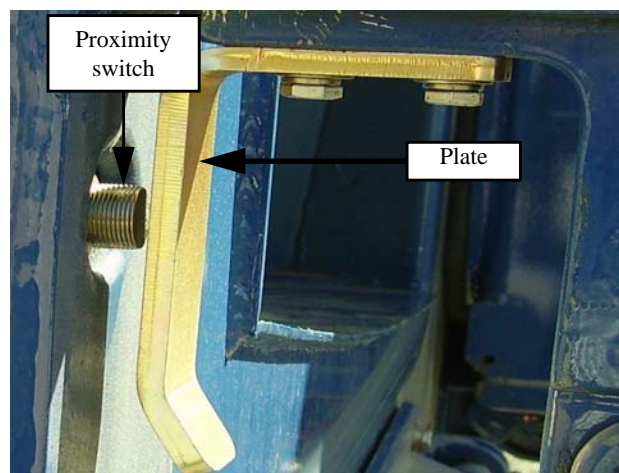


Figure 2-55 Tailgate proximity switch (unlocked position)



To adjust the tailgate unlocked proximity switch:

1. Start the engine and engage the hydraulic system.
2. Lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).
3. Loosen the nuts located on each side of the proximity switch bracket (see Figure 2-56).

Figure 2-56 Tailgate proximity switch

4. Adjust the proximity switch so that the switch can be triggered by the plate as the cylinder head moves down. There should be a gap of approximately 3/16 of an inch between the plate and the switch.
5. Tighten up both nuts.
6. Open the tailgate using the tailgate lever on the control panel and listen if the warning buzzer and the backup alarm start to beep as you move the lever.
7. Repeat the procedure if need be.

Adjusting the Hopper Door Proximity Switch

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

Figure 2-57 Hopper Door Proximity Switch

This switch is located on the bottom door frame.

To verify that the switch needs adjusting, open the side access door by approximately 2 inches (5 cm) and try to operate any hydraulic function. No hydraulic function should be working.

Warning



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

To adjust the hopper door proximity switch:

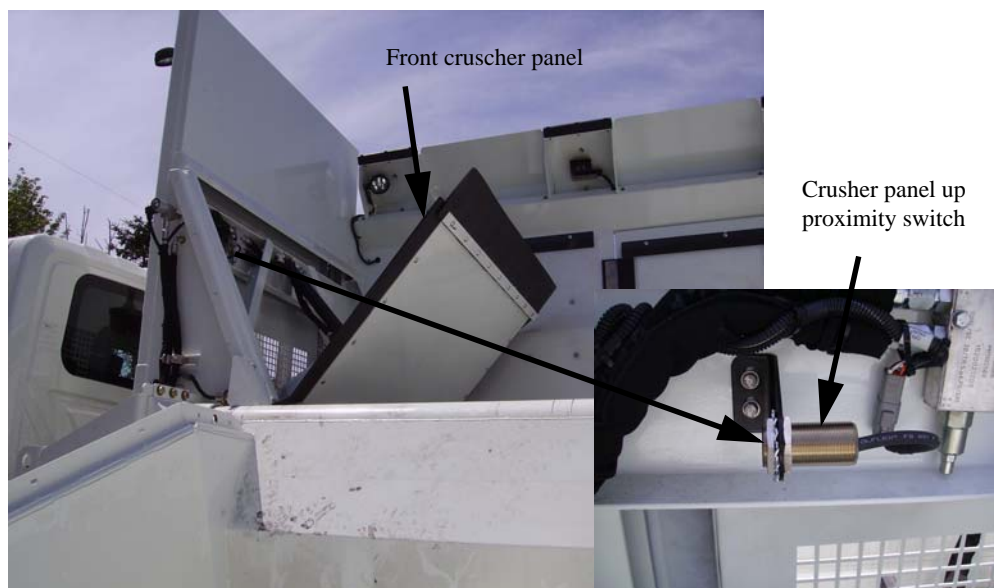
1. Loosen the proximity switch nuts.
2. Adjust the proximity switch so that there is a gap of approximately 3/16 of an inch (4.8 mm) between the plate and the switch.
3. Tighten the nuts.
4. Test the operation.

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

Adjusting the Crusher Panel Up Proximity Switches

The crusher panel up proximity switches disable the hopper bucket operation when the crusher panels are not in their stowed position and redirect the bucket power to the crusher panel up function when the control lever deadman switch is activated. This forces the crusher panels to rise to the up position in order to let the hopper bucket works.

Figure 2-58 Crusher Panel Up Proximity Switch



One switch is located behind the front crusher panel, the other behind the rear crusher panel.

NOTE: The crusher panels have to be lowered to access these proximity switches.

To adjust the crusher panel up proximity switch:

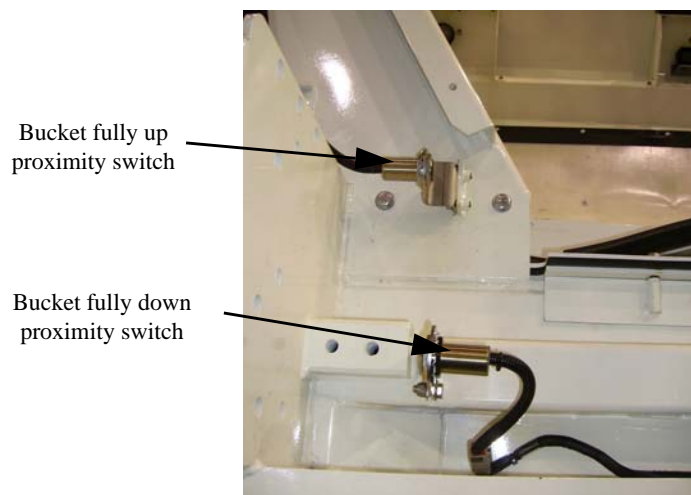
1. Lower the crusher panel.
2. Adjust the crusher panel up proximity switch so that it is triggered when the crusher panel is in the up position.
3. Depress deadman switch on control lever until crusher panel reaches the up position.
The crusher panel should go up, and the bucket should start to move when the crusher panel reaches the up position.
4. Repeat the procedure until the proximity switch is properly adjusted.

Adjusting the Hopper Bucket Proximity Switches

Hopper bucket proximity switches were properly adjusted at the factory for optimal bucket operation. However, over time, misalignment of the components may occur due to the frequent back-and-forth movement of the bucket. An adjustment might be necessary to prevent undue wear of the parts.

Two proximities switches control the bucket range of movement. Both are located to the left of the bucket near the torque tube (see Figure 2-59).

Figure 2-59 Hopper bucket proximity switches



Hopper Bucket Fully Up Proximity Switch (see Figure 2-43 and Figure 2-59)

This proximity switch triggers a warning light on the dashboard and a backup alarm when the hopper bucket is not fully up. If this proximity switch is misaligned, the warning light on the dashboard may continue to flash and the backup alarm may continue to sound even if the bucket is fully up and the control arm is parked (see also “Adjusting the Control Arm Proximity Switches” on page 63).

To adjust the bucket fully up proximity switch:

1. Start the engine and engage the hydraulic pump.

2. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
3. Locate the bucket fully up proximity switch — it is just to the left of the bucket (see Figure 2-59).
4. Loosen the nuts located on each side of the proximity switch bracket.
5. Adjust the proximity switch so that the switch can be triggered by the plate of the bucket. There should be a gap of approximately 3/16 of an inch between the plate and the switch.
6. Tighten up both nuts.
7. Lower the bucket using the lever on the swivel arm and listen if the backup alarm starts to beep as you move the lever. Then, raise the bucket to its up position and listen if the backup alarm stops beeping and check if the warning light on the dashboard stops flashing.
8. Repeat the procedure if need be.

Hopper Bucket Fully Down Proximity Switch (see Figure 2-43 and Figure 2-59)

This proximity switch allows the use of the crusher panels. In case of misalignment of this proximity switch, proper operation of the crusher panels might not be possible.

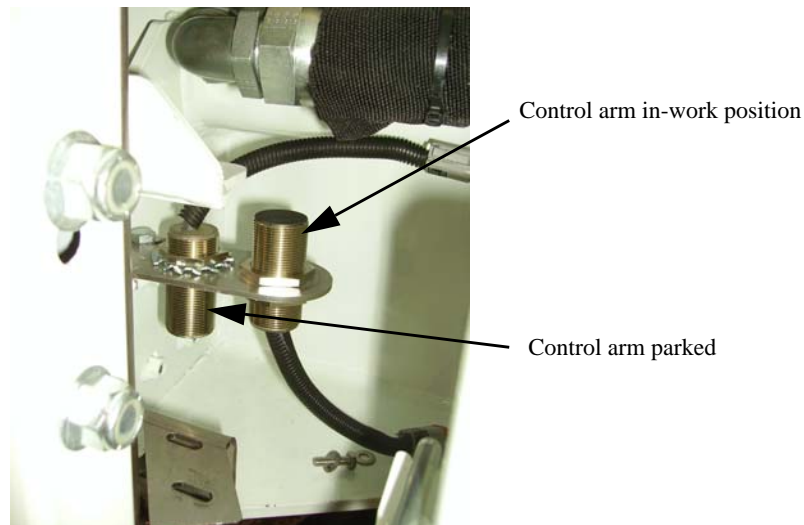
To adjust the bucket fully down proximity switch, apply the following procedure:

1. Start the engine and engage the hydraulic pump.
2. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
3. Locate the bucket fully down proximity switch — it is just to the left of the bucket (see Figure 2-59).
4. Loosen the nuts located on each side of the proximity switch bracket.
5. Adjust the proximity switch so that the switch can be triggered by the plate of the fully lowered bucket. There should be a gap of approximately 3/16 of an inch between the plate and the switch.
6. Tighten up both nuts.
7. With the bucket fully down, check if the crusher panels work properly.
8. If the crusher panels do not work properly, repeat steps 4-7.

Adjusting the Control Arm Proximity Switches

Control arm proximity switches were properly adjusted at the factory for optimal use of the swivel arm. However, over time, misalignment of the components may occur due to the frequent back-and-forth movement of the swivel arm. An adjustment might be necessary to prevent undue wear of the parts.

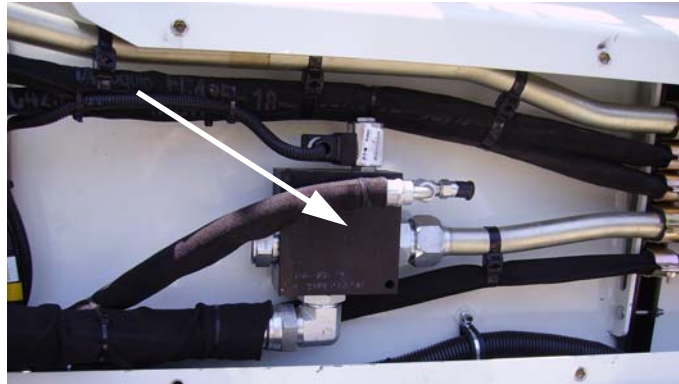
Two proximity switches control the swivel arm position. Both are located approximately where the arm is fixed to the body (see Figure 2-60).

Figure 2-60 Control arm proximity switches**Control Arm In-work Position Proximity Switch (see Figure 2-44 and Figure 2-60)**

This switch allows the hydraulic functions to be put to work by activating the flow divider (see Figure 2-61). When triggered, this switch allows the use of the hopper bucket and the crusher panels. If this proximity switch is misaligned, the bucket as well as the crusher panels might not work. An adjustment is required to solve this problem.

To adjust the control in-work position proximity switch, do the following:

1. Start the engine and engage the hydraulic pump.
2. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
3. Locate the control arm in-work position proximity switch — it is located near where the swivel arm is fixed to the body (see Figure 2-60).
4. Loosen the nuts located on each side of the proximity switch bracket.
5. Adjust the proximity switch so that the switch can be triggered by the plate of the fully extended swivel arm. There should be a gap of approximately $\frac{3}{16}$ of an inch between the plate and the switch.
6. Tighten up both nuts.
7. With the swivel arm fully extended, check if the crusher panels and the bucket work properly.
8. If the crusher panels and the bucket do not work properly, repeat steps 4-7.

Figure 2-61 Flow divider**Control Arm Parked Proximity Switch (see Figure 2-44 and Figure 2-60)**

This proximity switch triggers a warning light on the dashboard when the swivel arm is not completely retracted alongside the body. If this proximity switch is misaligned, the warning light on the dashboard may continue to flash even if the swivel arm is fully retracted to its home position and the bucket is fully up (see also “Adjusting the Hopper Bucket Proximity Switches” on page 62).

To adjust the control arm parked proximity switch, apply the following procedure:

1. Start the engine and engage the hydraulic pump.
2. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
3. Locate the control arm parked proximity switch — it is located near where the swivel arm is fixed to the body (see Figure 2-60).
4. Loosen the nuts located on each side of the proximity switch bracket.
5. Adjust the proximity switch so that the switch can be triggered by the plate of the swivel arm fully retracted to its home position. There should be a gap of approximately 3/16 of an inch between the plate and the switch.
6. Tighten up both nuts.
7. With the swivel arm fully retracted alongside the body and the bucket fully up, check if the warning light on the dashboard keeps flashing. If it does, repeat the procedure.

Painting and Finishing

Type of surface finishing and painting finishing recommended:

- ♦ **SURFACE PREPARATION**
Grit blasting (#50) or sandblasting (#80) for a 1.4 to 2.4-mil deep profile.
- ♦ **PRIMARY COAT:**
Dupont Black Urethane Primer #373p27678 to get a minimum thickness of 2 mils (dry).
- ♦ **FINISHING COAT:**
Dupont Emron Elite Paint 2-mil-deep single coat (dry).

At the end of the painting process, the product must have a minimum of 4-mil surface thickness.



Lubrication

LUBRICATE, LUBRICATE, LUBRICATE!

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

See the following sections for detailed lubrication points on packer, hopper bucket, cylinder pins, hopper door 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:
Viscosity of 320 cSt at 104 °F (40 °C) and 6.4 cSt at 212 °F (100 °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. Shell Tellus 32 or T-32 hydraulic oil (or equivalent) may be used in the AUTOMIZERTM RECYCLER. For Nordic regions, Shell Tellus T22 hydraulic oil 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.

Testing Hydraulic Oil

It is recommended to have hydraulic oil tested and analysed by a lab to prevent hydraulic system or pump failures. This will also optimize the oil change frequency. Apply the following procedure to take oil samples on Labrie vehicles.

NOTE: The procedure may differ from other laboratories sample kits.

Caution!

Highly contaminated hydraulic fluid must be changed promptly to avoid any damage on the hydraulic system.



Preparing to Take a Sample

Before taking hydraulic oil samples:

1. Apply all safety measures to ensure safety around the vehicle at all times.
2. Start the engine and raise the body.
3. Install the body safety prop and lower the body onto it.
4. Disengage the pump and turn off the engine.
5. Locate the oil sample coupler along the right-hand side chassis frame rail. It is located behind the filter cover.

Figure 3-1 Oil sample coupler



6. Remove the cap from the sample coupler and clean the coupler with a clean rag.
7. Push on the coupler spring ball (see Figure 3-2) using a small tip to purge oil before taking a sample. The residual pressure in the system will push the oil out of the coupler. Use a small container to recuperate the oil that will come out. Let the oil leak for a few seconds (about half a cup). During this operation, the pump must be engaged.

Figure 3-2 Spring ball

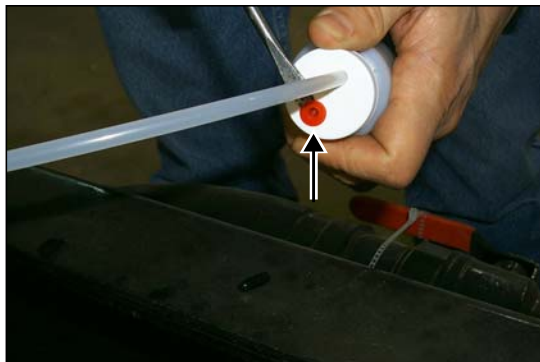


Taking an Oil Sample

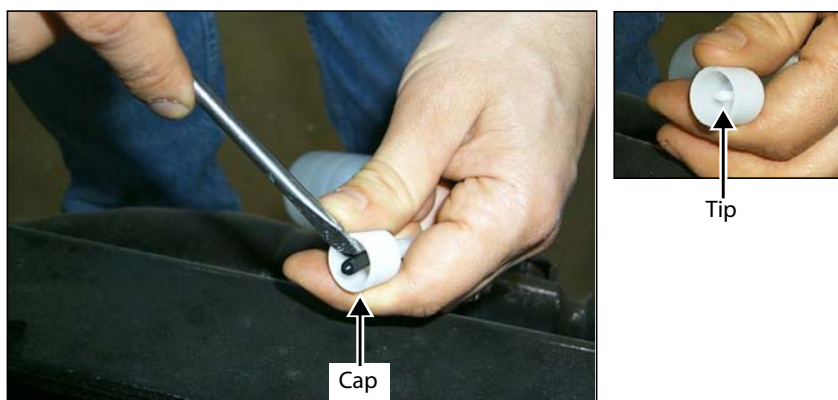
Once you have released the residual pressure, you can take the sample.

To do so:

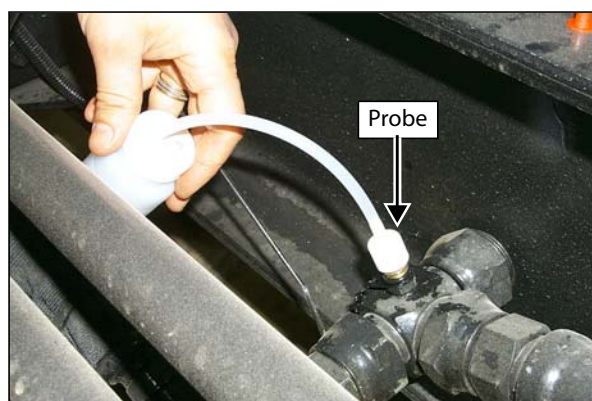
1. Remove the sample kit from its bag and, using a screw driver, remove the vent cap from the bottle cap.

Figure 3-3 Vent cap

2. Remove the protective cap from the probe.

Figure 3-4 Probe cap and tip

3. Install the probe on the coupler to fill the sample bottle. Use an EMA coupler with M16×2.0 threads.

Figure 3-5 Installing the probe on the coupler

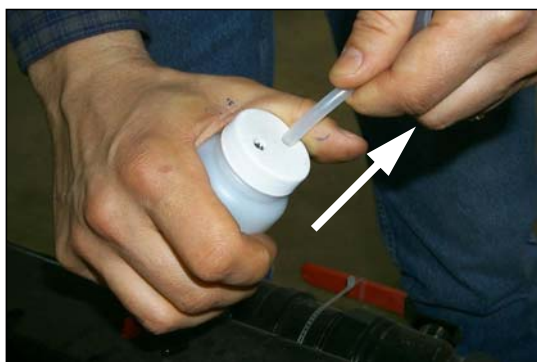
4. Fill the bottle to the level mark (the pump must be engaged to do this). Remove excess oil through the vent. *DO NOT OPEN THE BOTTLE!*

Figure 3-6 Recommended oil level



5. Once the sample is taken, remove the probe from the coupler and pull out the probe to remove it from the bottle (see Figure 3-7).

Figure 3-7 Pulling out the probe from the bottle



6. Put the seal cover over the bottle cap.

Figure 3-8 Sealing the bottle



Sealed sample

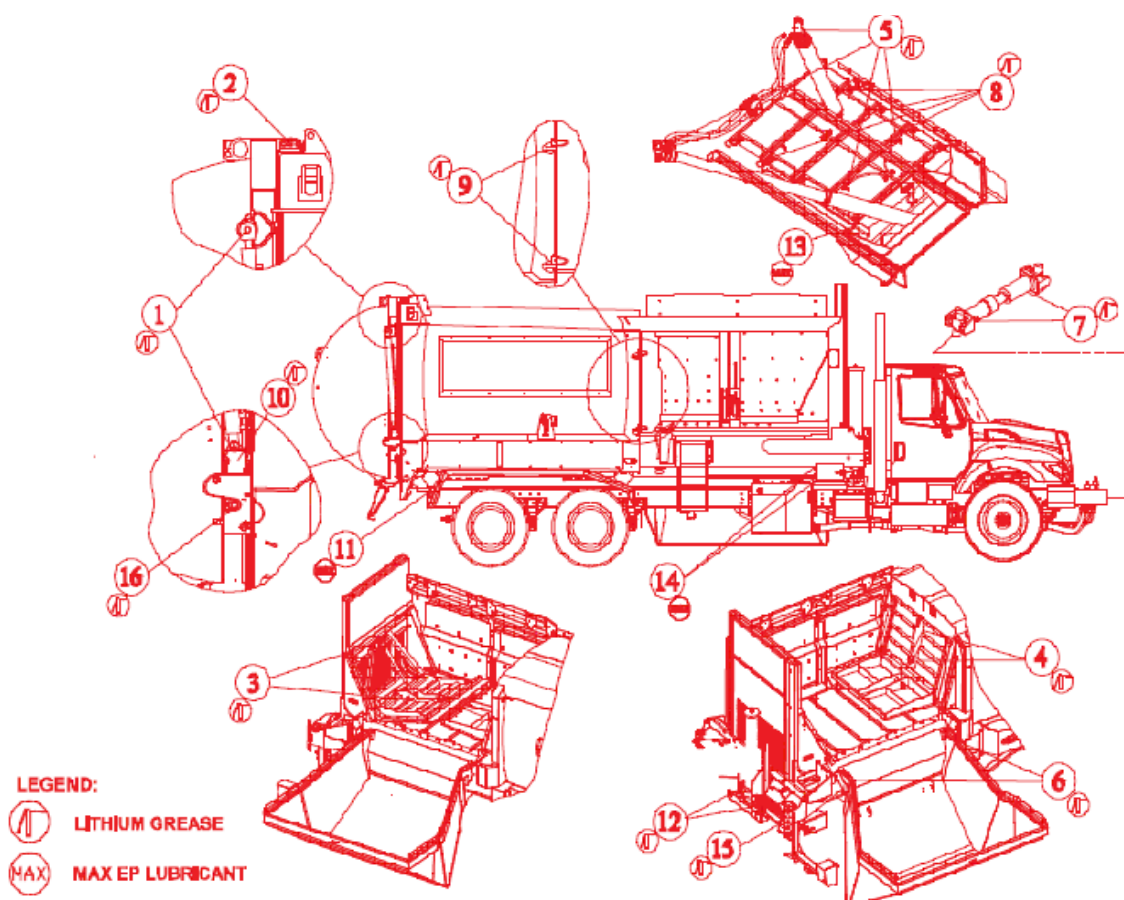
7. Fill the identification form (sticker) and apply it on the sample bottle.

Figure 3-9 Identification form (sticker)

Lubrication charts found in this manual may differ from the ones displayed on the vehicles. For lubrication indications, always refer to the charts on the vehicles.

Figure 3-10 Lubrication charts on a vehicle

Figure 3-11 Recycler lubrication chart



LUBRICATION CHART *		
NO.	DESCRIPTION	FREQUENCY
1	TAILGATE CYLINDER PINS	WEEKLY
2	TAILGATE HINGES	WEEKLY
3	FRONT CRUSHER PANEL CYLINDER PINS	WEEKLY
4	REAR CRUSHER PANEL CYLINDER PINS	WEEKLY
5	PACKER CYLINDER PINS	TWICE A WEEK
6	BUCKET PIVOTS	TWICE A WEEK
7	PUMP DRIVE SHAFT "U" JOINT	TWICE A WEEK
8	FOLLOWER PANEL ROLLERS	TWICE A WEEK
9	HOPPER DOOR HINGES	WEEKLY
10	TAILGATE LOCKING MECHANISM	WEEKLY
11	BODY HINGES	WEEKLY
12	BODY HOIST PINS	WEEKLY
13	FLOOR GUIDES	WEEKLY
14	SUMP BOX HINGES	WEEKLY
15	SWING ARM PIVOT	WEEKLY
16	TAILGATE PINS	WEEKLY

Caution!

Never grease the side rails and the outside of rollers. Sand and other abrasives stick to grease. This results in premature component wear.

Caution!

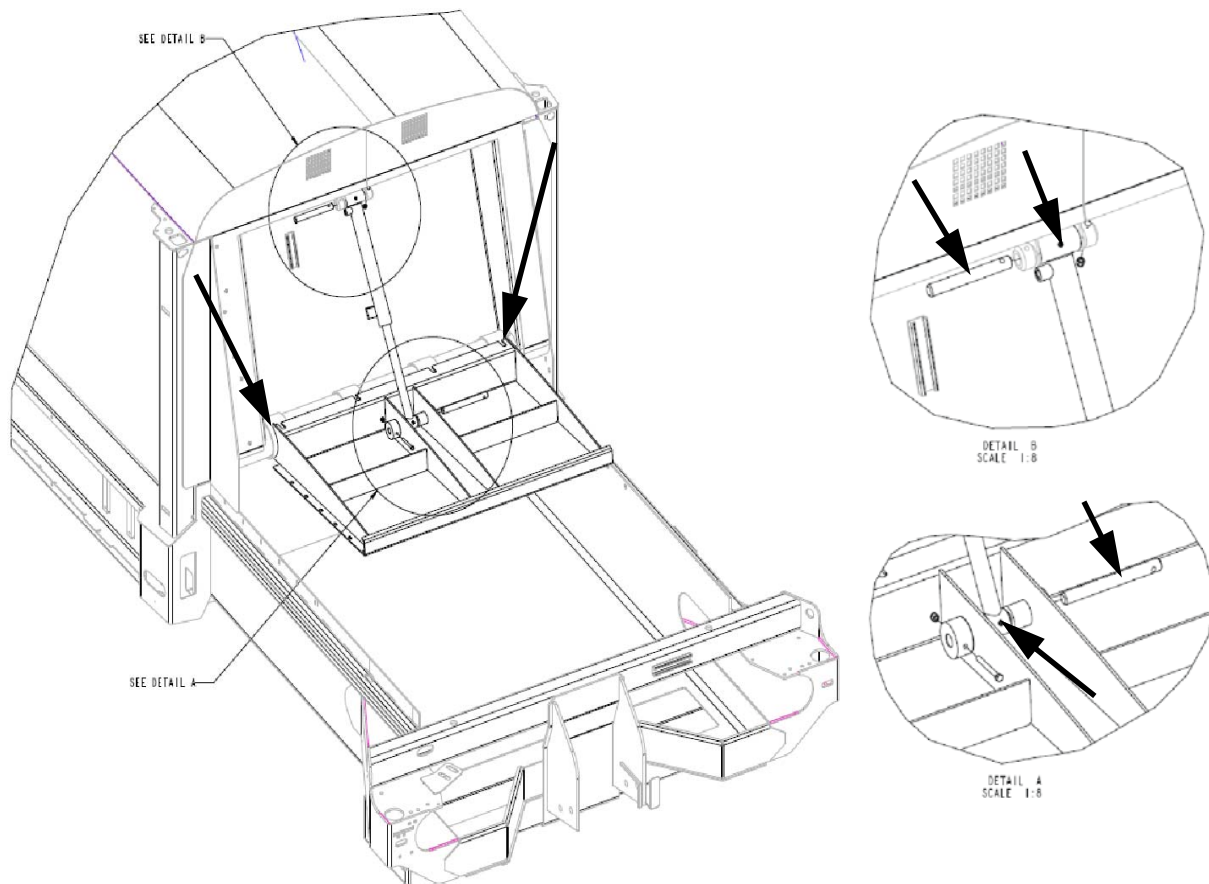
Because of their intensive use, the packer and its accessories must be lubricated every working day.

Greasing the Crusher Panels

To properly maintain the crusher panels:

1. Grease the crusher panel cylinder heads by using grease fittings.
2. Grease the crusher panel bushings.

Figure 3-12 Grease areas



There are 6 lubrication points on the rear crusher panel (see Figure 3-13) and 4 on the front crusher panel (see Figure 3-14). Labrie recommends to lubricate the components of both crusher panels every week to ensure good working order of the moving parts.

Figure 3-13 Rear crusher panel

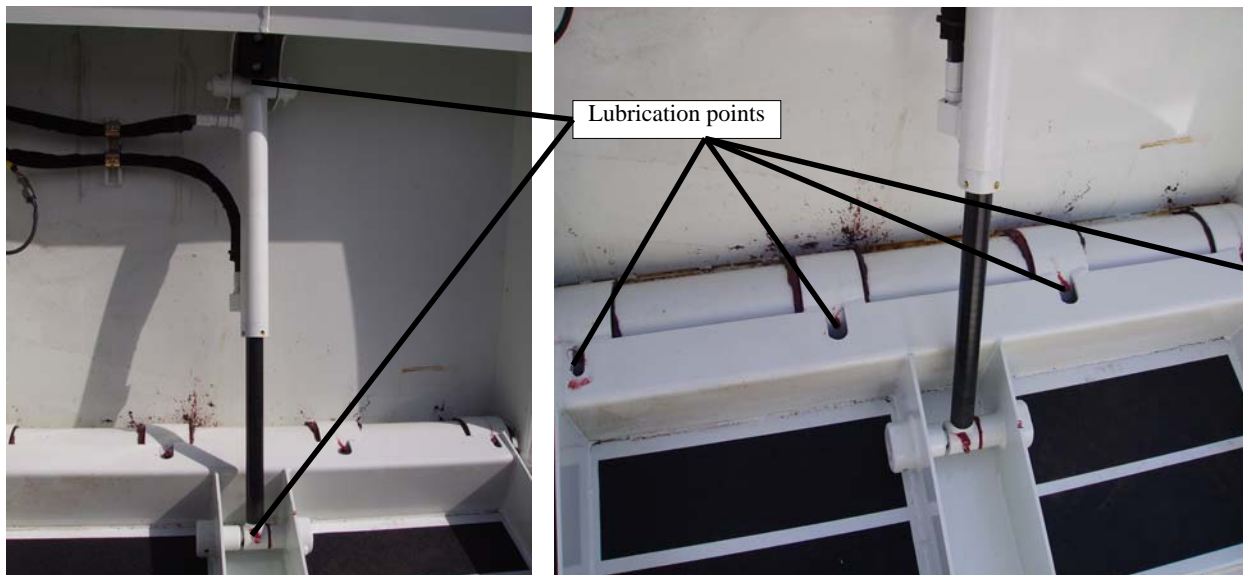
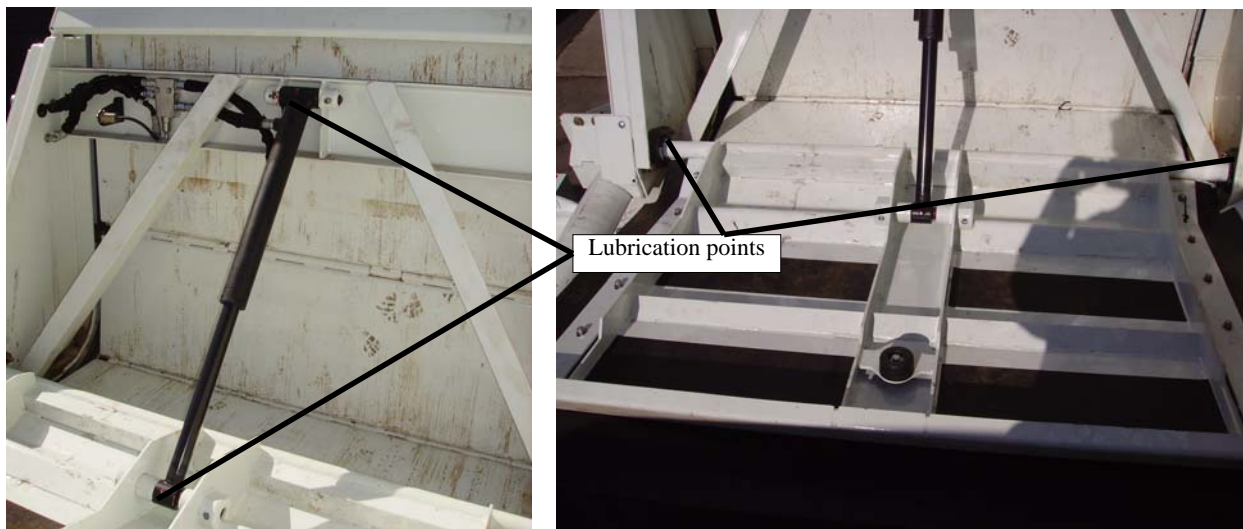


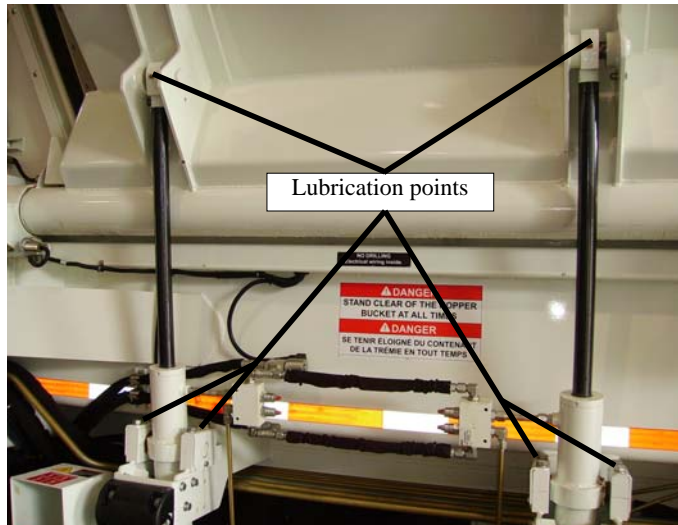
Figure 3-14 Front crusher panel



Greasing the Hopper Bucket Components

Labrie recommends that the components of the hopper bucket be lubricated once a week, except for its pivots, which are to be lubricated twice a week.

There are 3 lubrication points on each of the hopper bucket cylinders (see Figure 3-15) and 1 on each of the bucket pivots (see Figure 3-16).

Figure 3-15 Bucket cylinders**Figure 3-16 Bucket pivot**

Tailgate and Body Hinges

Inspecting the Body-Chassis Hinges

The body-chassis hinges should be lubricated weekly. Also, check for cracks or corrosion. Any crack must be reported, and repaired by *qualified* personnel. If necessary, contact *LabriePlus* for technical support.

Danger!

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



Figure 3-17 Body hinge



Figure 3-18 Body hinge (view from behind the rear mudguard)



Lubricating Tailgate Locking Mechanisms

It is important to lubricate the locking mechanism and the tailgate hinges with multipurpose grease (see *Recommended Lubricants* on page 67) as per the lubrication schedule.

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

- ♦ Tailgate hydraulic cylinders
- ♦ Cylinder pins and circlips
- ♦ Tailgate hinges and pins
- ♦ Wear on the locking mechanism

- ♦ Wear on the tailgate lock pins
- ♦ Tailgate rubber seal

Caution!

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



Figure 3-19 Locking mechanism

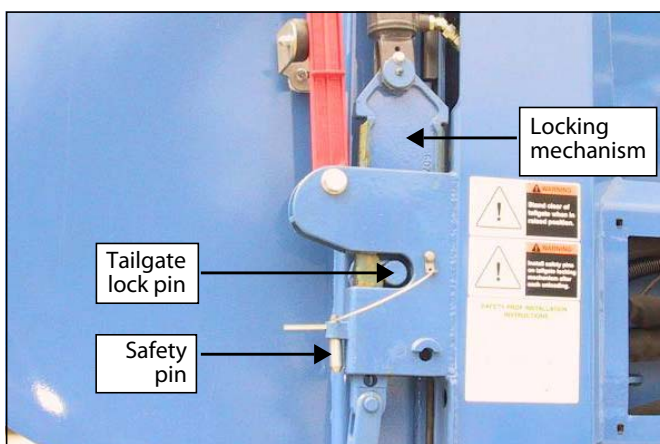


Figure 3-20 Tailgate hinge

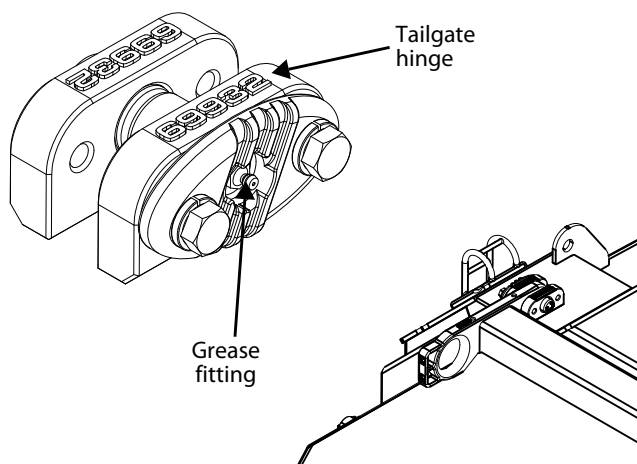
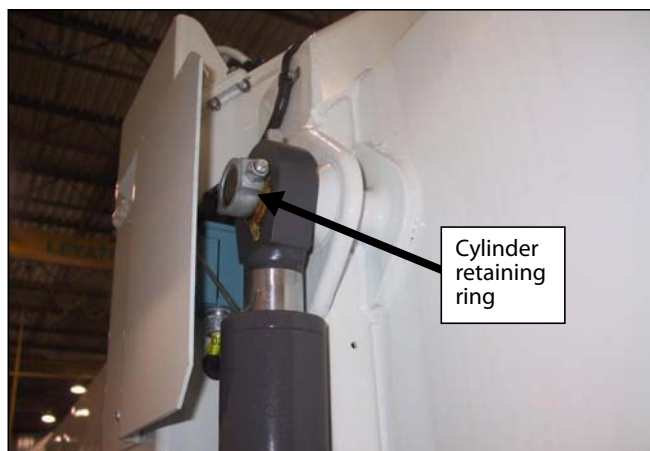


Figure 3-21 Cylinder retaining ring



Ground Level Grease Blocks (Optional)

If your vehicle has this option, you can use conveniently located grease fittings to lubricate parts that are located in the upper section of the body.

Easy Greasing of Tailgate Upper Cylinder Pins and Hinges

The remote grease fitting is located on the street side back corner of the body, near the lower section of the tailgate (see Figure 3-22). It allows easy greasing of the upper cylinder pins and tailgate hinges.

Figure 3-22 Location of the remote grease fitting (near tailgate)



Easy Greasing of Upper Hopper Door Hinge

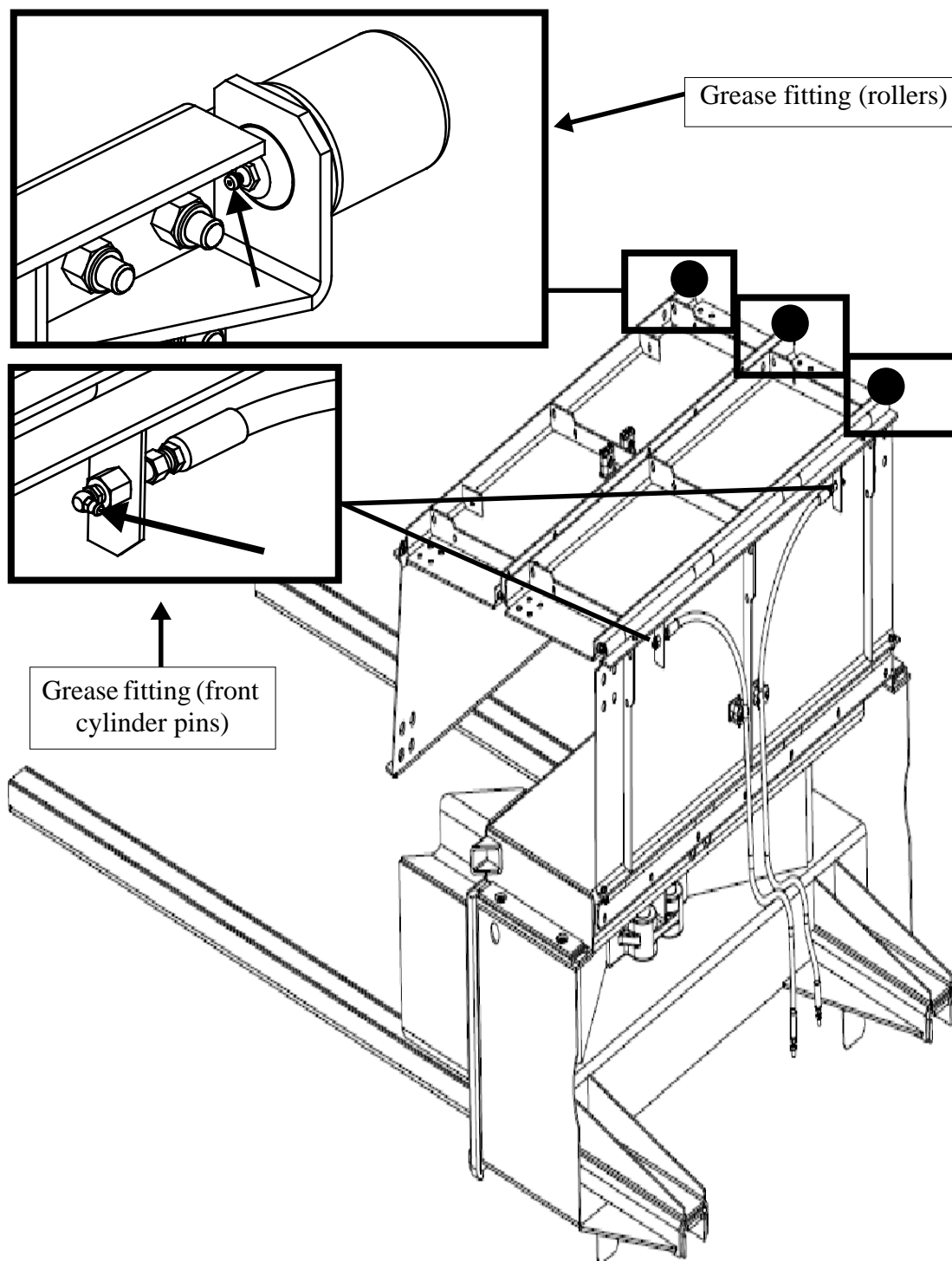
The remote grease fitting is located at the bottom of the hopper door near the lower hinge (see Figure 3-23). It allows easy greasing of the upper hinge of the hopper door.

Figure 3-23 Location of the remote grease fitting (hopper door)



Packer Lubrication Points

Lubricating Front Cylinder Pins and Follower Panel Rollers



Lubricating Rear Packer Cylinder Pins

There are 2 lubrication points for the rear packer cylinder pins. One is located on the street side of the body front end (just behind the packer control station), the other on the curbside (near packer proximity switches).

Figure 3-24 Location of the grease fittings (curbside, left; street side, right)



Remote Grease Fitting for Front Packer Cylinder Pins (Optional)

If your vehicle is equipped with this option, you can easily lubricate the front packer cylinder pins and the follower panel rollers using a remote grease fitting.

This remote grease fitting can be accessed through a hole located just below the hopper door next to a red sticker.

Figure 3-25 Location of the hole allowing access to the remote grease fitting



To lubricate the front packer cylinder pins using this option, apply the following procedure:

1. On the packer control station, push the green button to extend the packer.

2. When the packer reaches the end of its stroke, push the red button to stop the packer.
3. Using a flashlight, locate the remote grease fitting through the hole below the hopper door next to the red sticker.
4. Once the remote grease fitting is located, proceed with lubricating the front packer cylinder pins and the follower panel rollers.

4

Hydraulic System

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

Danger!



Always lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6) when inspecting or performing maintenance on the vehicle.

Danger!



Human skin can be easily penetrated by high pressure oil (2000 psi and above). Failure to take appropriate safety precautions may result in serious injury or death.

Danger!



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

General Maintenance

To keep the hydraulic system efficient and reliable, the following care must be taken:

- ♦ Every day, check that hydraulic lines and connections are not leaking. Correct if necessary.
- ♦ Inspect the pump for leaks or unusual noises.
- ♦ When maintenance is carried out, protect all hoses, fittings, pipes, or any other ingress points from dirt that would eventually get into the oil. Plug hoses that are not connected.
- ♦ Inspect the hydraulic system at least once a month, and adjust pressure if necessary (see *Steel hydraulic tank* on page 94).
- ♦ For new vehicles, change the return filter element after 50 hours of use, and twice a year afterwards (see *Replacing Filter Elements* on page 103).

- ♦ Clean the strainer inside the hydraulic tank after the first 50 hours of use, and once a year afterwards (see *Cleaning the Strainer* on page 102).
- ♦ Hydraulic oil must be replaced at least once a year, or when contaminated (see *Emptying the Hydraulic Tank* on page 101).

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

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

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

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

It is recommended to have the hydraulic fluid tested and analyzed by a lab to prevent hydraulic system or pump breakdown. This will also optimize the frequency of hydraulic fluid changes. Labrie vehicles are now equipped with an "oil sampler coupler." For more information, see *Testing Hydraulic Oil* on page 68.

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

Introducing the Vane Pump

AUTOMIZER™ RECYCLER vehicles are equipped with a vane pump. This pump is activated by an electric solenoid valve that is located on the chassis (see Figure 4-1). The electrical signal that activates the solenoid is sent by the pump switch on the console.

Figure 4-1 Vane pump (left) and solenoid valve on the chassis (right)



When the vane pump is turned on, the transmission electronic control unit (ECU) starts monitoring vehicle and engine speed, and allows the vane pump to engage (or not). If the vehicle is going faster than 15 mph (25 km/h) or if engine speed exceeds 900 rpm, the vane pump will not engage. After the pump is engaged, it will stay engaged at any engine speed under 2,300 rpm (for more information, see *Allison Transmission Programming* on page 143).

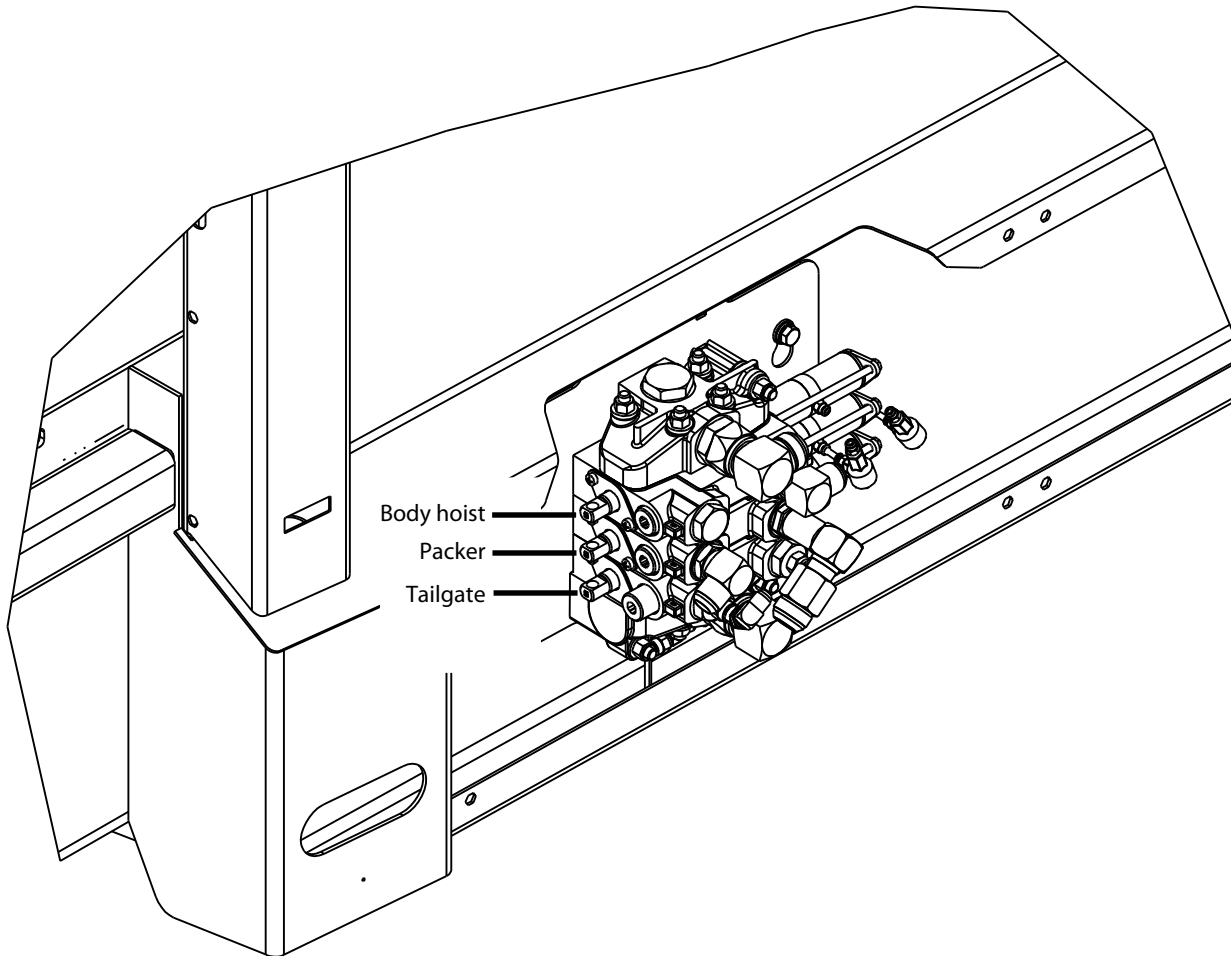
The vane pump powers all body functions (that is tailgate, body hoist, and packer) through the directional control valve (see below). It is capable of delivering a flow of 24 gallons per minute (gpm) at 700 rpm. A dump valve located on the chassis (see Figure 4-1) limits the flow to the valve at 45 gpm. All excess flow is sent back to the hydraulic tank. When the pump is not engaged, the oil returns to the hydraulic tank.

The vane pump also powers the hopper bucket functions and other options through the flow divider and the proportional valve (see *Inspecting the Pump* on page 89).

Directional Control Valve

AUTOMIZER™ RECYCLER vehicles are equipped with a directional control valve (see Figure 4-2), as part of the vane pump, that powers all body functions (that is tailgate, body hoist, and packer).

Figure 4-2 Directional control valve



- **Tailgate:** 4 ways, 3 positions
- **Packer:** 4 ways, 3 positions
- **Body hoist:** 3 ways, 3 positions

NOTE: All sections are electro-hydraulic actuated.

For more information on the directional control valve, see *Main Hydraulic Schematic* on page 108. To learn how to adjust hydraulic pressure, see *Adjusting Pressure and Relief Valves* on page 95.

Inspecting the Pump

The hydraulic pump is powered by the vehicle engine through a drive shaft. The pump should be visually inspected every working day.

Figure 4-3 Pump



When inspecting the pump:

1. Start the engine and engage the hydraulic pump.
The pump should turn freely without excessive noise or vibrations.
2. Check for oil leaks under the pump and at connection points.
3. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).

If electrical problems occurred with the pump, see *Troubleshooting* on page 127.

Caution!

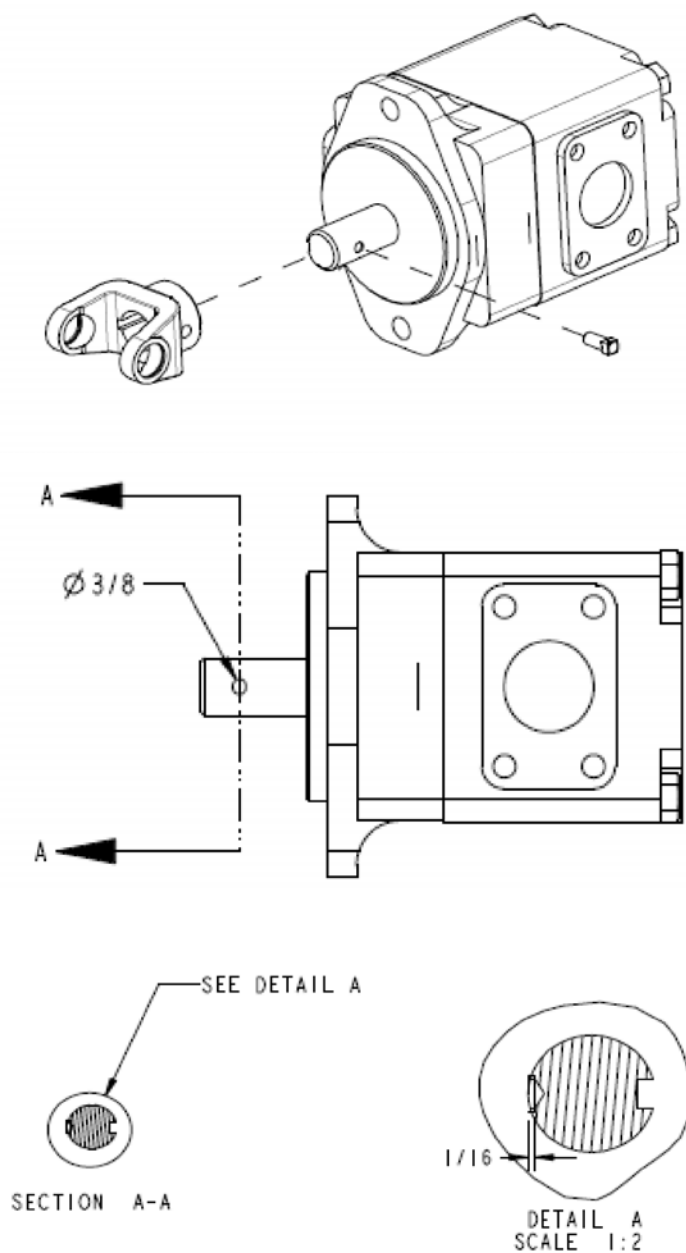


If the unit has to be driven away for repairs on the hydraulic system, remove the drive shaft between the engine and the pump before restarting the engine.

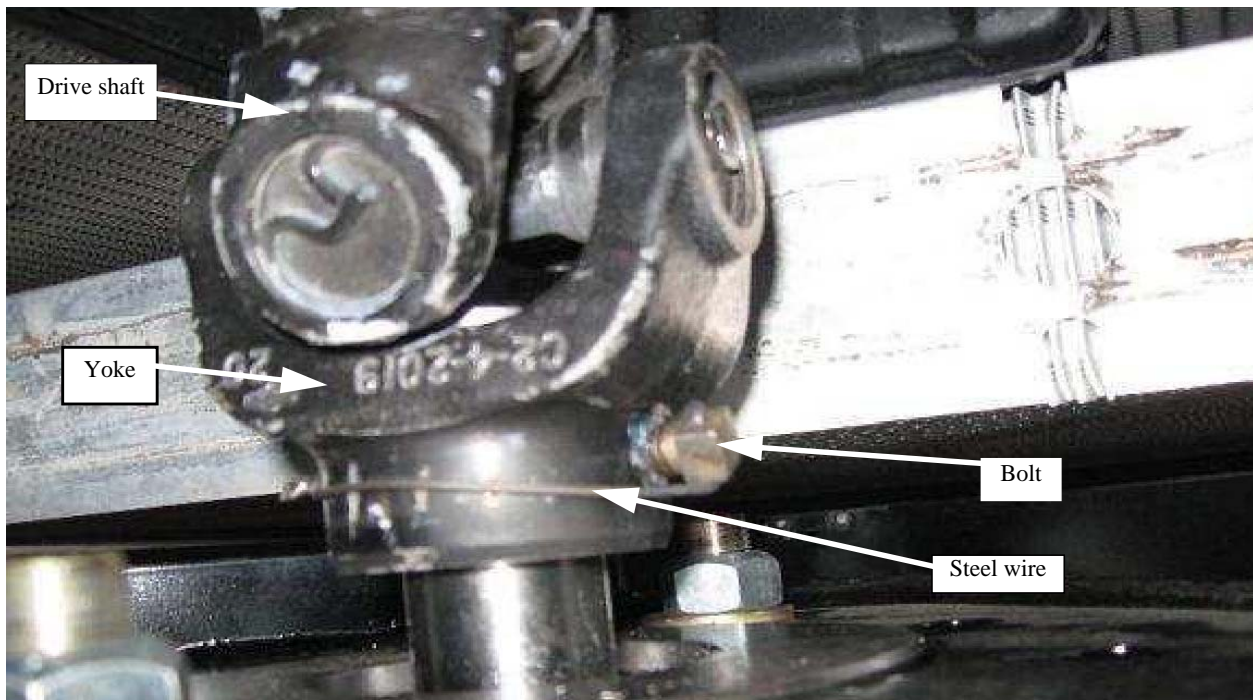
Pump Replacement

After making a pump replacement or a pump drive shaft replacement, apply the following procedure:

1. Locate the hole with the yoke bolt (the yoke must be fully engaged on shaft).



2. Apply Loctite 243 (medium strength) on the bolt before assembly.
3. Install a steel wire on the yoke bolt (the wire must be fixed tight around the bolt).

Figure 4-4 Steel wire on yoke

4. Use the following parts: QUB00700 (bolt) and 154503 (steel wire).

Priming a New Pump

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

Apply the following procedure for any new installed pump:

1. Make sure the parking brake is applied and the vehicle is tagged out for maintenance purposes (refer to “Locking out and Taging Out the Vehicle” on page 6)..

Danger!



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

2. With the ball valve closed, fill the suction line before installing it on the pump.
3. Fill the pump housing with new oil.
4. Reinstall the pressure hose on the pump housing.
5. Open the ball valve on the suction line.
6. Crank the engine repeatedly — about five times — without letting it start in order to fill the suction hose and the pump with hudraulic oil and to push the air back into the tank.

7. Start the engine. You can slowly raise the engine RPM only after 5 minutes. When you raise the RPM, always make sure that the pump doesn't make excessive noise.
8. Before putting the vehicle back in service, recalibrate the system pressures.

Inspecting the Hydraulic Tank

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

Caution!

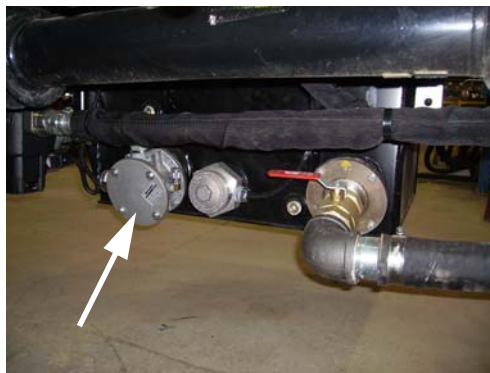
Maximum hydraulic oil temperature is 77 °C (180 °F).



To inspect the hydraulic tank:

1. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
2. Clean the strainer and replace the filter element inside the tank after the first 50 hours of service (see *Cleaning the Strainer* on page 102 and *Replacing Filter Elements* on page 103).

Figure 4-5 Filter housing element



For more information on maintenance schedule, See *Automizer™ Recycler Preventive Maintenance Chart* on page 16.

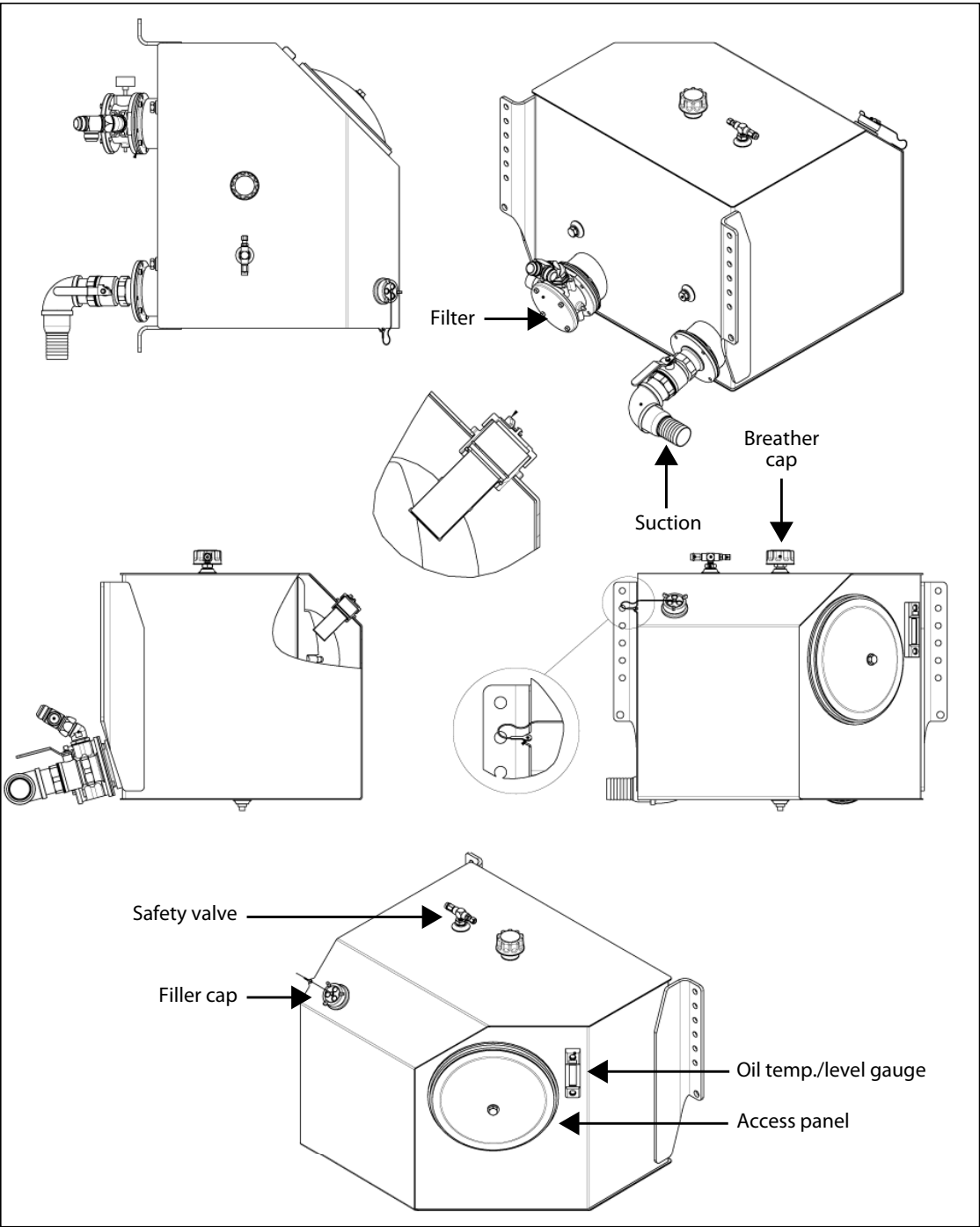
3. Make sure that the filler cap is not obstructed and works properly.
4. Make sure that the hydraulic oil is clean (not colored) and at least at 3/4 on the oil level gauge (with all cylinders retracted).

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

Figure 4-6 Oil temp/level gauge



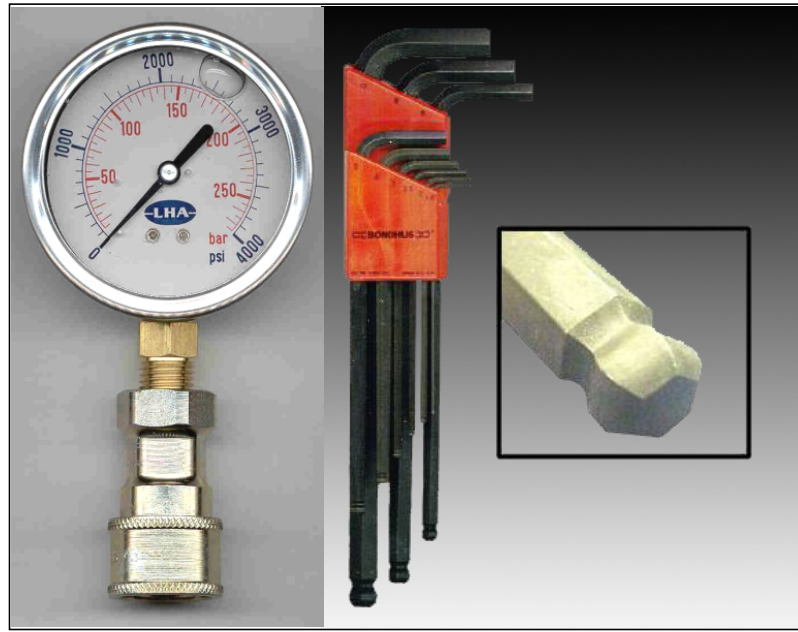
Figure 4-7 Steel hydraulic tank



Adjusting Pressure and Relief Valves

A 0–4000 psi pressure gauge as well as a set of ball-end hex keys is required to adjust pressure and relief valves (see Figure 4-8).

Figure 4-8 Pressure gauge and ball-end hex key



Adjusting Pressure of the Vane Pump

The vane pump that is installed on the Calgary Recycler has its relief valve on the utility section of the directional control valve. Adjustment of the vane pump relief valve must be done before adjustment of the relief valve of the directional control valve.

The following pressure chart gives the proper adjustment pressure. Use this chart to adjust the relief valve..

Table 1 Pressure chart

Pump	Chassis	Cylinder bore (packer)	Main relief pressure (± 50 psi)
Vane pump	6×4 (tandem axle)	4 inches	3,000 psi at idle
	4×2 (single axle)	4 inches	2,000 psi at idle

To adjust vane pump relief valve:

1. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
2. Install the 0–4,000 psi pressure gauge on the quick-connect fitting located at the valve inlet cover.

3. Start the engine and engage the hydraulic pump.
4. Release the vane pump relief.
To adjust the vane pump relief valve, tighten the main relief valve adjustment screw.
5. Disconnect the packer extend proximity switch. Activate the packer extend until it reaches end of stroke
6. Adjust the vane pump relief valve according to the pressure chart (see Table 1).
7. Once the vane pump relief valve is adjusted, back out the main relief.

IMPORTANT: When the vane pump relief valve is adjusted to the proper pressure, adjust the relief valve of the directional control valve according to the pressure chart (see page 95).

Adjusting Pressure on the Directional Control Valve

To adjust the pressure:

1. Start the engine and engage the hydraulic system.
2. Install a 0–4000 psi pressure gauge on the quick-connect coupler located on the hydraulic valve.

Figure 4-9 0–4000 psi pressure gauge



3. Disconnect the packer extend proximity switch. Activate the packer extend until it reaches end of stroke.
4. Check the pressure on the gauge to make sure the pressure builds up in the system.
5. Adjust the directional control relief valve as needed by loosening the locknut and by turning the adjustment screw.

Adjusting the Body Relief Valve (Electro-Hydraulic)

To adjust the body relief valve:

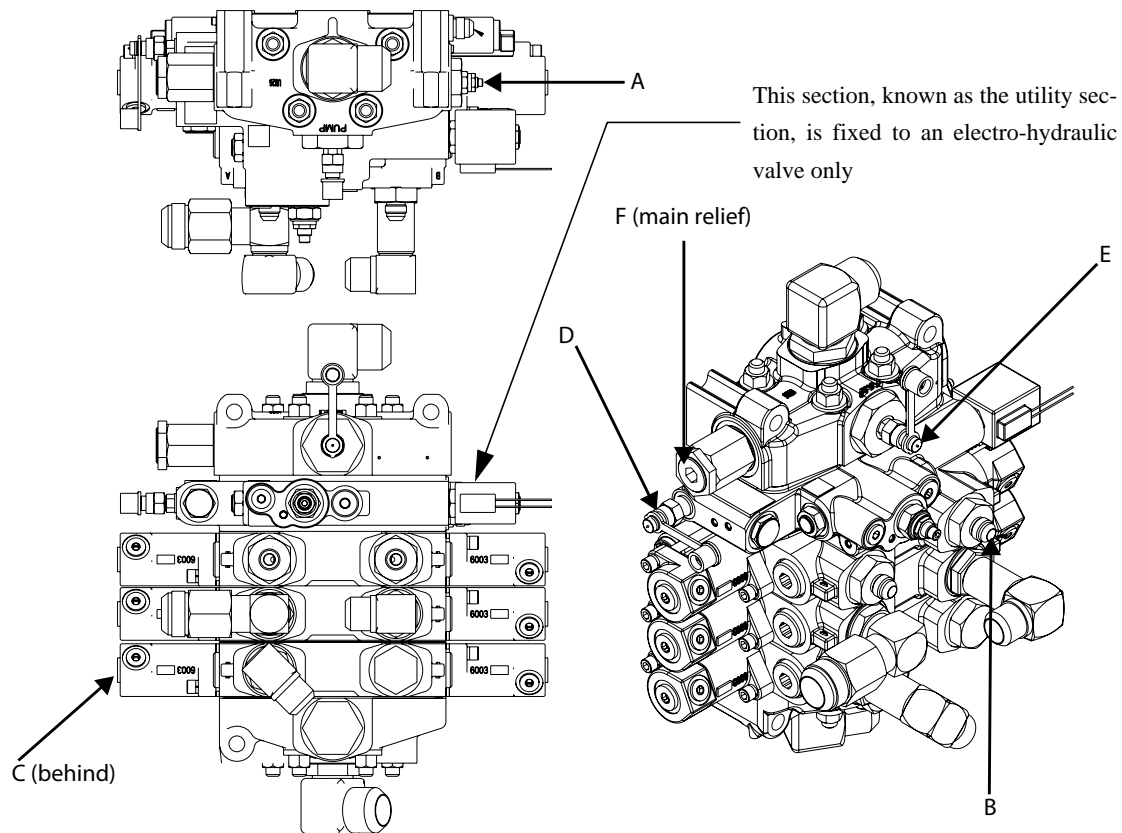
1. Once the vane pump relief valve is adjusted, back out the main relief (see F on Figure 4-10).
2. Install the pressure gauge at the valve inlet cover (see E on Figure 4-10).

3. Disconnect the packer extend proximity switch. Activate the packer extend until it reaches end of stroke.
4. If this is not reading, adjust the utility section of the electric valve (see page 97).
5. Set the pressure at idle to 2,000 psi for a single axle or to 3000 psi for tandem chassis.

Adjusting the Utility Section

To adjust the utility section:

1. Disconnect the tailgate solenoid.
2. Turn on the pump, press the tailgate switch in the “Closed” position.
3. Connect a 0 – 600 psi pressure gauge to the inlet cover (see E on Figure 4-10).
4. Back out the generated pilot pressure valve (see A on Figure 4-10) and the pressure reducing valve (see B on Figure 4-10).
5. Disconnect the body-up coil (see C on Figure 4-10).
6. Disconnect the packer extend proximity switch. Activate the packer extend until it reaches end of stroke.
7. With the engine at idle, adjust the generated pilot pressure (see A on Figure 4-10) to 420 psi (± 30 psi). The valve adjustment screw is located on the right-hand side of the valve section when facing it.
8. Reconnect the body-up coil.
9. Remove the pressure gauge from the inlet cover and install it on the maximum pilot pressure port (see D on Figure 4-10).
10. Disconnect the packer extend proximity switch. Activate the packer extend until it reaches end of stroke.
11. Adjust pilot pressure to 550 psi (± 50 psi) using the adjustment screw located at the front of the valve (see B on Figure 4-10).
12. Test the valve. The valve should shift sharply.

Figure 4-10 Valves and ports

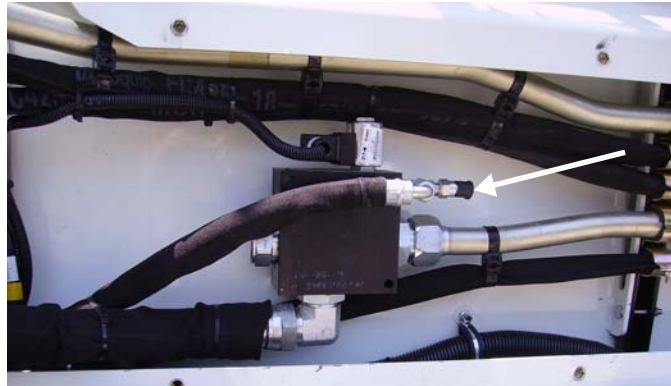
Adjusting Pressure on the Crusher Panel Valve

For this procedure, use a gauge connected to a hose extension or ask a co-worker to help you.

To adjust the pressure on the crusher panel valve:

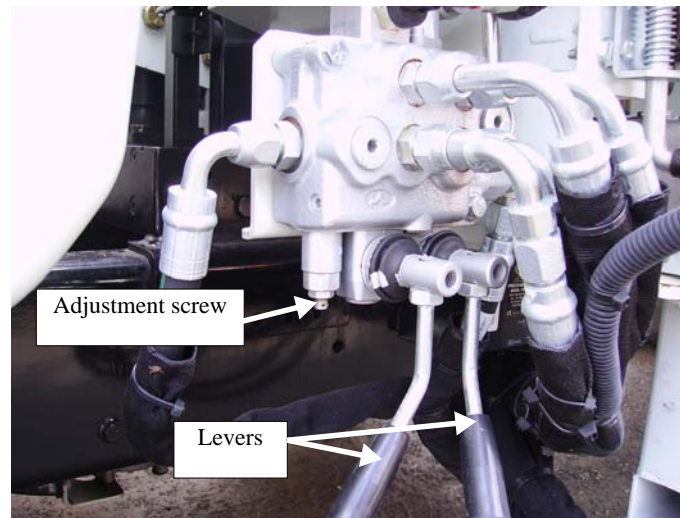
1. Start the engine and engage the hydraulic system.
2. Install a 0–4000 psi pressure gauge on the quick-connect coupler located on the flow divider (see Figure 4-11).

Figure 4-11 Quick-connect coupler



3. Using the left-hand lever, lower the front crusher panel (see Figure 4-12).

Figure 4-12 Levers controlling crusher panels



4. Whilst keeping the lever pushed, check the pressure on the gauge to make sure the pressure builds up in the system.
5. Set the pressure at idle to 2,000 psi by adjusting the relief valve. To do so, loosen the locknut of the relief valve and turn the adjustment screw clockwise or counterclockwise to get the proper pressure. Once the pressure is adjusted, tighten back the locknut.

Adjusting Pressure on the Hopper Bucket and Container Valve

For this procedure, use a gauge connected to a hose extension or ask a co-worker to help you.

To adjust the pressure on the hopper bucket and container valve:

1. Start the engine and engage the hydraulic system.
2. Unfold the swivel arm completely and lock it using the latch provided.

3. Install a 0–4000 psi pressure gauge on the quick-connect coupler located on the flow divider (see Figure 4-11).
4. Push and hold the left-hand lever on the swivel arm (see Figure 4-13).

Figure 4-13 Levers on swivel arm



5. Check the pressure on the gauge to make sure the pressure builds up in the system.
6. Set the pressure at idle to 2,000 psi by adjusting the relief valve. To do so, loosen the locknut of the relief valve and turn the adjustment screw clockwise or counterclockwise to get the proper pressure. Once the pressure is adjusted, tighten back the locknut.

Pressurizing the Tank System

Cavitation inside the pump generates excessive wear and noise.

To prevent cavitation, air pressure inside the hydraulic tank must be set between 3 and 3.5 psi. A gauge and a pressure regulator are installed to adjust air pressure inside the tank. This gauge is located inside the frame rail on the curbside of the chassis; it can be accessed only when the body is raised.

Danger!

Install body safety prop before performing any work under the body.



To adjust the pressure, turn the knob until pressure reaches 3 to 3.5 psi. The hydraulic tank is also equipped with a 5-psi relief valve and pressurized screw-on filler cap.

Figure 4-14 5-psi relief valve and breather cap

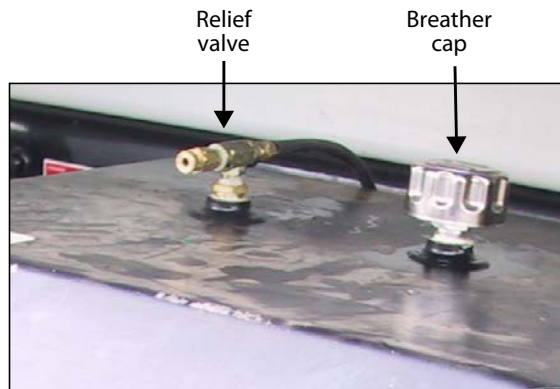
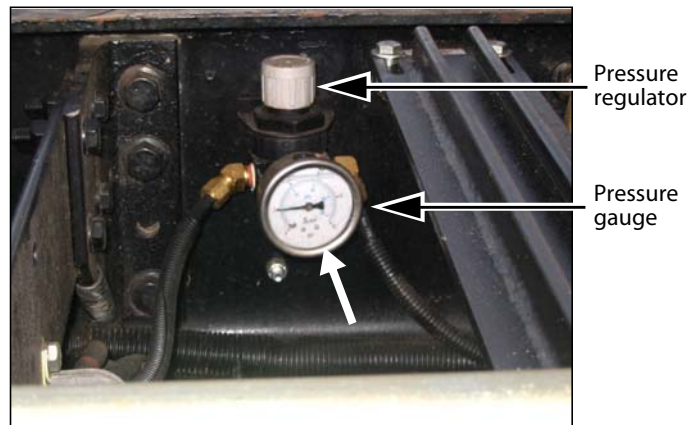


Figure 4-15 Pressure gauge and regulator



Caution! The pressure inside the tank shall not exceed 5 psi.



Emptying the Hydraulic Tank

To empty the hydraulic tank:

1. Prepare the vehicle:
 - 1 a. Apply the parking brake
 - 1 b. Start the engine
 - 1 c. Engage the hydraulic pump
 - 1 d. Retract all cylinders (packer, crusher panels, tailgate, etc.)
 - 1 e. Raise the body and install the safety prop

- 1 f. Disengage the hydraulic pump
- 1 g. Stop the engine
2. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
3. Clean around the filler cap and remove it.

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



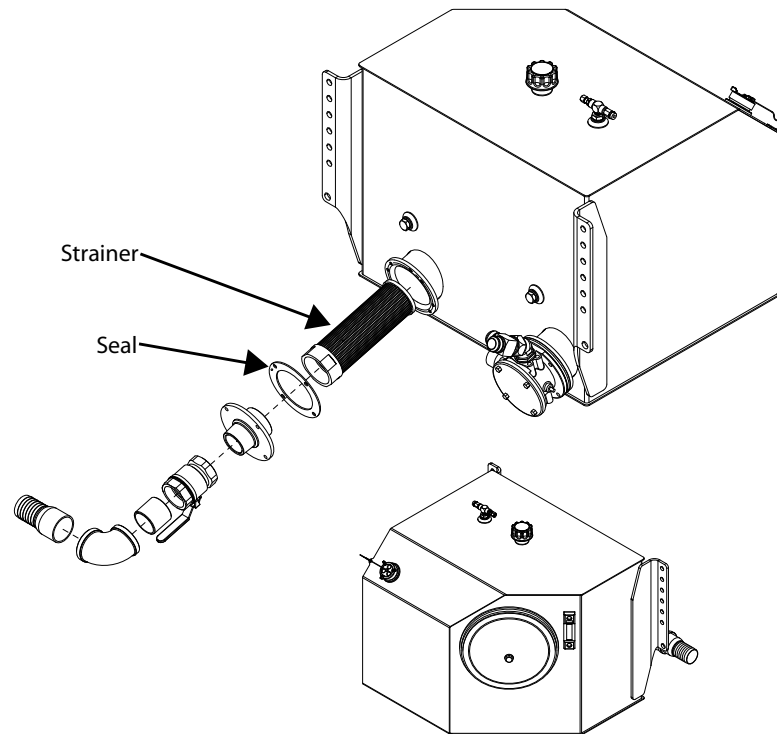
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4. Place a clean container (minimum capacity: 60 gallons) under the drain plug.
 5. Remove the drain plug under the tank and let the tank drain completely.
 6. Reinstall the drain plug.

Cleaning the Strainer

To clean the strainer:

1. Empty the hydraulic tank (see *Emptying the Hydraulic Tank* on page 101).
2. Remove the hose clamp from the suction hose.
3. Slide the hose over the pipe until it clears the ball valve (slide towards the frame of the vehicle).
4. Remove the strainer from the tank port.
5. Clean the strainer using solvent, and check for damage; replace if necessary.
6. Replace the seal (if necessary).
7. Re-install the strainer.

Figure 4-16 Strainer assembly on steel tank



Replacing Filter Elements

IMPORTANT: To protect new components of the hydraulic system, the return filter element must be changed after the *first 50 hours of operation of the vehicle*. Change the element twice a year afterwards (see *Automizer™ Recycler Preventive Maintenance Chart* on page 16).

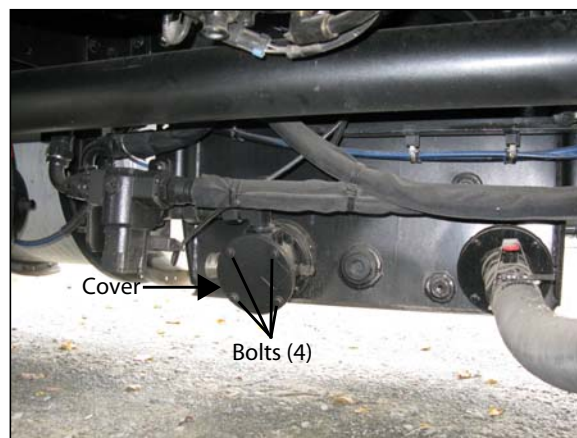
The filter restriction indicator will indicate, when the engine is running, if the filter needs to be changed. Replace the filter before the indicator reaches the red zone. This will keep the oil clean, extend component life expectancy and reduce failures.

Figure 4-17 Filter restriction indicator (steel tank)

To replace the hydraulic filter:

1. Lock out and tag out the vehicle (see *Locking out and Taging Out the Vehicle* on page 6).
2. Prepare a pan or a bucket to collect the oil that will come out of the filter housing (two gallons of oil).
3. Remove the filter head cover bolts (four).

This in-tank return filter system contains a check valve that closes when the cartridge is removed, thus preventing the whole tank from draining.

Figure 4-18 Filter head cover and retaining bolts (cylindrical tank)

4. Replace the filter element with a new one.

Figure 4-19 Filter element



5. Reinstall the filter head cover.

Replacing Hydraulic Oil

Caution!



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

To do so:

1. Empty the hydraulic tank (see *Emptying the Hydraulic Tank* on page 101).
2. Clean the strainer (if necessary) (see *Cleaning the Strainer* on page 102).
3. With a clean dry cloth, remove all metal particles and debris accumulated at the bottom of the hydraulic tank:
 - 3 a. Remove the screws retaining the access panel.
 - 3 b. Insert your hand inside and clean the interior with a dry clean cloth.
4. Change the return filter element (see *Replacing Filter Elements* on page 103)
5. Using a filtering screen, refill the tank with high-quality oil until it reaches the 3/4 mark on the oil gauge (see *Recommended Lubricants* on page 67 for specifications).
The entire system will require between 50 and 60 gallons of oil.

Caution!



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

6. If the suction line has been replaced, fill the line until oil reaches the pump (see *Pump Cavitation* on page 137).

7. Reinstall the filler cap and fully open the ball valve.

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



-
8. Start the engine.

Inspecting Hydraulic Cylinders

Danger! Always lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6) when inspecting or performing maintenance on the vehicle.



You must inspect hydraulic cylinders at least once a month.

When you do so:

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

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



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

Detecting Cylinder Internal Leaks

An internal leak is caused by a damaged seal inside the hydraulic cylinder (see 1 on Figure 4-20). Because the cylinder is leaking oil inside (bypassing), a certain amount of pressure is lost, reducing the efficiency of the cylinder and its capacity to push and/or pull.

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

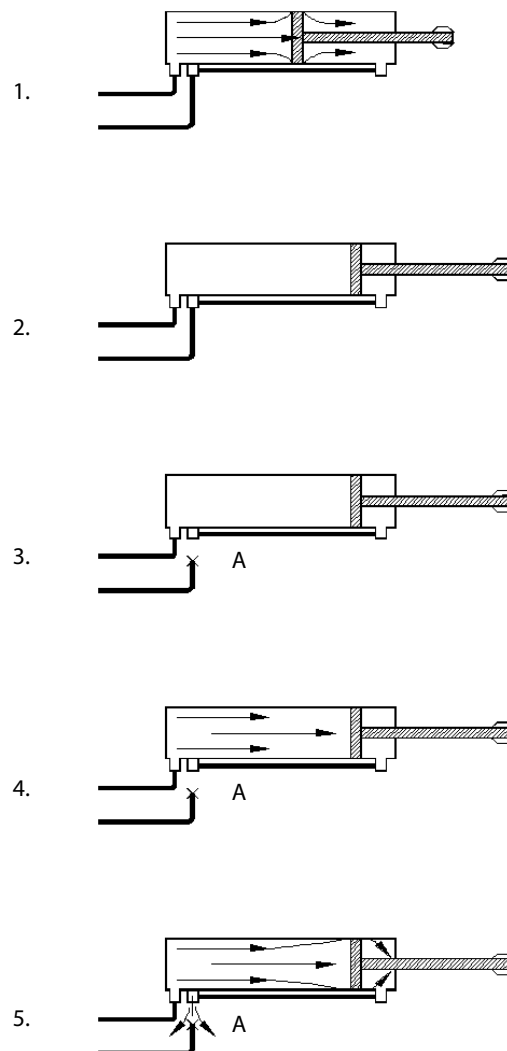
To detect internal leaks in packer cylinders:

1. Apply all safety measures, and apply the parking brake.
2. Pull on the red emergency STOP button.

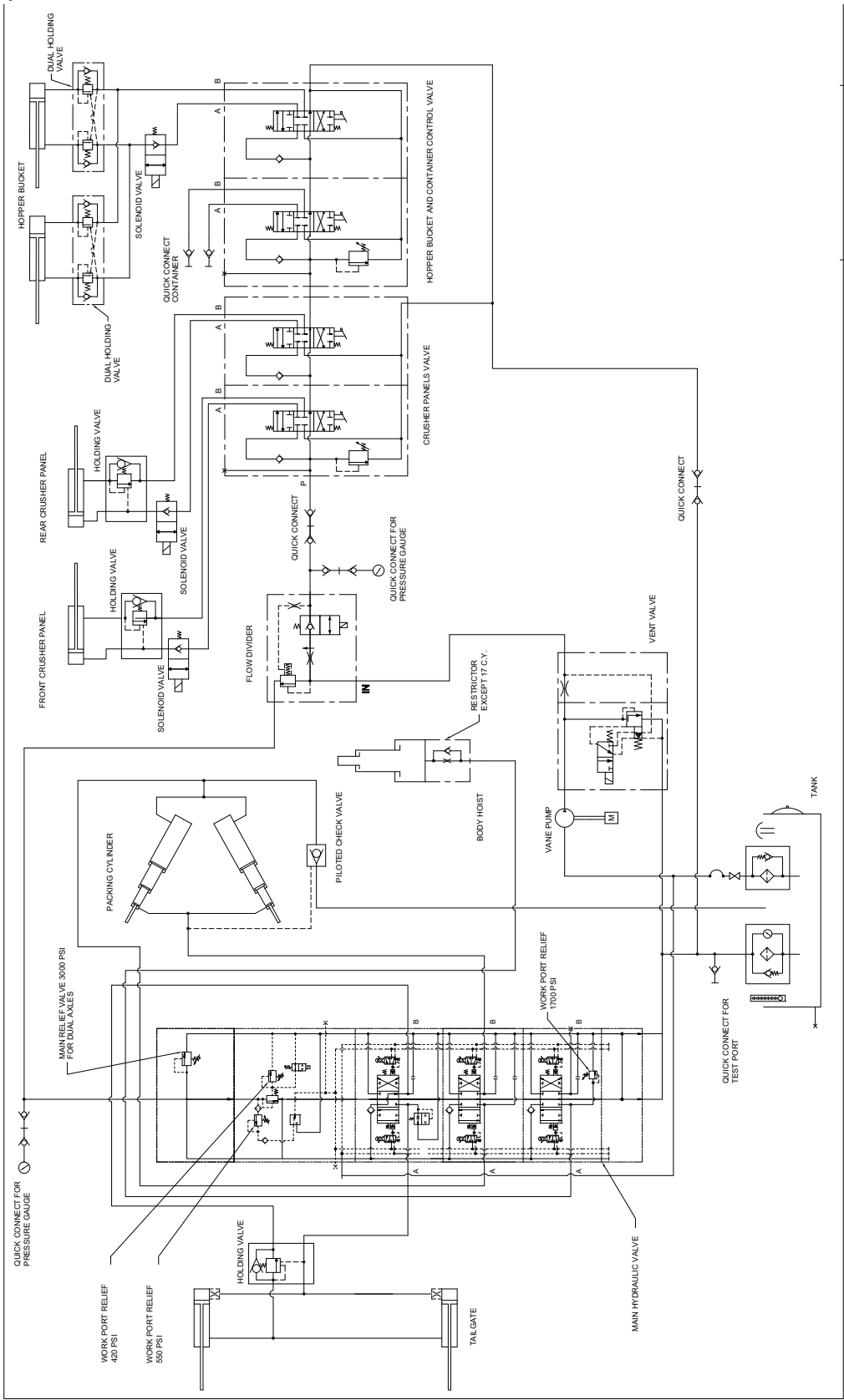
3. Start the engine and engage the hydraulic pump.
4. Fully extend the packer cylinders and disengage the hydraulic pump.
5. Disconnect the packer extend proximity switch. This prevents the packer from returning to its initial position.
6. Disconnect and plug hose "A".
7. Engage the hydraulic pump.
8. Push the green button and see if oil is leaking from port "A", then push the emergency STOP button.

If oil leaks out of port "A" when pressure is applied, there might be an internal leak; replace or repair the cylinder.

Figure 4-20 Detecting cylinder internal leaks



Main Hydraulic Schematic



5

Electrical System

The electrical system chapter is divided into two sections. The first section describes how the electrical components work and the second section describes how to adjust and repair the electrical components.

How the Electrical System Works

The electrical system includes:

- ♦ Control panel
- ♦ Electronic controller (optional)
- ♦ Valve box
- ♦ Limit/proximity switches
- ♦ Harnesses

Electrical Schematics

Two types of schematics are provided with AUTOMIZER™ RECYCLER trucks documentation, located inside the trucks.

There is the electrical schematic, which shows how components are wired to each other. This schematic is useful to diagnose electrical circuits.

The control schematic shows the truck logic. This schematic is used to find which components are involved in a specific circuit. If the truck is equipped with an electronic controller, this schematic is replaced by a configuration sheet, which is explained in detail in the *Electronic Modules Troubleshooting Guide* (part# 90330).

Control Panel

The control panel is located in the center of the cab.



The control box is centrally mounted in the cab. It includes push buttons, toggle switches, and warning lamps. Some units also have auxiliary controls, located on the curb street side of the truck, under the seat.



The electronic controller makes the truck more reliable by reducing the number of wires and components. Electrical maintenance is different from relay logic. The use of an electronic controller enables LabriePlus to perform remote troubleshooting, which facilitates the debugging process.

Labrie Environmental Group offers training on this technology. To know more about electronic controllers and training schedule, please call LabriePlus.



Proximity switches control the packer operation, the crusher panels, the hopper bucket, the hopper door as well as tailgate alarms, and provide the means for safety lockouts.



Limit switches are used where there is "large" movement between components and the limited range of the proximity switch is not permitted.



Harnesses connect all electrical components. They are generic and therefore may contain wires and connectors that are not used. Make sure unused connectors are always protected by a cap in order to avoid electrical failure.

Adjusting and Repairing Electrical Components

The required electrical system adjustments include:

- ♦ Circuit breakers and fuses
- ♦ Adjusting the proximity switch settings
- ♦ Packer fully retracted proximity switch
- ♦ Packer fully extended proximity switch
- ♦ Hopper door proximity switch
- ♦ Tailgate unlocked proximity switch
- ♦ Hopper bucket proximity switch
- ♦ Crusher panel limit switches
- ♦ Hopper door proximity switch
- ♦ Body raised limit switch

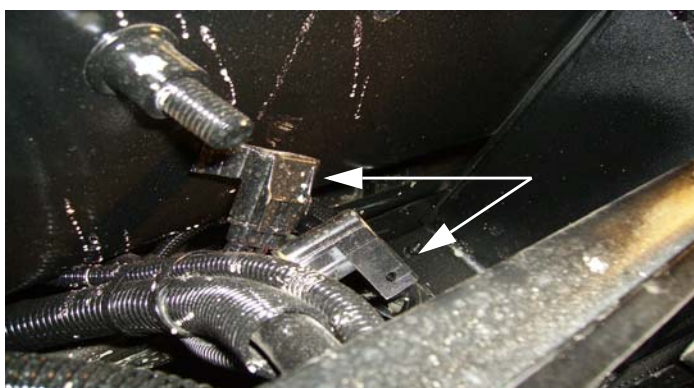
For information on limit and proximity switches, go to page 49 and the following.

Fuses and Circuit Breakers

Power for the electrical system is protected by two 35-A fuses (power and ground) and up to nine manual reset circuit breakers (depending on the options).

Fuses

The two 35-A fuses, that protect the main battery power supply, are located in the battery box.



Circuit breakers

There is a button on the circuit breaker of the relay box located inside the cab. Pushing this button resets the breakers.



Important Never hold down the reset button when the reset operation fails. This may result in severe electrical damage. Report this problem to your supervisor and maintenance department.

















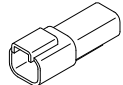
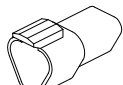
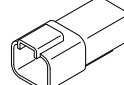
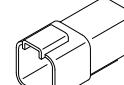
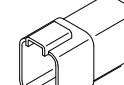
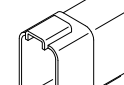







NOTE: Consult the OEM manual for information on equipment not manufactured by Labrie Environmental Group.

The following table presents a description of the circuit breakers located in the control box inside the truck cab.

















Function	Ampere	Circuit Number
Main control circuit (F7)	10	169
Proximity/limit switch sensors (F1)	10	151
Work lamp switch (F4)	15	120
Monitor and cab (F1)	10	141
Strobe lamp/alternating/blinking lights (F5)	15	154
Electronic controller (F2)	20	168
Spare power, chassis and body (F3)	15	123
Cab fan (F1)	15	135
Wipers, cab modification only (F1)	15	161

Electrical Connectors

Deutsch

 ELC04100	 ELC04160	 ELC04200	 ELC04300	 ELC04400	 ELC04500	 ELT02500
 ELC06100	 ELC06160	 ELC06200	 ELC06300	 ELC06400	 ELC06500	 ELC08000
 ELC05100	 ELC05160	 ELC05200	 ELC05300	 ELC05400	 ELC05500	 ELT02200
 ELC07100	 ELC07160	 ELC07200	 ELC07300	 ELC07400	 ELC07500	

AMP

 ELC04025	 ELC04125	 ELC04150	 ELC04225	 ELC04325	 ELC04425	 ELC04600	 ELT02700
 ELC05025	 ELC05125	 ELC05150	 ELC05225	 ELC05325	 ELC05425	 ELC05600	 ELT02400

Commonly-used Symbols

	AMP OR DEUTSCH 6 WAYS CONNECTOR (TYPICAL)		20A FUSE (TYPICAL)
	SINGLE POLE DOUBLE THROW 24V RELAY NO-NC(ELR00805) & SOCKET (ELR00860)		12 ATO FUSE HOLDER(ELS00461)
	RED BACKLIT SWITCH(ELVD0410, ELI00325 & ELI00410)		24V STROBE LIGHT (ELL02771)
	YELLOW BACKLIT SWITCH (ELVD0410, ELI00325 & ELI00401)		24V WORK LIGHT (ELL01305)
	GREEN BACKLIT SWITCH (ELVD0410, ELI00325 & ELI00400)		BACK UP ALARM (CALL DEALER)
	24V AIR SOLENOID VALVE(PNV01941 & PNV01956)		24V DUAL AIR SOLENOID VALVE(PNV01916)
	BIPOLE SWITCH (ELB02505)		24V WHITE LICENCE LIGHT(ELL01170 & ELA00110)
	NORMALLY CLOSED LIMIT SWITCH (ELI00550, ELC00140 & ELI00850)		24V RED MARKER LIGHT (ELL02565)
	SINGLE POLE SWITCH (ELI00818)		24V YELLOW MARKER LIGHT (ELL02585)
	CONSOLE BUZZER (ELR01005)		24V TIMER RELAY (ELR00966 OR ELR00967)
	RED 24V PILOT LIGHT (ELV00520)		3A DIODE (ELD00100)
	GREEN 24V PILOT LIGHT (ELV00530)		ALTERNATING FLASHER RELAY 24V (ELR00710)
	GROUND POST		

Crimp Tools

Crimp Tool for Deutsch Connectors

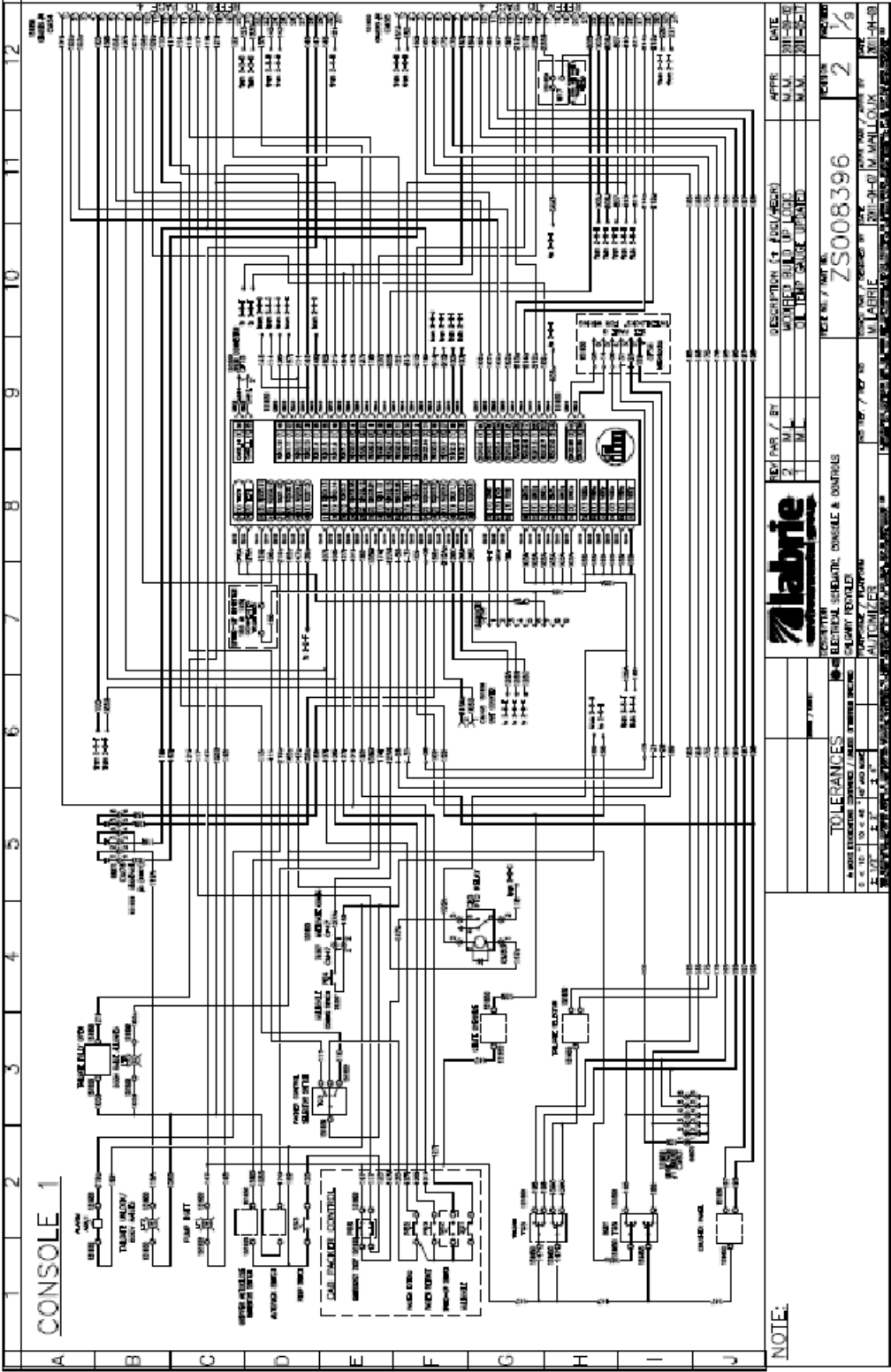


Crimp Tool for AMP Connectors

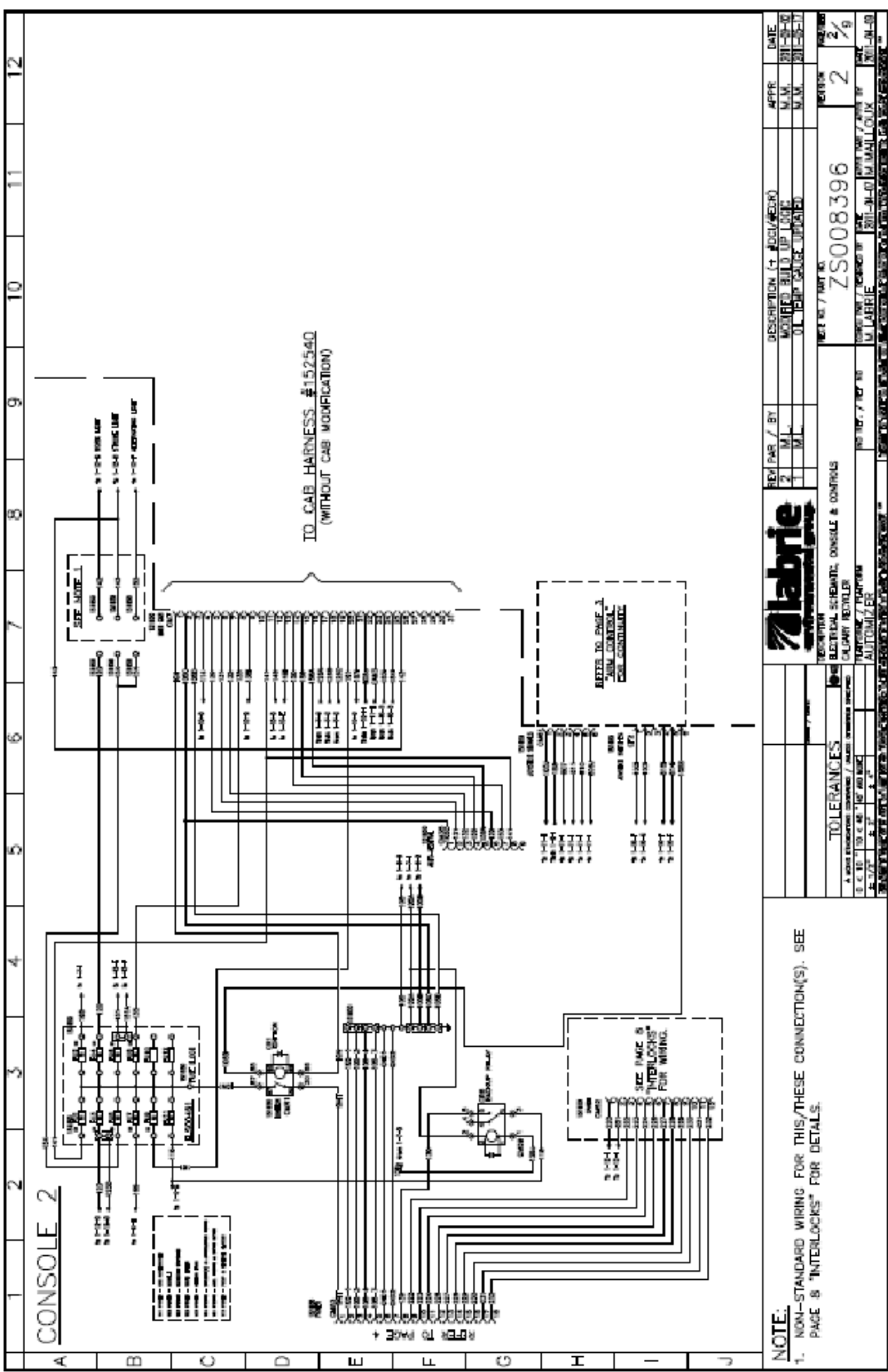


Electrical Schematics

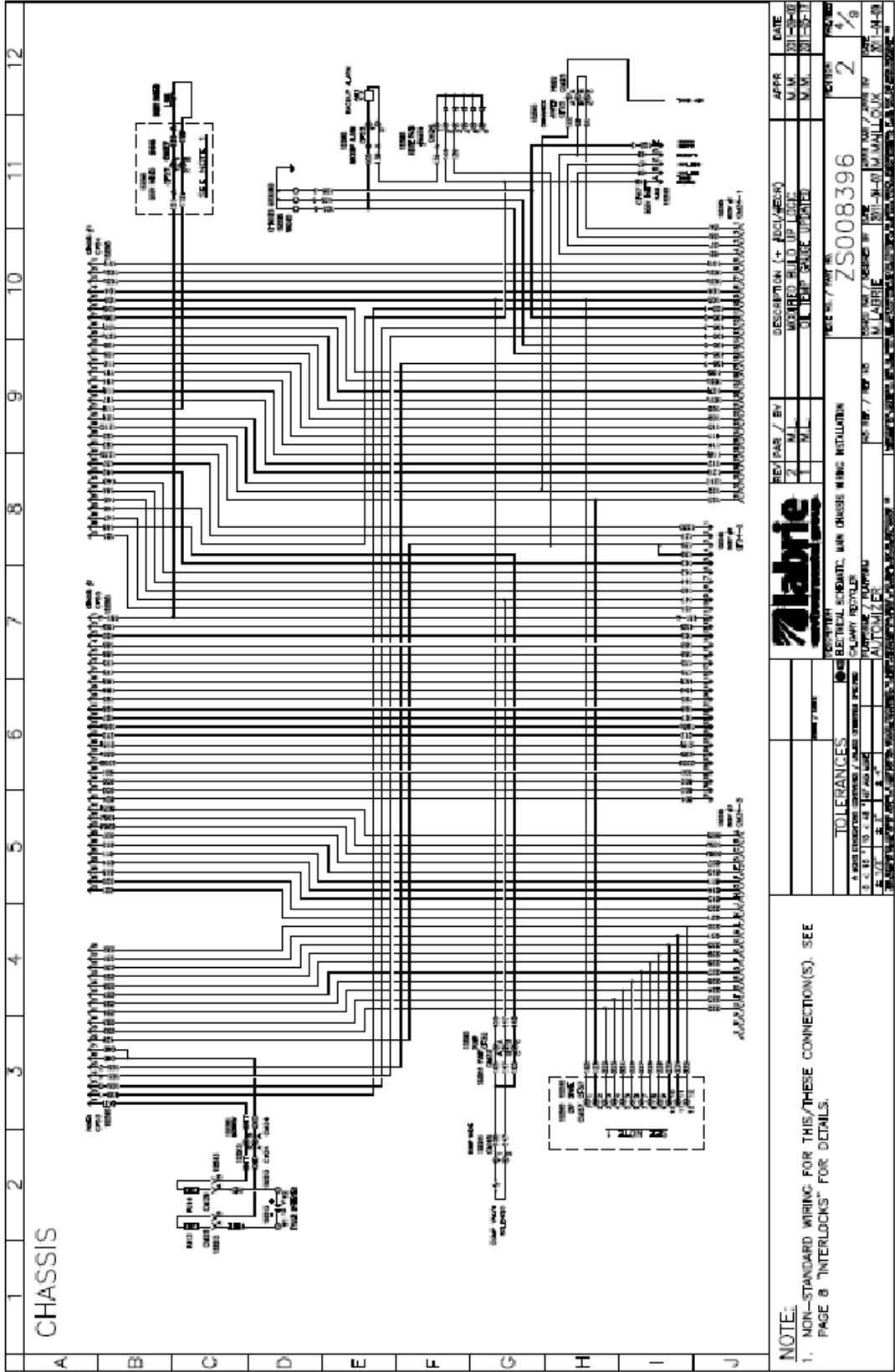
Console 1



Console 2



Chassis



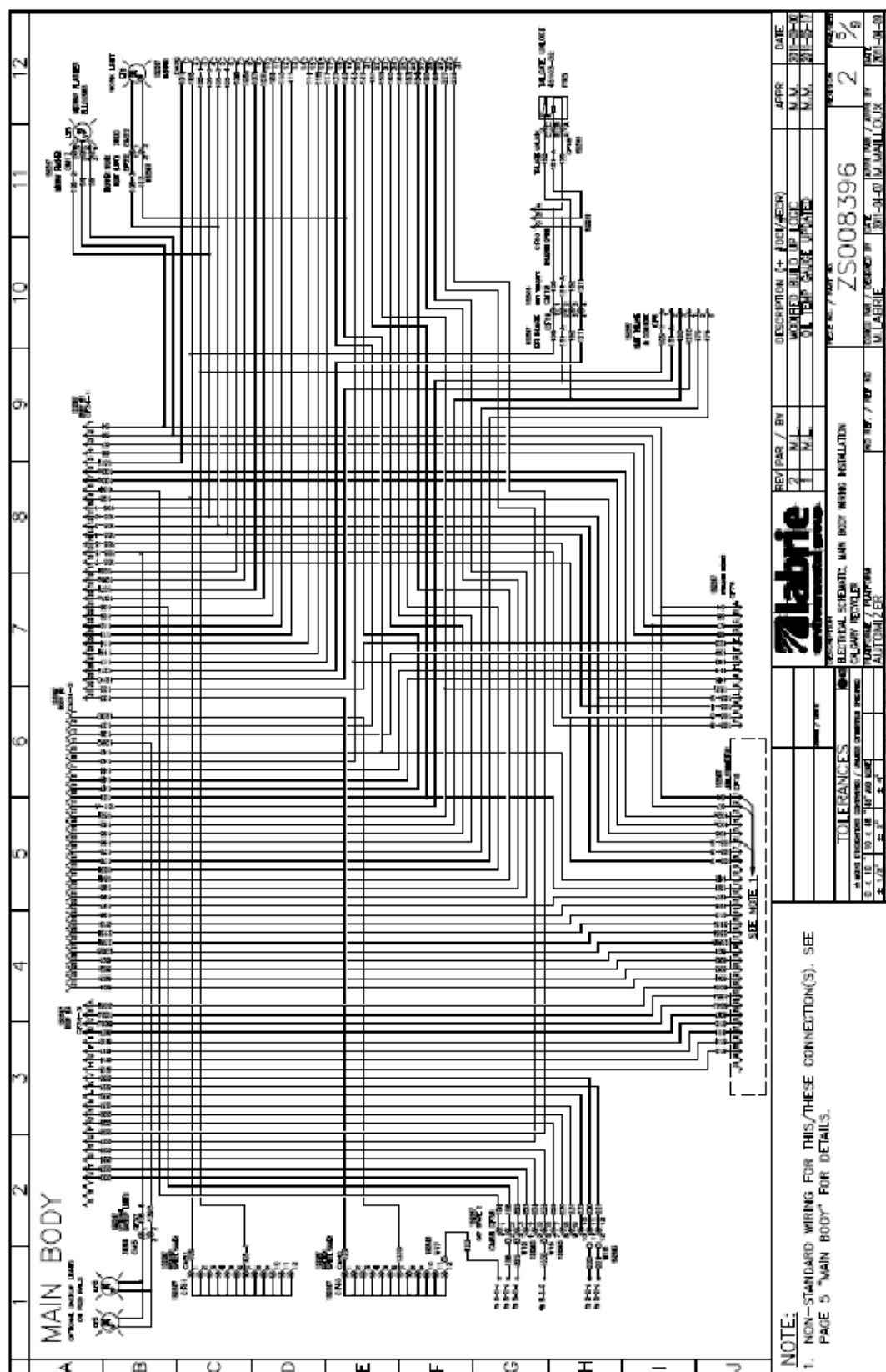
REV	PAR	BY	DESCRIPTION (+ INCL. REV.)	DATE
1	1	M.L.	WIRING AUTO UP TO DATE	01-10-00
2	2	M.L.	CHASSIS WIRING	01-10-00
3	3	M.L.	CHASSIS WIRING	01-10-00
4	4	M.L.	CHASSIS WIRING	01-10-00
5	5	M.L.	CHASSIS WIRING	01-10-00
6	6	M.L.	CHASSIS WIRING	01-10-00
7	7	M.L.	CHASSIS WIRING	01-10-00
8	8	M.L.	CHASSIS WIRING	01-10-00
9	9	M.L.	CHASSIS WIRING	01-10-00
10	10	M.L.	CHASSIS WIRING	01-10-00
11	11	M.L.	CHASSIS WIRING	01-10-00
12	12	M.L.	CHASSIS WIRING	01-10-00

DESIGN	DATE	BY	CHKD	DATE	BY
ZS008396	01-10-00	M.L.	M.L.	01-10-00	M.L.

PROJECT	DATE	BY	CHKD	DATE	BY
CHASSIS WIRING	01-10-00	M.L.	M.L.	01-10-00	M.L.

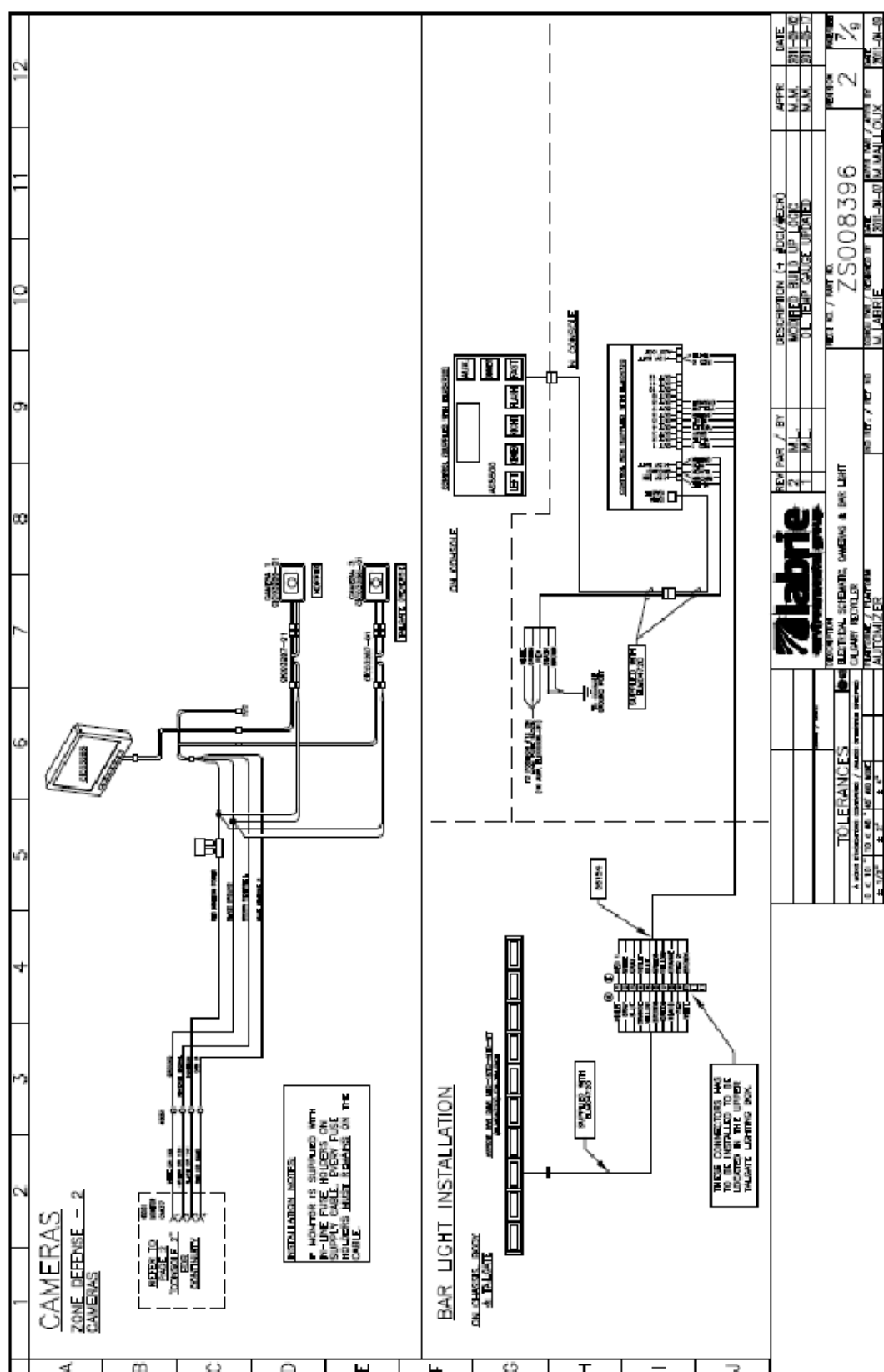
ITEM	DESCRIPTION	UNIT	VALUE
1	RESISTANCE	Ω	± 5%
2	VOLTAGE	V	± 5%
3	CURRENT	A	± 5%
4	TEMPERATURE	°C	± 5%
5	TIME	s	± 5%

Main Body

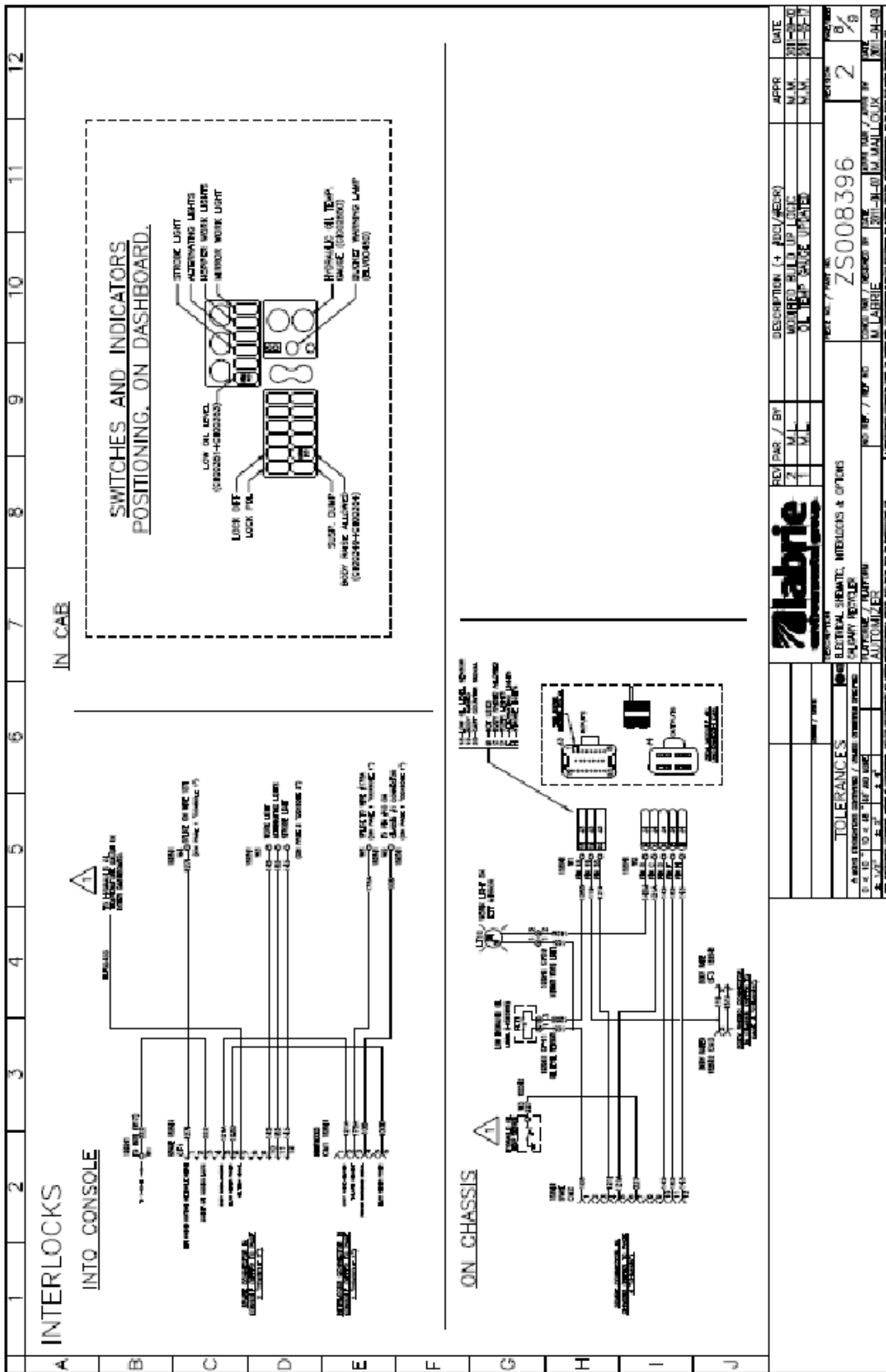




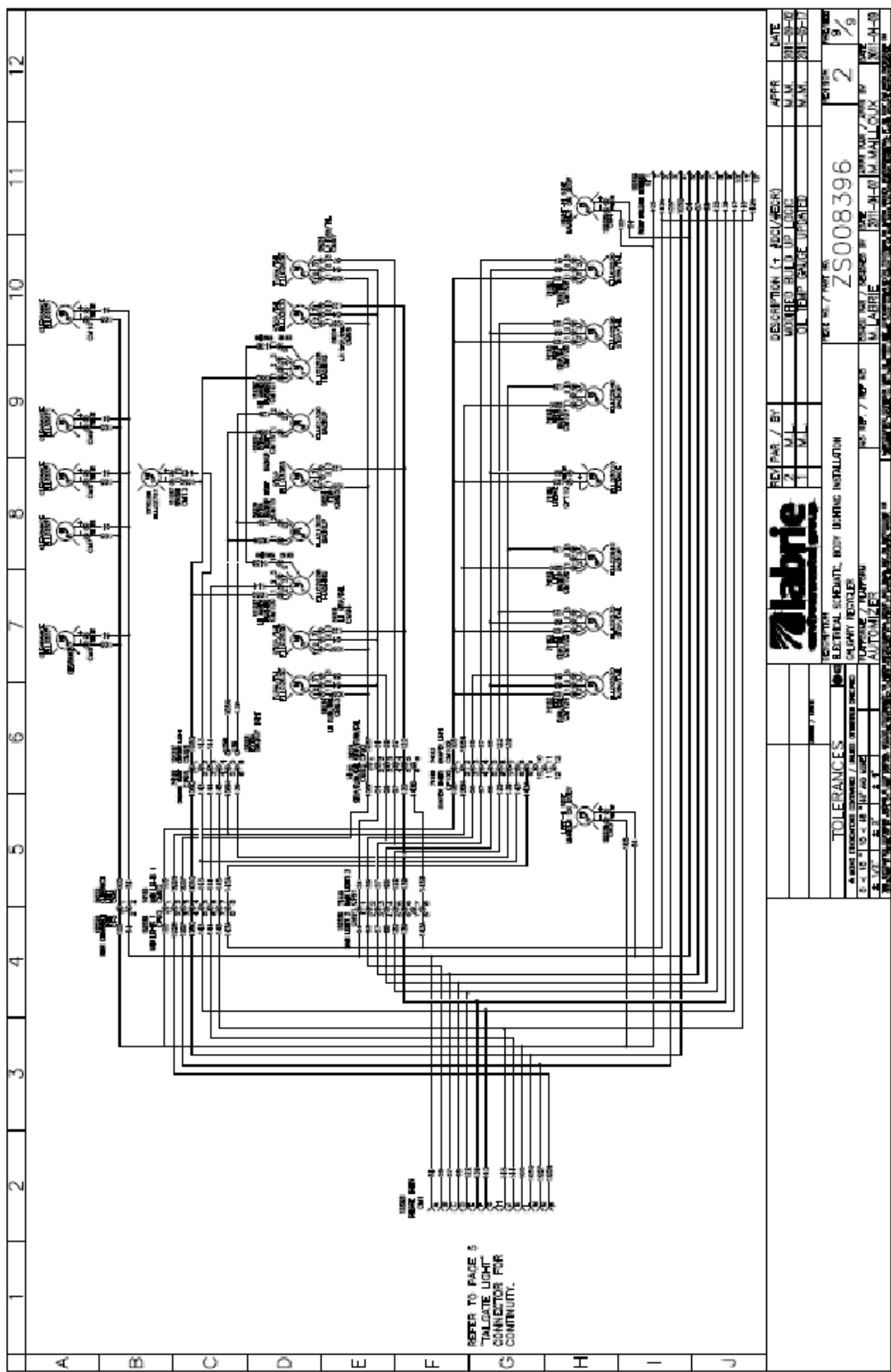
Cameras & Bar Light



Interlocks & Options



Body Lighting Installation



Zlabrie		DESCRIPTION (14 REQUIRED)	DATE
ELECTRICAL SCHEMATIC, BODY LIGHTING INSTALLATION		W. M. 10/10/10	10/10/10
TOLERANCES		W. M. 10/10/10	10/10/10
A. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
B. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
C. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
D. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
E. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
F. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
G. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
H. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
I. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
J. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
K. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
L. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
M. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
N. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
O. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
P. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
Q. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
R. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
S. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
T. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
U. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
V. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
W. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
X. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
Y. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10
Z. 10% TOLERANCE (10% - 10% TOLERANCE)		W. M. 10/10/10	10/10/10

6

Troubleshooting

This chapter contains information to help you narrow down and/or solve problems that might occur with your AUTOMIZER™ RECYCLER. Procedures throughout this chapter require that the people performing troubleshooting tasks have basic knowledge in electrical and hydraulic systems.

The employer shall ensure that maintenance personnel is properly trained prior to starting troubleshooting.

Before performing maintenance on a vehicle, make sure that all safety procedures are applied. The lockout/tagout procedure outlined on page 6 is mandatory.

See *Troubleshooting Guide* on page 130 to resolve commonly seen problems, or contact LabriePlus to talk to one of our product specialists.

IMPORTANT: Schematics provided in this manual are for reference only. Vehicle-specific schematics are provided in the vehicle's cab.

Tools

When trying to pinpoint the cause of a problem on a vehicle, you need certain tools to test components (hydraulic or electrical). You will find below a list of the minimal tool set required to perform troubleshooting procedures throughout this manual. Brand names are only suggested.

Figure 6-1 Digital Multimeter or VOM (Volt-Ohm-Milliammeter)



NOTE: The ammeter must support at least 10 amps.

Figure 6-2 Jumper wire with alligator clips

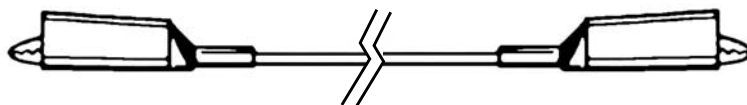
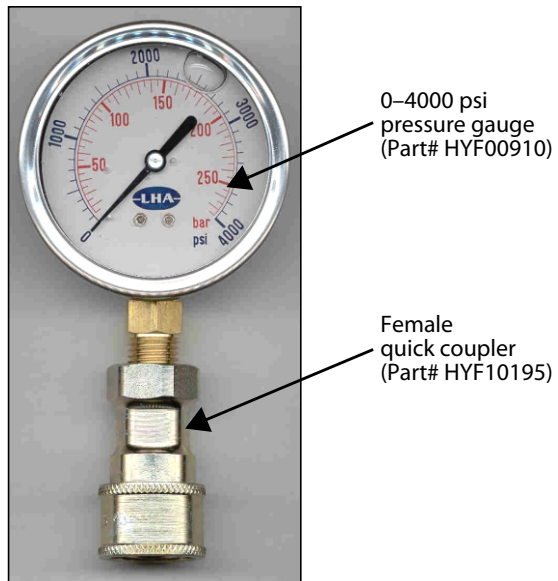


Figure 6-3 Two oil pressure gauges (0–4000 psi)



0–4000 psi
pressure gauge
(Part# HYF00910)

Female
quick coupler
(Part# HYF10195)

Figure 6-4 Ball-end hex wrench (metric and SAE)



Troubleshooting Guide

This troubleshooting guide will help identify the most commonly seen problems on the AUTOMIZER™ RECYCLER. The table below will also provide the possible cause of the problem and give solutions to resolve the problem.

For further information regarding customized options that might not be found in this troubleshooting guide, contact LabriePlus.

Problem	Possible causes	Solution
Insufficient packing ratio	Low oil pressure	See <i>Adjusting Pressure and Relief Valves</i> on page 95.
	Packer hydraulic cylinders internally bypassing	See <i>Detecting Cylinder Internal Leaks</i> on page 106.
	Defective pump	Replace the pump.
Overheating hydraulic oil (temperature above 77°C [180°F])	Low oil level in the hydraulic tank	Add oil to the required level. See <i>Replacing Hydraulic Oil</i> on page 105.
	Hydraulic pressure too low or too high	See <i>Adjusting Pressure and Relief Valves</i> on page 95.
	Not the proper grade of oil (that is too thin in hot temperatures or too thick in cold temperatures)	Change for oil indicated in <i>Recommended Lubricants</i> on page 67 (see <i>Emptying the Hydraulic Tank</i> on page 101).
	Contaminated oil	Clean the strainer and change the return filter element. Fill with clean oil. See <i>Cleaning the Strainer</i> on page 102, <i>Replacing Filter Elements</i> on page 103, and <i>Replacing Hydraulic Oil</i> on page 105.
	Restriction in the system	Check all hydraulic components for debris that could cause restriction in the system. Have the pump inspected by a specialist.
Foaming oil	Low oil level	Add oil to the required level. See <i>Replacing Hydraulic Oil</i> on page 105.
	Air entering the system	Tighten all hose and pipe connections between the pump and the hydraulic tank.

Problem	Possible causes	Solution
	Not the proper grade of oil	Empty oil and refill with anti-foaming oil. See <i>Recommended Lubricants</i> on page 67 and <i>Emptying the Hydraulic Tank</i> on page 101.
Cavitation, excessive noise or vibration of the pump.	Ball valve on hydraulic tank	Fully open the ball valve on the hydraulic tank. See <i>Prior to Start Up</i> on page 12.
	Low oil level	Add oil to the required level. See <i>Replacing Hydraulic Oil</i> on page 105.
	Oil too thick	See <i>Recommended Lubricants</i> on page 67 for proper type of oil to use. See also <i>Emptying the Hydraulic Tank</i> on page 101.
	Air in the system	See <i>Pump Cavitation</i> on page 137.
	Particle contamination or dirty strainer	Clean the strainer and change the return filter. Fill with clean oil. See <i>Cleaning the Strainer</i> on page 102, <i>Replacing Filter Elements</i> on page 103, and <i>Replacing Hydraulic Oil</i> on page 105. Take an oil sample for further analysis (see <i>Testing Hydraulic Oil</i> on page 68).
	Blocked suction hose	Unblock or replace the hose.
The pump (PTO) does not engage	Red emergency STOP button(s)	Ensure that the red button on packer control station is pulled out.
	Engine speed higher than 900 rpm	Reduce engine speed below 900 rpm. If the speed cannot be reduced under 900 rpm, contact your local chassis dealer.
	Electrical failure	Check fuses inside the control panel and the main fuses located in the battery box. See <i>Pump</i> on page 136.
	Faulty electrical dump valve	Replace the electrical dump valve.
No hydraulic pressure	Pump not engaged	Turn on the PTO switch.
	Low oil pressure	See <i>Adjusting Pressure and Relief Valves</i> on page 95.

Problem	Possible causes	Solution
	Faulty hydraulic line	Perform a circuit analysis using the main hydraulic schematics (see <i>Main Hydraulic Schematic</i> on page 108).
	Stuck hydraulic spool inside valve	Make sure that no spool inside the directional valve is stuck in a position that could send the hydraulic flow to the tank.
	Faulty electrical dump valve	Replace the electrical dump valve.
Pump is leaking oil	Loose connections	Tighten all connections to the pump.
	Damaged pump shaft seal	Have the pump repaired by an authorized service center.
Packer is moving vertically or sideways	Worn down packer wear pads	Inspect or replace wear pads as indicated in <i>Upper Wear Pads</i> on page 34 and <i>Lower Wear Pads</i> on page 35.
	Worn down sliding shoes	Inspect or replace sliding shoes as indicated in <i>Sliding Shoes</i> on page 29.
Tailgate is unlocking or lowering by itself	Dirty or defective velocity fuse	Clean or replace the velocity fuse. See <i>Tailgate Locking Mechanism</i> on page 138.
	Inverted hydraulic hoses on main hydraulic valve	Test the power bleed on the tailgate section of the valve. See <i>Tailgate Locking Mechanism</i> on page 138.
Packer does not complete a full cycle	Full body	Empty the body as explained in the AUTOMIZER™ RECYCLER Operator manual.
	Garbage behind the packer	Clean behind the packer (see <i>Cleaning the Hopper Area</i> on page 20).
	Packer proximity switch adjustment, or presence of debris	Clean the area around the proximity switches (see <i>Proximity and Limit Switches</i> on page 49).
	Defective control systems	

Problem	Possible causes	Solution
Packer does not start at all when pressing the green button	PTO switch	Make sure that the PTO switch is turned on.
	Emergency STOP buttons (red)	Make sure all emergency stop buttons are pulled out.
	Hydraulics	See <i>Adjusting Pressure and Relief Valves</i> on page 95.
	Faulty harness between packer module and control station	Repair harness.
Packer does not perform enough cycles	Defective packer module	Replace module.
	Hopper door open	Close the hopper door.
	Multi-cycle module programming	Reprogram the module for higher number of cycles (see <i>Programming the Packer Multi-Cycle Module</i> on page 145).
	Tailgate proximity switch adjustment	Adjust the proximity switch with the tailgate cylinder (see <i>Adjusting the Tailgate Unlocked Proximity Switch</i> on page 58).
Backup alarm and warning buzzer inside the cab work all the time	Body-raised limit switch adjustment	Adjust the limit switch rod with the body floor (see <i>Adjusting the Body-Raised Limit Switch</i> on page 57).
	Proximity switch	Check the proximity switch with a multimeter or VOM for proper operation (ON/OFF or click).
	Faulty harness	Check for continuity on the electrical harness that is connected to the proximity switch. Change the electrical harness if necessary.
Hopper bucket does not move	Crusher panels not in home position	Fully retract crusher panels to their home position.
	Swivel arm not unfolded	Unlock swivel arm and unfold it.
	Misaligned control arm proximity switches	Adjust the control arm proximity switches (See <i>Adjusting the Control Arm Proximity Switches</i> on page 63).
	Faulty proximity switch	Replace faulty proximity switch.

Problem	Possible causes	Solution
Hopper bucket does not respond to control lever (assuming that PTO switch and light are on)	Cut off or defective power cables	Follow wires on the electrical schematic for 12-volt supply (move lever to get signal).
	Faulty control lever	Determine faulty valve section and proceed with replacement.
Hopper bucket moving too fast or too slow		Contact LabriePlus

Hopper Bucket Troubleshooting

For the bucket to be lowered, the swivel arm must be pulled to its in-work position (see Figure 6-5).

Figure 6-5 Swivel arm in work position



Each movement of the bucket activates the backup alarm as well as the flow divider (see Figure 2-61), which is located on the curbside of the body to the right of the main hydraulic valve. When moving, the bucket also activates the engine speedup (with speed of up to 1200 rpm), if the speedup switch on the corresponding packer lever is activated. A warning light on the cab dashboard flashes each time the bucket is lowered and the swivel arm is unfolded.

If the bucket does not move, it is probably because the front and/or the rear crusher panels are not in their home position. If this is the case, bring the crusher panels to their home position, then try to move the bucket. Another reason why the bucket does not move is when the swivel arm is not unfolded. Before trying to move the bucket, unlock the swivel arm and unfold it.

Also, misaligned control arm proximity switches may cause the bucket not to move. Adjust these proximity switches if necessary. For more information on control arm proximity switches, see *Adjusting the Control Arm Proximity Switches* on page 63.

NOTE: The hopper bucket can support a maximum weight of 4000 lbs.

Crusher Panels Troubleshooting

This unit is equipped with two crusher panels. It is recommended to use these panels only between packer cycles, when the packer is fully retracted. This technique will increase the effect of the crusher panels.

Figure 6-6 Crusher panel levers

If both of the crusher panels do not move, the reason could be that the bucket is not fully down or the packer is not fully retracted. Bring the bucket to its lowest position and the packer to its home position and then activate both crusher panels by using their corresponding lever. Both of them should now be working properly.

Pump

The pump is operated by a control switch located on the control panel. When it is engaged, a red indicator lights up.

Three conditions must be met for the pump to engage and the red indicator to light up:

- ♦ Air pressure must be at approximately 70 psi
- ♦ Engine speed must be lower than 900 rpm
- ♦ Emergency STOP button (red) pulled out

Air pressure condition is verified by a pressure switch, and engine speed, by the transmission ECU.

If the pump does not engage when the pump switch is turned on, it may be related to a voltage supply problem in the pump circuitry.

The following test will help resolve pump-related problems. Prior to the test, ensure that all these conditions are met:

- ♦ Parking brake applied
- ♦ Engine is running (idle speed)
- ♦ Transmission in “Neutral”
- ♦ Emergency STOP button(s) pulled out
- ♦ Pump (PTO) switch ON

NOTE: Neither the engine throttle nor the transmission being outside of Neutral will affect pump operation once the pump is engaged.

Pump Cavitation

Cavitation is defined as the formation of air pockets in a moving fluid. Air in the hydraulic oil causes excessive wear and noise. Make sure to prime the pump properly after its replacement or after flushing the hydraulic system (refer to “Priming a New Pump” on page 91). When the pump is properly primed, cavitation disappears after a short time because air is returning to the hydraulic tank.

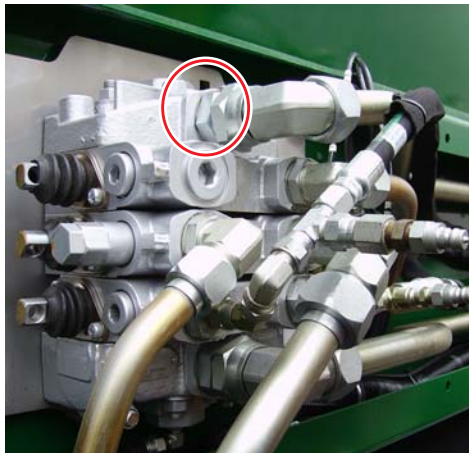
If the pump is still generating unusual noise after performing the priming procedure, you will have to bleed the hydraulic system.

To do so:

1. Apply all safety measures to ensure safety around the vehicle at all times.
2. Connect a 0–4000 psi gauge to the main valve to ensure that no pressure has built up in the system.
3. Apply the parking brake and start the engine.
4. Engage the hydraulic pump (PTO switch “ON”).
5. Place a pan or a bucket under the plug located on the main control valve output section and slowly loosen the plug.

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

Figure 6-7 Plug to loosen



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

6. When the noise stops, tighten the pipe/hose fitting.
7. Cycle the packer to ensure that there are no leaks and the pump is running smoothly.
8. Disconnect the gauge.

Tailgate Locking Mechanism

NOTE: Refer to the main hydraulic schematic.

The tailgate locking mechanism is equipped with hydraulic safety systems that prevent accidental unlocking of the tailgate during operation. One of the safety systems is the velocity fuse with the *power bleed* feature; the other is the holding valve.

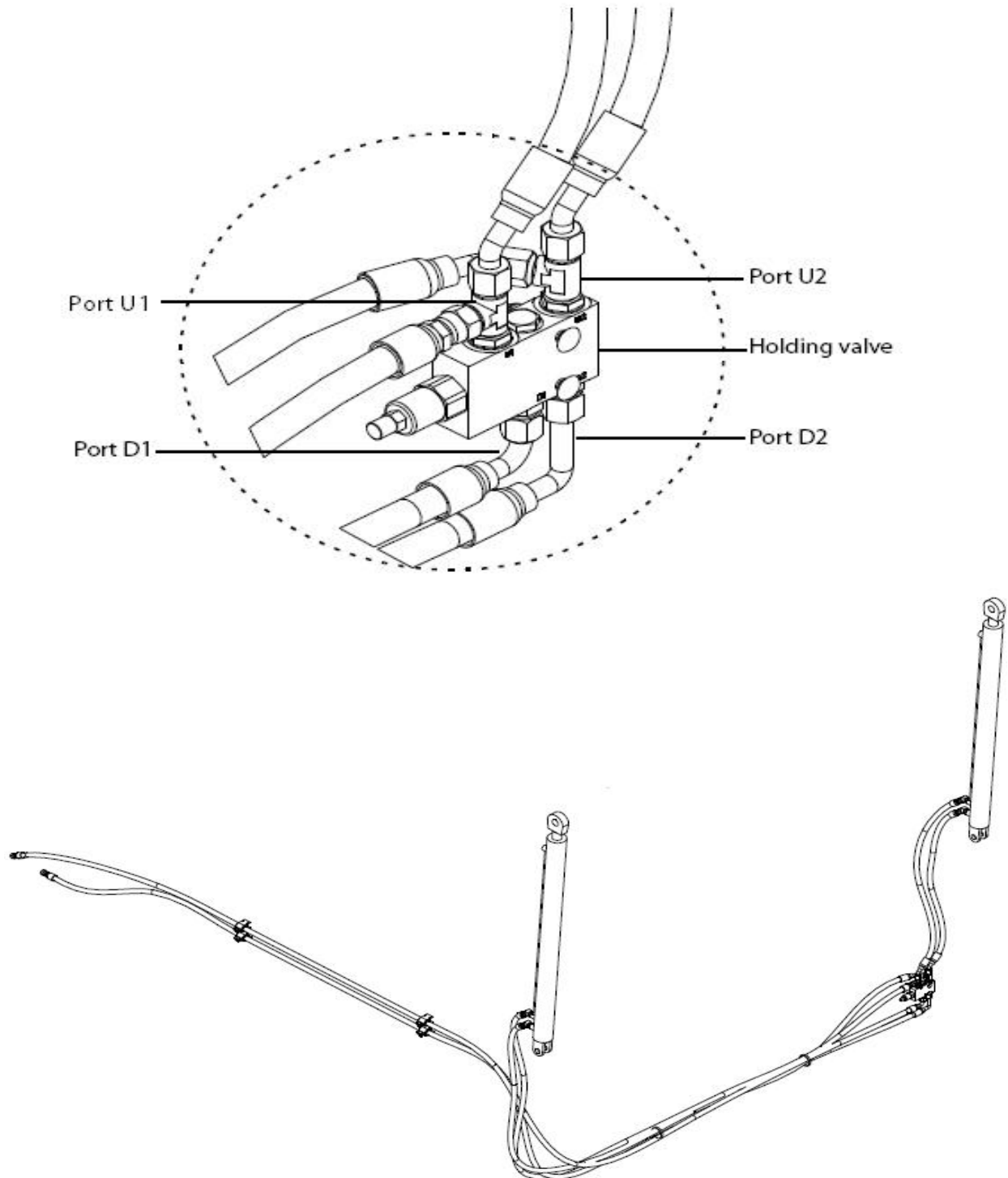
The spool inside the tailgate section of the valve is designed in such a way as to allow pressure to pass through it every time pressure is building up in the hydraulic system (that is when the packer is working). The pressure “burst” goes to the holding valve into port D1 and then out to the cylinder by port U1 (see Figure 6-9). This will keep the tailgate cylinders pressurized and the tailgate closed when packing material.

The velocity fuse, located on the right-hand side of the valve, will make sure to drain any slow moving oil coming from the piston side of the tailgate cylinders. Since the rod side is being pressurized with the “power bleed” system, the other side has to drain to avoid any pressure build-up. The velocity fuse makes the piston side open to tank when the oil is moving under 3 gallons per minute, and will shut close when a flow signal is sent.

Figure 6-8 Velocity fuse



Figure 6-9 Tailgate locking mechanism



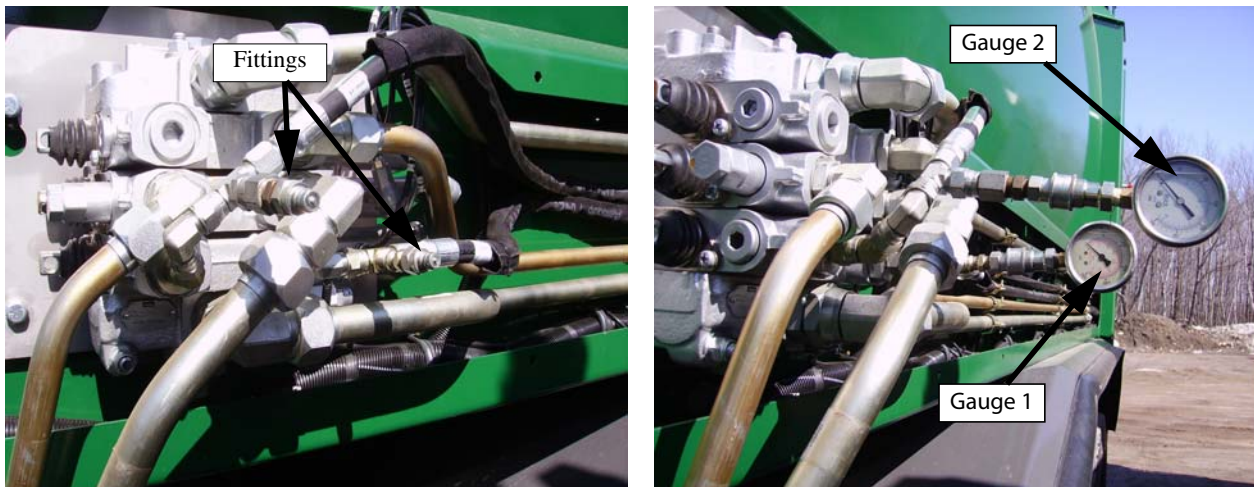
Tailgate Unlocking Spontaneously

If the tailgate seems to unlock by itself when using the packer, the “power bleed” inside the valve might not be working on the right side of the hydraulic cylinder.

To fix this problem:

1. Apply all safety measures to ensure safety around the vehicle at all times.
2. Ensure that the parking brake is applied.
3. Pull out the red emergency STOP button.
4. Install a pressure gauge on each port of the tailgate section (on the valve).

Figure 6-10 Gauges 1 and 2



5. Start the engine and engage the hydraulic pump.
6. Disconnect packer extend proximity switch. This will prevent the packer from returning to its initial position.
7. Push the green “start cycle” button to start the packer and pressurize the system.

Gauge 1 should always indicate 0 psi and gauge 2 should indicate a sudden burst of pressure (from 0 psi to 3000 psi) each time the packer reaches the end of a stroke. If gauge 1 indicates pressure, this may be caused by a faulty holding valve, faulty velocity fuse or hydraulic hoses not properly connected. Refer to the main hydraulic schematic for proper connection.

Tailgate Lowering Spontaneously

If the tailgate seems to lower by itself, a faulty velocity fuse might be involved.

To fix the problem:

1. Apply all safety measures to ensure safety around the vehicle at all times.
2. Ensure that the parking brake is applied.
3. Make sure that the velocity fuse is clean and that its plunger is moving freely. Replace if necessary.



Programming

As Labrie Environmental Group vehicles become more and more efficient, they require more automation features and thus some programming. Right now, AUTOMIZER™ RECYCLER vehicles (and automated AUTOMIZER™ and EXPERT 2000™ vehicles) require programming of:

- ♦ The Allison transmission
- ♦ The engine
- ♦ The packer multi-cycle module

The following pages provide the information necessary to these tasks.

Allison Transmission Programming

In Allison transmissions used on automated vehicles, the electronic control unit (ECU) manages several functions:

- ♦ It prevents the pump from over speeding (2,300 rpm, maximum).
- ♦ It prevents the pump from engaging if the engine speed is higher than 900 rpm.
- ♦ It also controls the auto-neutral system (if present).

The ECU is programmed using the Allison Doc software installed on a laptop computer. Allison Doc is also necessary to verify if signals are properly reaching the ECU, and to verify the fault code.

Figure 7-1 Allison Doc software



If your vehicle ECU requires repair or replacement, or if it needs specific programming parameters, see *Programmed Parameters* on page 144.

Programmed Parameters

Programming in the transmission ECU module affects engine speed, PTO engagement and operation, as well as the (optional) auto-neutral system. If the ECU module is replaced, it must be reprogrammed to reset the vehicle operating parameters. Refer to Table 1 to reprogram the transmission ECU.

On chassis supplied by Labrie, the programming package for Allison transmissions is n° 142. Some customer chassis may have different programming packages. Refer to your local Allison dealer for original programming packages. For further information regarding ECU programming, contact LabriePlus.

The following pages show how Allison electronic transmission ECUs are programmed for Labrie vehicles. Parameters shown in the following tables apply to all AUTOMIZER™ RECYCLER vehicles.

Table 1 Allison transmission programmed parameters

Parameters	r.p.m.
Maximum engine speed for PTO engagement	900
Maximum engine speed for PTO operation	2300
Maximum output speed for PTO engagement	5000
Maximum output speed for PTO operation	930 ^a
Maximum output speed for auto-neutral (if present)	200 (3 mph)
Output speed indicator A to turn on	160
Output speed indicator A to turn off	110

a. The value is adjusted so it corresponds with the vehicle speed in mph. It may vary according to the differential gear ratio and tires size.

Table 2 Wires that must be activated

Wires	Wire # (WTEC III)	Wire # (WTEC IV)
Pack enable	117	117
Input PTO enable	118	143
Output PTO enable	112	130
Output neutral indicator – PTO	114	145
Auto-neutral pack enable (if present)	153	142
Output speed indicator A	167	105

To tap into the ECU, Labrie uses the following wires on the Allison connector:

Table 3 **Input**

Wire #	Description	State
117	Pump pack enable	Active when the brakes are used, and when the PTO and auto-neutral switches are on (ground signal).
118	PTO enable	Active when the PTO switch is on (+12-V signal).
153	Auto-neutral pack input	Active when the brakes are used, and when the PTO and auto-neutral switches are on (ground signal).

Table 4 **Output**

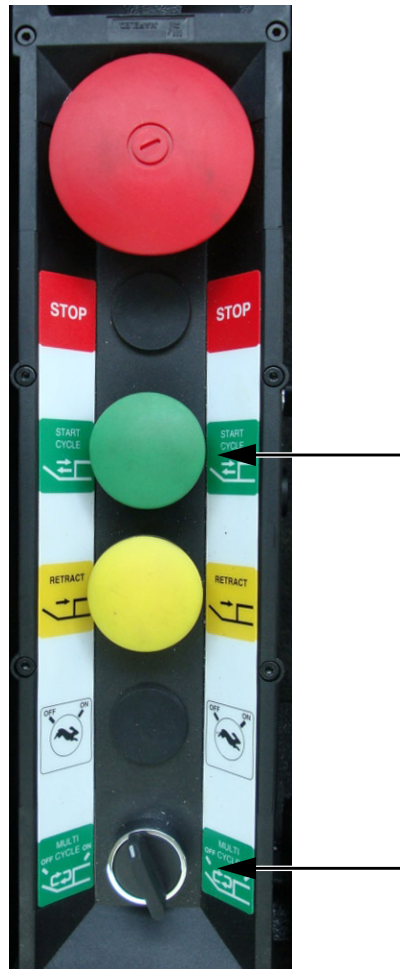
Wire #	Description	State
#112	PTO enable output	Active when the PTO switch is on and when all engine and vehicle speed criteria are respected (+12-V signal). See <i>Programmed Parameters</i> on page 144.
#114	Neutral signal output	Active when the transmission is in neutral. This signal (ground signal) is used to allow the fast idle engagement. For more details, refer to the electrical schematic provided with the vehicle.
#105	Output speed indicator A	Activates when the vehicle reaches about 3 mph; deactivates when the vehicle slows to about under 2 mph.

Engine Programming Parameters

Engine programming parameters are specific to each vehicle model. To know which parameters apply to your vehicle, call *LabriePlus*.

Programming the Packer Multi-Cycle Module

The packer multi-cycle module is programmed at the factory to execute three cycles when the MULTI CYCLE switch on the control station is on and the packer is activated. These settings can be changed from two to eight cycles.

Figure 7-2 START CYCLE button and MULTI CYCLE switch

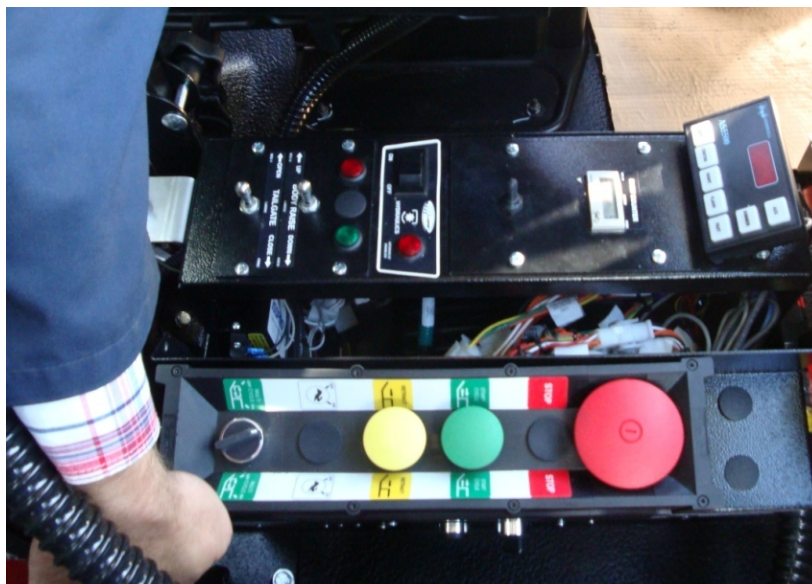
The number of cycles needs to be adjusted depending on the type of collection route used by the vehicle. For example, in a residential area, if the houses are numerous and close one to another, it may be required to increase the number of cycles. This will allow the hopper to be clear for the next house pickup.

Each time the packer completes a full cycle, the proximity switch located on the right-hand side, behind the packer, sends a signal to the module. The module then counts the amount of cycles that the packer does. The module will stop the packer after the preset amount of cycles has been reached.

To change the number of cycles:

1. In the vehicle cab, on the control station, remove the two screws securing it to the control panel.
2. Open the control station.

Figure 7-3 Opening the control station



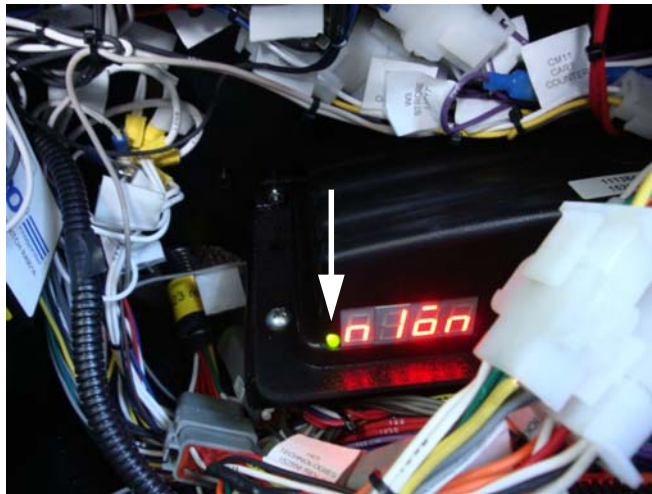
3. Under the control panel, locate the multi-cycle configuration switch.

Figure 7-4 The multi-cycle configuration switch



4. Start the engine and the hydraulic system.
5. On the switch, press and hold the button until the green LED inside the control panel turns red.

Figure 7-5 LED on the display inside the control panel



6. Press the button of the multi-cycle configuration switch the number of times you want the packer to make continuous cycles.
7. Once you have entered the desired number of cycles, the LED flashes red/green the same number of times to confirm that the new settings have been stored.
8. To test the new settings of the packer, on the control station press the green START CYCLE button.
9. Switch off the hydraulic pump and stop the engine.
10. Close the control station and reinstall the screws that secure it to the control panel.
11. If the truck is not to be used right away, lock out and tag out the vehicle (see *Locking out and Tagging Out the Vehicle* on page 6).



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