

PENBPAC ALLEY-GATOR RIGHT-HAND™
MAINTENANCE MANUAL



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Labrie Enviroquip Group



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ALLEY-GATOR RIGHT-HAND™ MAINTENANCE MANUAL



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Table of Contents

Liability	ii
Table of Contents	v
Introduction	1
About this Manual	1
Pre-operating Instructions	1
Mission Statement	1
Vision Statement	1
NHTSA Warning	2
To Contact Labrie Plus	3
In the U.S.	3
In Canada	3
Safety	5
Safety Precautions for the Owner	5
Safety Precautions for the Employee	6
ALLEY-GATOR RIGHT-HAND™ Road Rules	6
Safety Decals	7
Safety Features	7
Automatic Grease System	7
Counter Balance Valves	7
Grease Manifold	7
Pilot Operated Check Valves	7
Environmental Spill Kit (optional)	8
Access Ladder Proximity Switch	8
IQAN MDM Master Control Module	9
Fire Extinguisher (optional)	10
First Aid Kit (optional)	10
Global Motion Sensors (optional)	10
Rear Vision Camera (optional)	11
Hopper Camera/Side Door Camera (optional)	11
Hoist Safety Prop	11
Tailgate Safety Locks	12
Tailgate Safety Props	12
Safety Lockout Tests	13
Access Ladder Proximity Switch	13
Arm Limit Switches (2)	14
Hopper Cover Proximity Switch (if equipped)	15
Body Raised Proximity Switch	16
Lockout/Tagout Procedure	16
Lockout Reference Chart	17
Utilizing Tailgate Locks	18
Positioning the Tailgate Safety Props	18
Stabilizing a Hoisted Body	20
Raising the Front-End Body	21
Maintenance	23
Cautionary Notes for Maintenance Personnel	23
For Welding Purposes	23
Hydraulic Oil	24

Oil Identification	24
Oil Recommendations	24
Common Hydraulic Components	25
Hydraulic Oil Tank	25
Hydraulic Oil Cooler	26
Oil Filtration	26
Filter Replacement	26
Hydraulic Return Line Filter	27
In-Line Pressure Filter	27
Return Line Filter Element	28
Return line Filter Element Replacement Procedure	28
In-Line Pressure Filter	29
In-Line Pressure Filter Replacement Procedure	30
Lubricating	30
Automatic Greasing System	30
Vehicle Lubrication	30
Lube Points	30
Recommended Maintenance Schedule	32
More Notes on Lubrication	38
Electrical System	38
Electrical System Components	39
Auto-Reset Circuit Breakers	39
Electrical Junction Box	40
Relay Box	40
Proximity/Limit Switches	41
Valve Solenoids	41
External Lights and Vision Equipment	42
Joystick	42
Harnesses	43
Proximity and Limit Switches	44
Limit Switch Adjustment	45
Proximity Switch Adjustment	45
Access Ladder Extension Proximity Switch	46
Arm Mid-Height Limit Switches (2)	48
Arm Stowed Limit Switches (2)	48
Pendulum Proximity Switches	50
Tailgate Open Proximity Switch	52
Body Raised Proximity Switch	54
Hopper Cover Proximity Switch (optional)	55
Arm Cushion Adjustment	56
Joystick	58
Valve Bank	58
Temperature Sending Unit	59
Oil Cooler Fan Thermostat	59
Hour Meter	60
Lighting & Camera Equipment	60
Hydraulic System Maintenance & Safety	60
Hydraulic Safety Warnings	61
Hydraulic System	61
Alley-Gator Right-Hand™ Hydraulic System	61
Quick Chart for Hydraulic System Settings	62
Hydraulic Hose	62
Hydraulic Cylinders	63
PTO Driven or Front Mounted Pump	64

General PTO Safety Information	64
Hydraulic Vane Pump	64
Directional Control Valve	65
Packer Directional Control Valve	65
Lift and Body Directional Control Valve	65
Hydraulic Circuit Pressure Adjustments	66
Pack Circuit Hydraulic Adjustments	66
Pack Circuit Pressure Compensator Adjustments	67
Lift & Body Circuit Pressure Adjustments	67
Lift & Body Circuit Hydraulic Adjustment Procedure	68
Working Sections of the Lift & Body Directional Control Valve	68
Slide Work Circuit	70
Lift Work Circuit	70
Grabber Work Circuit	70
Tailgate Work Circuit	71
Body Hoist Work Circuit	71
Hopper Cover Work Circuit	71
Hydraulic Safety Valves	72
Body Hoist Velocity Check Valves	72
Lifting Arm Holding Valves (in units w/ 2 valves behind grabber)	72
In/Out Holding Valves (in units w/ 1 valve behind grabber)	73
Combined Grabber Valve (in units w/ 1 valve behind grabber)	75
Hydraulic Flow Dividers	80
Arm Flow Divider (in units w/ 2 valves behind grabber)	80
Control Circuit	80
Adjusting Standby Pressure	81
Adjusting Arm Pump Pressure	82
Adjusting Packer Pump Pressure	82
Adjusting Packer Counter Balance Valve	83
Adjusting Packer Choke Valve	83
Hydraulic System Schematic	85
Troubleshooting Methodology	86



Introduction

About this Manual

This manual is designed to help qualified maintenance personnel repair, service and maintain the ALLEY-GATOR RIGHT-HAND™. It outlines maintenance procedures for body and packer components.

It is imperative that you carefully review this manual prior to performing any maintenance to your new ALLEY-GATOR RIGHT-HAND™ Automated Side Loader.

For information regarding operational procedures, please refer to the ALLEY-GATOR RIGHT-HAND™ Operator's Manual.

Pre-operating Instructions

Upon receipt of your new ALLEY-GATOR RIGHT-HAND™, perform a complete lubrication as per the lubrication guide shown on page 30 and on the decal affixed to the side of the body. Factory lubrication is adequate for production and transport purposes only. In addition, the return filter element must be replaced after 50 hours of use, again, as per instructions shown on page 28.

Mission Statement

Labrie Enviroquip Group is dedicated to provide innovative designs, customized quality equipment and elite customer service.

Vision Statement

The team at Labrie Enviroquip Group will successfully lead the way the world views waste management. We will excel at enhancing our community and protecting the global environment. We are committed to being a profitable company for our customers, shareholders and employees.

NHTSA Warning

Defects found with your ALLEY-GATOR RIGHT-HAND™ Automated Side Loader that are believed to cause injury or death or cause a crash should be immediately reported to the National Highway Traffic Safety Administration.

In addition, these defects should be immediately reported to Labrie Enviroquip Group by notifying our service department.

To contact NHTSA, you may call:

1(800) 424 9393 or 1 (202) 366 0123

Written communications may be directed to:

NHTSA, U.S. Department of Transportation, Washington, D.C. 20590

Additional motor vehicle safety information is available from the above noted toll-free hotline.

To Contact Labrie Plus

In the U.S.

Address: 1981 W. Snell Road
Oshkosh, WI 54904

Toll Free: 1-800-231-2771

Telephone: 1-920-233-2770

General Fax: 1-920-232-2496

Sales Fax: 1-920-232-2498

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

Technical Support Service: Available 24 hours

In Canada

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

Toll Free: 1-877-831-8250

Telephone: 1-418-831-8250

Service Fax: 1-418-831-1673

Parts Fax: 1-418-831-7561

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

Technical Support Service: Available 24 hours

Website: www.labriegroup.com

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

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

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



Safety

Safety comes first and Labrie Enviroquip Group is committed to your safety. Ultimately, safety is everyone's responsibility when operating or maintaining your ALLEY-GATOR RIGHT-HAND™ Automated Side Loader. Make it your first priority! Be aware and apply the safety practices and features detailed in this manual.

Maintenance personnel should not perform any maintenance on the equipment if they are not well acquainted with the operations of the equipment as well as all safety precautions related to such operations.

Labrie Enviroquip Group will not accept any responsibility for failures and/or injuries caused by repairs done by the user and/or any persons other than authorized Labrie Enviroquip Group representatives.

Safety Precautions for the Owner

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

- ◆ Provide all employees – both operators and maintenance personnel – with proper safety procedures and training. Ensure that they are provided with the proper vehicle operation training and continually monitor their operational procedures. It is necessary that they have reviewed the ALLEY-GATOR RIGHT-HAND™ Manuals and are familiar with all the warning decals on the vehicle.
- ◆ Provide operators with the necessary route rules and regulations. Instruct operators on awareness to road hazards such as people, obstructions and overhead hazards. Please ensure that all vehicle safety features, such as body safety props and tailgate props, are utilized by your personnel when operating or servicing the ALLEY-GATOR RIGHT-HAND™.
- ◆ Provide and inform employees to wear the necessary safety equipment.

- ◆ Ensure that a vehicle and safety equipment inspection is performed daily. Document the inspections, including all maintenance, repair and malfunction items. Keep inspection documents complete and current.

IMPORTANT: Under no circumstances should your ALLEY-GATOR RIGHT-HAND™ be operated if damaged or malfunctioning. Have all repairs performed immediately.

Safety Precautions for the Employee

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

- ◆ Ensure that you have been provided with safe operating and/or maintenance service training and procedures by your employer prior to operating the vehicle or performing maintenance service.
- ◆ Carefully read this manual.
- ◆ Obey proper operating procedures, safety guidelines and warning decals.
- ◆ Use the vehicle only as intended.
- ◆ Perform a daily vehicle inspection that includes the body and all operating systems, all vehicle safety equipment and safety decals located on and in your vehicle. Ensure that the inspection is documented and bring any defects to the attention of your supervisor.
- ◆ Prior to leaving for your daily route, ensure that all mirrors, windows and lights are clean and properly adjusted. Ensure that all cameras and monitors are properly adjusted and operating correctly.
- ◆ On your daily route, or during your service duties, stay safe. Obey all safety decals and safe operating procedures. Watch for other people, obstructions and overhead hazards.
- ◆ Always utilize the vehicle safety features, such as tailgate props and hoisted body prop.
- ◆ Remember to wear all safety equipment when loading and packing refuse or while performing service duties.

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

ALLEY-GATOR RIGHT-HAND™ Road Rules

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

- ◆ Drive with the body raised.
- ◆ Drive with an unlocked tailgate.
- ◆ Exit the cab without engaging the chassis parking brake.
- ◆ Back up the truck while unloading refuse.
- ◆ Hoist the body while on uneven ground.
- ◆ Prop a loaded body with the hoist safety prop.

- ◆ 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.
- ◆ Stand under a raised body without the safety props in place.

Safety Decals

Pay careful attention to all safety decals and warnings while operating/working in and around the ALLEY-GATOR RIGHT-HAND™ Automated Side Loader. Keep your decals clean and in good condition at all times. For replacement decals, either individual or complete decal kits, call LabriePlus at 1-800-231-2771 in the U.S. or 1-877-831-8250 in Canada, and order using the part numbers as printed on the bottom of the decal. Bilingual decals are available in English/Spanish or English/French versions.

See the *Alley-Gator Right-Hand Operator's Manual* for a list of decals that are used on the truck. Be sure to familiarize yourself with these decals.

Safety Features

NOTE: Your unit may not have all the safety features explained here. Check with your supervisor or maintenance department if you have any questions or concerns.

Automatic Grease System

When properly maintained, this optional system automatically ensures that the custom selected points either on the body or chassis receive the required amount of grease.

Counter Balance Valves

Counter balance valves provide a hydraulic lock to prevent the lift cylinders from bleeding oil back into the system. The resulting loss of pressure can result in hydraulic cylinder 'creepage' or an uncontrolled fall of the lift. Also, the counter balance valves will prevent the cylinder from retracting in the event of hose failure.

Grease Manifold

The centrally mounted grease manifold provides external grease nipples for all internal grease points, which removes the need for maintenance personnel to enter the body to grease cylinders and pivot points.

Pilot Operated Check Valves

The pilot operated check valves prevent the discharge of oil out of a cylinder in the event of hose failure (see Figure 2-1).

Figure 2-1 Pilot operated check valve



Environmental Spill Kit (optional)

This kit is used to contain hydraulic oil or diesel spill due to component failure. Consult with your maintenance and safety personnel for availability and location.

Figure 2-2 Optional environmental spill kit (P/N 0072-510)



Access Ladder Proximity Switch

Installed on the access ladder, this proximity switch disables/locks out all hydraulic functions when the ladder is deployed.

Figure 2-3 Extension ladder proximity switch with ladder deployed (left) and in stored position (right)



IQAN MDM Master Control Module

The ALLEY-GATOR RIGHT-HAND™ is equipped with an in-cab IQAN MDM.

Figure 2-4 IQAN MDM



The IQAN MDM is the main unit of the central control system. It contains the system's application software. In addition, the MDM contains a visual interface screen that displays text, parameters and other settings. All communication with the control system takes place from the MDM via the CAN-bus network.

Various error and warning messages may appear on the IQAN MDM screen to warn the operator to certain conditions. In some cases an accompanied buzzer sounds. Those messages are similar to the following:

ARM NOT PARKED: This warning message will appear on the screen when the arm is extended and is not in the home position. ***If the vehicle is in motion and the arm is not parked, pedestrians may be injured and/or other obstacles may be struck.***

PACKER BLADE STALL: This warning message will appear on the screen if the packer blade has stalled. ***Stalling will occur if the body is full or if an object has jammed the packer blade.***

BODY RAISED: This warning message will appear on the screen and a buzzer will sound if the body is not firmly seated on the chassis. ***The body should only be raised during unloading and maintenance.***

TAILGATE OPEN: This warning message will appear on the screen and the backup alarm will sound if the tailgate is not fully closed. ***The tailgate should only be open during unloading and maintenance.***

ACCESS LADDER: This warning message will appear on the screen and a buzzer will sound when the access ladder is deployed. ***All hydraulic functions become disabled when the access ladder is deployed.***

HYDRAULIC OIL TEMPERATURE: This warning message will appear on the screen and a buzzer will sound if the hydraulic oil temperature becomes dangerously high. ***Continuing to operate the hydraulic functions may result in serious damage.***

HOPPER COVER: Your ALLEY-GATOR RIGHT-HAND™ may be equipped with a hopper cover. If so, a warning message will appear on the IQAN MDM screen to alert you that the hopper cover is closed.

Fire Extinguisher (optional)

Your vehicle should be equipped with a fire extinguisher. This may be provided by the chassis manufacturer. A 20 lb (Class A, B, C) fire extinguisher is recommended.

Figure 2-5 Fire extinguisher (optional) P/N 0072-490



First Aid Kit (optional)

Your vehicle should be equipped with a first aid kit. It should be placed inside the cab for quick access.

Figure 2-6 First aid kit



Global Motion Sensors (optional)

The global motion sensors are an optional feature. The sensors are mounted on the tailgate of your ALLEY-GATOR RIGHT-HAND™. These sensors detect obstructions from behind your vehicle and will then set the park brake and sound a buzzer to alert the operator of the rear obstruction. Please consult the OEM for more information.

Rear Vision Camera (optional)

The reverse camera mounted on the back door of the ALLEY-GATOR RIGHT-HAND™ sends images to the monitor inside the cab when the transmission is in reverse or when the switch is set to 'ON'. Please consult the OEM for more information.

Figure 2-7 Rear vision camera (optional)



Hopper Camera/Side Door Camera (optional)

The hopper and side door cameras send information to the monitor inside the cab when the monitor is selected to the proper camera. Consult the OEM manual for more information.

Figure 2-8 Hopper camera (optional), left / side door camera (optional), right / camera monitor (inside cab), center



Hoist Safety Prop

Your ALLEY-GATOR RIGHT-HAND™ is standardly equipped with a hoist safety prop (see Figure 2-9). Prior to performing any work around/underneath a lifted body, you must set the hoist safety prop. Never use the hoist safety prop to prop a loaded body. Always unload the body prior to setting the hoist safety prop. Refer to "Stabilizing a Hoisted Body" on page 20.

Figure 2-9 Hoist safety prop



IMPORTANT: Always unload the unit before setting the hoist safety prop.

Tailgate Safety Locks

The tailgate locks are located on both sides of the rear of the body. The tailgate locks prevent the tailgate from opening accidentally. The locks **MUST ALWAYS BE LATCHED WHEN THE VEHICLE IS IN MOTION. UNLATCH THEM WHEN UNLOADING REFUSE.** Refer to “Utilizing Tailgate Locks” on page 18.

Figure 2-10 Tailgate safety lock in removed position



Tailgate Safety Props

The tailgate safety props are a standard safety feature on the ALLEY-GATOR RIGHT-HAND™ (see Figure 2-11). They are located under the tailgate, one on each side. The tailgate safety props fit into a bracket on the body and prevent the tailgate from closing when you are working beneath/ around an open tailgate. Refer to “Positioning the Tailgate Safety Props” on page 18.

Figure 2-11 Tailgate safety prop



Safety Lockout Tests

Your daily inspection includes completing the safety lockout tests. Successful completion of these tests ensure that your vehicle is safe to operate.

If any of these tests fail, do not operate your vehicle until the appropriate adjustment or service has been completed.

NOTE: Your ALLEY-GATOR RIGHT-HAND™ Side Loader may be equipped with other safety lockout options not mentioned here. Consult your supervisor and/or maintenance department if you have any questions or concerns.

Access Ladder Proximity Switch

Performing this test ensures the ASL¹ access ladder proximity switch is working (see Figure 2-3). ***If the access ladder is deployed (see Figure 2-12), all hydraulic functions should stop. It is imperative that you do not operate your ALLEY-GATOR RIGHT-HAND™ with an inoperative or malfunctioning access ladder proximity switch.***

IMPORTANT: *Remember extreme danger exists when working in or around the hopper!*

To perform this test:

1. DEPLOY the access ladder.
2. ENSURE the warning lamp on the control console illuminates, the *access ladder warning message* appears on the IQAN MDM screen (see Figure 2-13) and the buzzer sounds.
3. ATTEMPT to OPEN the tailgate. All hydraulic functions should be DISABLED.
4. IF ANY hydraulic function is OPERATIONAL when the ladder is extended, NOTIFY your maintenance supervisor immediately.

Location: This proximity switch is located at the base of the access ladder.

1. Automated Side Loader

Figure 2-12 Access ladder in deployed position



Figure 2-13 IQAN MDM display screen



Arm Limit Switches (2)

Performing this test ensures the *Arm not parked* message will appear on the IQAN MDM screen (see Figure 2-13) when the slide is extended from the home position. ***Failure to heed this warning message may result in serious personal injury or material damage from a lift which is extended during travel.*** This warning also prevents dumping of refuse outside the hopper.

To perform this test:

1. PARK the vehicle in a non-traffic area.
2. EXTEND the slide.
3. CHECK that the warning lamp on the control console illuminates (see Figure 3-5) and the *Arm not parked* message appears on the MDM screen (see Figure 2-13).
4. RETURN the slide to the 'HOME' position (see Figure 2-15). The *Arm not parked* message on the MDM screen should disappear and the warning lamp should turn off.
5. IF the *Arm not parked* message DOES NOT appear on the MDM screen or the warning lamp DOES NOT illuminate when the lift is EXTENDED, NOTIFY your maintenance supervisor immediately.

IMPORTANT: Do not operate the ALLEY-GATOR RIGHT-HAND™ with inoperative or malfunctioning arm limit switches. Injury or death may occur.

Location: These limit switches are fixed to the arm support behind the grabber.

Figure 2-14 Arm limit switches



Figure 2-15 Slide retracted and in "HOME" position



Hopper Cover Proximity Switch (if equipped)

Performing this test ensures that you cannot accidentally dump refuse on top of the hopper cover.

To perform this test:

1. CLOSE the hopper cover.
2. ATTEMPT a dump cycle with an EMPTY can.
3. If the dump cycle completes, notify your maintenance supervisor immediately.

NOTE: The lift should still function to approximately 2/3 of the full lift height.

Body Raised Proximity Switch

Performing this test ensures you know when the body is properly seated on the chassis. The body should always be seated unless unloading or servicing is being performed!

IMPORTANT: Never drive the unit while the body is raised unless unloading.

To perform this test:

1. LOWER the body, using the in-cab console *body UP/DOWN switch*. EXIT the cab and visually CONFIRM that the body is firmly seated on the chassis.
2. UNLATCH tailgate safety locks, and open the tailgate.
Note the body will not raise unless the tailgate is OPEN.
3. ENTER the cab, RAISE the body, using the in-cab console *body UP/DOWN switch* and note when the warning lamp on the control console illuminates and the buzzer sounds. Both should occur immediately. A *body raised* message should also appear on the MDM screen.
4. IF the warning lamp DOES NOT illuminate or the buzzer DOES NOT sound, NOTIFY your maintenance supervisor immediately.

Location: This switch is mounted on the curb side of the chassis frame (see Figure 2-16).

Figure 2-16 Body raised proximity switch



Lockout/Tagout Procedure

Performing the lockout/tagout procedure should be followed whenever you are inspecting, cleaning or repairing the ALLEY-GATOR RIGHT-HAND™ Automated Side Loader.

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

Prior to performing under body work, it is necessary to set the hoist safety prop. Refer to “Hoist Safety Prop” on page 11.

To lock out and tag out your ALLEY-GATOR RIGHT-HAND™ unit:

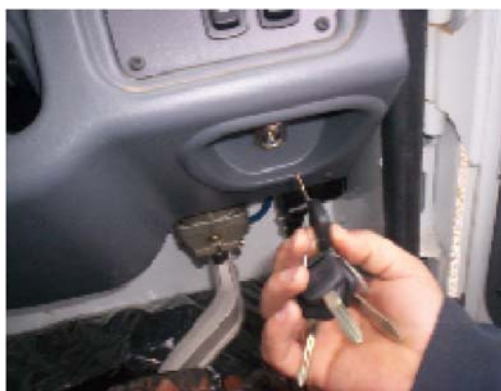
1. SET chassis park brake.
2. TURN off engine, REMOVE keys from ignition and STORE keys in a safe controlled area. It is recommended that you keep the keys on your person.
3. MOVE any one of the hydraulic controls to RELIEVE any residual pressure in the system.

4. PLACE an Out-of-Service tag on the steering wheel using a non-reusable fastener and place an Out-of-Service sign in the front window.
5. TURN OFF and LOCK the battery switch.
6. CHOCK the wheels.

Figure 2-17 Lockout tags



Figure 2-18 Shut off engine, remove keys from ignition and store them in a safe controlled area



Lockout Reference Chart

Extension ladder deployed	All hydraulic functions inoperative
Vehicle engine over 1,000 RPM	Slide out, grip close, lift up and grabber inoperative
Slide not extended beyond hopper	Dump inoperative
Lift raised above vertical	Grabber OPEN inoperative

Hopper cover closed (or not fully open) - if equipped	Lift up function will not operate above vertical
Slide in	Body up function inoperative
Body raised	Slide in function inoperative
Tailgate closed & arm not extended	Body will not raise

Utilizing Tailgate Locks

The tailgate locks (see Figure 2-19) must be secured unless you are:

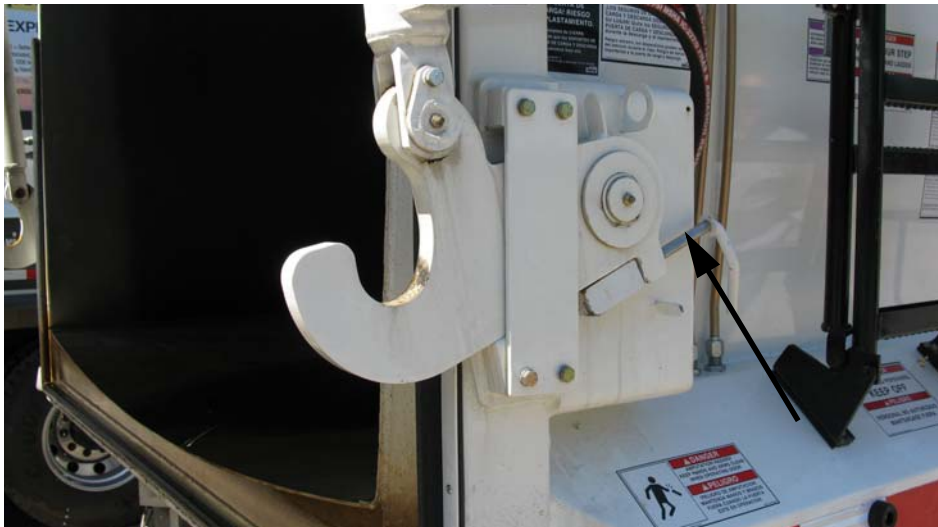
- ◆ unloading refuse
- ◆ servicing the tailgate

The tailgate locks ensure that the tailgate cannot be opened accidentally.

IMPORTANT: Before operating the ALLEY-GATOR RIGHT-HAND™ Automated Side Loader, secure both tailgate locks.

IMPORTANT: Before opening the tailgate, remove both tailgate locks.

Figure 2-19 Tailgate lock



Positioning the Tailgate Safety Props

Tailgate safety props have been installed on your ALLEY-GATOR RIGHT-HAND™ Automated Side Loader (see Figure 2-20). They are located on each side of the tailgate. These props are there for your protection. When latched, they ensure that the tailgate will not close while you are working beneath or around a tailgate.

IMPORTANT: Never walk or work under the tailgate without first positioning the tailgate props.

To position the tailgate props, do the following:

1. ENSURE there is adequate room behind the truck to open the tailgate.
2. REMOVE both tailgate locks (see Figure 2-19).
3. OPEN the tailgate by approximately 3 ft (0.91 m).
4. UNLATCH each prop from its stored position and SWIVEL it towards the side of the truck until it can be set. LATCH into place.
5. CLOSE the tailgate as much as possible. Both props should fit securely into the tailgate latch hook preventing the tailgate from fully closing.
6. COMPLETE the Lockout/Tagout Procedure. Refer to “Lockout/Tagout Procedure” on page 16.

Figure 2-20 Tailgate safety prop

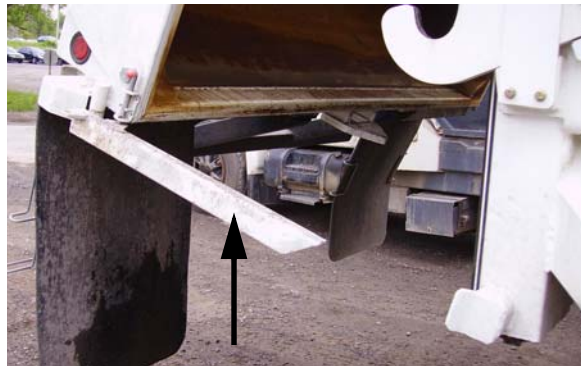


Figure 2-21 Danger decal (P/N 0605-794)



IMPORTANT: Never walk or work under the tailgate when it is open unless the tailgate safety props are installed!

Stabilizing a Hoisted Body

The ALLEY-GATOR RIGHT-HAND™ Automated Side Loader is equipped with a hoist safety prop (see Figure 2-23). This safety prop is designed to stabilize the lifted body, thus allowing you to safely work beneath the body.

IMPORTANT: The hoist safety prop must be engaged if access under a lifted body is required. Do not use hoist safety prop to prop a loaded body!

To stabilize a hoisted body:

1. ENSURE that the truck is on solid, level ground and the body is empty. SET the chassis park brake.
2. CHECK for overhead clearance and CHOCK the front and rear tires.
3. UNLATCH the spring storage latch.

Figure 2-22 Spring storage latch



4. RAISE the body until the safety prop hangs free.

IMPORTANT: Do not raise the body higher than is required for the prop. If the unlatched prop does not swing into place with the body raised, the prop has been damaged and must be repaired prior to use.

5. LOWER the body until the safety prop feet fit into the prop retainer cut-outs and seat securely onto the chassis frame.
6. COMPLETE the Lockout/Tagout Procedure. Refer to “Lockout/Tagout Procedure” on page 16.

Figure 2-23 Hoist safety prop in engaged position



Figure 2-24 Warning decal (P/N 0605-835)



Raising the Front-End Body

It may be required to raise the front-end body to complete repairs. For this, you will require two 9-foot 7-inch (292.1 cm) chains, one shackle, two grab hooks and a lifting device such as an overhead crane.

Caution!

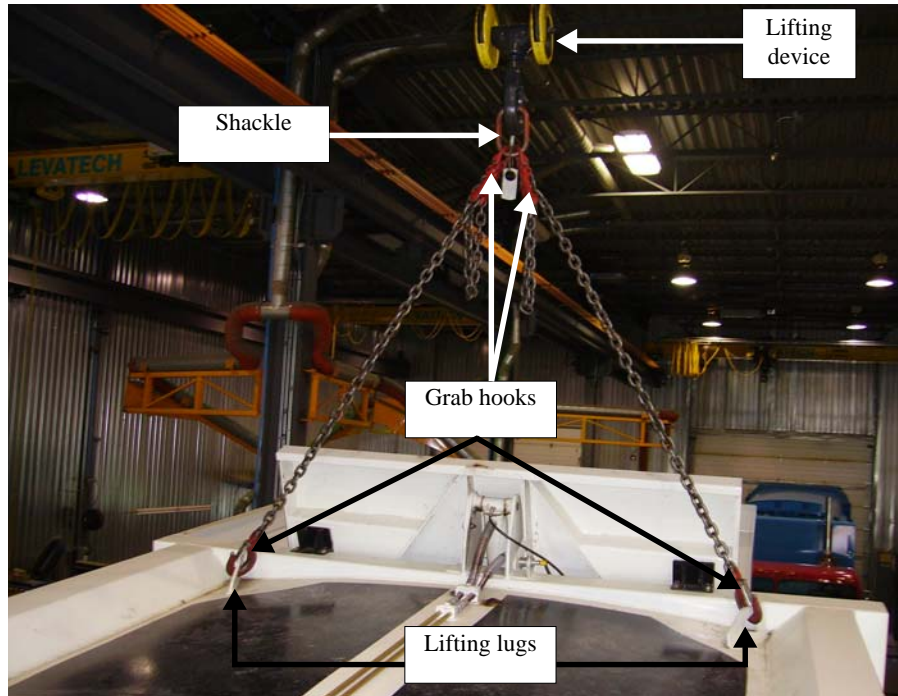


Do not lift the front-end body if the hinges at the rear end of the body are not securely fixed to the frame rails.

Use grade 80 lift chains with a working load limit of 7,100 lbs (3.23 tonnes).

NOTE: The shackle used must have a working load limit of 4.75 tons (4.83 tonnes).

Figure 2-25 Example of a lifting installation



3

Maintenance

Cautionary Notes for Maintenance Personnel

Keeping your safety in mind, please note that it is imperative that **ONLY QUALIFIED PERSONNEL** (who are knowledgeable with the operations of the vehicle) perform service to the hydraulic, electrical and pneumatic systems.

Please read carefully the **SAFETY INFORMATION** (chapter 2, in this manual), **VEHICLE CONTROLS** (chapter 2, in the Operator's Manual), and **VEHICLE OPERATION** (chapter 3, in the Operator's Manual), prior to attempting any maintenance to your Alley-Gator Right-Hand™ Side Loader.

For Welding Purposes

For welding purposes, please note that the ASL¹ body is primarily composed of two types of steel, ASTM A715 (grade 80) and Hardox 450 (hardened steel). It is recommended that you use either low hydrogen electrodes E11018 or Spool Arc 83 mig wire.

NOTE: Prior to welding on packer body, DISCONNECT ALL BATTERIES and ELECTRONIC MODULES.

NOTE: REMOVE PAINT before welding or heating.

NOTE: Do not weld near PRESSURIZED LINES or LINES CONTAINING FLAMMABLE FLUID.

Caution!



DISCONNECT all batteries and electronic control modules PRIOR to welding on body. Failure to observe this procedure may lead to severe damage to electronic components.

1. Automated Side Loader

Hydraulic Oil

The most crucial element to the hydraulic system is the hydraulic oil. It provides the system with vitality. The oil transports damaging contaminants to filtering systems, lubricates and provides anti-wear protection against component corrosion.

Regular oil changes are vital to the lifespan of hydraulic system components. Overtime, particles in the oil will deteriorate the hydraulic system, observation of the oil color change signifies oxidization and the need to be replaced. At that time, the oil will appear cloudy or milky. Keep in mind operational performance, load and environmental conditions are variables that determine the frequency of hydraulic oil renewal.

Following stringent maintenance schedules and performing routine oil analysis are effective methods of obtaining information to determine the cleanliness of the hydraulic oil. **Labrie Enviroquip Group recommends that the hydraulic oil be replaced or filtered every 1000 hours and following any major hydraulic failures. Failure to maintain hydraulic cleanliness to recommended guidelines may result in failure of hydraulic components and void your warranty.**

Oil Identification

The Alley-Gator Right-Hand™ has an oil identification tag that specifies the manufacturer's brand of hydraulic oil that your vehicle has been filled at the Labrie factory. When oil replacement becomes necessary other equivalent oil by other manufacturers may also meet your application requirements.

The oil identification tag is located on the hydraulic tank. Replacement decals may be ordered from the Labrie Parts Department.

Figure 3-1 Oil Identification Tag



Oil Recommendations

Labrie Enviroquip Group recommends that you refer to the guidelines below and on the next page and that you consult the oil manufacturer to ensure that your oil needs are fulfilled.

Please consider cold weather operation requires special oil consideration. *Viscosity should not exceed 7500 SSU / 1620 CS at lowest start-up temperature.* Continuous operation should range between 60 - 1000 SSU (10.5 - 216 CS) for all temperature ranges.

Viscosity Cold Start	@	100 F / 37.78 C	= 56
	@	212 F / 100 C	= 43.96
	@	104 F / 40 C	= 32

@ 212 F / 100 C = 5.4

Viscosity Index	102 F / 38.89 C
Flash Point	410 F / 210 C
Pour Point	-26 F / -32 C
Specific Gravity	0.86
Rust Text - proc A & B, 48 hrs	PASS
Pound per Gallon	7.18

Common Hydraulic Components

Hydraulic Oil Tank

The Alley-Gator Right-Hand™ has an aluminum or steel hydraulic oil tank with a 55 gallon (208 litre) capacity. Each tank is fitted with a breather cap of 5 psi that automatically vents tank pressure in excess of 5 psi (see Figure 3-3). It is important to ensure that the breather cap is kept clean and serviced regularly. Please refer to “Recommended Maintenance Schedule” on page 32.

A ball valve is located within the suction line of the hydraulic oil tank for maintenance purposes (see Figure 3-3). It is imperative that the ball valve be open while operating the hydraulic pump. Severe damage to the hydraulic pump will occur if it is operated with the valve closed.

Figure 3-2 Hydraulic tank



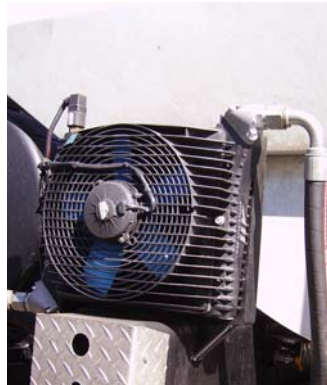
Figure 3-3 Breather cap, left / ball valve, right



Hydraulic Oil Cooler

Your Alley-Gator Right-Hand™ has been fitted with an aluminium thermostat-controlled oil cooler. The cooler is fitted in the hydraulic return line from the packer valve to the oil tank. When the operating oil temperatures exceed 150 F, (65.6 C) the oil is routed through the oil cooler until the oil temperature cools below 150 F (65.6 C).

Figure 3-4 Hydraulic Oil Cooler



Oil Filtration

Your hydraulic system requires filtration for performance and longevity. Excessive particle contaminants over a period of time will result in poor hydraulic performance and/or failure. The hydraulic system on your Alley-Gator Right-Hand™ is protected with **one return line filter** and **one in-line pressure filter**. **These filters must be changed after the first 50 hours of use. Replacement guidelines are provided below.**

Filter Replacement

Labrie Enviroquip Group recommends the filter elements be replaced as per pop up indicator (on the filter) or every 2500 hours of regular operational use. Examination of routine contamination is also recommended. Regular filter replacement done by qualified maintenance personnel helps to remove

trapped contaminants that are conducive to your system. Consideration needs to be given to the operating conditions and duty when further determining the replacement interval. **Replacement procedures for both types of filters are detailed on the following pages.**

NOTE: The element must also be changed following a major hydraulic component failure.

Please consider the following recommendations by Labrie Enviroquip Group when replacing your filters.

In-Line Pressure Filter (2)	5 micron	Parker	Part#0039-028
Return Line Filter (in tank)	10 micron	Hydac	Part #0039-045
		or	
	10 micron	Parker	Part#0039-027

Hydraulic Return Line Filter

A *10 micron return line filter* element is located inside the hydraulic tank. All oil returning to the hydraulic tank is passed through this filter. The filter is fitted with a pop-up indicator that signals time of replacement. Please see above for the recommended replacement filter and part number. Filters may be ordered directly from Labrie Enviroquip Group by calling our Parts Department.

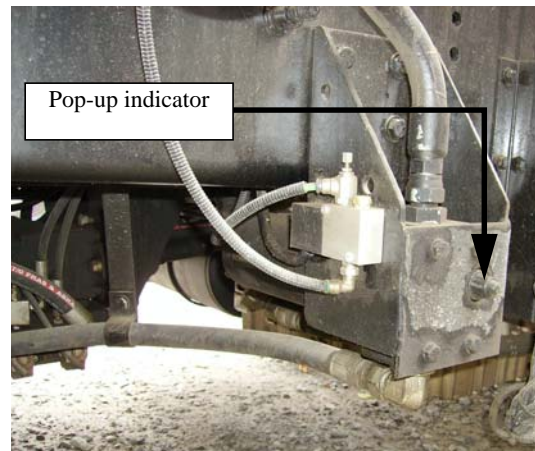
NOTE: Your unit may be equipped with a dirty filter element.

Figure 3-5 Dirty filter element



In-Line Pressure Filter

This *5 micron in-line pressure filter* is located behind the lift and under the chassis (see Figure 3-6). Hydraulic oil is passed through this filter. This filter is also fitted with a pop-up indicator that signals time of replacement. Please see above for the recommended replacement filter and part number. Filters may be ordered directly from Labrie Enviroquip Group by calling our Parts Department.

Figure 3-6 In-line pressure filter


Return Line Filter Element

NOTE: While every effort is made at the Labrie factory to ensure clean hydraulic systems, it should be noted that most hydraulic system manufacturers recommend the filter be replaced after a break-in period. Labrie's recommendation is to replace this filter element after a break-in period of 50 hours of operational use.

Return line Filter Element Replacement Procedure

The following is the procedure to replace the return line filter element:

1. SWITCH OFF the hydraulic system. Refer to "Lockout/Tagout Procedure" on page 16.
Keep tools, working area and equipment clean. A pan will be required to collect a small amount of oil lost as the element is removed.
2. SLOWLY remove the hydraulic tank cap (see Figure 3-7). SLOW turning will RELEASE system pressure.
3. LOOSEN the 4 cover plate screws (if equipped with Parker Return Filter, as depicted in Figure 3-8, there are 6 screws). ROTATE 45 degrees and lift off.
4. REMOVE the element by the handle. ROTATING during removal will help release suction.
5. REMOVE and CLEAN the contamination retainer (see Figure 3-9). INSTALL onto the new filter.
6. INSPECT o-rings and housing for damage. REPLACE as necessary.
7. MOISTEN the filter housing and cover plate sealing surfaces with oil.
8. PLACE the new element into housing.
9. REPLACE cover plate.
10. OPERATE hydraulic system and check for leaks.

Figure 3-7 Hydraulic tank cap

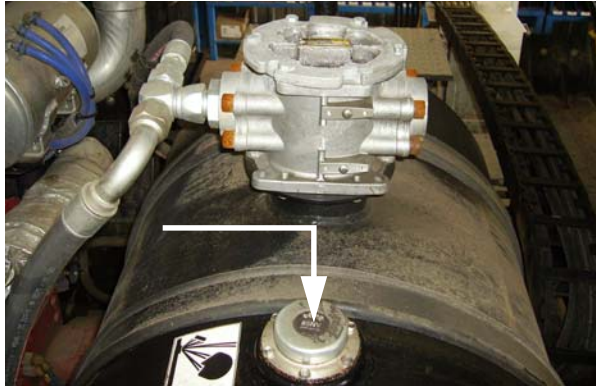
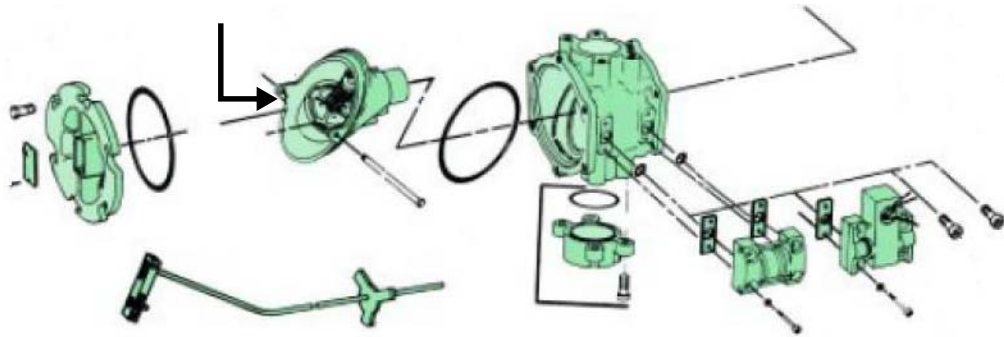


Figure 3-8 Parker return filter



Figure 3-9 Contamination retainer



In-Line Pressure Filter

NOTE: Hydraulic system manufacturers recommend the first filter replacement be made after a break-in period. Labrie's recommendation is to replace the filter elements after a break-in period of 50 hours of operational use.

In-Line Pressure Filter Replacement Procedure

Follow this procedure to replace in-line pressure filters (see Figure 3-6):

1. SWITCH OFF the hydraulic system. Complete the Lockout/Tagout Procedure as instructed on page 16.
2. REMOVE the filter housing from the chassis and REMOVE the filter from the housing.
3. CLEAN and INSPECT housing for damage, REPLACE if necessary.
4. INSPECT o-rings for damage and replace if necessary.
5. PLACE the new filter element into housing.
6. MOISTEN the filter housing and filter mount sealing surfaces with oil.
7. INSTALL filter housing onto chassis.
8. OPERATE the hydraulic system and CHECK for leaks.

Lubricating

Automatic Greasing System

Your Alley-Gator Right-Hand™ Side Loader may have a factory installed optional Automatic Greasing System. The system automatically supplies grease to numerous points on the Alley-Gator's chassis and body. The number of points will vary as per your customized order.

To ensure proper operation of the system, never let the grease fall below the minimum level as indicated on the grease reservoir. Labrie recommends that the grease reservoir be filled with OEM-recommended grease. You may order this product and system parts from Labrie by contacting our Parts Department toll free at 1 (800) 231-2771 in the U.S. or 1 (877) 831-8250 in Canada.

Please consult the OEM product information that has been supplied with your Alley-Gator Right-Hand™ for further information and maintenance material. The provided data includes preventive maintenance, system testing and a troubleshooting chart. Further inquiries regarding your automatic greasing may be directed by contacting our Service Department at 1 (800) 231-2771 in the U.S. or 1 (877) 831-8250 in Canada.

Vehicle Lubrication

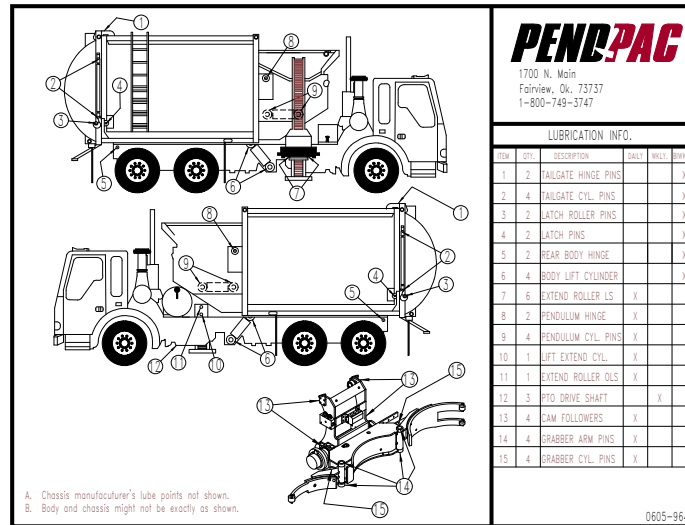
Labrie Enviroquip Group recommends that the grease used for lubricating the vehicle be NLGI 2 equivalent.

Lube Points

NOTE: Routine lubricating reduces component failures!

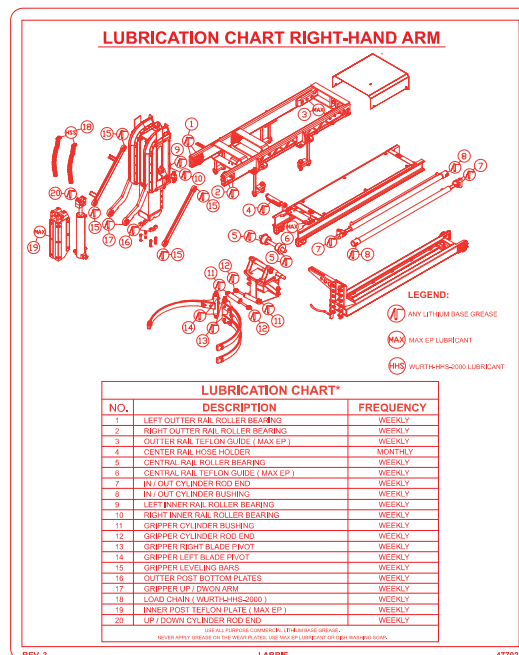
Your new Alley-Gator Right-Hand™ Side Loader has numerous points that require routine lubricating. Although complete lubrication has been performed at the Labrie factory, it is strongly recommended that the Alley-Gator Right-Hand™ be fully lubricated prior to operating. Figure 3-10 and Figure 3-11 depict the location of the lubrication points. Please refer to “Recommended Maintenance Schedule” on page 32 for itemized lube points and recommended frequency.

Figure 3-10 Lube points on body



NOTE: Figure 3-10 represents the Alley-Gator™ with the standard arm. For lube points on the optional Right-Hand arm, see Figure 3-11

Figure 3-11 Lube points on optional Right-Hand arm



Recommended Maintenance Schedule

Table 1 Lubrication

Description	Schedule (Performer)
Tailgate hinge pins (2)	Biweekly (optional)
Tailgate cylinder pins (4)	Biweekly (optional)
Latch roller pins (2)	Biweekly (optional)
Latch pins (2)	Biweekly (optional)
Rear body hinge pins (2)	Biweekly (optional)
Inspect hydraulic oil level in tank	Daily (optional)
Body lift cylinder pins (4)	Biweekly (optional)
Manual greasing system manifold, pack blade (6)	Daily (optional)
Inspect grease in auto greasing system reservoir	Weekly (optional)
Grease all arm grease zerks (8)	Daily (optional)
Inspect unit for leaks	Daily (optional)
Grease pump drive line (3)	Weekly (optional)

NOTE: Some lube points may be greased by an automatic grease system. Consult manufacturer's manual for information.

Table 2 Cleaning

Description	Schedule (Performer)
Safety decals	Pre-trip (operator)
Mirrors, lights, windows, camera	Pre-trip (operator)
Clear debris at tailgate seal	At landfill (operator)
Clear contact surfaces of body and chassis	At landfill (operator)

Table 2 Cleaning (cont'd)

Description	Schedule (Performer)
Clear debris on lift (if any)	At landfill (operator)
Wash complete body and chassis (more often if required)	Weekly (operator)
Other	As specified by FMCSR and/or owner

Table 3 Mechanical inspection (performed when truck is at rest or stopped)

Description	Schedule (Performer)
IMPORTANT: Inspect for distortion, cracks and/or unusual wear. Ensure mounting and pin retainer bolts are intact and tight.	
Body seated flat on chassis	Pre-trip (operator), monthly (maintenance)
Body hinge ears (2), pins (2), and retaining hardware	Pre-trip (operator), monthly (maintenance)
Body raise cylinder ears (4), pins (4), & retaining hardware	Pre-trip (operator), monthly (maintenance)
Body raise cylinder mounting bolts on chassis (quantity varies)	Pre-trip (operator), monthly (maintenance)
Hoist safety prop and prop retainers [inspect prior to using]	Operator (weekly)
Lift assembly	Pre-trip (operator), monthly (maintenance)
Lift assembly mounting bolts, lockwashers and nuts	Pre-trip (operator), monthly (maintenance)
Lift bearings	Pre-trip (operator), monthly (maintenance)
Lift cylinder ears, pins & retaining hardware	Pre-trip (operator)
Pendulum assembly	Monthly (maintenance)
Pack pendulum cylinder pins (4) & retaining nuts/bolts	Daily (operator), monthly (maintenance)
Interior of hopper and main body walls, floor and roof	Pre-trip (operator), monthly (maintenance)

Table 3 Mechanical inspection (performed when truck is at rest or stopped) - cont'd

Description	Schedule (Performer)
Exterior of hopper and main body walls, floor & roof	Pre-trip (operator), monthly (maintenance)
Hopper cover assembly (optional, if equipped)	Pre-trip (operator), monthly (maintenance)
Hopper cover cylinder pins, ears, and retaining hardware (optional, if equipped)	Pre-trip (operator), monthly (maintenance)
Hopper cover cylinder clamp & related nuts/bolts (optional, if equipped)	Pre-trip (operator), monthly (maintenance)
Tailgate assembly	Pre-trip (operator), monthly (maintenance)
Tailgate cylinder ears (4), pins (4) & retaining hardware	Pre-trip (operator), monthly (maintenance)
Tailgate latch assembly (2), pivots (2) and roller pins (2)	Pre-trip (operator), monthly (maintenance)
Tailgate seal & seal retainer	At landfill (operator)
Tailgate hinge ears (2), pins (2) & retaining hardware	Pre-trip (operator), monthly (maintenance)
Tailgate safety props	Pre-trip (operator), monthly (maintenance)
Safety equipment present (e.g. fire extinguisher, first aid kit)	Pre-trip (operator)
Other	As specified by FMCSR and/or owner

Table 4 Operation (main controls)

Description	Schedule (Performer)
IMPORTANT: Observe that travel is smooth and even, speed is normal, and controls are responsive	
Lift up/down (check cushions & warning light function)	Daily (operator)
Slide extend/retract (check cushions & warning light function)	Daily (operator)

Table 4 Operation (main controls) - cont'd

Description	Schedule (Performer)
Pendulum pack/return/autopack/autostop (check stall warning light function)	Monthly (maintenance)
Hopper cover open/close (optional, if equipped)	Daily (operator)
Tailgate open/close	Daily (operator)
Body raised up/down	Daily (operator)
IMPORTANT: Perform safety lockout tests to check limit and proximity switches	
Access ladder test (access ladder proximity switch)	Daily (operator)
Tailgate test (tailgate limit switch, check for warning light & buzzer)	Daily (operator)
Lift up lockout/hopper cover test (hopper cover limit switch - optional, if equipped)	Daily (operator)
Lift up lockout (lift up function locked out if body is raised)	Daily (operator)
Other	As specified by FMCSR and/or owner

Table 5 Operation (misc. controls and features)

Description	Schedule (Performer)
IMPORTANT: Check control console warning devices are functioning	
Pump button light	Daily (operator)
Hopper cover warning light (optional)	Daily (operator)
Tailgate open warning light/external alarm (tailgate open limit switch)	Daily (operator)
Lift elevated warning light & optional buzzer (activates if vehicle exceeds 1000 rpm)	Daily (operator)
Body raised warning light/buzzer	Daily (operator)
IMPORTANT: Check external lights and miscellaneous are functioning	

Table 5 Operation (misc. controls and features) - cont'd

Description	Schedule (Performer)
Stop, signal and tail lights	Pre-trip (operator), daily (optional)
Marker lights	Pre-trip (operator), daily (optional)
Hopper light	Pre-trip (operator), daily (optional)
Lift light	Pre-trip (operator), daily (optional)
Backup lights	Pre-trip (operator), daily (optional)
Backup flood lights	Pre-trip (operator), daily (optional)
Strobe lights (if equipped)	Pre-trip (operator), daily (optional)
Camera lights	Pre-trip (operator), daily (optional)
Alternating flashers (if equipped)	Pre-trip (operator), daily (optional)
Backup alarm	Pre-trip (operator), daily (optional)
Perimeter/proximity motion sensors (if equipped)	Pre-trip (operator)
IMPORTANT: Check miscellaneous control console devices are functioning	
Other	As specified by FMCSR and/or owner

Table 6 Hydraulic systems

Description	Schedule (Performer)
Check for leaks, damage, etc. on hydraulic oil tank	Pre-trip (operator), monthly (maintenance)
Confirm that hydraulic oil tank is securely mounted to chassis frame	Pre-trip (operator), monthly (maintenance)
Check oil level in hydraulic oil tank (all cylinders retracted)	Pre-trip (operator), monthly (maintenance)
Check oil condition (not burnt/dirty)	Monthly (maintenance)
Replace oil	As required
Confirm that suction ball valve is fully open	Pre-trip (operator), monthly (maintenance)
Clean the breather cap (replace if necessary) [more often if required]	Monthly (maintenance)

Table 6 Hydraulic systems (cont'd)

Description	Schedule (Performer)
IMPORTANT: To protect the hydraulic components of your new equipment, the return line filter and in-line pressure filter must be changed after the first 250 hours of use. Thereupon, the filters should be changed once every 2,500 hours or as per “pop-up” service indicator or following a major hydraulic component failure.	
Change hydraulic return line oil filter	As per indicator
In-line pressure filter (1)	As per indicator
Clean magnetic plug pumps	At each oil change
Inspect pumps for leaks	Pre-trip (operator), monthly (maintenance)
Ensure pumps are securely mounted	Pre-trip (operator), monthly (maintenance)
Ensure driveline is security mounted	Monthly (maintenance)
Inspect valve banks for leaks	Pre-trip (operator), monthly (maintenance)
Ensure valve banks are security mounted	Pre-trip (operator), monthly (maintenance)
Check system pressure relief valve settings. Adjust if required	Annually or every 2,500 hours (whichever is more frequent) [use pressure gauge; record]
Inspect all hydraulic lines for leaks, chafing	Pre-trip (operator), monthly (maintenance)
Inspect all hydraulic cylinders and misc. hydraulic components for leaks	Pre-trip (operator)
Other	As specified by FMCSR and/or owner

Table 7 Chassis pneumatic system

Description	Schedule (Performer)
Drain air tanks [at the end of each day]	Daily (optional)
Inspect air lines for leaks	Daily (operator)
Other	As specified by FMCSR and/or owner

More Notes on Lubrication

The oil identification tag located on the hydraulic oil tank specifies the manufacturer's brand of oil that was filled at the Labrie factory. Equivalent oil by other manufacturers may also meet your application requirements. Labrie Enviroquip Group recommends that you refer to the guidelines below and consult the oil manufacturer to ensure that your needs are fulfilled.

Oil Recommendations	
Viscosity: Cold Star @ 100 F (37.78 C) = 156	
Cold Star @ 212 F (100 C) = 43.96	
Cold Star @ 104 F (40 C) = 32.0	
Cold Star @ 212 F (100 C) = 5.4	
Viscosity Index	102 F (38.89)
Flash point	410 F (210 C)
Pour Point	-26 F (-32 C)
Specific Gravity	0.86
Rust Text - proc A & B, 48 hrs	PASS
Pound per Gallon	7.18

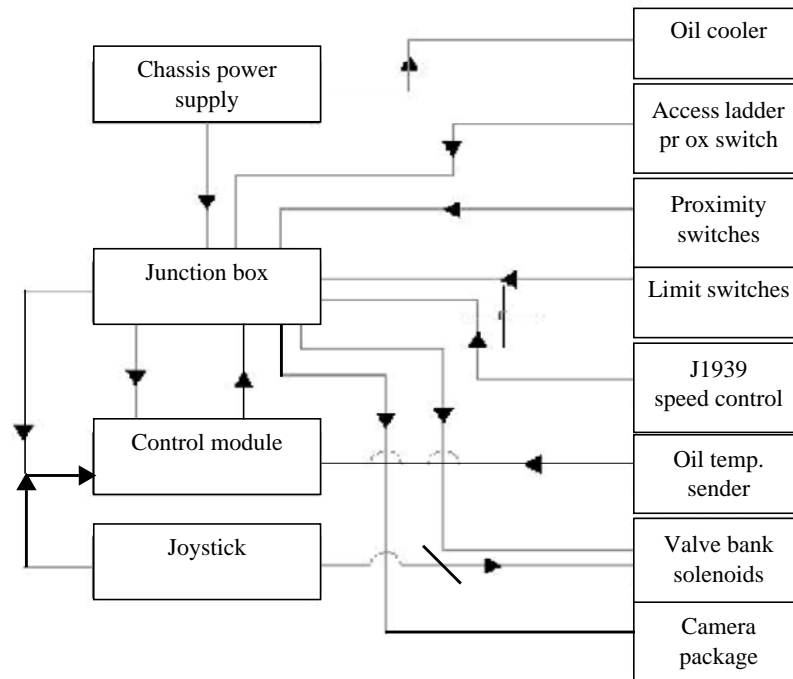
NOTE: Cold weather operation requires special oil considerations. Viscosity should not exceed 7500 SSU (1620 CS) at lowest startup temperature. Continuous operation should range between 60-1000 SSU (10.5 -216 CS) for all temperature ranges.

Electrical System

The electrical system is made up of numerous components connected by generic harnesses. Proximity and limit switches provide safety lockouts and influence the operational controls located in the control panel. The lift is operated via an electronic joystick. Body controls, such as the tailgate, are operated via switches located on the in-cab control panel.

The following simplified block diagram of the electrical system may assist you in understanding the electrical system of the Alley-Gator Right-Hand™.

Figure 3-12 Diagram of the electrical system



Electrical System Components

Auto-Reset Circuit Breakers

Power for the Alley-Gator Right-Hand™ ASL electrical system is protected by various replaceable automotive type fuses located in the inside junction box. The circuit breakers are mounted on the side of the relay box (see Figure 3-13).

Figure 3-13 Auto-reset circuit breakers



Electrical Junction Box

The Alley-Gator Right-Hand™ junction box is mounted to the underside of the front end of the body. The junction box joins all electrical wiring from the relay box and all electrical wiring from the body of the Alley-Gator Right-Hand™.

Figure 3-14 Electrical junction box



Relay Box

The relay box is located in the cab of the vehicle (see Figure 3-15). The box interior consists of a series of relays, fuses, and connectors that supply the electrical systems for the Alley-Gator Right-Hand™.

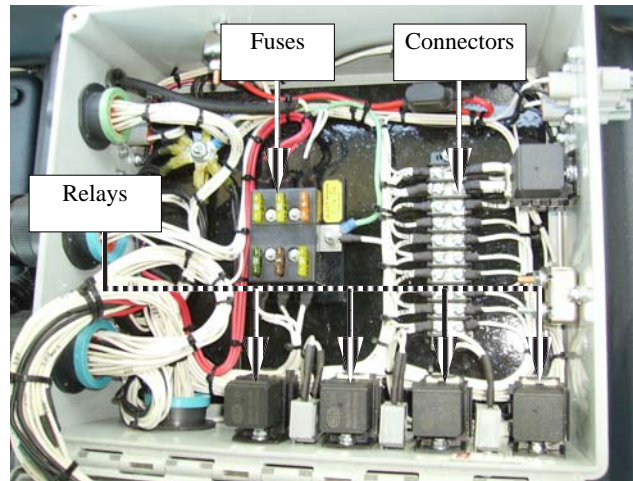
Relays: A relay is a series of switches influenced by a common coil but controlled from a remote location, such as a limit switch or proximity switch. Although there are 2 different types of relays they perform the same function. Each relay is labelled in accordance with the operation it controls.

Fuses: There are six fuses installed in the relay box; only three are resettable. All fuses are located at the center of the relay box. The three resettable fuses protect all lights circuits. All fuses are labelled as to the circuit they protect.

Figure 3-15 Relay box



Figure 3-16 Inside relay box



Proximity/Limit Switches

Nine standard proximity/limit switches are located on the arm and body of the ASL (11 if a top door is installed). They provide safety lockouts as well as controlling the operational cycle of the pendulum and arm. See *Proximity and Limit Switches* on page 44 for more information on this.

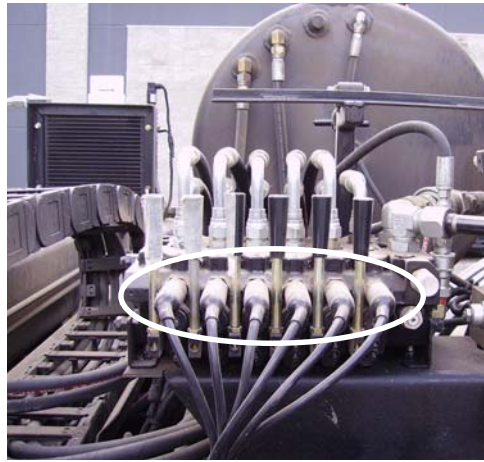
Figure 3-17 Ladder proximity switch



Valve Solenoids

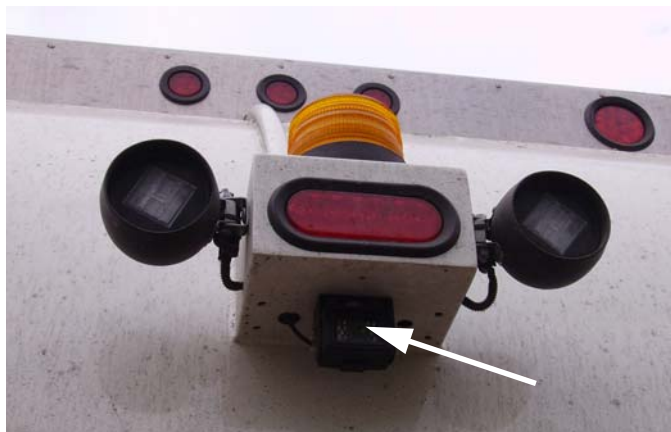
Solenoid valves are devices that use a solenoid to control valve activation. The solenoids are mounted to the directional valves and transmit operator commands to activate the mechanical spools.

A solenoid is composed of a wire coil and a movable plunger that rests against the coil. An actuating magnetic field is created when current is applied to the coil. The solenoid is used as a switch or control for the valves. Solenoid valves are electro-mechanical devices that use a solenoid to control valve actuation. Electrical current is supplied to the solenoid coil, and the resulting magnetic field acts upon the plunger, whose resulting motion actuates the valve.

Figure 3-18 Valve solenoids

External Lights and Vision Equipment

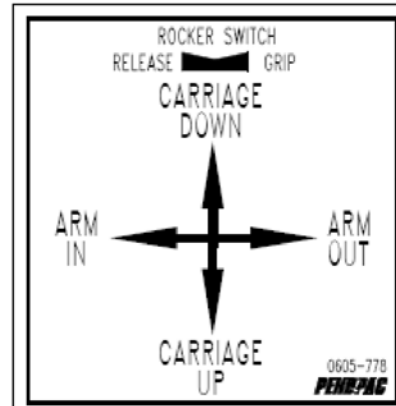
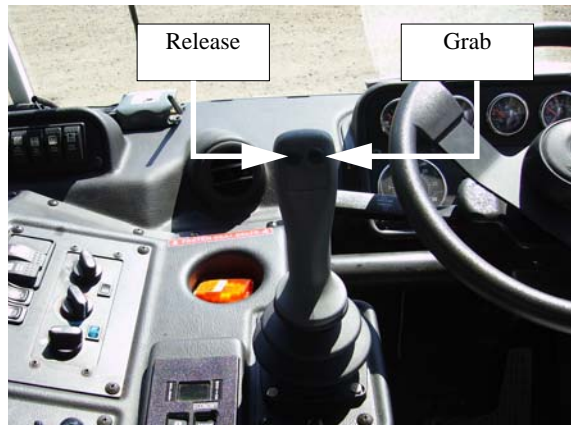
Basic lighting requirements in accordance with FMVSS are fitted as standard equipment to your Alley-Gator Right-Hand™ ASL. However there are many additional options available that may be added to your vehicle. Consult with the OEM/Labrie Enviroquip Group for more information.

Figure 3-19 Rear view camera

Joystick

The electronic joystick is used to control all slide, arm and grabber functions. The slide and arm functions are variable for speed and control. The grab and release thumbswitches are on-off only switches located on the top of the control lever.

Figure 3-20 Joystick



Harnesses

Harnesses connect all electrical components on your Alley-Gator Right-Hand™ Automated Side Loader. The harnesses are generic and may contain wires and plugs that are not utilized.

Proximity and Limit Switches

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

Figure 3-21 and Figure 3-22 show the location of the proximity/limit switches that are usually installed on the Alley-Gator Right-Hand™. The number of switches may vary, depending on the vehicle's equipment.

Figure 3-21 Location of the proximity/limit switches (curbside)

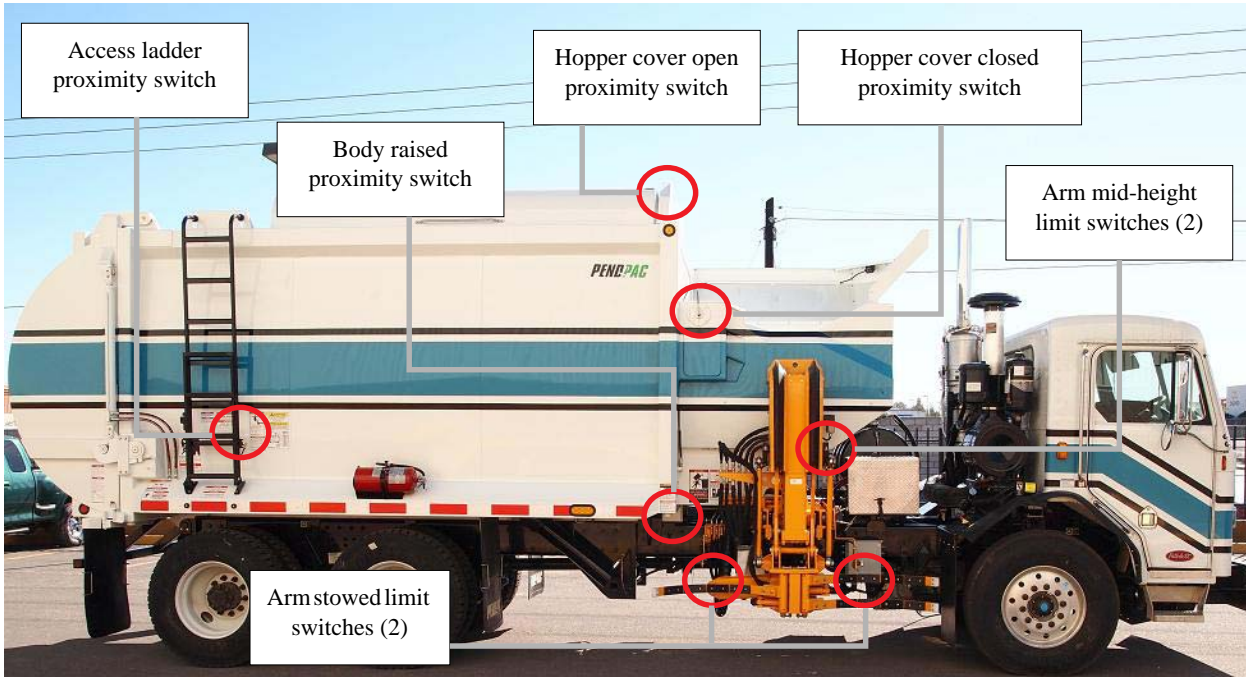


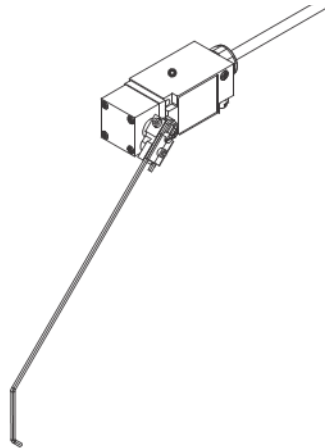
Figure 3-22 Location of the proximity switches (streetside)



Limit Switch Adjustment

The following is the general procedure for adjusting all the limit switches used on the ALLEY-GATOR RIGHT-HAND™, except for the mid-height limit switch, which calls for a different method of adjustment.

NOTE: All limit switches **MUST** be working at all times. Otherwise, the operator may not be aware that the arm is not fully retracted or that the grabber is open or closed. This may cause an accident, injuries or property damages.



To adjust a 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

Proximity switches utilize an electronic sensor to detect when solid material is within a certain distance of the switch face. The switches are constructed of stainless steel with a detachable wire connector.

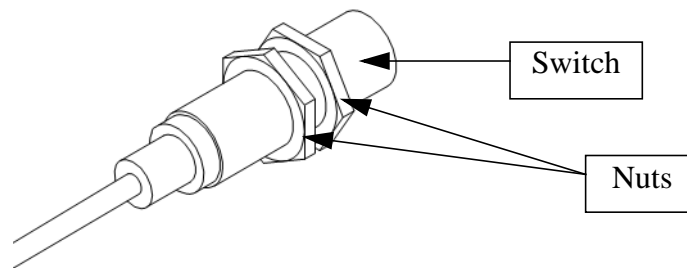
The proximity switches used to influence the operational controls of the arm and pendulum are known as *shielded proximity switches*. These switches will only detect objects in front of the switch, and will not detect objects beside the switch. When the proximity switch detects a solid object within the range of the switch a small light illuminates at the connector end.

If adjustment of a *shielded proximity switch* fails to correct the switch function, the switch shielding may have failed. This cannot be repaired and the switch must be replaced. Refer to pages regarding proper adjustment procedures for each individual switch.

NOTE: Proximity switches **MUST** function properly. Serious equipment damage may occur if you operate your vehicle with improperly adjusted or faulty switches. **REPLACE** faulty Alley-Gator Right-Hand™ Side Loader proximity switches with shielded proximity switches only.

NOTE: In order to effectively test a proximity switch you must use a multi-meter. Proximity switches have a low amperage and will not effectively test with a simple test-light.

The following is the general procedure for adjusting all the proximity switches used on the ALLEY-GATOR RIGHT-HAND™.



To adjust a proximity switch:

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

The proximity switch light should turn on when the target is detected; if not, repeat the adjustment procedure. Use a multi-meter to make sure the switch works properly.

In the following sections, you will learn how to adjust limit/proximity switches based on the function for which they are used.

Access Ladder Extension Proximity Switch

The *access ladder extension proximity switch* is located on the bottom right hand corner of the ladder (see Figure 3-23).

This proximity switch is installed to shut down power to the pump switch when the ladder is in use. This disables all hydraulic functions.

Confirm activation of the proximity switch warning message (on the MDM display screen [see Figure 2-13]) and buzzer daily prior to operating the Alley-Gator Right-Hand™ Side Loader.

NOTE: Do not operate the Alley-Gator Right-Hand™ if this proximity switch is not functioning.

Figure 3-23 Access ladder proximity switch: ladder in “home” position, left; ladder in deployed position, right



How to Adjust

To adjust the access ladder proximity switch:

1. RETURN ladder to “home” position.
2. COMPLETE lockout/tagout procedure (see *Lockout/Tagout Procedure* on page 16).
3. LOOSEN the proximity switch mounting nuts. Slide the switch forward or backward in the mount to achieve a gap of approximately $\frac{1}{4}$ ” with the tab.
4. TIGHTEN the proximity switch nuts.
5. TEST and repeat steps 3 and 4 as necessary.

Arm Mid-Height Limit Switches (2)

Both arm mid-height limit switches have two functions:

The lower switch allows the gripper to open when the arm is lower than the mid-height sensor and activates the gripper automatic close function when the arm is higher than the sensor.

The higher switch is used as a trigger for the camera auto-switching function when there are cameras on the right-hand wall and inside the hopper. It also provides a means of cushioning the grabber as it nears the top end of its stroke. No shock should occur when the grabber gets there.

Figure 3-24 Arm mid-height limit switches



The arm mid-height limit switches are located on front side of the arm.

These limit switches do not really need any adjustment other than the target itself. If they ever need adjustment, adjust the target so that the limit switch levers come in contact with the target when the arm rises. The length of the roller levers can also be adjusted for more precision.

Arm Stowed Limit Switches (2)

The arm stowed limit switches trigger the *arm not parked warning message* on the MDM display screen when the operator extends the arm or closes the gripper. If these limit switches are misaligned, the warning message on the MDM display screen may continue to appear even if the gripper is fully open and the arm fully retracted. The arm stowed limit switches also activate an audible alarm when the arm is out and the vehicle speed is greater than about 3 mph.

Figure 3-25 Arm stowed limit switches



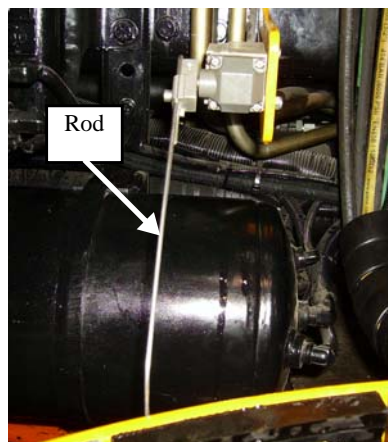
These limit switches are located behind each of the gripper fingers (one for each finger).

How to Adjust

To adjust the arm stowed limit switches:

1. Park the vehicle on safe level ground.
2. Fully open the gripper and retract the arm alongside the body.
3. Adjust both limit switches in such a way that the *arm not parked warning message* is cleared from the MDM display screen when the gripper is fully open and the arm is fully retracted. To do this:
 - 3 a. Loosen limit switch nut.
 - 3 b. Adjust the rod so that the gripper finger will trigger the limit switch (click sound) and turn off the warning message.

For the *arm not parked warning message* to stop appearing on the MDM display screen, both limit switches may require to be adjusted.



- 3 c. Tighten back up nut.
4. Slightly close the gripper or extend the arm out (about 1 inch). The *arm not parked warning message* should reappear on the MDM display screen.

- Repeat the procedure until both limit switches are properly adjusted.

Danger!



All limit switches **MUST** be working at all times. Otherwise, the operator may not be aware that the arm is not fully retracted or that the gripper is open or closed. This may cause accidents, injuries and/or property damage.

Pendulum Proximity Switches

Both the *pack and return proximity switches* are mounted on a plate above the pendulum arm pivot at the rear of the hopper bowl on the streetside of the vehicle. These proximity switches are protected by a removable cover (see Figure 3-27).

Figure 3-26 Pack and return proximity switches

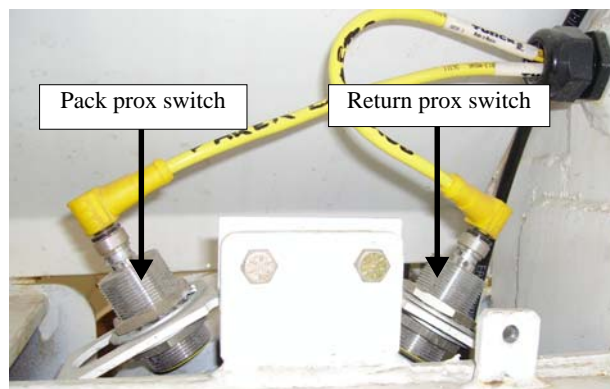


Figure 3-27 Removable cover



The *pack and return proximity switches* are normally open. These switches control the AUTOPACK cycle as follows:

- The *pack proximity switch* is triggered by a tab mounted to the pendulum arm pivot. When the pendulum travels to the rear of the hopper bowl, the tab **ACTIVATES** the proximity switch and the contacts close. This **SENDS** a signal to the control module, which then sends a signal to the pendulum to **BEGIN** the **PACKING** sweep.

- ♦ The *return proximity switch* is triggered by a tab mounted to the pendulum arm pivot. When the pendulum travels to the front of the hopper bowl, the tab ACTIVATES the proximity switch and the contacts close. This SENDS a signal to the control module, which then sends a signal to the pendulum to BEGIN the RETURN sweep.

Adjusting Pack and Return Proximity Switches

Figure 3-28 Proper position to adjust pendulum proximity switches



NOTE: This adjustment is carried out with the system 'LIVE', that is, the pump is ON and the PENDULUM is in OPERATION. Two persons are required to make this adjustment, one in the cab to operate the controls and a second to adjust the proximity switches from the outside of the hopper bowl.

Danger!



Extreme caution must be exercised when completing this adjustment as falling into the hopper while the pendulum is in operation will almost certainly result in death.

To adjust the pack and return proximity switches:

1. REMOVE the protective cover (see Figure 3-27).
2. LOOSEN the mounting nuts for the *pack proximity switch* (see Figure 3-26) and move it fully FORWARD in the mounting slot.
3. Operate a MANUAL pack cycle and move the pendulum fully to the rear of the hopper bowl.
4. ADJUST the proximity switch within the slot until the tab is in front of the proximity switch face. Note that the proximity switch indicator light will be ON. ENSURE the proximity switch gap is approximately 1/4".
5. TIGHTEN the proximity switch mounting nuts.
6. LOOSEN the mounting nuts for the *return proximity switch* (see Figure 3-26) and move it fully forward in the mounting slot.
7. Operate a MANUAL return cycle and move the pendulum fully to the front of the hopper bowl.
8. ADJUST the proximity switch within the slot until the tab is in front of the proximity switch face (see Figure 3-29).

Note that the proximity switch indicator light will be ON. ENSURE the proximity switch gap is approximately $\frac{1}{4}$ ".

9. TIGHTEN the proximity switch mounting nuts.
10. INITIATE an AUTOPACK cycle and observe the sweep of the pendulum.
11. If no more adjustment is needed put back the protective cover.

Figure 3-29 Return proximity switch and tab



In the PACK MODE, the pendulum should complete a full sweep and enter the body chamber by several inches without the cylinders bottoming out (fully stroked). Repeat steps 2 through 5 as necessary.

In the RETURN MODE, the pendulum should travel fully forward in the bowl and stop before the cylinders bottom out (fully retracted). Repeat steps 6 through 9 as necessary.

NOTE: The autopack cycle should be checked with the engine running at 1500 rpm. The pendulum should transition smoothly between the PACK and RETURN cycles with no banging at the top and bottom of the motion.

Cycle Times	
At idle	18 seconds
At 1500 rpm	12 seconds

Tailgate Open Proximity Switch

The *tailgate open proximity switch* is in front of the streetside tailgate hook (see Figure 3-30).

Figure 3-30 Tailgate open proximity switch



Figure 3-31 Cover protecting the tailgate open proximity switch



The *tailgate open proximity switch* is normally open. When the tailgate is closed this switch is **ACTIVATED**, erasing the *tailgate open warning message* from the MDM display screen (see Figure 2-13) and shutting **OFF** the buzzer. When the tailgate is **OPEN**, the switch is **DEACTIVATED**, which triggers the *tailgate open warning message* on the MDM display screen, and the buzzer. The *tailgate open proximity switch* also **ACTIVATES** the back-up alarm.

The *tailgate open proximity switch* also serves as a lockout function for the *body up/down switch*. The body is prevented from being raised from inside the cab unless the tailgate is open.

To adjust the tailgate open proximity switch:

1. RELIEVE pressure on the tailgate locks by pressing the lower part of the “Rear Door” button on the MDM module. Do not forget to press the “Doors Enable” button at the same time.
2. REMOVE both tailgate locks (see Figure 3-32).
3. REMOVE the cover that protects the tailgate open proximity switch (see Figure 3-31).
4. LOOSEN the proximity switch mounting nuts. Slide the switch forward or backward in the mount to achieve a gap of approximately $\frac{1}{4}$ ” with the tab (see Figure 3-30).
5. TIGHTEN the proximity switch nuts.
6. OPEN the tailgate.

7. EXAMINE that the *tailgate open warning message* appears on the MDM display screen and that the buzzer and back-up alarm sound immediately after the switch lost contact with the tab.
8. CLOSE the tailgate completely.
9. EXAMINE that the *tailgate open warning message* has disappeared and that both the buzzer and the back-up alarm are silent.
10. REPEAT steps 4 and 5 as necessary.
11. If no more adjustment is needed, PUT BACK both tailgate locks as well as the protective cover.

Figure 3-32 Tailgate lock removed



Body Raised Proximity Switch

The *body raised proximity switch* is center mounted on the curbside chassis frame rail.

Figure 3-33 Body raised proximity switch



The *body raised proximity switch* is not ACTIVATED when the main seal of the body loses contact with the chassis. The proximity switch then triggers the *body raised warning message* to appear on the MDM display screen (see Figure 2-13). Upon returning the body to the seated position, the *body raised proximity switch* is ACTIVATED and the *body raised warning message* is disappeared from the MDM display screen.

How to Adjust

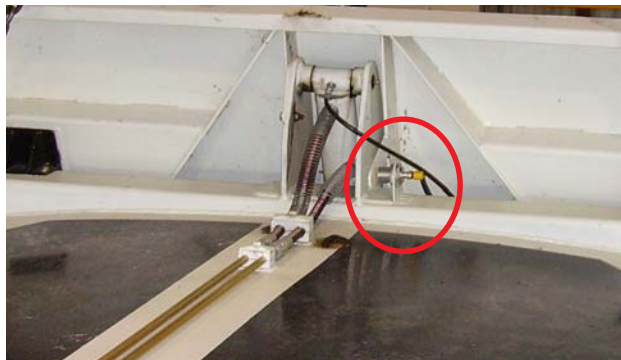
To adjust the body raised proximity switch:

1. RAISE the body and position the hoist safety prop. Refer to “Stabilizing A Hoisted Body” on page 28 in the Operator’s Manual.
2. COMPLETE the Lockout/Tagout Procedure (refer to “Lockout/Tagout Procedure” on page 16).
3. LOOSEN the proximity switch mounting nuts. Slide the switch forward or backward in the mount to achieve a gap of approximately ¼” with the tab.
4. TIGHTEN the proximity switch nuts.
5. START the side loader and switch ON the hydraulic pump.
6. RETURN the hoist safety prop to the resting position and LOWER the body.
7. RAISE the body again and CHECK that the *body raised warning message* appears on the MDM display screen (see Figure 2-13) and the buzzer sounds as soon as the body is not properly seated on the chassis.
8. LOWER the body until contact with the chassis is made. CHECK that the *body raised warning message* disappears and buzzer is silent only when the body is properly seated on the chassis.
9. TEST and REPEAT steps 1– 4, if necessary.

Hopper Cover Proximity Switch (optional)

This is *an optional switch* and may not be mounted on your vehicle, otherwise the *hopper cover proximity switch* is mounted on the body roof next to the hopper cover cylinder.

Figure 3-34 Hopper cover proximity switch



The *hopper cover proximity switch* disables the lift from proceeding in an upward motion should the hopper cover not be completely open. This proximity switch also triggers a *hopper cover warning message* to appear on the MDM display screen.

How to Adjust

To adjust the hopper cover proximity switch:

1. Fully OPEN the hopper cover.
2. COMPLETE the Lockout/Tagout Procedure (refer to “Lockout/Tagout Procedure” on page 16).

3. LOOSEN the proximity switch mounting nuts. Slide the switch forward or backward in the mount to achieve a gap of approximately $\frac{1}{4}$ " with the tab of the hopper cover.
4. TIGHTEN the proximity switch nuts.
5. TEST the operation of the switch and REPEAT the steps as necessary.

Arm Cushion Adjustment

Caution! Misadjustments and/or overspeeds of the arm or cradle could cause premature damage and/or warranty disapprovals.



A. To check arm in cushion:

1. Extend arm completely by moving the joystick full right until arm completes travel.
2. With arm fully extended, retract arm fully by moving joystick to the full left position.
3. Arm should move full speed in the retract direction until approximately 18 inches short of the body and cushion down to a minimum of $\frac{3}{4}$ speed.
4. The arm should cushion at the body so that the arm does not hit hard the body, just rocks it lightly.

NOTE: Cushions may differ depending on the weight of the cans being dumped.

B. To adjust arm in cushion (MDM):

1. On the MDM screen, clear all messages on the screen by pressing **ESC** until you see the Pendpac Information Screen.
2. Hit **ESC** on the MDM module, and this should bring you to Mode, Properties, Measure or Information Screen.
3. Scroll up by pushing the arrow key until the screen reads Properties.
4. Push the other key.
5. The MDM screen should read Function Parameters.
6. Select **OK** on the MDM screen.
7. Scroll up until the screen reads Arm In Cushion.
8. Select **OK** on the MDM screen.
9. Repeat steps A1 through A4 until a comfortable setting is reached.

NOTE: The higher the percentage the faster the flow and the lower the percentage the slower the flow.

C. To check arm up cushion:

1. Move the gripper assembly to the full down position by pushing the joystick fully forward.
2. From the full down position move the lift gripper assembly full up by pulling the joystick to the full rear position.

3. The gripper assembly should travel up at full speed until the top cushion striker bar is reached and then slow to a minimum of $\frac{3}{4}$ speed or less speed.
4. As the gripper assembly hits the rubber top cushions it should hit so that the gripper shakes slightly as to loosen any trash stuck in the container.

NOTE: Cushions may differ depending on the weight of the cans being dumped.

Caution!

Misadjustments and/or overspeeds of the arm or cradle could cause premature damage and/or warranty disapprovals.



D. To adjust arm up cushion (MDM):

1. If not still in the Function Parameters screen then repeat steps B1 through B6.
2. Using the arrow keys on the MDM screen scroll down to find the Arm Up Cushion.
3. Select by pushing **OK**.
4. Adjust parameters by scrolling up or down using the arrow keys.
5. Repeat steps C1 through C4 until a comfortable setting is reached.

NOTE: The higher the percentage the faster the flow and the lower the percentage the slower the flow.

E. To check arm down cushion:

1. Move the gripper assembly to the full up position by pushing the joystick in the full back direction.
2. From the full up position move the gripper assembly down by pushing the joystick in the full forward direction.
3. The gripper assembly should start moving at $\frac{3}{4}$ speed or less and then when the top cushion striker bar is clear the gripper assembly should speed up to full speed.
4. As the gripper assembly moves down it should come down at a speed that the can lid shuts on its way down.

NOTE: This speed may need to differ depending on the size of can being used.

F. To adjust arm down cushion (MDM):

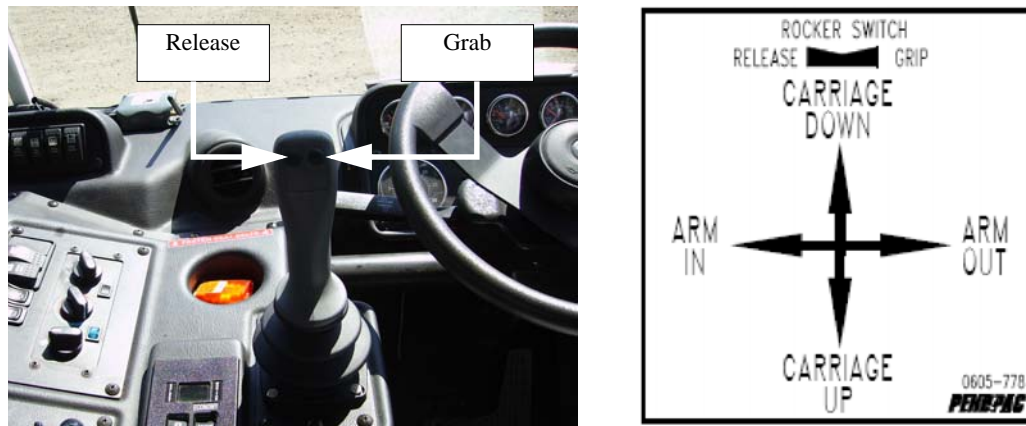
1. If not still in the Function Parameters screen then repeat steps B1 through B6.
2. Using the arrow keys on the MDM screen scroll down to find the Arm Dn Cushion.
3. Select by pushing **OK**.
4. Adjust parameters by scrolling up or down using the arrow keys.
5. Repeat steps E1 through E4 until a comfortable setting is reached.

NOTE: The higher the percentage the faster the flow and the lower the percentage the slower the flow.

Joystick

The joystick is a dual axis, electronic remote control lever that allows the operator to perform two proportional functions at the same time. Proportional operations control all movements of the arm and slide. The on-off thumbswitches located on the top of the lever are used to operate the grabber controls.

Figure 3-35 Joystick



Valve Bank

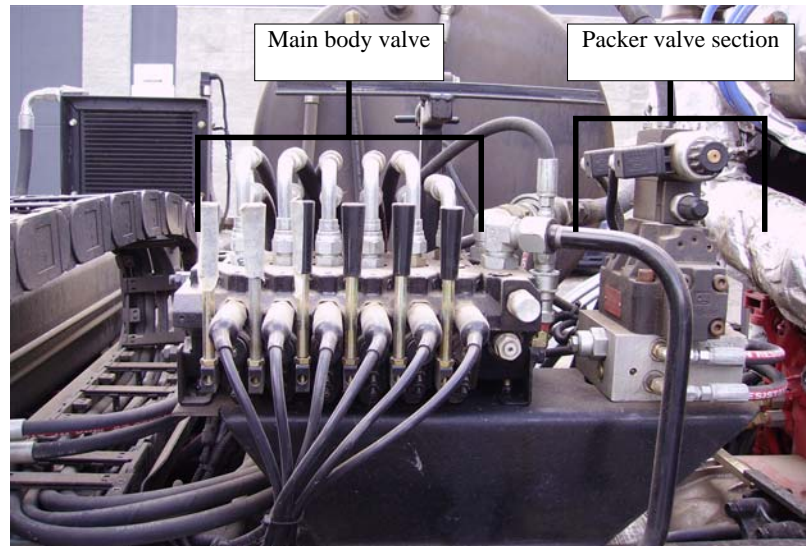
The hydraulic valve bank is controlled by proportional solenoids.

The main body valve (see Figure 3-36) is equipped with proportional solenoids. These solenoids are activated through the control module.

The packer valve section (see Figure 3-36) is fitted with solenoids that are electrically activated by two proximity switches mounted to the body via the control module. These solenoids are 12 volt, on/off.

NOTE: When facing the main body valve, the packer valve section is located on the right side of the body valve (see Figure 3-36).

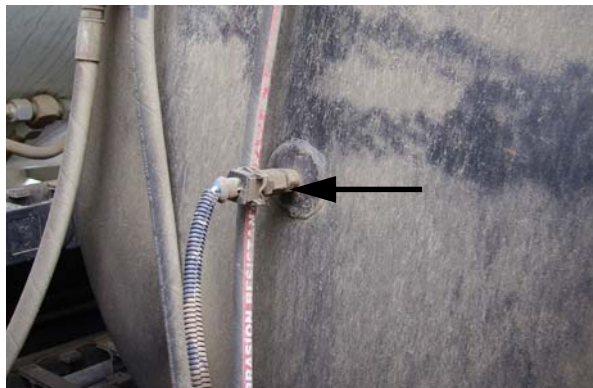
Figure 3-36 Valve bank



Temperature Sending Unit

A *temperature sending unit* has been installed on the hydraulic oil tank (see Figure 3-37). The IQAN monitors the oil temperature. When it reaches 200° F (93.33° C), a corresponding warning message appears on the MDM display screen.

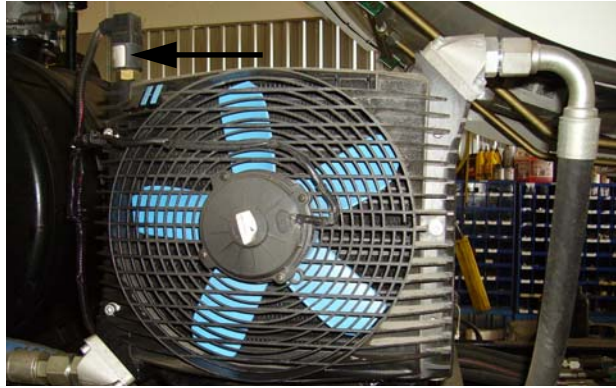
Figure 3-37 Temperature sending unit



Oil Cooler Fan Thermostat

When the pack circuit hydraulic oil temperature exceeds 150° F (66° C), the thermostat is triggered and a relay is tripped. The fan motor will circulate during the time the oil temperature exceeds the safe thermostat rating. The battery power is protected by a 20 A fuse.

See the location of the fan thermostat in Figure 3-38.

Figure 3-38 Fan thermostat


Hour Meter

The hour meter device records the duration of the pump ON time and is accessible through the MDM display screen.

NOTE: Tampering with the hour meter WILL VOID WARRANTY.

Lighting & Camera Equipment

Please note that there are numerous lighting and camera options available for your Alley-Gator Right-Hand™. Please consult with the chassis dealer/Labrie for further recommendations, additions and technical data.

Figure 3-39 Arm light


Hydraulic System Maintenance & Safety

The hydraulic system of your Alley-Gator Right-Hand™ may require periodic system check and adjustments. It may be that a major hydraulic component has been changed, the unit is not performing in terms of payload, or the unit has recently been put into service and the system requires adjustment following a run-in period.

Hydraulic Safety Warnings

Follow a proper lockout/tagout procedure prior to servicing the hydraulics. Refer to “Lockout/Tagout Procedure” on page 16.

Mechanics performing hydraulic system maintenance must have previous hydraulic experience.

Use caution as human skin can be easily penetrated by high pressure oil (2,000 psi and above).

NOTE: Exercise stringent equipment support procedures when servicing hydraulic systems. Be cautious to overhead dangers.

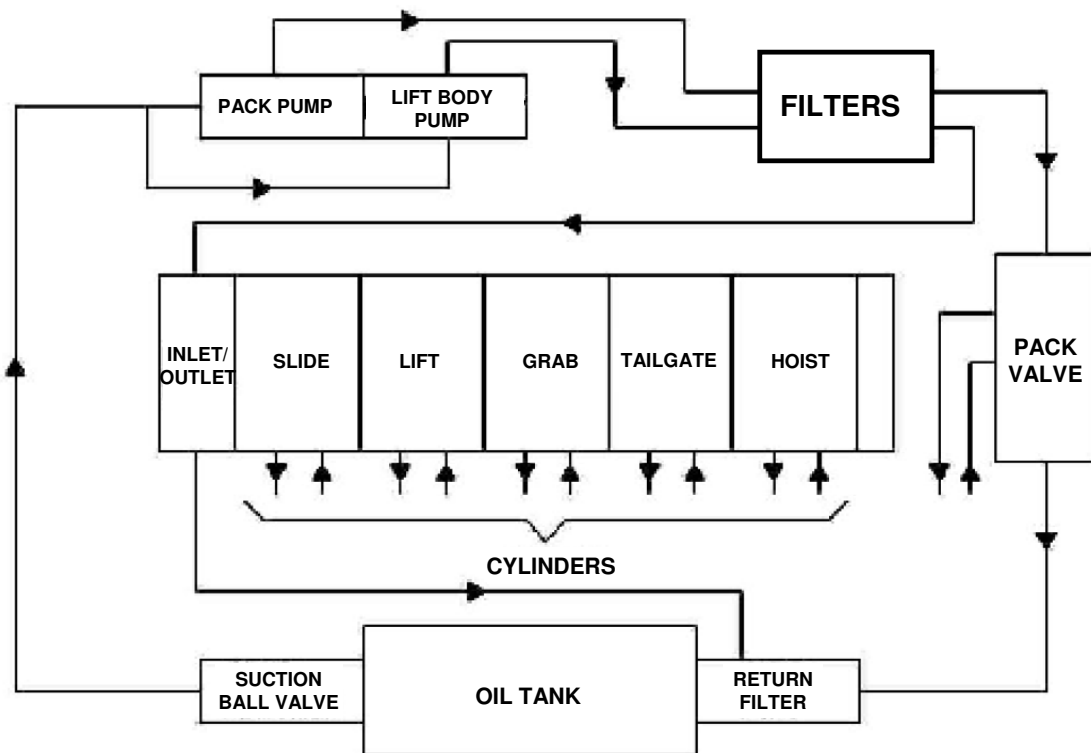
Danger!



Failure to comply with safety precautions and safety procedures may result in serious injury or death.

Hydraulic System

Alley-Gator Right-Hand™ Hydraulic System



The hydraulic system of the Alley-Gator Right-Hand™ is composed of two circuits. The hydraulic **pack circuit** component is supported by its own individual pump and directional valve. The hydraulic **body and arm** components are supported by a second pump and control valve. All **remaining hydraulic components** are jointly shared by both systems.

Quick Chart for Hydraulic System Settings

ITEM	LOCATION	TYPE	PSI
Pressure Compensator, Body & Lift Functions	Pump	Adjustable	2500
Pressure Compensator, Pack Functions	Pump	Adjustable	2700
Packer Pump Relief	Main Valve Bank	Adjustable	2700
Main Pressure Relief	Main Valve Bank	Adjustable	2500
Grab Open Port Relief	Main Valve Bank	Factory Set	2000
Grab Close port Relief	Main Valve Bank	Factory Set	1200
Slide Extend Port Relief	Main Valve Bank	Factory Set	2000
Slide Retract Port Relief	Main Valve Bank	Factory Set	2000
Lift Up Port Relief	Main Valve Bank	Factory Set	2000
Lift Down Port Relief	Main Valve Bank	Factory Set	2000
Hoist Up Port Relief	Main Valve Bank	Factory Set	2500
Hoist Down Port Relief	Main Valve Bank	Factory Set	400
Tailgate Up Port Relief	Main Valve Bank	Factory Set	2500
Tailgate Down Port Relief	Main Valve Bank	Factory Set	2500

Hydraulic Hose

The Alley-Gator Right-Hand™ hydraulic system is supported with the very best quality hydraulic hoses. Any hydraulic hose showing any sign of damage requires replacement. In doing so, it is important that maintenance personnel select hose replacements with the SAME SAE rating as identified on the original hose.

Detailed hydraulic hose information is provided by the LabriePlus Parts Department. Please contact Labrie for further hose descriptions and coupling guidelines when selecting replacement hoses for the Alley-Gator Right-Hand™ hydraulic system.

As outlined in the Maintenance Schedule starting on page 32, a daily pre-trip inspection is to be performed by the operator. We advise maintenance personnel to perform a monthly hydraulic hose inspection for leaks and wear.

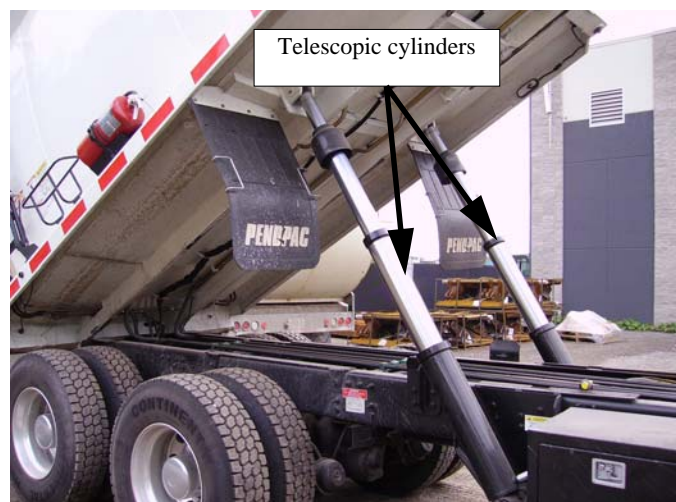
NOTE: Each hose is clearly identified by a “lay line”.



Hydraulic Cylinders

Hydraulic cylinders convert hydraulic power into linear motion and force. The force generated by a hydraulic cylinder is a product of pressure and effective area. When sizing a cylinder for a specific application, the relationships between pressure, area, displacement volume, flow, speed and the influence of inefficiencies must be considered. Labrie Enviroquip Group uses only first grade hydraulic cylinders of the highest quality. Standard double acting and telescopic cylinders are fitted to your Alley-Gator Right-Hand™.

IMPORTANT: High pressure fluid is present in operational hydraulic systems. Fluids under high pressure are dangerous and can cause serious injury or death. Only highly qualified and competent maintenance personnel should make modifications, repairs or adjustment to any hydraulic system. Should you have any doubts, CONSULT AN ENGINEER OR THE MANUFACTURER.



PTO Driven or Front Mounted Pump

The pump used on the Alley-Gator Right-Hand™ is either driven by the power take-off (PTO) or front mounted through the engine crane shaft. Your Alley-Gator Right-Hand™ has been manufactured to your requirements; each chassis size custom ordered. Type of pump installation varies according to the chassis and manufacturer.

General PTO Safety Information

NOTE: Labrie Enviroquip Group has given careful consideration to your operational needs and the importance of properly matching the vehicle transmission and auxiliary equipment to the correct PTO. If your Alley-Gator Right-Hand™ is PTO equipped, it has been fitted with either a Chelsea or Muncie PTO.

Carefully refer to your Chelsea or Muncie owner's manuals, service manuals and/or other instructions provided with your Alley-Gator Right-Hand™. Always follow proper installing, operating and repairing procedures. Only use proper components in application for which they are approved. Be sure to assemble components properly and never use worn-out or damaged components.

Danger!



Never operate the controls of the power take-off from any position that could result in getting caught in the moving PTO.

Hydraulic Vane Pump

Alley-Gator Right-Hand™ vehicles are equipped with a dual vane pump. Both sections of the dual vane pump are activated by two electric solenoid valves. Both of these valves are mounted on the pump assembly (see Figure 3-40). The electrical signal that activates the solenoids is sent by the pump switch through the control module.

Figure 3-40 Solenoids on hydraulic pump



Directional Control Valve

Your Alley-Gator Right-Hand™ is equipped with a ***packer directional control valve*** and a ***lift and body directional control valve***. These solenoid operated directional valves are for directing and stopping flow at any point in the hydraulic system. The directional valves are designed to provide smoother control of actuator acceleration and deceleration reducing hydraulic shock and increasing component longevity

Packer Directional Control Valve

The packer directional control valve is bolted to the main manifold and is fitted with an adjustable spool throttle valve that enhances smooth spool shifting (see Figure 3-60). Adjustments may be done by turning the adjustment capscrew clockwise to increase the shifting time and counter clockwise to decrease the spool shifting time. The spool throttle manifold block houses a shuttle valve which sends the signal to the hydraulic pump to supply hydraulic fluid to the hydraulic system. The packer directional control valve also houses a relief valve that is located in the subplate manifold. The relief valve protects the hydraulic components in the event of a compensator failure.

Lift and Body Directional Control Valve

(Main Directional Control Valve)

The lift and body directional control valve is mounted to the chassis frame in front of the hopper bowl. The directional control valve is solenoid operated and consists of working sections each individually devoted to a single hydraulic function. Identification of each section is made as such, from left to right; slide, lift, grab tailgate and hoist. The remaining and final working section (optional) is devoted to the hydraulic function of the hopper cover.

The directional control valve has a main relief valve that has been set to 2,500 psi; this setting should not be adjusted. The individual working section relief valves should not require adjustment. However, should adjustment become necessary, pressure adjustment guidelines are outlined on page 72.

Hydraulic Circuit Pressure Adjustments

Pack Circuit Hydraulic Adjustments

IMPORTANT: Adjustments to the pack circuit hydraulic system pressure must be performed by qualified maintenance personnel only. Improper procedure or exceeding correct pressure setting can cause equipment failure/damage, injury or death.

NOTE: *In order to perform pack circuit hydraulic system adjustments, simultaneous adjustment of the pressure compensator and relief valve is necessary. Prior to adjusting the hydraulic pack circuit pressure, maintenance personnel must first ensure that the pack circuit standby pressure is 320 psi.*

Pack Circuit Standby Pressure

1. CHECK the restriction indicator on the pack circuit pressure filter. Change if necessary.
2. REMOVE the cap on the pressure test port (right hand side) of the pack circuit directional control valve.
3. INSERT 0 - 3000 psi pressure gauge (with engine running and the pump ON). Correct standby pressure is 320 psi.

If adjustment is required:

4. REMOVE the cap from the load sense valve on the packer pump (front pump).
5. LOOSEN the locknut and turn the adjustment screw. IN to RAISE PRESSURE, OUT to DECREASE PRESSURE.

Upon completion of achieving the proper standby pressure, maintenance personnel may then carry out hydraulic system pressure adjustments as directed on the following page.

Pack Circuit Pressure Compensator Adjustments

To adjust the pack circuit pressure compensator:

1. ENSURE pressure gauge is in the pressure test port of the pack circuit directional control valve.
2. While engine is running and the pump is ON, bottom out the pack cylinder in either direction using the manual override on the pack valve solenoids. The gauge should read a **system pressure of 2,500 psi**.

If adjustment is required, it is performed simultaneously as described:

3. REMOVE the cap from the pressure compensator (valve without hose) on the packer pump.
4. LOOSEN the locknut and turn the adjustment screw IN to RAISE PRESSURE, OUT to DECREASE PRESSURE. Correct pressure is 3,000 psi.
5. REMOVE the cap from the relief valve cartridge (located on the aluminum block on the side of the packer valve)
6. LOOSEN the locknut and turn the adjustment screw IN to RAISE the PRESSURE and OUT to DECREASE PRESSURE. Correct pressure is 2,700 psi.
7. RETURN to the pressure compensator and turn the adjustment screw counter clockwise until the pressure is below 2,500 psi. Follow by turning the adjustment screw clockwise until the pressure is 2,500 psi.

Lift & Body Circuit Pressure Adjustments

(Main Circuit)

IMPORTANT: Adjustments to the lift and body circuit hydraulic system pressure must be performed by qualified maintenance personnel only. Improper procedure or exceeding correct pressure setting can cause equipment failure/damage, injury or death.

NOTE: *In order to perform lift and body circuit hydraulic system adjustments, simultaneous adjustment of the pressure compensator and relief valve is necessary. Prior to adjusting the hydraulic lift and body circuit pressure, maintenance personnel must first ensure that the lift and body hydraulic pump circuit standby pressure is 320 psi.*

Lift and Body Standby Pressure Adjustment

1. CHECK the restriction indicator on the lift and body circuit pressure filter. Change if necessary.
2. REMOVE the cap on the pressure test port of the directional control valve.
3. INSERT a 0 - 3000 psi pressure gauge (with engine running and the pump ON). Correct standby pressure is 320 psi.

If adjustment is required:

4. REMOVE the cap from the load sense valve on the lift and body hydraulic pump (rear pump).
5. LOOSEN the locknut and turn the adjustment screw. IN to RAISE PRESSURE, OUT to DECREASE PRESSURE.

Upon completion of achieving the proper standby pressure, maintenance personnel may then carry out hydraulic system pressure adjustments as directed on the following page.

Lift & Body Circuit Hydraulic Adjustment Procedure

Lift and Body Circuit Hydraulic Adjustment Procedure

1. ENSURE pressure gauge is in the pressure test port of the directional control valve.
2. While engine is running and the pump is ON, operate the lift circuit to the fully raised position. Bottom out the circuit using the manual override. The gauge should read a **system pressure of 2,250 psi**.

If adjustment is required, it is performed simultaneously as described:

3. REMOVE the cap from the pressure compensator (valve without hose) on the packer pump.
4. LOOSEN the locknut and turn the adjustment screw IN to RAISE PRESSURE, OUT to DECREASE PRESSURE. Correct pressure is 2,250 psi.
5. REMOVE the cap from the relief valve cartridge.
6. LOOSEN the locknut and turn the adjustment screw IN to RAISE the PRESSURE and OUT to DECREASE PRESSURE. Correct pressure is 2,700 psi.
7. RETURN to the pressure compensator and turn the adjustment screw counter clockwise until the pressure is below 2,250 psi. Follow by turning the adjustment screw clockwise until the pressure is 2,250 psi.

Working Sections of the Lift & Body Directional Control Valve

The directional control valve consists of working sections, each individually devoted to two hydraulic functions (see Figure 3-41). Each section has outlet ports with secondary relief valves, each one functioning with different working pressures. The correct pressure settings are outlined below:

Figure 3-41 Lift and body directional valve (part 1)

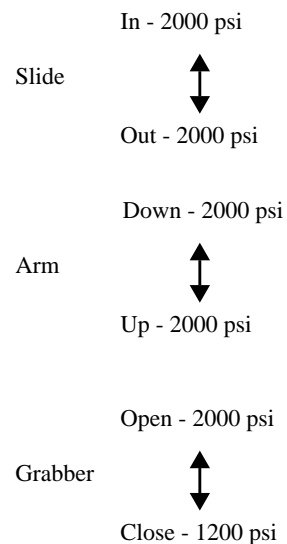
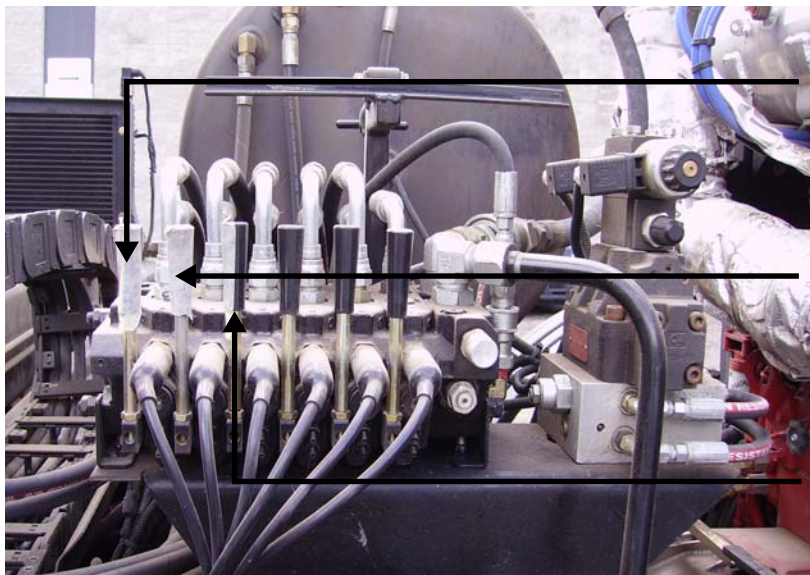
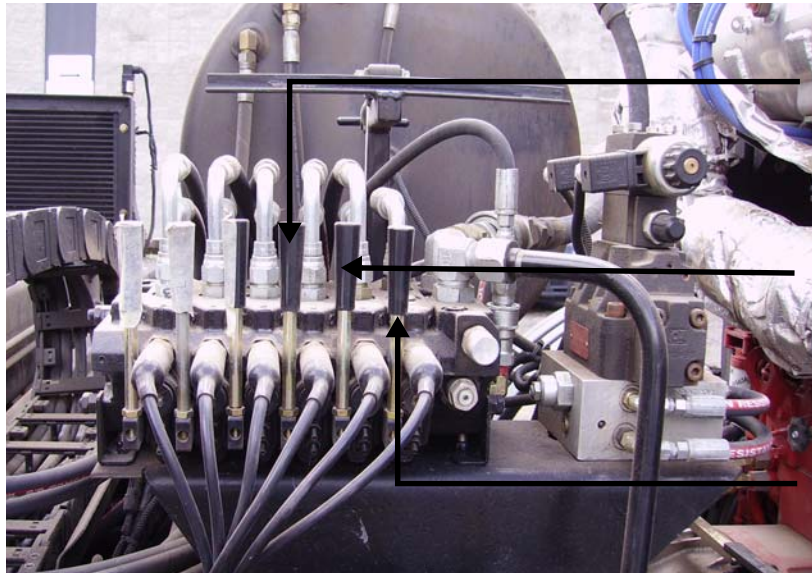


Figure 3-42 Lift and body directional valve (part 2)



	Open - 1500 psi
Hopper Cover	↕
	Close - 1800 psi
	Down - 2500 psi
Tailgate	↕
	Up - 2500 psi
	Down - 400 psi
Body	↕
	Up - 2500 psi

The individual working section secondary relief valves should not require adjustment. However, should adjustment become necessary, individually operate each hydraulic function and adjust the relief screw until the correct pressure is obtained.

IMPORTANT: Pressure adjustments to the system must be performed by qualified maintenance personnel only.

Slide Work Circuit

The slide work circuit (see Figure 3-41) consists of one double acting cylinder, one valve bank section with proportional solenoid and two secondary port relief valves.

Pressure Settings	
Slide IN	2000 psi
Slide OUT	2000 psi

Lift Work Circuit

The lift work circuit (see Figure 3-41) consists of two hydraulic motors and brake, one valve bank section with proportional solenoid, a counter balance valve and two secondary port relief valves.

Pressure Settings	
Lift UP	2000 psi
Lift DOWN	2000 psi

Grabber Work Circuit

The grabber work circuit (see Figure 3-41) consists of two double acting hydraulic cylinders, one valve bank section with on/off solenoid and two port relief valves.

Pressure Settings	
Grabber OPEN	2000 psi
Grabber CLOSE	1200 psi

Tailgate Work Circuit

The tailgate work circuit (see Figure 3-42) consists of two double acting hydraulic cylinders, one valve bank section with on/off solenoid, two pilot operated check valves and two secondary port relief valves.

Pressure Settings	
Tailgate UP	2500 psi
Tailgate DOWN	2500 psi

Body Hoist Work Circuit

The body hoist work circuit (see Figure 3-42) consists of two single acting cylinders, one valve bank section with on/off solenoid, two velocity check valves and two secondary port relief valves. However, only one relief valve is truly utilized (*body UP*). The other *hydraulic function (body DOWN)* lowers on the principal of gravity and the physical weight of the body thus enabling the relief port to be set at the very minimum.

Pressure Settings	
Body hoist UP	2500 psi
Body hoist DOWN	400 psi

Hopper Cover Work Circuit

Your Alley-Gator Right-Hand™ may be equipped with a hopper cover. If so, the final work section on the right end is devoted to the hydraulic functions of the hopper cover.

The hopper work circuit (see Figure 3-42) consists of one double acting cylinder, one valve bank section with on/off solenoid, two flow restrictors and two secondary work port valves.

Pressure Settings	
Hopper cover OPEN	1500 psi
Hopper cover CLOSE	1500 psi

Hydraulic Safety Valves

Body Hoist Velocity Check Valves

Two velocity check valves have been installed at the body hoist cylinders. The primary function of the valves is to safely control the rate of descent of the body when lowering. Their secondary function acts as a safety back-up feature that prevents the body from falling in the event of component failure.

Figure 3-43 Body hoist velocity check valve



Lifting Arm Holding Valves (in units w/ 2 valves behind grabber)

The following procedure only applies to units with a 2-valve setup behind the grabber.

To adjust the pressure on the holding valves:

1. Apply all safety measures to ensure safety around the vehicle at all times.
2. Make sure that the parking brake is applied.
3. Locate the two Sun holding valves on the Right Hand™ lifting arm.

The in/out holding valve should be equipped with a CBEB-LHN cartridge, and the grabber holding valve should be equipped with a CBEB-LIN cartridge.

4. Connect a pressure gauge to the P2 port. See “Adjusting Arm Pump Pressure” on page 82.
5. Start the engine and engage the hydraulic pump.
6. Using a lever on the valve, manually extend the Right Hand™ gradually.

7. If the gauge does not indicate 650 psi when the automated arm starts extending, adjust the in/out holding valve adjustment screw to set the pressure properly.

Figure 3-44 Adjustment screw on In/Out holding valve



8. Repeat step 1 to step 7 for the grabber holding valve. The grabber holding valve pressure must be set to 250 psi.

Figure 3-45 Grabber holding valve



In/Out Holding Valves (in units w/ 1 valve behind grabber)

The following procedure only applies to units with a 1-combined valve setup behind the grabber.

NOTE: With this setup, 2 cylinders are used to enable the in/out movements of the lift rail, and each of these cylinders has its own in/out holding valve: one located on the streetside of the rail (see Figure 3-46), the other on the curbside of the rail (see Figure 3-46). When performing pressure adjustment of the in/out holding valve of a cylinder, the other cylinder must be made mechanically or hydraulically inoperative so it cannot move. In/out holding valves must be adjusted separately. The following procedure applies to both valves.

To adjust the pressure on an in/out holding valve:

1. Apply all safety measures to ensure safety around the vehicle at all times.

2. Make sure that the parking brake is applied.
3. Proceed with adjustment of the first holding valve (see Figure 3-46 for location).

Figure 3-46 Streetside holding valve (left) / Curbside holding valve (right)



4. Connect a pressure gauge to the P2 port. See “Adjusting Arm Pump Pressure” on page 82.
5. Start the engine and engage the hydraulic pump.
6. Using a lever on the directional control valve, manually extend the Right Hand™ gradually.
7. If the gauge does not indicate 650 psi when the automated arm starts extending, adjust the in/out holding valve adjustment screw to set the pressure properly (see Figure 3-47).
8. Proceed with adjustment of the second holding valve (see Figure 3-46 for location).
Repeat steps 6 and 7.

IMPORTANT: Mechanically or hydraulically prevent the cylinder, of which the holding valve is not being adjusted, from moving forward.

Figure 3-47 Adjustment screw



Combined Grabber Valve (in units w/ 1 valve behind grabber)

Located just behind the grabber, this valve serves as a holding valve and a flow divider, and is used to ensure precise operations of the grabber.

NOTE: The flow divider section of the grabber is factory-adjusted to the correct value and no adjustment can be done.

Adjusting Pressure inside Combined Grabber Valve

The following procedure can be used to adjust the pressure that exists inside the holding section of this valve.

IMPORTANT: Only qualified maintenance personnel should perform necessary adjustments. Otherwise, component failure, damage, injury or death may result.

To adjust the pressure inside the holding section of the grabber valve, do the following:

1. Turn on the engine and engage the hydraulic pump.
2. Extend the lifting arm.

Danger! Do not stand in the path of the arm while operating the lifting arm.



-
3. Locate the grabber valve (see Figure 3-48).

Figure 3-48 Grabber valve



4. Completely screw the adjusting screws of both cartridges using an Allen key (see Figure 3-49).

Figure 3-49 Valve cartridges

NOTE: You have to loosen the locknuts first.

5. Turn the adjusting screws of both cartridges 3 ½ turns counterclockwise.

NOTE: Do not forget to re-screw both locknuts back.

6. Retract the lifting arm.

Danger! Do not stand in the path of the arm while operating the lifting arm.

Once this procedure is completed, the pressure inside the holding section will be set to about 850 psi.

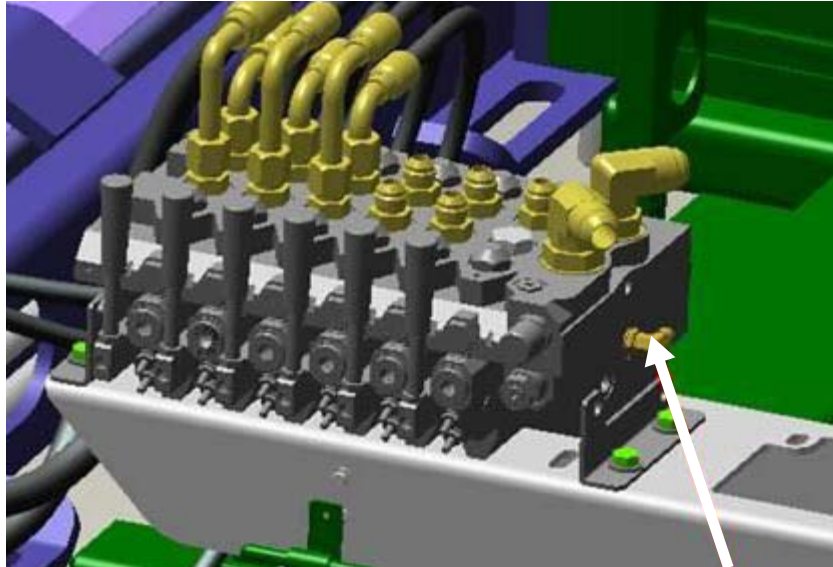
Validating Grabber Valve Pressures

You can use the following procedure to validate the adjusted pressures of the holding cartridges of the grabber valve.

To validate these pressures, do the following:

1. Remove the cap on the pressure test port of the lift and body directional control valve (see Figure 3-50).

Figure 3-50 Pressure test port



2. Insert a 0 - 3000 psi pressure gauge into the pressure test port.
3. Turn on the engine and engage the hydraulic pump.
4. Extend the lifting arm.

Danger! Do not stand in the path of the arm while operating the lifting arm.

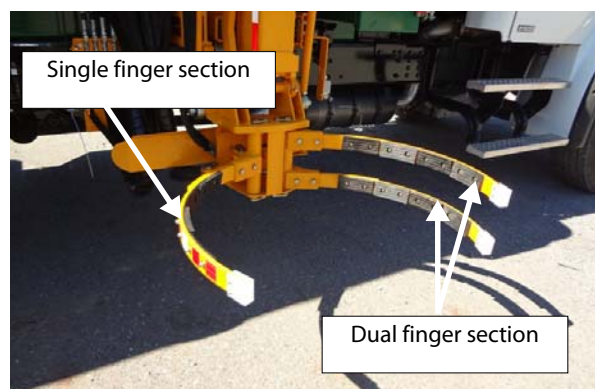


5. Locate the grabber lever on the lift and body directional control valve (see Figure 3-41).

Validating Pressure inside the Single Finger Cartridge

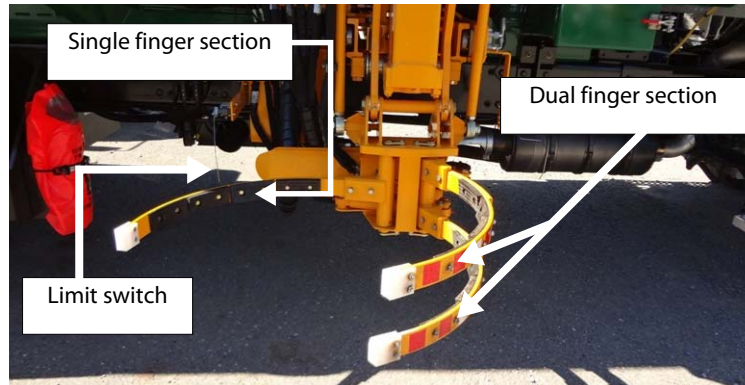
6. Pull the grabber lever towards you to partly close the grabber. Make sure the grabber is not completely closed (see Figure 3-51).

Figure 3-51 Grabber at partly closed position



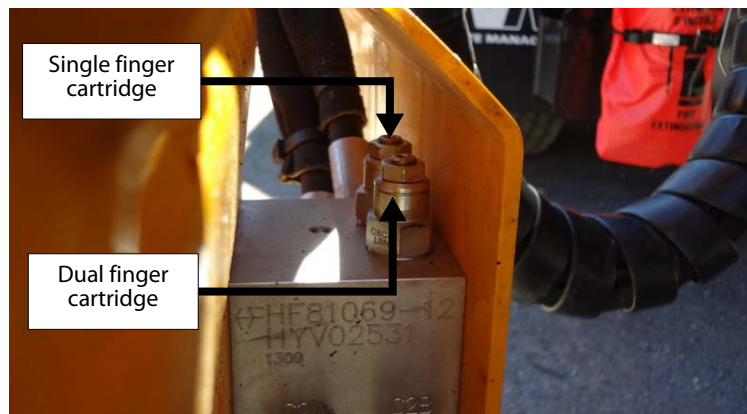
7. Manually push back the single finger section of the grabber to validate the pressure inside the corresponding cartridge (see Figure 3-52 and Figure 3-53). Push back this section until it touches the limit switch.

Figure 3-52 Single finger section pushed back



NOTE: The dual finger section of the grabber also moves while the single finger section is being pushed back.

Figure 3-53 Grabber valve cartridges



8. Slowly push the grabber lever.
9. Validate pressure on gauge.

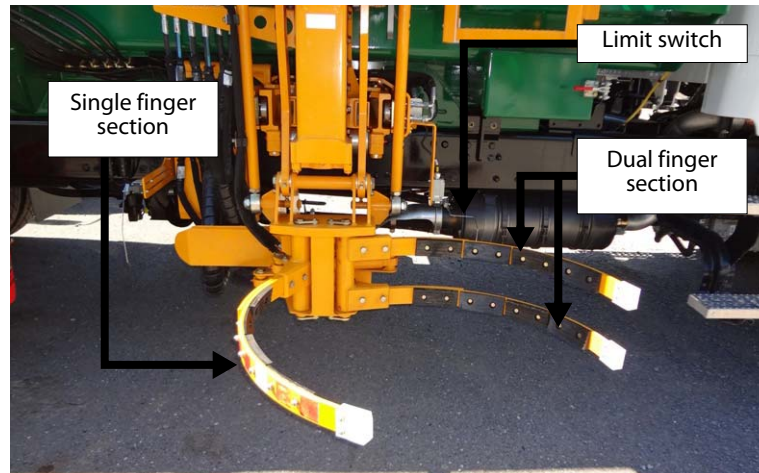
NOTE: The dual finger section should start moving backwards when the pressure reaches 800-850 psi. If not, readjust the single finger cartridge pressure. For this test to be successful, the fingers must move slowly, not quickly. Let the dual finger section move backwards until it touches the limit switch.

10. Release the grabber lever when both finger sections are completely open.

Validating Pressure inside the Dual Finger Cartridge

11. Pull the grabber lever towards you to partly close the grabber. Make sure the grabber is not completely closed (see Figure 3-51).
12. Manually push back the dual finger section of the grabber to validate the pressure inside the corresponding cartridge (see Figure 3-53 and Figure 3-54). Push back this section until it touches the limit switch (see Figure 3-54).

Figure 3-54 Dual finger section pushed back



NOTE: The single finger section of the grabber also moves while the dual finger section is being pushed back.

13. Slowly push the grabber lever.
14. Validate pressure on gauge.

NOTE: The single finger section should start moving backwards when the pressure reaches 800-850 psi. If not, readjust the dual finger cartridge pressure. For this test to be successful, the finger must move slowly, not quickly. Let the single finger section move backwards until it touches the limit switch.

15. Retract the lifting arm.

Danger! Do not stand in the path of the arm while operating the lifting arm.



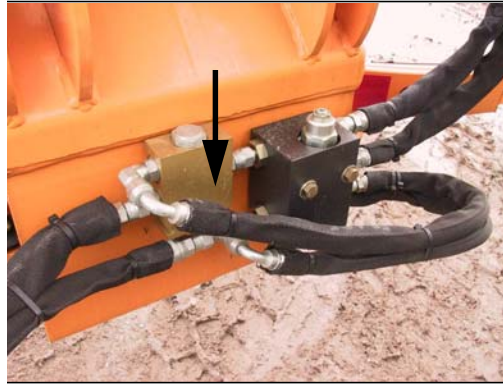
16. Turn off the hydraulic pump.
17. Turn off the engine.
18. Remove gauge from the pressure test port and replace cap.

Hydraulic Flow Dividers

Arm Flow Divider (in units w/ 2 valves behind grabber)

The flow divider is used to hydraulically synchronize two parallel motions of the grabber; grab open and grab close. This is obtained by splitting the flow from a single pump source to the pair of matched grabber cylinders. It also enables the pair of cylinders to synchronize at the end of each stroke without accumulating errors. The flow divider is located behind the grabber (see Figure 3-55).

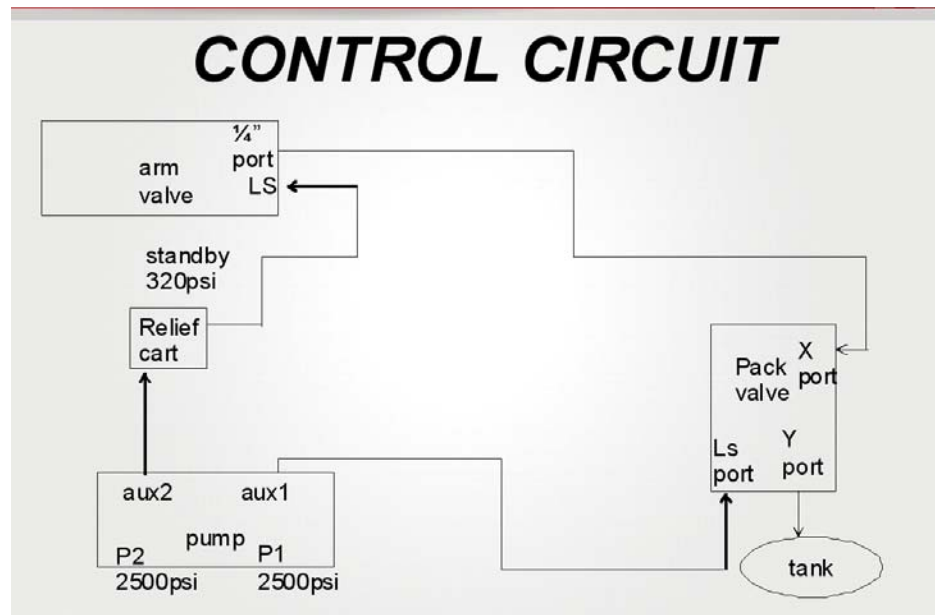
Figure 3-55 Arm flow divider



IMPORTANT: Only qualified maintenance personnel should perform necessary adjustments. Component failure, damage, injury or death may result.
Do not attempt to synchronize the grabber cylinders without utilizing the differential pressure relief valves.

Control Circuit

The following is a diagram that shows the actual connections between the various elements of the hydraulic control circuit.



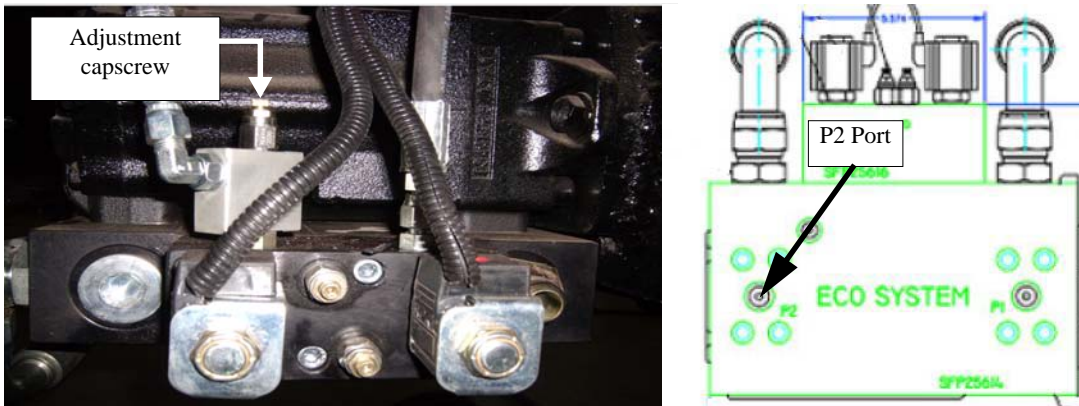
The control circuit allows the maintenance personnel to check and adjust the system pressure at different points along the circuit. The following items can be checked and adjusted:

- ◆ Standby pressure
- ◆ Arm pump pressure
- ◆ Packer pump pressure

Adjusting Standby Pressure

To adjust the standby pressure, proceed this way:

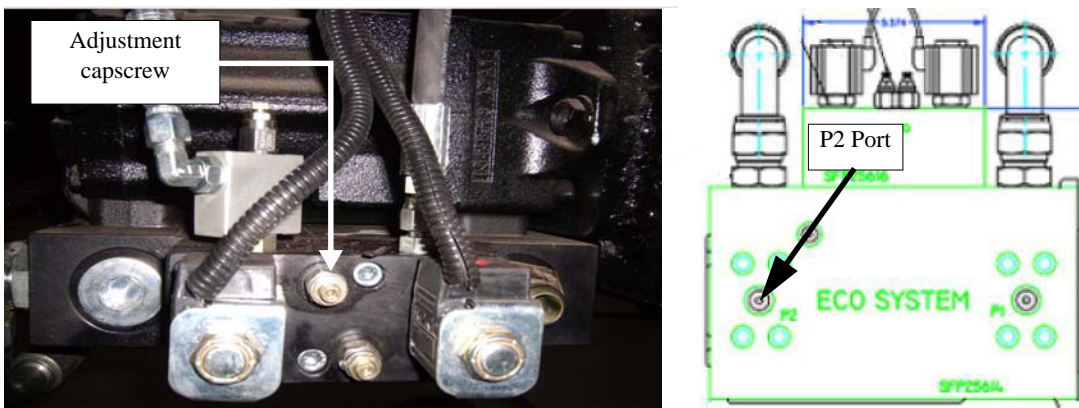
1. INSERT a 0-3000 psi gauge into the P2 port (see Figure 3-56).
2. With the pump on and no functions operating, SET pressure to 320 psi by turning the adjustment capscrew clockwise or counterclockwise depending on the gauge reading (see Figure 3-56).
3. REMOVE the gauge after correctly setting the pressure.

Figure 3-56 Standby pressure adjustment

Adjusting Arm Pump Pressure

To adjust the arm pump pressure:

1. INSERT a 0-3000 psi gauge into the P2 port (see Figure 3-57).
2. With the pump on and the arm function stroked to the full up position, SET pressure to 2700 psi by turning the adjustment capscrew clockwise or counterclockwise depending on the gauge reading (see Figure 3-57).
3. REMOVE the gauge after correctly setting the pressure.

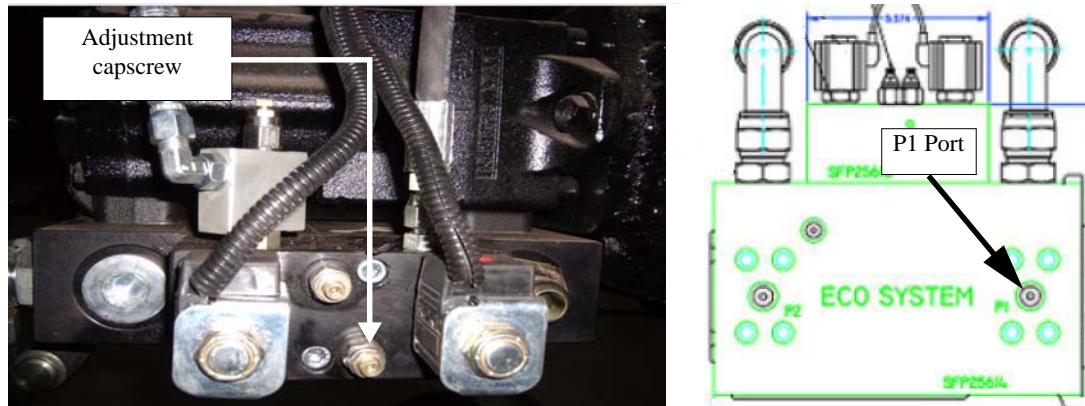
Figure 3-57 Arm pump pressure adjustment

Adjusting Packer Pump Pressure

To adjust the packer pump pressure:

1. INSERT a 0-3000 psi gauge into the P1 port (see Figure 3-58).
2. With the pump on and the packer function stroked to the full up position, SET pressure to 3000 psi by turning the adjustment capscrew clockwise or counterclockwise depending on the gauge reading (see Figure 3-58).
3. REMOVE the gauge after correctly setting the pressure.

Figure 3-58 Packer pump pressure adjustment



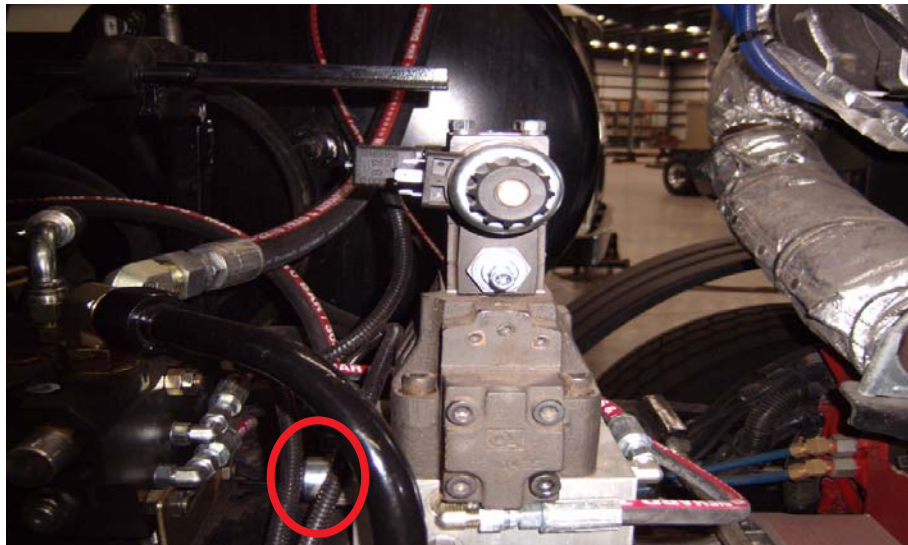
Also, in order to improve the efficiency of the packer, it may be required to adjust the packer counter balance valve and the packer choke valve (see below).

Adjusting Packer Counter Balance Valve

To adjust the packer counter balance valve, do the following:

1. **ACTIVATE** the packer retract let-off switch.
2. **SCREW IN** the counter balance valve until the packer drifts down.
3. **BACK OUT** the valve until the packer maintains full up position.

Figure 3-59 Packer counter balance adjustment



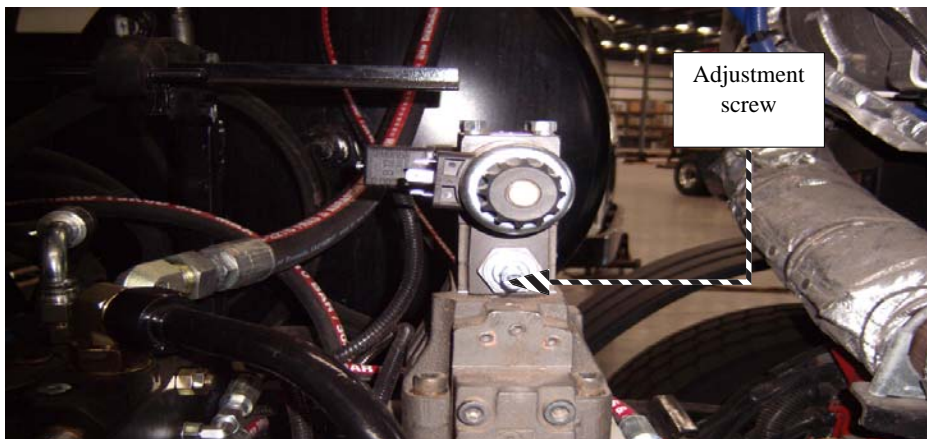
Adjusting Packer Choke Valve

To adjust the packer choke valve:

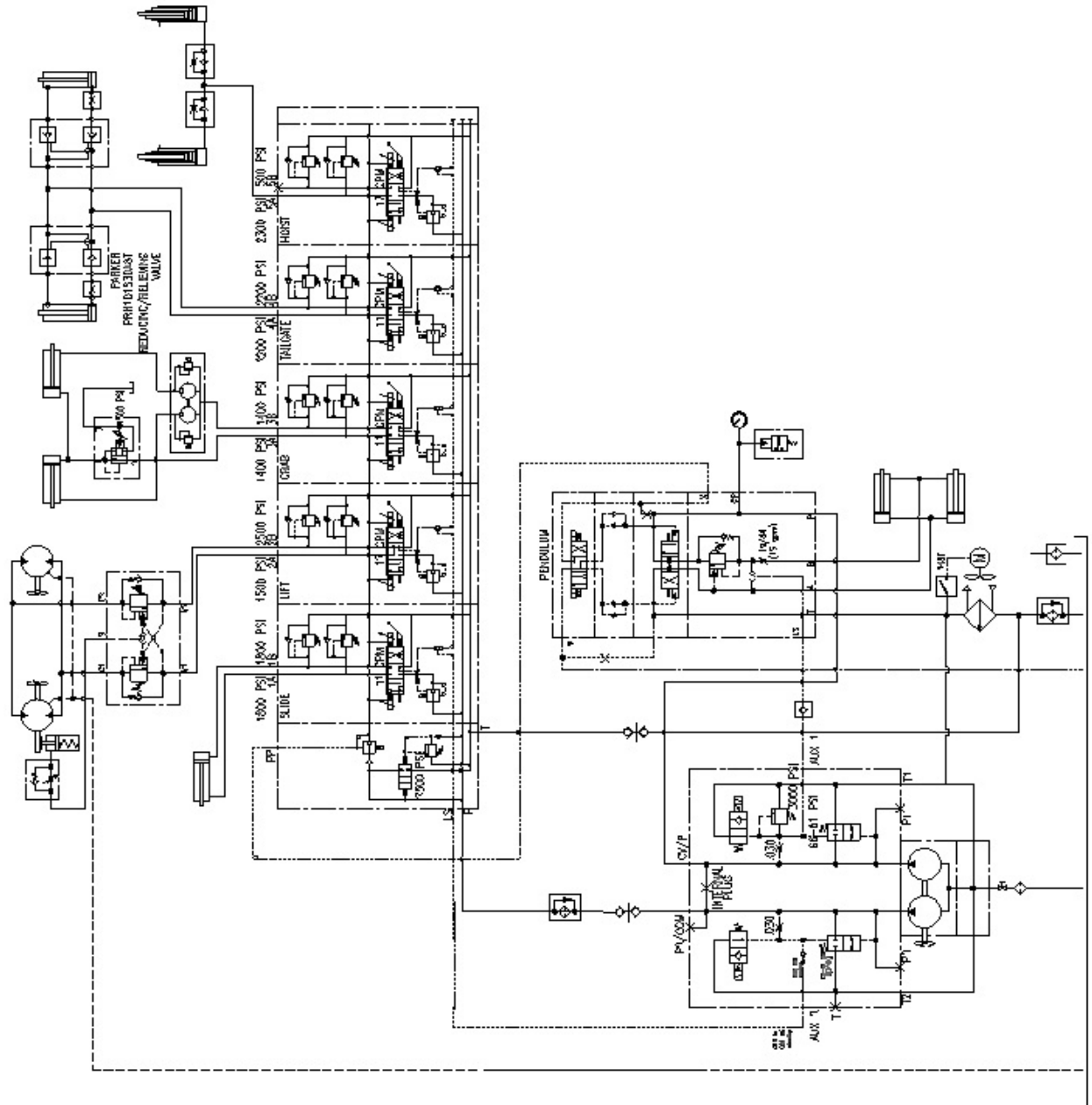
1. **LOCATE** the adjustment screw on the front side of the packer valve (see Figure 3-60).

2. With the auto-pack running, SCREW the adjustment screw in until there is approximately $\frac{1}{2}$ second delay between each cylinder stroke shift.

Figure 3-60 Packer choke valve adjustment



Hydraulic System Schematic



Troubleshooting Methodology

Troubleshooting is an organized study of the problem and a planned method of investigation and correction.

Think about the following before proceeding:

What were the warning signs prior to failure?
Do not rule out previous failed attempts.
Ensure components and wiring are installed as per factory specs.
Check the obvious things first. Keep it simple.
Work through troubleshooting charts methodically.
Many problems can be traced not to one part alone, but to the relationship of one part with another.
For multiple electrical faults. check the common ground locations.
Use the Troubleshooting Guide as a reference only. It may not contain all the answers.
Use a test light and jumper wire to trace and eliminate.
Identify heat build-up using an infra red sensor.
Carry out flow and pressure tests before removing components.
Keep to Maintenance Schedules.

labrie*plus*

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