LEACH®

Leach Millennium Service Manual

COMMITTED TO RECYCLING

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Part No. 105297

TO ORDER PARTS

Contact your local Leach Signature Original Factory parts distributor

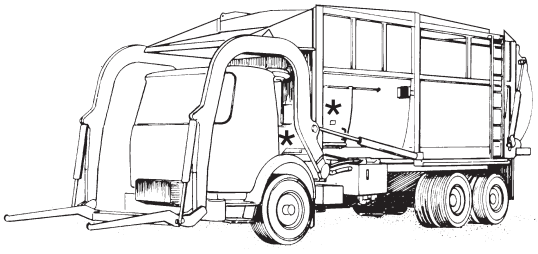
Your Authorized Leach Distributor

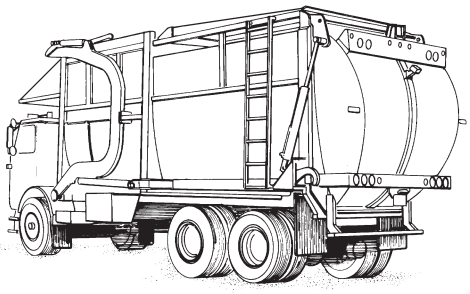
provide the following information:

A. Company name
B. Date
C. Your order number
D. Routing instructions
E. Quantity, part number and description
*F. Model and serial number of unit

Accept only Leach Signature Original Factory Parts

LEACH MILLENNIUM





***SERIAL NUMBER LOCATION**

LEACH SILVER SHIELD SERVICE

Refuse bodies manufactured by Leach Company, ("Company") are supplied and sold under a Limited Warranty that they are and will remain free of defects in workmanship or material for a period of six (6) months from date of original sale under reasonable conditions of use and operation, providing required preventive maintenance services are performed. Additional optional warranties are available for purchase. If a failure occurs during said period because of such defect in the opinion of the Company, the component or part shall be repaired or replaced by an authorized Leach Distributor at no cost to the customer provided the unit is brought to the distributor's service facility. After three (3) months, performance of adjustments or the replacement of wear/expendable components is not covered under warranty. This limited warranty is the sole and exclusive warranty of the Leach Company.

THE COMPANY MAKES NO WARRANTY AS TO MERCHANTABILITY, FITNESS FOR USE, LEGALITY OF OPERATION IN ANY JURISDICTION OR ANY IMPLIED WARRANTY OF ANY KIND OR NATURE. THE COMPANY SHALL NOT BE LIABLE FOR ANY SPECIAL OR CONSEQUENTIAL DAMAGES OF ANY KIND OR NATURE, OTHER THAN ITS LIMITED WARRANTY OF REPLACEMENT HEREIN. NO OTHER PERSON, FIRM OR CORPORATION CAN BIND THE COMPANY TO ANY WARRANTY OTHER THAN HEREIN ABOVE STATED.

To validate the new unit warranty, an authorized Leach distributor must have completed a pre-delivery inspection before the unit is placed into service, and the delivery report form signed by both the customer and distributor must be submitted to the Leach Customer Support Service Department.

Because Company products are engineered to work only with genuine Company parts, this limited warranty will be void and no effect if: (a) Company products are modified other than as done at its factory or as authorized to be done by the factory in writing; or (b) Parts or assemblies of any other manufacturer are used as substitutes for genuine Company parts.

Genuine Leach replacement parts, components and assemblies are also sold under a Limited Warranty to be free from defects in workmanship or material for a period of six (6) months. This is a replacement only warranty and the item must be returned to the Leach distributor for exchange. The labor to replace or repair the part shall be the responsibility of the customer. There is no warranty on expendable items, wear components or used parts.

Leach Company reserves the right to redesign and/or discontinue the manufacture of parts, components and assemblies at any time.

FOREWORD

The Leach Company has been a leader in the refuse industry for over 100 years. The Leach Millennium is the industry standard for both quality and performance. We at the Leach Company are justifiably proud of the quality engineering, material and workmanship that goes into each and every packer we produce. This commitment to quality extends to the best parts, service and distributor organization in the industry.

One area of great importance to us at the Leach Company is your safety. This unit was built in accordance with the American National Standards Institute (ANSI) standard for Mobile Refuse Collection and Compaction Equipment — Safety Requirements, ANSI Z245.1 - 1992. Before operating this unit please read and understand the safety precautions found in Section 1 of the Service and Operators manual. They are important and are provided to assist you in the safe operation of the unit.

This manual was produced with the intention of providing clear, concise instructions for the proper operation and servicing of your refuse packer. It was produced with the latest information available at the time of publication. We do, however, reserve the right to redesign and/or discontinue the manufacture of parts, components or assemblies at any time. The Leach Company has an aggressive manual and product improvement program. In any conversation or correspondence dealing with information provided in any Leach manual please refer to the part number of that manual located in the lower right hand corner of the front cover.

The manuals provided with the unit are considered a permanent part of the unit and should be included in the event of a resale. Additional manuals are available, free of charge, from your local authorized Leach distributor. These manuals should be kept readily available for easy reference. We ask that if you have comments or suggestions concerning this manual please contact us at (920) 231-2770. We are here to be of service to you, our valued customers.

LEACH Signature™ Original Factory Parts

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SAFETY PRECAUTIONS

GENERAL

The Leach Millennium has been designed with the operator in mind. However, as with any industrial machinery, especially those that are large and apply forces through hydraulic pressures, the ultimate responsibility for safety rests with you — the operator. An alert, conscientious attitude and observance of all known safe operating practices are the best ways to prevent accidents.

Before operating the unit it is the operator's responsibility to be thoroughly familiar with the instructions contained in the Operator's Manual.

Publication of these precautions does not imply or in any way represent an all inclusive list. It is the operator's responsibility to be familiar with and ensure that operation is in accordance with safety requirements and codes including all applicable Occupational Safety and Health Act (OSHA) and American National Standards Institute (ANSI) regulations.

DANGER, WARNING, AND CAUTION DECALS

See the accompanying pages for illustrations of all safety decals.

1. These decals must be obeyed at all times.
2. These decals must be in place at all times. Report any damaged or missing decals to the proper authority at once.
3. Replacement decals can be ordered free of charge from your local authorized Leach Distributor.

⚠DANGER **⚠WARNING** **⚠CAUTION**

DANGER, WARNING, CAUTION and **NOTE** notations appear throughout this manual.

* The word **DANGER** precedes information pertaining to specific immediate hazards which if disregarded, **WILL** result in **SEVERE PERSONAL** injury or death of the user or others.
* The word **WARNING** precedes information pertaining to hazards or unsafe practices which if disregarded, **COULD** result in personal injury or death of the user or others.
* The word **CAUTION** precedes information pertaining to potential hazards or unsafe practices which if disregarded, **MAY** result in minor personal injury or damage to the equipment.
* The word **NOTE** precedes information which is vital to the proper operation or maintenance of the equipment.

PRIOR TO START UP

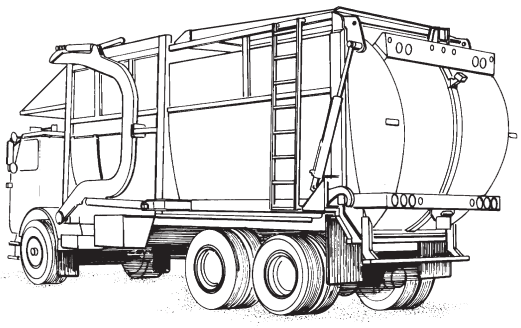
1. Never operate machinery while wearing jewelry or loose clothing which may catch on moving parts. Wear proper safety equipment as specified by your employer.
2. Never operate machinery while under the influence of intoxicants or narcotics. Workers under the influence of intoxicants or narcotics present a hazard to themselves and others.
3. Perform checks listed under "Pre-Operating Walk-Around Inspection" in Section 3, OPERATION. Never start or operate any malfunctioning equipment.
   a. Be sure to immediately report any malfunctions to the proper authority.
   b. Power must be shut off, ignition key removed and a sign attached to the steering wheel stating "inoperative" or "malfunctioning equipment".
4. Proper servicing requires specialized tools and procedures. Service must be performed by authorized personnel only, following procedures in the Leach Millennium Service Manual.
5. Walk completely around vehicle to make sure all persons are clear before starting the unit.

SAFETY PRECAUTIONS

OPERATION

GENERAL

1. It is the operator's responsibility to ensure that operation of the unit is in accordance with the guidelines contained in the Operator's manual and in accordance with all applicable codes including Occupational Safety and Health Act (OSHA) and American National Standards Institute (ANSI) regulations.
2. Do not attempt to operate this equipment without proper training.
3. Move the vehicle as slowly as possible without stalling when traveling in reverse.
4. Always make sure the roadway is clear before traveling in reverse.
5. Do not travel in reverse for distances greater than those dictated by local ordinances. If reverse travel exceeds 10 feet, use a "spotter" or move the vehicle in 10 foot increments only, and then check to make sure the roadway is clear between increments.
6. Do not attempt to dislodge any material unless wearing eye protection such as "approved" side shielded safety glasses or a full face shield.
7. Never use the unit to push or tow another vehicle.
8. Never unload uphill or against a pile of refuse or into the bank of a hill.
9. Never place head, body, fingers or any limbs into a scissors point or pinch point on the equipment.



10. Before operating the vehicle the driver must be thoroughly familiar with the employer's safety program concerning traffic rules, warning devices and hand signals.
11. Know where to get assistance in the event of an emergency.
12. Know your machine. Know the location and function of all controls, gauges, instruments and protective devices.
13. Wear your seat belt.
14. Start the engine following the manufacturer's recommended procedure.
15. Always set the parking brake before leaving the cab.
16. Turn on appropriate warning lights, put on a safety vest, protective glasses and protective shoes.
17. All service opening covers and access doors must be maintained and latched in place while operating equipment.
18. Ensure all co-workers are in view before operating or moving any controls or the unit.
19. Ensure that there is sufficient overhead clearance before operating the unit.
20. Stop the vehicle immediately if the warning lights for the TAILGATE, TOP DOOR AJAR or LIFT ARMS ABOVE BODY system come on.
21. Always ensure that all persons are clear of the tailgate before raising or lowering. It is the operator's responsibility to warn all persons not to stand or cross under a tailgate.
22. Do not move the vehicle with the tailgate raised except during unloading and then only as necessary to clear the load before lowering.
23. Stand clear when the tailgate is being raised or lowered and during the unloading cycle. If it is necessary to manually clean debris, use a long pole and DO NOT stand under the tailgate.
24. Know the height of the unit at all times. Be sure to allow sufficient clearance from overhead restrictions.
25. Do not attempt to load refuse into the hopper after the packing cycle has begun. The packing/ejection panel must be in the "home" position and stopped before loading the hopper.
26. Ensure that persons are clear of the container before raising or lowering.
27. Always have the lift arms in the travel position while transporting.
28. Always ensure that all persons are clear of the equipment before actuating the lift arm or packing/ejection controls.
29. The operator should warn persons not to stand or cross under a raised tailgate or container.
30. Ride only in the cab.

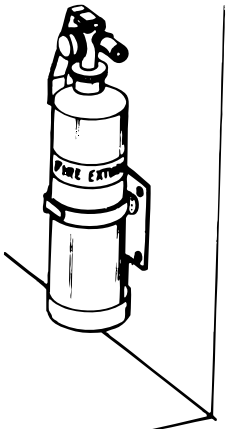
GENERAL MAINTENANCE

HYDRAULICS

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

FIRE PROTECTION

1. Keep a fire extinguisher accessible at all times, as recommended by the Bureau of Motor Carrier Safety.
2. Never use lighted smoking materials, open flame or sparks when working with flammable materials such as fuel tanks or storage batteries.
3. Never use an open flame as a light source.
4. Never load ashes or other materials which might be smoldering. These materials could ignite refuse in the packer body.



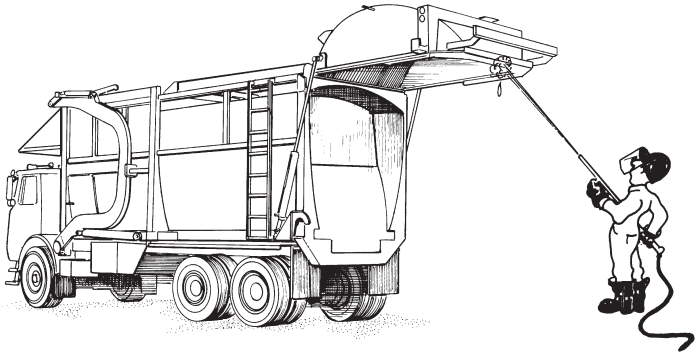
HOUSEKEEPING

Good housekeeping habits are a major factor in accident prevention.

1. Keep handrails and steps clean and free of grease or debris.
2. Do not store brooms or other equipment where they could inadvertently be dislodged or create a hazard.

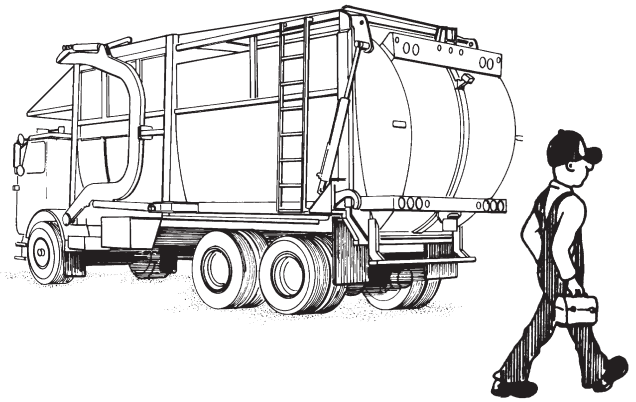
CLEANLINESS

1. Rubbish, scrap paper, and litter are highly combustible. Such material should be stored in metal containers entirely clear of sparks and flame.

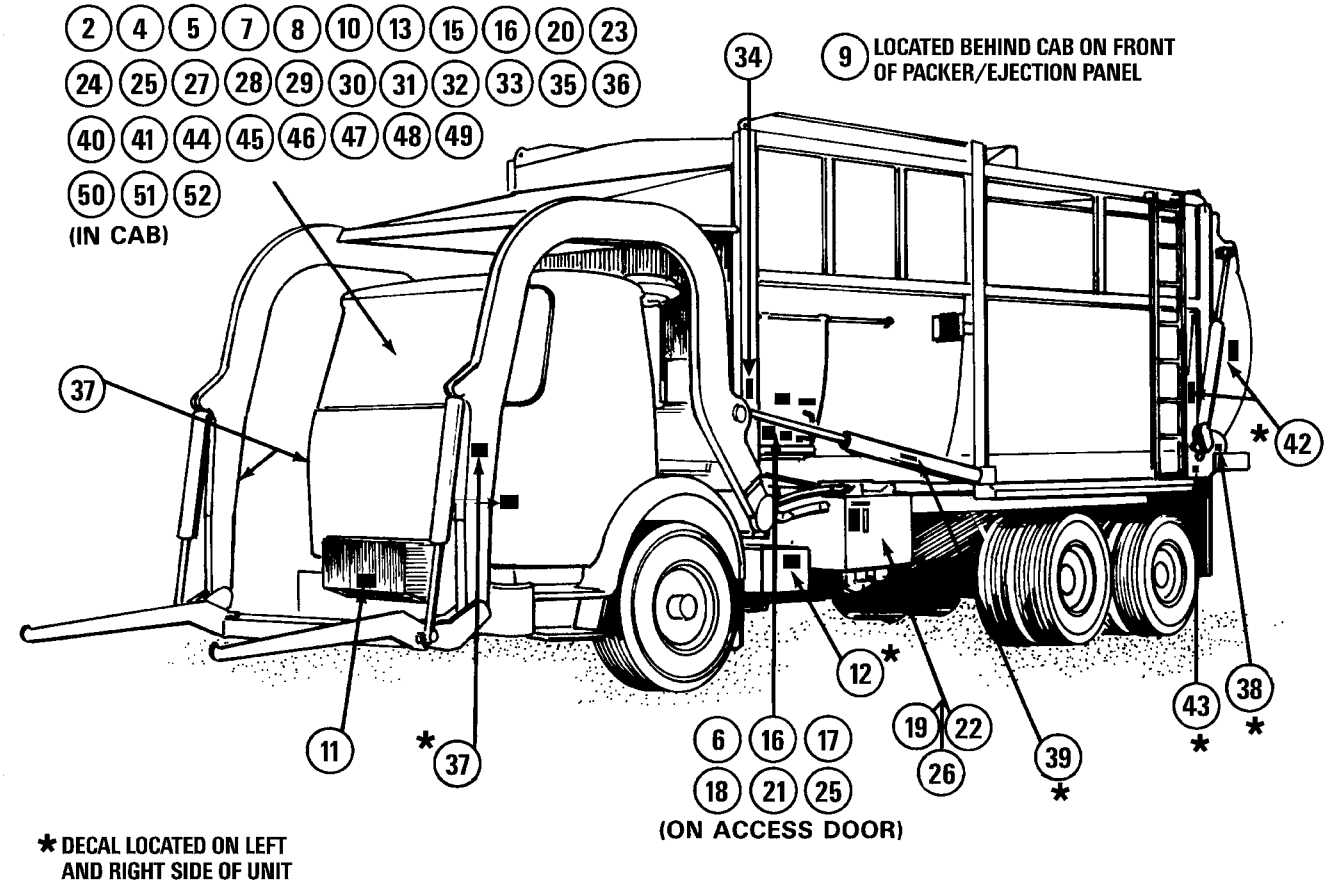


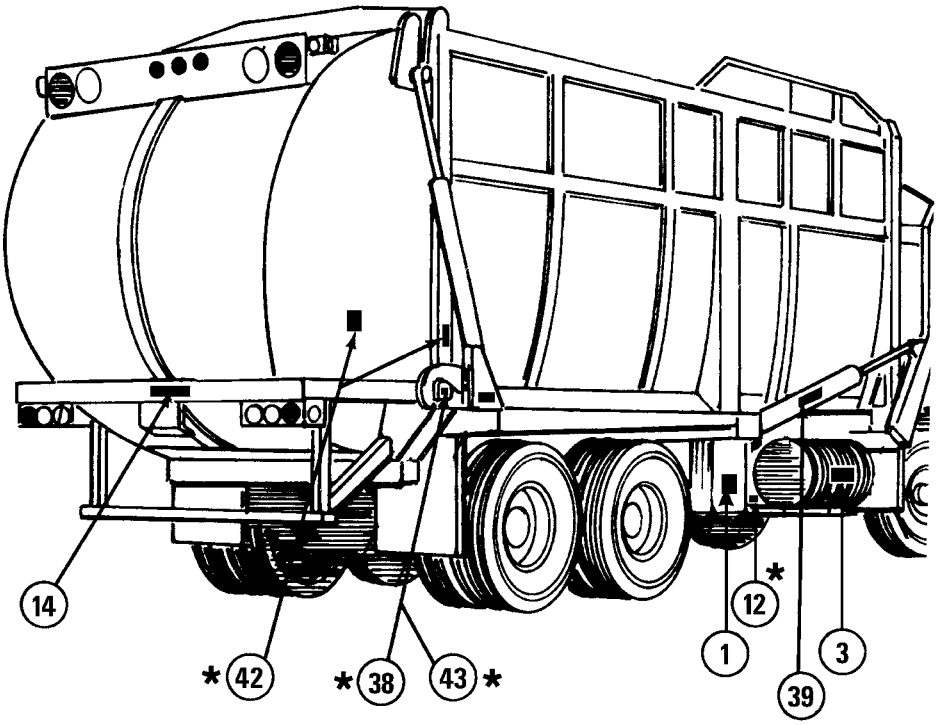
SHUTDOWN

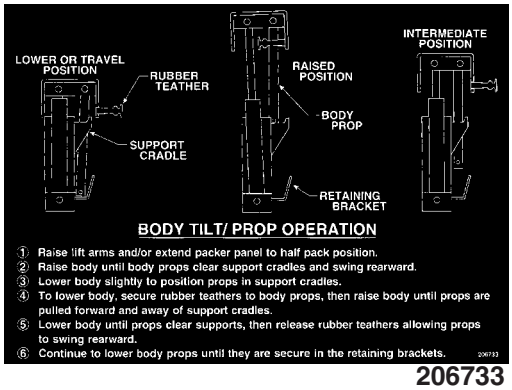
1. Put all the controls in neutral.
2. Set the parking brake.
3. Disengage the PTO.
4. Shut off the engine.
5. Remove the key.
6. Drain the water from the air tank.
7. Lock the vehicle



SAFETY PRECAUTIONS







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REAR DOOR
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CLOSED
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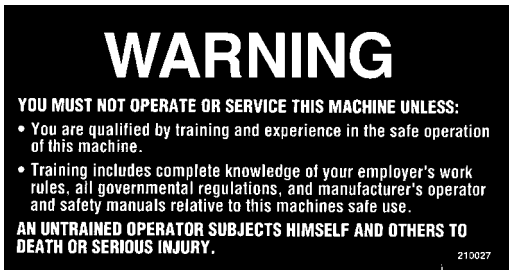

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TOP DOOR
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CLOSED
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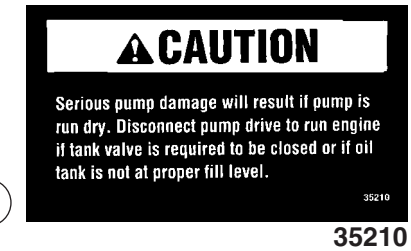

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REAR WORK LIGHT
ON
OFF
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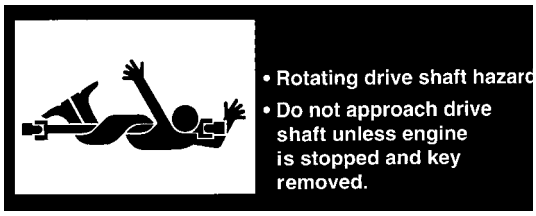

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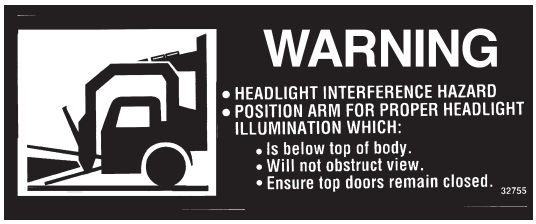

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FRONT WORK LIGHT
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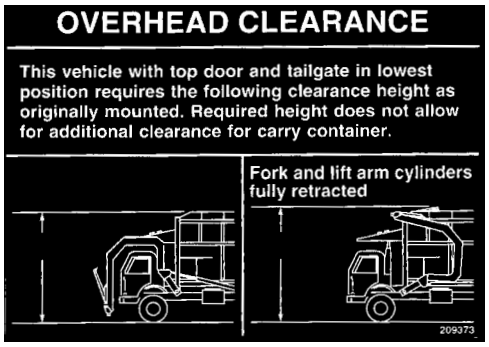
SAFETY PRECAUTIONS



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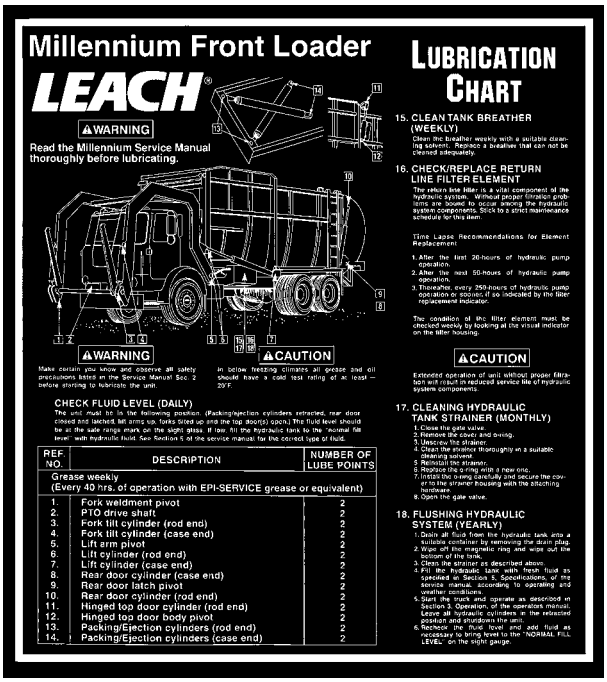

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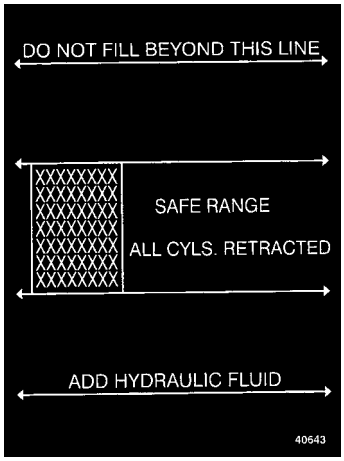

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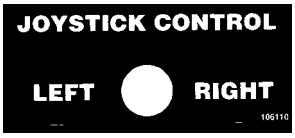

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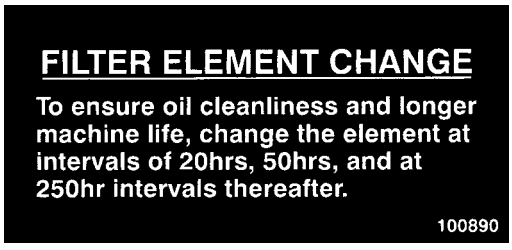

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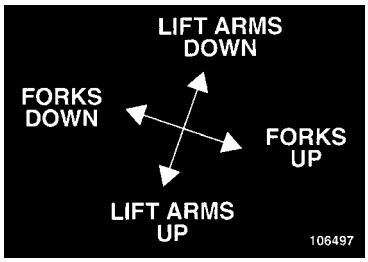

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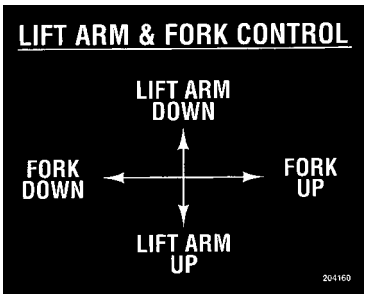

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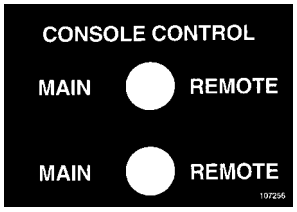

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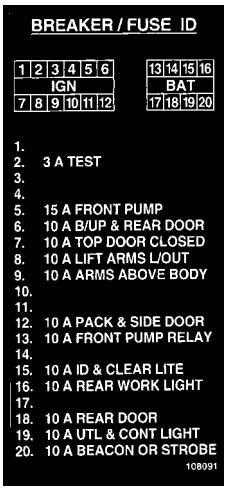

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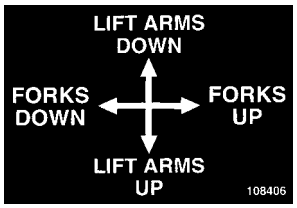

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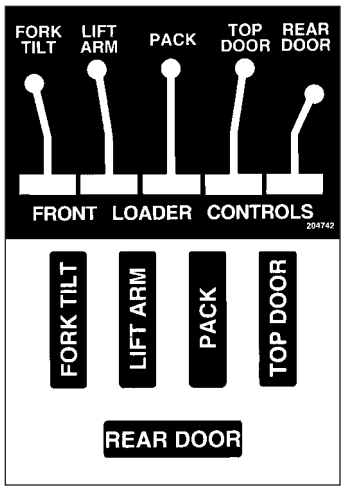

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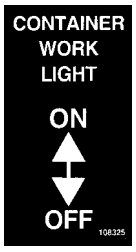

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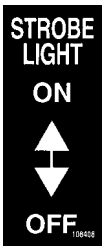

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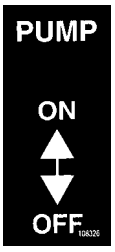

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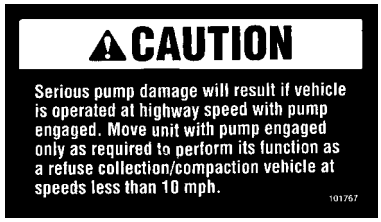

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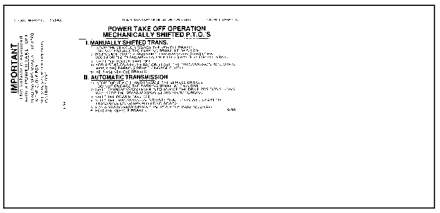

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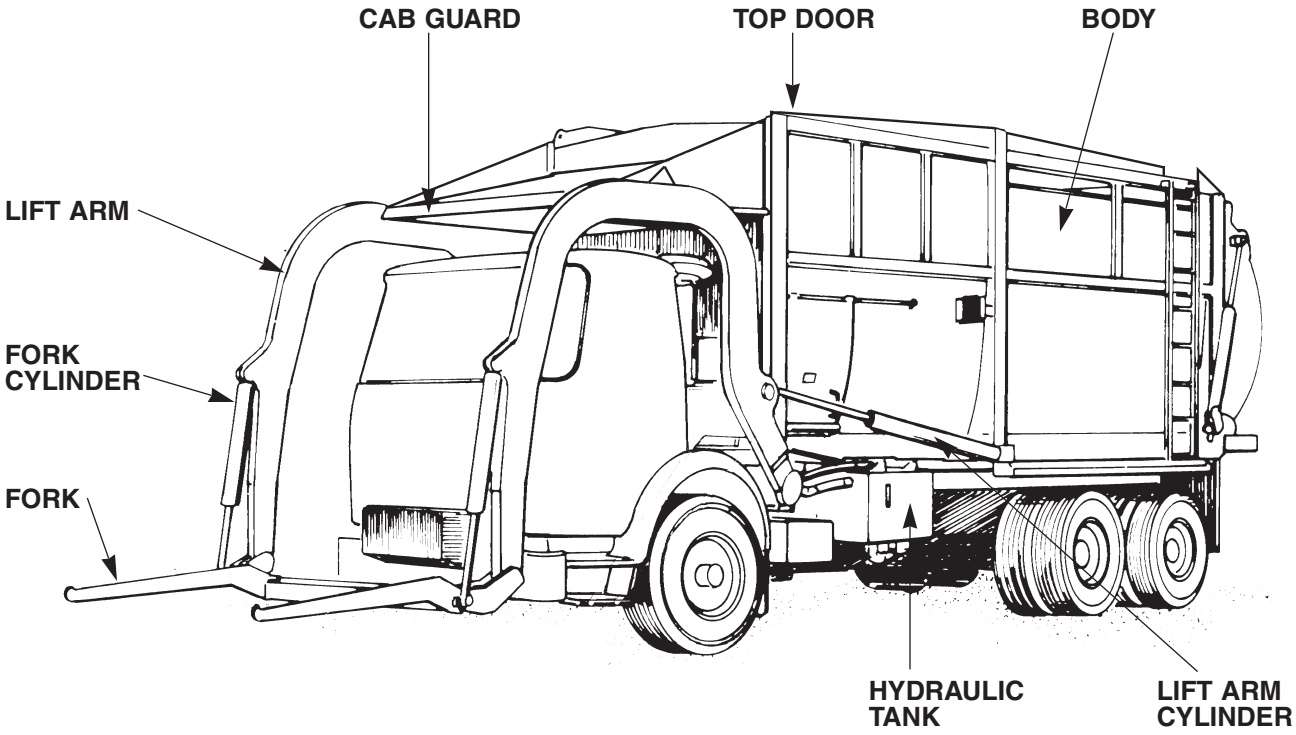
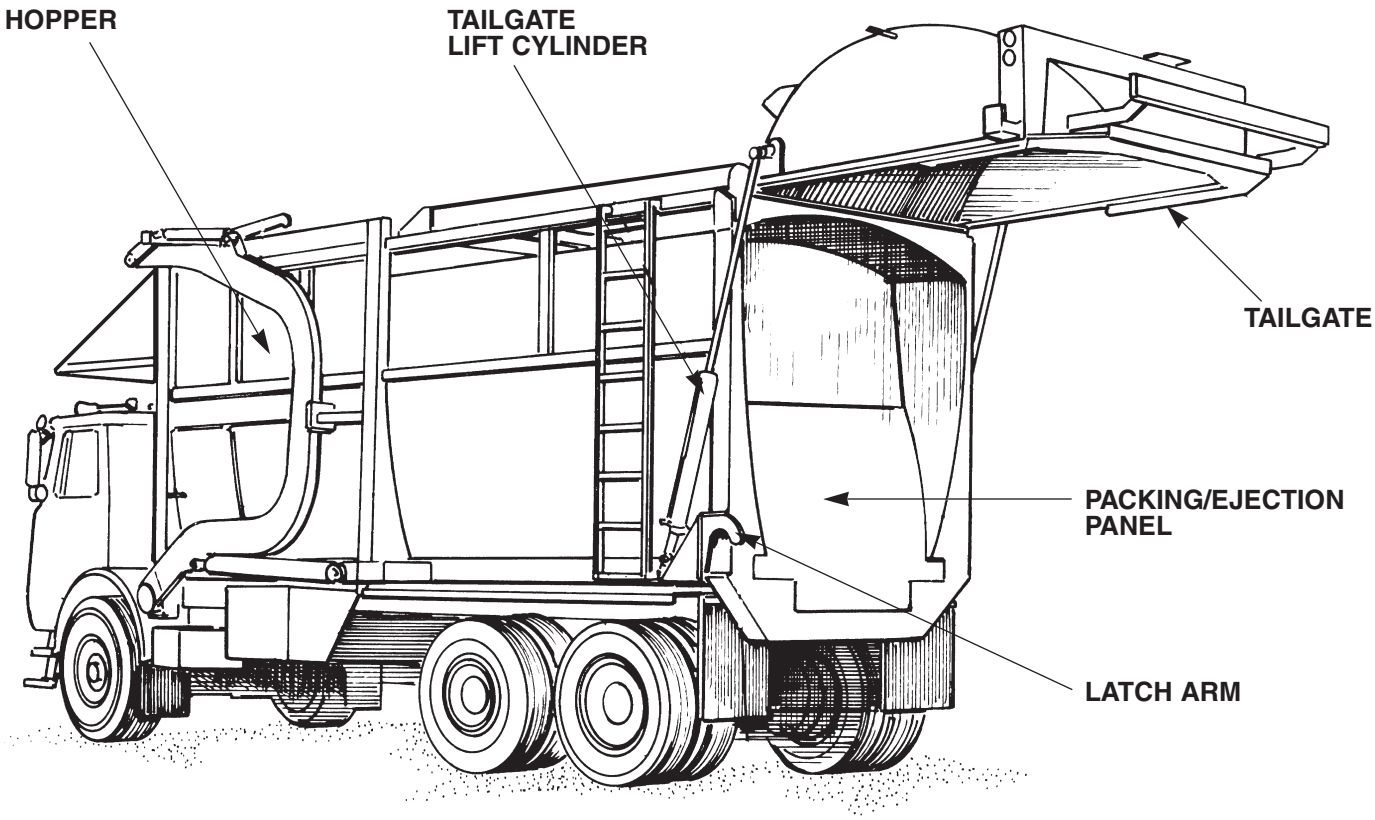
INTRODUCTION

TERMS YOU WILL NEED TO KNOW

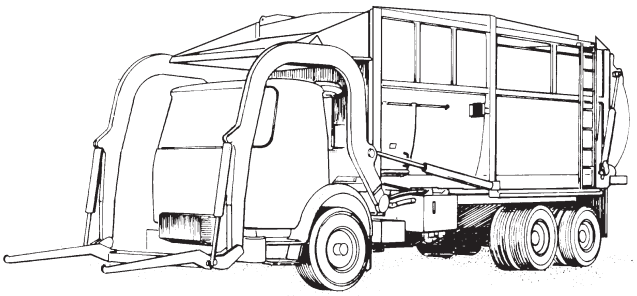




INTRODUCTION

INTRODUCTION

The main purpose of the Leach Millennium is to safely and efficiently load, compact, transport and unload refuse. The following describes how the unit performs those tasks in the most basic terms. For a more detailed description of the unit and its components, read the complete LEACH MILLENNIUM SERVICE MANUAL. Before going further, look at the accompanying full page illustration of the Millennium and become familiar with the terms you will need to know.

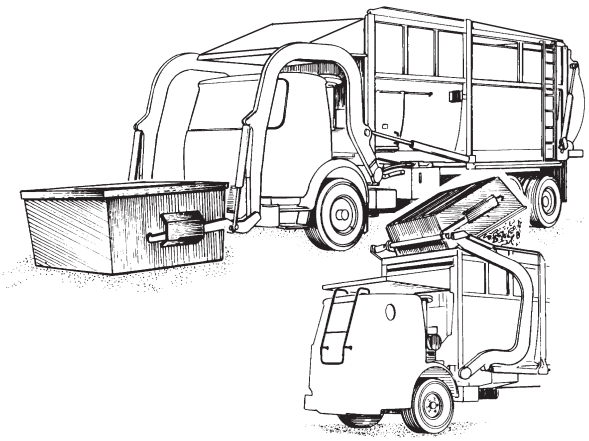


LOADING

The Leach Millennium is designed for use with various containers. The loading process begins by utilizing the fork tilt and lift arm controls to engage the container.

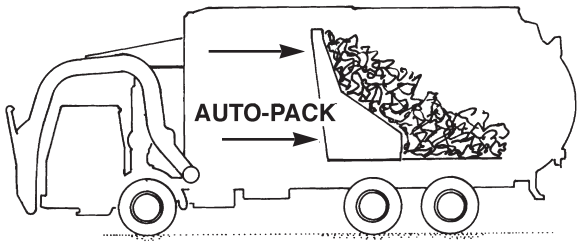
The lift arms then raise the container and the fork tilt control is utilized to keep the container level. When in the dump position the fork tilt control is used to dump the refuse into the hopper.

The now empty container can be lowered to the ground.



COMPACTION

After the refuse has been deposited in the body (hopper area), the packing/ejection panel moves rearward and compacts the material.



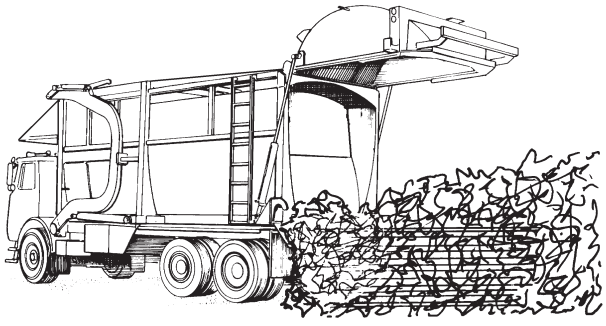
UNLOADING

At the dumpsite the unit is unloaded in two easy steps:

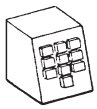
First, the tailgate is raised.

Second, the packing/ejection panel is moved to the rear of the body, pushing out the load.

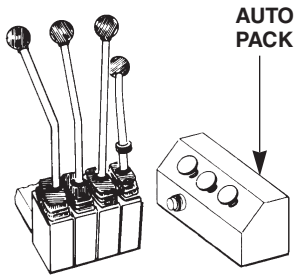
Following unloading, the tailgate is lowered and latched.



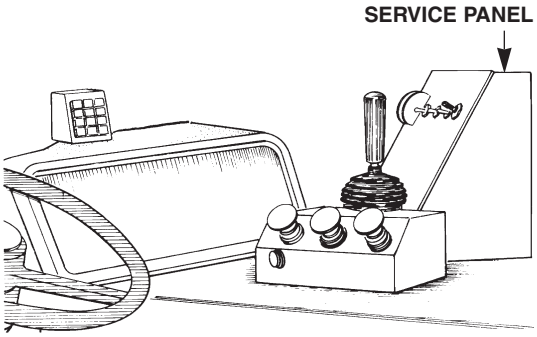
LOCATION OF OPERATING CONTROLS



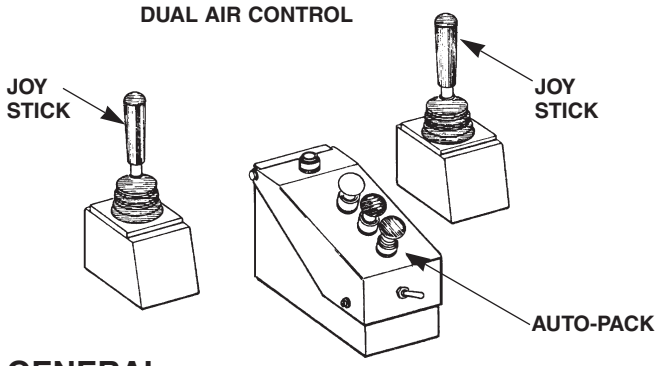
INDICATOR LIGHT CONSOLE

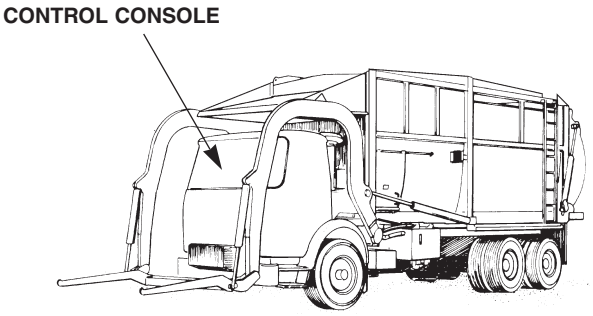


CABLE CONTROL
WITH AUTO-PACK



AIR CONTROL





GENERAL

This section will provide general and specific instructions necessary to operate the Leach Millennium. Prior to attempting any operation of the unit, make sure you are familiar with all the safety information contained in Section 2, SAFETY PRECAUTIONS.

DESCRIPTION OF OPERATING CONTROLS

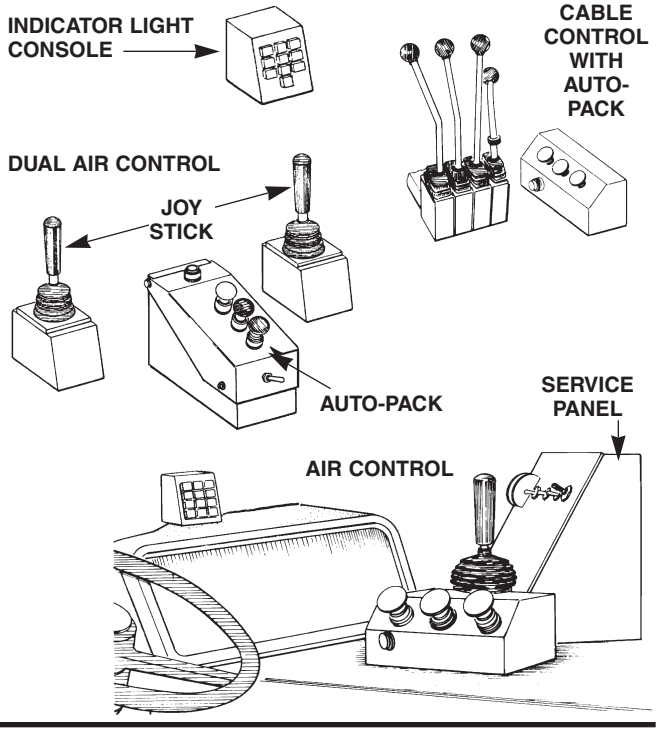
⚠ DANGER

The following information is for descriptive purposes only. It is not to be misconstrued as operating instructions. For operating instructions, refer to OPERATING PROCEDURES later in this section.

It is important that you know the function of each control before attempting to operate the unit. All controls are located in the chassis cab. Refer to the accompanying illustrations.

NOTE

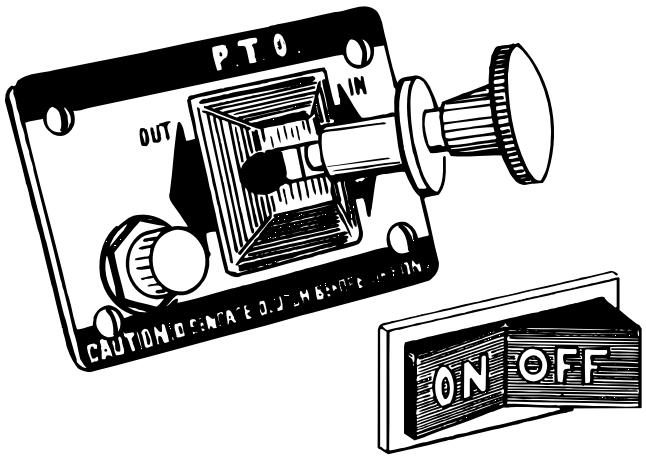
Several types of controls are available. Check the specific unit being operated to determine the control type.



OPERATION

PTO/PUMP CONTROL

The PTO (Power Take Off) is engaged to put the hydraulic pump in operation. The exact location of the control will vary, depending on the type of PTO/Pump, truck cab style and control panel location. The PTO/Pump may be engaged by the use of a lever, rocker switch or push-pull cable. Be sure to read all the safety decals associated with the PTO before attempting operation. When the pump is engaged an indicator light will illuminate.



PUMP SWITCH

On units equipped with a front mounted pump, the control switch is turned on to engage the pump and off to disengage the pump.

ENGINE SPEED UP

Engine speed (hydraulic flow rate) is controlled by the operator depressing the accelerator.

A decal located on the dash gives the maximum recommended engine revolutions per minute (RPM) to be used when operating the Front Loader. DO NOT EXCEED THE POSTED RPM.

NOTE

Engine speed will vary between PTO's, chassis and pump arrangements.

FORK TILT CONTROL

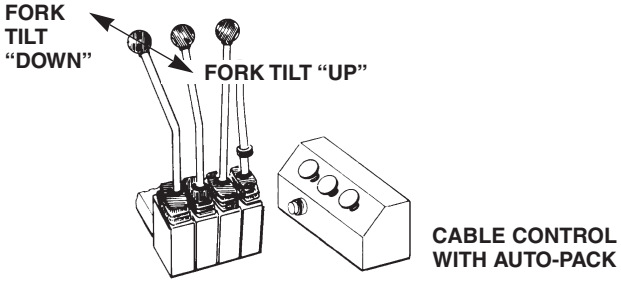
When the joystick or cable control is moved to the tilt down position the forks will tilt down. Movement of the control to the tilt up position will tilt the forks up.

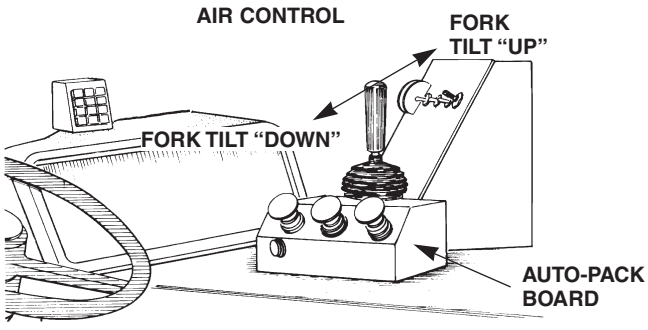
DUAL OPERATING CONTROLS (AIR)

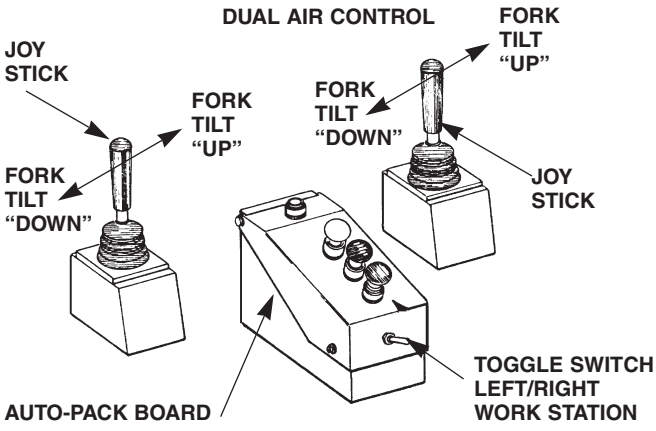
On units utilizing dual controls, a toggle switch located at the rear of the "Auto Pack Board" will select either the right or left work station. The operation of each of these work stations is identical.

⚠CAUTION

When switching from one side to the other on the work stations, the indicator light panel should be in an unobstructed view by the operator.

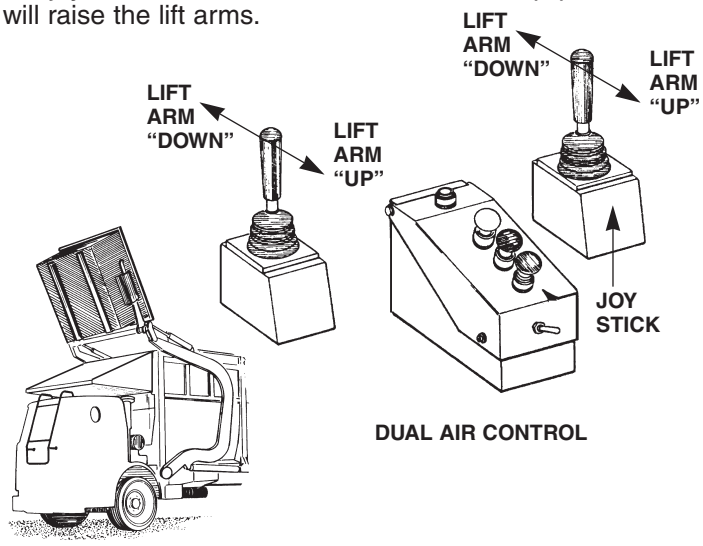




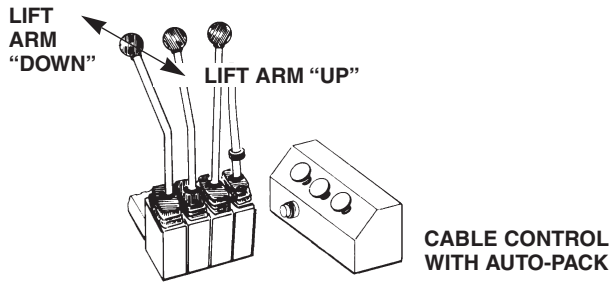


LIFT ARM CONTROL

When the joystick or cable control is moved to the lift arm down position the lift arms will lower. Movement of the joystick or cable control to the lift arm up position will raise the lift arms.

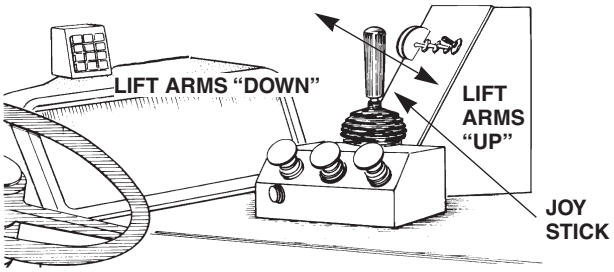


DUAL AIR CONTROL



CABLE CONTROL WITH AUTO-PACK

AIR CONTROL



AUTO-PACK BUTTON

Depressing the green palm button will cause the packing/ejection panel to move rearward until reaching the auto pack section of the body, then the packing/ejection panel will reverse and retract to the front of the body and automatically stop.

EMERGENCY STOP BUTTON

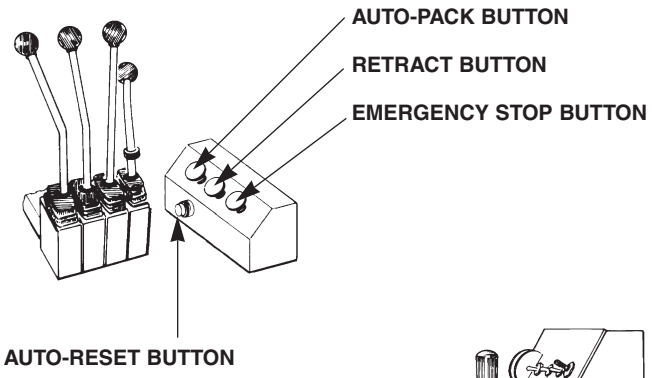
Depressing the red palm button at any time will stop the packing/ejection panel.

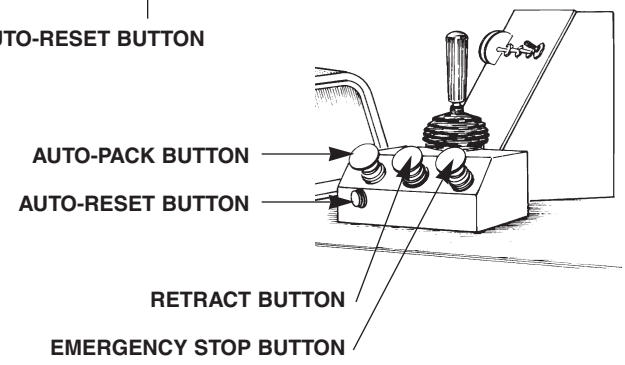
NOTE:

Any time the emergency stop palm button is depressed, the auto-reset button must be engaged before the auto pack system will activate.

AUTO-RESET BUTTON

This button, located on the Auto Pack board is used to reset the air logic after depressing the red emergency stop button. The Auto Pack palm button or retract palm button must be depressed (pack "green" or retract "black") after depression of the auto-reset button.



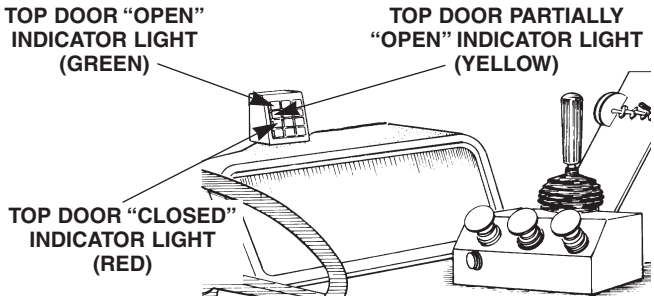


OPERATION

TOP DOOR OPEN WITH CABLE CONTROL/AUTO-PACK

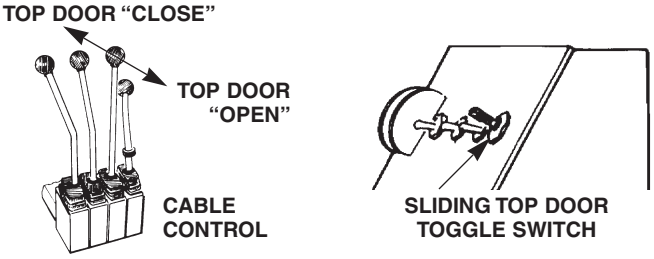
The sliding top door is opened by moving the top door control lever to the open position. Continue to hold the lever until the door is fully opened. A green indicator light will illuminate when the door is fully open.

Close the top door by moving the top door control lever to the closed position until the yellow “top door partial open” light goes out, the red “top door closed light” illuminates and the top door is fully closed.



SLIDING TOP DOOR SWITCH — AIR CONTROL

The sliding top door toggle switch, located on the service panel, controls the movement of the sliding top door. Moving the toggle switch up will open the top door. Pushing the toggle switch down will close the top door.



HINGED TOP DOOR

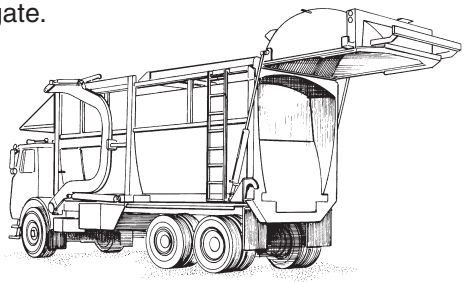
If the unit is equipped with the hinged top door the opening and closing of the door is automatic and functions each time the lift arms are raised or lowered. On units equipped with a hinged top door a lockout switch is located on the service panel which allows the lift arms to be raised and the top door to remain closed if selected.

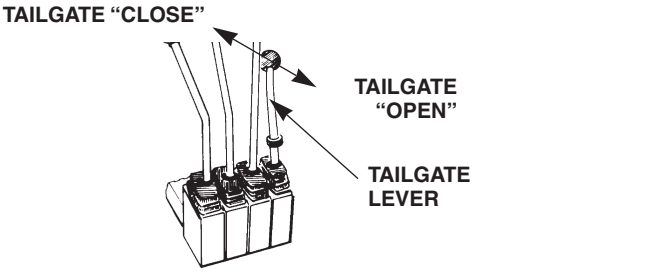
⚠CAUTION

On units with the sliding top door the operator must fully open the door prior to lifting the container. Damage to the container or the front loader may result if the container is dumped onto a closed door.

TAILGATE OPEN WITH CABLE CONTROL/AUTO-PACK

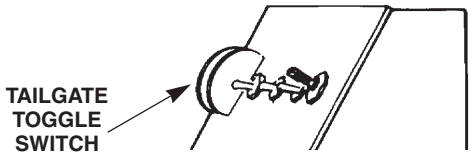
The tailgate is opened by moving the tailgate control lever to the open position. Moving the tailgate control lever to the tailgate closed position will close and latch the tailgate.





TAILGATE TOGGLE SWITCH

The tailgate toggle switch, located between a guard on the main service panel, controls the movement of the tailgate. Moving the toggle switch up will raise the tailgate. Pushing the toggle switch down will lower the tailgate.



TEST BUTTON

Depressing this button located in the center of the bottom row of the indicator light console will cause all of the indicator lights on the control console to illuminate.

⚠CAUTION

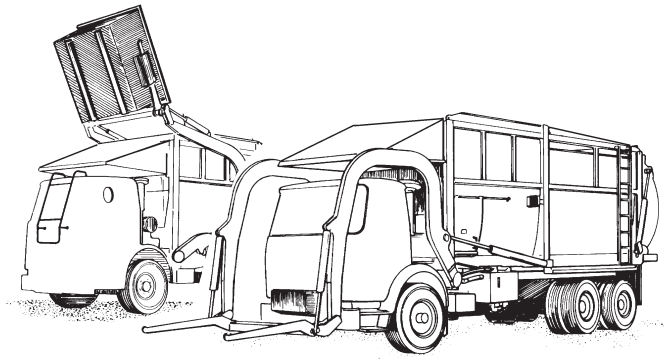
If any of the indicator lights fail to illuminate remove the unit from service.

OPERATING PROCEDURES

This section of the manual provides all the instructions necessary to start and operate the Leach Millennium, including specific instructions for loading, packing and unloading the unit.

⚠ DANGER

It's important that the operators and maintenance personnel understand these procedures prior to operating or repairing the unit.



PRE-OPERATING WALK-AROUND INSPECTION

Each day, before starting the unit, perform the following "walk-around" inspection.

1. Refer to the decal location illustration in Section 2, SAFETY PRECAUTIONS of this manual and make sure all decals are in place and readable. Replace any decals that are not.

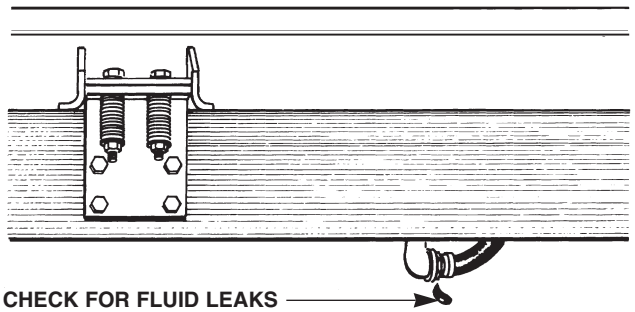
NOTE

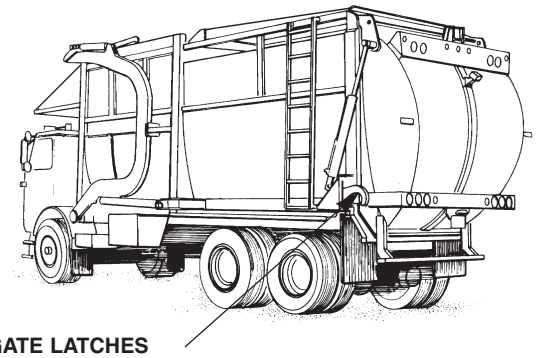
Decals are available free of charge from your local authorized Leach Distributor.

2. Check for fluid leaks on and around the unit. Check for fluid leaks at the hydraulic cylinders, valves and fittings.

3. Inspect the mounting points. Make sure everything is tight and that there are no broken, loose or excessively worn parts. Check capscrews and fasteners for looseness, visible welds for cracks.

4. Make sure that the tailgate latch hooks are securely locked.





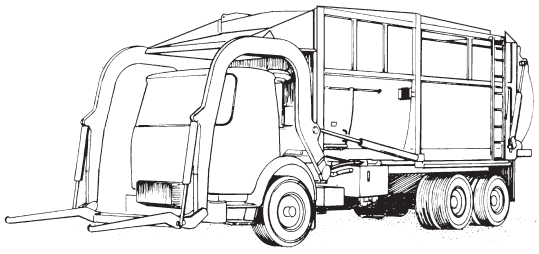
5. Check the lift arm bearing area to ensure that no metal contact is present between the pivot tube and bearing holder.

⚠ DANGER

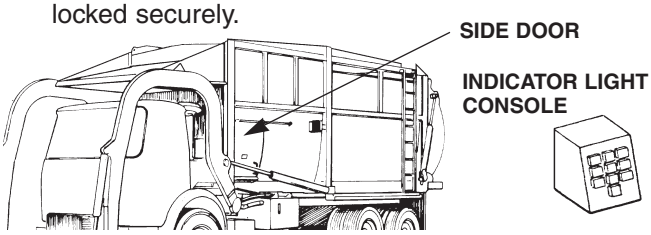
Never under any circumstances enter the body if the truck is running. Always make sure the truck engine is off and the keys are in your pocket before entering the body.

6. Look around the packing/ejection panel. Clean out any refuse caught in this area that could hamper the smooth movement of the panel.

Be careful when cleaning around the telescopic cylinders. Avoid hitting the exposed cylinder rods with shovels or debris.



7. Make sure that the side access door is closed and locked securely.



8. Close the air tank drain valve prior to starting the truck engine.

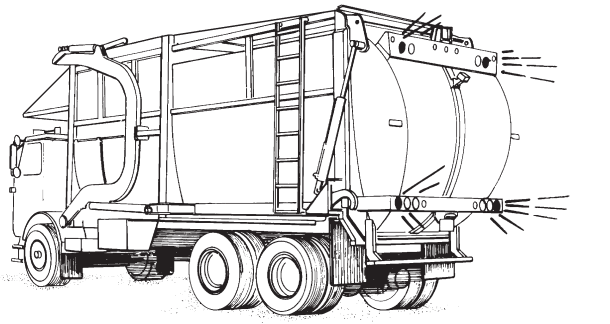
⚠CAUTION

The access door must be closed for the packing/ejection panel to be moved. If the access door is opened the packing function stops and the controls will not work. The door must be closed and latched and the reset activated before the operation can resume. Check Indicator Light Console for proper illumination of door ajar light when side access door is open.

⚠DANGER

Never operate the Leach Millennium with any part of the control system removed. Serious damage could result.

9. Start the truck according to the manufacturer's instructions and while it is warming up with the PTO/Pump engaged and the parking brake applied, continue the walk-around inspection.
10. Check all the operating, indicator light console, and running lights. Make sure none are missing and that there are no burned out bulbs.

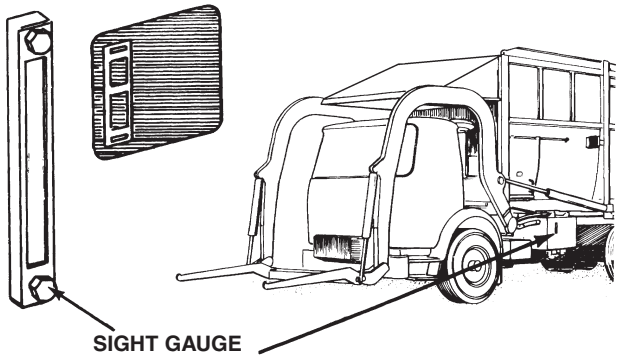


CHECK LIGHTS

⚠CAUTION

Check all the operating and running lights. Make sure none are missing and that there are no burned-out bulbs.

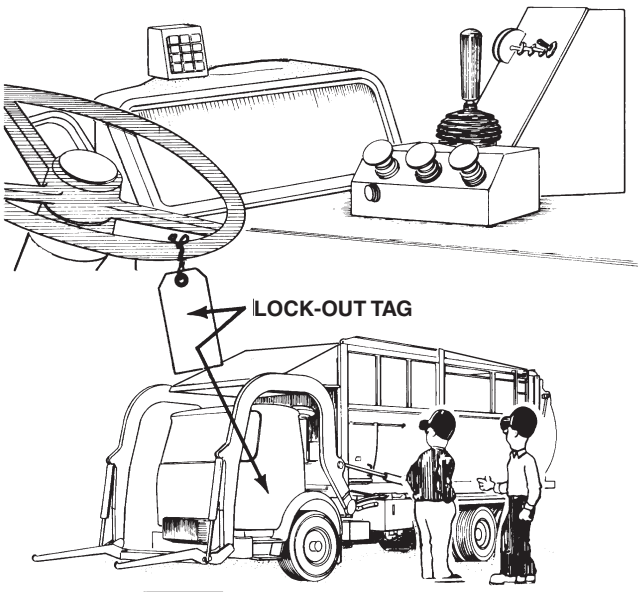
11. Check the hydraulic tank sight gauge. Add fluid if the level is below the indicated line. (See Section 5, SPECIFICATIONS, of the service manual for the correct type of fluid to use.) To check the fluid level, the packing/ejection cylinders must be retracted, the tailgate closed, the lift arms up and forks tilted up in the travel position and the top door closed.
12. Check the return line filter indicator.
13. Again check for fluid leaks at the hydraulic cylinders, valves and fittings.
14. Operate the controls to check each hydraulic circuit.



NOTE

See operating instructions for specific operation of each control.

15. After making sure that the area is clear of people and hazards, back the unit up a few feet to ensure that the back-up alarm and reverse lights are working properly.



⚠WARNING

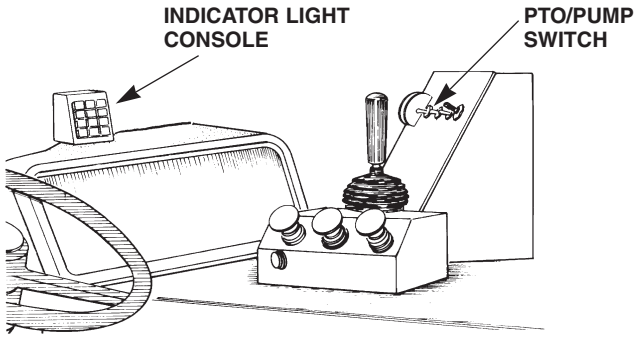
Do not operate a unit that is in need of service or repair. Death, serious injury, or damage to the equipment could result.

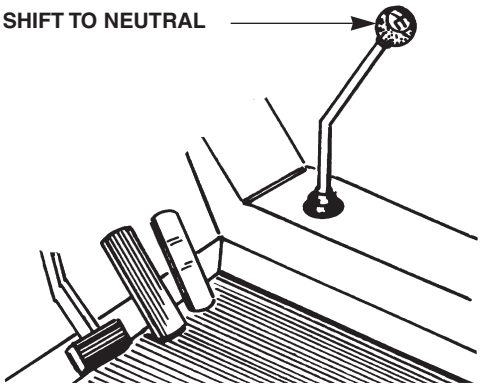
16. Report any problems found during the pre-operating walk-around inspection to the maintenance supervisor for service or repair, then place a tag on the steering wheel (inoperative) and remove the keys.

OPERATING INSTRUCTIONS

GENERAL

1. Inspect and start the truck as described under Pre-Operating Walk-Around inspection. Chassis pre-operational checks should be accomplished following chassis manufacturer's recommended procedure.
2. Prior to moving the truck, the unit should have the lift arms in the travel position and the tailgate latched. All warning lights should be off.
3. The PTO/Pump should not be operating while the unit is being driven on the road. The PTO/Pump should be engaged after the unit is close to and aligned with the container to be lifted.



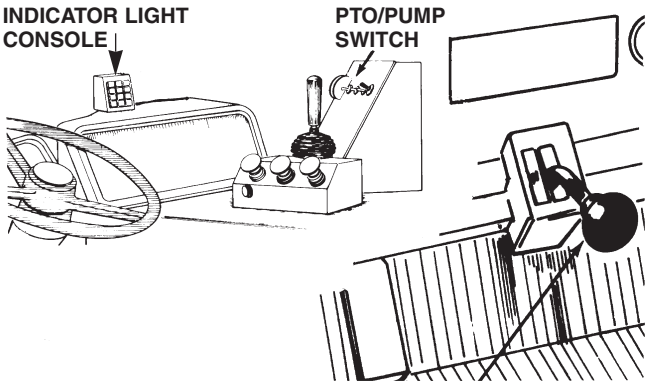


STANDARD TRANSMISSION

The PTO on standard transmissions is engaged by stopping the truck, shifting into neutral and then while depressing the clutch pedal, moving the PTO control lever, engaging the PTO gears with the transmission. As the clutch pedal is released, the PTO will start turning, thus providing power to the hydraulic pump. When engaged an indicator light will illuminate.

AUTOMATIC TRANSMISSION

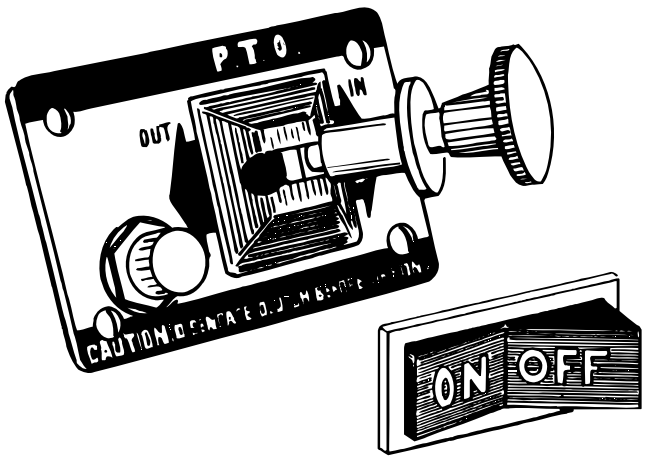
The PTO on an automatic transmission is engaged by shifting into any drive position while depressing the brake pedal (this will stop the transmission gears from turning). The PTO control lever is then moved, meshing the PTO and transmission gears. When the transmission is shifted to neutral the PTO and pump start turning. When engaged an indicator light will illuminate.



SHIFT INTO DRIVE WHILE DEPRESSING THE BRAKE PEDAL

HOT SHIFT OR DRY VALVE

A hot shift PTO or dry valve on front mounted pumps may be engaged independent of the transmission operation. When engaged an indicator light will illuminate.



OPERATION

LOADING

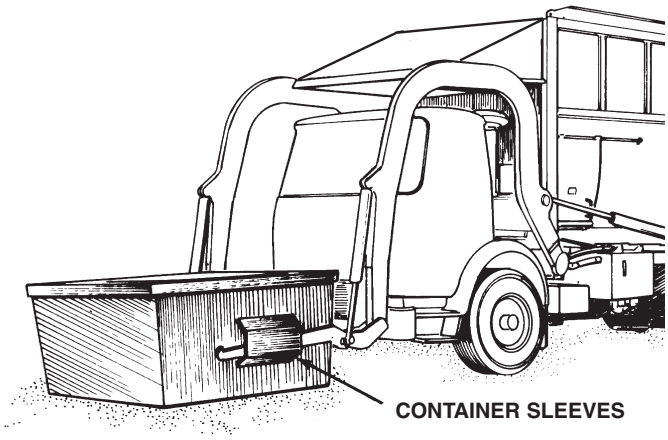
Lower the forks until they are parallel with the container sleeves. It may be necessary to raise or lower the lift arms to align the forks.

NOTE

The travel speed of the forks is determined by the distance the control lever is moved and the engine speed.

⚠CAUTION

Be sure that the forks are completely through the sleeves before attempting to raise the container.



OPENING THE TOP DOOR

1. The sliding top door must be fully open before raising the container. A green indicator light will illuminate when the door reaches the full open position.

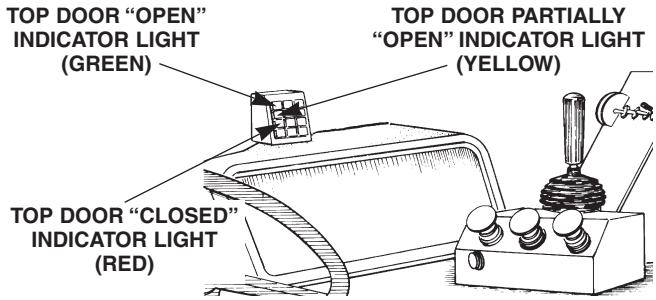
2. When the sliding top door is fully closed the “top door closed” light will illuminate. The top door should be closed when the unit is full or for traveling long distances at highway speeds.

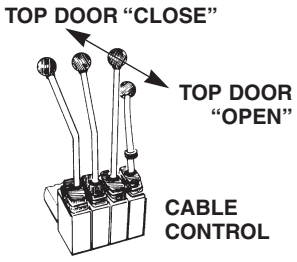
3. The “Top Door Partially Open” indicator light instructs the operator that the top door is not fully open for loading or closed for travel.

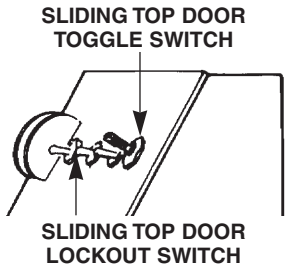
4. If the unit is equipped with the hinged top door the opening and closing of the door is automatic and functions each time the lift arms are raised or lowered. A top door lockout switch is standard on hinged top door units. The lockout switch will allow the lift arms to be raised without lifting the top door for servicing the chassis engine.

⚠CAUTION

On units with the sliding top door, the operator must fully open the door prior to lifting the container. Damage to the container or the front loader may result if the container is dumped onto a closed or partially opened door.







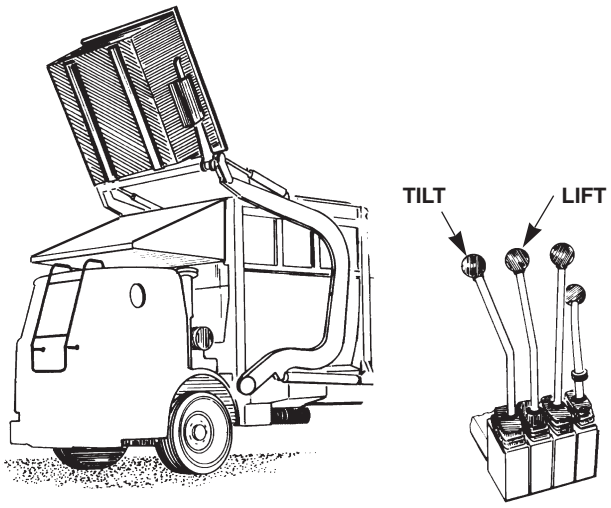
LIFTING THE CONTAINER

⚠CAUTION

Check to ensure that there is adequate overhead clearance to raise the lift arms and top door for dumping the container.

⚠CAUTION

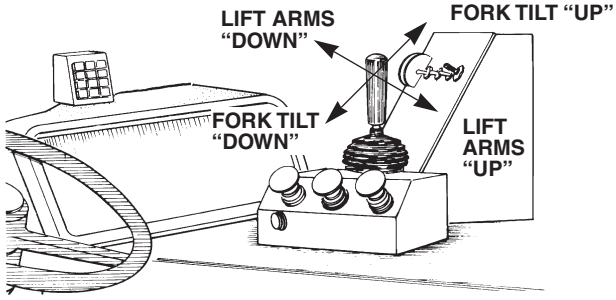
Prior to lifting any container ensure the ejector panel is in the home position. Check the indicator light console to ensure the Packer Home Light is illuminated. Under no circumstances should a container be raised on the lift arms if the Packer Panel Part/Ext. light is illuminated.



1. Raise the container, as the lift arms move higher it will be necessary to tilt the forks to level the container.

NOTE

As the lift arms raise over the chassis cab the "ARMS ABOVE BODY" indicator light will illuminate.

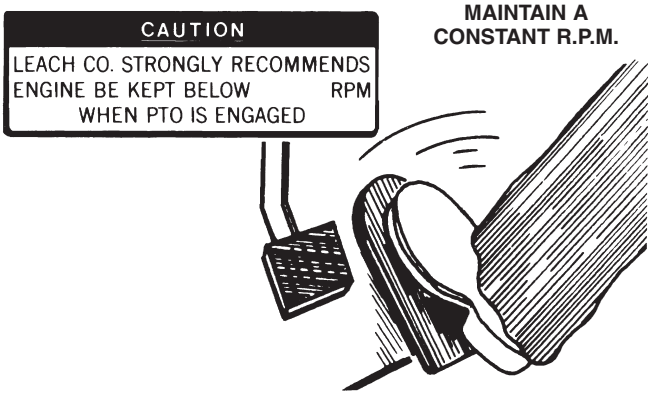


2. The lifting speed is determined by the distance the joystick is moved and the engine speed. The operator controls the engine speed by depressing the accelerator.

3. There is a mirror provided for the operator to observe the container being raised overhead and to assist in leveling the container.

⚠CAUTION

The operator should maintain a constant RPM throughout the front loader's operation. DO NOT exceed the RPM posted on the dash decal or serious unit damage may occur.



⚠WARNING

Ensure that people are clear of the container before raising or lowering.

⚠CAUTION

Do not attempt to dump overloaded containers.

OPERATION

DUMPING THE CONTAINER AFTER RAISING THE LIFT ARMS

1. To dump the refuse from the container into the body tilt the forks back after the lift arms have contacted the lift arm stop pads.

2. The container may be moved back and forth with the fork tilt to dislodge refuse and completely empty the container.

3. There is a mirror provided for the operator to observe the position of the container during the dumping process.

⚠CAUTION

Do not exceed 55 degrees from vertical when dumping the container.

LOWERING THE CONTAINER

1. Raise the empty container to a vertical position using the fork tilt of the joy stick.

⚠CAUTION

Lowering a container before tilting the forks to a vertical position could result in damage to the container, truck cab or front loader.

2. Lower the container. As the lift arms go below the body height the “ARMS ABOVE BODY” indicator light should go out.

⚠CAUTION

If “ARMS ABOVE BODY” indicator light stays on or comes on, DO NOT MOVE THE UNIT.

3. The forks must be level so the container can be set flat on the ground.

⚠CAUTION

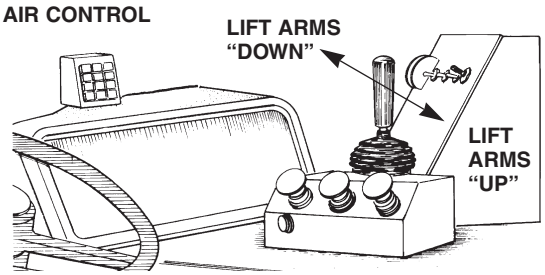
On units equipped with the hinged top door, the top door must be closed before moving the vehicle. Use the overhead mirror provided to ensure that the top door is closed.

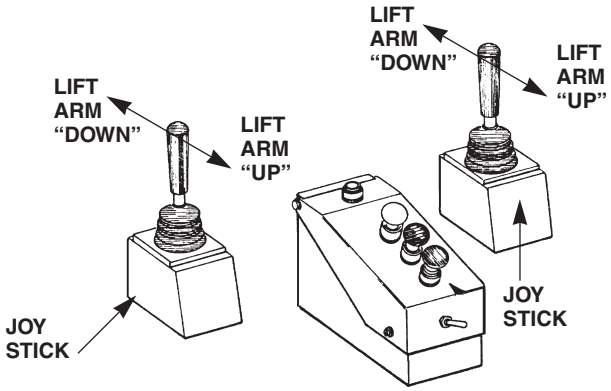
4. Back the unit away from the container.

⚠CAUTION

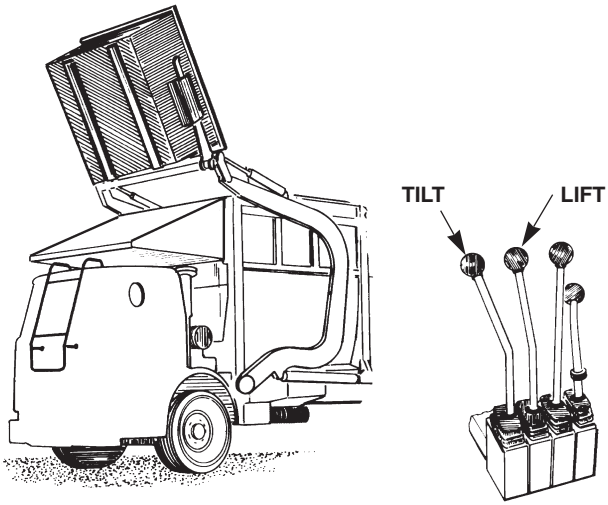
Make sure the roadway is clear before traveling in reverse.

5. Stop the truck and position the arms and forks to the travel position.





DUAL AIR CONTROL

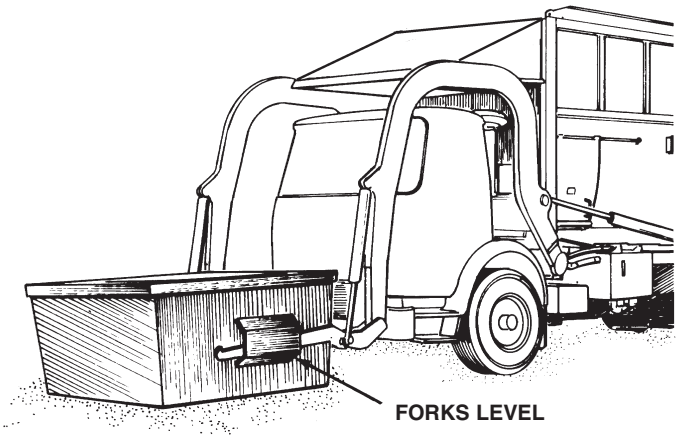


TRAVEL POSITIONS

To determine the appropriate travel position for the forks and lift arms, it should be determined whether the unit will be used in a residential or commercial application.

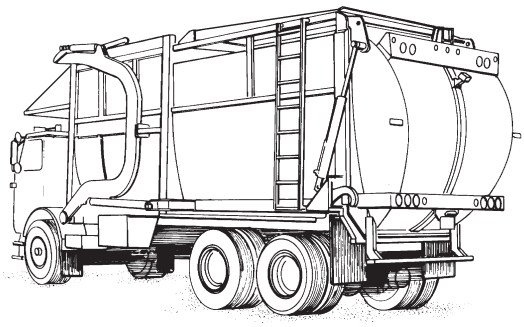
Units which **DO NOT** have a container affixed to the forks and arms should be transported with the lift arms fully lowered and the forks fitted in the vertical position.

Units **WHICH HAVE** a container affixed to the forks and arms (such as a residential application) will commonly travel with the lift arms fully raised, with the container in the hopper of the body. It must be realized that with this positioning of the arms, the container will become the highest point of the unit and must not exceed thirteen feet, six inches (13' 6").



⚠WARNING

When transporting the unit with a container in the hopper the overall height of unit and container must not exceed thirteen feet, six inches (13' 6").



⚠WARNING

Units with hinged top doors SHOULD NOT carry containers in the hopper of the body while the unit is moving.

COMPACTION

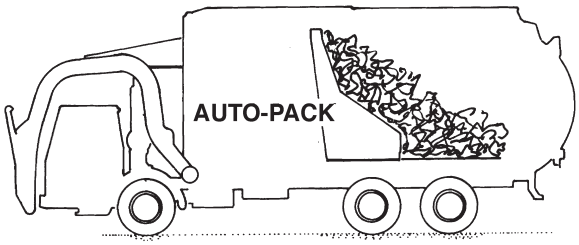
While packing a unit it is very important to remember that the compaction may vary with the following conditions.

1. **Type of refuse.** Tree branches, dry leaves, furniture, and any other items loaded into the body that take up relatively large amounts of space will reduce the compaction ratio.

2. **Moisture content of refuse.** Wet refuse will pack tighter than dry and consequently a wet load will weigh more than a dry load. Wet refuse loaded into the body will increase the compaction rate.

3. **Operation of the equipment.** As with the operation of any type of heavy equipment, one machine can yield different results with different operators. Operating a front loader is a skill. Placement of items, and not over loading the hopper, are learned skills that will affect the compaction rate of a unit.

Compaction rates of a unit will depend on the season, the type of trash, the weather and the operation and maintenance of a unit. If the unit packs relatively consistent loads and has been properly maintained according to the Service manual then it is safe to assume that it is getting maximum compaction for your particular conditions.



OPERATION

AUTO PACK

1. To maximize load density, the packing/ejection panel should be moved rearward after each container is dumped. Depress the “green” auto-pack button to start the cycle. The operator must maintain a constant engine RPM as shown on the dash decal. This will ensure that the packing force is sufficient to both compact the load as well as to automatically shift the auto pack to neutral when compaction is completed. The packing/ejection panel will automatically extend, reverse, retract and stop.

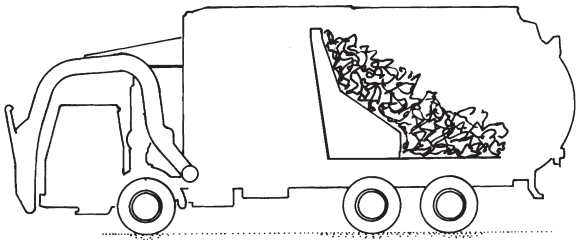
2. To continue the cycle, if the “red” emergency stop pushbutton has been depressed it will be necessary to push the “auto reset” pushbutton.

⚠CAUTION

Immediately after depressing the auto reset button the packing/ejection panel will resume motion in the direction of either pack or retract depending on which button (pack “green”, retract “black”) was depressed prior to depressing the Emergency Stop button.

3. Disengage the PTO/Pump before driving the unit.

4. Note position of ejector panel using the indicator light console.

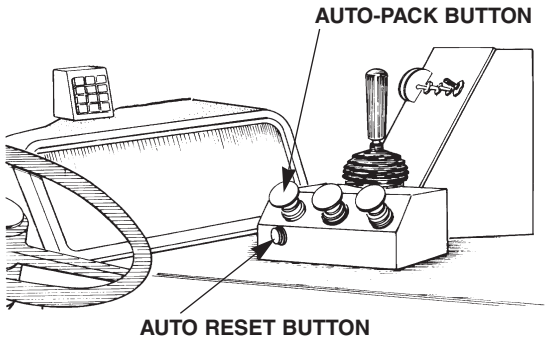


NOTE

At any point during the auto-pack or ejection cycle motion can be stopped by depressing the RED pushbutton located on the console. To continue the cycle, the AUTO RESET pushbutton must be depressed.

⚠CAUTION

Do not pack the load with the sliding top door closed.



UNLOADING WITH CABLE CONTROL WITH AUTO-PACK

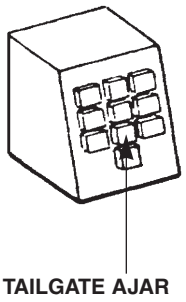
Once the unit is full, drive to an unloading site.

⚠CAUTION

While unloading it is recommended that the sliding top door be open.

1. Engage the PTO/Pump.

2. The operator moves the tailgate control lever to raise the tailgate. As the hooks begin to release, the dash warning light illuminates. Continue to hold lever until the tailgate is fully raised.

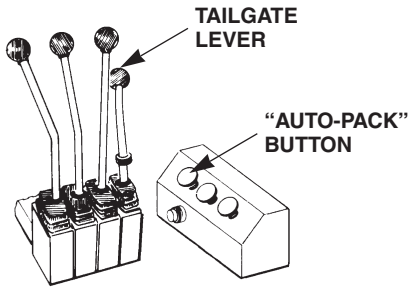


⚠CAUTION

Be sure the area behind and above the unit is clear before raising the tailgate.

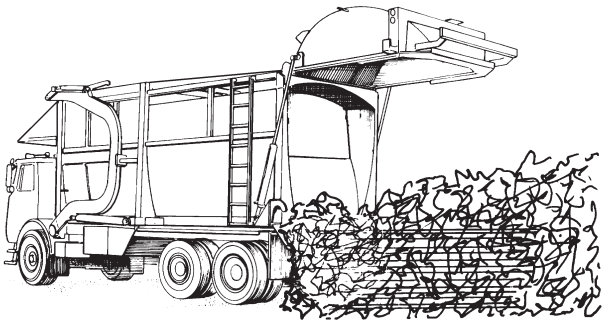
NOTE

The backup alarm beacon light and tailgate ajar indicator light will come on.



3. To eject, the operator depresses and holds the auto-pack pushbutton. Engine RPM must be maintained at the designated speed to provide enough force to empty the unit. As the packing/ejection panel moves rearward, refuse is pushed out.

4. Once the load is ejected, release the auto-pack palm button and the packing/ejection panel will return to the home position. Disengage the PTO/Pump and pull the truck forward enough for the tailgate to clear the ejected refuse when lowered.



⚠DANGER

Never enter under a raised tailgate.

5. Engage the PTO/Pump. The operator moves the tailgate control lever to lower and latch the tailgate. The tailgate warning light and beacon will go out and the back-up alarm will quit sounding as the hooks are latched securely.

6. Disengage the PTO/Pump prior to driving out of the unloading site.

OPERATION

UNLOADING WITH AIR CONTROL OR RESIDENTIAL AIR CONTROL

Once the unit is full, drive to an unloading site.

⚠CAUTION

While unloading it is recommended that the sliding top door be open.

1. Engage the PTO/Pump.
2. The tailgate toggle switch is located between 2 guard ears on the main service panel. Moving the tailgate toggle switch upward unlatches and then raises the tailgate. As the hooks begin to release, the tailgate ajar indicator light illuminates indicating the tailgate is open.

⚠CAUTION

Be sure the area behind and above the unit is clear before raising the tailgate.

NOTE

The backup alarm, backup lights and tailgate ajar indicator light will come on.

3. The operator depresses and holds the Auto-Pack palm button. Engine RPM must be maintained at the designated speed to provide enough force to empty the unit. As the packing/ejection panel moves rearward, refuse is pushed out.
4. Once the load is ejected, release the Auto-Pack palm button, the packing/ejection panel will return to the home position. Disengage the PTO/Pump and pull the truck forward enough for the tailgate to clear the ejected refuse when lowered.

⚠ DANGER

Never enter under a raised tailgate.

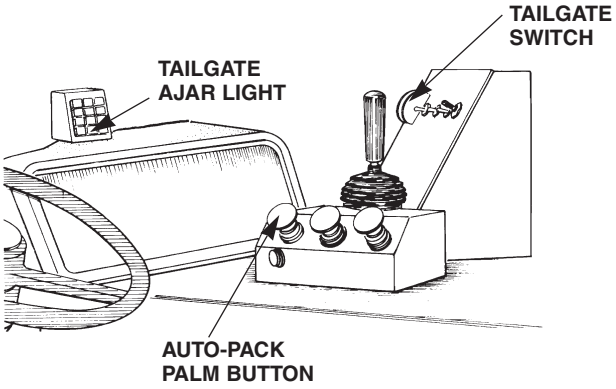
5. Engage the PTO/Pump. The operator moves the tailgate toggle switch downward to lower and latch the tailgate. The tailgate ajar indicator light, backup lights and beacon will go out and the back-up alarm will quit sounding as the hooks are latched securely.
6. Operator releases the tailgate toggle switch.
7. Disengage the PTO prior to driving out of the unloading site.

SHUTDOWN

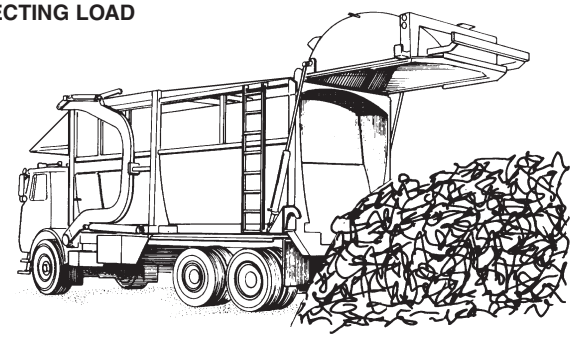
1. Put all the controls in neutral.
2. Set the parking brake.
3. Disengage the PTO.
4. Shut off the engine.
5. Remove the key.
6. Drain the water from the air tank.
7. Lock the vehicle.

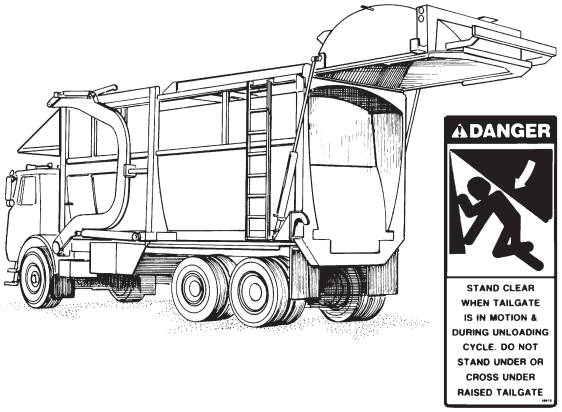
NOTE

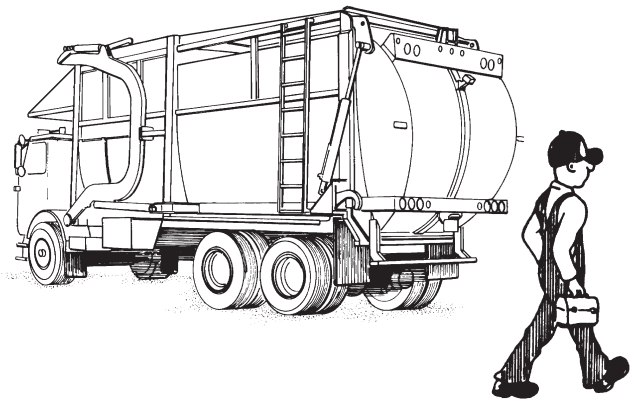
Purging of the air system will ensure that moisture does not enter the control systems of the chassis or refuse body control system.



EJECTING LOAD







BODY TILT

GENERAL

The body tilt lifts the refuse body from the chassis frame rails to provide maintenance access.

OPERATION

⚠CAUTION

The body must be completely empty, the lift arms raised and the packing/ejection panel at the rear of the body before attempting to tilt the body.

RAISING

Operational Status	
Truck Off	Keys Removed

Before operating the body tilt, the lift arms must be in the raised position, the packing/ejection panel must be at the rear of the body, and the rubber hooks located on each body prop must be loosened. When the body tilt switch is moved to the raise position the self contained hydraulic pump and reservoir is activated allowing fluid flow to the case end of the body tilt cylinders. As the cylinders extend, the body props move with the body. As they approach the maximum extended length of the cylinders the props will automatically engage a notch on the cylinder brackets. When both props are positioned into the notched area of the bracket, feather the switch to the lower position which will allow the cylinders to slightly retract and cause the body props to support the body.

LOWERING

Operational Status	
Truck Off	Keys Removed

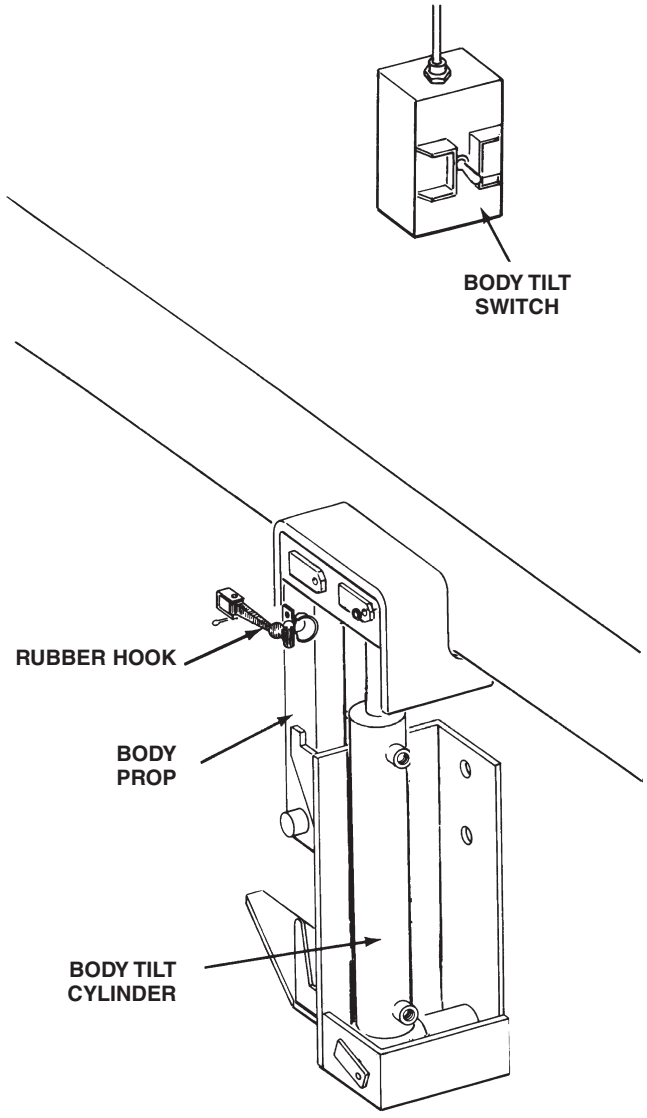
Before lowering the body, connect the rubber hooks, on each side of the body to the body props, then slightly raise the body to release the body props. Lower the body so that the body props clear the cylinder bracket. Stop lowering the body and loosen the rubber hooks from both body props. Continue to lower the body until the body contacts the chassis frame rails the entire length. Reconnect the rubber hooks.

NOTE

Before operating the body tilt see Section 2, SAFETY PRECAUTIONS.

⚠DANGER

Never enter under the raised refuse body unless both body props are in position.



GENERAL REPAIR PRACTICES

⚠WARNING

Proper service and repair is important for the safe, reliable operation of all mechanical products. The service procedures recommended and described in this service manual are effective methods for performing service operations. Some of these service operations require the use of tools specially designed for the purpose. These special tools should be used when and as recommended.

It is important to note that deviating from these procedures could cause damage to the unit or render it unsafe. However, please remember that these procedures are not all inclusive. Since Leach Company could not possibly know, evaluate and advise the service trade of all possible ways in which service might be done or of the possible hazardous consequences of each way, we have not undertaken any such broad evaluation. Accordingly, anyone who uses a service procedure or tool which is not recommended by Leach must first thoroughly satisfy himself that neither his nor the operator's safety will be jeopardized by the service methods selected.

PREPARATION FOR SERVICE

Proper preparation is very important for efficient and safe service work. A clean work area at the start of each job will allow you to perform the repair as easily and quickly as possible, and reduce the incidence of misplaced tools and parts. If the portion of the unit to be repaired is excessively dirty, it should be cleaned before work starts. Cleaning will occasionally uncover trouble sources. Tools, instruments and parts needed for the job should be gathered before work is started. Interrupting a job to locate tools or parts is a needless delay. Special tools required for a job are listed in Section 12, SERVICE TOOLS.

REPLACEMENT PARTS

Of growing concern to the Leach Company is the use of counterfeit, will-fit or substitute parts. The use of non-standard parts may affect the operation and performance, and void the warranty. Ensure maximum reliability and protect your investment — insist on Leach original factory replacement parts.

LEACH Signature™ Original Factory Parts

SERVICE BULLETINS

In addition to the information given in this Service Manual, Service Bulletins are issued from time to time, which cover interim changes and supplementary information. Service Bulletins should be consulted for additional information. (Check with your local authorized Leach Distributor).

GENERAL REPAIR PRACTICES

SAFETY PRECAUTIONS

PRIOR TO PERFORMING ANY SERVICE OR REPAIR:

1. Set the parking brake.
2. Put the vehicle in park, or if equipped with a manual transmission put the unit in gear and remove the ignition key.
3. Place an OSHA approved chock block in front of and behind the front tire.
4. If steel supports are to be used to support the tailgate, place them as shown in Section 9, SERVICE AND REPAIR, under TAILGATE REPAIR.
5. When working on the unit always use the service tools listed in Section 12, SERVICE TOOLS if so directed by the instructions in Section 9, SERVICE AND REPAIR.
6. Whenever dismantling any hydraulic or pneumatic line, valve or cylinder be sure to turn off the flow, relieve the pressure and slowly loosen the fittings.

SAFETY DURING SERVICE AND REPAIR

1. Always wear safety glasses.
2. Disengage the PTO, turn off the ignition, and remove the keys before:
   a. Leaving the truck cab.
   b. Examination or lubrication of the PTO, pump, or drive shafts.
   c. Entering the front of the body.
   d. Entering the tailgate.
3. Always check to make sure the body access door is locked shut before entering the cab.
4. Pump removal: due to the weight and location of the pump, it is advisable to place a floor jack beneath the pump and apply a slight pressure, so that when the bolts are removed the pump is supported.
5. When it becomes necessary to raise the tailgate for maintenance or repair, do not enter the area beneath the tailgate unless the proper bracing has first been applied. All bracing and supports must be able to support 4000 lbs.
6. Never enter the body when the load is under compaction pressure.

WELDING PRECAUTIONS

ELECTRIC WELDERS

1. Electric arc welders should have a separate, fused disconnect circuit.
2. Welders must be used according to the manufacturer's specifications.
3. All electric welding should be done in a well-ventilated area.
4. The radiation given off by the arc will destroy the retina of the eye, so wear an approved welder's helmet.
5. Welding radiation will produce severe burns on unprotected skin, similar to sunburn, so wear heavy clothing. Use natural fiber or leather — avoid synthetic fiber clothing.

OXY-ACETYLENE TORCHES

1. Acetylene is a highly explosive gas which should be treated with the greatest care. At pressures above 15 psi, acetylene will explode by decomposition without the presence of air. No other industrial gas has such a wide explosive range.
2. Oxygen will spontaneously ignite in the presence of oil and grease. The hoses, torch handles and regulators must be kept free of petroleum products.
3. Before using the equipment, inspect it for cleanliness and for leaks.
4. Hoses cannot be safely repaired. When they show signs of deterioration they should be replaced.
5. Return regulators periodically to the distributor for inspection. Store gas bottles upright and out of the sun. Do not attempt to repair or make internal adjustments on the regulators yourself.
6. If you suspect a leak in the system, perform a bubble test with Ivory soap. DO NOT USE ANY OTHER BRAND OF SOAP BECAUSE OF THE DANGER OF OXYGEN COMBINING WITH IT AND EXPLODING.
7. When preparing to use the torch, make certain that the regulator valves are all the way out to the "off" position before the main tank valves are opened to protect the regulators from the sudden impact of tank pressure.
8. When opening the tank valves, stand alongside of the regulators, out of the way, in case they blow out.
9. Backfiring or "machine gunning" at the torch is very dangerous and can lead to a major explosion.
10. Welding or cutting should be done in a location well away from flammable materials.

REMOVAL, DISASSEMBLY AND REPAIR

1. Cleanliness is very important; dirt is the number one cause of wear in bearings, bushings and especially in hydraulic components.
2. Inspect hydraulic components for leaks before cleaning. The dirt build-up on the component can aid in tracing fluid leaks.
3. Clean hydraulic connections before removal to prevent dirt from entering the component.
4. Loosen hydraulic fittings slowly.
5. Cap hydraulic fittings immediately after removal to prevent dirt from entering the component or line and to prevent fluid from leaking.
6. Clean the component in non-flammable solvent before disassembly.
7. Inspect the component after cleaning for signs of wear or external damage.
8. When disassembling a component, note the position of each part as it is removed to aid in reassembly.
9. During disassembly note the condition of each part as it is removed to aid in diagnosing problems and to help prevent them in the future.
10. Clean and inspect disassembled parts for wear, cracks, dirt, etc.
11. After cleaning and inspection, reusable hydraulic parts should be immediately coated with clean fresh hydraulic fluid to prevent rust formation. If these parts are not going to be reinstalled immediately, they should be wrapped in a clean lint-free cloth or paper to prevent nicks or scratches.
12. When repacking a cylinder or resealing a valve, replace all seals and o-rings that are disturbed during the repair. The price of a few seals is very little compared to a return repair job.

REASSEMBLY AND INSTALLATION:

1. Assemble parts in the same position as removed.
2. Align parts accurately before mating.
3. Inspect o-ring and seal grooves for sharp edges, nicks or burrs before installing new sealing parts.
4. Lubricate all new sealing parts with clean, fresh hydraulic fluid before installation.
5. Use care not to damage new sealing parts on reassembly,

NOTE

See Section 9, SERVICE AND REPAIR for specific repair instructions.

6. Use correct torque values when reassembling and installing components. See CAPSCREW MARKING AND TORQUE VALUES later in this section.
7. Always check the hydraulic fluid level in the hydraulic tank after performing any service or repair of the hydraulic system.
8. Always lubricate components with grease fittings after they have been repaired and reinstalled.
9. Use only Leach Signature replacement parts.

ELECTRICAL TESTING

The electrical system used on the unit consists of various lights, switches and wiring. Testing the components and wiring can be accomplished by two simple checks; CHECKING FOR VOLTAGE and CHECKING CONTINUITY.

CHECKING FOR VOLTAGE

A test light is used to check for the presence of electricity in a live circuit. Connect the test light clip to a good ground and the probe at the point where the presence of voltage is to be checked. If voltage is present, the light will be on… if no voltage is present, the light will be off.

CHECKING CONTINUITY

A continuity tester is used to check the ability of a conductor to allow current to pass. A continuity tester uses a self contained power source, and should never be used on a live circuit. Connect the clip to one side of the component to be tested and touch the probe to the other side. If the component has the potential to pass current, has continuity, the light will be on… if the component is not able to pass current, there is no continuity and the light will be off.

GENERAL REPAIR PRACTICES

WELDING

1. When rewelding an old weld, be sure the old weld is completely cleaned out.
2. When repairing a cracked weld, the old weld should be completely removed before rewelding.
3. When adding a part or attachment be sure the metal is clean before welding, the part is properly located and the weld will not cause damage to adjacent parts.
4. Use the following rods (rod-AWS number) for welding:
   - Body (except tailgate hinge area) E6010, E6011, E6013
   - Tailgate hinge area E11018, E7018
   - Tailgate E6010, E6011, E6013
   - Top door E6010, E6011
   - Packing/ejection panel E11018, E7018
5. Use the following wire for welding (all locations) ER70-S

LIFTING INSTRUCTIONS

Because of the size and weight of the major components found on the Leach Millennium, it is necessary to use suitable lifting devices for removal. The following components require lifting devices for removal: cylinders, lift arms, top door, packing/ejection panel and the tailgate.

CAPACITY OF LIFTING DEVICE REQUIRED FOR REMOVAL

- Cylinders . . . . . 1000 lbs.
- Top door . . . . . 1500 lbs.
- Lift arm assembly . . . . . 4000 lbs.
- Packing/ejection panel . . . . . 4000 lbs.
- Tailgate . . . . . 4000 lbs.

Nylon sling straps should be used for the removal of cylinders. The following specifications should be used to determine the type of sling straps to use for lifting.

SLING STRAP SPECIFICATIONS

Type USS-26-EN1
Rating
- Vertical lift . . . . . 4800 lbs.
- Choker lift . . . . . 3600 lbs.
- Basket lift . . . . . 9600 lbs.

Width . . . . . 2 in.
Length . . . . . depends on type of lifting device used.

Chains should be used to lift and/or support the lift arms, top door, packing/ejection panel and tailgate. The following specifications should be used to determine the type of chain and hardware to use for lifting.

CHAIN AND HARDWARE SPECIFICATIONS

Chain
- Type . . . . . D.O.F. (Double Brand, Oblong Link, Foundry Hook)
- Size . . . . . ½ in.

Hammer locks . . . . . ½ in.
Oblong rings . . . . . ½ in.

TIGHTENING PROCEDURES FOR JIC FITTINGS

The JIC (37° Flare) fitting is probably the most common type of hydraulic connector used in the refuse industry. These fittings are designed to be used with thin wall or medium thickness tubing, or hydraulic hoses in systems operating up to 3000 PSI. The action of tightening the assembly's nut draws the flared surfaces of the fittings together, creating a positive seal. Fittings that are properly tightened and supported should not become loose on their own. Two methods are available to determine if a fitting is properly tightened: 1) The torque method. 2) The flats method.

TORQUE METHOD

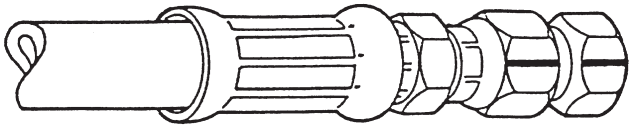
Fitting Size	Thread Size	Torque Value (ft-lbs)
#8	3/4 – 16	38
#10	7/8 – 14	60
#12	1 1/16 – 12	83
#14	1 3/16 – 12	88
#16	1 5/16 – 12	111
#20	1 5/8 – 12	130
#24	1 7/8 – 12	163
#32	2 1/2 – 12	248

FLATS METHOD

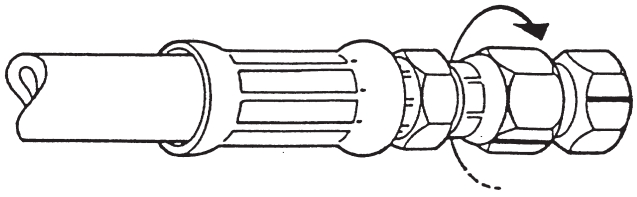
The "flats" method for tightening JIC fittings can be used when a torque wrench is not available, or because of fitting location a torque wrench cannot be used.

1) The swivel nut should be "hand tightened" to the mating fitting. (Hand tight is the point where the swivel fitting no longer threads on to the mating part when a moderate amount of force is applied with your fingers). While the swivel nut is being tightened, the tube or hose should be wiggled to ensure the flare surfaces align properly.

2) When the swivel nut is hand tight, make a line on one of its flats and extend the line to the adjacent flat on the mating part. (See illustration below).



Using the correct size wrench, rotate the swivel nut clockwise the proper number of flats. Refer to the table for suggested amount of flats rotation.



GENERAL REPAIR PRACTICES

SUGGESTED AMOUNTS OF FLATS ROTATION

Fitting size	Thread Size	HOSE (flats rotation)	TUBE (flats rotation)
#8	¾ - 16	1 ¼ - 1 ¾	2 ¼ - 2 ¾
#10	⅞ - 14	1 ¼ - 1 ¾	1 ¼ - 1 ¾
#12	1 1/16 - 12	¾ - 1 ¼	1 ¼ - 1 ¾
#14	1 3/16 - 12	¾ - 1 ¼	1 ¼ - 1 ¾
#16	1 5/16 - 12	¾ - 1 ¼	1 ¼ - 1 ¾
#20	1 ⅝ - 12	½ - 1	1 ¼ - 1 ¾
#24	1 ⅞ - 12	½ - 1	¾ - 1 ¼
#32	2 ½ - 12	½ - 1	¾ - 1 ¼

TORQUE SPECIFICATIONS FOR FLAT-FACE FLARE FITTINGS

Tube size	Tube O.D. (inches)	Swivel Nut Torque* Foot Pounds	Swivel Nut Torque* Newton Meters
4	0.25	18-24	24-32
6	0.38	24-30	32-40
8	0.50	34-42	46-56
10	0.62	59-67	80-90
12	0.75	80-96	109-129
16	1.00	114-130	156-176
20	1.25	125-141	172-192
24	1.50	159-175	216-238

*Do not lubricate the fitting.

CAPSCREW MARKING AND TORQUE VALUES

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

NOTES:

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

SPECIFICATIONS

LUBRICANTS

Oil . . . . . .SAE #10 or equivalent
Grease . . . . . .Multiservice (quantity grade)
Pneumatic actuators . . . . . .Dow Corning #44 or equivalent

HYDRAULIC SYSTEM CAPACITY (approximately):

Fluid tank . . . . . .40 gallon
Total system . . . . . .55 gal.
System pressure setting . . . . . .3000 PSI
Type of fittings . . . . . .Steel tubing with brazed and flared fittings, reinforced rubber hose with crimped full-flow fittings, static o-ring fittings.
Filtration . . . . . .Suction reusable wire mesh type. Return line disposable filter element located in the return line to the tank.

PUMP (204071)

Type . . . . . .Positive displacement; gear type
Capacity . . . . . .50 gpm @ 1500 rpm

LEACH HYDRAULIC FLUID RECOMMENDATION

All Leach hydraulic systems are factory filled with a high quality anti-wear hydraulic fluid meeting an ISO 32 specification. On units put into service where there are high ambient temperatures or sustained high duty cycles, it may be desirable to change the fluid to an ISO 46 specification (higher viscosity). In colder climates or light duty, an ISO 22 might be more appropriate. The International Standards Organization assigns specification numbers so that a consumer receives the same product from various suppliers.

GRADE ISO/VISCOSITY	22	32	46
AGMA NO.			1
Gravity, API	33	31	31
Flash, °F	375	380	390
Pour Point, °F	-20	-20	-20
Viscosity:			
SSU @ 100° F	112	158	228
SSU @ 210° F	40	44	48
cSt @ 40° C	21	30.5	44
cSt @ 100° C.	4.1	5.2	6.5
Viscosity Index	98	99	99
ASTM Oxidation Test (Hours to 2.0 Neut. No.)	2500	2500	2500
ASTM Rust Test, A & B	Pass	Pass	Pass
Foam Test	Pass	Pass	Pass
Vickers Vane Pump Test	Pass	Pass	Pass
Dielectric Strength (ASTM 877) EC # @ 180° F	25Kv 40-37-3 (10)	25Kv 40-37-3 (15)	25Kv 40-37-3 (15)

⚠CAUTION

Do not use engine oil, automatic transmission fluid (ATF) or add diesel fuel or kerosene to the hydraulic fluid. Service life of all hydraulic system components may be adversely affected.

HYDRAULIC FLUID:

To serve its purpose and give long and satisfactory service, hydraulic fluid must possess desirable physical and chemical characteristics. Stability over a wide range of temperatures and under agitation is very important.

Premium hydraulic fluids should be used in Leach hydraulic systems. In addition to the above characteristics selected additives should be added to provide additional resistance to wear, corrosion, oxidation, decomposition and foaming. All additive blending should be done by the lubricant supplier so that they are compatible with each other.

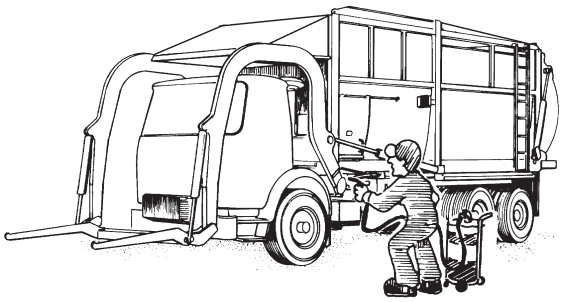
A reputable lubricant supplier backed up by a reputable oil company is great assurance of obtaining high quality products, and generally speaking, higher quality is worth the higher initial cost.

SPECIFICATIONS

PREVENTIVE MAINTENANCE

GENERAL

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

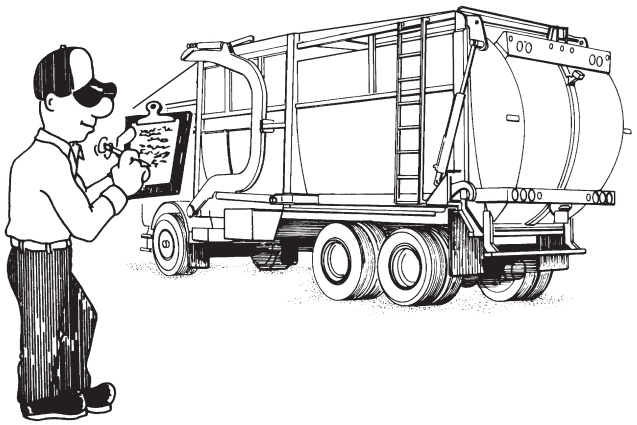


OPERATING AND MAINTENANCE RECORDS

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

NOTE

Occasionally distributors will receive service bulletins from Leach Company concerning updated maintenance information. Keep those bulletins with this manual and make notes at the appropriate places in the manual referencing the updated information.



PREVENTIVE MAINTENANCE REQUIREMENTS

DAILY PREVENTIVE MAINTENANCE

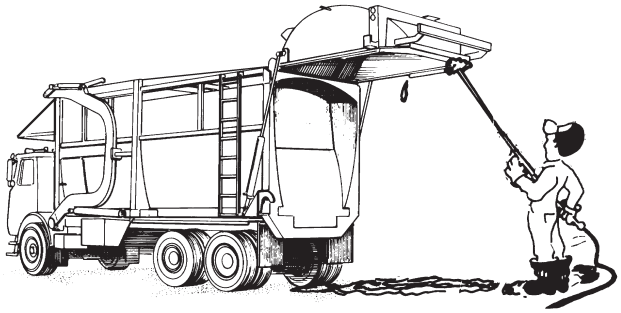
Each day perform the following maintenance:

1. **INSPECTION.**
   Perform the "Pre-operating Walk-Around Inspection" described in Section 3, OPERATION.

⚠ DANGER

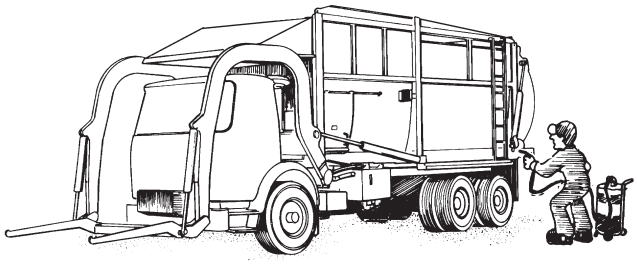
Never go under the vehicle with the engine running. Death or serious injury could result.

a. When checking for hydraulic leaks pay particular attention to hose fittings and connections at the cylinders and valves. A build-up of hydraulic fluid and dirt indicates a small leak that can probably be corrected by tightening the fitting or connection.
b. Check the visual indicator to determine the condition of the return line element.
c. Check all major moving parts for smoothness and ease of operation.



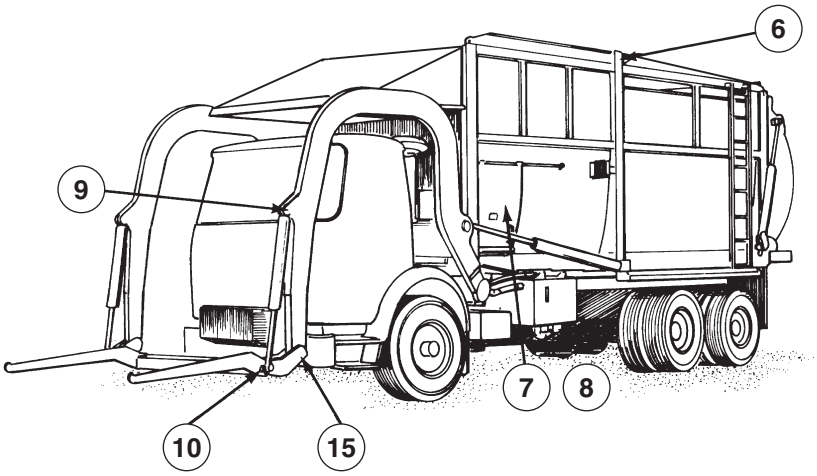
2. **CLEANING.**
   Hose the entire unit inside and out with clean water. Make sure no refuse is lodged in the body trough or behind the packing/ejection panel.

3. **LUBRICATION.**
   Frequent inspection of grease points will indicate when lubrication is needed.



PREVENTIVE MAINTENANCE

LUBRICATION CHART



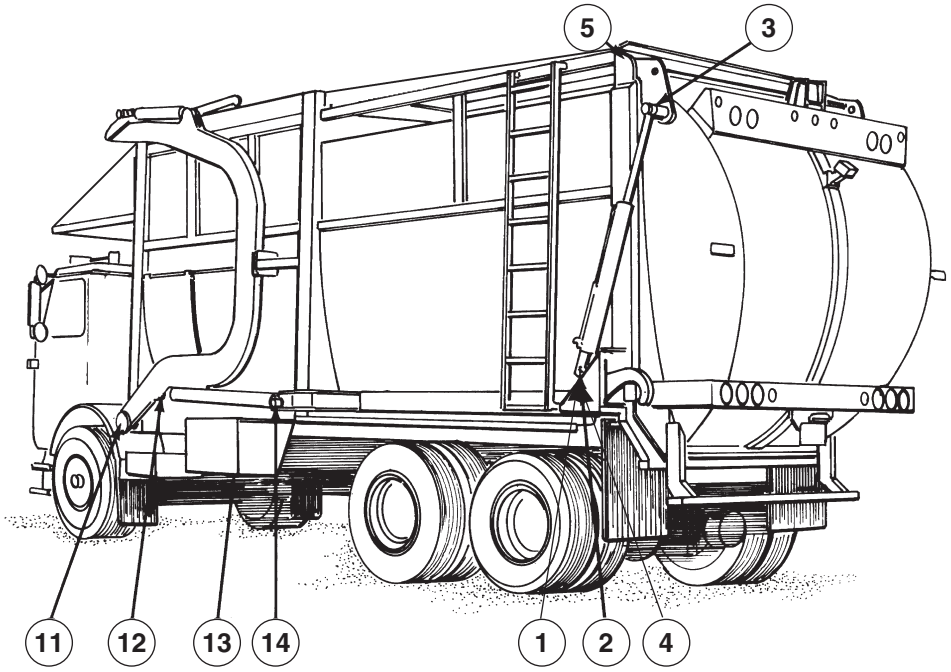


ILLUSTRATION #	LUBE POINT	QUANTITY
● 1	Latch linkage	2
● 2	Lever pivot	2
● 3	Tailgate cylinder pivot (rod)	2
● 4	Tailgate cylinder pivot (case)	2
■ 5	Tailgate hinge	2
● 6	Top door hinge (hinged top door)	2
● 7	Packing/Ejection cylinder (rod end)	2
● 8	Packing/Ejection cylinder (case end)	
● 9	Tilt cylinder pivot (case end)	2
● 10	Tilt cylinder pivot (rod end)	2
● 11	Lift arm pivot	2
● 12	Lift cylinder pivot (rod)	2
● 13	PTO drive shaft	2
● 14	Lift cylinder pivot (case end)	2
● 15	Fork assembly pivot	2

INSTRUCTIONS

● Weekly **or** every 40 hours of operation, whichever comes first, with MOBILUX EPI-SERVICE grease or equivalent.

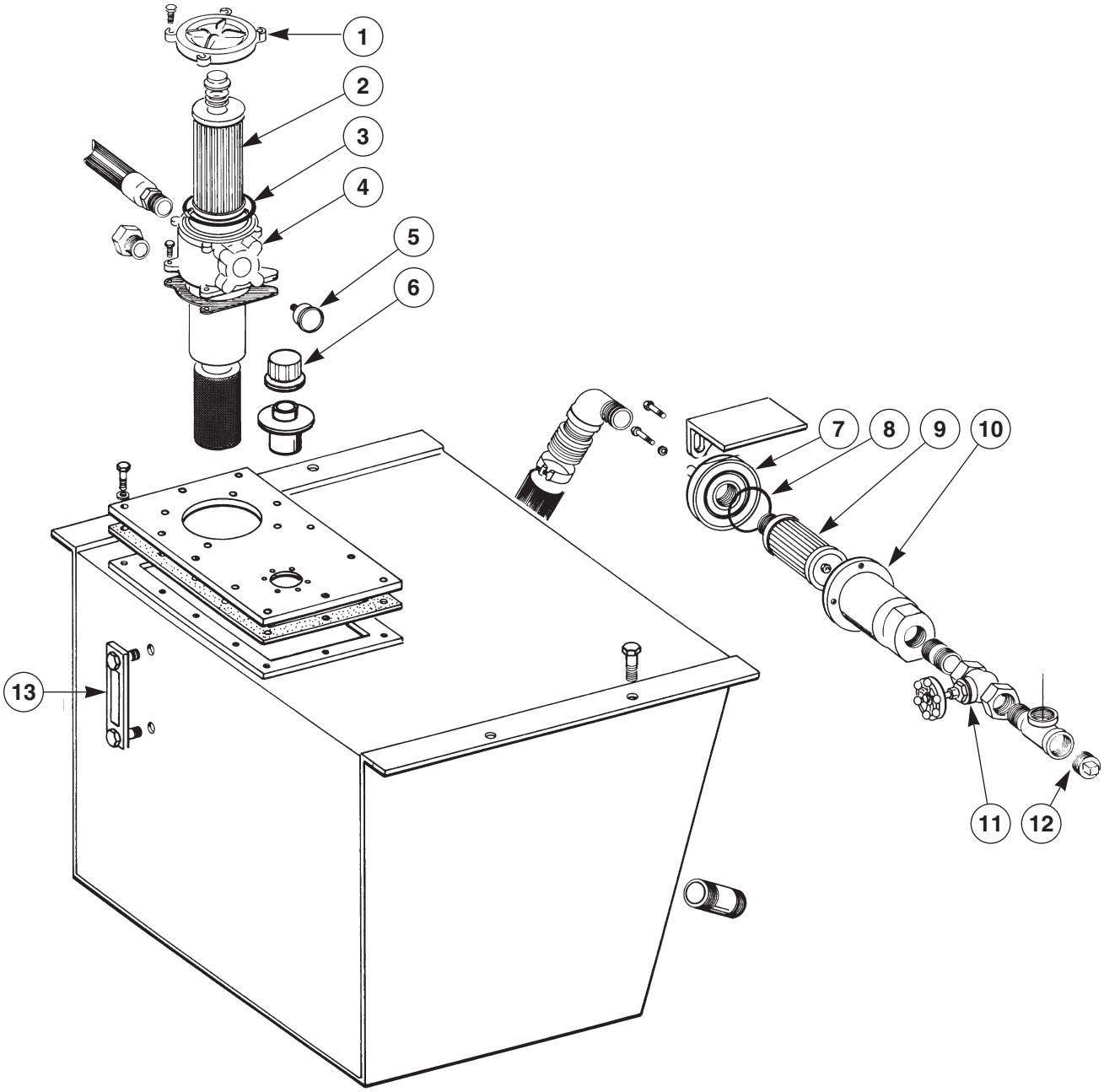
■ Weekly **or** every 40 hours of operation, whichever comes first, with SAE #10 or equivalent.

NOTE

In below freezing climates all grease and oils should have a cold test rating of at least -20 °F.

PREVENTIVE MAINTENANCE

HYDRAULIC SYSTEM



HYDRAULIC SYSTEM SERVICE

Proper maintenance of the hydraulic components is of vital importance to the service life of the system and the operation of the unit as a whole.

CHECKING FLUID LEVEL (DAILY)

Place all cylinders in the retract position. When checking the fluid level in the hydraulic tank, also note any frequent or sudden loss of fluid. This may indicate leakage, which must be traced and corrected to avert equipment failure and possible damage to other components.

If low, fill the hydraulic tank to the "NORMAL FILL LEVEL" with hydraulic fluid as specified in Section 5, SPECIFICATIONS according to operating and weather conditions.

The condition of the filter element (2) must be checked daily by looking at the visual indicator on the filter. Refer to item (5) on the tank illustration.

CHECK/REPLACE RETURN LINE FILTER ELEMENT

The return line filter (2) is a vital component of the hydraulic system. Without proper filtration problems are bound to occur among the hydraulic system components. Stick to a strict maintenance schedule for this item.

Time Lapse Recommendations for Element Replacement.

1. After the first 20-hours of hydraulic pump operation.
2. After the next 50-hours of hydraulic pump operation.
3. Thereafter, every 250-hours of hydraulic pump operation or sooner, if so indicated by the filter replacement indicator.

CLEAN TANK BREATHER (WEEKLY)

Clean the air breather (6) every week. Replace the breather yearly, or when it cannot be cleaned adequately.

LUBRICATION POINTS (WEEKLY)

Weekly or every 40 hours of operation, lubricate the unit as shown on the LUBRICATION CHART in this section.

REPLACEMENT OF FILTER ELEMENT

For units with cast aluminum filter housing – identifiable by the solid cast aluminum cover secured with four capscrews

1. Clean the filter housing area completely to avoid contamination.
2. Loosen the four capscrews retaining the filter housing cover (1) approximately six revolutions.
3. While pushing downward on the housing cover, rotate the cover clockwise until the cover retaining flanges clear the retaining capcrews.

⚠CAUTION

The filter bypass spring locator produces mild tension against the filter housing cover. Use caution when removing cover; release spring tension slowly!

4. Remove the bypass valve and spring locator from the filter element (2).
5. Carefully remove the filter element (2) from the housing, taking care not to shake or tap the element.
6. Remove and discard the filter housing cover o-ring (3) from the top of the filter housing (4), and clean the o-ring groove.
7. Lubricate the two o-rings, part number 934371 that are provided. Install these in the grooves located in the openings at each end of the filter element (2).
8. Place the filter element (2) into the filter housing (4), sliding the filter element opening over the filter housing locator tube.
9. Remove the gasket from the filter bypass valve and discard; place the filter bypass valve into the opening on top of the filter element (2), with the exposed spring facing upward.
10. Lubricate and install a new filter housing cover o-ring (3) into the groove on top of the filter housing.
11. Place the filter bypass valve locator spring over the filter bypass valve; locate the filter housing cover (1) over the spring (the spring is centered by an extrusion on the inside of the filter housing cover). Push downward on the cover, locating the cover retaining flanges in front of the retaining capscrews. Twist the cover counter-clockwise until the cover retaining bolts are seated inside the cover retaining flanges.
12. Tighten the filter housing cover retaining capscrews, in a cross pattern, to 120 foot pounds (.68 Newton meters).
13. Run the unit and check for leaks.

⚠CAUTION

Extended operation of the unit without proper filtration will result in a reduced service life of hydraulic system components.

PREVENTIVE MAINTENANCE

REPLACEMENT OF FILTER ELEMENT

For units with steel filter housing – identifiable by the steel cover secured with six capscrews

1. Clean the filter housing area completely to avoid contamination.
2. Loosen the six capscrews retaining the filter housing cover (1).
3. Using the handle, rotate the housing cover clockwise until the large holes line up with each capscrew.
4. Remove housing cover.
5. Carefully remove the filter element (2) from the housing, taking care not to shake or tap the element.
6. Using a solvent, clean out the dual spring by-pass opening located on the inner housing cover.
7. Remove and replace the o-ring (3) located on the inside of the housing cover. Lubricate the new o-ring and inside cover flange with a multi-purpose grease.
8. Lubricate the two o-rings, part number N72130 that are provided with the new filter element. Install these in the grooves located in the openings at each end of the new filter element.
9. Place the filter element (2) into the filter housing (4), sliding the filter element opening over the filter housing locator tube.
10. Align the bypass valve tube on the filter housing cover (1) with the opening on top of the filter element (2).
11. Replace the filter housing cover by aligning the six capscrews in the large holes, and pushing downward gently. Twist the housing cover counter-clockwise until the cover capscrews are seated in the small holes.
12. Tighten the filter housing cover retaining capscrews, in a cross pattern, to 170 foot pounds (1.16 Newton meters).
14. Run the unit and check for leaks.

⚠CAUTION

Extended operation of the unit without proper filtration will result in a reduced service life of hydraulic system components.

CLEANING HYDRAULIC STRAINER (MONTHLY)

1. Close gate valve (11).
2. Remove cover (7) and o-ring (8).
3. Unscrew strainer (9).
4. Clean strainer (9) thoroughly in a suitable cleaning solvent. Inspect for damage. Replace if necessary.
5. Reinstall strainer (9).
6. Replace the o-ring (8) with a new one.
7. Install the o-ring (8) carefully and secure the cover (7) to the strainer housing (10) with attaching hardware.
8. Open gate valve (11).

FLUSHING HYDRAULIC SYSTEM (YEARLY)

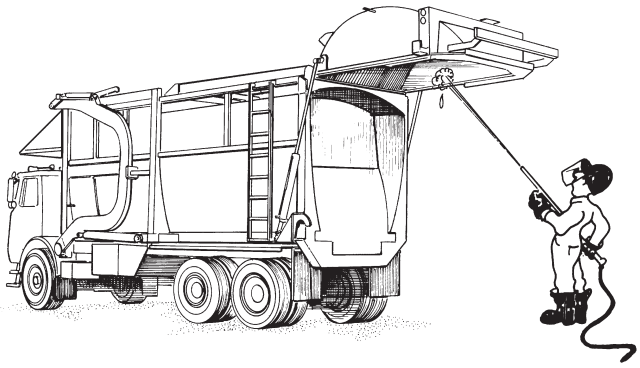
1. Retract all cylinders.
2. Drain all fluid from the hydraulic tank into a suitable container by removing drain plug (12).
3. Wipe out the bottom of the tank.
4. Clean the strainer (9) as described above.
5. Fill the hydraulic tank with fresh fluid as specified in Section 5, SPECIFICATIONS, according to operating and weather conditions.
6. Start the truck and operate as described in Section 3, OPERATION. Leave all hydraulic cylinders in the retracted position and shut down the unit.
7. Recheck the fluid level and add fluid as necessary to bring level to the “NORMAL FILL LEVEL” on the sight gauge (13).

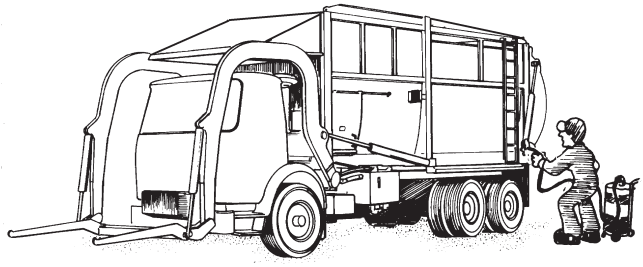
NOTE

Refer to Section 9, SERVICE & REPAIR for detailed instructions pertaining to those items requiring repair or replacement.

WEEKLY PREVENTIVE MAINTENANCE

1. **CLEANING.**
   Clean and paint exposed metal surfaces to remove and prevent the formation of rust.
2. **INSPECTION.**
   a. In addition to the body mounting hardware, which is checked daily, inspect all other accessible mounting hardware and fittings for tightness. Refer to the CAPSCREW MARKING AND TORQUE VALUES CHART provided in Section 4, GENERAL REPAIR PRACTICES.
   b. Check electrical wiring and insulation for frays, breaks and loose connections.
3. **LUBRICATION.**
   Refer to the LUBRICATION CHART in this section and service those items which require weekly lubrication.
4. **HYDRAULIC SYSTEM.**
   a. The return line filter element is vital to the service life of the hydraulic system. Refer to HYDRAULIC SYSTEM SERVICE later in this section for more detailed information about this important item.
   b. Check the breather cap on the hydraulic tank. Clean it weekly and replace it if it can not be cleaned out thoroughly or is missing.
5. **CHECK-OUT PROCEDURES.**
   Each week perform the CHECK-OUT PROCEDURES listed in Section 7 of this manual.

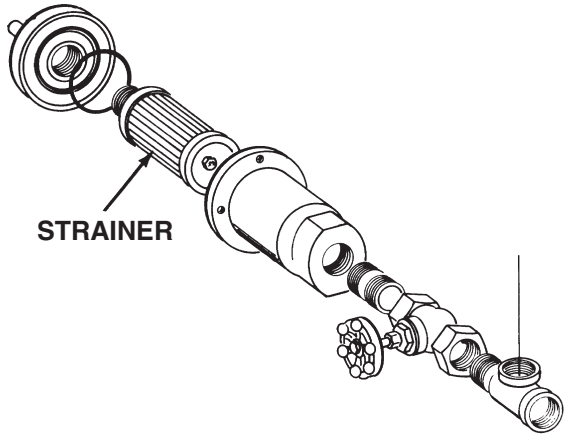




MONTHLY PREVENTIVE MAINTENANCE

HYDRAULIC SYSTEM

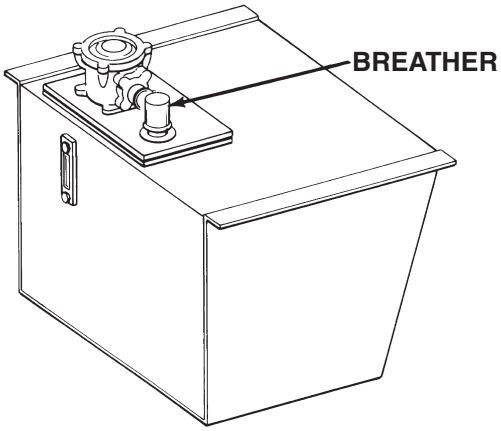
a. Once a month, remove and clean the hydraulic tank fluid strainer as described in HYDRAULIC SYSTEM SERVICE in this section.



YEARLY PREVENTIVE MAINTENANCE

HYDRAULIC SYSTEM

a. Once a year drain, flush and refill the hydraulic tank as described under HYDRAULIC SYSTEM SERVICE in this section.
b. Once a year replace the hydraulic tank air breather.



PREVENTIVE MAINTENANCE

HYDRAULIC SYSTEM SERVICE

CONTAMINATION

It is estimated that as much as 90% of all hydraulic problems may be traced directly to the fluid. It is of utmost importance that all foreign matter be kept from the hydraulic fluid. Invisible quantities of abrasive type contamination may cause serious pump wear, malfunctioning of pumps and valves, and sludge accumulations within the system in relatively short periods of time. It is also essential that moisture and water be kept from the hydraulic fluids and system.

COMMERCIAL HYDRAULIC FLUID TESTING

Hydraulic fluid samples should be taken periodically for laboratory analysis. The actual sampling method is critical. It should be done based on ANSI Standard B93.19M(R1980). This standard is available from the National Fluid Power Association, 3333 N. Mayfair Rd., Milwaukee, WI 53222.

Samples should be taken from the center of the reservoir when the fluid is at operating temperature and placed in a clean, dry, glass bottle with a non-shedding, screw-on cap. The bottle should be labeled with the date, type of fluid, and model and serial number of the machine.

Two identical samples should be taken. One for laboratory analysis and one for your own preliminary analysis while you are waiting for the lab report.

We recommend the use of commercial laboratory services for analysis of routine fluid samples taken on a regularly scheduled basis. The cost is about $20 to $30 per sample. The most important analyses are particle count, Spectro-chemical analysis, water content, and viscosity.

IN HOUSE HYDRAULIC FLUID TESTING

After your sample has been allowed to stand for 20 to 30 minutes to eliminate all air bubbles, hold the bottle up to the light to check for debris in the fluid and also check whether the fluid is clear or cloudy.

Any visible debris is an indication of a severe solid contamination problem, the source of which must be located and corrected immediately. Common sources of this kind of contamination may be component wear, unsealed reservoir covers, or dirty air breather filters.

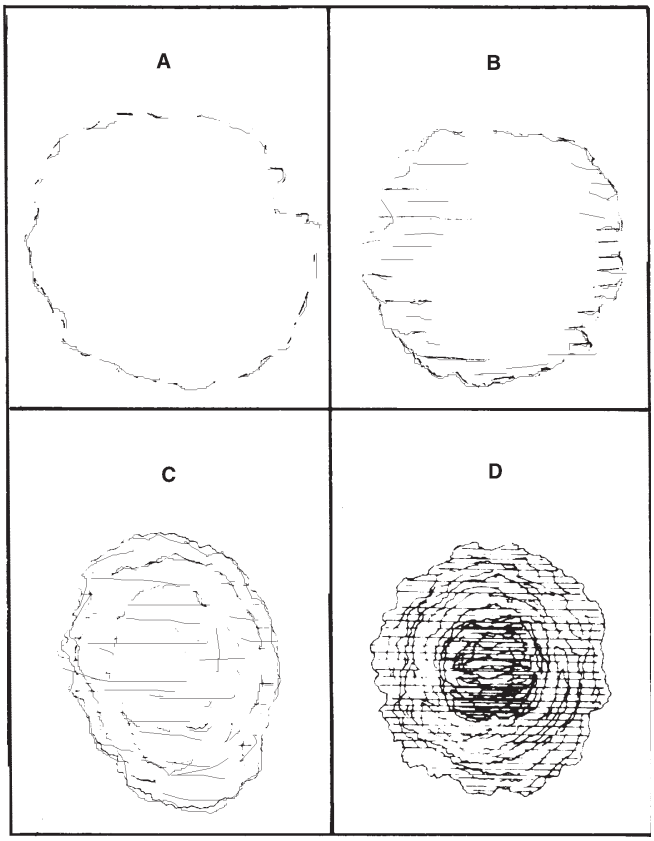
If the sample is the least bit “cloudy” it is an indication of water contamination, the source of which must be found and eliminated immediately. Common sources are inadequate outdoor storage, unsealed reservoir covers, or condensation.

A “BLOTTER SPOT TEST” may also be performed to test for OXIDATION. Place a DROP of fluid on a piece of white blotter paper. Order Leach part number 102480 for 20 sheets.

NOTE:

The Blotter Spot Test will provide an indication that a more complete test may be necessary.

A. If the blotter remains colorless or develops only a light yellow ring, oxidation is under control.
B. If color develops but is uniform throughout, the fluid is still serviceable but should be checked for the correct additive content.
C. If the sample shows distinct rings the fluid should be changed.
D. If a distinct dark spot remains in the middle, but a lighter colored fluid migrates outward in the blotter paper the fluid is about to dump (or already has) sludge or other by-products into the system. The time for replacement of this fluid has already passed.



Kits are available from your fluid supplier to test for acid content in much the same way you would test the condition of swimming pool water. A shift in acid content may indicate a breakdown in the fluid.

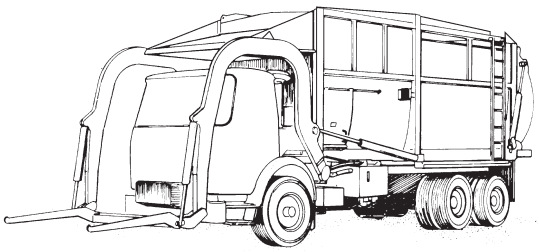
KEEP ACCURATE, DATED RECORDS OF ALL PERTINENT INFORMATION GAINED FROM THESE TESTS.

CHECK-OUT

The Check-Out Section is provided as a preventive maintenance tool to ensure that the Leach Millennium front loading refuse unit is operating at peak efficiency, which in turn leads to higher payloads and less down-time due to malfunctions. The items listed in this section should be checked weekly or every 40 hours of operation, which occurs first.

Pressure checks are used to check the condition of the cylinder seals and valve components. The pressures should be checked only after the hydraulic fluid reservoir is filled to the correct capacity and the hydraulic fluid has reached a minimum operating temperature of 100° Fahrenheit (37° Celsius). A 0-5000 PSI (0-345 BAR) gauge can be attached to the quick-connect coupling on the five spool valve inlet, located at the right (passenger side) front of the body. All pressures can be checked from this location. Pressures should be checked and set before proceeding to the cycle time checkout procedures.

The cycle time checks listed are to determine the condition of the hydraulic pump and related components (front mounted dry-valve, flow regulator, PTO, etc.).



When checking the cycle times, the unit RPM should be raised to the RPM indicated on the dash-mounted decal. If a cycle time does not meet specifications, re-time the cycle, the check cycle times for other systems to cross-check results. Correct cycle times verify that the hydraulic pump has an output rate of 50 GPM. Please note that the addition of optional hydraulic equipment, such as residential cart tippers, may affect the flow rates, thus requiring a higher RPM setting to achieve the correct cycle times.

PRESSURE & CYCLE TIME SETTING CHART

FUNCTION	PRESSURE SETTING	ADJUSTABLE	CYCLE TIME @ 50 GPM
Main Relief	3000 PSI (207 BAR)	YES	N/A
Fork Tilt	3000 PSI (207 BAR)	NO	7-9 Seconds
Lift Arm Lowered	2000 PSI (138 BAR)	NO	13-15 Seconds (Full Cycle)
Lift Arm Raised	2800 PSI (193 BAR)	NO	13-15 Seconds (Full Cycle)
Pack/Ejection	3000 PSI (207 BAR)	NO	26-30 Seconds (Auto-Pack)
Tailgate Raised	3000 PSI (207 BAR)	NO	18-20 Seconds (Full Cycle)
Tailgate Lowered	3000 PSI (207 BAR)	NO	18-20 Seconds (Full Cycle)
Sliding Top Door Open	900 PSI (62 BAR)	YES	18-24 Seconds (Full Cycle)
Sliding Top Door Closed	600 PSI (41.5 BAR)	YES	18-24 Seconds (Full Cycle)
Hinged Top Door Open	1850 PSI (127.5 BAR)	NO	3-5 Seconds
Hinged Top Door Closed	1850 PSI (127.5 BAR)	NO	3-5 Seconds
Adjustable Fork	1500 PSI (103.5 BAR)	YES	N/A
Residential Tipper	Consult Tipper Manufacture	??	??
Power-On-Demand	3100 PSI (214 BAR)	YES	N/A
Pneumatic Regulator	105 PSI (7.25 BAR)	NO	N/A

CHECK-OUT

GENERAL

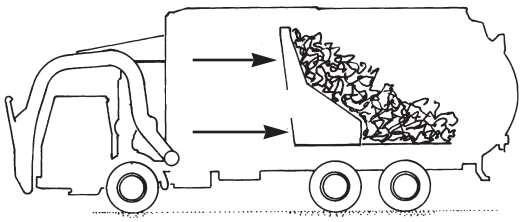
The Leach Millennium has been designed to provide long periods of trouble-free operation. Performing the check-out procedures below, at regular weekly intervals, will help to prevent unscheduled downtime.

⚠WARNING

Make sure you know and observe all safety precautions listed in Section 1 before performing any of the following check-out procedures. Use extreme caution to avoid coming near any moving parts. Never enter the body of the unit when the truck is running. Make sure the unit is in the correct operational mode as indicated by the OPERATIONAL STATUS block presented at the beginning of each check.

NOTE

Because of the location of some controls, some checks will require two people.



⚠CAUTION

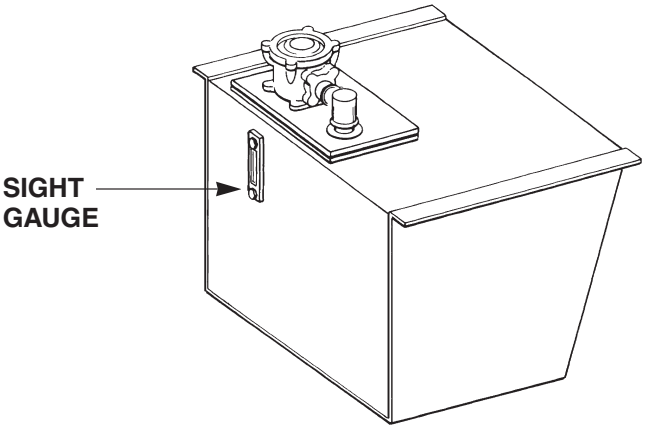
If the unit being worked on has a hinged top door, it is important to refer later in this section for specific instructions.

CHECK HYDRAULIC TANK FLUID LEVEL

1. The unit must be in the following position.
   a. Packing/ejection cylinders retracted.
   b. Tailgate closed and latched.
   c. Top door open.
   d. Lift arms up.
   e. Forks tilted up.
2. The fluid level should be between the safe range marks on the sight gauge.

IF NOT:

3. Add hydraulic fluid for normal operating and weather conditions. See Section 6, PREVENTIVE MAINTENANCE, for additional information about servicing the hydraulic tank.



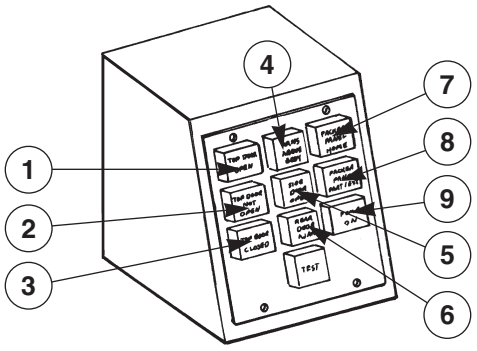
CHECK ELECTRICAL SYSTEM

1. Check the warning lights in the cab by pushing the test button. All the lights should illuminate when test button is activated.
   1. Top Door Open
   2. Top Door Partial Closed
   3. Top Door Closed
   4. Arms Above Body
   5. Side Door Open
   6. Tailgate Ajar
   7. Packer Panel Home
   8. Packer Panel Part/Ext.
   9. Pump On

NOTE

The automatic illumination of the warning lights will be tested while checking the unit's hydraulic operations.

2. Check all clearance lights, stop lights, tail lights, and turn signals.



CHECK DUMPING CYCLE TIME

Operational Status	
Truck Running	PTO Engaged

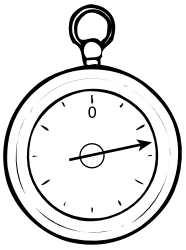
1. Move the lift arm control to fully raise the arms then immediately lower the lift arms. A complete cycle should take 13 to 15 seconds. Do not tilt forks.

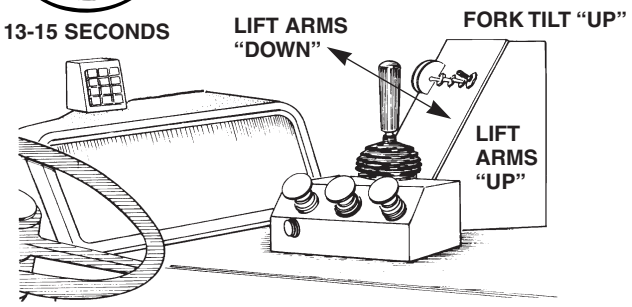
NOTE

See Section 10 for units equipped with the hinged top door.

IF NOT:

2. Adjust the engine RPM to achieve the correct cycle time. Change the dash decal to show the new recommended RPM.





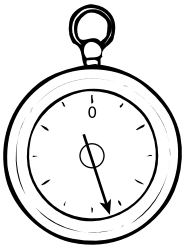
CHECK PACKING CYCLE TIME

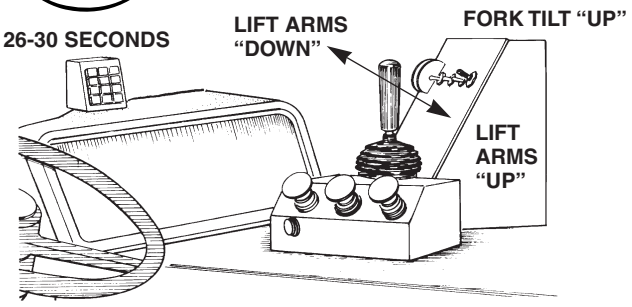
Operational Status	
Truck Running	PTO Engaged

1. Move the packing control while maintaining the engine at the RPM shown on the dash decal. A complete cycle, the cylinders fully extended and then retracted should take 26 to 30 seconds in the auto-pack mode.

IF NOT:

2. Adjust the engine RPM to achieve the correct cycle time. If correct cycle time cannot be achieved refer to Section 8 TROUBLESHOOTING.

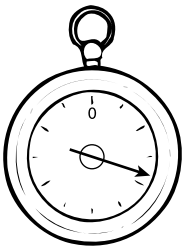




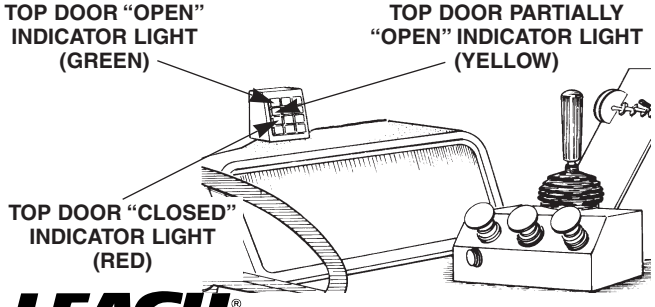
CHECK SLIDING TOP DOOR CYCLE TIME

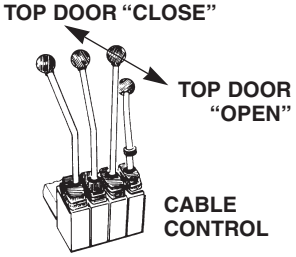
Operational Status	
Truck Running	PTO Engaged

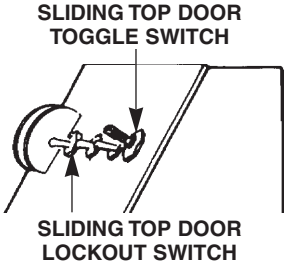
1. Move the top door control while maintaining, the engine at the RPM shown on the dash decal. A complete cycle, the cylinder fully extended and then retracted, should take 18 to 24 seconds.



18-24 SECONDS





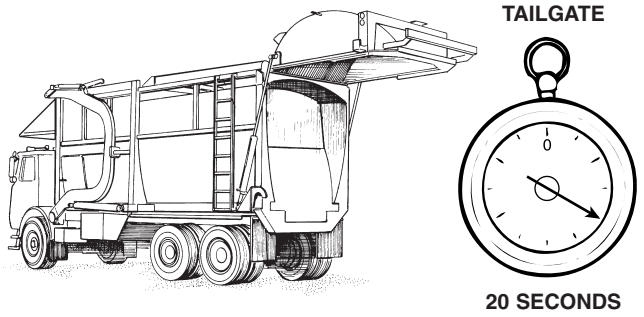


CHECK-OUT

CHECK TAILGATE CYCLE TIME

Operational Status	
Truck Running	PTO Engaged

1. Move the tailgate control while maintaining the engine at the RPM shown on the dash decal. A complete cycle, the cylinders fully extending and then retracting, should take approximately 20 seconds.

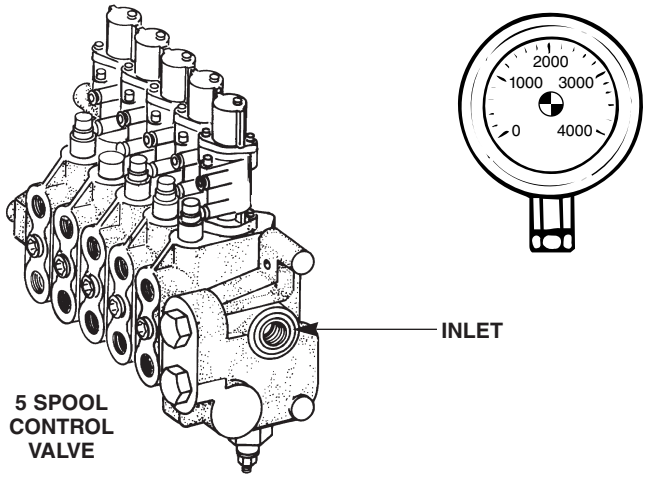


CHECK PRESSURES

The pressure checks provided below will indicate the operating condition of the hydraulic system. Detailed adjustment procedures are provided later in this section and are referenced at the appropriate checkout procedure. Prior to performing pressure checks:

Operational Status	
Truck Off	Keys Removed

1. Connect a pressure gauge to the test nipple located on the elbow on the inlet of the 5 spool control valve assembly.
2. Start the unit and engage the PTO/Pump.
3. Perform the following checks in order.



CHECK MAIN RELIEF PRESSURE

Operational Status	
Truck Running	PTO Engaged

1. Move the tilt control to fully retract or extend the fork cylinders.
2. Hold and read the gauge. The pressure should be 3000 PSI.

NOTE

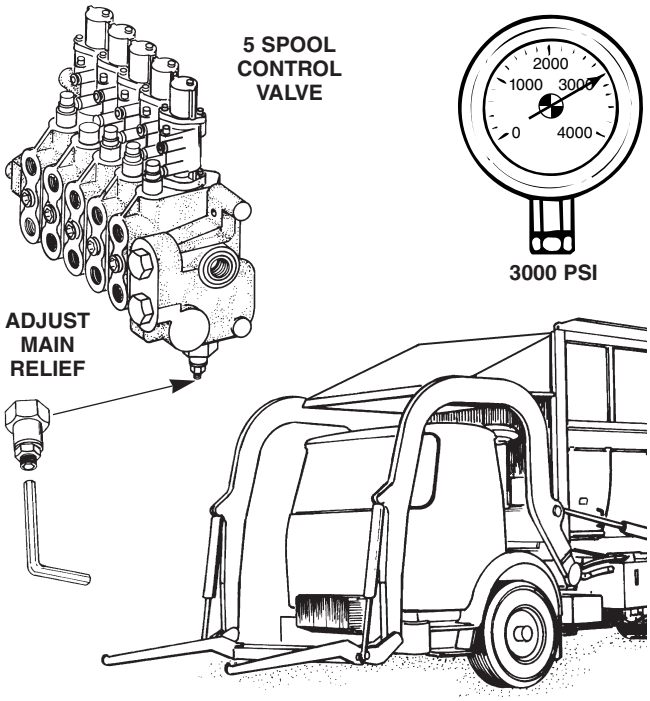
Maintain the engine RPM at the posted speed.

IF NOT:

Operational Status	
Truck Off	Keys Removed

3. Adjust the main relief pressure.

TO ADJUST THE PRESSURE, loosen the locknut on the main relief cartridge located on the first section of the 5-spool control valve assembly. Turn the adjustment clockwise to increase pressure and counter-clockwise to decrease pressure.



IF 3000 PSI CANNOT BE ACHIEVED,

4. Check the cylinders for bypass, see Section 9, SERVICE AND REPAIR.
5. Replace the main relief valve cartridge, see Section 9, SERVICE AND REPAIR.
6. Replace the hydraulic pump, see Section 9, SERVICE AND REPAIR.

CHECK THE LIFT ARM PRESSURE

1. Install a pressure gauge as described earlier in CHECK PRESSURES.

Operational Status	
Truck Running	PTO Engaged

2. Move the lift arm control to fully extend the lift arm cylinders.

NOTE

Maintain the engine RPM at the posted speed.

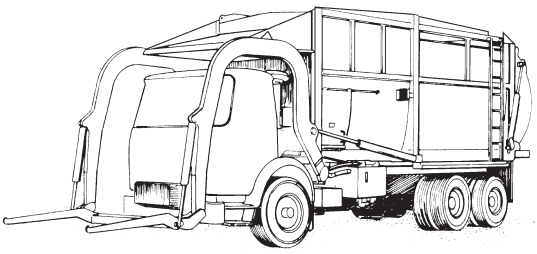
3. Hold the control and read the gauge. The pressure should be 2000 PSI.
4. Move the lift arm control to fully retract the lift arm cylinder. The pressure should be 2800 PSI.

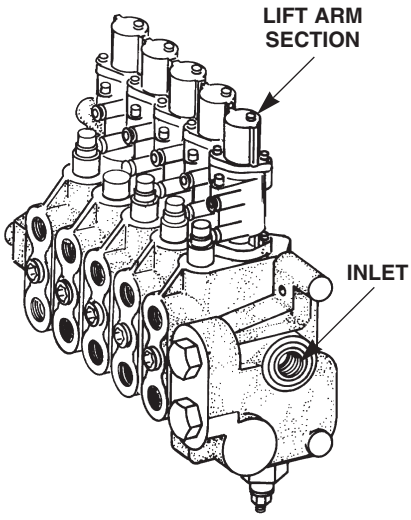
IF NOT:

5. Check the cylinders for bypass, see Section 9, SERVICE AND REPAIR.
6. Replace the port relief cartridge, see Section 9, SERVICE AND REPAIR.
7. Replace the hydraulic pump, see Section 9, SERVICE AND REPAIR.

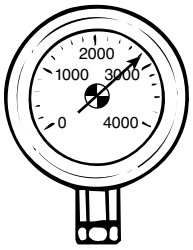
NOTE

The lift arm pressure setting is not adjustable.

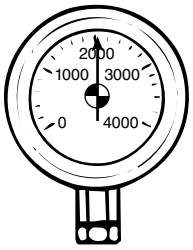




5 SPOOL CONTROL VALVE



2800 PSI UP



2000 PSI DOWN

CHECK THE PACKING/EJECTION PRESSURE

1. Install a pressure gauge as described earlier in CHECK PRESSURES.
2. Raise tailgate.

Operational Status	
Truck Running	PTO Engaged

3. Move the packing/ejection control to fully extend the packing/ejection cylinders.

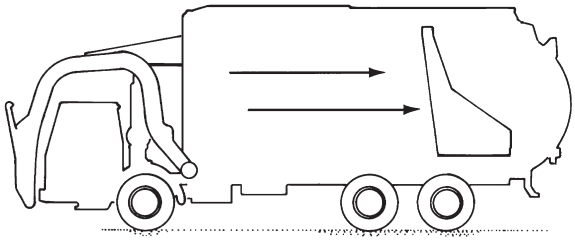
NOTE

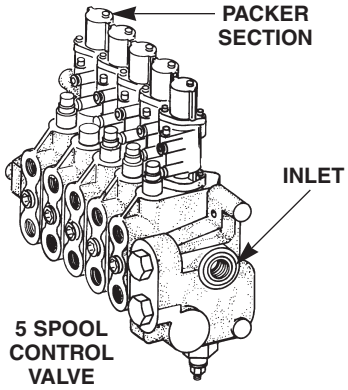
Maintain the engine RPM at the posted speed.

4. Hold the control and read the gauge. The pressure should be 3000 PSI.

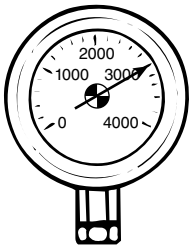
IF NOT:

5. Check the cylinders for bypass, see Section 9, SERVICE AND REPAIR.
6. Replace the port relief cartridge, see Section 9, SERVICE AND REPAIR.
7. Replace the hydraulic pump, see Section 9, SERVICE AND REPAIR.





5 SPOOL CONTROL VALVE



3000 PSI

NOTE

The packing/ejection pressure setting is not adjustable.

8. Repeat items 1-7 to check the packing/ejection retract pressure setting.

CHECK-OUT

CHECK THE TAILGATE PRESSURE

1. Install a pressure gauge as described earlier in CHECK PRESSURES.

Operational Status	
Truck Running	PTO Engaged

2. Move the tailgate control to fully extend the tailgate cylinders.

NOTE

Maintain the engine RPM at the posted speed.

3. Hold the control and read the gauge. the pressure should be 3000 PSI.

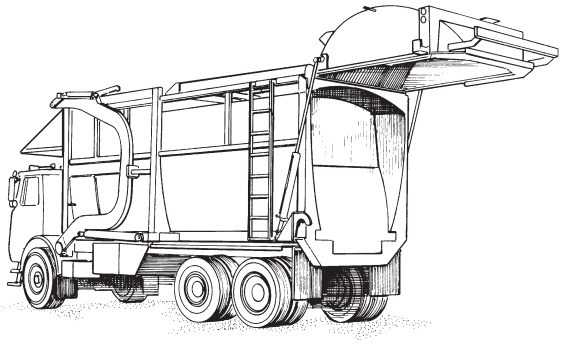
IF NOT:

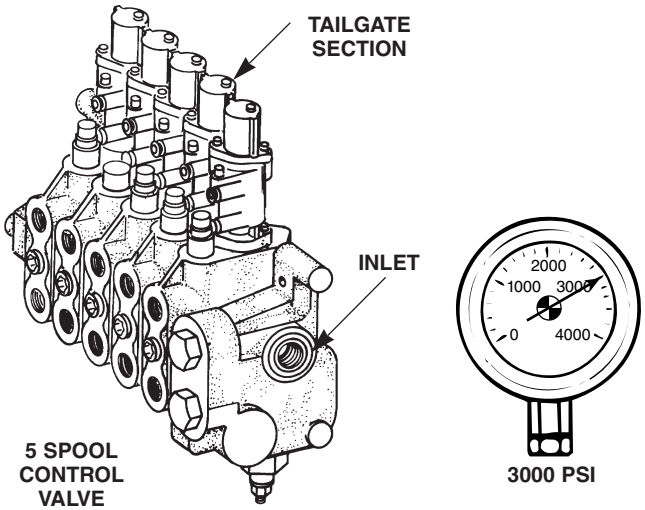
4. Check the cylinders for bypass, see Section 9, SERVICE AND REPAIR.
5. Replace the port relief cartridge, see Section 9, SERVICE AND REPAIR.
6. Replace the hydraulic pump, see Section 9, SERVICE AND REPAIR.

NOTE

The tailgate pressure setting is not adjustable.

7. Repeat items 1-6 to check the tailgate retract pressure settings.





CHECK TAILGATE LATCHES

Operational Status		
Truck Running	PTO Engaged	Sol. Sw. ON

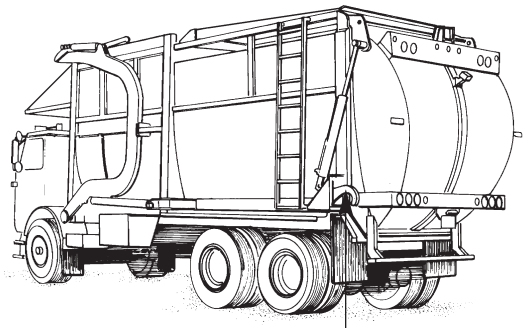
1. After the tailgate is closed, power the latches down by holding the tailgate control. Increase the engine RPM. This will ensure that the latches are properly set.

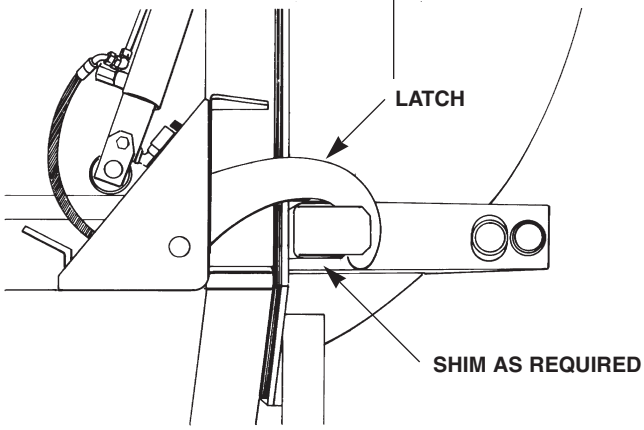
NOTE

Latches need not rest on top of the stop block, but must pull the tailgate tight against the body.

IF NOT:

Add shims as required.





CHECK THE SLIDING TOP DOOR PRESSURE

1. Install a pressure gauge as described earlier in CHECK PRESSURES.

Operational Status	
Truck Running	PTO Engaged

To check the sliding top door open pressure:

2. Move the top door control to fully retract and open the top door.

NOTE

Maintain the engine RPM at the posted speed.

3. Hold the control and read the gauge. The pressure should be 900 PSI ±100 PSI.

⚠CAUTION

Exceeding the recommended pressure setting could damage the top door cylinder.

IF NOT:

Operational Status	
Truck Off	Keys Removed

4. To adjust the top door open pressure loosen the locknut on the port relief cartridge located at the center section of the 5-spool control valve assembly. Turn the adjustment clockwise to increase pressure and counter-clockwise to decrease pressure.

IF 900 PSI CANNOT BE ACHIEVED:

5. Check the cylinder for bypass, see Section 9, SERVICE AND REPAIR

Operational Status	
Truck Running	PTO Engaged

6. To check the sliding top door closed pressure move the top door control to fully extend and close the top door.

NOTE

Maintain the engine RPM at the posted speed.

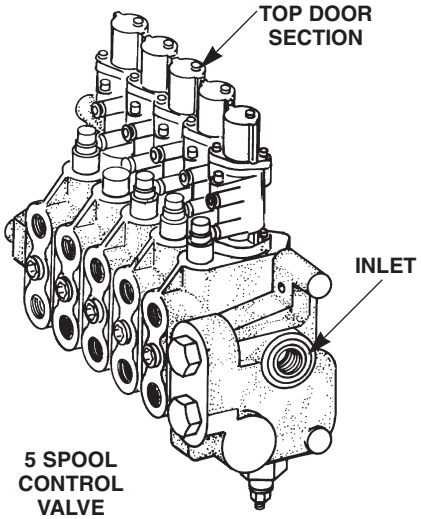
7. Hold the control and read the gauge. The pressure should be 600 PSI ±100 PSI.

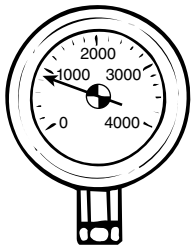
⚠CAUTION

Exceeding the recommended pressure setting could damage the top door cylinder.

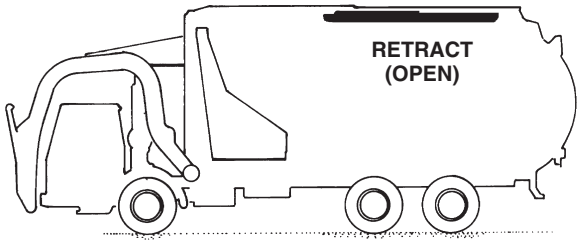
IF NOT:

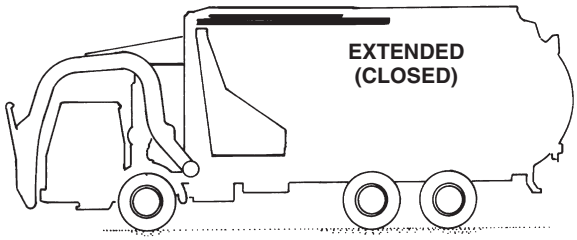
8. Repeat steps 4 and 5.

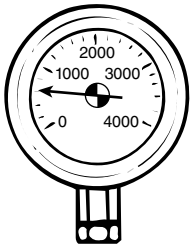




900 PSI OPEN







600 PSI CLOSED

CHECK-OUT

RESIDENTIAL CART TIPPER SYSTEMS

ADJUSTING THE POWER-ON-DEMAND VALVE

The residential cart tipper hydraulic circuit is designed to provide hydraulic fluid to the container handling device at a fixed flow rate that is determined by the type and manufacturer of the cart tipper. When the cart tipper is not in use, the hydraulic fluid is allowed to travel to the main system of the Leach Millennium.

This is accomplished by the use of a power-on-demand valve which is located on the right front of the body, next to (before) the five (5) spool valve. It incorporates an electric solenoid cartridge that, when energized ("ON"), will direct the hydraulic fluid to the cart tipper system. When de-energized ("OFF"), the valve acts strictly as a manifold to direct the hydraulic fluid to the five (5) spool valve. This type of hydraulic system reduces back pressure in the main hydraulic system, which allows for less heat and wear on the various components of the unit.

Along with diverting the hydraulic fluid to the cart tipper system, the power-on-demand valve also regulates the pressure of this circuit. There is also a built-in relief valve to guard against system damage in the unforeseen event of an unwanted pressure build-up.

CHECKING THE TIPPER PRESSURE

Operational Status	
Truck Off	Keys Removed

1. Disconnect the hose at port "CF" on the power-on-demand valve and plug the hose.

2. Connect a 0-5000 PSI gauge to the port marked "CF" on the power-on-demand valve.

Operational Status	
Truck Running	PTO/Pump Engaged

⚠WARNING

Do not leave the pump engaged while doing this test for more than one (1) minute. To do so will cause excessive heat build-up in the hydraulic fluid.

3. Move the "TIPPER CIRCUIT" switch to the "ON" position, and raise the engine speed to the RPM designated on the dash decal.

4. Read the gauge. The pressure should be 2500 PSI.

IF NOT:

5. Replace the tipper cartridge.

Operational Status	
Truck Off	Keys Removed

6. Remove gauge and reinstall the hose to the port marked "CF".

NOTE

On some cart tipper systems, a directional valve is supplied by the manufacturer of the cart tipper/container. They may incorporate an additional pressure setting. If so, consult the tipper/container manufacturer for adjustment procedures on these systems.

CHECKING THE POWER ON DEMAND VALVE RELIEF PRESSURE

Operational Status	
Truck Off	Keys Removed

1. Remove the power-on-demand valve from the front of the body. Plug all hoses and tubes to prevent contamination.

2. Plug all of the ports on the power-on-demand valve, EXCEPT ports "IN" and "T", using the proper size metal o-ring plugs.

3. Connect a porta-power, with a gauge capable of reading 0-5000 PSI, to port "IN".

4. Operate the porta-power. As the pressure rises, watch port "T". When the pressure rises to 3100 PSI, fluid should exit port "T".

IF NOT:

5. Loosen the locknut on the relief cartridge located next to port "EF". Turn the adjustment clockwise to increase pressure, or counter-clockwise to decrease pressure.

IF 3100 PSI CANNOT BE ACHIEVED:

6. Replace the power-on-demand relief cartridge.

7. Reinstall the power-on-demand valve on the unit.

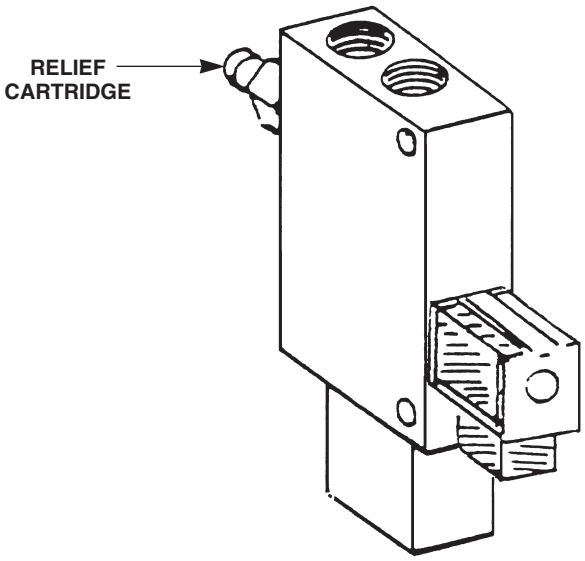
ADJUSTABLE FORK SYSTEM

ADJUSTING THE POWER-ON-DEMAND VALVE

The power-on-demand valve is designed to provide hydraulic fluid to the adjustable fork valve at a fixed flow rate of 3.5 GPM. When the adjustable fork system is not in use, hydraulic fluid is allowed to travel to the main system of the Leach Millennium.

The power-on-demand valve is located on the right front of the body, next to the five (5) spool valve. It is electrically activated by a toggle switch located in the cab. When activated, the hydraulic fluid will be directed to the adjustable fork valve, which is also located in the cab. By movement of the lever on this valve, the distance between the forks can be adjusted to accommodate various sizes of containers.

Along with diverting the hydraulic fluid to the adjustable fork valve, the power-on-demand valve also incorporates a relief cartridge to guard against any unforeseen pressure build-up in the system.



CHECKING THE RELIEF PRESSURE

Operational Status	
Truck Off	Keys Removed

1. Remove the power-on-demand valve from the front of the body. Plug all hoses and tubes on the body to prevent contamination.

2. Plug all of the ports on the power-on-demand valve, EXCEPT ports “IN” and “T”, using the proper size metal o-ring plugs.

3. Connect a porta-power, with a gauge capable of reading 0-5000 PSI, to port “IN”.

4. Operate the porta-power. As the pressure rises, watch port “T”. When the pressure reaches 3100 PSI, fluid should exit port “T”.

IF NOT:

5. Loosen the locknut on the relief cartridge located next to port “EF”. Turn the adjustment clockwise to increase pressure, or counter-clockwise to decrease pressure.

IF 3100 PSI CANNOT BE ACHIEVED:

6. Replace the power-on-demand relief cartridge.

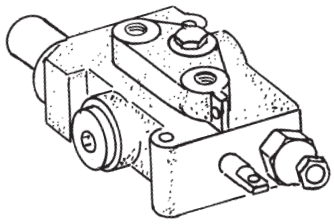
7. Reinstall the power-on-demand valve on the unit.

CHECK-OUT

ADJUSTING THE ADJUSTABLE FORK VALVE

The adjustable fork valve directs hydraulic fluid to the adjustable fork cylinder, by operating a lever which is attached to the valve. It can direct the hydraulic fluid to either the case end or the rod end of the cylinder, depending on which way the operator chooses to adjust the fork. This valve is located inside the cab of the truck, within reach of the operator.

This valve incorporates a relief cartridge to guard against excessive pressure build-up in the adjustable fork cylinder.



CHECKING THE RELIEF PRESSURE

Operational Status	
Truck Off	Keys Removed

1. Remove the line at the case end of the adjustable fork cylinder. Plug the cylinder port.

2. Install a 0-2000 PSI gauge to the line that was removed from the case end of the cylinder.

Operational Status	
Truck On	PTO/Pump On

3. Locate the switch in the cab marked “FORK ADJUSTMENT”. Move it to the “ON” position.

4. Locate the adjustable fork control lever and move it inward. Raise the engine speed to the specified RPM on the decal located on the dashboard.

5. The gauge should read 1500 PSI.

IF NOT:

6. Remove the cover from the adjustable fork valve. Locate the relief cartridge which is next to the “eye” of the spool (where the lever attaches to the spool).

7. Loosen the locknut on the relief cartridge. Turn the adjustment clockwise to increase pressure or counter-clockwise to decrease pressure.

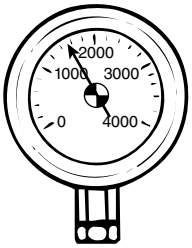
IF 1500 PSI CANNOT BE ACHIEVED:

8. Replace the adjustable fork valve relief cartridge.

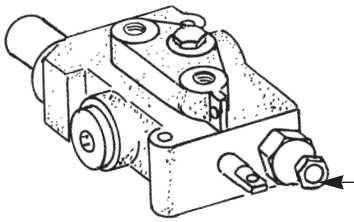
9. Repeat steps 3 through 7.

10. Install the cover on the adjustable fork valve.

11. Connect the hydraulic line to the case end of the adjustable fork cylinder.



1500 PSI



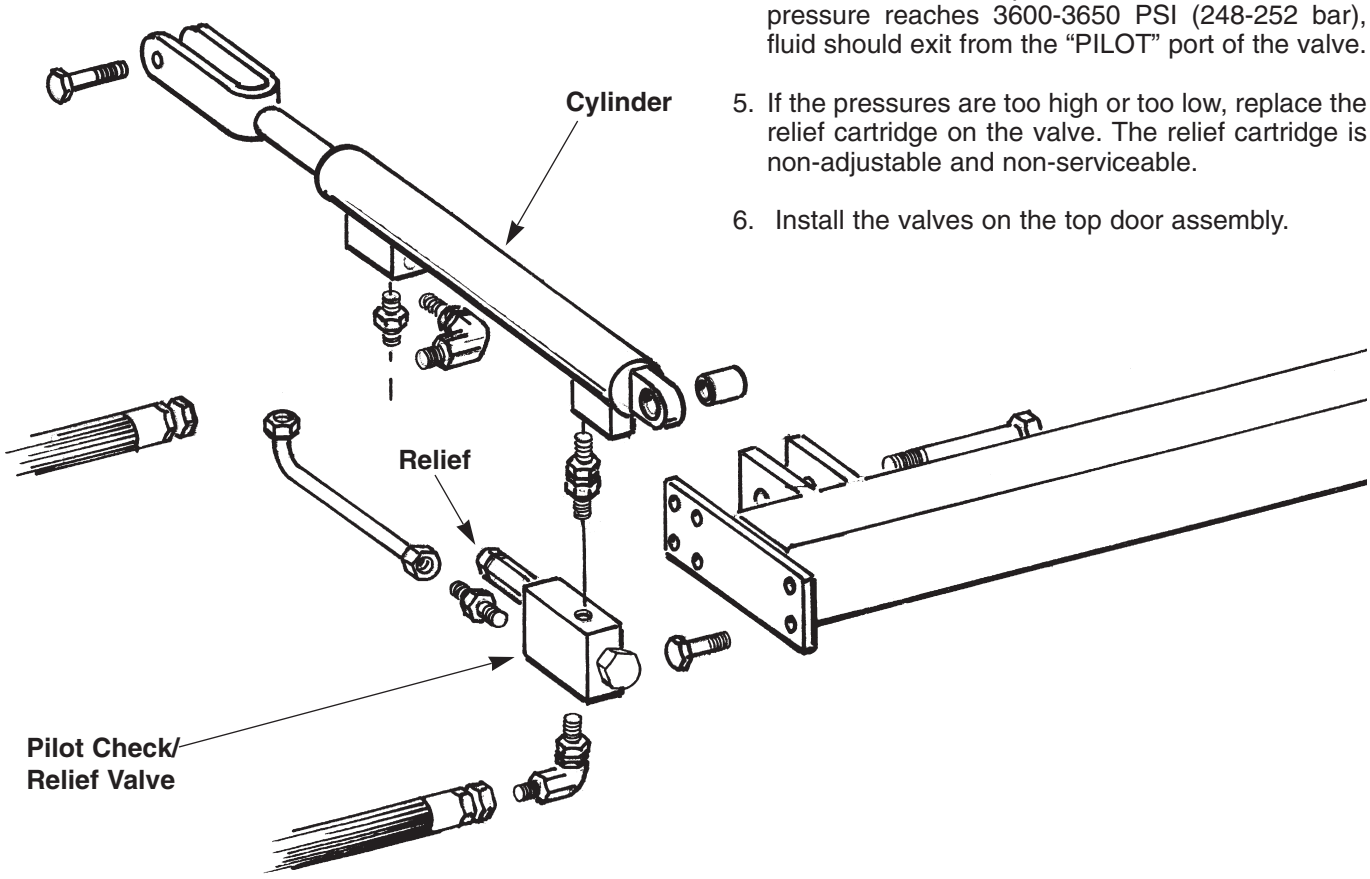
RELIEF CARTRIDGE

CHECKING THE PILOT CHECK/RELIEF VALVES – HINGED TOP DOOR

The two (2) pilot check/relief valves are located on the hinged top door cylinders (one each) and are directly connected to the case end of the cylinder.

The purpose of the valves is to lock the hydraulic fluid in the case end of the cylinder when the door is closed, ensuring that the door will remain closed. When the cylinder receives pressure to the rod end to open the door, a check valve is opened, allowing the hydraulic fluid to exit the case end of the cylinders.

There is also a relief cartridge incorporated into the valve. If for any reason the pressure exceeds 3600 PSI (250 bar) in the case end of the cylinder assembly, the relief cartridge will allow the excess pressure to escape to the hydraulic tank via the cylinder rod end tubing.



CHECKING THE RELIEF PRESSURE – HINGED TOP DOOR

Operational Status	
Truck Off	Keys Removed

1. Remove the pilot check/relief valves from the case ends of the top door cylinders. Plug all hydraulic lines and cylinder ports to protect from contamination.
2. Locate and plug port “V” on the valve.
3. Connect a porta-power with a gauge capable of reading 5000 PSI (345 bar) to the “CYL” port of the valve.
4. Operate the porta-power. As the pressure rises, watch the “PILOT” port of the valve. When the pressure reaches 3600-3650 PSI (248-252 bar), fluid should exit from the “PILOT” port of the valve.
5. If the pressures are too high or too low, replace the relief cartridge on the valve. The relief cartridge is non-adjustable and non-serviceable.
6. Install the valves on the top door assembly.

HINGED TOP DOOR ADJUSTMENTS

ADJUSTMENT OF THE HINGED TOP DOOR SEQUENCE VALVES

The sequence valves are located near the 5 spool control valve and in the lift arm circuit. The purpose of the valves is to divert hydraulic fluid flow to the top door section of the 5 spool control valve until the top door is completely open.

CHECKING THE UPPER SEQUENCE VALVE PRESSURE

Operational Status	
Truck Off	Keys Removed

1. Connect a pressure gauge to the test nipple on the elbow located on the first section of the 5 spool control valve as shown in this section.
2. Start the unit and engage the PTO.
3. Starting with the lift arms in their lowest position, move the lift arm control to raise the lift arms. While the arms are moving up, the pressure will increase to 1850 PSI.

NOTE

Make sure that the lift arm air limit switch on the lift arm pivot tube is not contacted while performing the test.

IF NOT:

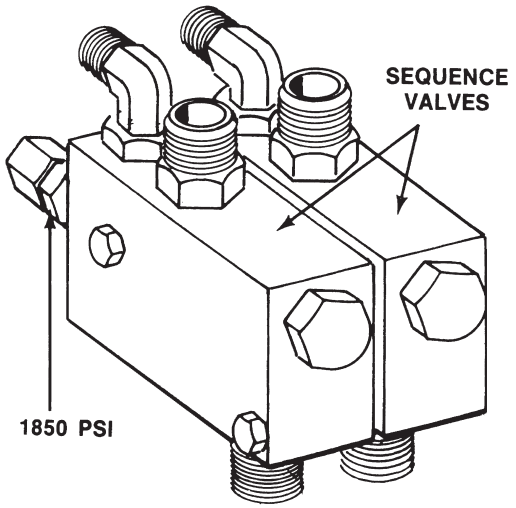
Operational Status	
Truck Off	Keys Removed

Adjust the sequence valve.

1. Remove the caps and loosen the locknut on the sequence cartridge.
2. Turn the adjustment screw in (clockwise) to raise the pressure, out (counter-clockwise) to lower the pressure.

NOTE

The sequence valve connected to port "A" (top port) controls the upward movement of the lift arms. The sequence valve connected to port "B" (lower port) controls the downward movement of the lift arms.



CHECKING THE LOWER SEQUENCE VALVE PRESSURE

Operational Status	
Truck Off	Keys Removed

1. Connect a pressure gauge to the test nipple on the elbow located on the first section of the 5 spool control valve as shown in this section.
2. Start the unit and engage the PTO.
3. Starting with the lift arms in their highest position, move the lift arm control to lower the lift arms, while the arms are moving down the pressure will increase to 1850 PSI.

NOTE

Make sure that the lift arm air limit switch on the lift arm pivot tube is not contacted while performing the test.

IF NOT:

Operational Status	
Truck Off	Keys Removed

Adjust the sequence valve.

1. Remove the cap and loosen the locknut on the sequence cartridge.
2. Turn the adjustment screw in (clockwise) to raise the pressure, out (counter-clockwise) to lower the pressure.

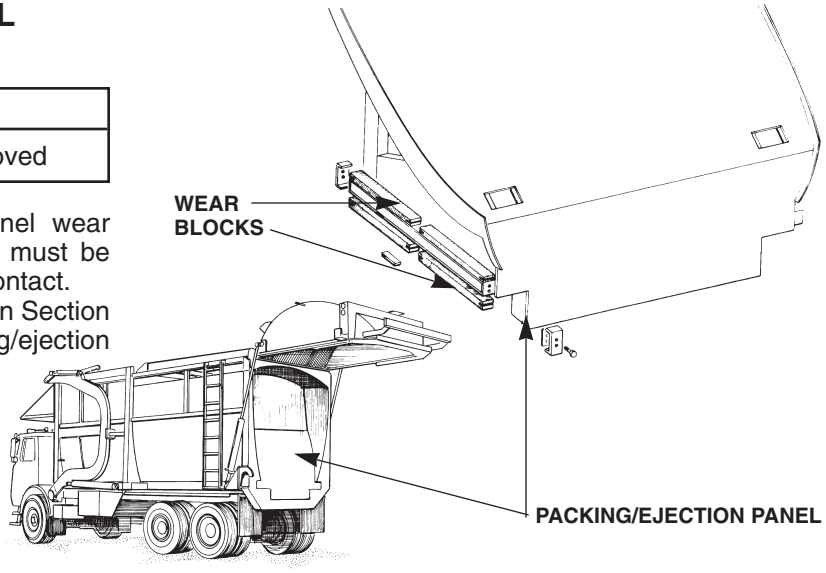
NOTE

The sequence valve connected to port "A" (top port) controls the upward movement of the lift arms. The sequence valve connected to port "B" (lower port) controls the downward movement of the lift arms.

CHECK PACKING/EJECTION PANEL WEAR BLOCKS

Operational Status	
Truck Off	Keys Removed

1. Visually inspect all packing/ejection panel wear blocks for excessive wear. These items must be replaced before there is metal to metal contact.
2. Shim or replace worn parts as described in Section 9, SERVICE AND REPAIR under packing/ejection panel.

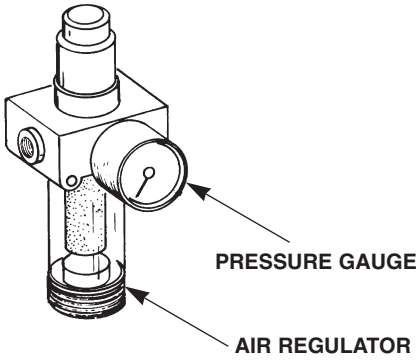


CHECK AIR REGULATOR PRESSURE WITH AIR CONTROLS

Operational Status	
Truck Running	PTO Disengaged

1. A pressure gauge is attached to the air regulator. With chassis air system at full pressure air regulator pressure should be exactly 105 PSI.

If 105 psi cannot be reached replace regulator.



⚠CAUTION

Exceeding the recommended pressure settings could damage the unit.

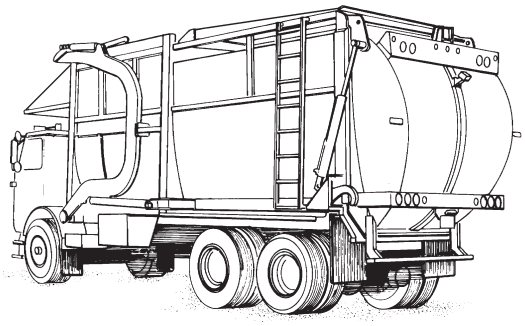
TROUBLESHOOTING

GENERAL

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

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

Hydraulic flow diagrams are provided later in this section. These diagrams can be helpful in determining which parts are associated with a particular function. For example, the packing/ejection cylinder is part of the load pushout function.



An electrical wiring diagram is included in Section 9, SERVICE AND REPAIR under ELECTRICAL SYSTEM.

Problems in the hydraulic system may be found by performing the PRESSURE CHECKS found in Section 7, CHECK-OUT.

COMPACTION

Before troubleshooting a unit it is important to remember that the compaction may vary with the following conditions.

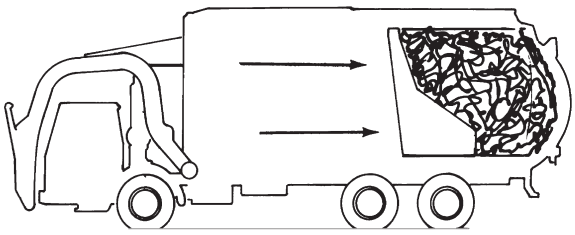
1. Type of refuse. Tree branches, dry leaves, furniture and any other items loaded into the body that take up relatively large amounts of space will reduce the compaction ratio.

2. Moisture content of refuse. Wet refuse will pack tighter than dry and consequently a wet load will weigh more than a dry load. Wet refuse loaded into the body will increase the compaction rate.

3. Operation of the equipment. As with the operation of any type of heavy equipment, one machine can yield different results with different operators. Operating a front loader is a skill. Placement of items in the hopper and not overloading the hopper are all learned skills that will affect the compaction rate of a unit.

4. Preventive maintenance. A properly maintained unit will achieve higher compaction rates than one that is poorly maintained. The condition of the hydraulic system, pump, main relief setting and the condition of the cylinders will all have an effect on unit performance and compaction. Some chassis components will also affect compaction. The engine speed during packing, fluid level in an automatic transmission and the condition of the clutch assembly in a standard transmission chassis may also affect compaction.

Compaction rates of a unit will depend on the season, the type of trash, the weather and the operation and maintenance of a unit. If the unit packs relatively consistent loads and has been properly maintained according to the Service manual then it is safe to assume that it is getting maximum compaction for your particular conditions.



COMPACTION

TROUBLESHOOTING

GENERAL

The first step in any repair process is identifying the cause of the problem. When troubleshooting the air logic, for instance, the problem needs to be isolated to the mechanical, hydraulic or pneumatic functions. The troubleshooting charts shown in Section 8, TROUBLESHOOTING, refer to the entire unit. The diagnostic charts shown below suggest possible remedies for problems.

POSSIBLE CAUSE	REMEDY
PACKING/EJECTION PANEL WILL NOT MOVE	
1. Side door open. 2. Air line tubing plugged. 3. Air line on the auto-pack button valve disconnected. 4. Crimped or kinked tubing to the main control valve. 5. Not enough air pressure. 6. Auto-pack button valve defective. 7. Defective air actuator on the main control valve. 8. Defective auto-pack button. 9. Air logic control module (ALCM) malfunctioning. 10. Air line loose or disconnected from the actuator on the main control valve.	1. Close side door. 2. Clean out or replace air line. 3. Reconnect air line to the auto-pack button valve. 4. Replace or straighten tubing. 5. Raise system pressure above 80 PSI. 6. Replace the auto-pack button valve. 7. Replace air actuator. 8. Replace button. 9. Repair or replace the ALCM. See Section 10, Pneumatic Controls, for diagnostic procedures. 10. Reconnect the air lines; ensure that they are fully engaged into the push-lock connectors on the actuator.
PACKING/EJECTION PANEL WILL NOT GO TO NEUTRAL IN THE HOME POSITION	
1. Home position air limit switch out of adjustment. 2. Home position air limit switch defective. 3. Air line on home position limit switch kinked. 4. Air line on home position limit switch disconnected. 5. Air logic control module (ALCM) malfunctioning.	1. Adjust the home position limit switch. See Section 9, Service and Repair. 2. Replace home position limit switch. 3. Replace or un-kink the air line. 4. Reconnect the air line. 5. Repair or replace the ALCM. See Section 10, Pneumatic Controls, for diagnostic procedures.
PACKING/EJECTION PANEL WILL NOT RETRACT IN AUTO-PACK MODE	
1. Retract limit switch not adjusted. 2. Retract limit switch defective. 3. Air actuator loose or binding. 4. Limit switch air line kinked or disconnected. 5. Air line on the actuator on the main control valve loose or disconnected. 6. Air logic control module (ALCM) malfunctioning.	1. Adjust air limit switch. 2. Replace the retract limit switch. 3. Replace air limit switch. 4. Replace or un-kink the air line. 5. Reconnect the air lines; ensure that they are fully engaged into the push-lock connectors on the actuator. 6. Repair or replace the ALCM. See Section10, Pneumatic Controls, for diagnostic procedures.
INDICATOR LIGHTS ON CONTROL CONSOLE WILL NOT LIGHT	
1. Indicator will not light. 2. Defective pressure switch. 3. Air line to pressure switch kinked.	1a. Replace bulb. 1b. Tighten or reconnect wire. 2. Replace switch. 3. Replace or un-kink the air line.

TROUBLESHOOTING

POSSIBLE CAUSE	REMEDY
LIFT ARMS, TAILGATE, FORK TILT OR TOP DOOR WILL NOT MOVE	
1. Kinked air line.	1. Replace or straighten air line. ***NOTE*** *AIR LINE* *Blue — Lift Arms* *Orange — Fork Tilt* *AIR LINE* *Green — Top Door* *Yellow — Tailgate*
2. Defective air actuator.	2. Replace air actuator.
3. Kinked air inlet.	3. Replace "Red" air line or un-kink.
4. Defective joystick.	4. Replace joystick.
5. Defective top door or tailgate toggle switch.	5. Replace toggle switch.
6. Air lines to the actuator on the main control valve loose or disconnected.	6. Reconnect the air lines; ensure that they are fully engaged into the push-lock connectors on the actuator.
7. Air regulator defective.	7. Replace the air regulator.
HINGED TOP DOOR ERRATIC WHILE OPENING OR CLOSING	
1. Incorrect pressure setting of sequence valves.	1. Check pressure and reset sequence valves.
2. Worn pump, hydraulic pressure not constant.	2. Repair or replace pump.
3. Cartridge in sequence valve sticking.	3. Clean or replace sequence valves.
4. Pilot check with relief valves on the top door cylinders sticking.	4. Clean or replace pilot check with relief valves.
AIR PROBLEMS THAT WILL AFFECT HINGED TOP DOOR OPERATION	
1. The air limit switch on the lift arm pivot tube is out of adjustment and shifting the top door section of the main control valve at the wrong time.	1. Adjust air limit switch on lift arm pivot.
2. Air tubing, out of air limit switch, at lift arm pivot tube to main control valve top door section kinked partially or disconnected.	2. Check air tubing and correct kinking of reconnect.
3. Air actuator on main control valve top door section leaking or sticking.	3. Replace air actuator on main control valve top door section.
4. Top door lockout switch defective.	4. Replace the top door lockout switch.
5. Air lines to the top door lockout switch kinked or plugged.	5. Clean, straighten or replace the air line.
HINGED TOP DOOR NOT OPENING OR CLOSING	
1. Air limit switch at lift arm top door section not actuating.	1. Adjust or replace actuator arm or entire limit valve.
2. Main control valve top door section spool not shifting.	2. Check air tubing from limit switch to actuator or replace actuator.
3. Refuse or material gathering on top door, adding excessive weight.	3. Clean top door.

TROUBLESHOOTING

POSSIBLE CAUSE	REMEDY
OPERATION IS ERRATIC	
1. Inconsistent engine speed.	1. Maintain a constant RPM by use of the foot throttle. Do not exceed posted RPM.
2. Hydraulic fluid too hot.	2. Check for proper grade of fluid. See Section 5, Specifications.
3. Hydraulic fluid level too low.	3. Check fluid level. Add fluid if necessary. See Section 7, Check-out.
4. By-pass in cylinders.	4. Test for leaking cylinders. See Section 9, Service and Repair.
5. Hydraulic fluid too cold.	5a. Bring fluid to operating temperature. 5b. Check for proper grade of hydraulic fluid. See Section 5, Specifications.
6. Spools in control valves bent or binding.	6. Repair or replace. See Section 9, Service and Repair.
7. Hydraulic strainer plugged.	7. Clean hydraulic strainer.
FLUID LEAKING FROM BETWEEN BODY AND TAILGATE	
1. Latches not completely engaged.	1. Hold the control after the tailgate has closed. See Section 7, Check-out.
2. Latches not locking tight enough.	2. Add shims to latch blocks. See Section 7, Check-out.
3. Tailgate seal damaged.	3. Replace tailgate seal. See Section 9, Service and Repair.
4. Material between the body and the tailgate seal.	4. Clean the tailgate seal and the rear of the body.
TAILGATE DOES NOT CLOSE	
1. Material left on edge of body opening.	1. Remove material. See Section 2, Safety Precautions.
2. Latch linkage out of adjustment.	2. Adjust linkage. See Section 9, Service and Repair.
3. Leaking or bypassing tailgate cylinders.	3. Repair or replace the tailgate cylinders. See Section 9, Service and Repair.
4. Tailgate relief pressure low.	4. Check the tailgate pressure. See Section 7, Check-out.

POSSIBLE CAUSE	REMEDY
PUMP NOISE IS EXCESSIVE	***NOTE:*** *All pumps make a certain amount of noise.*
1. Pump starving for fluid.	1. Open gate valve. 1a. Check fluid level. 1b. Check hydraulic fluid filter and tank. See Section 6, Preventive Maintenance. 1c. Check for obstruction in suction lines, hoses kinked or collapsed.
2. Hydraulic fluid too cold.	2a. Bring fluid to normal operating temperature. 2b. Change hydraulic fluid to proper grade for operating conditions. See Section 5, Specifications.
3. PTO driveshaft and/or u-joints badly worn or out of balance.	3. Repair, replace and/or balance all parts.
4. Pump gears, end plates or bearings badly worn.	4. Replace pump.
5. Improper grade of hydraulic fluid (fluid foaming).	5. Replace with proper grade of hydraulic fluid. See Section 5, Specifications.
6. Air entering the system.	6a. Tighten the suction hose. 6b. Tighten packing on the gate valve stem. 6c. Replace the pump shaft seal. 6d. Replace the suction hose. 6e. Replace the o-rings on the pump. 6f. Tighten or repair any leaks in the hydraulic system.
FORKS WILL NOT TILT	
1. Control does not open control valve.	1. Check and repair cable or air control. See Section 9, Service and Repair.
2. Leaks in hydraulic system.	2. Check system for leaking components or lines. Tighten or replace.
3. Defective or worn pump.	3. Repair or replace pump. See Section 9, Service and Repair.
4. Defective control valve.	4. Repair or replace control valve. See Section 9, Service and Repair.
5. Leaking or by-passing fork cylinders.	5. Repair, repack or replace fork cylinders. See Section 9, Service and Repair.
6. Main relief valve out of adjustment.	6. Check main relief pressure and adjust. See Section 7, Check-out.
7. Fork tilt relief pressure low.	7. Check the fork tilt relief pressure. See Section 7, Check-out.
PACKING/EJECTION PANEL DOES NOT DELIVER FULL FORCE	
1. Main relief pressure low.	1. Check main relief pressure and adjust. See Section 7, Check-out.
2. Pump defective or worn.	2. Repair or replace pump. See Section 9, Service and Repair.
3. Packing/ejection cylinder leaking externally or by-passing.	3. Repair, repack or replace cylinder. See Section 9, Service and Repair.
4. Packing relief pressure low.	4. Check packing relief pressure. See Section 7, Check-out.
5. Material binding packing/ejection panel.	5. Clean areas between the packing/ejection panel and the body.

TROUBLESHOOTING

POSSIBLE CAUSE	REMEDY
PACKING/EJECTION TELESCOPIC CYLINDER EXTENDS SLOWLY	
1. Cylinder is by-passing hydraulic fluid internally.	1. Replace worn piston seals. 1a. Replace cylinder. See Section 9, Service and Repair.
2. Pump is worn or defective.	2. Repair or replace the pump. See Section 9, Service and Repair.
3. Dump valve sticking.	3. Clean or replace the dump valve.
LIFT ARMS WILL NOT MOVE	
1. Cable or air actuator does not open control valve.	1. Check and repair cable or air actuator. See Section 9, Service and Repair.
2. Leaks in hydraulic system.	2. Check system for leaking components or lines. Tighten or replace.
3. Defective or worn pump.	3. Repair or replace pump. See Section 9, Service and Repair.
4. Defective control valve.	4. Repair or replace control valve. See Section 9, Service and Repair.
5. Externally leaking or by-passing lift arm cylinders.	5. Repair, replace or repack cylinders. See Section 9, Service and Repair.
6. Container load too heavy.	6. Remove part of container contents.
7. Packing/ejection panel not at the front of the body.	7. Retract packing/ejection cylinder to position panel at front of body.
8. Main relief valve out of adjustment.	8. Check pressures. See Section 7, Check-out.
9. Lift arm relief pressure low.	9. Check the lift arm pressure. See Section 7, Check-out.
10. Check valves inside the lift arm cylinders sticking.	10. Repair or replace the lift arm cylinders. See Section 9, Service and Repair.
LIFT ARMS MOVE ERRATICALLY	
1. Valve spool not shifting completely.	1. Adjust control cable or air actuator. See Section 9, Service and Repair.
2. Hydraulic fluid level low.	2. Check fluid level, add if necessary. See Section 7, Check-out.
3. Hydraulic strainer plugged.	3. Clean strainer. See Section 6, Preventive Maintenance.
4. Pump worn or defective.	4. Repair or replace pump. See Section 9, Service and Repair.

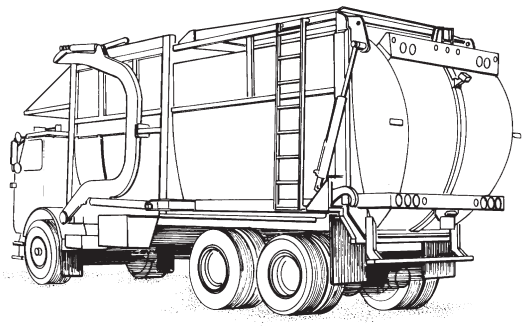
POSSIBLE CAUSE	REMEDY
SLIDING TOP DOOR WILL NOT CLOSE	
1. Too much material in body. 2. Leak in the hydraulic system. 3. Defective control valve. 4. Defective or worn pump. 5. Leaking or by-passing cylinder. 6. Sliding top door pressure low. 7. Air toggle switch defective.	1. Pack previously dumped material before emptying container. 2. Check system for leaking components or lines. Tighten or replace. 3. Repair or replace control valve. See Section 9, Service and Repair. 4. Repair or replace pump. See Section 9, Service and Repair. 5. Repack or replace cylinder. See Section 9, Service and Repair. 6. Check the sliding top door pressure. See Section 7, Check-out. 7. Replace the air toggle switch.
LIFT ARMS DRIFTING DOWN	
1. Worn spool in main control valve. 2. Lift arm cylinder by-passing. 3. Piston backed off rod. 4. Check valve in lift arm cylinders sticking. 5. Binding actuator on the main control valve.	1. Replace the valve section. See Section 9, Service and Repair. 2. Repack or replace cylinder. See Section 9, Service and Repair. 3. Tighten, repair or replace cylinder. See Section 9, Service and Repair. 4. Repair or replace the lift arm cylinders. See Section 9, Service and Repair. 5. Replace the actuator.

TROUBLESHOOTING

DESCRIPTION OF HYDRAULIC SYSTEM

The following is a description with flow diagrams of what happens in the hydraulic system during the loading, packing and unloading operations of the unit.

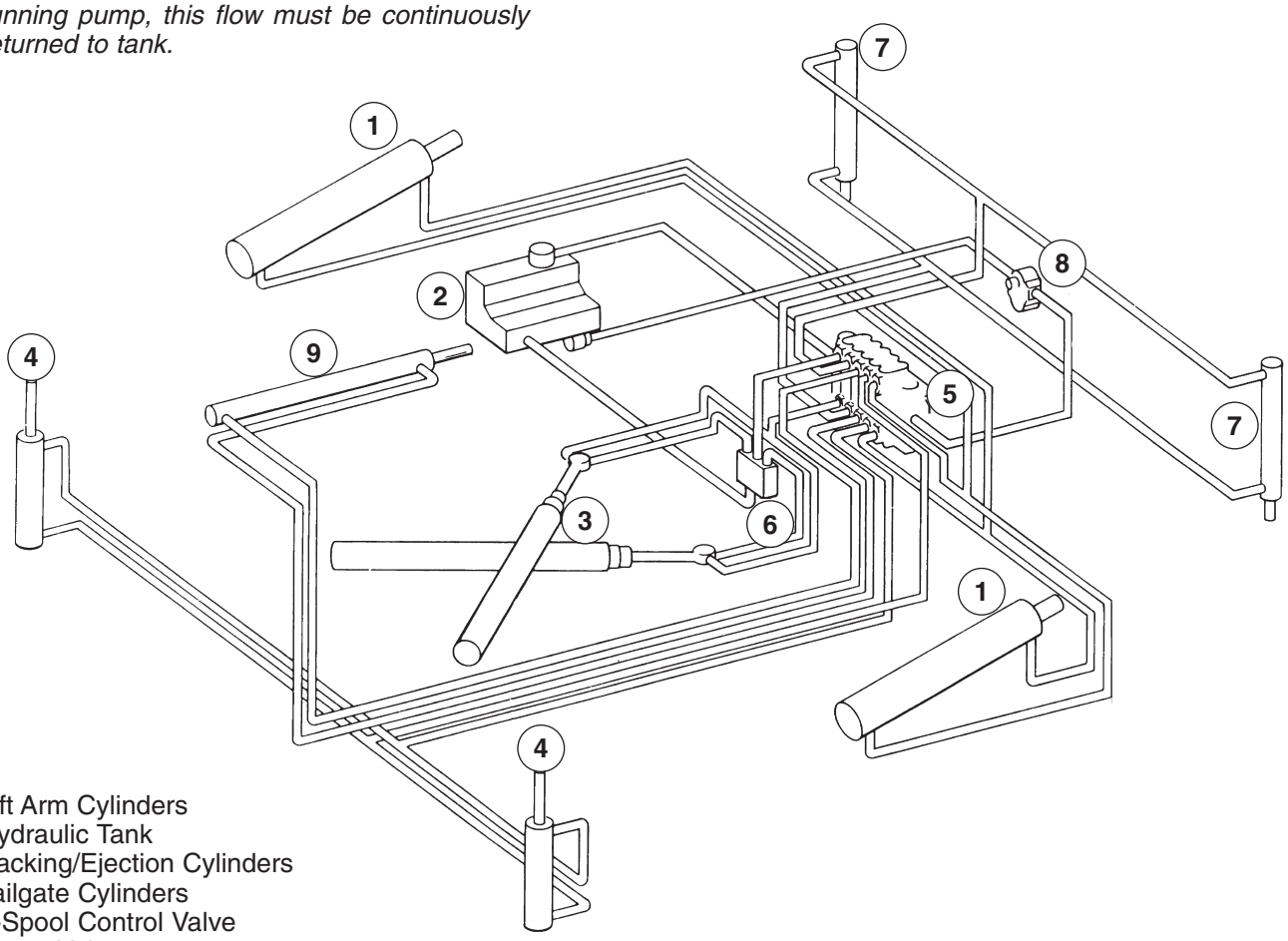
Operator action is presented and then a description of the hydraulic flow and the interaction of system components (i.e. valves and cylinders) follows. Before proceeding to the flow diagram refer to the illustration and become familiar with the system component nomenclature.



SYSTEM COMPONENT NOMENCLATURE

NOTE

Units equipped with a front mounted pump also have a 2GPM flow control valve located at the inlet to the 5-spool control valve assembly. Since the front mounted pump requires some fluid flow to lubricate and cool the continuously running pump, this flow must be continuously returned to tank.



KEY

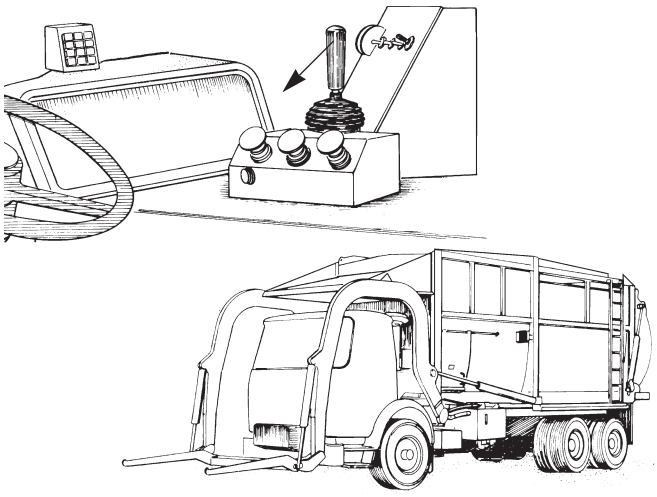
1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

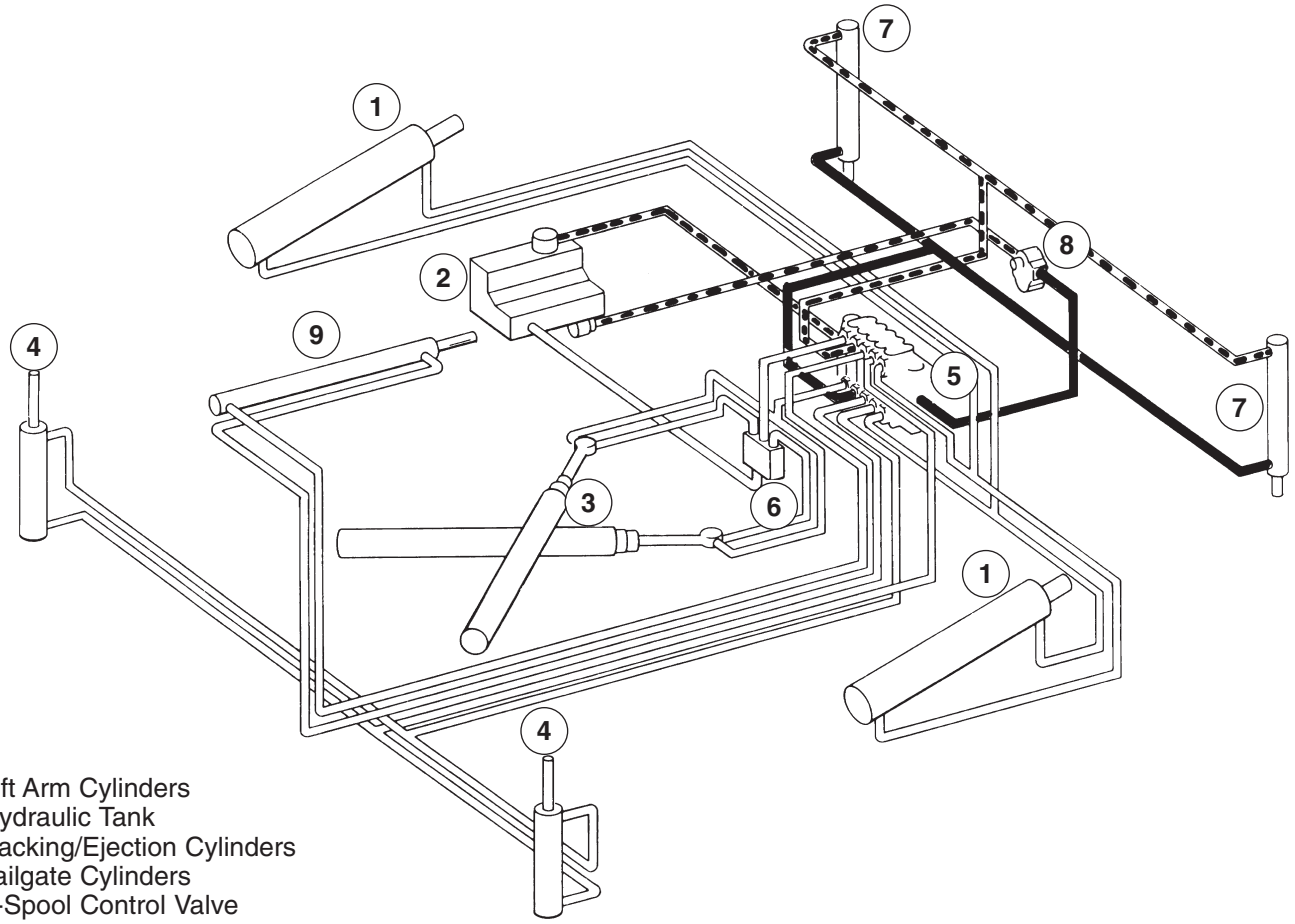
TILT FORKS UP

Operator Action
The operator moves the tilt control.

HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the rod end of the tilt cylinders. As the cylinders retract, return flow from the case end of the cylinder is directed through the control valve and then return line filter to the tank. When the cylinders are fully retracted the main relief will open at 3000 PSI and direct the rod end flow to the tank.





KEY

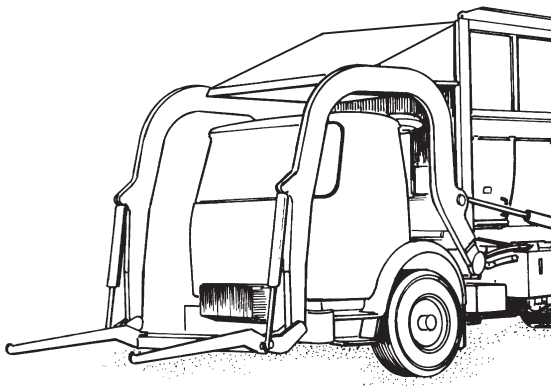
1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

TROUBLESHOOTING

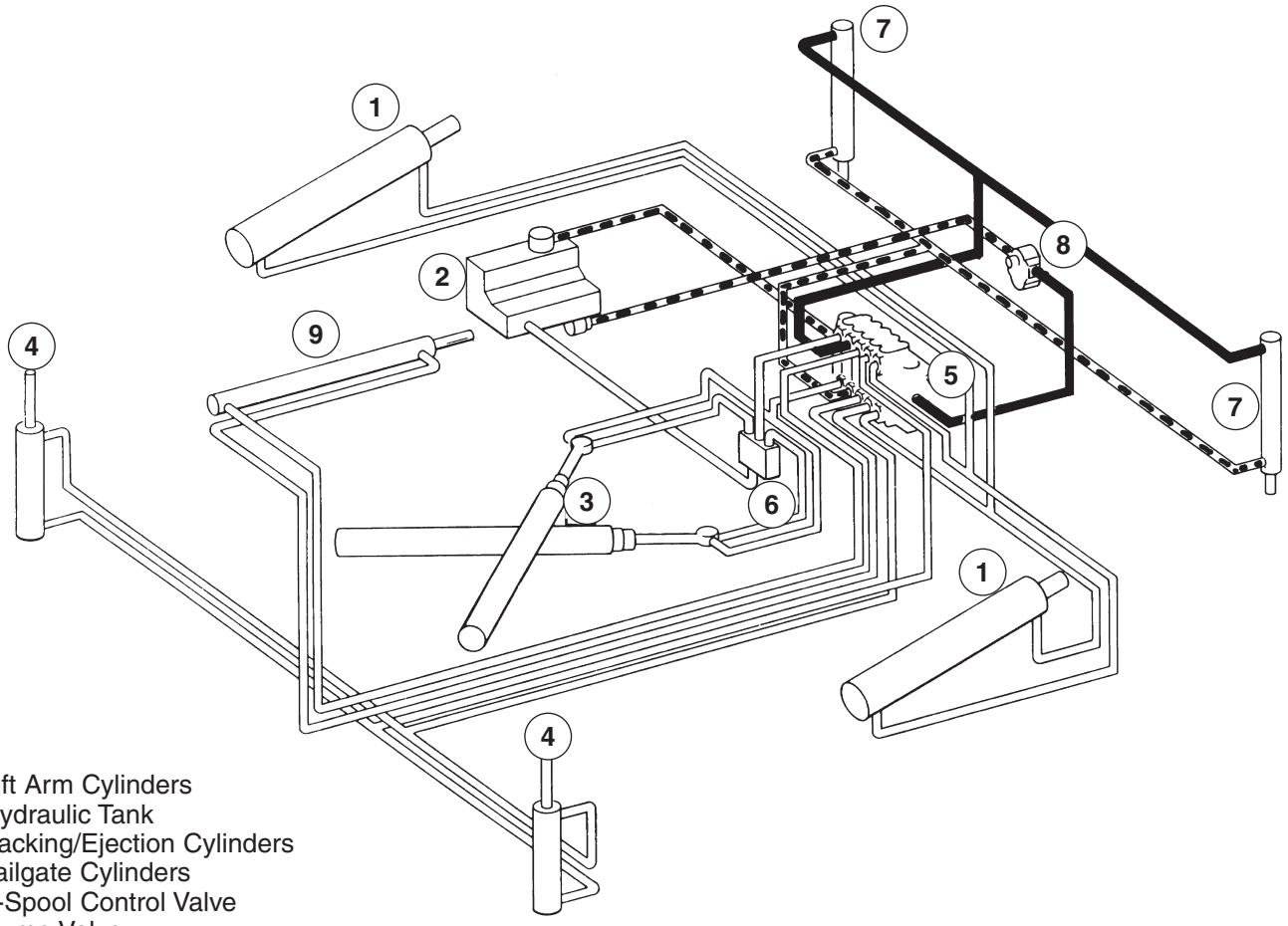
TILT FORKS DOWN

Operator Action
The operator moves the tilt control.



HYDRAULIC SYSTEM

The operator action shifts the control valve, directing the pump flow to the case end of the tilt cylinders. As the cylinders extend, return flow from the rod end of the cylinder is directed through the control valve and then the return line filter to the tank. When the cylinders are fully extended the main relief will open at 3000 PSI directing the case end flow to the tank.



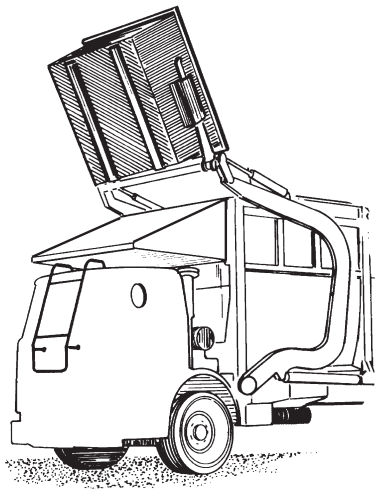
KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

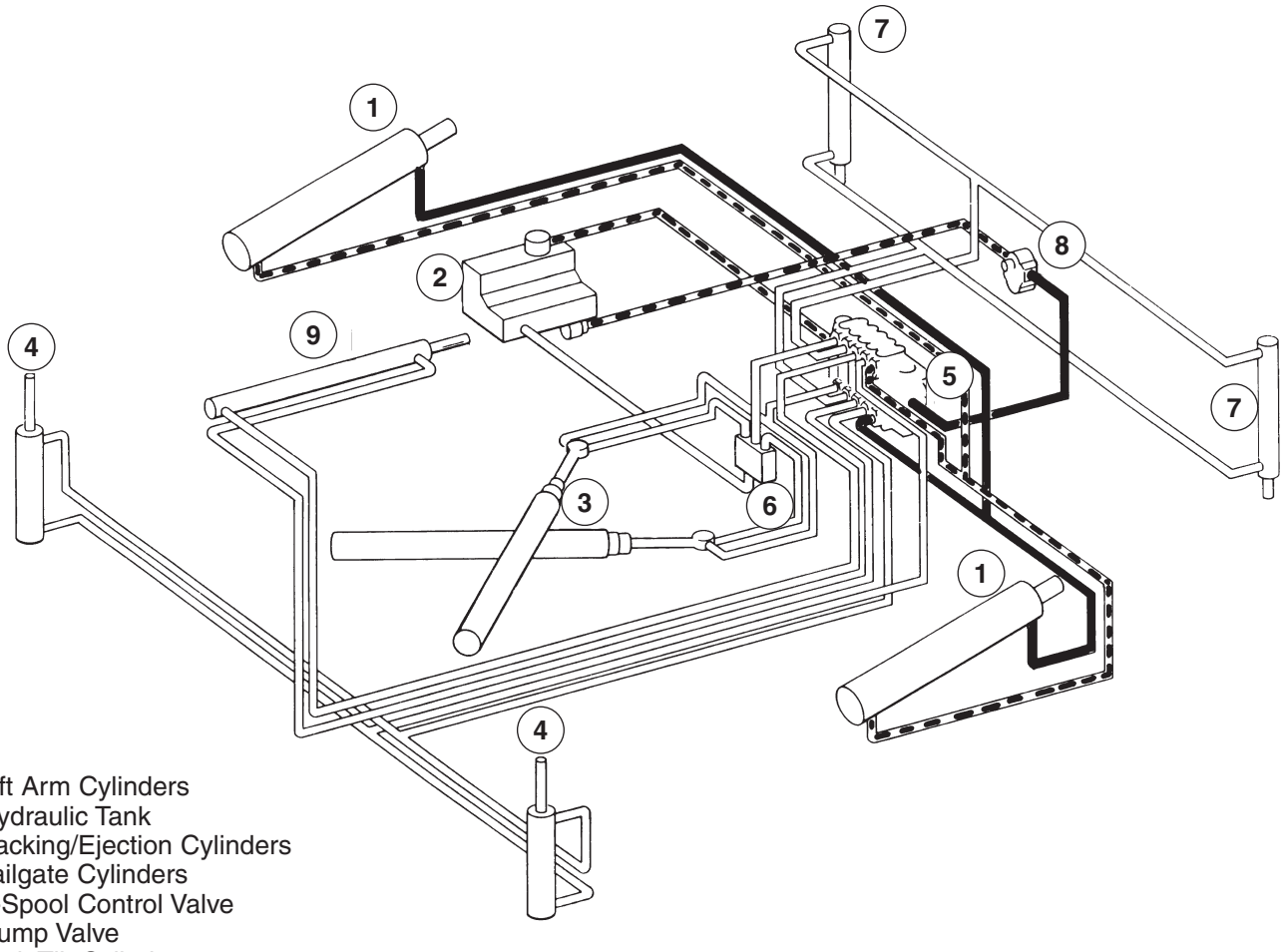
RAISE LIFT ARMS

Operator Action
The operator moves the lift arm control.



HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the rod end of the lift arm cylinders. As the cylinders retract, return flow from the case end of the cylinder is directed through the control valve and then the return line filter to the tank. When the cylinders are fully retracted the port relief pressure will increase to 2800 PSI.



KEY

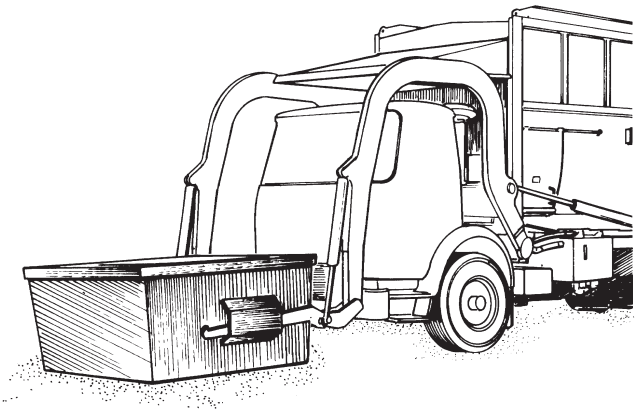
1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

TROUBLESHOOTING

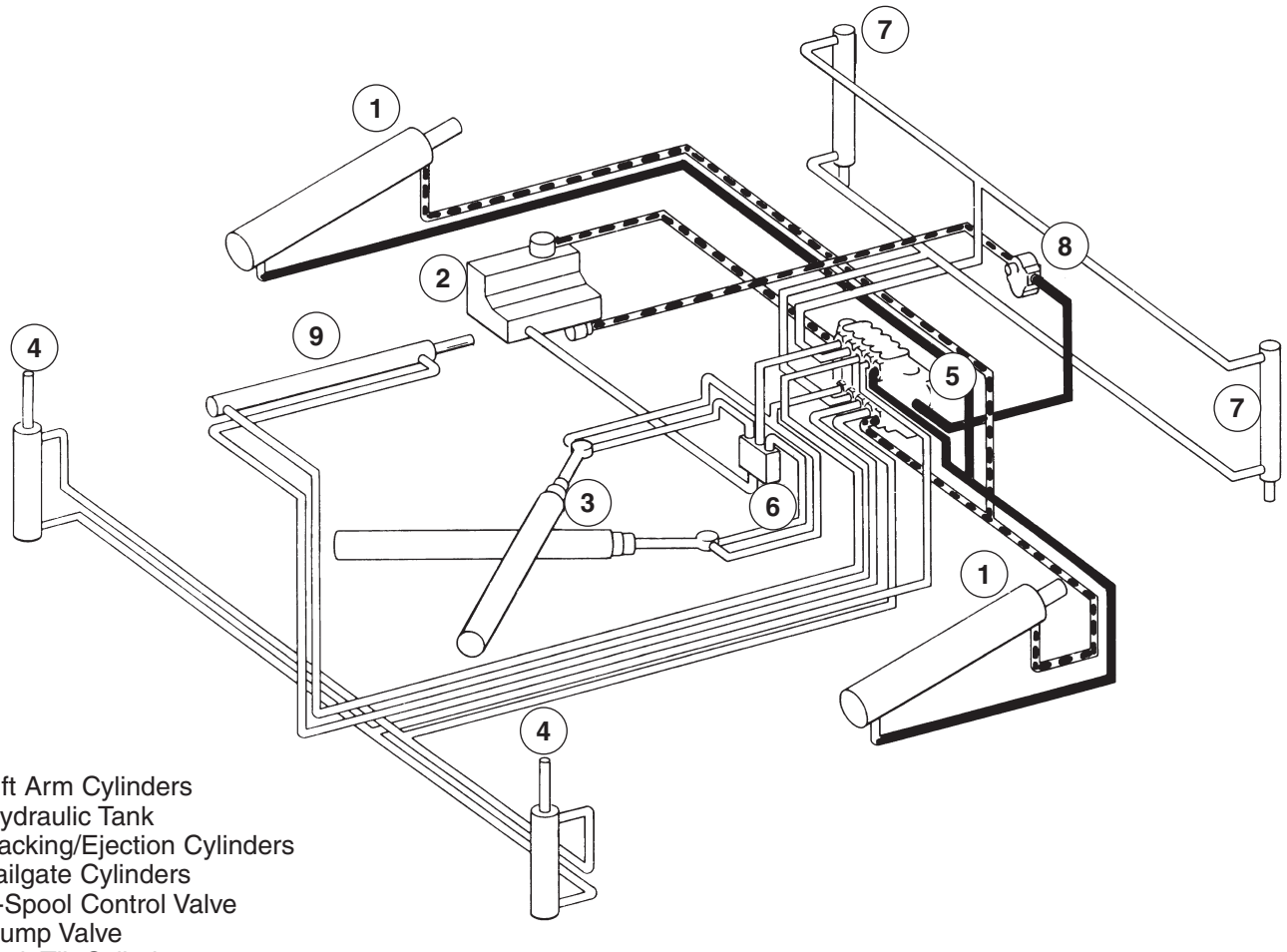
LOWER LIFT ARMS

Operator Action
The operator moves the lift arm control.



HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the case end of the lift arm cylinders. As the cylinders extend, return flow from the case end of the cylinder is directed through the control valve and then the return line filter to the tank. When the cylinders are fully extended the pressure will increase to a port relief setting of 2000 PSI.



KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

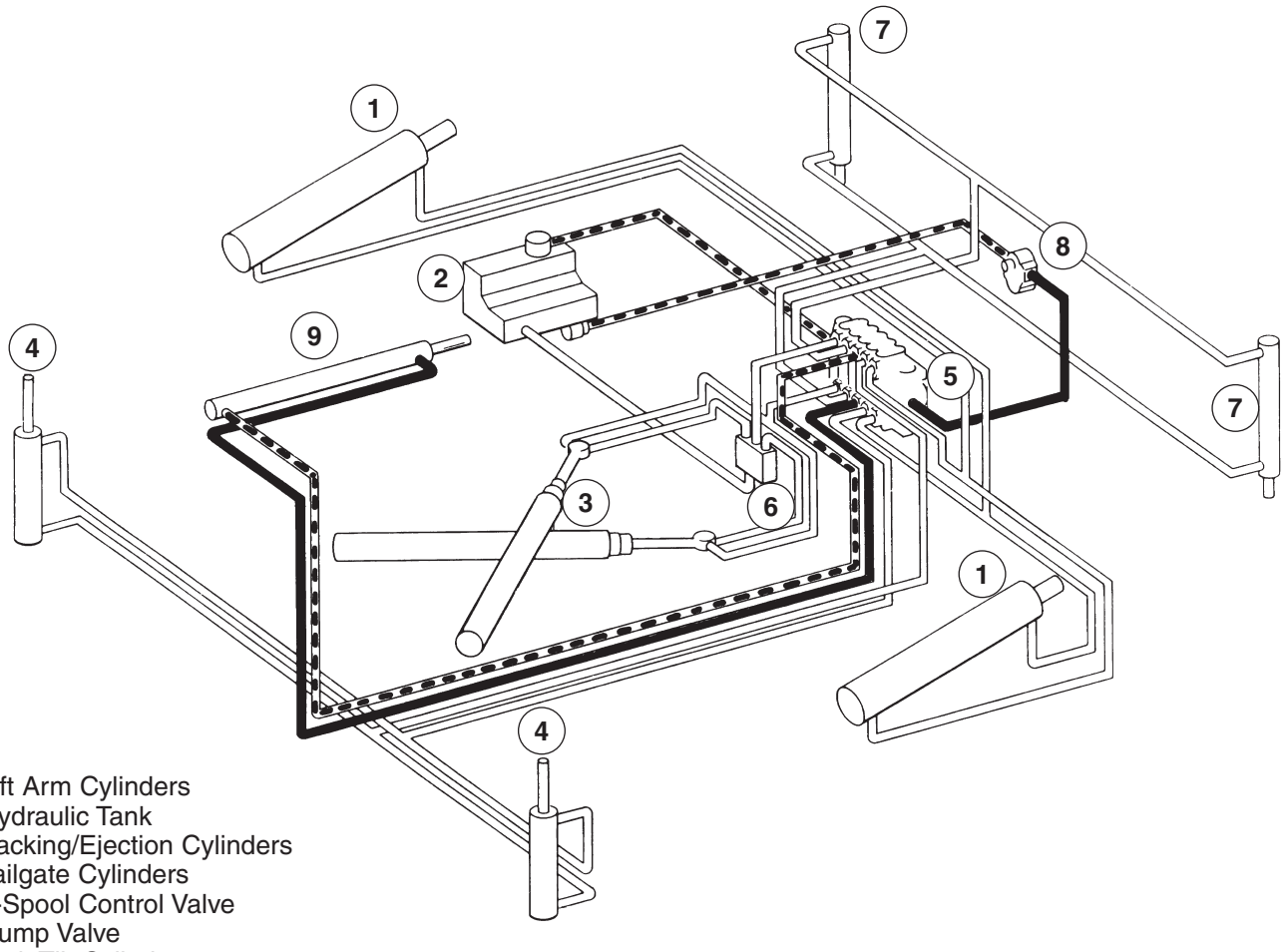
Pressure ——————
Exhaust - - - - - - - - -

SLIDING TOP DOOR OPENS

Operator Action
The operator moves the top door control.

HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the rod end of the top door cylinder. As the cylinder retracts, return flow from the case end of the cylinder is directed through the control valve and then the return line filter to the tank. When the cylinder is fully retracted the port relief will open at a pressure of 900 PSI.



KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

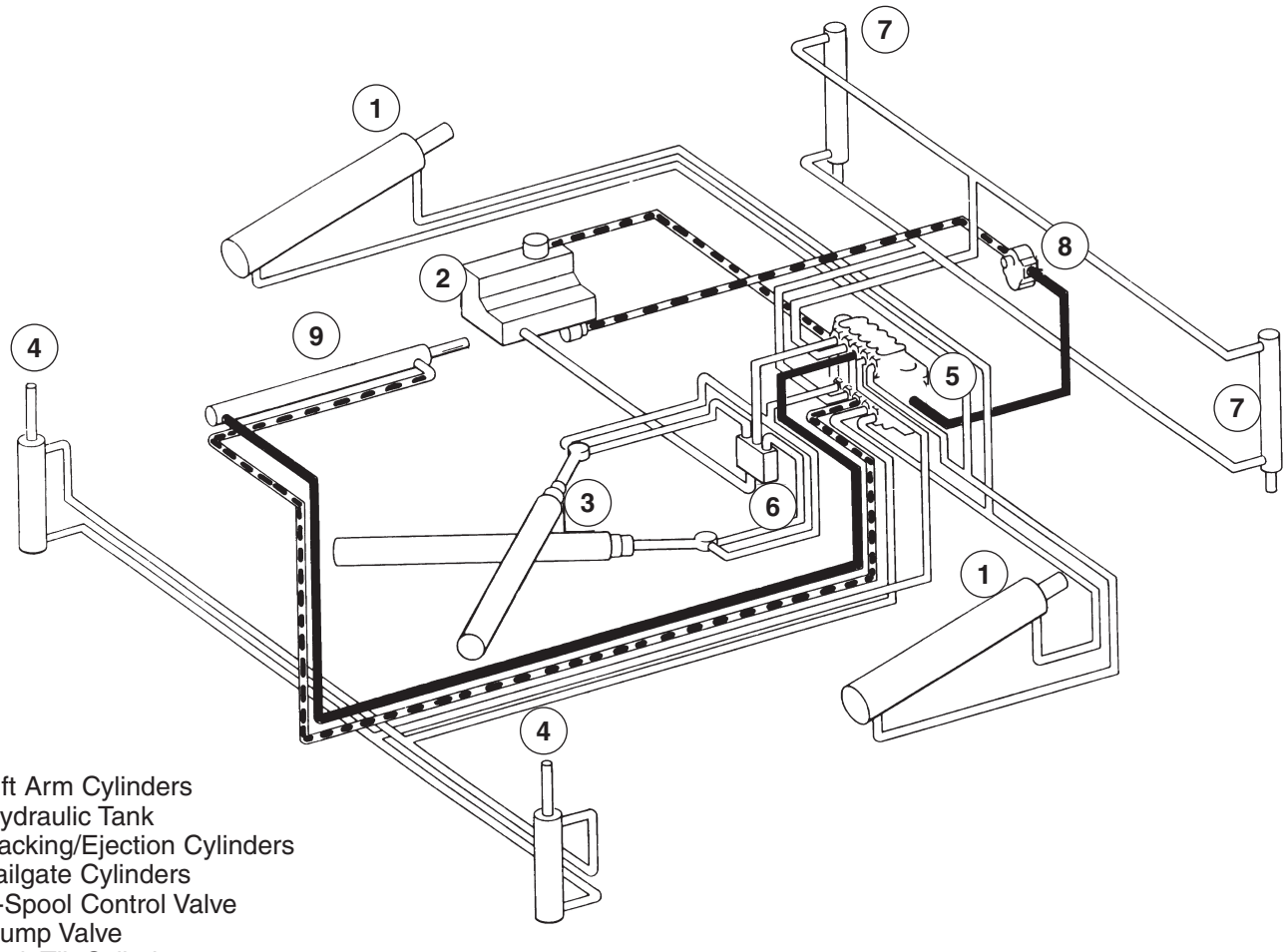
TROUBLESHOOTING

SLIDING TOP DOOR CLOSES

Operator Action
The operator moves the top door control.

HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the case end of the top door cylinder. As the cylinder extends, return flow from the rod end of the cylinder is directed through the control valve and then the return line filter to the tank. When the cylinder is fully extended the port relief will open and allow the pressure to build to 600 PSI.



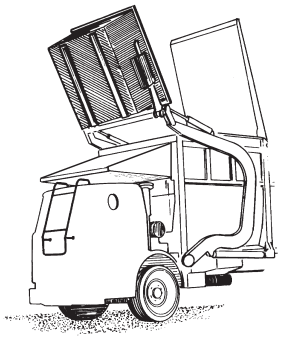
KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

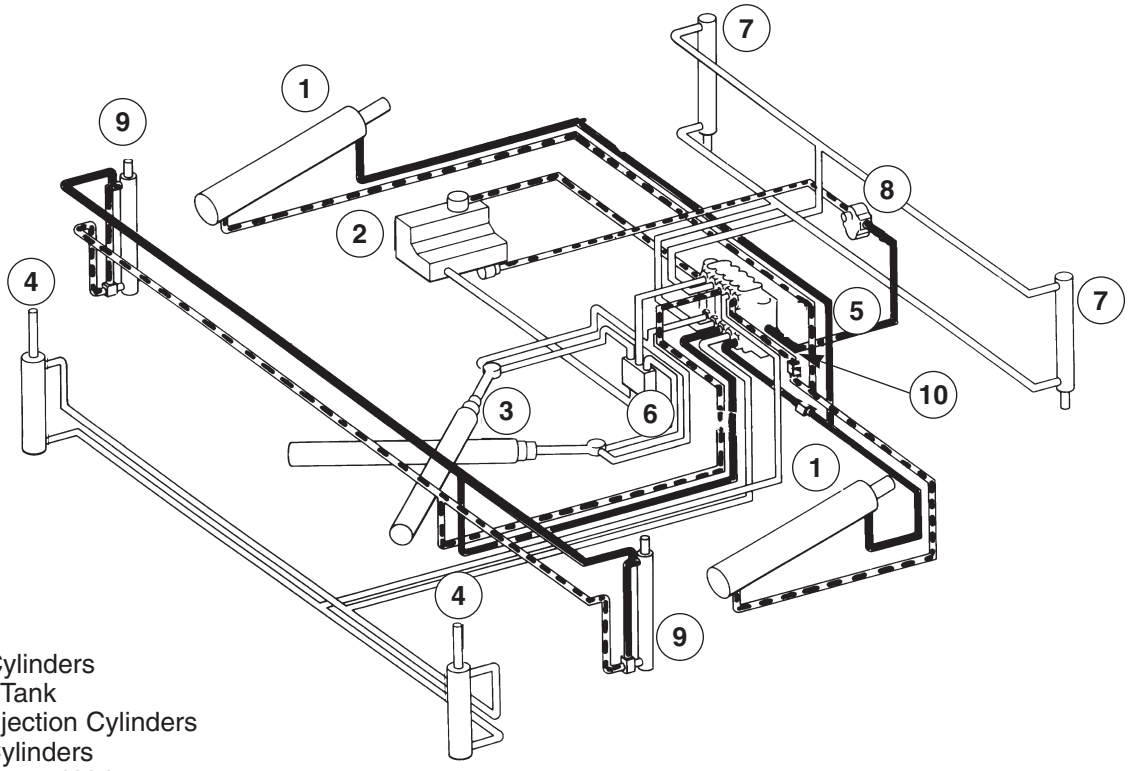
HINGED TOP DOOR OPENS

Operator Action
The operator continues to hold the lift arm control in the lift arm up position. Top door opening movement is automatic.



HYDRAULIC SYSTEM

The operator action shifts the control valve, directing fluid to the rod end of the lift arm cylinder through a sequence valve. The lift arms raise and contact a normally open pneumatic switch which shifts the spool in the hinged top door section of the control valve. When the valve is shifted fluid is directed through the valve to the rod end of the top door cylinders. When the top door cylinders are completely retracted the pressure builds to 1850 PSI and the sequence valve is shifted and the lift arm cylinders will continue to retract and raise the lift arms.



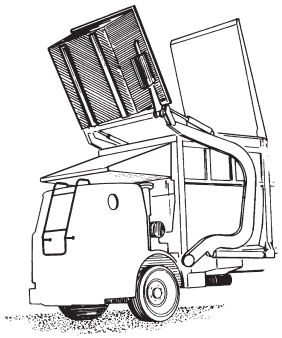
KEY
1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder
10. Sequence Valve

Pressure ——————
Exhaust - - - - - - - - -

TROUBLESHOOTING

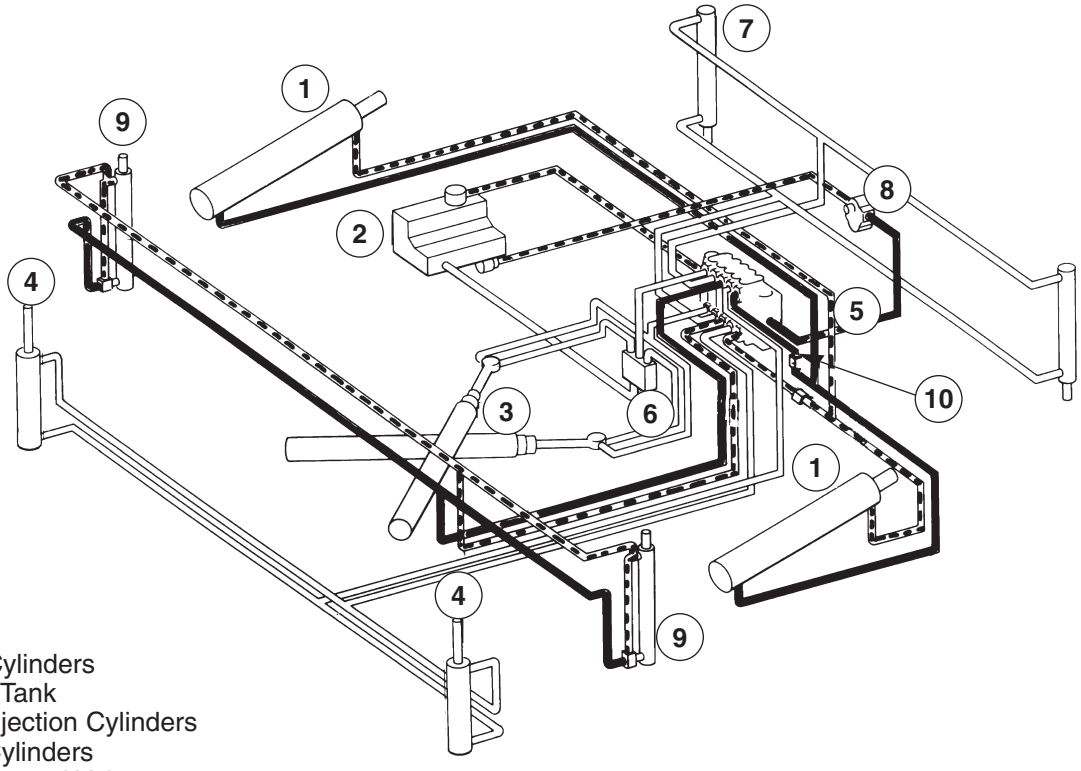
HINGED TOP DOOR CLOSES

Operator Action
The operator continues to hold the lift arm control in the lift arm down position. Top door movement is automatic.



HYDRAULIC SYSTEM

The operator action shifts the control valve, directing fluid to the case end of the lift arm cylinders through a sequence valve. The lift arms lower and release a normally open pneumatic switch which has pneumatically kept the hinged top door spool section of the control valve shifted. Once released, a spring shifts the valve allowing the top door to close. When the top door cylinder completely extends AND the pressure raises to 1850 PSI the sequence valve is shifted, directing full fluid flow to the case end of the lift arm cylinders.



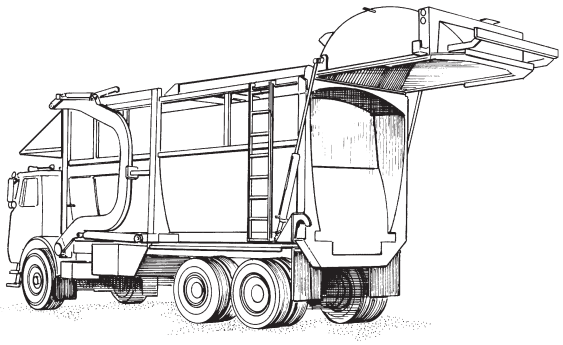
KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder
10. Sequence Valve

Pressure ——————
Exhaust - - - - - - - - -

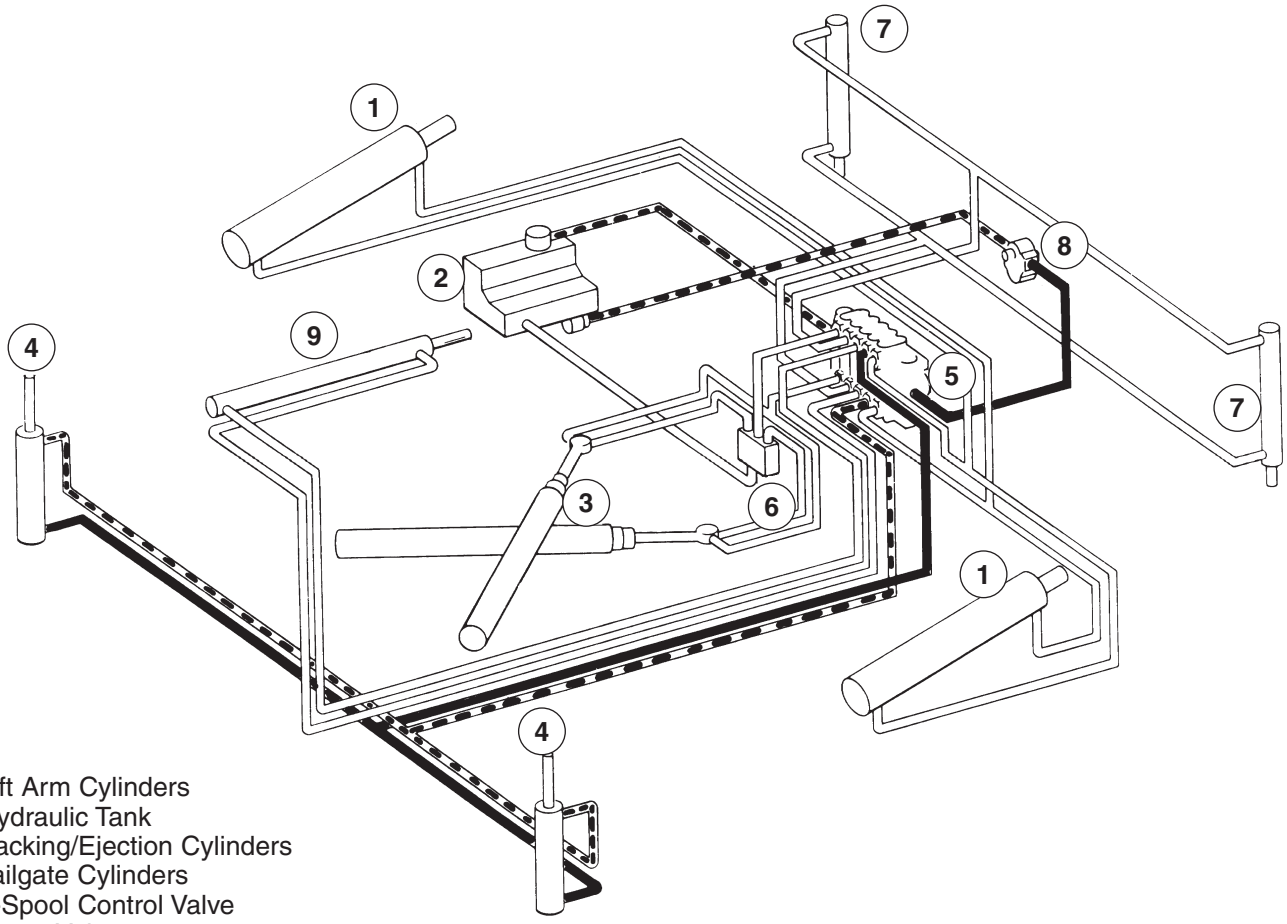
RAISE TAILGATE

Operator Action
The operator moves the tailgate control.



HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the case end of the tailgate cylinder. As the cylinder extends, return flow from the rod end of the cylinder is directed through the control valve and then the return line filter to the tank. When the cylinder is fully extended the port relief will open at 3000 PSI.



KEY

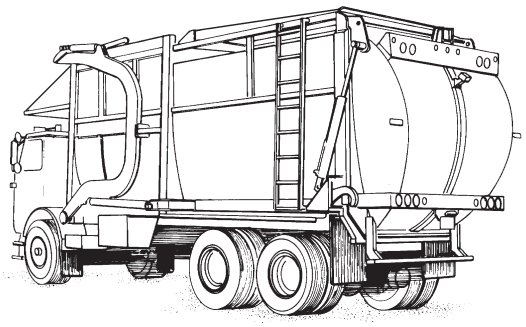
1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

TROUBLESHOOTING

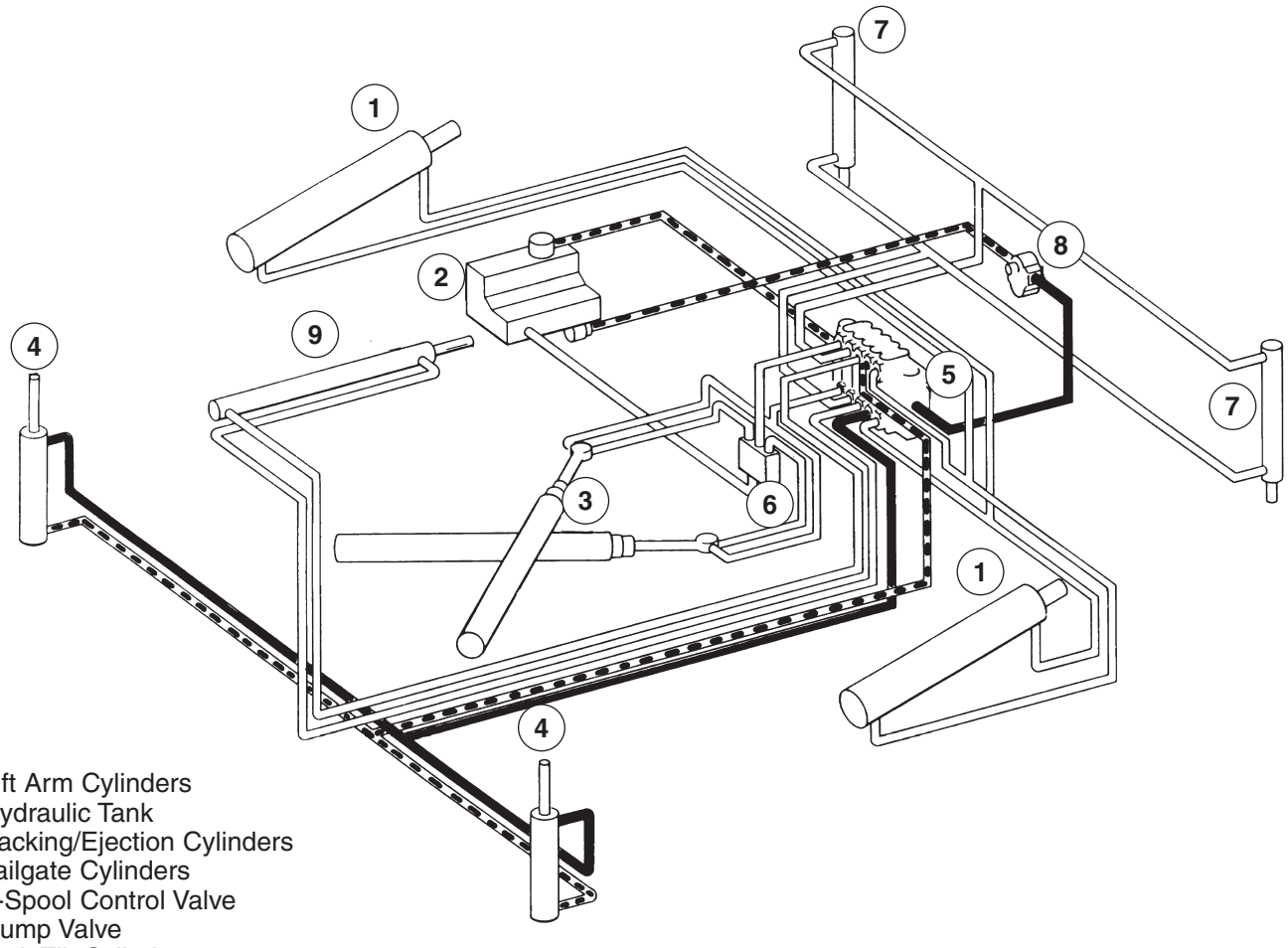
LOWER TAILGATE

Operator Action
The operator moves the tailgate control.



HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the rod end of the tailgate cylinder. As the cylinder retracts, return flow from the case end of the cylinder is directed through the control valve and then the return line filter to the tank. When the cylinder is fully retracted the port relief will open at 3000 PSI.



KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

PACKING (AUTO-PACK)

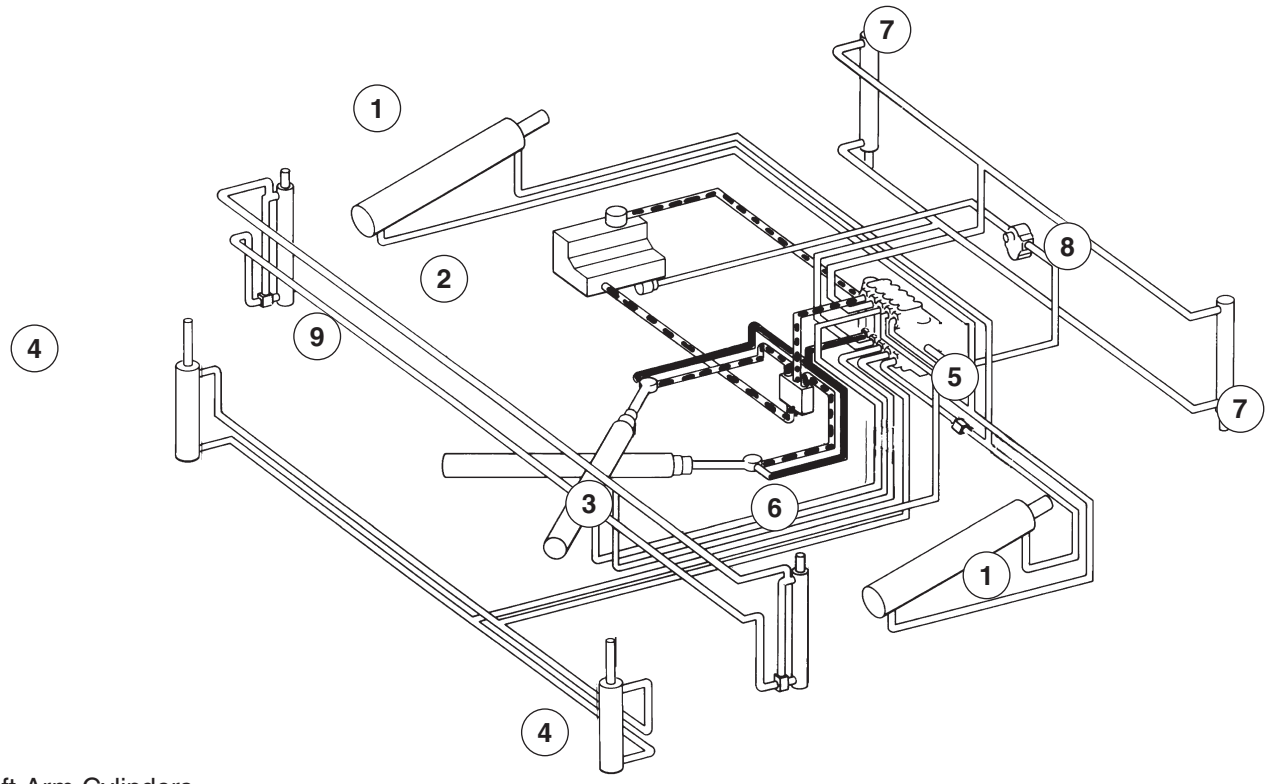
Operator Action
The operator depresses and releases the auto-pack palm button.

HYDRAULIC SYSTEM

The operator action sets the air logic and shifts the main control valve, directing fluid flow to the case end of the packing/ejection cylinders extending the packing/ejection cylinders to the auto-pack position. At this point a pneumatic switch is contacted shifting the main control valve to retract the cylinders.

NOTE:

Once the body's capacity is full, the packing/ejection cylinders will no longer contact the pneumatic switch for auto-pack. At this point the pressure will raise to 3000 PSI and the Emergency stop button must be depressed. Now the retract button should be depressed and held until the packer home light illuminates. At this point you can continue to pack out the hopper but keep in mind auto-pack will not function even when the auto reset palm button is depressed.



KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

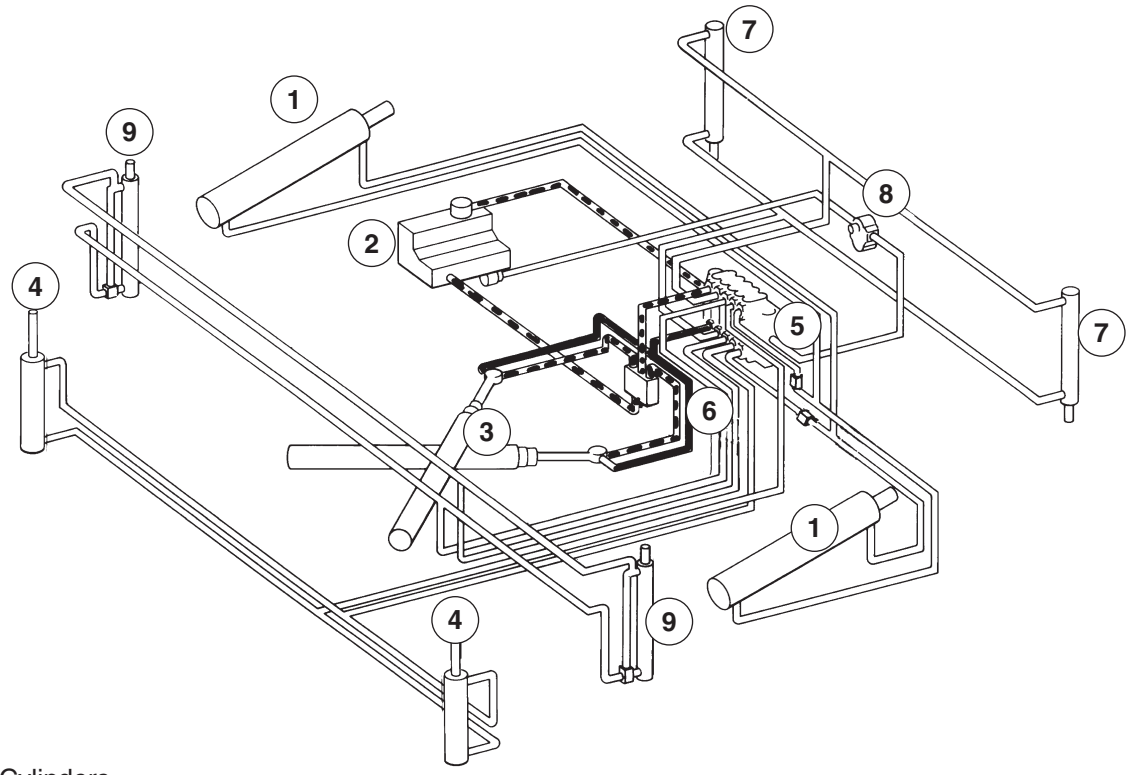
TROUBLESHOOTING

PACKING (AUTO-PACK)

Operator Action
None

HYDRAULIC SYSTEM

When the pneumatic switch at the auto-pack area is contacted the main control valve is shifted, directing fluid flow to the rod end of the packing/ejection cylinders. As the cylinders retract, flow from the case end is directed through the dump valve directly to the tank. When the cylinders have completely retracted, a second pneumatic switch is contacted which shifts the air logic and main control valve to neutral.



KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

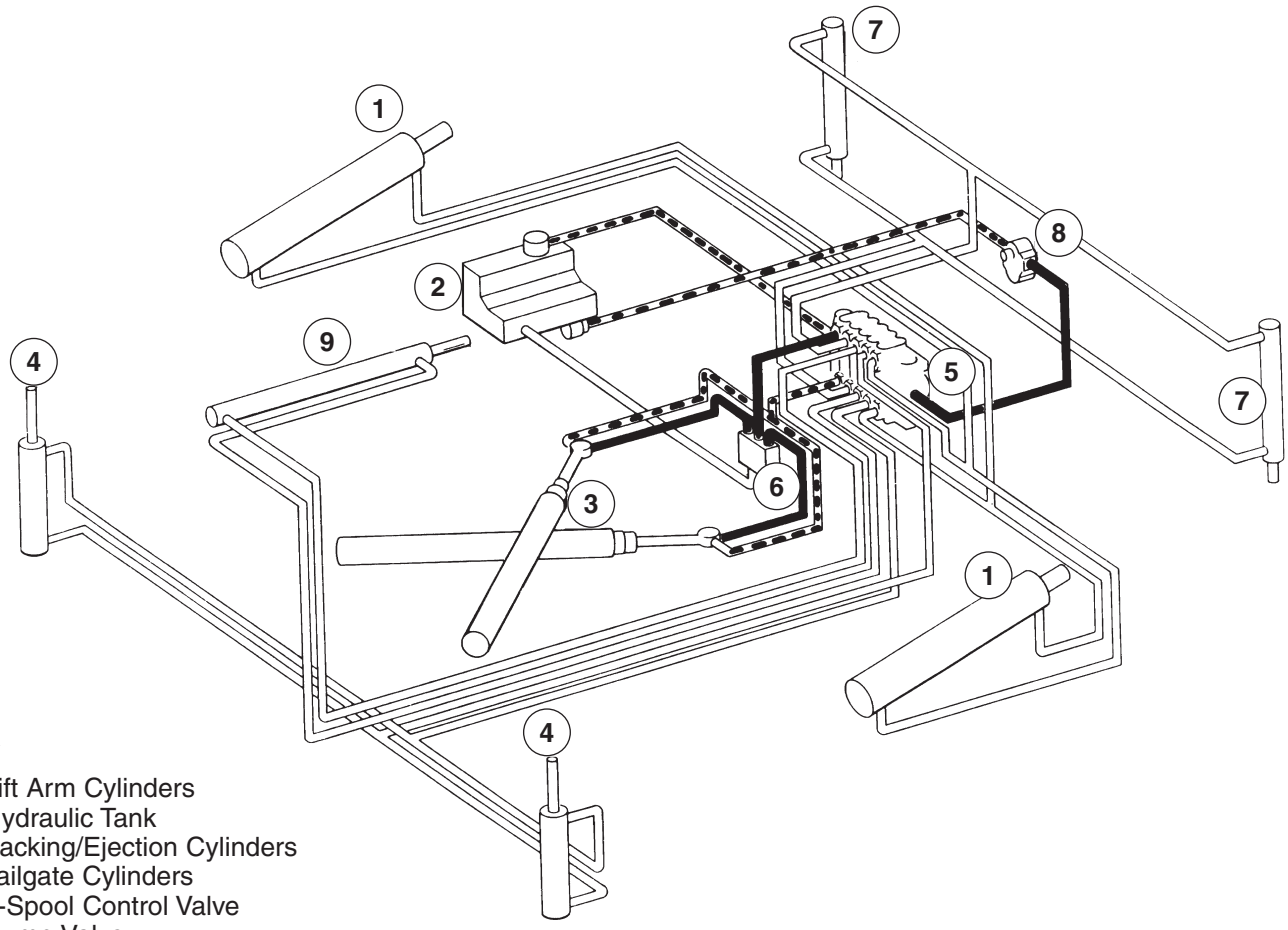
Pressure ——————
Exhaust - - - - - - - - -

EJECTION

Operator Action
The operator depresses the auto-pack palm button and holds it.

HYDRAULIC SYSTEM

The operator action shifts the control valve, directing fluid flow to the case end of the packing/ejection cylinders extending the packing/ejection cylinders to the rear of the body ejecting the load.



KEY

1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder

Pressure ——————
Exhaust - - - - - - - - -

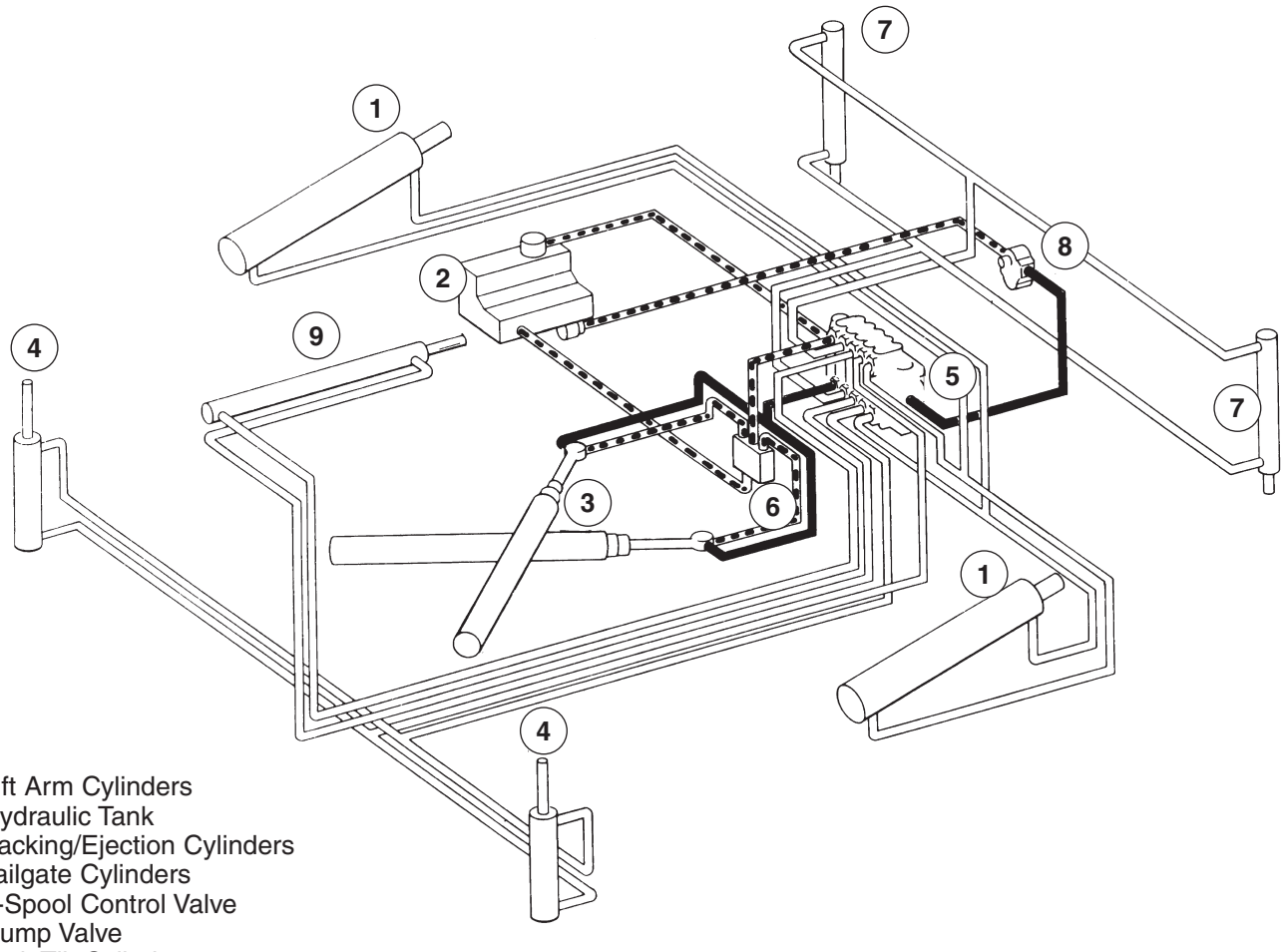
TROUBLESHOOTING

EJECTION

Operator Action
The operator releases the auto-pack palm button after ejecting the load.

HYDRAULIC SYSTEM

The operator action releasing the auto-pack palm button allows the pneumatic switch which was contacted at auto-pack location to again reshift the air logic and hydraulic valve. The control valve now directs fluid flow to the rod end of the packing/ejection cylinders retracting the cylinders. As the cylinders retract, flow from the case end is directed through the dump valve directly to the tank. When the cylinders have completely retracted, the “home limit” pneumatic switch is contacted which shifts the air logic and main control valve to neutral.



KEY
1. Lift Arm Cylinders
2. Hydraulic Tank
3. Packing/Ejection Cylinders
4. Tailgate Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder
10. Sequence Valve

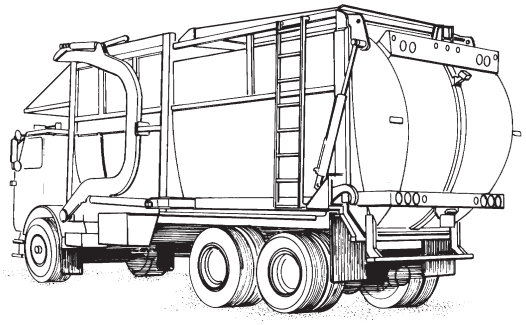
Pressure ——————
Exhaust - - - - - - - - -

SERVICE AND REPAIR

GENERAL

This section contains all the instructions necessary for the repair and replacement of the main components of the unit.

Before attempting any repair of the unit, become thoroughly familiar with the OPERATION instructions (Section 3) and GENERAL REPAIR PRACTICES (Section 4). Also, before performing any work on the unit know and OBSERVE all SAFETY PRECAUTIONS listed in Section 2.

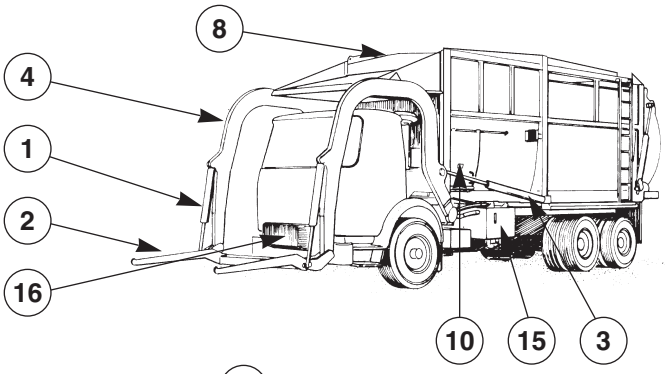


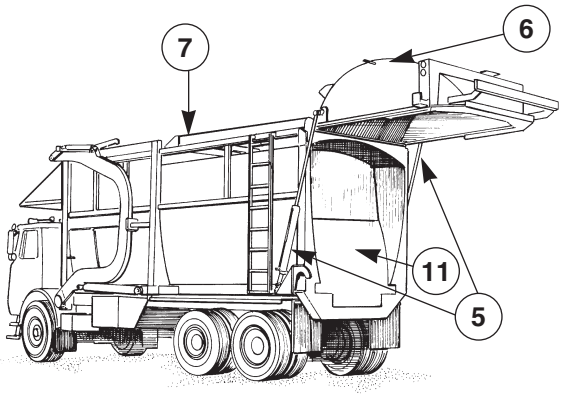
⚠ DANGER

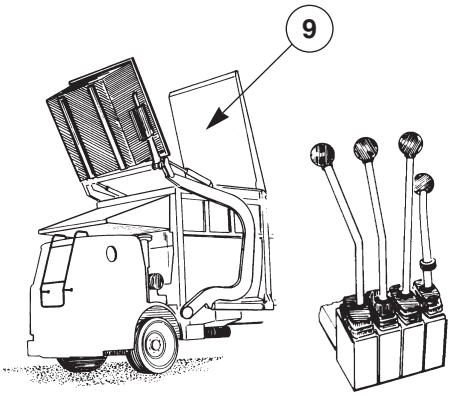
There are some procedures in this section that will require that the truck is running. In these instances the operational status will be indicated. Otherwise, make sure that the truck is shut off and the keys are removed. The pressure of the hydraulic system and resulting movement of the unit's parts can cause serious injury or death.

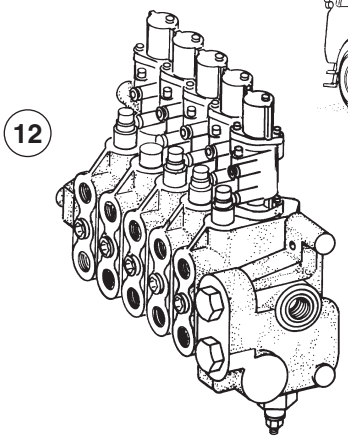
MAIN COMPONENT LOCATION

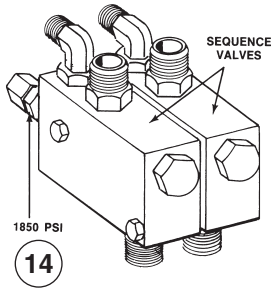
1. Fork tilt cylinders
2. Fork assembly
3. Lift arm cylinders
4. Lift arm assembly
5. Tailgate cylinders
6. Tailgate
7. Top door cylinder
8. Sliding top door
9. Hinged top door
10. Packing/ejection cylinders
11. Packing/ejection panel
12. Main control valve
13. Controls
14. Hinged top door sequence valve
15. Hydraulic tank
16. Pump (front mounted)

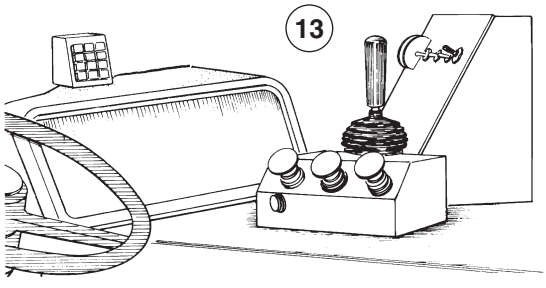












TEST FOR BYPASSING CYLINDERS

NOTE

Before testing any cylinders, make sure main relief pressure is set at 3000 PSI as described under Main Relief Pressure Check, Section 7, CHECK-OUT.

Operational Status	
Truck Running	PTO Engaged

1. Move the control to fully extend the cylinders.

Operational Status	
Truck Off	Keys Removed

2. Disconnect and cap the hydraulic line which connects to the rod end of one (1) cylinder at a time.

Operational Status	
Truck Running	PTO Engaged

3. Move the control to apply hydraulic pressure to the case end of the cylinder(s). Hold and observe the fluid flow from the open port on the rod end. The flow of hydraulic fluid should be no more than 2 fluid ounces per minute. A flow greater than 2 ounces indicates an excessively leaking piston seal. If the cylinder does not leak excessively continue the test.

Operational Status	
Truck Off	Keys Removed

4. Reconnect the hydraulic line to the rod end of the cylinder.

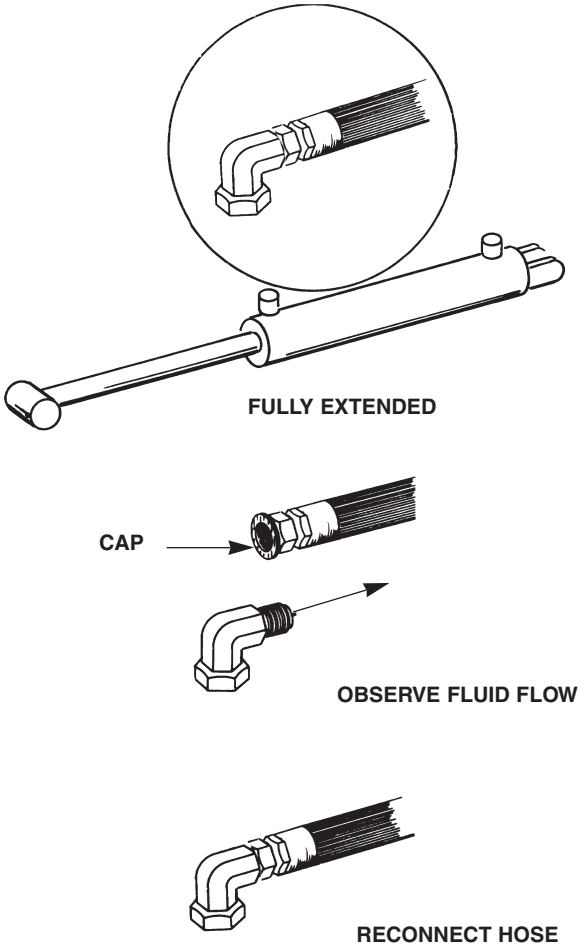
Repeat steps 2 through 4 for the other cylinder.

Operational Status	
Truck Running	PTO Engaged

5. Move the control to fully retract the cylinder(s).

Operational Status	
Truck Off	Keys Removed

6. Disconnect and cap the hydraulic line which connects to the case end of one (1) cylinder at a time.



Operational Status	
Truck Running	PTO Engaged

7. Move the control to apply hydraulic pressure to the rod end of the cylinder(s). Hold and observe the fluid flow from the port on the case end of the cylinder. The flow of hydraulic fluid should be no more than 2 fluid ounces per minute. A flow greater than 2 ounces indicates an excessively leaking piston seal. Disassemble the cylinder and replace the seal as described later in this section. If the cylinder does not leak excessively continue the test.

Operational Status	
Truck Off	Keys Removed

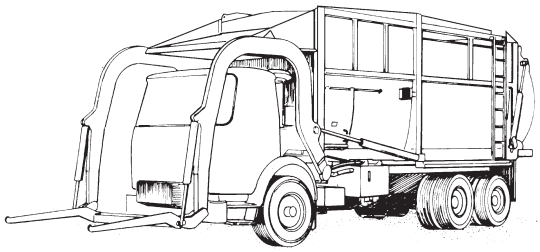
8. Reconnect the hydraulic lines to the cylinder.

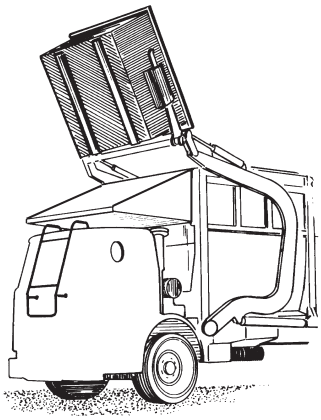
Repeat steps 6 through 8 for the other cylinder.

FORK TILT CYLINDERS

DESCRIPTION OF FORK TILT CYLINDERS

Two double-acting hydraulic cylinders tilt the container handling forks during loading and dumping operations. The rod end is pinned to a pivot ear on the fork assembly, while the cylinder case weldment pivot ear is pinned to the lift arm assembly.





REMOVAL OF FORK TILT CYLINDERS

Operational Status	
Truck Running	PTO Engaged

1. Lift arms must be at their lowest position. Move the tilt control to extend the tilt cylinders.
2. The container forks must be supported prior to disconnecting the tilt cylinders.

Operational Status	
Truck Off	Keys Removed

NOTE

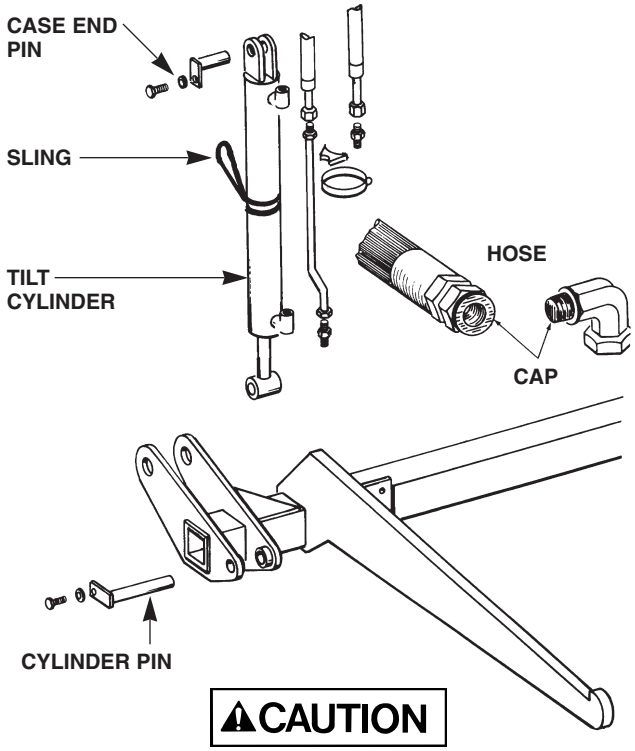
See Section 4, GENERAL REPAIR PRACTICES, for more detailed information about the correct use of slings and lifting chains.

3. Secure a nylon sling around the cylinder and attach to a suitable lifting device with a capacity of at least 500 lbs. Operate the hoist to tighten the lifting sling.
4. Remove the capscrew and retainer from the cylinder rod end cylinder pin.
5. Carefully remove the cylinder pin. Check for pin and pin hub wear.

Operational Status	
Truck Running	PTO Engaged

6. Slowly move the tilt control to completely retract the cylinder.

Operational Status	
Truck Off	Keys Removed



⚠CAUTION

Whenever dismantling any hydraulic line, valve or cylinder be sure to turn off the hydraulic fluid flow, relieve the pressure and slowly crack or loosen the fittings.

7. Disconnect both the case and rod end hoses. Immediately cap or plug hoses and cylinder ports to keep fluid in and dirt out.
8. Remove the capscrew and the retainer from the case end.
9. Make sure cylinder weight is securely supported by hoists and carefully remove the pivot pin. Check for pivot pin or pin hub wear.

DISASSEMBLY OF FORK TILT CYLINDERS

1. Clean the mounting hardware and outside of the cylinder assembly to prevent dirt and foreign matter from contaminating the cylinder components during disassembly.

2. Secure the case end of the cylinder to a work bench or floor mount and the rod end to an overhead lifting device with a minimum lifting capacity of 500 lbs. to ease the disassembly of parts.

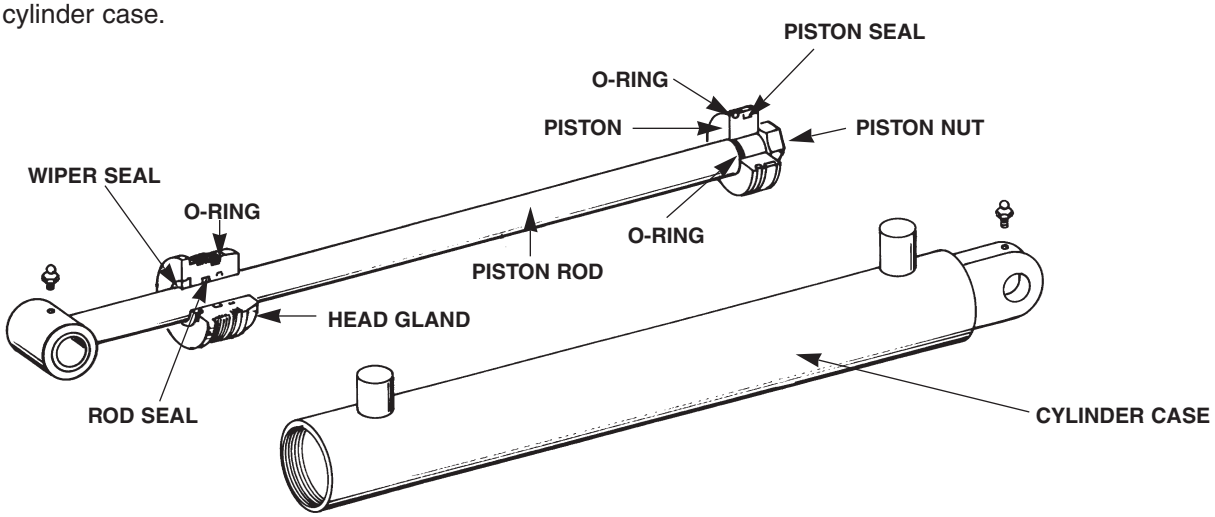
3. Remove the plugs from the ports and drain the fluid.

4. The head gland is secured by the means of a cap that is threaded over the outside of the cylinder case. Rotate the head gland cap and unscrew it from the cylinder case.

5. Slowly operate the hoist to carefully pull the piston rod assembly out of the case.

6. Unscrew the piston nut from the rod and remove the piston. Remove and discard the piston seal and o-ring.

7. Slide the head gland off the rod and discard the head gland o-ring, backup ring, rod seal and rod wiper.



INSPECTION AND REPLACEMENT OF FORK TILT CYLINDERS

1. Carefully and thoroughly inspect the bore of the cylinder case for cracks, rust, scoring or excessive wear. Replace if found not to be serviceable. Check all other parts for damage.

2. A new rod wiper, rod seal, o-rings and piston seals must be installed any time the cylinder is disassembled. Pay particular attention to the way the parts are positioned before disassembly. Parts that must be replaced together are available in the form of a kit from your local authorized Leach Distributor.

REASSEMBLY AND INSTALLATION OF FORK TILT CYLINDERS

Coat all seals and o-rings with clean, fresh hydraulic fluid before reassembly. Reassemble and install the cylinder in the approximate reverse order of disassembly.

When installing the piston to the rod torque the piston nut to 284-312 Ft. Lbs.

NOTE

If the cylinder is not to be installed immediately keep the ports sealed to prevent contamination from entering the cylinder.

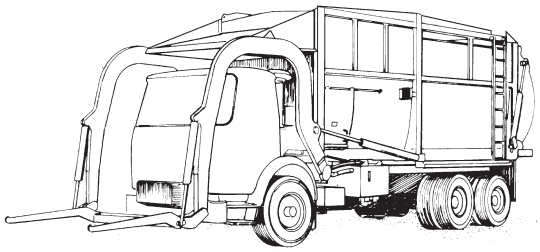
NOTE

Special tools, listed in Section 12 may be necessary to properly reassemble the cylinder.

ADJUSTABLE FORK ASSEMBLY

DESCRIPTION OF ADJUSTABLE FORK ASSEMBLY

The adjustable fork assembly connects with a container for loading and dumping of refuse. The adjustable fork assembly allows for 16" of travel on the right fork to adapt to varying container sizes. The electric over hydraulic switch which controls activation of the hydraulic circuit should remain in the off position and only be turned on to adjust fork width. The need for removal of the fork assembly is rare and is generally limited to replacement of the entire assembly.



REMOVAL OF ADJUSTABLE FORK ASSEMBLY

Operational Status	
Truck Off	Keys Removed

1. Disconnect the rod end cylinder pin of both tilt cylinders as described earlier in this section.

NOTE

See Section 4, GENERAL REPAIR PRACTICES, for detailed information about the correct use of slings and lifting chains.

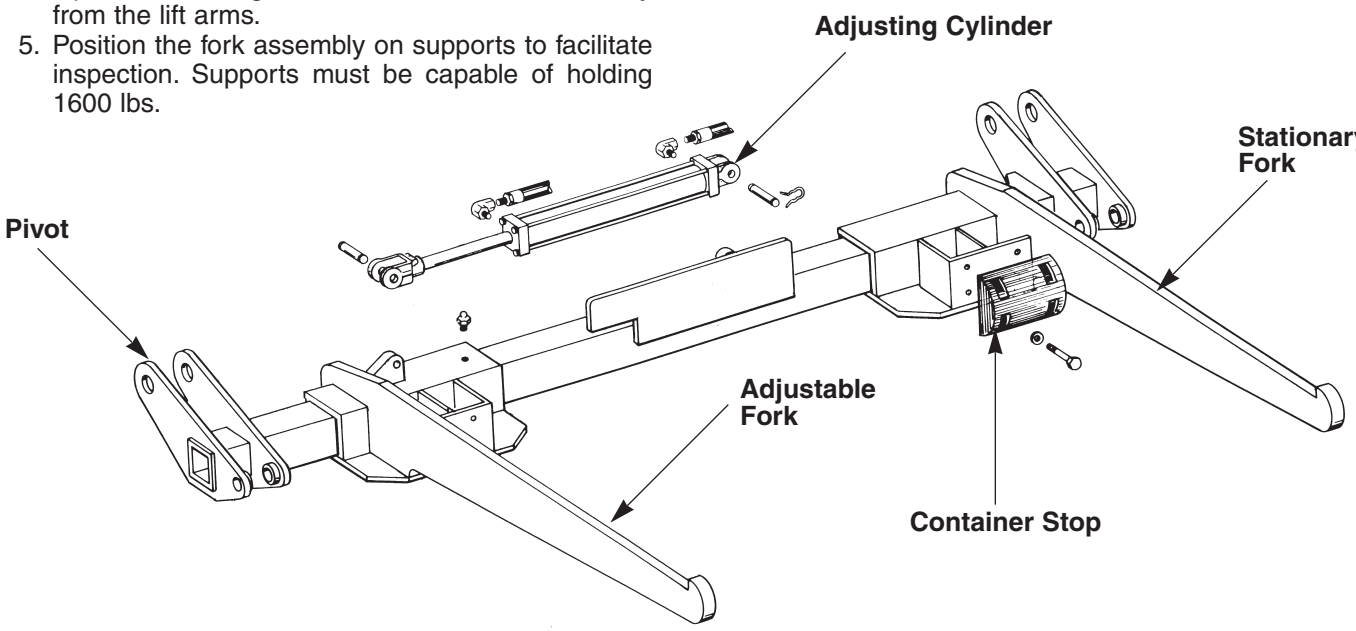
2. Attach chains, connected to a suitable lifting device with a minimum lifting capacity of 1600 lbs. to the fork assembly. Operate the lifting device no more than necessary to support the weight of the fork assembly.
3. Remove the capscrews and pivot pin.
4. Operate the lifting device to free the fork assembly from the lift arms.
5. Position the fork assembly on supports to facilitate inspection. Supports must be capable of holding 1600 lbs.

INSPECTION AND REPLACEMENT OF ADJUSTABLE FORK ASSEMBLY

1. Inspect all portions of the fork assembly. Check pivot holes and pivot pin bushings for enlargement or fatigue.
2. Replacement of fork assembly components is not recommended. Replace the entire assembly if damage is found.

INSTALLATION OF ADJUSTABLE FORK ASSEMBLY

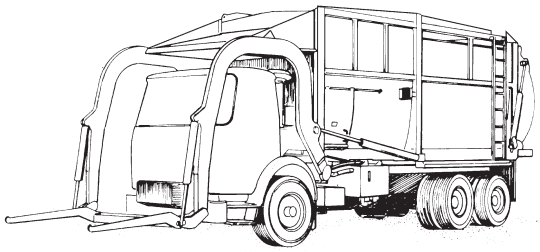
Install the fork assembly in the approximate reverse order of removal.



ADJUSTABLE FORK CYLINDER

DESCRIPTION OF ADJUSTABLE FORK CYLINDER

One (1) double-acting hydraulic cylinder slides the adjustable fork to increase or decrease the distance between the forks. The rod end is pinned to the adjustable fork weldment. The case end is pinned to the fork tube.



REMOVAL OF ADJUSTABLE FORK CYLINDER

Operational Status	
Truck Running	PTO/Pump Engaged

1. Operate the adjustable fork system to completely retract the adjustable fork cylinder rod.

Operational Status	
Truck Off	Keys Removed

2. Relieve the hydraulic pressure to the cylinder by operating the adjustable fork valve in both directions.

3. Remove the hoses from the cylinder and plug ends. Unpin the rod and case ends and carefully remove the cylinder.

DISASSEMBLY OF ADJUSTABLE FORK CYLINDER

1. Wash the mounting hardware and the outside of the cylinder assembly to prevent dirt from contaminating the cylinder components during disassembly.

2. Drain the hydraulic fluid from the cylinder.

3. Secure the cylinder case to a work bench. Care should be taken so that the cylinder case diameter is NOT distorted.

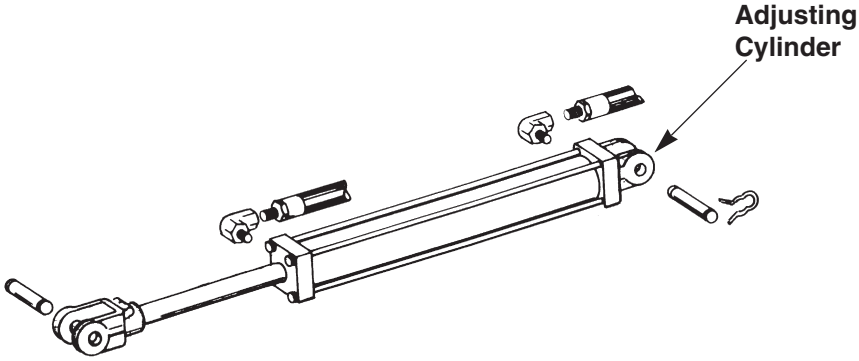
4. Remove the four (4) nuts retaining the tie rods on the case end of the cylinder. Remove the tie rods by sliding them out of the head gland.

5. Carefully remove the case end cap of the cylinder.

6. With a large wooden dowel at least 24" long, carefully push the piston rod assembly out of the cylinder case.

7. Unscrew the piston nut from the rod and remove and discard the rod o-ring and piston seal.

8. Slide the head gland off the rod and discard the o-ring, backup ring and rod wiper. Also, remove and discard the o-ring from the case end cap.



INSPECTION AND REPLACEMENT OF ADJUSTABLE FORK CYLINDER

1. Thoroughly inspect the inside of the cylinder for cracks, scoring or uneven wear.

2. Check all cylinder components and mounting parts for damage and wear and replace as required. Parts that must be replaced together (o-rings and seals) are available as a repair kit from your local authorized Leach Distributor.

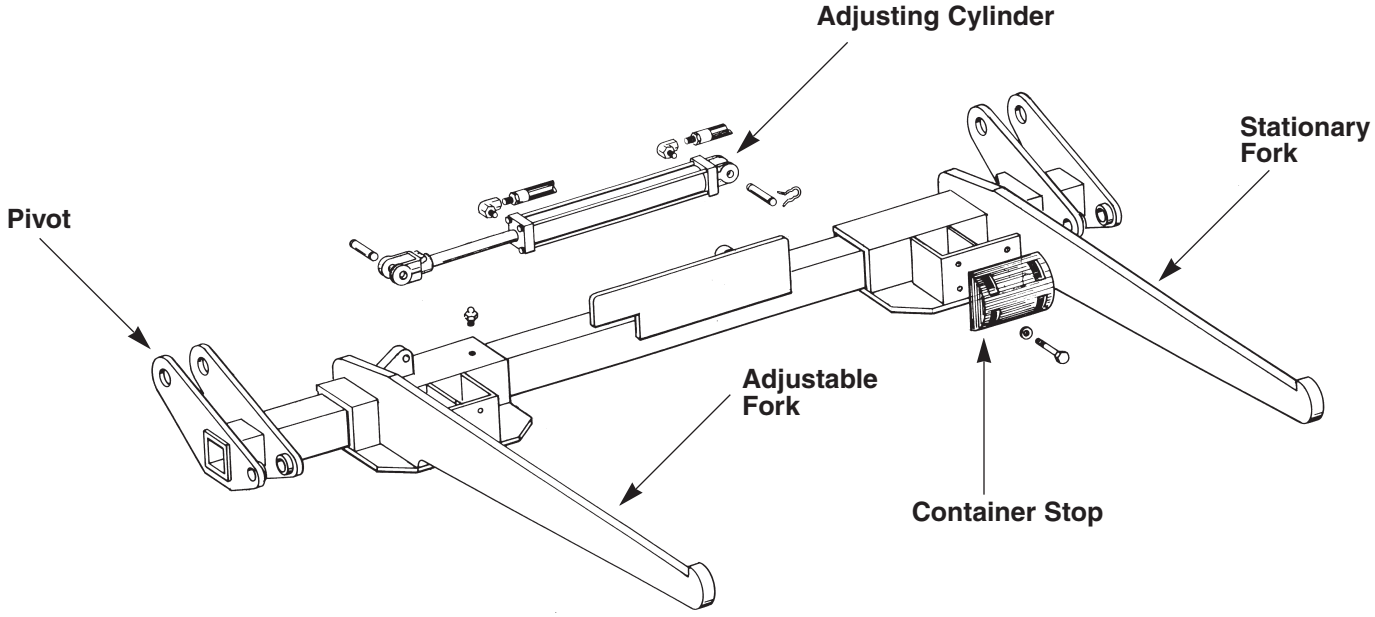
REASSEMBLY AND INSTALLATION OF ADJUSTABLE FORK CYLINDER

Coat all seals and o-rings with clean, fresh hydraulic fluid before reassembly.

Reassemble and install the adjustable fork cylinder in the approximate reverse order of disassembly.

When installing the piston to the rod, coat the threads of the piston nut with Lok-tite #262 or equivalent. Torque the piston nut to 150-175 Ft. Lbs.

When installing the tie rods to the cylinder assembly, tighten the rod nuts evenly and torque to 15-20 Ft. Lbs.

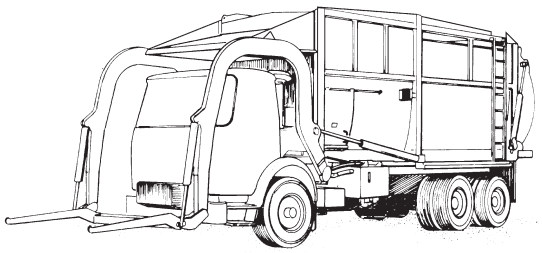


SERVICE AND REPAIR

FORK ASSEMBLY

DESCRIPTION OF FORK ASSEMBLY

The fork assembly connects with a container for loading and dumping of refuse. The need for removal of the fork assembly is rare and is generally limited to replacement of the entire assembly.



REMOVAL OF FORK ASSEMBLY

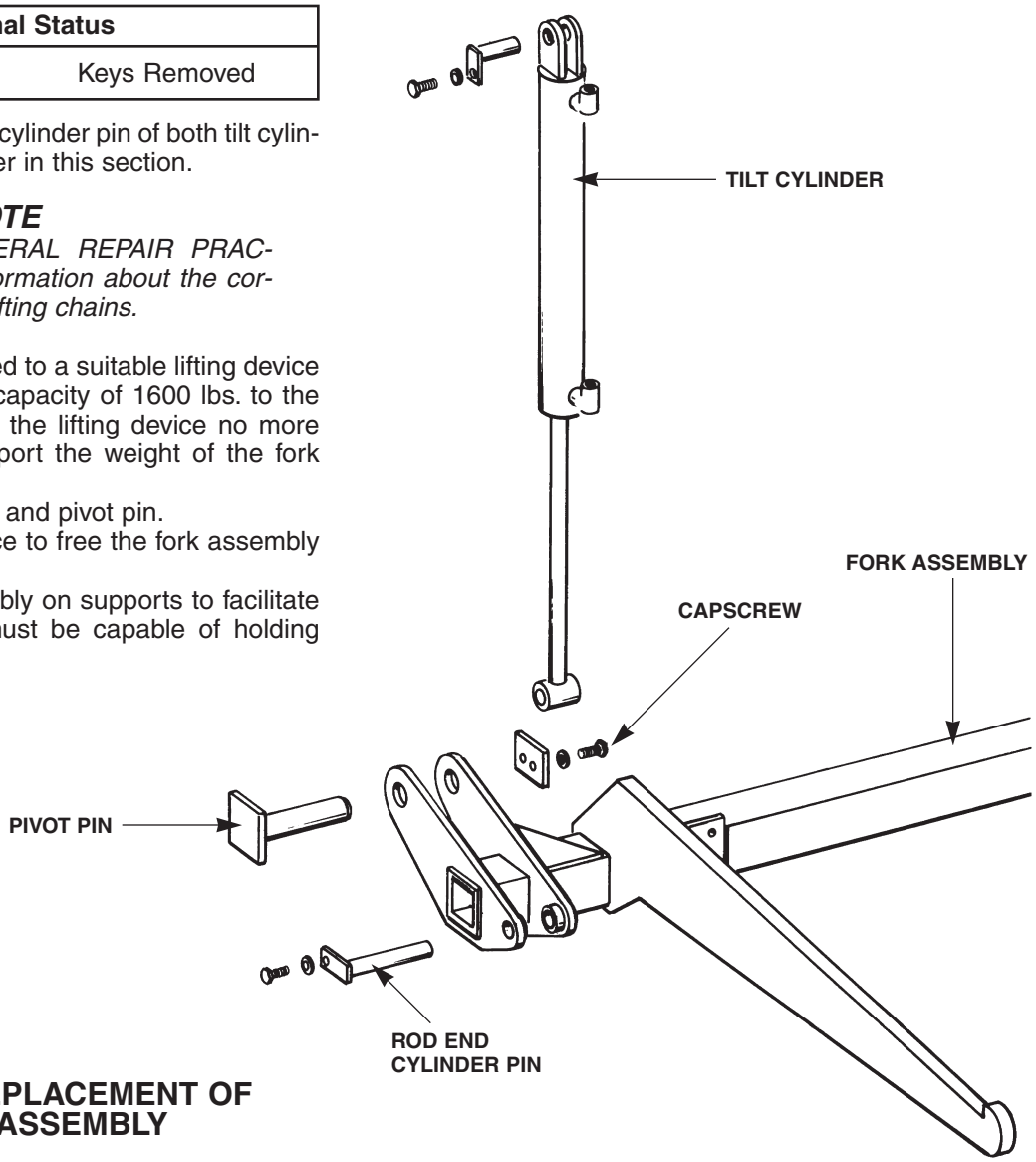
Operational Status	
Truck Off	Keys Removed

1. Disconnect the rod end cylinder pin of both tilt cylinders as described earlier in this section.

NOTE

See Section 4, GENERAL REPAIR PRACTICES, for detailed information about the correct use of slings and lifting chains.

2. Attach chains, connected to a suitable lifting device with a minimum lifting capacity of 1600 lbs. to the fork assembly. Operate the lifting device no more than necessary to support the weight of the fork assembly.
3. Remove the capscrews and pivot pin.
4. Operate the lifting device to free the fork assembly from the lift arms.
5. Position the fork assembly on supports to facilitate inspection. Supports must be capable of holding 1600 lbs.



INSPECTION AND REPLACEMENT OF ADJUSTABLE FORK ASSEMBLY

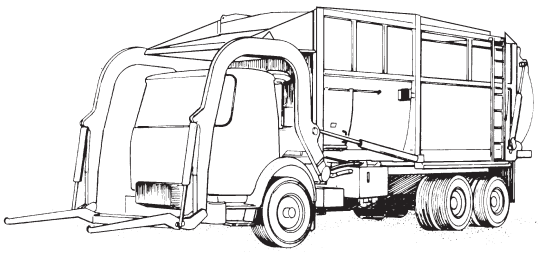
1. Inspect all portions of the fork assembly. Check pivot holes and pivot pin bushings for enlargement or fatigue.
2. Replacement of fork assembly components is not recommended. Replace the entire assembly if damage is found.

INSTALLATION OF FORK ASSEMBLY

Install the fork assembly in the approximate reverse order of removal.

LIFT ARM CYLINDERS

Two double-acting hydraulic cylinders raise and lower the lift arm assembly during loading. The cylinder rod is connected to the lift arm and the cylinder case end connects to the body.



DESCRIPTION OF LIFT ARM CYLINDERS

The lift arm cylinders are a “cushion” type. During cylinder retraction, hydraulic fluid is forced out of the case end port by the travel of the piston, much the same as any double-acting cylinder. However, the case end port is located at a point where the piston will actually pass over the port.

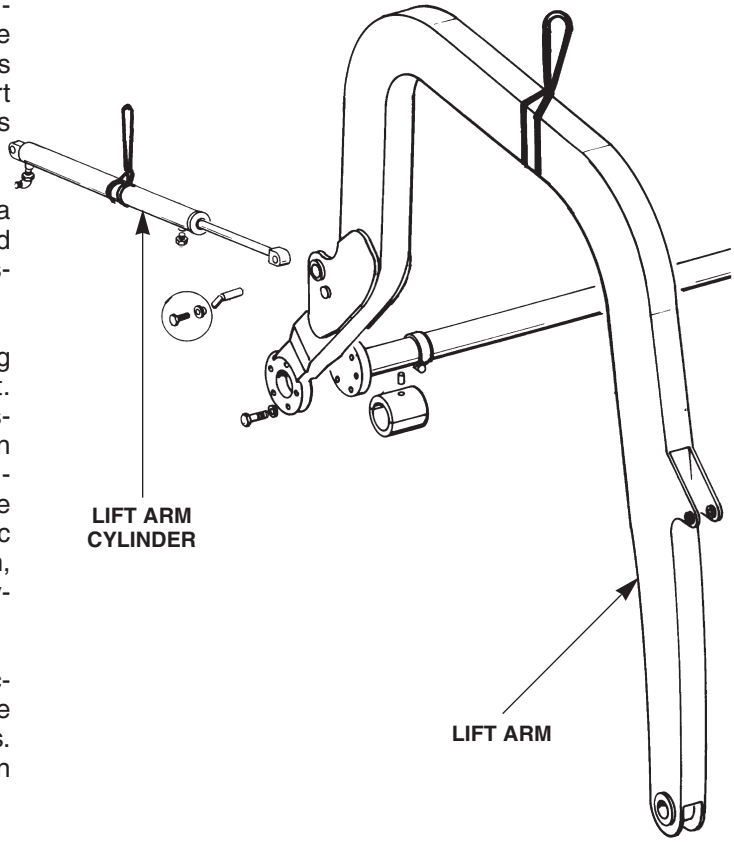
The piston is designed with a seal at each end and a recess between. There are also passages machined into the piston connecting the case end face of the piston and recesses between the piston seals.

As the first piston seal passes the case end port during retraction the cylinder rod continues to retract. Hydraulic fluid now flows through the machined passages of the piston, into the recess between the piston seals and out of the case end port to the tank. An orifice is installed where the machined passage exits the recess of the piston, to reduce the flow of the hydraulic fluid. This slows the rate of the cylinder rod retraction, cushioning approximately the last two (2) inches of travel.

To allow full flow during cylinder rod extension, a second passage is machined into the piston, between the case end face and the recess between the piston seals. A check valve is installed in this passage on the piston face side and is retained by the piston nut.

When the cylinder is extended, full flow of hydraulic fluid is allowed to pass through this check valve, into the cylinder case, extending the cylinder rod at the full rate of extension.

Upon retraction of the cylinder rod, the check valve is closed off allowing hydraulic fluid to only pass through the orificed passage.



REMOVAL OF LIFT ARM CYLINDERS

Operational Status	
Truck Running	PTO Engaged

1. Move the lift arm to place the lift arms at their lowest position.

NOTE

The lift arm assembly must be supported prior to removal of the lift arm cylinders.

Operational Status	
Truck Off	Keys Removed

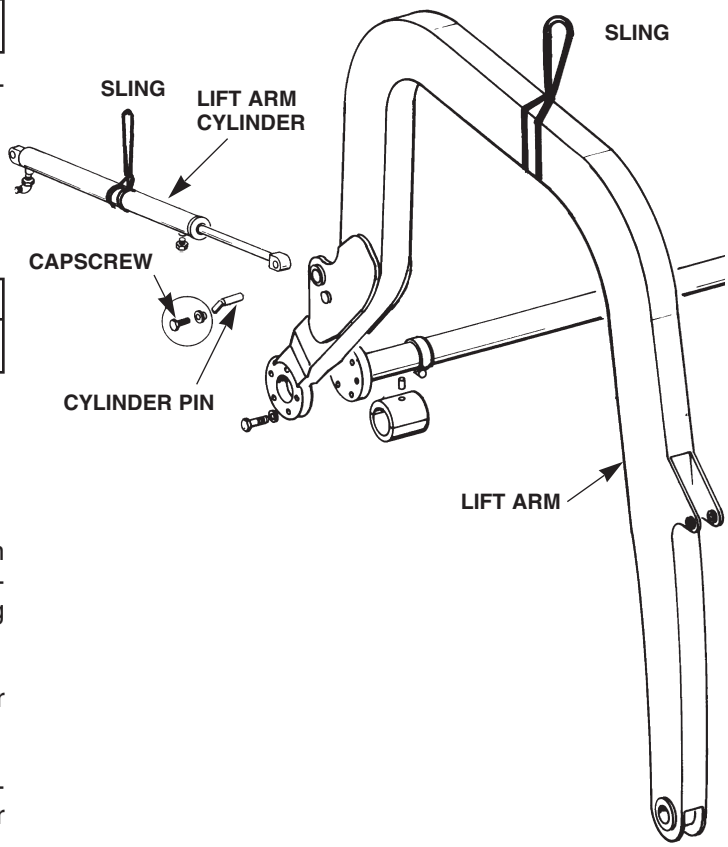
NOTE

See Section 4, GENERAL REPAIR PRACTICES, for more detailed information about the correct use of slings and lifting chains.

2. Secure a nylon sling around the cylinder as shown and attach to a suitable lifting device with a capacity of 500 lbs. Operate the hoist to snug the lifting slings without applying strain on the cylinder.

3. Remove the capscrew from the rod end cylinder pin.

4. Make sure the cylinder weight is securely supported and carefully remove the pivot pin. Check for pivot pin and pin hub wear.



Operational Status	
Truck Running	PTO Engaged

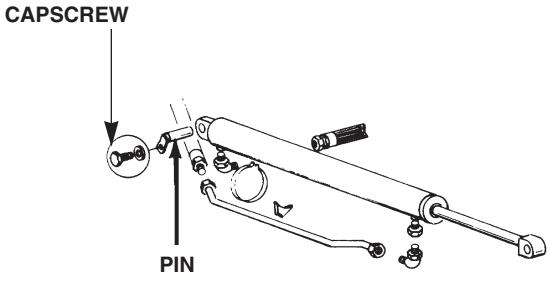
5. Slowly move the lift arm control to completely retract the cylinder.

Operational Status	
Truck Off	Keys Removed

6. Disconnect both the case end and rod end hoses. Immediately cap and plug the hoses and cylinder ports to keep fluid in and dirt out.

7. Remove the capscrew and pin from the case end.

8. Slide the cylinder from the pivot hub. Check for pivot hub and cylinder hub wear.

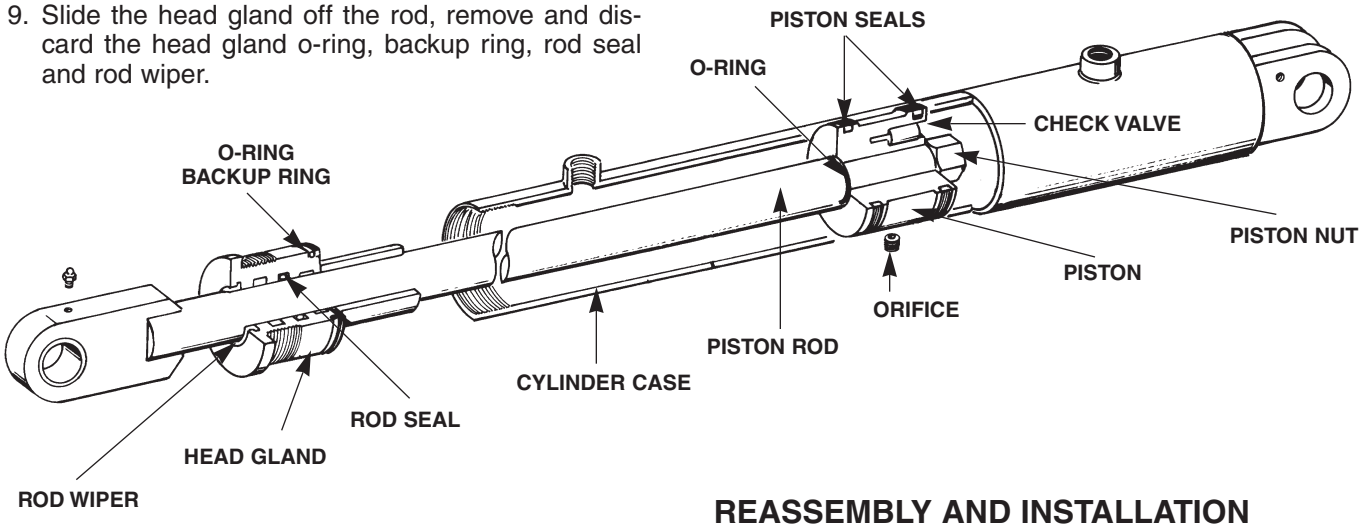


⚠CAUTION

Whenever disassembling any hydraulic line, valve or cylinder be sure to turn off the hydraulic fluid flow, relieve the pressure and slowly loosen the fittings.

DISASSEMBLY OF LIFT ARM CYLINDER

1. Clean the mounting hardware and outside of the cylinder assembly to prevent dirt and foreign matter from contaminating the cylinder components during disassembly.
2. Secure the case end of the cylinder to a work bench or floor mount and the rod end to an overhead lifting device with a minimum lifting capacity of 500 lbs. to ease the disassembly of parts.
3. Remove the plugs from the ports and drain the fluid.
4. Remove the setscrew and nylon plug from the head gland cap.
5. Rotate the head gland cap and unscrew it from the cylinder case.
6. Slowly operate the hoist to carefully pull the piston rod assembly out of the case.
7. Unscrew the piston nut from the rod and remove the piston. Remove and discard the piston seal and o-ring.
8. Remove the check valve in the piston. This is held in place by the piston nut, and the o-ring around the collar of the check valve. Discard the o-ring on the check valve.
9. Slide the head gland off the rod, remove and discard the head gland o-ring, backup ring, rod seal and rod wiper.



INSPECTION AND REPLACEMENT OF LIFT ARM CYLINDER

1. Carefully and thoroughly inspect the bore of the cylinder case for cracks, rust, scoring or excessive wear. Replace if found not to be serviceable. Check all other parts for damage.
2. A new rod wiper, rod seal, o-rings and piston seals must be installed any time the cylinder is disassembled. Pay particular attention to the way parts are positioned before disassembly. Parts that must be replaced together are available in the form of a kit from your local authorized Leach Distributor.
3. Inspect and clean the orifice in the recessed side of the piston. Clean out all of the passages in the piston.

REASSEMBLY AND INSTALLATION

Coat all seals and o-rings with clean, fresh hydraulic fluid before reassembly. Reassemble and install the cylinder in the approximate reverse order of disassembly.

When installing the piston to the rod, torque the piston nut to 502 (±24) Ft. Lbs.

NOTE

If the cylinder is not to be installed immediately keep the ports sealed to prevent contamination from entering the cylinder.

NOTE

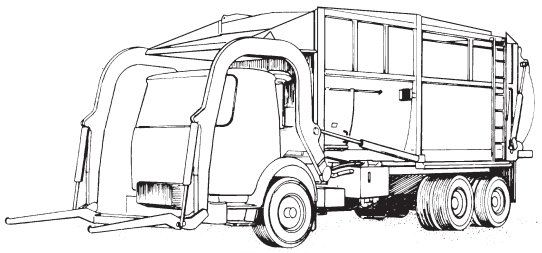
Special tools, listed in Section 12 may be necessary to properly reassemble the cylinder.

SERVICE AND REPAIR

BOLT ON LIFT ARM ASSEMBLY

DESCRIPTION OF BOLT ON LIFT ARM ASSEMBLY

The bolt on lift arm assembly allows the individual replacement of specific components.



REMOVAL OF ARM

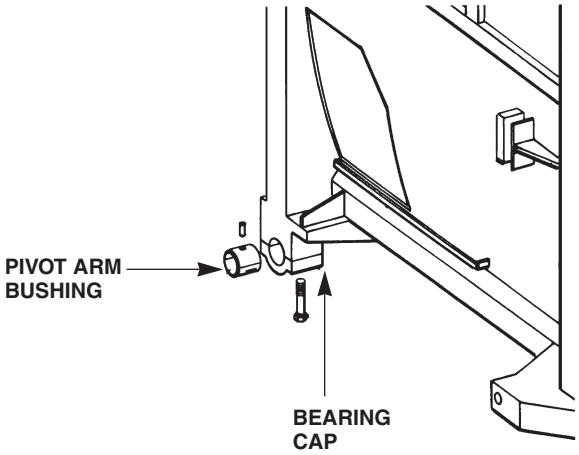
Operational Status	
Truck Off	Keys Removed

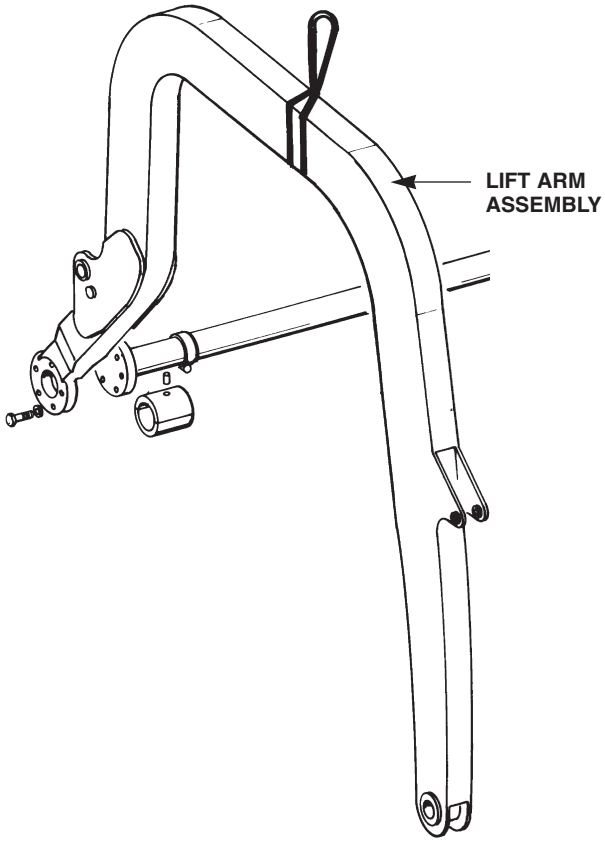
1. Remove the tilt cylinders and fork assembly as described in this section, REMOVAL OF LIFT ARM ASSEMBLY.
2. Place blocks or stands under the front of the lift arm assembly to support it during removal.
3. Disconnect the rod end of the lift arm cylinder on the appropriate side.
4. Disconnect the hydraulic hoses between the lift arm and body end cap.

NOTE

See Section 4, GENERAL REPAIR PRACTICES, for more detailed information about the correct use of slings and lifting chains.

5. Attach chains, connected to a suitable lifting device, with a minimum lifting capacity of 2,000 lbs. to the lift arm. Operate the lifting device no more than necessary to support the weight of the arm.
6. Remove the lift arm retaining capscrews.
7. Operate the lifting device to free the lift arm from the pivot tube.





INSPECTION AND REPLACEMENT OF LIFT ARM ASSEMBLY

1. Inspect all metal parts and pivot points for damage or wear. Check hardware holes for enlargement, breaks or weld cracks.
2. See Section 4, GENERAL REPAIR PRACTICES, for information pertaining to welding repairs.
3. Repair to the lift arm is limited, if structural damage is noted the entire assembly must be replaced.

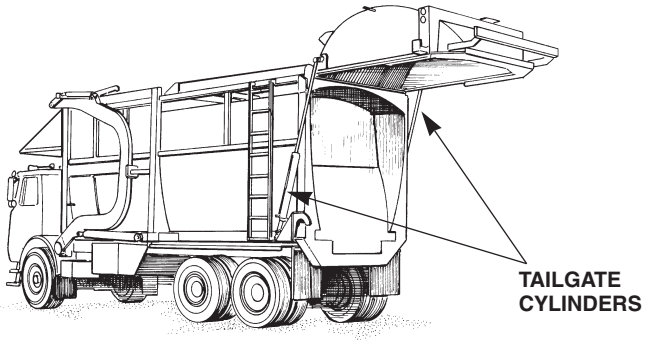
REINSTALLATION OF LIFT ARM ASSEMBLY

1. Install the lift arm in the approximate reverse order of removal.
2. Torque the pivot tube/lift arm retaining capscrews evenly to 600 Ft. Lbs. and use thread adhesive.

TAILGATE CYLINDERS

DESCRIPTION OF TAILGATE CYLINDERS

Two double-acting hydraulic cylinders raise and lower the tailgate during unloading operations. The cylinder rod end is connected to a pivot ear on the tailgate, while the case end attaches to a bell crank, bolted to the body. The cylinder also moves the tailgate latching arm.



REMOVAL OF TAILGATE CYLINDERS

Operational Status	
Truck Running	PTO Engaged

1. The tailgate cylinders must be retracted and the tailgate closed.

Operational Status	
Truck Off	Keys Removed

2. Secure a nylon sling around the cylinder and attach to a suitable lifting device with a capacity of at least 500 lbs. Operate the hoist to snug the lifting sling without applying strain on the cylinder.

3. Remove the capscrew and washer from the cylinder rod end.

NOTE

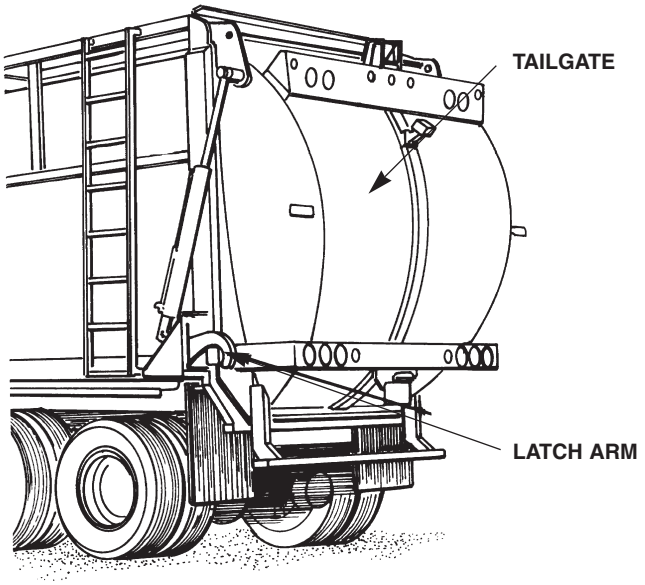
See Section 4, GENERAL REPAIR PRACTICES, for more detailed information about the correct use of slings and lifting chains.

⚠CAUTION

Whenever dismantling any hydraulic line, valve or cylinder, be sure to turn off the hydraulic flow, relieve the pressure and slowly crack or loosen the fittings.

4. Disconnect both the case and the rod end hoses. Immediately cap or plug the hoses and cylinder ports to keep fluid in and dirt out.

5. Make sure the cylinder is securely supported by the hoist and carefully remove the capscrew and pin from case end.



DISASSEMBLY OF TAILGATE CYLINDER

1. Wash the mounting hardware and the outside of the cylinder assembly to prevent dirt and foreign matter from contaminating the cylinder components during disassembly.
2. Secure the case end of the cylinder to a work bench or floor mount and the rod end to an overhead lifting device with a minimum lifting capacity of 500 lbs. to ease the disassembly of parts.
3. Remove the plugs from the cylinder ports and drain the fluid.
4. Rotate the head gland and unscrew it from the cylinder case. Slowly operate the hoist to carefully pull the piston rod assembly out of the case.
5. Unscrew the piston nut from the rod and remove and discard the rod o-ring and piston seal.
6. Slide the head gland off the rod and discard the o-ring, wiper seal and rod seal.

INSPECTION AND REPLACEMENT OF TAILGATE CYLINDER

1. Thoroughly inspect the inside of the cylinder for cracks, scoring or uneven wear.
2. Check all cylinder components and mounting parts for damage and wear and replace as required. Parts that must be replaced together (o-rings and seals) are available as a repair kit from your local authorized Leach Distributor.

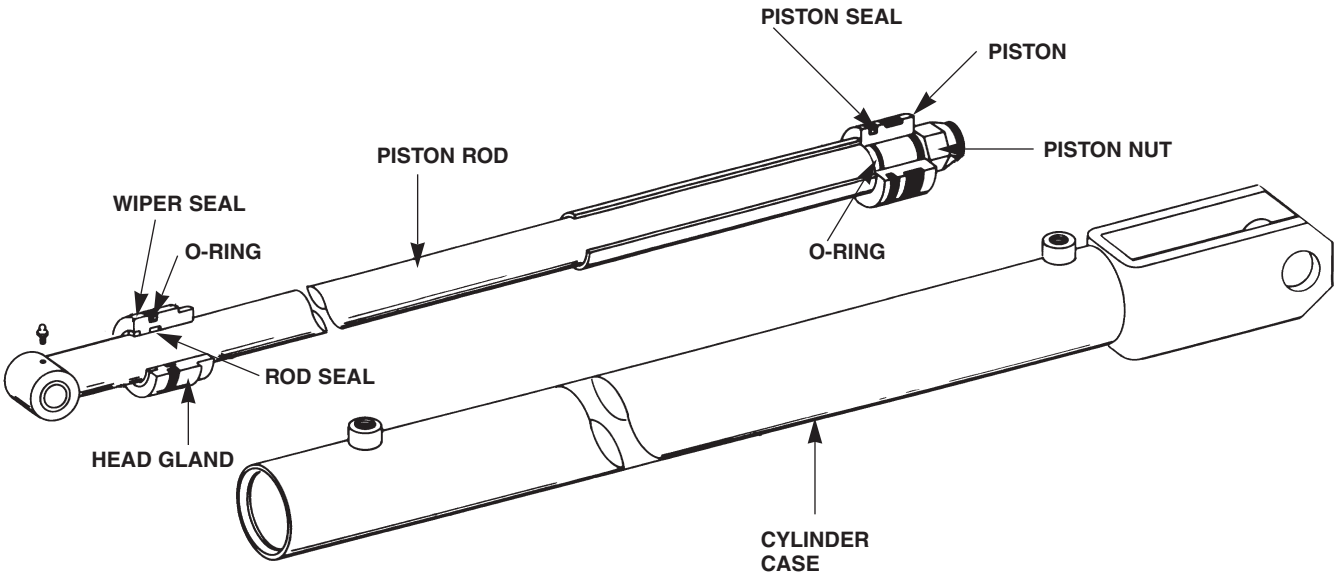
REASSEMBLY AND INSTALLATION OF TAILGATE CYLINDER

Coat all seals and o-rings with clean, fresh hydraulic fluid before reassembly. Reassemble and install the tailgate cylinder in the approximate reverse order of disassembly.

When installing the piston to the rod torque the piston nut to 215 (±10) Ft. Lbs.

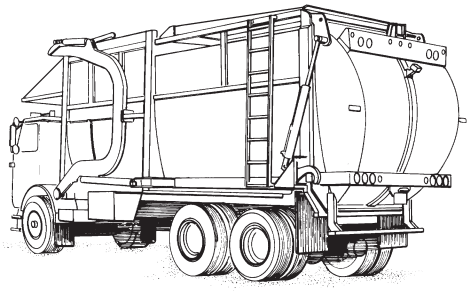
NOTE

If the cylinder is not to be installed immediately keep ports sealed to prevent dirt from entering the cylinder.



DESCRIPTION OF TAILGATE

The tailgate assembly is the structure which closes the rear of the body. It is raised to allow ejection of refuse from the body. Its movement is controlled by the tailgate cylinders and it is locked shut by the latch hooks.



REMOVAL OF TAILGATE

Operational Status	
Truck Running	PTO Engaged

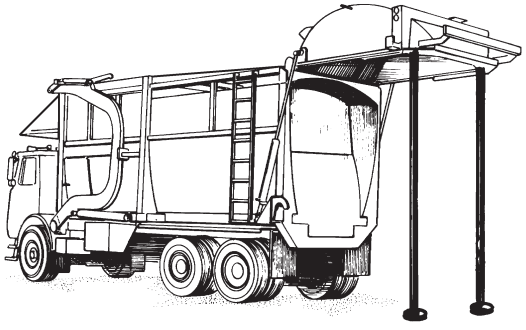
1. Extend the tailgate lift cylinders enough to disengage the latch hooks.

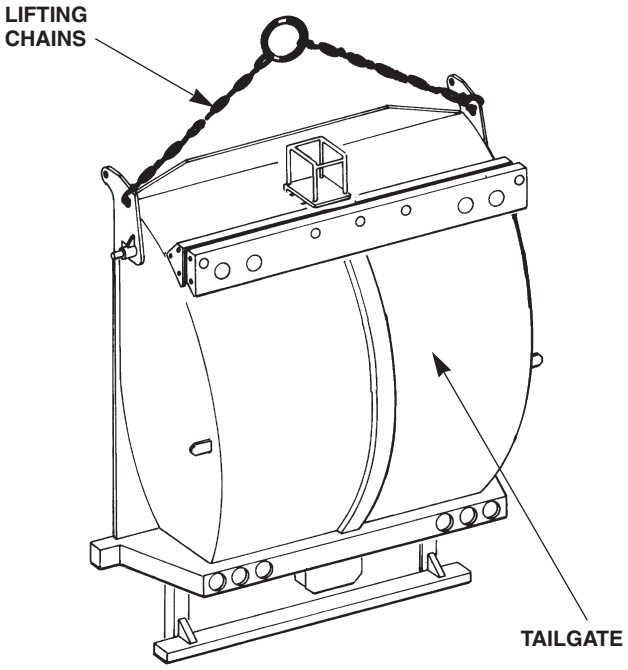
Operational Status	
Truck Off	Keys Removed

2. Disconnect the rod end of the tailgate cylinders as described earlier in this section.
3. Attach chains to a suitable lifting device with a minimum lifting capacity of 4000 lbs. to the tailgate as shown. Operate the lifting device no more than necessary to support the weight of the tailgate assembly.
4. Remove capscrews, retainers and hinge pins. Note the location and amount of shims used on each hinge. Save these shims for reassembly.
5. Position the door assembly on the ground or on supports as needed to facilitate inspection and/or repair. Supports must be capable of holding 4,000 lbs.

⚠ DANGER

Do not work under a raised tailgate. Install support stands as shown.





INSPECTION AND REPLACEMENT OF TAILGATE

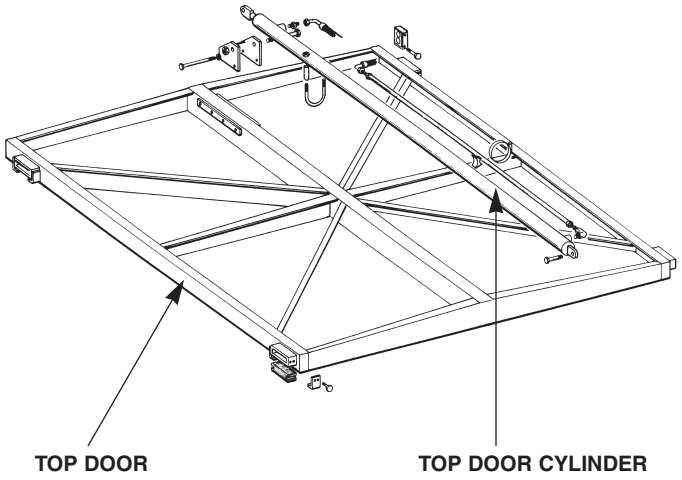
1. Inspect all metal parts, pivots and hinge points for damage or fatigue. Check hardware holes and pivots for enlargement, breaks in metal or welding cracks. Repair following all safety precautions pertaining to welding, described in Section 4, GENERAL REPAIR PRACTICES.
2. Inspect the hinge pins. Replace if they are worn, cracked or fatigued. Inspect the tailgate seal condition and replace if necessary.
3. Install the tailgate in the approximate reverse order of removal, taking special care to locate the hinge shims in the same amount and location as they were removed.

DESCRIPTION OF SLIDING TOP DOOR CYLINDER

One (1) double-acting hydraulic cylinder opens and closes the top door during the loading operation. The rod end is pinned to the top door, while the cylinder case end is pinned to the body structure.

NOTE

See the description of the optional hinged top door later in this section.



REMOVAL OF SLIDING TOP DOOR CYLINDER

Operational Status	
Truck Running	PTO Engaged

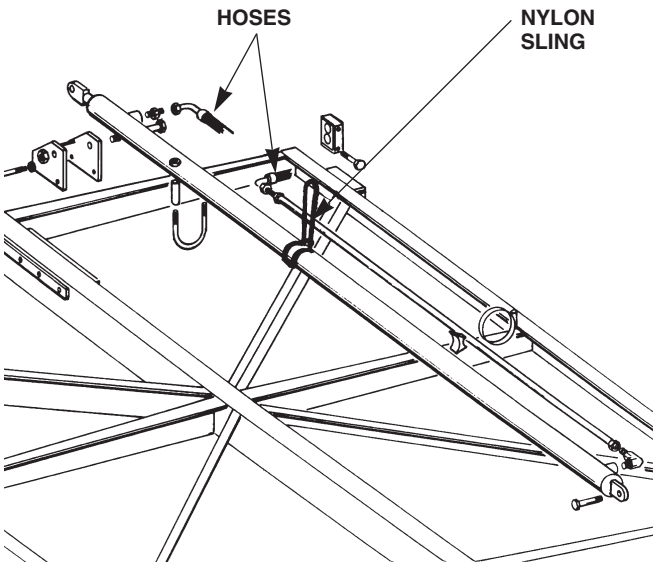
1. Lift arms must be at their lowest position and the top door must be fully open.

Operational Status	
Truck Off	Keys Removed

NOTE

See Section 4, GENERAL REPAIR PRACTICES, for more detailed information about the correct use of slings and lifting chains.

2. Secure a nylon sling around the cylinder and attach to a suitable lifting device with a capacity of at least 500 pounds. Operate the hoist to make the lifting sling snug.
3. Remove the capscrew from the cylinder rod end.
4. Disconnect both the case end and the rod end hoses. Immediately cap or plug the hoses and cylinder ports to keep fluid in and dirt out.
5. Make sure the cylinder is securely supported by the hoist and carefully remove the capscrew.



⚠CAUTION

Whenever disassembling any hydraulic line, valve or cylinder be sure to turn off the hydraulic fluid flow, relieve the pressure and slowly crack or loosen the fittings.

DISASSEMBLY OF SLIDING TOP DOOR CYLINDER

1. Wash the mounting hardware and the outside of the cylinder assembly to prevent dirt and foreign matter from contaminating the cylinder components during disassembly.
2. Secure the case end of the cylinder to a work bench or floor mount and the rod end to an overhead lifting device with a minimum lifting capacity of 500 lbs. to ease the disassembly of parts.
3. Remove the plugs from the cylinder ports and drain the fluid.
4. Rotate the head gland and unscrew it from the cylinder case. Slowly operate the hoist to carefully pull the piston rod assembly out of the case.
5. Unscrew the piston nut from the rod and remove and discard the rod o-ring and piston seal.
6. Slide the head gland off the rod and discard the o-ring wiper seal and rod seal.

INSPECTION AND REPLACEMENT OF SLIDING TOP DOOR CYLINDER

1. Thoroughly inspect the inside of the cylinder for cracks, scoring or uneven wear.
2. Check all cylinder components and mounting parts for damage and wear and replace as required. Parts that must be replaced together (o-rings and seals) are available as a repair kit from your local authorized Leach Distributor.

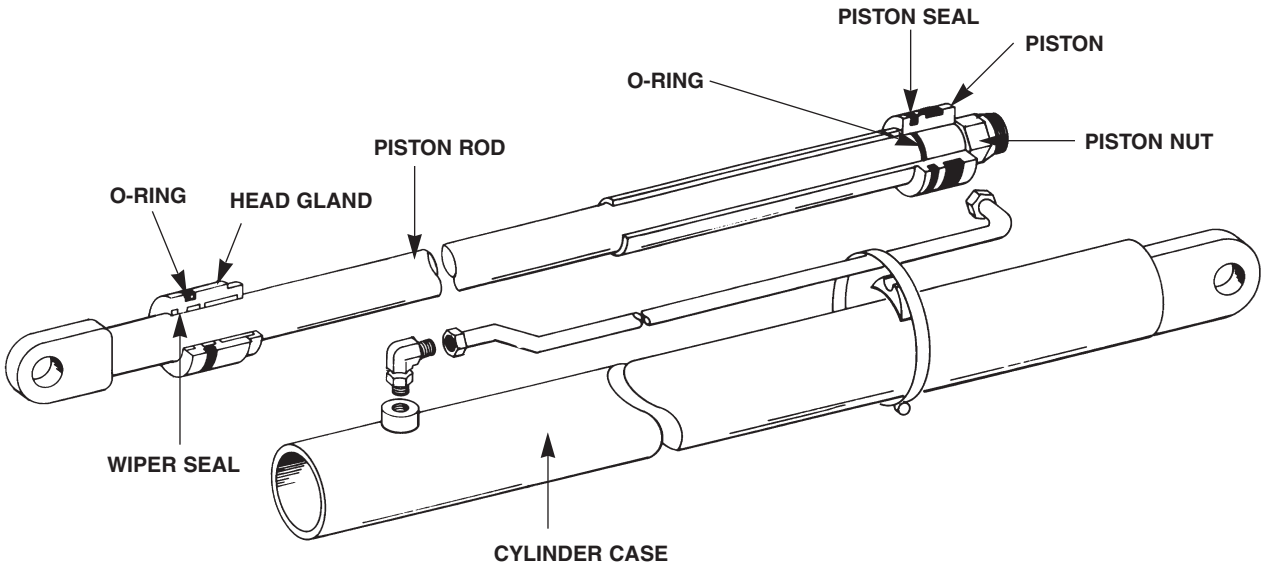
REASSEMBLY AND INSTALLATION OF SLIDING TOP DOOR CYLINDER

Coat all seals and o-rings with clean, fresh hydraulic fluid before reassembly. Reassemble and install the sliding top door cylinder in the approximate reverse order of disassembly.

When installing the piston to the rod torque the piston nut to 80-88 Ft. Lbs.

NOTE

If the cylinder is not to be installed immediately keep ports sealed to prevent dirt from entering the cylinder.



DESCRIPTION OF SLIDING TOP DOOR

The top door consists of one fabricated assembly to close the top of the body. The top door is controlled by a cylinder and opens and closes by operator action from the chassis cab.

REMOVAL OF SLIDING TOP DOOR

Operational Status	
Truck Off	Keys Removed

1. Disconnect the rod end of the top door cylinder as described earlier in this section.

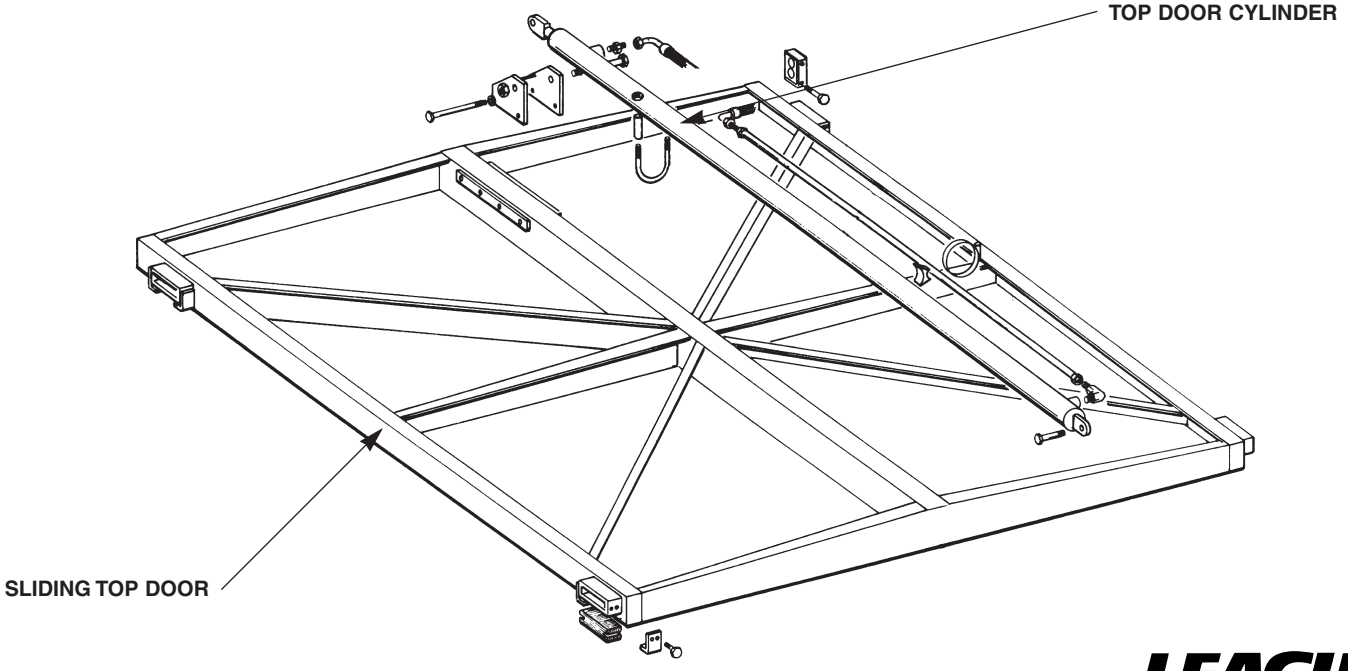
NOTE

See Section 4, GENERAL REPAIR PRACTICES, for more detailed information about the correct use of slings and lifting chains.

2. Attach chains connected to a suitable lifting device with a minimum lifting capacity of 1,000 pounds to the top door. Operate the lifting device no more than necessary to support the weight of the top door.
3. Remove the four (4) capscrews that retain the cylinder support and remove the support.
4. Remove the capscrews that retain the front bearing slide access covers.
5. Manually slide the door toward the rear and position the top door retainers in the access openings.
6. Operate the lifting device to lift the top door from the body.
7. Position the top door assembly on supports to allow inspection. The supports must be capable of holding 1,000 lbs.

INSPECTION AND REPLACEMENT OF SLIDING TOP DOOR

1. Inspect the top door for cracked welds or breaks. Repair any defective area following all the safety precautions pertaining to welding described in Section 4, GENERAL REPAIR PRACTICES.
2. Inspect the top door bearing slides for excessive wear and replace if necessary.
3. Install the top door in the approximate reverse order of removal.



DESCRIPTION OF HINGED TOP DOOR CYLINDERS

The two (2) hinged top door cylinders raise the hinged top door to load refuse into the hopper and close the hinged top door during transport. The case end is pinned to the roof of the body while the rod end is pinned to the hinged top door.

REMOVAL OF HINGED TOP DOOR CYLINDERS

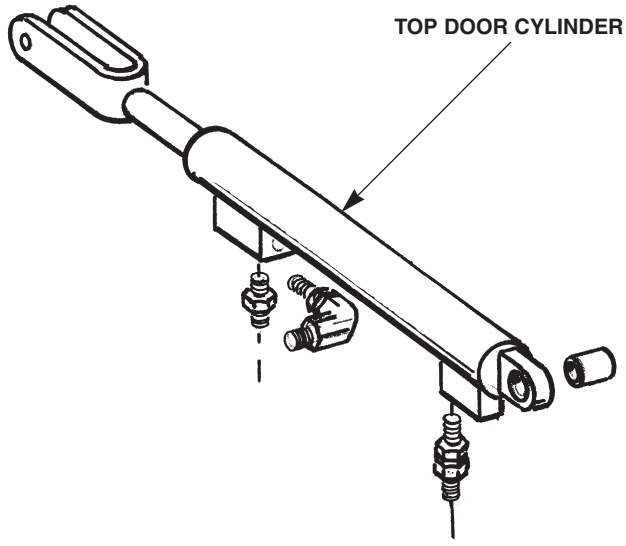
Operational Status	
Truck Off	Keys Removed

The hinged top door should be closed for removal of the hinged top door cylinders.

Remove the hydraulic hoses from the cylinder, loosening them slowly to relieve any built-up pressure. Plug the hoses to prevent contamination. Remove the pins from the case and the rod ends of the cylinder. Carefully remove the cylinder with the pilot check with relief valve still connected.

⚠CAUTION

Whenever disassembling any hydraulic line, valve or cylinder be sure to turn off the hydraulic fluid flow, relieve the pressure and slowly crack or loosen the fittings.



DISASSEMBLY OF HINGED TOP DOOR CYLINDERS

1. Wash the mounting hardware and the outside of the cylinder assembly to prevent dirt and foreign matter from contaminating the cylinder components during disassembly.
2. With the cylinder secured to a workbench or floor mount, remove the pilot check with relief valve, and plug all ports on the valve to prevent contamination. Attach the rod end of the cylinder to an overhead lifting device with a minimum capacity of 500 pounds to ease the disassembly.
3. Drain the hydraulic fluid from the cylinder.
4. Rotate the head gland and unscrew it from the cylinder case. Slowly operate the hoist to carefully pull the piston rod assembly out of the case.
5. Unscrew the piston nut from the rod and remove the piston assembly. Remove the discard the rod o-ring and backup ring, piston seal and wear rings.
6. Slide the head gland off the rod. Remove and discard the wear ring, buffer ring, U-cup and rod wiper ring. On some cylinders, the removal of a retainer ring may be necessary to remove the rod wiper ring.
7. Remove all of the plugs and orifices from the case of the cylinder and note their location. Clean the plugs and orifices and check them for dirt and wear.

INSPECTION AND REPLACEMENT OF HINGED TOP DOOR CYLINDERS

1. Thoroughly inspect the inside of the cylinder for cracks, scoring or uneven wear.
2. Check all cylinder components and mounting parts for damage and wear and replace as required. Parts that must be replaced together (o-rings and seals) are available as a repair kit from your local authorized Leach Distributor.

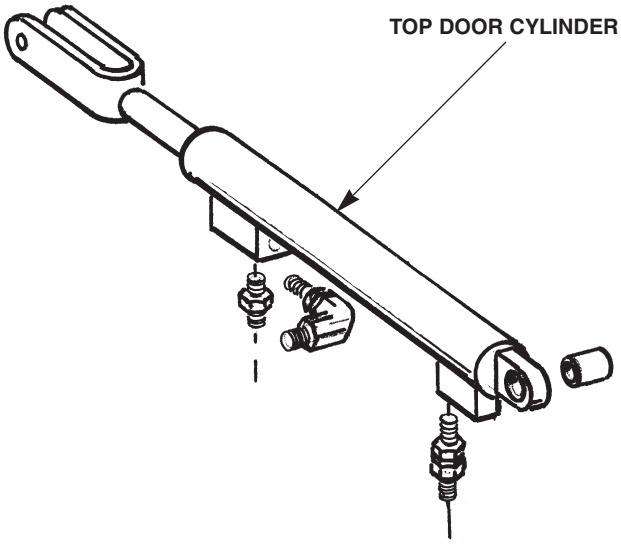
REASSEMBLY AND INSTALLATION OF HINGED TOP DOOR CYLINDERS

Coat all seals and o-rings with clean, fresh hydraulic fluid before reassembly. Reassemble and install the hinged top door cylinder in the approximate reverse order of disassembly. Pay particular attention to the proper relocation of all plugs and orifices in the cylinder case.

When installing the piston to the rod torque the piston nut to 25 Ft. Lbs.

NOTE

If the cylinder is not to be installed immediately keep ports sealed to prevent dirt from entering the cylinder.

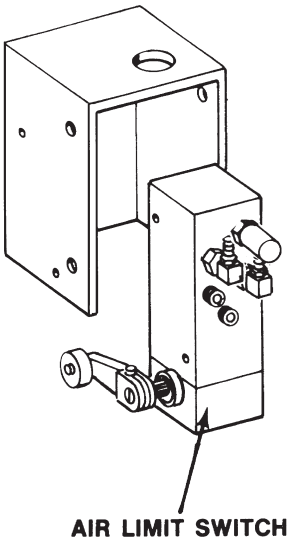


HINGED TOP DOOR ADJUSTMENTS

ADJUSTMENT OF THE AIR LIMIT SWITCH ON THE LIFT ARM PIVOT TUBE

Operational Status	
Truck Off	Keys Removed

The purpose of the air limit switch is, as the lift arms move upward, the switch is activated allowing air pressure to shift the top door section of the 5 spool control valve which allows fluid to flow to the rod end (open door) of the hinged top door cylinders. When the lift arms are being lowered and the switch is deactivated, the air pressure is removed from the top door section of the 5 spool control valve allowing the spool to shift back, allowing fluid to flow to the case end of the hinged top door cylinders, allowing the door to close. Adjusting the switch is accomplished by loosening the actuator band on the lift arm pivot tube and rotating the band to contact the air limit switch at the point preferred to start the hinged top door opening during lift arm up motion.



DESCRIPTION OF HINGED TOP DOOR

The hinged top door consists of one fabricated assembly to close the top of the body. The top door is controlled by two (2) hydraulic cylinders which pull the top door rearward and upward to open the hopper and push the top door forward and downward to close the hopper. The opening and closing of the hinged top door occurs automatically with the raising and lowering of the lift arms.

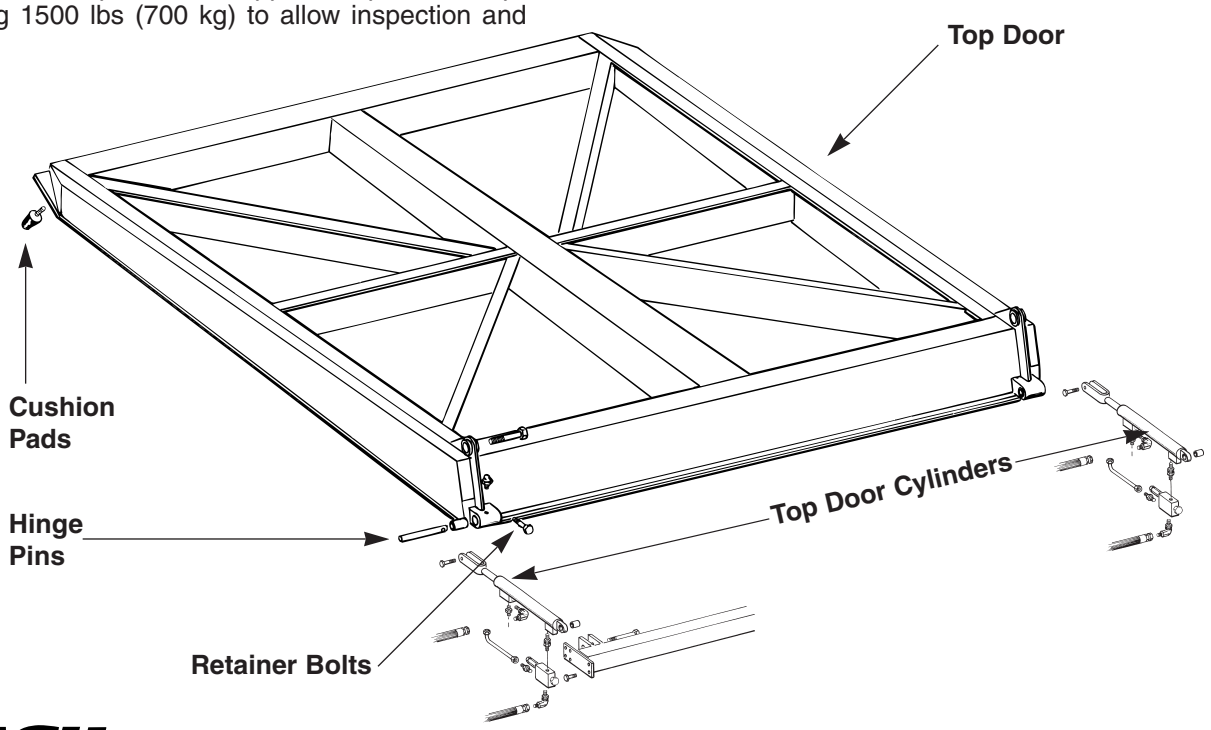
REMOVAL OF HINGED TOP DOOR

Operational Status	
Truck Off	Keys Removed

1. Remove the wind screens from both sides of the top door.
2. Disconnect the rod ends of the top door cylinders and secure them away from the top door.
3. Attach chains/slings to a suitable lifting device with a minimum capacity of 1500 lbs (700 kg) to the top door. Operate the lifting device no more than necessary to support the weight of the top door.
4. Locate and remove the hinge pin retainer bolts from both hinge pins.
5. Note the amount of shims and their location on the hinge pin. Remove the hinge pins and save the shims.
6. Operate the lifting device to remove the top door from the body.
7. Position the top door on supports capable of supporting 1500 lbs (700 kg) to allow inspection and repair.

INSPECTION & REPLACEMENT OF HINGED TOP DOOR

1. Inspect the top door for cracked welds and breaks. Pay special attention to the hinge areas. Repair or replace as needed.
2. Inspect the hinge bearings for excessive wear and replace if needed.
3. Check the cushion pads for excessive wear and replace if needed.
4. Reinstall the top door in the approximate reverse order of removal.



DESCRIPTION OF PACKING/EJECTION CYLINDER

This three stage, double-acting hydraulic cylinder compacts the refuse during loading and ejects it during the unloading operation. The case end of the cylinder is pinned to the lower portion of the packing/ejection panel, while the cylinder rod eye is pinned to the front of the body.

REMOVAL OF PACKING/EJECTION CYLINDERS

Operational Status	
Truck Running	PTO Engaged

1. Move the packing/ejection control to extend the telescopic cylinders and move the packing/ejection plate to the rear of the top door opening.
2. Open the top door.

Operational Status	
Truck Off	Keys Removed

NOTE

See Section 4, GENERAL REPAIR PRACTICES, for more detailed information about the correct use of slings and lifting chains.

3. Secure a nylon sling around the cylinder and attach it to a suitable lifting device with a capacity of at least 1,000 lbs. Operate the hoist to snug the sling.
4. Raise and support the tailgate as described earlier in this section.
5. Remove the pin access cover and the pin retaining capscrew from the face of the packer/ejection panel.
6. Make sure the cylinder is securely supported by the hoist and carefully remove the case end pin. Check for pivot pin or pin hub wear.

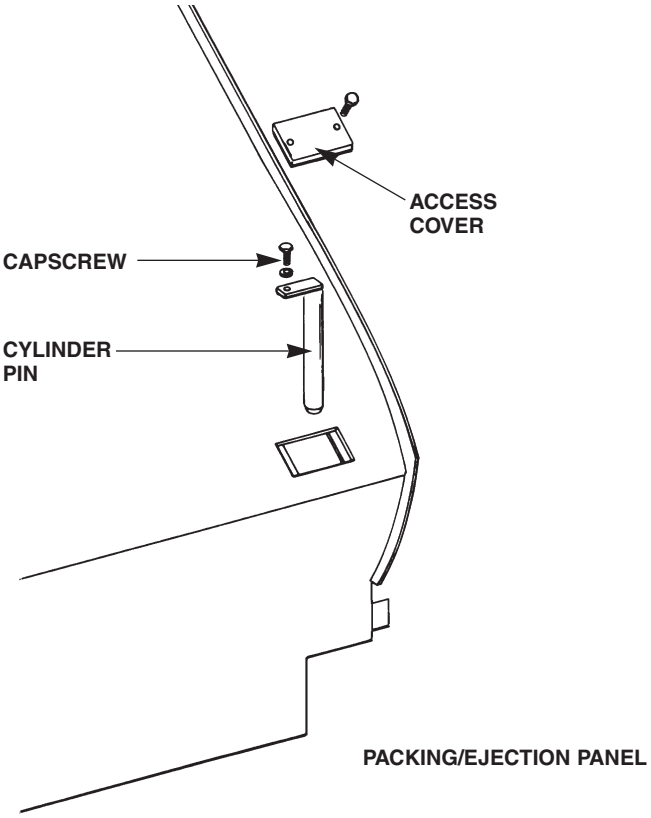
Operational Status	
Truck Running	PTO Engaged

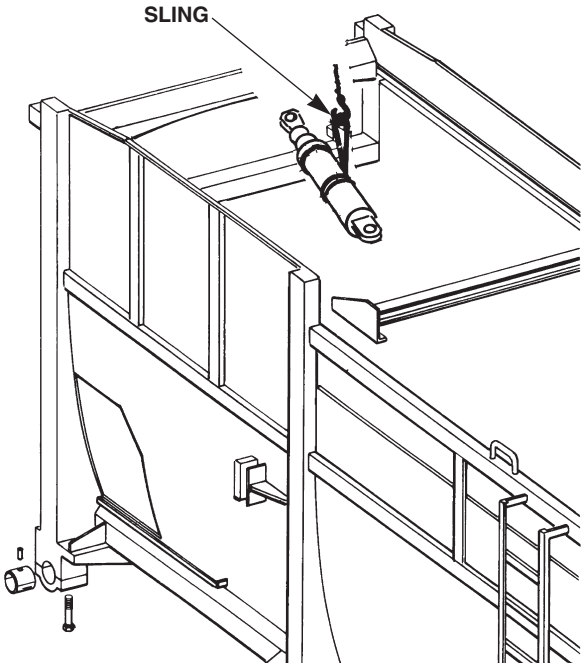
7. Slowly move the packing/ejection control to completely retract the cylinder.

Operational Status	
Truck Off	Keys Removed

⚠CAUTION

Whenever dismantling any hydraulic line, valve or cylinder, be sure to turn off the hydraulic fluid flow, relieve the pressure and slowly crack or loosen the fittings.

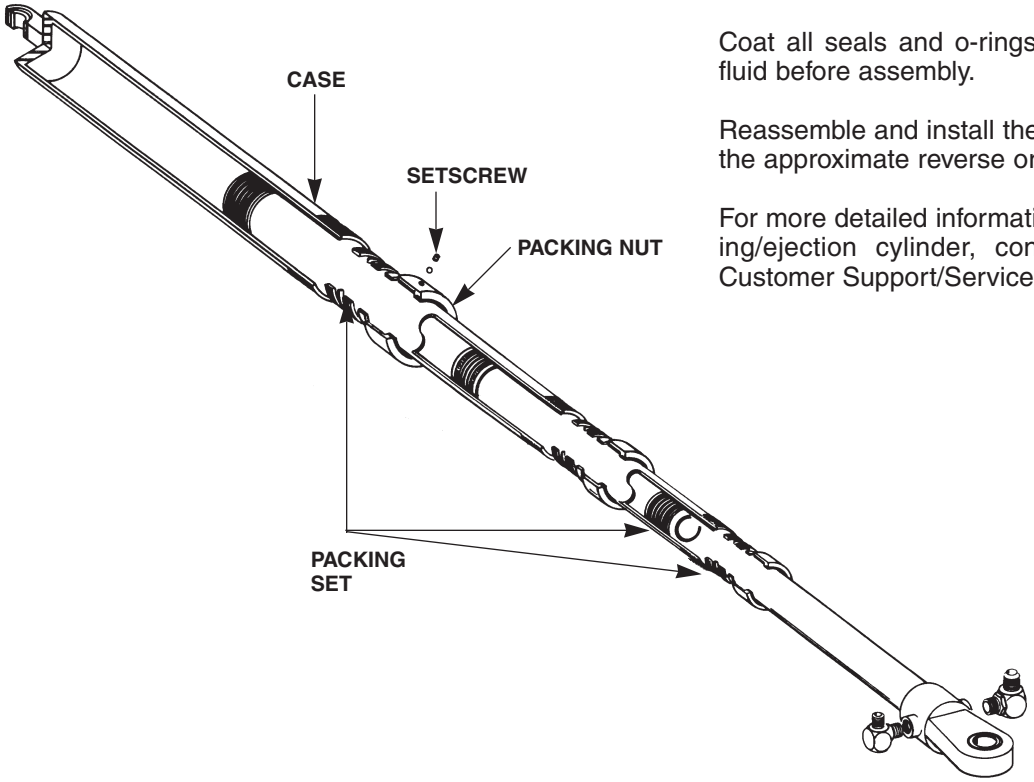




8. Disconnect both the case end and the rod end hoses. Immediately cap or plug hoses and cylinder ports to keep fluid in and dirt out.
9. Remove the capscrew from the rod end cylinder pin. Make sure the cylinder is securely supported by the hoist and carefully remove the pivot pin. Check for pivot pin or pin hub wear.

DISASSEMBLY OF PACKING/EJECTION CYLINDER

1. Wash the mounting hardware and the outside of the cylinder assembly to prevent dirt and foreign matter from contaminating the cylinder components during disassembly.
2. Secure the case end of the cylinder to a work bench or floor mount and the rod end to an overhead lifting device with a lifting capacity of 1,000 pounds to ease the disassembly of the cylinder.
3. Remove the plugs from the ports and drain the fluid.
4. Remove the setscrews from the packing nut and remove packing nut. Slowly operate the hoist to carefully pull the sleeve assembly from the cylinder.
5. Replace the packing set for each section.



INSPECTION AND REPLACEMENT OF CYLINDER

1. Thoroughly inspect the inside and outside of each section for cracks, scoring or uneven wear.
2. Check all cylinder components for damage and wear and replace as required.

NOTE

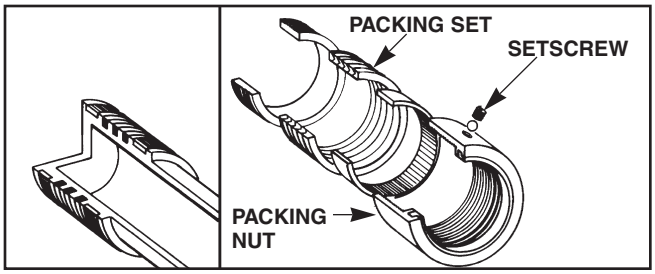
If the cylinder is not to be installed immediately keep ports sealed to prevent dirt from entering the cylinder.

REASSEMBLY AND INSTALLATION OF PACKING/EJECTION CYLINDER

Coat all seals and o-rings with clean, fresh hydraulic fluid before assembly.

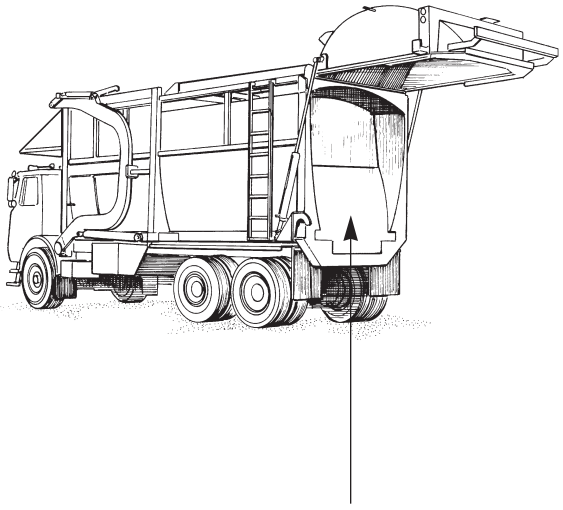
Reassemble and install the packing/ejection cylinder in the approximate reverse order of disassembly.

For more detailed information on servicing of the packing/ejection cylinder, contact the Leach Company Customer Support/Service Department.



DESCRIPTION OF PACKING/EJECTION PANEL

The packing/ejection panel is a moveable component which is used to compact refuse and eject it from the body. This plate slides on eight shoes and is moved rearward and forward by the packing/ejection cylinders.



REMOVAL OF PACKING/EJECTION PANEL

Operational Status	
Truck Running	PTO Engaged

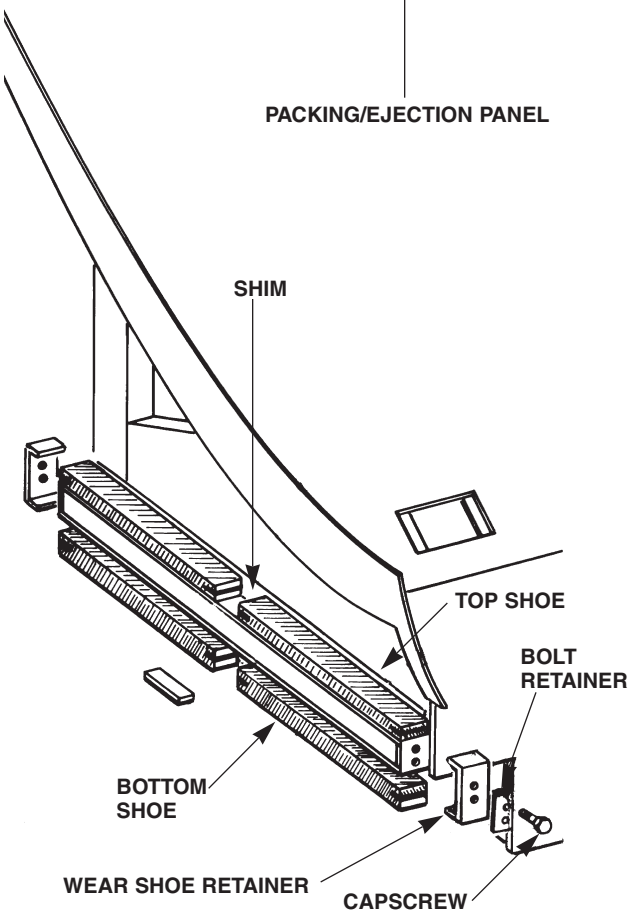
1. Raise tailgate to the full up position.
2. Extend the packing/ejection cylinders to move the packing/ejection panel to its rearmost position in the body.

Operational Status	
Truck Off	Keys Removed

⚠ DANGER

Do not work under a raised tailgate unless the tailgate is supported by stands or an overhead hoist capable of holding at least 4,000 lbs.

3. Disconnect the rod end of the packing/ejection cylinders and support cylinders as described earlier in this section.
4. Weld an eye to the center of the plate and attach a chain to prevent the plate from tipping over upon removal.
5. The packing/ejection panel can now be removed by sliding it from the body. The method of removal will depend upon equipment available. Whatever method is used, the equipment must be capable of lifting a minimum of 4,000 lbs. and the plate should be secured safely to the removing device.



INSPECTION AND REPLACEMENT OF PACKING/EJECTION PANEL

1. Inspect all portions of the packing/ejection panel assembly for bent components or broken welds.
2. Inspect the bottom and top shoes for wear. Shoes must be replaced before metal-to-metal contact occurs between the packing/ejection panel shoe retainers and the body floor or the packing/ejection panel weldment and the body floor.

INSTALLATION OF PACKING/EJECTION PANEL

1. Install the packing/ejection panel in the approximate reverse order of removal.
2. After installation, the top shoes may be shimmed.

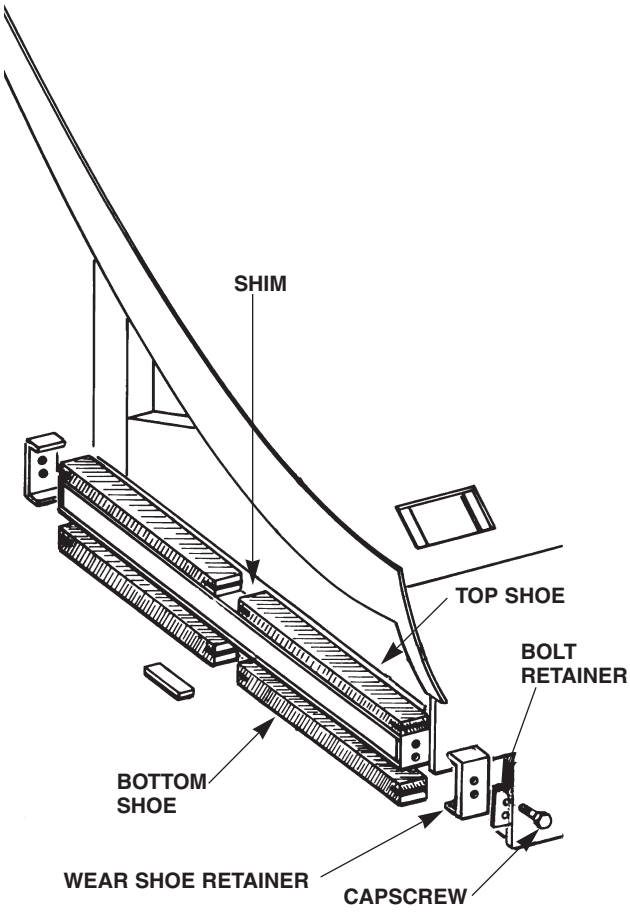
NOTE

Equal amounts of shims should be installed on both sides in order to ensure straight movement of the packing/ejection panel.

DESCRIPTION OF PACKING/EJECTION PANEL WEAR BLOCKS

The packing/ejection panel utilizes composite wear blocks for two functions – to provide a wear surface between the body track channels and packing/ejection panel, and to inhibit refuse bypass into the forward side of the packing/ejection panel.

The wear blocks should be replaced before there is metal to metal contact between the packing/ejection panel and the body sides, channels, floor or trough. They should be replaced in sets (all track channel wear blocks at the same time, all trough and floor wear blocks at the same time, and all side wear blocks at the same time).



REPLACEMENT OF THE TRACK CHANNEL WEAR BLOCKS

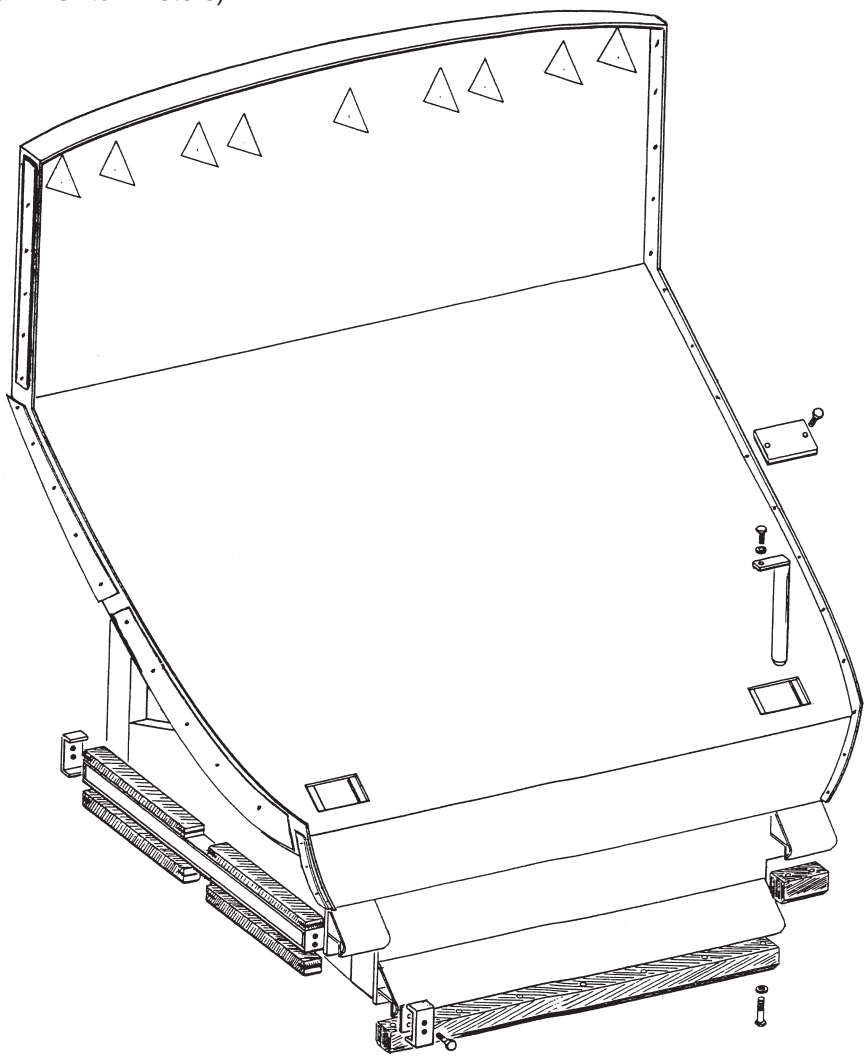
1. Pressure-wash the body track channels completely, and the packing/ejection panel lower side areas completely.
2. Remove the capscrews (8) fastening the wear block retainers, remove the wear block retainers.
3. Using a length of flat steel bar-stock, drive the upper rear track channel wear blocks out of the packing/ejection panel, by placing the bar-stock between the packing/ejection panel and body side near the center of the panel. Note the position and amount of any shims that may be located between the wear blocks and the mounting plates.
4. Remove the upper front track channel wear blocks by inserting the bar-stock through the opening left by the rear upper war block, and driving the blocks forward. Note the position and amount of any shims that may be located between the wear blocks and the mounting plates.
5. Using 1" cold chisels (4), raise the packing/ejection panel by driving the chisels under the panel near the lower track channel wear blocks.
6. Drive the lower wear blocks out in the same fashion as the upper wear blocks.
7. Thoroughly pressure wash the area between the packing/ejection panel and the body track channels, to completely remove any debris that may inhibit the installation of the new wear blocks.
8. Assemble in the approximate reverse order of the wear block removal. Reinstall any removed shims in the same locations that they were removed from.
9. Apply a liberal amount of an anti-seize compound to the wear block retainer capscrews and torque to 270 foot pounds (37 Newton meters).

REPLACEMENT OF THE TROUGH AND FLOOR WEAR BLOCKS

1. Remove the telescopic cylinders from the packing/ejection panel and slide the panel approximately 12 inches rearward to completely expose the trough and floor wear blocks (refer to “removal of packing/ejection panel”).
2. Using a 3/4" socket with extension, remove the wear block mounting capscrews (7) through the access holes on the bottom of the wear blocks.
3. Remove the wear blocks by prying downward on the wear block from either side. Note the position and amount of any shims that may be located between the wear blocks and the mounting plates.
4. Thoroughly clean the wear block mounting area.
5. Install the new wear blocks in the approximate reverse order of the wear block removal. Re-install any removed shims in the same locations that they were removed from.
6. Apply a liberal amount of anti-seize compound to the wear block mounting capscrews and torque to 39 foot pounds (5.4 Newton meters).

REPLACEMENT OF THE BODY SIDE WEAR BLOCKS

1. Thoroughly pressure wash the packing/ejection panel side areas.
2. Using an allen wrench, remove the side wear block mounting capscrews (30).
3. Remove the wear blocks by pulling rearward with an adjustable pliers.
4. Thoroughly clean the wear block mounting areas.
5. Install the new wear blocks in the approximate reverse order of the wear block removal.
6. Apply a liberal amount of an anti-seize compound to the wear block mounting capscrews and torque to 39 foot pounds (5.4 Newton meters).



DESCRIPTION OF CAB GUARD CYLINDER

One (1) single-acting hydraulic cylinder raises the cab guard to provide clearance so that the chassis cab may be tipped. The rod end is pinned to the cab guard and the cylinder case end ear is pinned to the front of the body.

TEST FOR LEAKING CAB GUARD CYLINDER

Since the cylinder is single acting, a breather is located on the rod end. Any fluid leaking from the breather is an indication of a leaking piston seal.

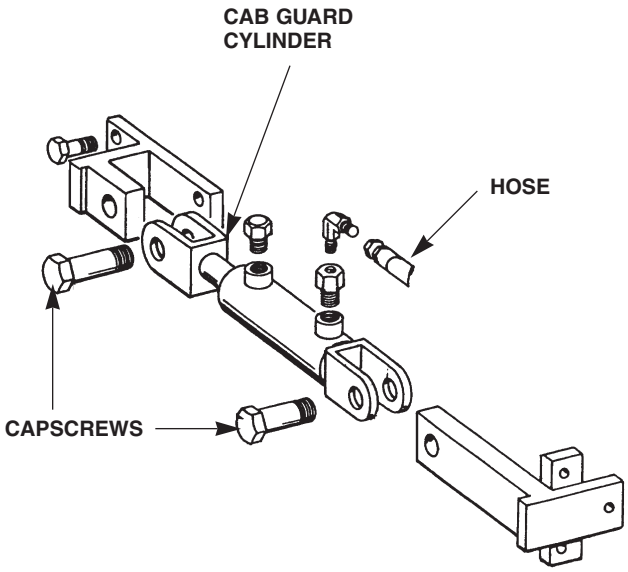
REMOVAL OF CAB GUARD CYLINDER

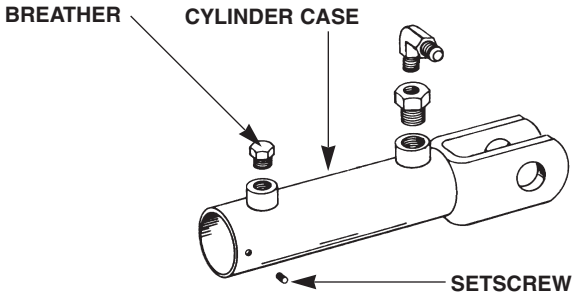
Operational Status	
Truck Off	Keys Removed

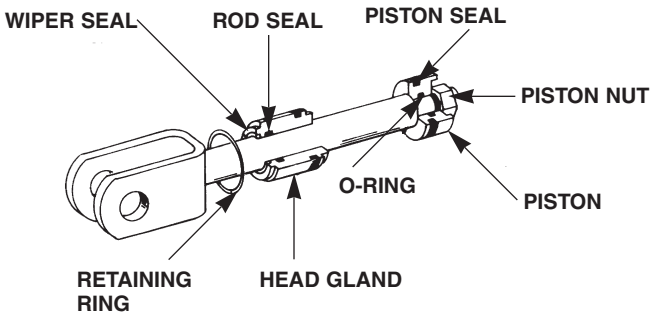
To remove the cylinder, relieve the pressure from the case end port and remove the hose. Unpin the rod and case ends of the cylinder and carefully remove the cylinder.

DISASSEMBLY OF CAB GUARD CYLINDER

1. Wash the mounting hardware and the outside of the cylinder assembly to prevent dirt and foreign matter from contaminating the cylinder components during disassembly.
2. Secure the case end of the cylinder to a work bench or floor mount and the rod end to an overhead lifting device with a minimum lifting capacity of 500 pounds to ease the disassembly.
3. Remove the plug from the cylinder port and drain the fluid.
4. Remove the head gland retaining ring. Use a drill with an internal grinding wheel to remove any burrs and/or rust from the internal groove on the cylinder case. Slowly operate the hoist to carefully pull the piston rod assembly out of the cylinder case.
5. Unscrew the piston nut from the rod and remove and discard the rod o-ring and piston seal.
6. Slide the head gland off the rod and discard the o-ring wiper seal and rod seal.







INSPECTION AND REPLACEMENT OF CAB GUARD CYLINDER

1. Thoroughly inspect the inside of the cylinder for cracks, scoring or uneven wear.
2. Check all cylinder components and mounting parts for damage and wear and replace as required. Parts that must be replaced together (o-rings and seals) are available as a repair kit from your local authorized Leach Distributor.

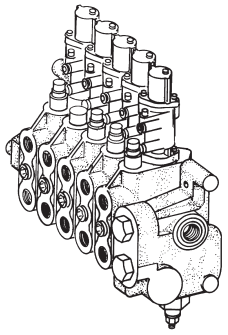
REASSEMBLY AND INSTALLATION OF CAB GUARD CYLINDER

Reassemble and install the cab guard cylinder in the approximate reverse order of disassembly.

NOTE

If the cylinder is not to be installed immediately keep ports sealed to prevent dirt from entering the cylinder.

DESCRIPTION OF 5-SPOOL CONTROL VALVE ASSEMBLY

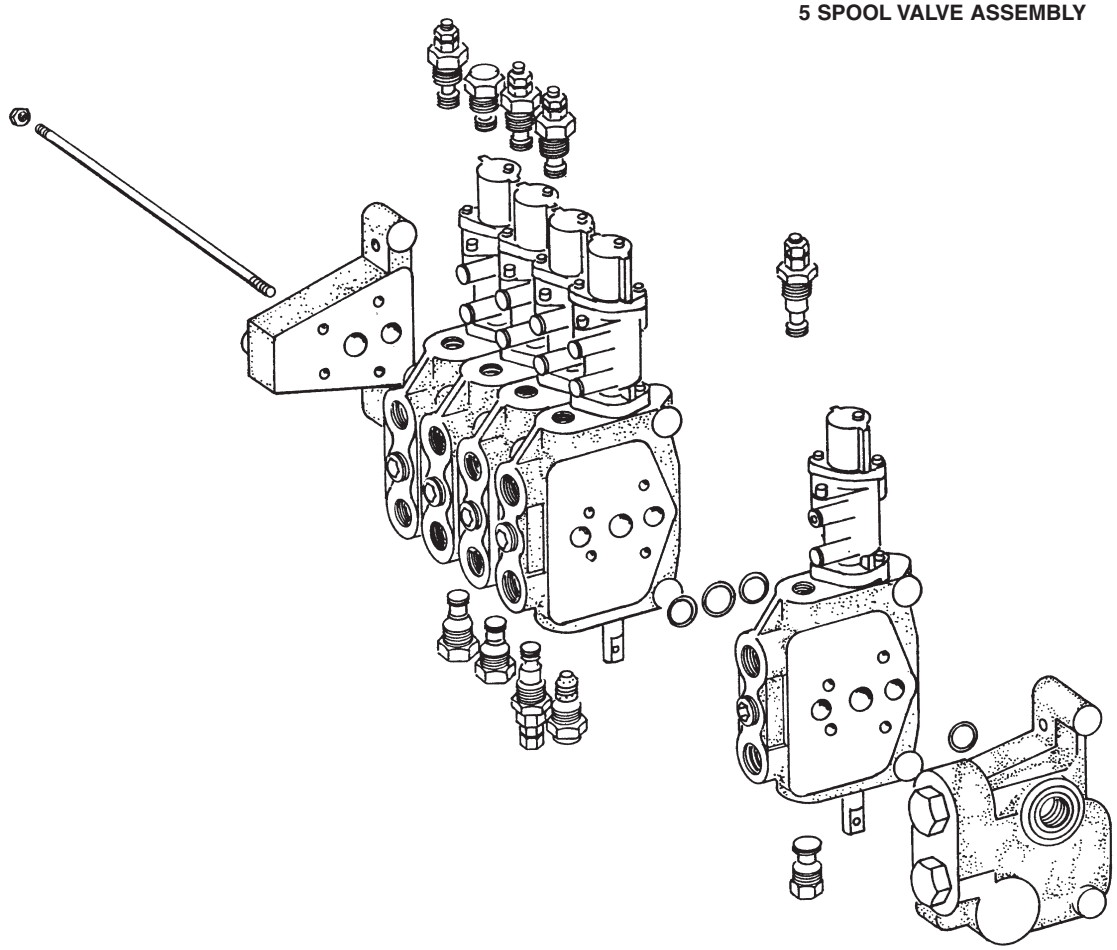


The 5-spool control valve assembly directs fluid to the various hydraulic components of the front loader. The valve also houses the main system relief valve for the unit. The valve is connected through an adjustable cable assembly to levers in the cab of the chassis, or is operated by the air actuators in the air control system.

REMOVAL OF THE 5-SPOOL CONTROL VALVE ASSEMBLY

1. Remove the cotter pin and clevis pin connecting the valve spools to the cable yokes.
2. If equipped with air controls remove air lines from pneumatic actuators at valve assembly.
3. Shut off the gate valve near the hydraulic tank.
4. Disconnect the hydraulic lines connected to the main control valve.
5. Remove the three (3) mounting capscrews.
6. Remove the valve assembly.

5 SPOOL VALVE ASSEMBLY



DISASSEMBLY OF 5-SPOOL CONTROL VALVE ASSEMBLY

1. Remove the tie rods and separate the valve sections.

NOTE

If only one valve section needs to be removed from the unit the tie rods may be removed and the single section withdrawn from the assembly.

DISASSEMBLY OF SPOOL SECTIONS

1. Prior to disassembly of the spool section, clean paint, dirt, burrs, etc. from the end of the spool.
2. Remove the spool end cap. The spool can now be withdrawn with the centering spring assembly still in place. Withdraw the spool carefully to avoid damaging seals.

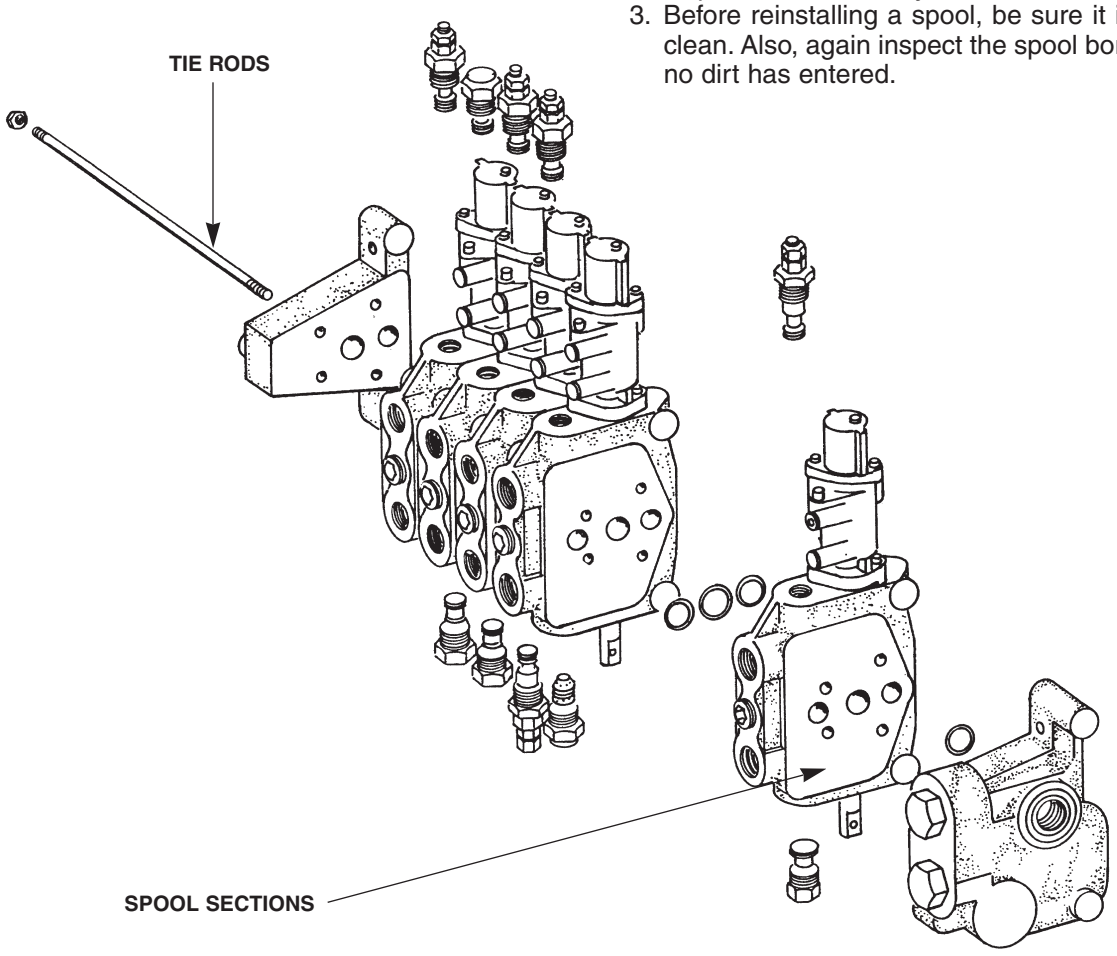
NOTE

For cleaning or inspection, this is probably as far as you will need to go.

3. If further disassembly is required, the centering spring assembly can be removed by removing the bolt.

INSPECTION OF VALVE SECTION

1. Use solvent to thoroughly clean all parts. Inspect the valve body spool bore for any slight burrs. The bore must be smooth. Remove burrs with crocus cloth.
2. Inspect all other parts for wear and damage. Replace as necessary.
3. Before reinstalling a spool, be sure it is absolutely clean. Also, again inspect the spool bore to be sure no dirt has entered.



DESCRIPTION OF PNEUMATIC ACTUATORS

The pneumatic actuator is installed on one end of the valve spool in place of the standard positioner. A manual lever can be used on the opposite end as an override to the actuator if required.

The pneumatic actuator is preassembled. Disassemble only as needed to proceed with the installation below.

ACTUATOR INSTALLATION

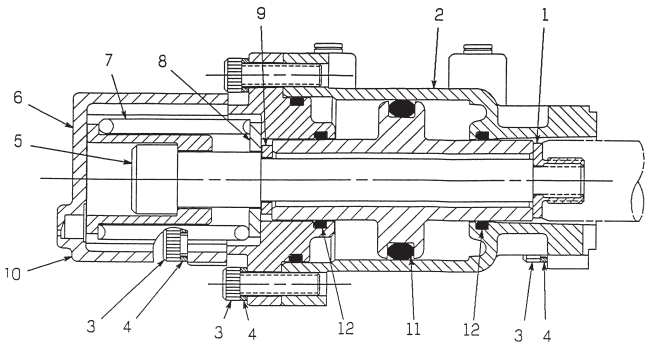
1. Remove the existing positioner from control valve. Do not remove the spool seal or seal plate.
2. Remove any oil film from both the internal and external threads of the adapter (ITEM 1). Apply supplied thread locking compound (medium strength anaerobic adhesive - Loctite 242 or equivalent) to both the internal and external threads of the adapter. Install the adapter on the spool and tighten to 11-14 ft. lb. torque.
3. Mount housing assembly (ITEM 2) on to the valve using 2 each of the provided screws (ITEM 3) and washers (ITEM 4) and tighten to 54-66 in. lb. torque.
4. Insert the shoulder bolt (ITEM 5) through the spring retainer (ITEM 6), centering spring (ITEM 7), washer (ITEM 8), and spacer (ITEM 9). Then insert the bolt through the housing assembly (ITEM 2) and install in the adapter (ITEM 1). Tighten to 11-14 ft. lb. torque.
5. Mount the bonnet (ITEM 10) over the center spring (ITEM 7) and onto the housing assembly (ITEM 2) using 2 each of the provided screws (ITEM 3) and washers (ITEM 4) and tighten to 54-66 in. lb. torque.

LUBRICATION

The pneumatic actuator comes prelubed. In the event the lubrication is wiped off, liberally apply a high temperature silicon based bearing grease with a NLGI #2 consistency to the piston seal (ITEM 11), two rod seals (ITEM 12) and all seal travel surfaces.

TESTING AFTER INSTALLATION FOR PERFORMANCE AND LEAKAGE

1. It is important that the actuator be tested after installation.
2. Apply a soap solution to all of the actuator joints, ports and connectors.
3. Reapply soap solution and repeat test while spool is being moved in the other direction.
4. If leakage is excessive, ensure that the joints are tight and that the installation is correct.
5. Verify that the spool moves easily through its entire travel range and that there is no evidence of sticking or binding. If binding is detected, the installation should be checked immediately. Failure to do so could result in improper actuation in the future and should be corrected.



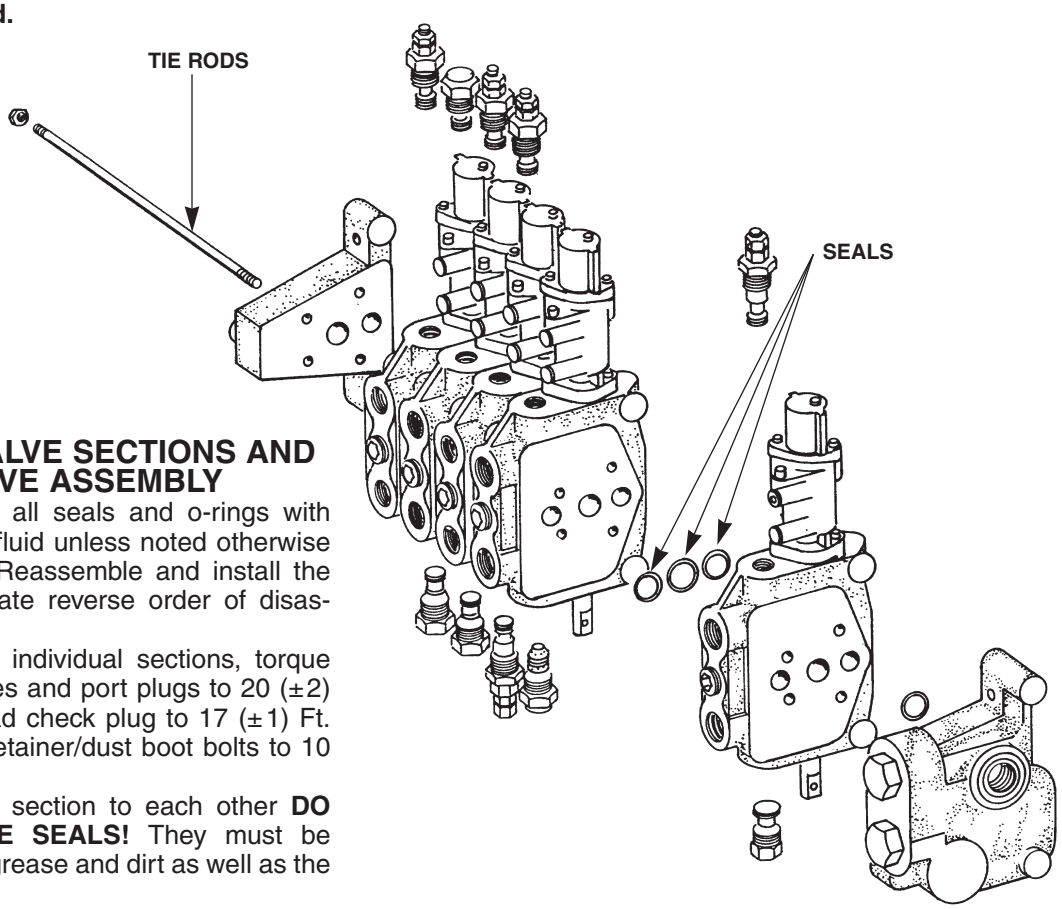
ITEM	DESCRIPTION	QTY.
1	Adapter	1
2	Housing Assembly	1
3	Screw, 1/4-20	6
4	Washer	6
5	Bolt, 3/8-16	1
6	Spring Retainer	1
7	Centering Spring	1
8	Washer	1
9	Spacer	1
10	Bonnet	1
11	Piston Seal	1
12	Rod Seal	1

DISASSEMBLY OF MAIN RELIEF SECTION

1. Remove the main relief cartridge from the valve.

⚠CAUTION

Do not attempt to disassemble the main relief cartridge. It is not field serviceable and must be replaced.



REASSEMBLY OF VALVE SECTIONS AND MAIN CONTROL VALVE ASSEMBLY

1. Before assembly coat all seals and o-rings with clean, fresh hydraulic fluid unless noted otherwise in these instructions. Reassemble and install the parts in the approximate reverse order of disassembly.
2. When assembling the individual sections, torque the port relief cartridges and port plugs to 20 (±2) Ft. Lbs. Torque the load check plug to 17 (±1) Ft. Lbs. Torque the seal retainer/dust boot bolts to 10 (±1) Ft. Lbs.
3. When assembling the section to each other **DO NOT LUBRICATE THE SEALS!** They must be completely free of oil, grease and dirt as well as the section surfaces.
4. Tighten the tie rod bolts evenly to prevent any distortion of the sections. Torque the tie rod bolts to 25 (±1) Ft. Lbs.
5. Lubricate the internal actuator seals liberally with Dow Corning #44 or equivalent grease. DO NOT use other types of grease. They may damage the internal components of the air logic system.
6. While installing the actuator to the valve section, apply type II, grade N (blue) thread locking compound to the threads of the fasteners. Tighten the bolts evenly to prevent binding. Torque the actuator retaining bolts to 10 (±1) Ft. Lbs.
7. When installing the shoulder bolt through the actuator into the spool end, apply type II, grade N (blue) thread locking compound to the threads. Torque this bolt to 11-14 Ft. Lbs.
8. Operate the valve sections manually in both directions before installation to ensure there is no binding of the spools.

INSTALLATION OF MAIN CONTROL VALVE ASSEMBLY

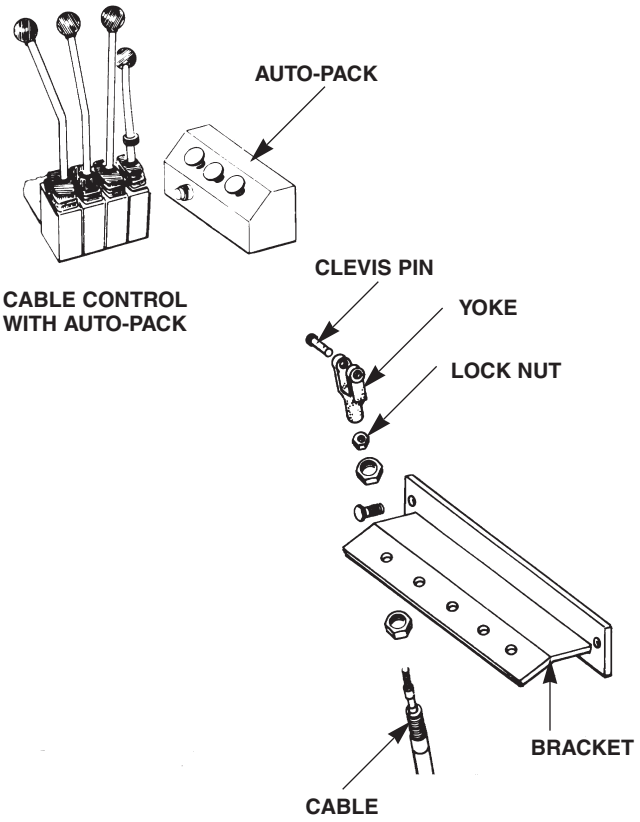
1. Secure the valve assembly to its mounting bracket with capscrews.
2. Connect all hydraulic lines and tighten securely.
3. Install the clevis and cotter pins between the cable clevis and spool ends.
4. Recheck the mail relief valve pressure as described under pressure checks, Section 7, CHECK-OUT.

NOTE

When reinstalling the spool into the valve section always install new o-rings to prevent leakage.

DESCRIPTION OF CONTROL LEVERS/ LINKAGE

The control levers located in the chassis cab on the driver's right side are used to control the operation of the Front Loader's loading functions. This assembly consists of the control levers in the cab and connecting cables to the front of the main control valve assembly.



REMOVAL/DISASSEMBLY OF CONTROL LINKAGE

Operational Status	
Truck Off	Keys Removed

1. To remove the control cables remove the cotter pin and clevis pin from the clevis. Loosen the locknut and remove the clevis.
2. After removing the clevis from the cable end, slide the cable through the bracket being careful not to damage the threads on the cable end.

INSTALLATION AND ADJUSTMENT

1. Install the cables in the approximate reverse order of removal.
2. Position the cable into the bracket and tighten the locknut. Put the nut onto the threaded end of the cable, turn the clevis onto the end of the cable. Reinstall the cotter pin and clevis pin.

DESCRIPTION OF LEACH HYDRAULIC PUMP

The pump that serves the complete hydraulic system is a gear type, driven via a yoke and driveshaft arrangement coupled to the engine crankshaft.

REMOVAL OF HYDRAULIC PUMP

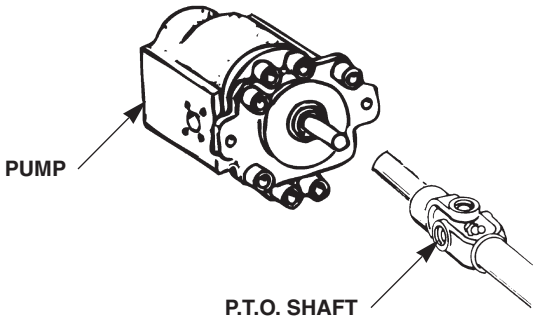
Operational Status	
Truck Off	Keys Removed

1. Close the gate valve near the hydraulic fluid tank.
2. Remove the hose clamp.
3. Remove the pump suction line and allow the fluid to drain.

NOTE

The pump suction line (tube and hose) will also be filled with hydraulic fluid. The pump and line may be drained into an absolutely clean container and the fluid poured back into the tank.

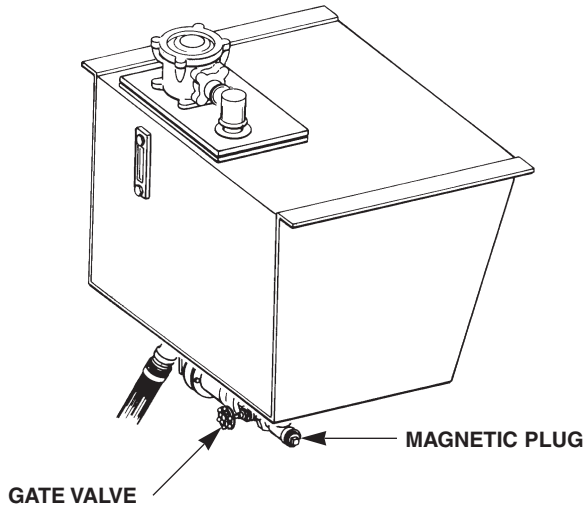
4. Disconnect the pressure hose at the pump & cap.
5. Loosen the setscrew and free the yoke from the pump shaft by telescoping the drive shaft toward the engine.
6. Remove the key from the pump shaft keyway.
7. Remove the attaching hardware and pump assembly from the mounting bracket.



NEW PUMP PREPARATION

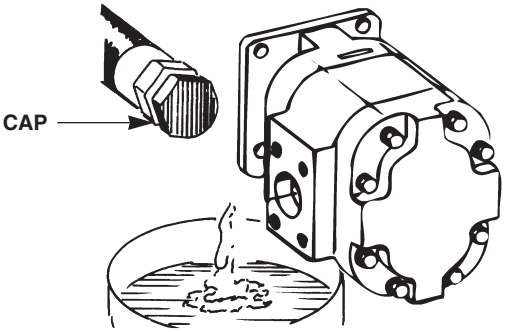
Before installing a new pump, refer to Section 6, PREVENTIVE MAINTENANCE and the following to prevent contamination of the new pump.

1. Remove and clean the hydraulic tank strainer.
2. Change the filter element.
3. Drain and flush the hydraulic tank as described in Section 6, PREVENTIVE MAINTENANCE.
4. Clean the magnetic plug.



INSTALLATION OF HYDRAULIC PUMP

1. Install the pump in the reverse order of removal. MAKE SURE suction and pressure lines are installed correctly. Tighten all mounting hardware and hose clamps.
2. Be sure to re-install any shaft guards that may have been removed.

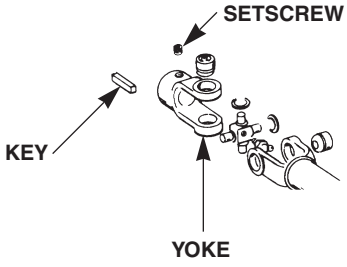


TESTING A NEW PUMP

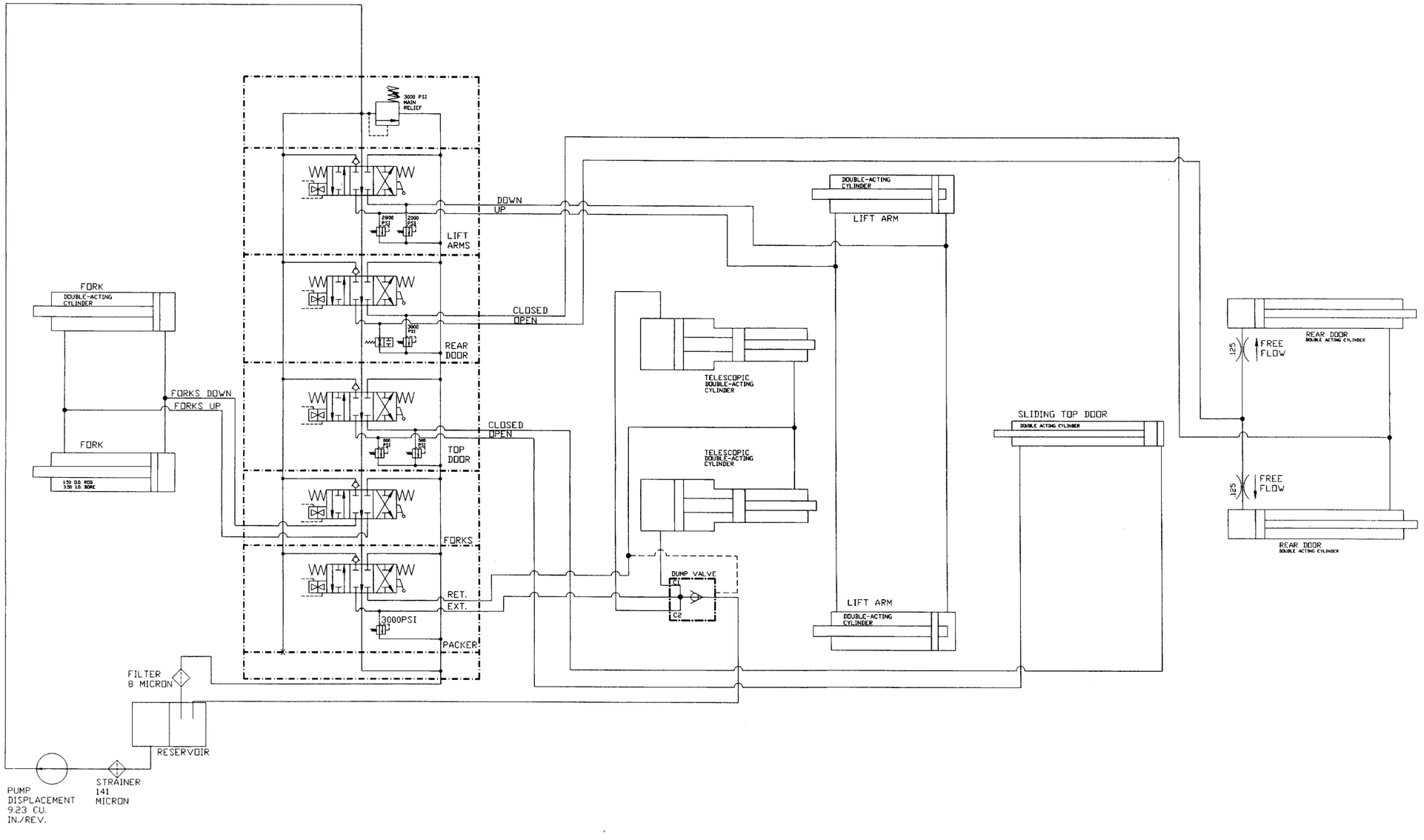
After installing a new pump, check for correct cycle time and main relief pressure as described in Section 7, CHECK-OUT.

NOTE

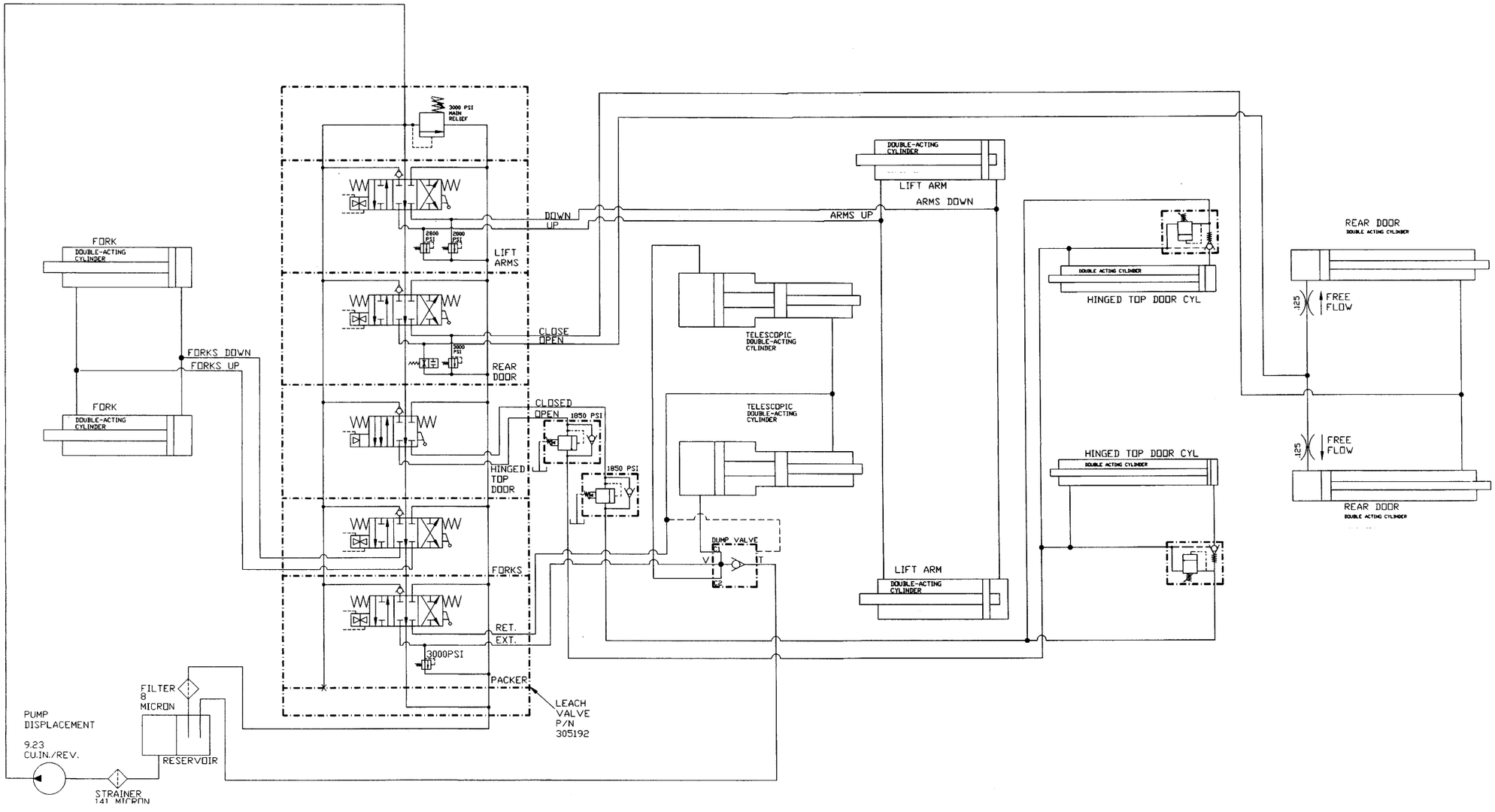
When replacing a hydraulic pump, the pump cavity should be filled with hydraulic fluid prior to its engagement.



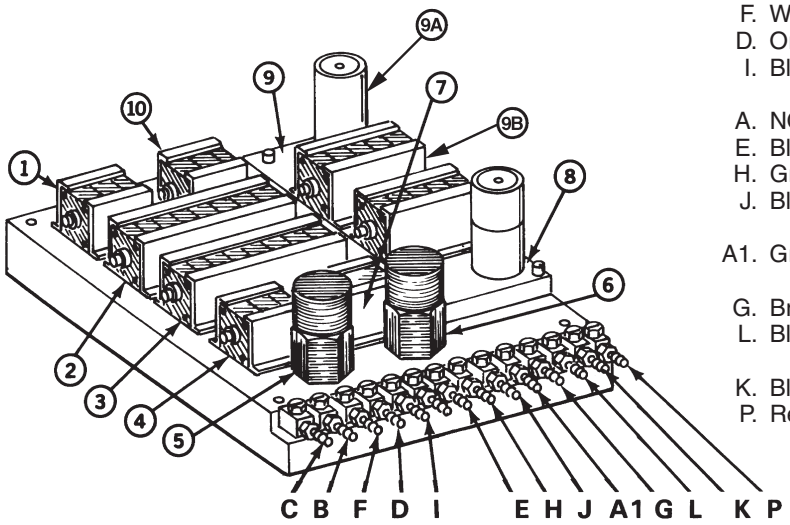
HYDRAULIC SCHEMATIC (SLIDING TOP DOOR)



HYDRAULIC SCHEMATIC (HINGED TOP DOOR)



AIR LOGIC CONTROL MODULE



C. Yellow – Emergency Stop Button Valve: Auto Pack Disable
B. Purple – Retract Button Valve: Auto Retract Enable, Manual Retract
F. White – Side Door Valve: Auto Pack Disable
D. Orange – Auto Reset Button Valve: Air Supply
I. Black – Main Control Valve Actuator (Lower): Tele. Extend
A. NOT USED
E. Blue – Auto Reset Button Valve: Auto Pack Disable
H. Gray – Home Position Limit Valve: Auto Pack to Neutral
J. Black – Main Control Valve Actuator (Upper): Tele. Retract
A1. Green – Auto Pack Button Valve: Auto Pack Enable, Manual Pack, Full Eject
G. Brown – Retract Limit Valve: Auto Pack to Auto Retract
L. Blue – Main Control Valve Actuator (Lower Port): Lift Arm Raise
K. Blue – Joystick Valve (Port L): Lift Arm Raise
P. Red – Air Supply

GENERAL

The Air Logic Control Module (ALCM) directs pneumatic control signals to shift the hydraulic control valve activating the telescopic packing/ejection cylinders. Features could include modules to restrict the movement of the lift arms (LIFT ARM LOCKOUT).

AIR LOGIC CONTROL MODULE (ALCM) COMPONENTS KEY

1. Shuttle Valve #2 (SV2): To Tele Extend.
2. Relay Valve #1 (RV1): Extend/Retract Select.
3. Relay Valve #3 (RV3): Auto Mode Disable/Enable
4. Shuttle Valve #1 (SV1): To Side Door/E-Stop Inhibit.
5. Pressure Switch #1 (PS1): Side Door Open Indicator.
6. Pressure Switch #2 (PS2): Packer Panel Position Indicator.
7. Relay Valve #2 (RV2): Home Position Reset.
8. Lift Arm Lockout Module
   - A. Solenoid 2 (SOL2): RV5 Control.
   - B. Relay Valve #5 (RV5): L.A. Lockout Inhibit.
9. Packer Lockout
   - A. Solenoid 1 (SOL1): RV4 Control.
   - B. Relay Valve #4 (RV4): Packer Panel Inhibit.
10. Shuttle Valve #3 (SV3): To Tele Retract.

NOTE

Individual components are labeled on the ALCM.

NOTE

Module 8 is a requested feature. All other components are standard.

PNEUMATIC CONTROLS

HOME POSITION

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action
The operator starts the unit, engages the PTO and has at least 100 PSI in the chassis air system.

PNEUMATIC SYSTEM

With the side door closed, air is also available to the auto-pack and retract palm buttons. With the packing/ejection panel in the home position, air flows from the packer home limit valve through port “H” on the ALCM to RV2 and PS2 (turning on the packing/ejector panel home indicator light, packing/ejection panel partially extended light turns off). Air also flows from the auto reset button through port “D” on the ALCM to RV3.

AUTO-PACK: EXTEND

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action
The operator depresses the “green” packing/ejection button.

PNEUMATIC SYSTEM

A continuous air signal is sent through port “A1” on the ALCM to pilot port “B” on RV4 and pilot port “A” on RV1. RV4 shifts, sending an air signal to pilot port “B” on RV3, enabling the auto mode. RV1 provides a continuous air signal through SV2 out port “I” on ALCM to the air actuator on the main control valve, extending the telescopic cylinders. As the packing/ejection panel extends from the home position, the air supply to RV2 and PS2 through port “H” is discontinued. The packer panel home light is turned off and the packer panel partially extended light is turned on. SOL1 is energized to allow continuous air flow from RV4.

PACKING/EJECTION PANEL CLEARS HOPPER AREA, TELESCOPIC CYLINDER ACTIVATES PACKER RETRACT LIMIT VALVE

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action
None.

PNEUMATIC SYSTEM

The packer retract limit valve sends an air signal through port “G” on the ALCM to pilot port “B” on RV4 and pilot port “B” on RV1. RV4 shifts, discontinuing the air supply from port “A1” on the ALCM. RV1 shifts, sending a continuous air signal to pilot port “A” on RV2 and through SV3 out port “J” on the ALCM to the air actuator on the main control valve, automatically retracting the telescopic cylinders.

PACKING/EJECTION PANEL RETURNS TO HOME POSITION

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action
None.

PNEUMATIC SYSTEM

Packing/ejection panel returns to home position, actuating the home position limit valve, which sends an air signal through port “H” on ALCM, through RV2 to pilot port “A” on RV3. This terminates the continuous air supply from RV3 to RV1 and resets RV2 for the next packing cycle. The air signal from the home position limit valve also goes to PS2, turning the packing/ejection panel home position light on.

EJECTION

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action
The operator holds down the green packing/ejection button before the midway point of the auto-pack function and continues to depress the packing/ejection button until the packing/ejection panel reaches the extreme rear of the refuse body.

PNEUMATIC SYSTEM

Depress and hold the green auto-pack palm button.A continuous air signal is sent through port “A1” on the ALCM to pilot port “B” on RV4 and pilot port “A” on RV1. RV4 shifts, sending an air signal to pilot port “B” on RV3, enabling the auto mode. RV1 provides a continuous air signal through SV2 out port “I” on ALCM to the air actuator on the main control valve, extending the telescopic cylinders. As the packing/ejection panel extends from the home position, the air supply to RV2 and PS2 through port “H” is discontinued. The packer panel home light is turned off and the packer panel partially extended light is turned on. SOL1 is energized to allow continuous air flow from RV4. When the auto-pack button is released, the air logic system automatically shifts to packing/ejection panel retract mode.

SIDE DOOR OPEN: WITH PACKING/EJECTION PANEL HOME

NOTE

When the side door is closed, the auto reset valve must be depressed to shift the ALCM back into the auto-pack mode.

Operator Action
None.

PNEUMATIC SYSTEM

When the side door is opened a continuous air signal from the side door switch is sent through port “F” on the ALCM to PS1 (turning on the side door open light), and through SV1 to pilot port “A” on RV3. The same air signal continues through port “E” to the pilot port “B” on the auto reset valve, cutting off the air supply to RV3. Air supplied from the side door switch to the auto-pack extend and retract palm buttons is also cut off.

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

LIFT ARMS MOVING UP

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator action
The operator moves the joystick control handle to the lift arms up position.

PNEUMATIC SYSTEM

When the joystick control handle is moved, chassis supply air flows in from the red line, through the joystick valve and flows through a blue line to the air actuator on the lift arm work section of the 5 spool hydraulic control valve.

NOTE

The operational speed of the lift arm cylinders can be controlled by “feathering” the joystick control handle. The joystick control is a self-centering valve. Movement of the lift arm cylinders may be stopped by releasing the joystick control handle.

LIFT ARMS MOVING DOWN

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action
The operator moves the joystick control handle to the lift arms down position.

PNEUMATIC SYSTEM

When the joystick control handle is moved, chassis supply air flows in from the red line, through the joystick valve and flows through a blue line to the air actuator on the lift arm work section of the 5 spool hydraulic control valve.

NOTE

The operational speed of the lift arm cylinders can be controlled by “feathering” the joystick control handle. The joystick control is a self-centering valve. Movement of the lift arm cylinders may be stopped by releasing the joystick control handle.

PNEUMATIC CONTROLS

FORKS MOVING UP

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action

The operator moves the joystick control handle to the forks up position.

PNEUMATIC SYSTEM

When the joystick control handle is moved, chassis supply air flows in from the red line, through the joystick valve and flows through an orange line to the air actuator on the fork work section of the 5 spool hydraulic control valve.

NOTE

The operational speed of the lift arm cylinders can be controlled by "feathering" the joystick control handle. The joystick control is a self-centering valve. Movement of the lift arm cylinders may be stopped by releasing the joystick control handle.

FORKS MOVING DOWN

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action

The operator moves the joystick control handle to the forks down position.

PNEUMATIC SYSTEM

When the joystick control handle is moved, chassis supply air flows in from the red line, through the joystick valve and flows through a orange line to the air actuator on the fork work section of the 5 spool hydraulic control valve.

NOTE

The operational speed of the lift arm cylinders can be controlled by "feathering" the joystick control handle. The joystick control is a self-centering valve. Movement of the lift arm cylinders may be stopped by releasing the joystick control handle.

SLIDING TOP DOOR OPEN

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action

The operator moves the top door toggle switch upward to the top door open position.

PNEUMATIC SYSTEM

When the top door toggle switch is moved upward to the top door open position, chassis supply air flows in from the red line, through the top door valve and flows through a green line to the air actuator on the top door work section of the 5 spool hydraulic control valve.

NOTE

The top door toggle switch is a spring-centered valve. Movement of the top door may be stopped by releasing the top door toggle switch.

SLIDING DOOR CLOSED

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action

The operator moves the top door toggle switch downward to the top door close position.

PNEUMATIC SYSTEM

When the top door toggle is moved downward to the top door close position, chassis supply air flows in from the red line, through the top door valve and flows through a green line to the air actuator on the top door work section of the 5 spool hydraulic control valve.

NOTE

The top door toggle switch is a spring-centered valve. Movement of the top door may be stopped by releasing the top door toggle switch.

TAILGATE OPEN

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action
The operator moves the tailgate toggle switch upward to the tailgate open position.

PNEUMATIC SYSTEM

When the tailgate toggle switch is moved upward to the tailgate open position, chassis supply air flows in from the red line, through the tailgate valve and flows through a yellow line to the air actuator on the tailgate work section of the 5 spool hydraulic control valve.

NOTE

The tailgate toggle switch is a spring-centered valve. Movement of the tailgate may be stopped by releasing the tailgate toggle switch.

TAILGATE CLOSE

NOTE

Chassis supply air is available to the E stop, side door switch, auto reset, packer home and packer retract limit valves at all times.

Operator Action
The operator moves the tailgate toggle switch downward to the tailgate close position.

PNEUMATIC SYSTEM

When the tailgate toggle switch is moved downward to the tailgate close position, chassis supply air flows in from the red line, through the tailgate valve and flows through a yellow line to the air actuator on the tailgate work section of the 5 spool hydraulic control valve.

NOTE

The tailgate toggle switch is a spring-centered valve. Movement of the tailgate may be stopped by releasing the tailgate toggle switch.

BASIC CHECKS

Before diagnosing the air logic control module (ALCM) a few basic checks should be made to ensure that the other components of the system are functioning properly. Most of the auto packing malfunctions are caused by components other than the ALCM:

Auto-pack control valves. Located in the cab, and include the auto-pack (green), retract (black), emergency stop (red) and auto-reset (green flat-topped) button valves. Operate them to ensure that they work smoothly with no leaking.

Home and retract limit valves. Located at the right front of the body on the outside of the front bulkhead, covered by a metal box type canopy. Check them for damage, correct adjustment and smooth operation. Make sure the immediate area of these valves is free of refuse.

Main control valve actuator. Located on top of the five (5) spool valve, it controls the shifting of the hydraulic valve spool. Check if the valve spool is shifting fully and returning to neutral freely. Check for any air bypassing around the actuator piston seal. Ensure the internal surfaces of the actuator are free of dirt and lubricated with Dow Corning #44 or equivalent. DO NOT USE ANY OTHER LUBRICANT! Damage to the ALCM may result.

Air regulator. Located on the left chassis frame rail between the hydraulic reservoir and the front tandem axle. Check that there is no liquid in the clear separator and drain if necessary. Check the gauge—at full system pressure it should read 105 PSI.

Pressure protection valve. Located on the air supply reservoir, this valve will disable the Leach pneumatic system if system pressure drops below 70 PSI. Check for proper operation.

Air lines and fittings. These are the multi-colored poly lines used throughout the system. Check for any kinks, plugs or breaks. Check the lines at the fittings for leaks and secure connections. Pay particular attention to the air lines (black) leading to the air actuator on the main control valve. These are secured by push-lock type connectors. Make sure they are completely inserted into the connectors and the push-locks are holding them in place.

Proximity switches. Located on each tailgate latch mechanism (2), they control the auto-pack/full-eject lockout. Check for proper operation and adjustment. See Section 11, ELECTRICAL.

PNEUMATIC CONTROLS

ALCM DIAGNOSTIC PROCEDURES

Before attempting to diagnose the ALCM valve array perform the BASIC CHECKS listed in this section. Once those have been eliminated check the ALCM auto-pack board for any external cracks or splits that might cause a loss of air pressure.

If the ALCM auto-pack board is free of any external leaks, remove the four (4) capscrews that fasten the ALCM to the main service panel and view the bottom of the board. Visually check for any internal cracks or splits between the visible air passages in the ALCM auto-pack board. Also look for any plugged or restricted passages.

If the ALCM auto-pack board appears to be satisfactory proceed with the following diagnostic procedures, following the steps by the particular malfunction you are experiencing.

NOTE

Use the pneumatic schematics in this section to aid in the location of various components.

The shuttle and relay valves on the ALCM are equipped with buttons on each end to manually shift the individual valve. The relay valves have a silver button on one end and a blue button on the other end. The shuttle valves have white buttons on both ends.

When referring to “top” or “bottom” the top of the valves are facing the packer and, if applicable, the lift arm lockout module(s).

Packing/ejection panel in home position; auto-pack will not engage. Push and hold the blue button on RV2. If no response push the top button on SV2.

Packing/ejection panel will not stop at the auto-pack limit. Push and hold the blue button on RV1.

Packing/ejection panel at the auto-pack limit position; auto retract will not engage. Push and hold the blue button on RV1. If no response push and hold the silver button on RV4 (packer lockout module). If no response push and hold the blue button on RV3. If no response push and hold the bottom button on SV3.

Packing/ejection panel finishes auto-pack/retract cycle, will not disengage at the home position. Push and hold the silver button on RV2. If no response push and hold the silver button on RV3. If no response push and hold the bottom button on SV2,

Packing/ejection panel full-ejects; will not auto-retract. Push and hold the blue button on RV3. If no response push and hold the silver button on RV4 (packer lockout module). If no response push and hold the blue button on RV1. If no response push and hold the bottom button on SV3.

Packing/ejection panel is able to full-eject with the tailgate closed. Push and hold the silver button on RV4 (packer lockout module). If no response check SOL1 (packer lockout module) for malfunction. See Section 11, ELECTRICAL.

Packing/ejection panel will not extend beyond auto-pack limit with the tailgate open (full-eject). Push and hold the blue button on RV4 (packer lockout module). If no response push and hold the silver button on RV2. If no response push and hold the silver button on RV3. If no response check SOL1 (packer lockout module) for malfunction. See Section 11, ELECTRICAL.

Emergency stop button valve engaged, will not stop the auto-pack cycle. Push and hold the bottom button on SV1. If no response push and hold the silver button on RV3.

Auto-pack cycle can be engaged with the side door open. Push and hold the top button on SV1. If no response push and hold the silver button on RV3.

Auto-pack cycle cannot be resumed after the auto-reset button valve is engaged. Push and hold the blue button on RV3.

Packing/ejection panel will not move in manual pack mode. Push and hold the blue button on RV4 (packer lockout module). If no response push and hold the bottom button on SV2.

Packing/ejection panel will not move in manual retract mode. Push and hold the top button on SV3.

LIFT ARM LOCKOUT DIAGNOSTIC PROCEDURES (if so equipped)

Lift arms will not raise with the packing/ejection panel in the home position. Push and hold the silver button on RV5 (lift arm lockout module). If no response check SOL2 (lift arm lockout module) for malfunction. See Section 11, ELECTRICAL.

Lift arms are able to raise with the packing/ejection panel out of the home position. Check SOL2 (lift arm lockout module) for malfunction. If no response push and hold the blue button on RV5 (lift arm lockout module).

These procedures may not be all-inclusive. At times, there may be a combination of valves malfunctioning, or a combination of symptoms not listed in this manual. For more assistance call your local authorized Leach Distributor or the Leach Company Customer Support/ Service Department.

PNEUMATIC JOYSTICK SERVICE

The joystick assembly is a serviceable component of the pneumatic system. Many parts of the joystick assembly are available through your local authorized Leach Distributor.

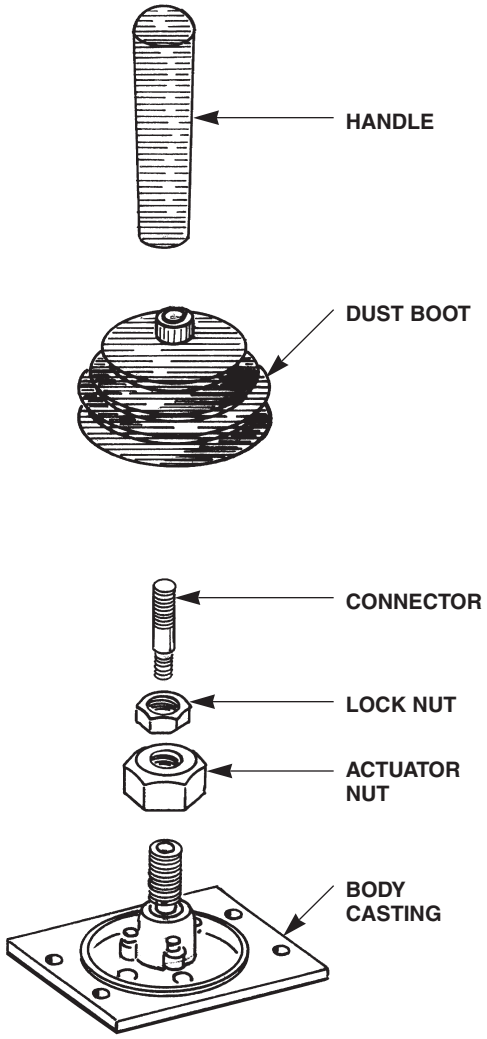
When servicing the joystick, remove it from the control console and clean the outside thoroughly to avoid contamination during disassembly.

DISASSEMBLY OF THE JOYSTICK

NOTE

There are many small components inside of the joystick assembly! Note the position and location of all parts during disassembly.

1. Secure the joystick valve body to a workbench, taking care not to damage the body casting.
2. Grasp the joystick control lever and rotate it counter-clockwise to unscrew it from the ball socket assembly. Remove the joystick control lever and the dust boot.
3. Remove the four (4) phillips head capscrews from the top of the ball socket assembly and remove the assembly from the valve body. Retain the four (4) valve actuator pins for reassembly. Retain the pillow block support, spring washer and the pillow block for reassembly. The pillow block and spring washer are included in the seal kit. Retain only the pillow block support.
4. With adjustable pliers, carefully grasp the four (4) black plastic collars protruding from the top of the valve, one at a time, and slowly pull them out of the valve body. Note the location of all parts for reassembly. Turn the valve body upside-down to remove the U-cup assembly and return spring from the valve body.



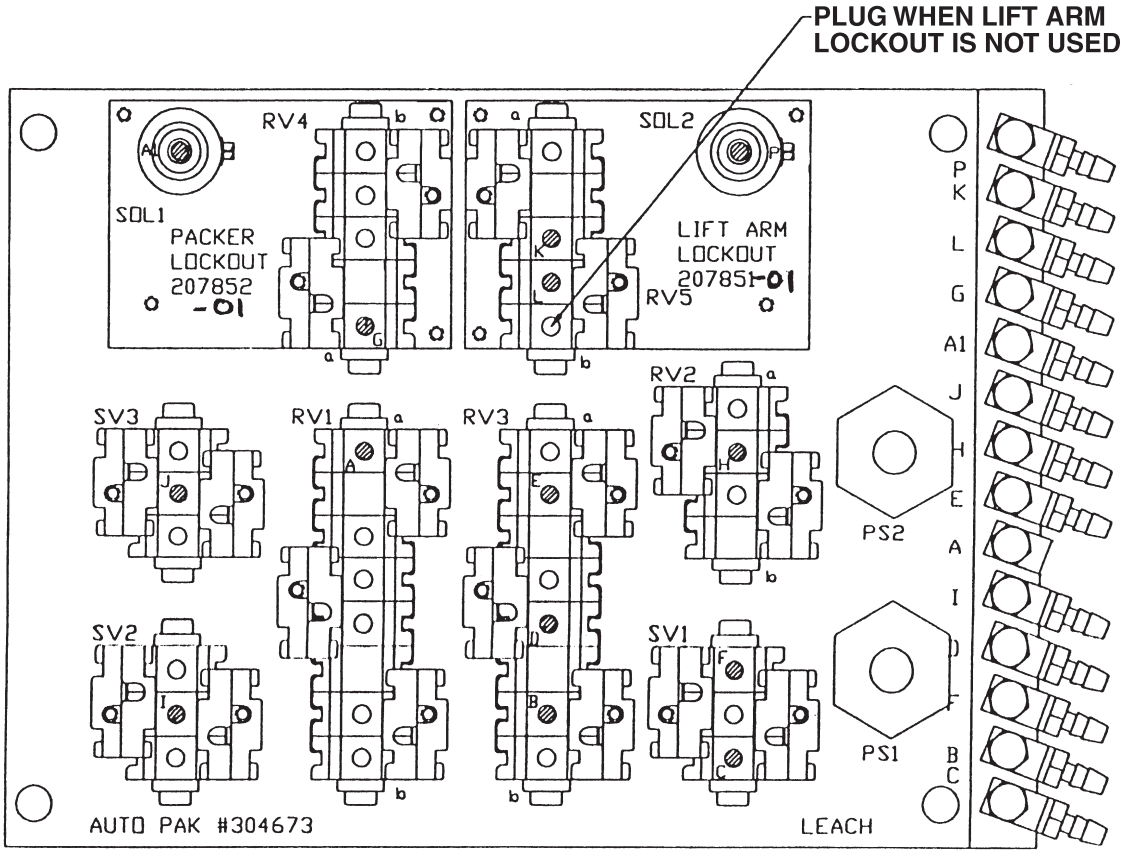
INSPECTION AND REPLACEMENT OF THE JOYSTICK ASSEMBLY

Clean and inspect the inside of the valve body. Check for cracks, scoring or wear. Replace all seals and o-rings. Parts that must be replaced together are available as a seal kit from your local authorized Leach Distributor.

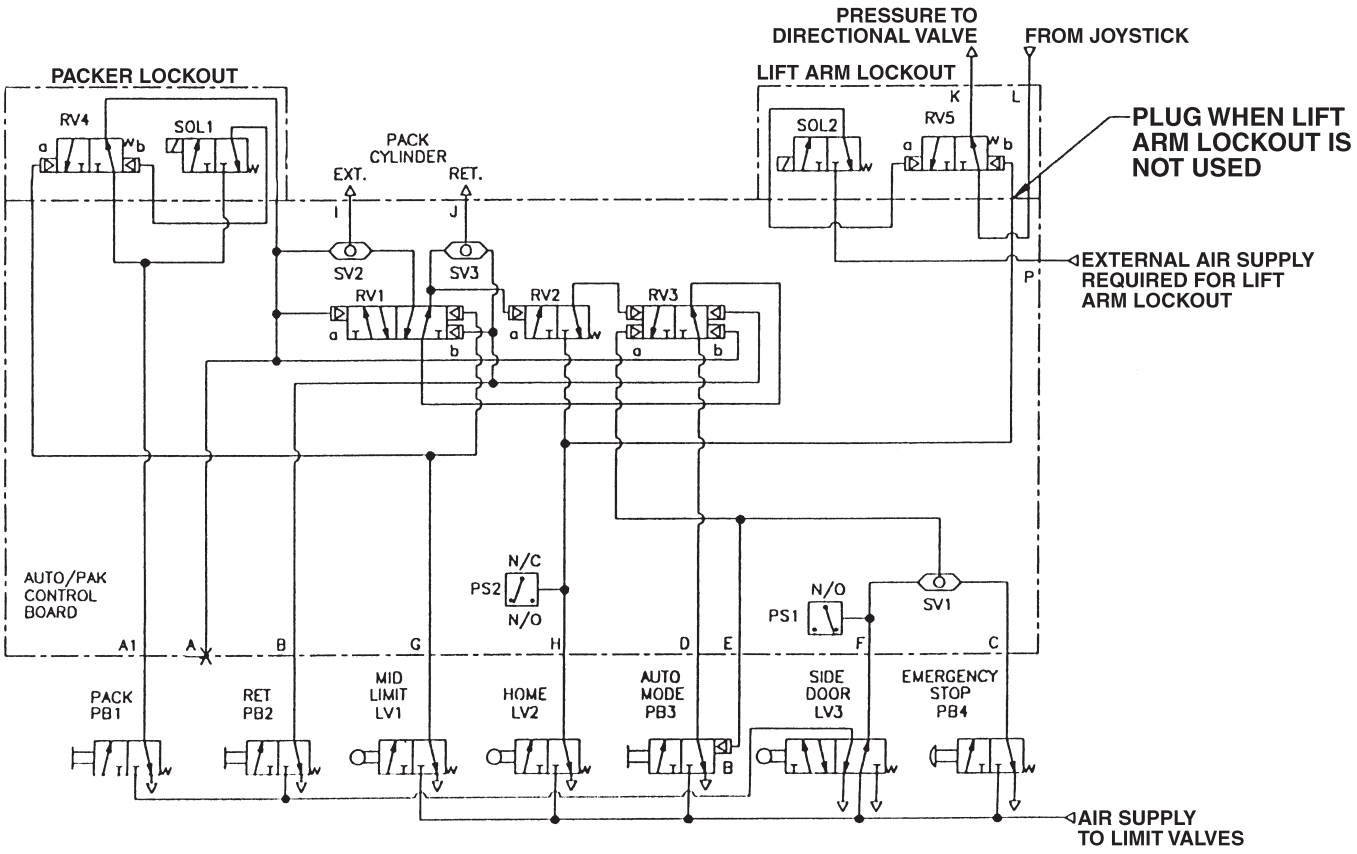
REASSEMBLY OF JOYSTICK ASSEMBLY

1. Coat all seals and o-rings with Dow Corning #44 or equivalent pneumatic grease. Reassemble in the approximate reverse order of disassembly.
2. When the joystick is reassembled and installed, the ball socket can be adjusted for sensitivity. Pull the dust boot up and loosen the jam nut on the ball socket assembly. Turn the actuator nut clockwise to increase sensitivity, counter-clockwise to decrease sensitivity.

ALCM LAYOUT


PLUG WHEN LIFT ARM LOCKOUT IS NOT USED
RV4
SOL2
SOL1
PACKER LOCKOUT 207852 -01
LIFT ARM LOCKOUT 207851-01
RV5
RV2
SV3
RV1
RV3
PS2
SV2
SV1
PS1
P
K
L
G
A1
J
H
E
A
I
F
B
C
AUTO PAK #304673
LEACH

ALCM SCHEMATIC



AIR HOSE COLOR/VOCATION	ALCM PORT DESIGNATION
Yellow/Emergency Stop	C
Purple/Retract Palm Button Valve	B
White/Side Door Interlock Valve	F
Orange/Auto-Pack Reset Palm Button Valve	D
Black/Hydraulic Valve Actuator – Pack	I
Green/Pack Palm Button Valve	A1
Blue/Auto-Pack Reset Palm Button Valve	E
Gray/Packer Home Limit Switch Valve	H
Black/Hydraulic Valve Actuator - Retract	J
Brown/Packer Extend Limit Switch Valve	G

OPTIONAL LIFT ARM LOCKOUT CONNECTIONS	
Blue/Hydraulic Valve Actuator - Lift Arm Raise	K
Blue/Lift Arm Control Joystick	L
Red/Constant Air Supply	P

ELECTRICAL

The unit's electrical system includes all of the body running and marker lights, dash warning lights, back-up warning alarm and all interconnected wiring as shown on the accompanying wiring diagram.

TESTING

To locate a defective component or break in the wiring perform a continuity check across and between suspected components as described in Section 4, GENERAL REPAIR PRACTICES.

REPAIR

Repair of the electrical system is limited to the replacement of burned out light bulbs and other defective parts or wiring.

INSPECTION

1. Operate all light switches and pushbutton controls to ensure that they are operating normally.
2. Check all wiring for breaks, frayed or worn insulation and loose terminal connections.

PROXIMITY SWITCHES

DESCRIPTION OF PROXIMITY SWITCHES

The electrical system on the Leach Millennium utilizes proximity switches to activate warning lights for the tailgate, top door, lift arm position and, if so equipped, to activate the automatic pins on the triangle attachment. These switches can be wired either in the normally open or the normally closed positions.

These switches have no moving components and function by passing an actuator through an electronically generated field, opening or closing the circuit as needed.

CHECKING THE PROXIMITY SWITCH

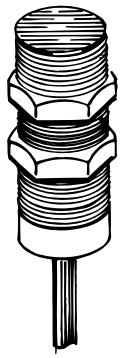
On the side of the switch there is an L.E.D. embedded into the plastic housing, which will glow red when the switch is activated. If a faulty switch is suspected look on the side of the switch when the actuator is in front of the sensing face. The L.E.D. light should be glowing through the plastic case.

Cleanliness of these switches is crucial. Refuse gathering around the switch may send a false signal. Also, dirt or grime gathering on the face of the switch may inhibit the switch from functioning.

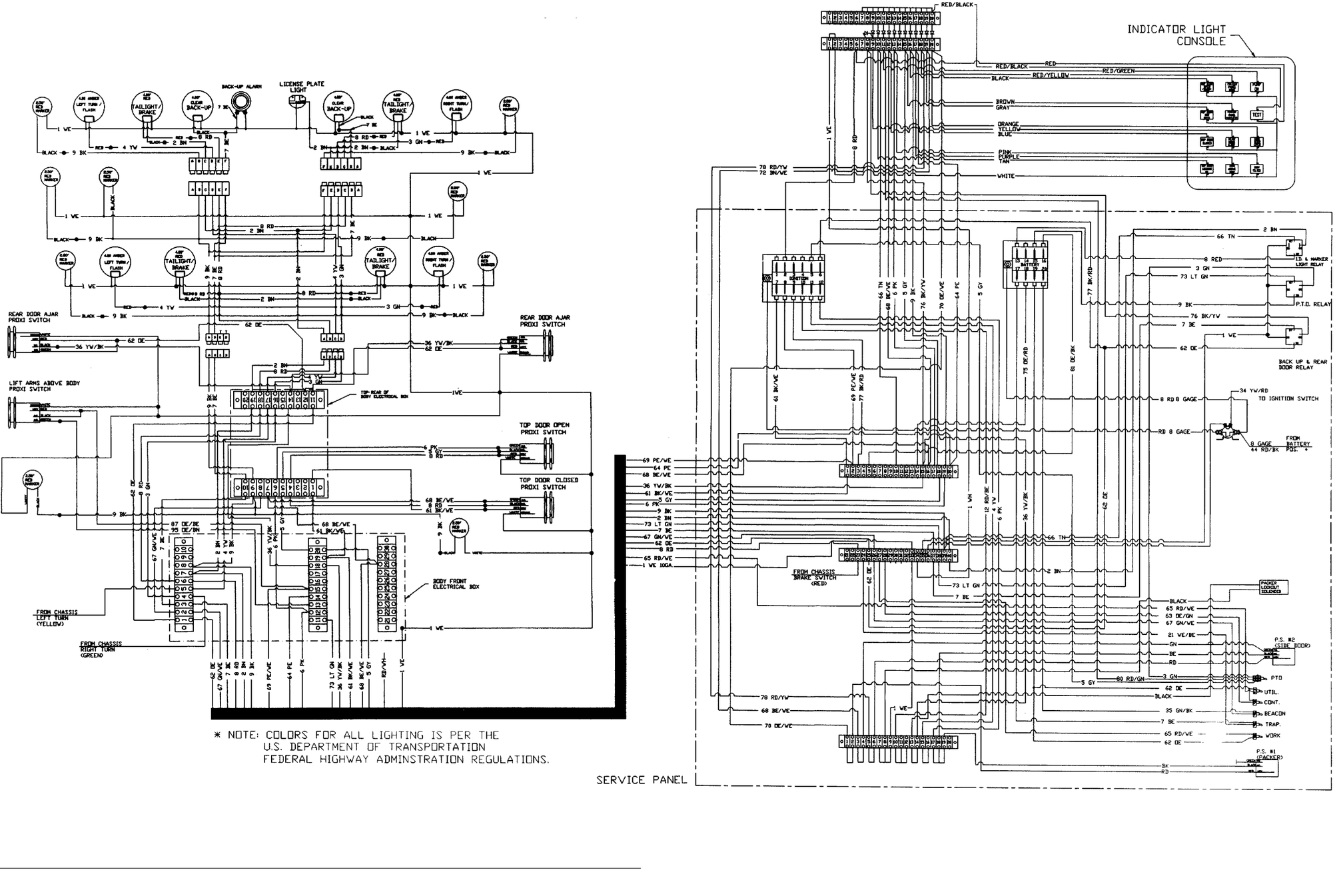
ADJUSTMENT OF THE PROXIMITY SWITCH

Due to a growing amount of companies utilizing radio transceivers to dispatch and track their trucks in the field, it is possible that some of these transceivers may match the wavelength of the proximity switch field. This can cause the switch to function when the radio system is transmitting. Through proper adjustment and electrical connections, this can be avoided. When installing a new proximity switch follow the instructions below to assure correct performance of the electrical system.

1. Center the actuator to and in front of the sensing face of the switch.
2. Adjust the distance between the actuator and the sensing face to 0.140" (3.5 mm).
3. Connect any unused wire to the "red" wire on the switch (constant power).



MILLENNIUM ELECTRICAL SCHEMATIC



* NOTE: COLORS FOR ALL LIGHTING IS PER THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINSTRATION REGULATIONS.

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Phone: ______________ Fax: ______________

Model number: ______________

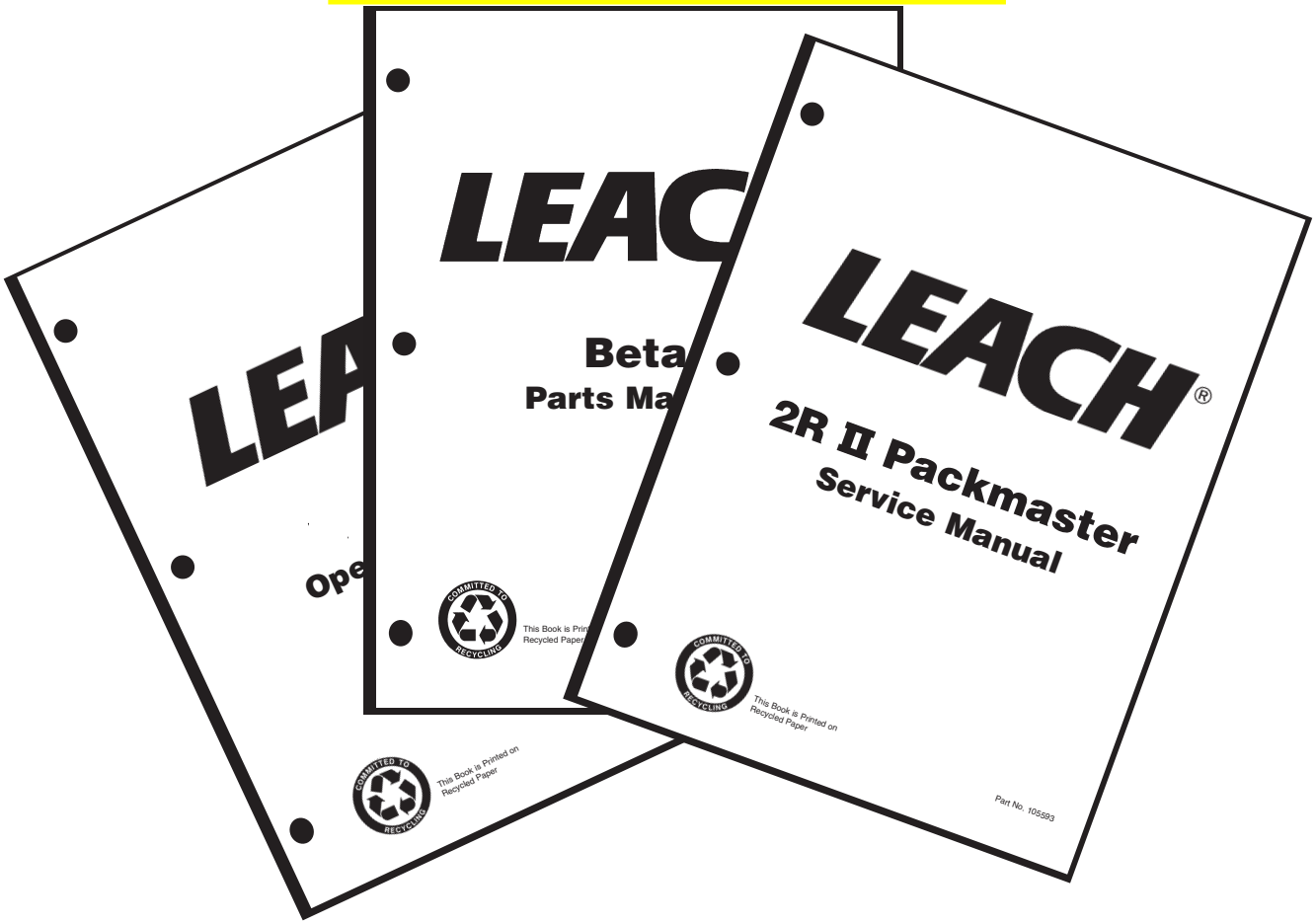
Unit serial number: ______________

Routing instructions:

REF. NO	PART NO.	DESCRIPTION	QTY.

Leach Company, 2737 Harrison Street, P.O. Box 2608, Oshkosh, Wisconsin 54903-2608

REWARD



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