

# **LEACH<sup>®</sup>**

## **FL-104 Service Manual**



This Book is Printed  
on Recycled Paper

Part No. 105550

# TO ORDER PARTS

Contact your local LEACH Signature Original Factory parts distributor

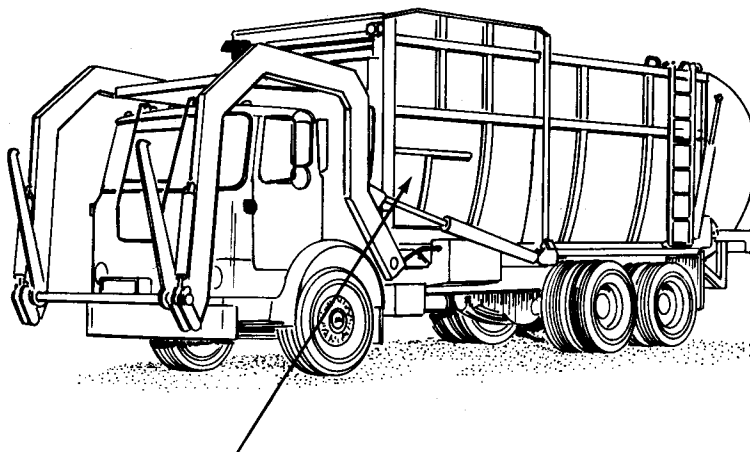
\_\_\_\_ Your Authorized Leach Distributor \_\_\_\_

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.

**FL-104**



**SERIAL NUMBER LOCATION**

# WARRANTY



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 preventative maintenance services are performed. An additional six (6) month warranty is also 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 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 Service Department.

Because Company products are engineered to work only with genuine Company parts, this limited warranty will be void and of 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

---

For over 100 years the Leach Company has been a leader. From the introduction of the first enclosed refuse body in 1932 to the present, with the all new FL-104. We are proud of the engineering, quality, and workmanship that has gone into each unit since 1932. The FL-104 continues this quality tradition. All Leach units, including the FL-104, are supported by the best parts, service and distributors in the industry; the industry the Leach Company founded.

At Leach Company safety is of great importance. Please read carefully the safety precautions in Section 2. They are important.

All Leach manuals are printed on recycled paper. "Soy ink," a natural based material, is used to replace conventional petroleum based products for printing. This is all done as part of the Leach commitment to the preservation of our environment through recycling.

The Leach Company has an aggressive manual update program. This manual was produced with the latest information available at the time of publication; we, however, reserve the right to redesign and/or discontinue the manufacture of parts, components, and assemblies at any time.

This manual was prepared with the intention of providing clear, concise operating and service instructions. Just like our products we strive to provide the best parts and service publications possible. We hope to have accomplished our goals. We actively solicit your comments or suggestions. We are here to be of service to you, our valued customers.

Danny J. Schloss, C.S.E.  
Director of Service

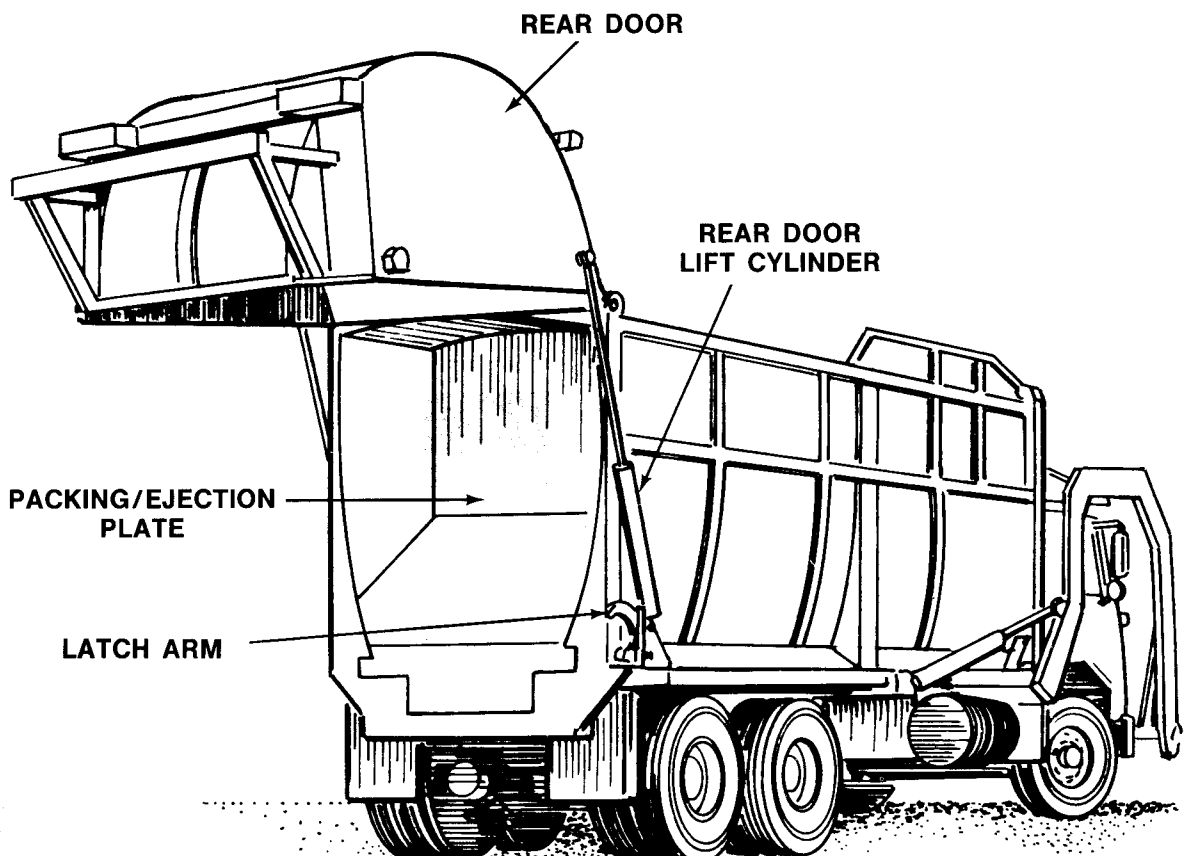
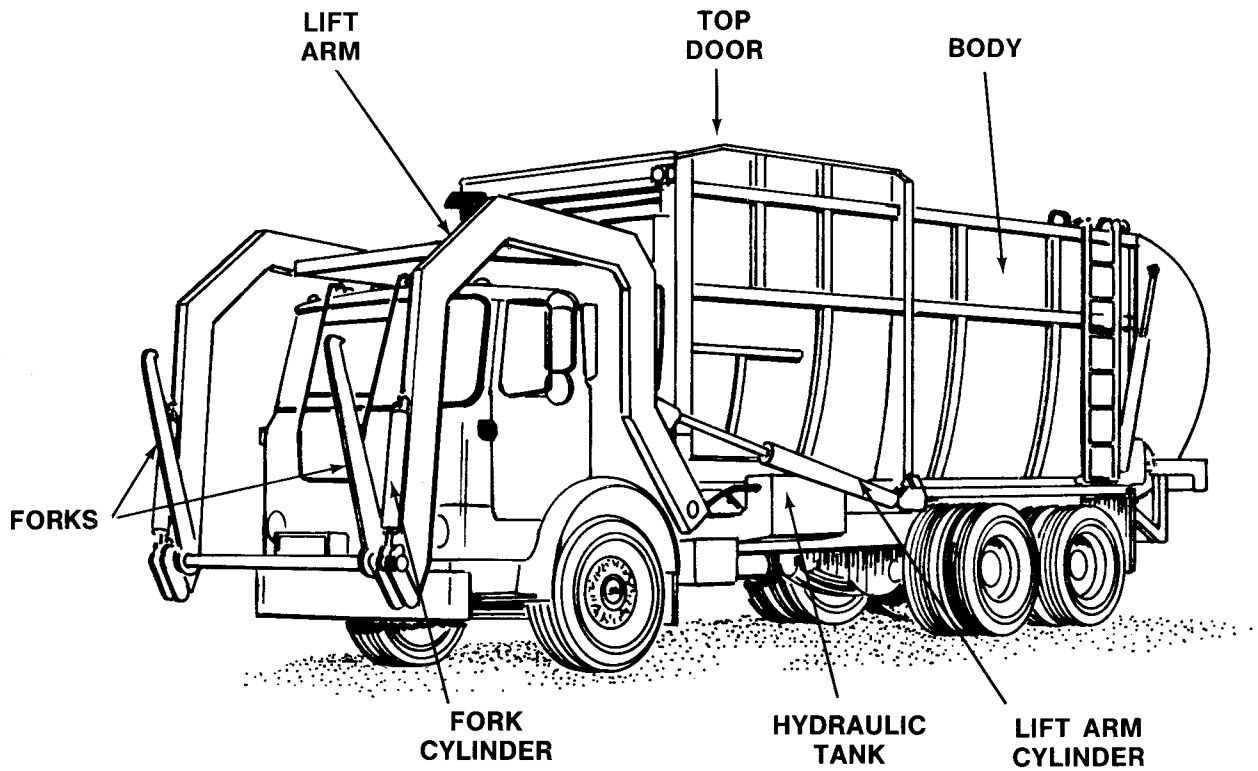
# TABLE OF CONTENTS

SEC.	TOPIC	PAGE	SEC.	TOPIC	PAGE
	ORDERING PARTS .....	I		• Removal, Disassembly and Repair .....	4-3
	WARRANTY .....	II		• Reassembly and Installation .....	4-3
	FOREWARD .....	III		• Electrical Testing .....	4-3
	TABLE OF CONTENTS .....	IV		• Welding .....	4-4
1	INTRODUCTION .....			• Lifting Instructions .....	4-4
	• Terms You Will Need To Know ....	1-1		• Capscrew Marking and Torque Values .....	4-5
	• Introduction .....	1-2	5	SPECIFICATIONS .....	
	• Loading .....	1-2		• General Dimensions .....	5-1
	• Compaction .....	1-2		• Lubricants .....	5-2
	• Unloading .....	1-2		• Hydraulic System .....	5-2
2	SAFETY .....			• Leach Hydraulic Fluid Recommendations .....	5-2
	General .....	2-1		• Hydraulic Fluid .....	5-2
	• Danger, Warning and Caution Decals .....	2-1	6	PREVENTIVE MAINTENANCE .....	
	• Prior to Start Up .....	2-1		• General .....	6-1
	• Decal Locations (Illus.) .....	2-2		• Operating and Maintenance Records .....	6-1
	• Decals (Illus.) .....	2-3		• Daily Preventive Maintenance .....	6-1
	• Operation .....	2-5		• Lube Points (Illus.) .....	6-2
	• Hydraulics .....	2-6		• Hydraulic System (Illus.) .....	6-3
	• Fire Protection .....	2-6		• Hydraulic System Service .....	6-4
	• Housekeeping .....	2-6		• Check Fluid Level (Daily) .....	6-4
	• Cleanliness .....	2-6		• Clean Tank Breather (Weekly) .....	6-4
	• Shutdown .....	2-6		• Lubrication Points (Weekly) .....	6-4
3	OPERATION .....			• Check/Replace Return Line Filter Element .....	6-4
	• Locations of Operating Controls ...	3-1		• Replacement of Filter Element .....	6-4
	• General .....	3-1		• Cleaning Hydraulic Strainer (Monthly) .....	6-4
	• Description of Operating Controls .....	3-1		• Flushing Hydraulic System (Yearly) .....	6-4
	• PTO/Pump Control .....	3-2		• Weekly Preventive Maintenance .....	6-5
	• Engine Speed-up .....	3-2		• Monthly Preventive Maintenance ...	6-5
	• Joystick .....	3-2		• Yearly Preventive Maintenance .....	6-5
	• Fork Tilt .....	3-2		• Hydraulic System Service .....	6-6
	• Lift Arms .....	3-3		• Contamination .....	6-6
	• Auto-Pack Button .....	3-3		• Commercial Hydraulic Fluid Testing .....	6-6
	• Emergency Stop Button .....	3-3		• In House Hydraulic Fluid Testing .....	6-6
	• Retract Button .....	3-3	7	CHECK-OUT .....	
	• Auto-Reset Button .....	3-3		• General .....	7-1
	• Rear Door Toggle Switch .....	3-3		• Check Hydraulic Tank Fluid Level .....	7-1
	• Sliding Top Door Switch .....	3-3		• Check Electrical System .....	7-1
	• Test Button .....	3-3		• Check Dumping Cycle Time .....	7-2
	• Operating Procedures .....	3-4		• Check Packing Cycle Time .....	7-2
	• Pre-operating Walk-Around Inspection .....	3-4		• Check Sliding Top Door Cycle Time .....	7-2
	• Operating Instructions .....	3-6		• Check Rear Door Cycle Time .....	7-3
	• Positioning Pushout Plate .....	3-6		• Check Pressures .....	7-3
	• Loading .....	3-7		• Check Main Relief Pressure .....	7-3
	• Opening the Top Door .....	3-7		• Check the Lift Arm Pressure .....	7-4
	• Lifting Containers .....	3-8		• Check the Packing/Ejection Pressure .....	7-4
	• Dumping Container .....	3-8		• Check the Rear Door Pressure .....	7-5
	• Lowering Container .....	3-9		• Check Rear Door Latches .....	7-5
	• Compaction .....	3-10		• Check the Sliding Top Door Pressure .....	7-6
	• Auto Pack .....	3-10		• Check Packing/Ejection Panel Wear Blocks .....	7-7
	• Full Pack .....	3-10		• Pressure Setting Chart .....	7-7
	• Unloading .....	3-11			
	• Shutdown .....	3-11			
4	GENERAL REPAIR PRACTICES .....				
	• Preparation for Service .....	4-1			
	• Replacement Parts .....	4-1			
	• Service Bulletins .....	4-1			
	• Prior to Performing Any Service or Repair .....	4-2			
	• Safety During Service and Repair .....	4-2			
	• Welding Precautions .....	4-2			

# TABLE OF CONTENTS

SEC.	TOPIC	PAGE	SEC.	TOPIC	PAGE
8	<b>TROUBLESHOOTING</b>				
	• General .....	8-1		• Description of Packing/Ejection Cylinder .....	9-15
	• Compaction .....	8-1		• Removal of Packing/Ejection Cylinders .....	9-15
	• Diagnostic Charts .....	8-2		• Disassembly of Packing/Ejection Cylinder .....	9-16
	• Description of Hydraulic System ..	8-5		• Inspection and Replacement of Cylinder .....	9-16
	• System Component Nomenclature .....	8-5		• Reassembly and Installation of Cylinder .....	9-16
	• Hydraulic System Flow Charts .....	8-6		• Description of Packing/Ejection Panel .....	9-17
9	<b>SERVICE AND REPAIR</b> .....			• Removal of the Packing/Ejection Panel .....	9-17
	• General .....	9-1		• Inspection and Replacement of Packing/Ejection Panel .....	9-17
	• Main Component Location .....	9-1		• Installation of Packing/Ejection Panel .....	9-17
	• Test for Leaking Cylinders .....	9-2		• Description of Cab Guard Cylinder .....	9-18
	• Description of Fork Tilt Cylinders .....	9-3		• Test for Leaking Cab Guard Cylinder .....	9-18
	• Removal of Tilt Cylinders .....	9-3		• Removal of Cab Guard Cylinder ...	9-18
	• Disassembly of Tilt Cylinder .....	9-4		• Description of 5-spool Control Valve .....	9-19
	• Inspection and Replacement of Tilt Cylinder .....	9-4		• Disassembly of 5-spool Control Assembly .....	9-20
	• Reassembly and Installation of Tilt Cylinder .....	9-4		• Disassembly of Spool Sections .....	9-20
	• Description of Fork Assembly .....	9-5		• Inspection of Valve Section .....	9-20
	• Removal of Fork Assembly .....	9-5		• Disassembly of Main Relief Section .....	9-21
	• Inspection and Replacement of Fork Assembly .....	9-5		• Reassembly of Valve Sections and Main Control Valve Assembly .....	9-21
	• Installation of Fork Assembly .....	9-5		• Description of Control Levers/Linkage .....	9-22
	• Description of Lift Arm Cylinders ...	9-6		• Removal/Disassembly of Control Linkage .....	9-22
	• Removal of Lift Arm Cylinders .....	9-6		• Description of Leach Hydraulic Pump .....	9-23
	• Disassembly of Lift Arm Cylinder ...	9-7		• Description of Electrical System .....	9-24
	• Inspection and Replacement of Lift Arm Cylinder .....	9-7		• Testing .....	9-24
	• Reassembly and Installation .....	9-7		• Repair .....	9-24
	• Description of Lift Arm Assembly ..	9-8		• Inspection .....	9-24
	• Removal of Lift Arm Assembly .....	9-8		• Electrical Schematic .....	9-25
	• Inspection and Replacement of Lift Arm Assembly .....	9-8	10	<b>OPTIONS</b>	
	• Reinstallation of Lift Arm Assembly .....	9-8		• General .....	10-1
	• Description of Rear Door Cylinders .....	9-9		• Description of Bolt on Lift Arm Assembly .....	10-1
	• Removal of Rear Door Cylinders ...	9-9		• Auto-Pack .....	10-2
	• Disassembly of Rear Cylinder .....	9-10		• Body Tilt .....	10-3
	• Inspection and Replacement of Rear Door Cylinder .....	9-10		• Hinged Top Door Adjustments .....	10-4
	• Reassembly and Installation of Rear Door Cylinder .....	9-10		• Adjustment of the Air Limit Switch on the Lift Arm Pivot Tube .....	10-5
	• Description of Rear Door .....	9-11		• Hydraulic Flow Charts .....	10-6
	• Removal of Rear Door .....	9-11		• Description of Pneumatic System ..	10-12
	• Inspection and Replacement of Rear Door .....	9-11		• Air System Components Key .....	10-12
	• Description of Sliding Top Door Cylinder .....	9-12		• Pneumatic Schematics .....	10-13
	• Removal of Sliding Top Door Cylinder .....	9-12		• Troubleshooting Diagnostic Charts .....	10-32
	• Disassembly of Sliding Top Door Cylinder .....	9-13		• Electrical Schematics .....	10-34
	• Inspection and Replacement of Sliding Top Door Cylinder .....	9-13	11	<b>SERVICE TOOLS</b>	
	• Reassembly and Installation of Rear Door Cylinder .....	9-13		• General .....	11-1
	• Description of Sliding Top Door ...	9-14		<b>MANUALS &amp; LITERATURE ORDER FORM</b>	
	• Removal of Top Door .....	9-14		<b>REWARD</b>	
	• Inspection and Replacement of the Top Door .....	9-14			

## TERMS YOU WILL NEED TO KNOW



**INTRODUCTION****INTRODUCTION**

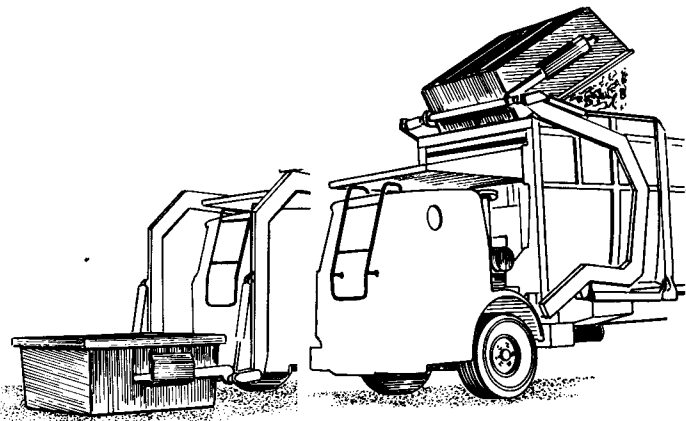
The main purpose of the FL-104 is to safely and efficiently: load; compact; (transport); and unload refuse. The following describes how the unit performs those tasks in the most basic terms. For a more detailed description of the unit and its components, read the complete FL-104 SERVICE MANUAL. Before going further, look at the accompanying full page illustration of the FL-104 and become familiar with the terms you will need to know.

**LOADING**

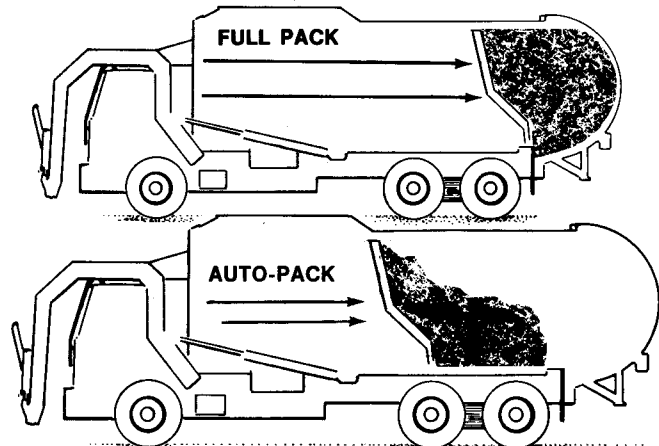
The FL-104 is designed for use with various containers. The loading process begins by utilizing the fork tilt and lift arm controls to engage the container.

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 plate moves rearward and compacts the material.

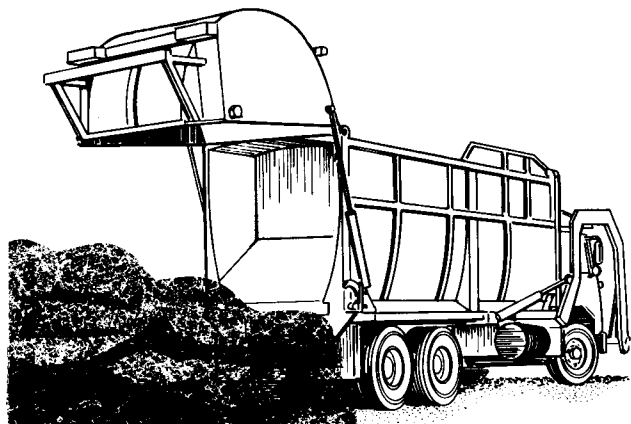
**UNLOADING**

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

First, the rear door is raised.

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

Following unloading, the rear door is lowered and latched.





## GENERAL

The FL-104 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 & Health Act (OSHA) and American National Standards Institute (ANSI) regulations.

## DANGER, WARNING, AND CAUTION DECALS

See the accompanying illustration for the location and label content 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** 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 **COULD** result in personal injury or death.

\* 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.

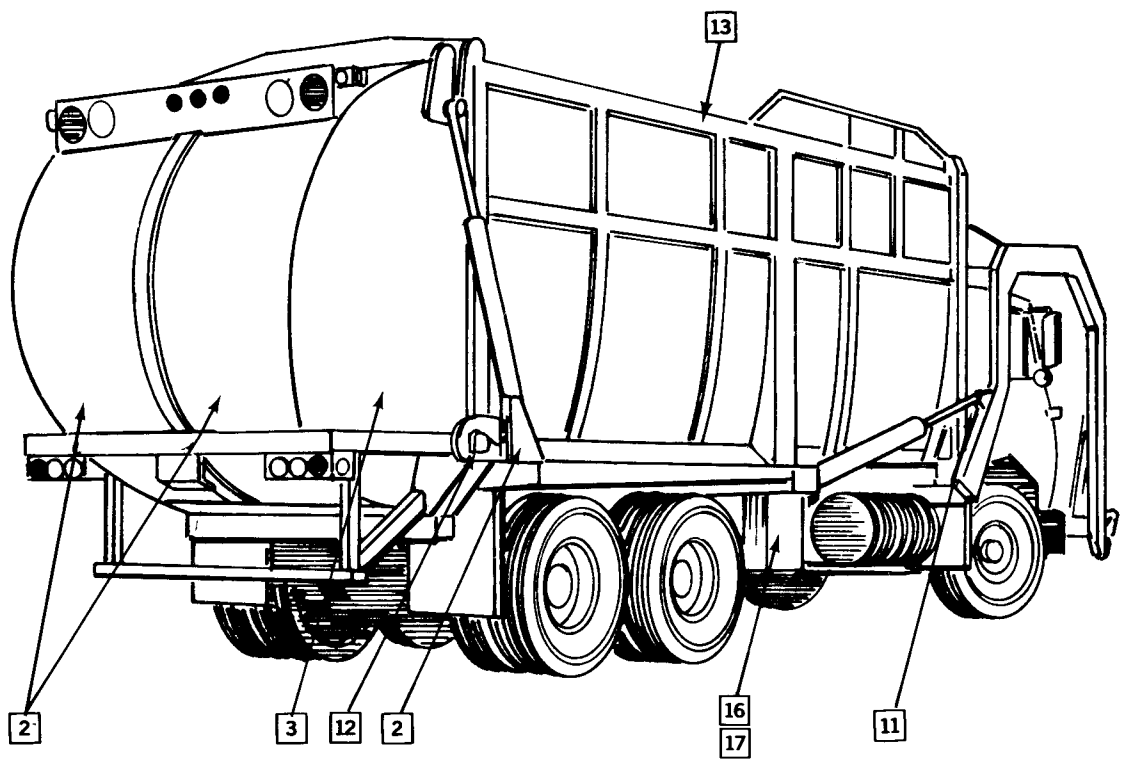
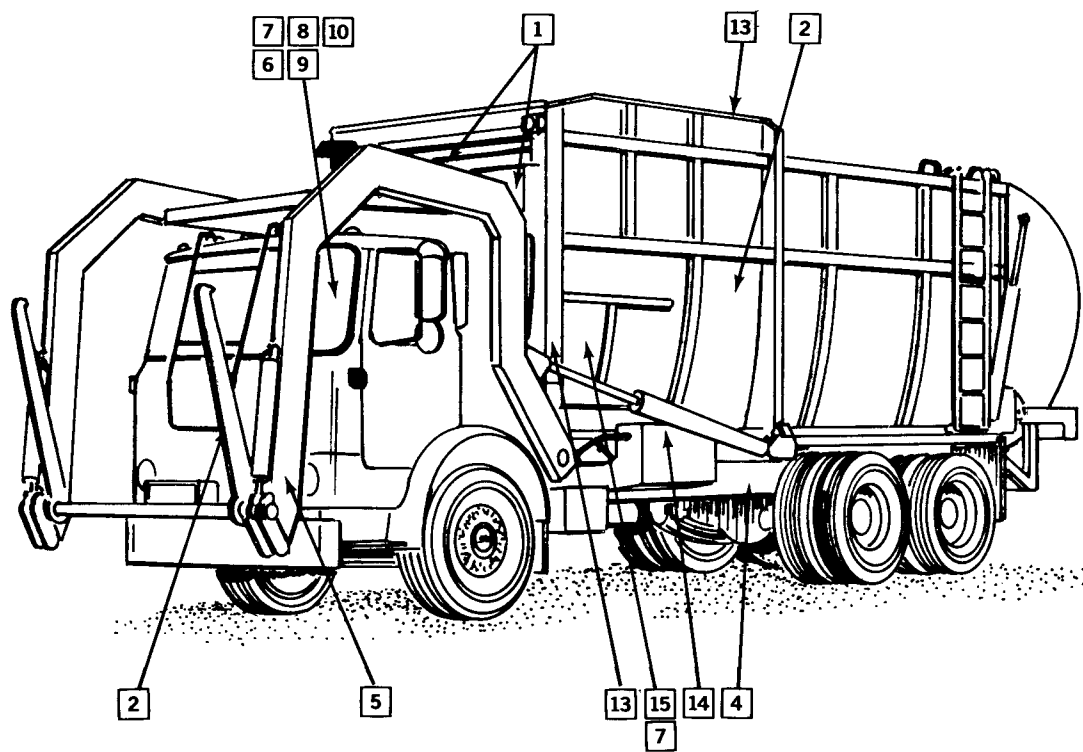
\* The word **NOTE** precedes information which is vital to the proper operation or maintenance of the equipment.

## 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-operation "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. Drivers will not attempt to perform any service procedures on the equipment. Proper servicing requires specialized tools and procedures. Service must be performed by authorized personnel only, following procedures in the FL-104 Service Manual.
5. Walk completely around the vehicle to make sure all persons are clear before starting the unit.



DECAL LOCATIONS



**DANGER — DO NOT ENTER  
UNLESS BODY IS EMPTY &  
IGNITION OFF & KEY REMOVED**

32711 **1**

**DANGER  
STAND CLEAR  
AT ALL TIMES**

32753 **2**

**DANGER**  
DO NOT ENTER UNDER CHASSIS UNLESS  
ENGINE OR POWER UNITS ARE STOPPED  
AND IGNITION KEYS REMOVED

41894 **4**

**DANGER  
STAND CLEAR  
AT ALL TIMES**

204718 **5**

**PTO  
ON OFF**

102960 **6**

**7**

**CAUTION**

ACCESS DOOR MUST BE CLOSED FOR  
PACKER PANEL TO BE IN OPERATION.  
IF ACCESS DOOR IS OPENED THE PACKING  
FUNCTION STOPS AND CONTROLS WILL  
NOT WORK-THE DOOR MUST BE CLOSED  
AND LATCHED AND THE RESET ACTIVATED  
BEFORE OPERATION CAN RESUME.

384162

**WARNING**

DO NOT MOVE VEHICLE WITH P.T.O. ENGAGED OR  
PUMP IN OPERATION EXCEPT AS NECESSARY TO  
EMPTY CONTAINERS.  
BEFORE MOVING VEHICLE TO NEXT CONTAINER STOP.  
TOP DOORS, TAILGATE AND LIFT ARMS SHALL BE AT  
LOWEST POSSIBLE POSITION.  
NOTE: THIS VEHICLE WITH ALL DOORS AND LIFT  
MECHANISMS AT LOWEST LEVEL, REQUIRES  
OF OVERHEAD CLEARANCE AS  
ORIGINALLY MOUNTED.

**8**

**WARNING**

TO AVOID HEADLIGHT  
INTERFERENCE, RAISE LIFT ARM  
ONLY AS REQUIRED  
FOR PROPER ILLUMINATION.  
DO NOT RAISE ABOVE TOP OF BODY.  
BE SURE TOP DOORS REMAIN  
CLOSED BEFORE TRAVELING.

**9**



38876 **13**

**WARNING**

SERIOUS PUMP DAMAGE WILL  
RESULT WHEN OIL FLOW TO  
PUMP IS SHUT OFF WITH  
ENGINE RUNNING  
DISCONNECT PUMP DRIVE  
SHAFT TO RUN ENGINE

**10**

**WARNING**

Remove latch pins before raising  
cab guard. Secure latch pins after  
lowering cab guard and before  
moving vehicle.

103434 **11**

**DANGER**

**12**

**FILTER ELEMENT CHANGE**

TO ENSURE OIL CLEANLINESS AND LONGER  
MACHINE LIFE, CHANGE THE ELEMENT AT  
INTERVALS OF 20HRS, 50HRS, AND AT  
250HR INTERVALS THERE AFTER.

100890 **14**



THIS UNIT CONFORMS TO ALL PRESENT  
AMERICAN NATIONAL STANDARDS INSTITUTE  
SAFETY REQUIREMENTS 2.249.1 IN EFFECT ON  
THE DATE OF MANUFACTURE.

LEACH CO.

15

## WARNING

PRESSURE MUST BE  
RELIEVED BEFORE  
OPENING THE TANK

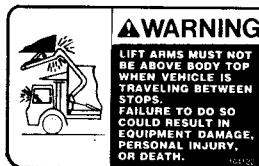
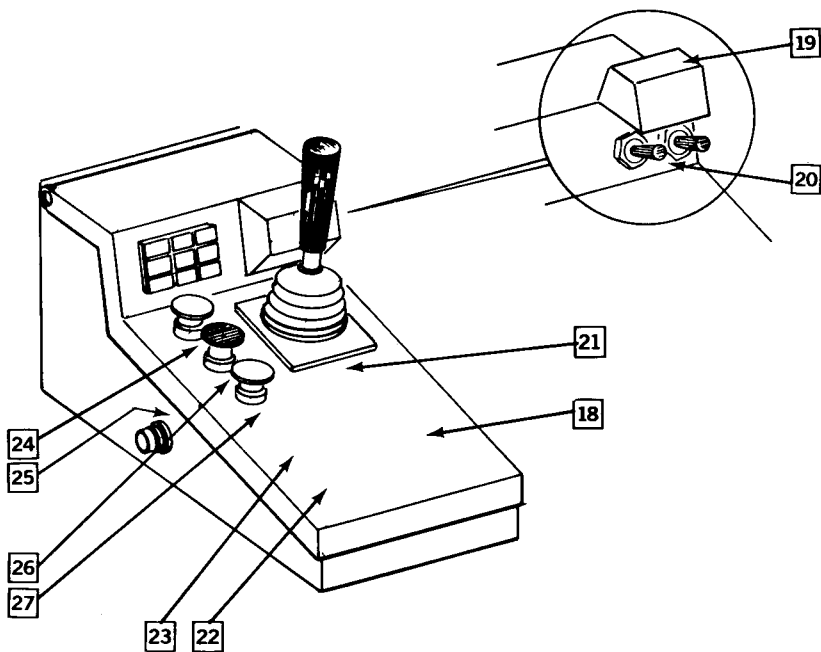
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16

## CAUTION

WATER TANK  
DO NOT PRESSURIZE  
ABOVE 100 P.S.I.

17



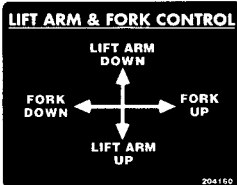
18

DOOR CONTROLS  
KEEP COVER CLOSED  
WHEN NOT  
OPERATING CONTROLS

19



20



21

## CAUTION

MAXIMUM CAPACITY OF  
CONTAINER LIFTING  
SYSTEM 8000 LBS

22

## CAUTION

LEACH CO. STRONGLY RECOMMENDS  
ENGINE BE KEPT BELOW RPM  
WHEN PTO IS ENGAGED

23

AUTO PACK

24

AUTO MODE

25

RETRACT

26

EMERGENCY  
STOP

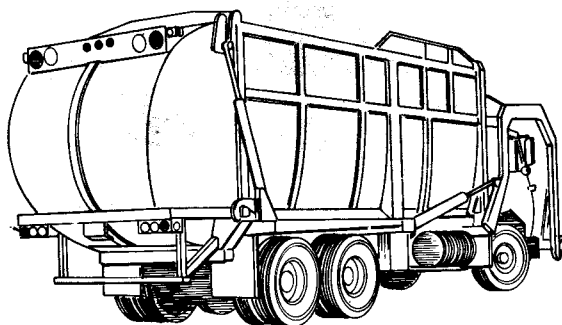
27

**OPERATION**

1. It is the operator's responsibility to ensure that operation of the unit is in accordance with the guidelines contained in this manual and in accordance with all applicable codes including OSHA and ANSI regulations.
2. Do not attempt to operate the equipment without proper training.
3. Start the engine following the chassis manufacturer's recommended procedures.
4. Know your machine, including the location and function of all controls, warning lights and protective devices.

**WHEN VEHICLE IS MOVING:**

5. Move vehicle as slowly as possible without stalling when traveling in reverse.
6. Always make sure the roadway is clear before traveling in reverse.
7. 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 vehicle in 10 foot increments only, and then check to make sure the roadway is clear between increments.
8. Stop the vehicle immediately if the warning light for the "REAR DOOR" system comes on.
9. Never use controls or hoses for hand holds when mounting or dismounting. Controls and hoses are movable, they do not provide proper support and may cause accidental equipment movement.
10. Wear your seat belt.

**OPERATING FUNCTIONS:**

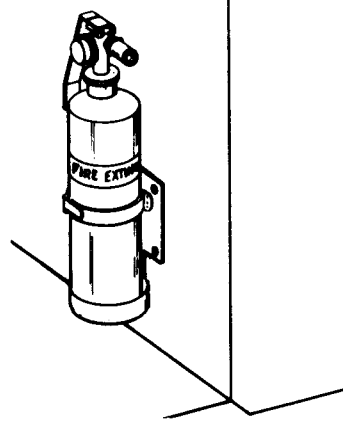
11. All service covers and access doors must be maintained and latched in place while operating equipment.
12. Always ensure that all persons are clear of the equipment before actuating lift arm or packing/ejection controls.
13. Ensure that persons are clear of the container before raising or lowering.
14. The operator should warn persons not to stand or cross under a raised rear door or lift arms.
15. Do not move the vehicle with the rear door raised except during unloading and then only move enough to clear the load.
16. Keep persons clear when the rear door is being raised or lowered during the unloading operation. If the rear edge of the body requires cleaning, use a long probe or pole. **DO NOT STAND** under the rear door.
17. Do not attempt to dislodge any material above waist level unless wearing eye protection such as "APPROVED" side shielded glasses or a full face shield.
18. Never use the FL-104 to push or tow another vehicle.
19. Never unload uphill or against a pile of refuse or into the bank of a hill.
20. Never enter the body unless the PTO/Pump is **DISENGAGED**, and the ignition key removed and placed in your pocket.
21. Never place head, body, fingers or any limbs into a scissors or pinch point on the equipment.
22. Vehicles with an automatic transmission require the shift lever to be in drive to engage an air-shift PTO.
23. Before operating the vehicle, the driver must be thoroughly familiar with the employer's safety program concerning traffic rules, warning devices and hand signals.
24. Know where to get assistance in the event of an emergency.
25. Always set the parking brake before leaving the cab.
26. Know the height of the unit before going under any underpass. Be sure to allow for sufficient clearance.
27. Do not attempt to load refuse into the unit after the packing cycle has begun. The packing/ejection panel must be in the "home" position and stopped before loading the hopper.

**SAFETY****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.

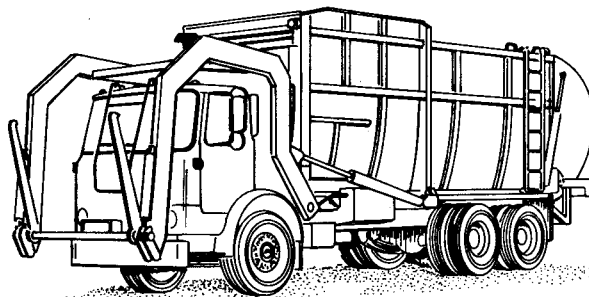
1. Keep handrails and steps clean and free of grease or debris.
2. Do not store brooms or other equipment where they could inadvertently be dislodged or create a hazard.

**CLEANLINESS**

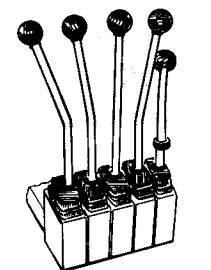
1. Rubbish, scrap paper, and litter are highly combustible. Such material should be stored in metal containers entirely clear of sparks and flame.

**SHUTDOWN**

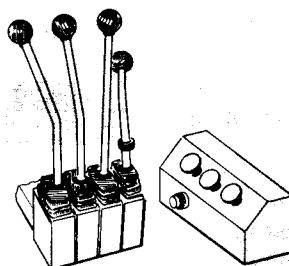
1. Put all the controls in neutral.
2. Set the parking brake.
3. Disengage the PTO.
4. Shut off the engine.
5. Remove the key.
6. Open the air tank drain valve.
7. Lock the vehicle.



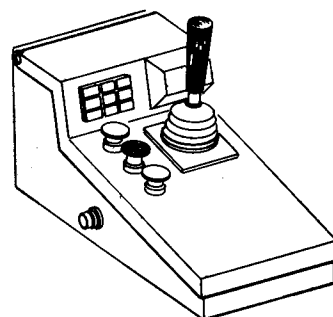
## LOCATION OF OPERATING CONTROLS



**STANDARD  
CABLE CONTROL**



**OPTIONAL  
CABLE CONTROL  
WITH AUTO-PACK**



**OPTIONAL AIR CONTROL**

**CONTROL PANEL**



## GENERAL

This section will provide general and specific instructions necessary to operate the FL-104. Prior to attempting any operation of the unit, make sure you are familiar with all the safety information contained in Section 2, **SAFETY**.

## DESCRIPTION OF OPERATING CONTROLS

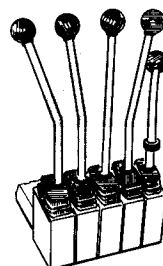
### **⚠ DANGER**

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.

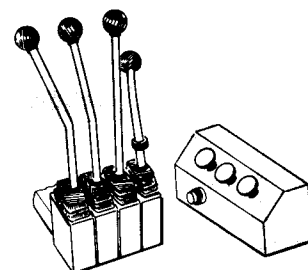
There are only a few controls required for the complete and efficient operation of the FL-104. It is important that you know the function of each control before attempting to operate the unit. All controls are located in the chassis cab. Refer to the accompanying illustrations for their locations.

### **NOTE**

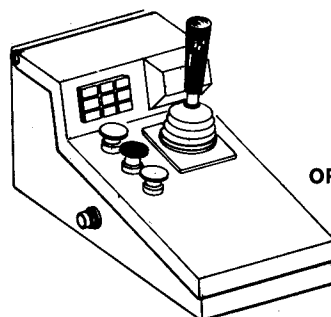
*Several types of controls are available. Check the specific unit being operated to determine the control type.*



**STANDARD  
CABLE CONTROL**



**OPTIONAL  
CABLE CONTROL  
WITH AUTO-PACK**



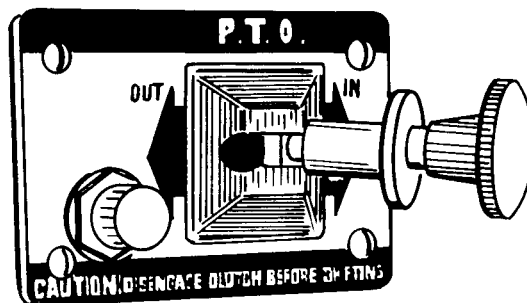
**OPTIONAL AIR CONTROL**



## 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, toggle lever or positive control button depending on the style of the PTO. Be sure to read all the safety decals associated with the PTO before attempting operation.



#### NOTE

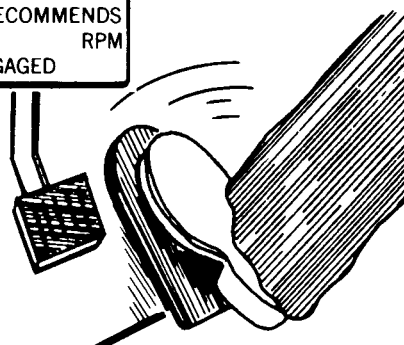
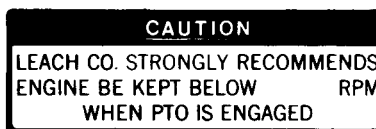
*On units equipped with a front mounted pump, the cab control operates a "dry valve" to allow full fluid flow into the continuously running pump.*



### 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.**



### FORK TILT CONTROL

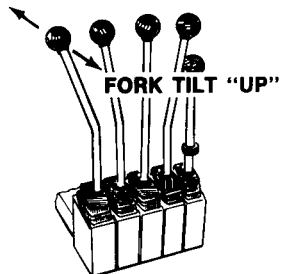
When the control is moved to the tilt down position the forks will tilt down. Movement of the control to the tilt up position will tilt the forks up.

#### NOTE

*The optional air control joystick allows the operator to perform two (2) functions at once, by moving the joystick in the appropriate direction.*

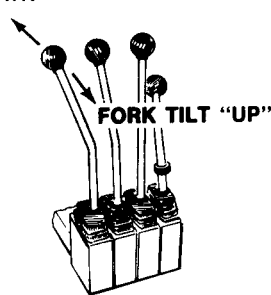


FORK TILT  
"DOWN"



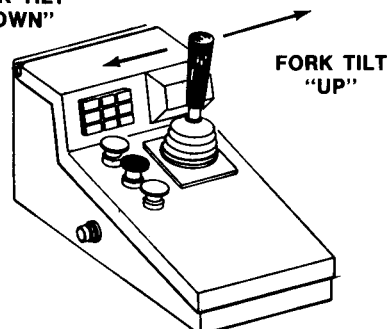
STANDARD  
CABLE CONTROL

FORK TILT  
"DOWN"



OPTIONAL  
CABLE CONTROL  
WITH AUTO-PACK

FORK TILT  
"DOWN"



OPTIONAL AIR CONTROL

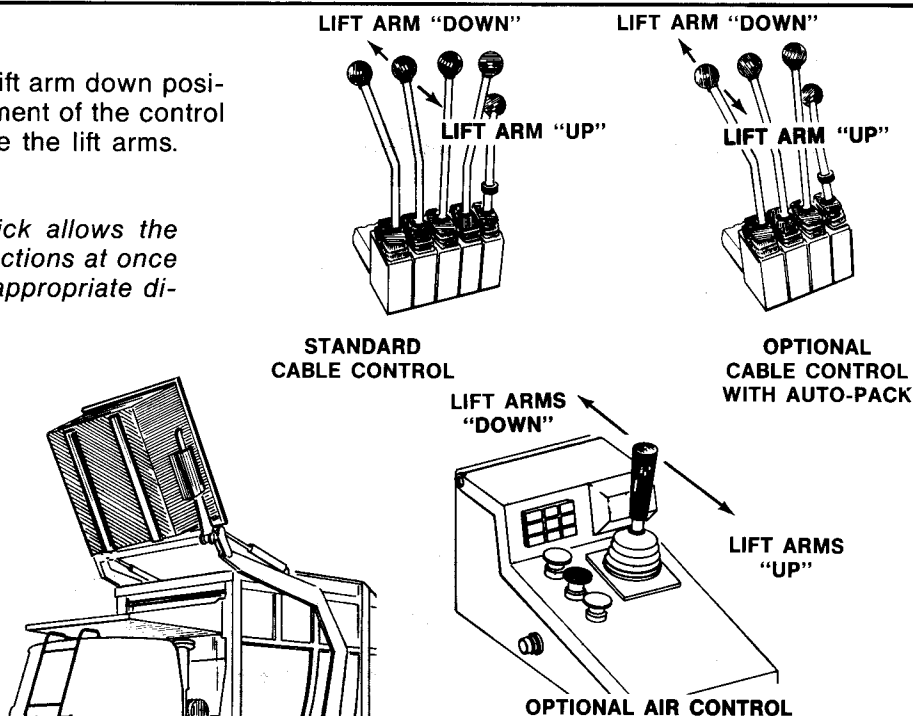


**LIFT ARM CONTROL**

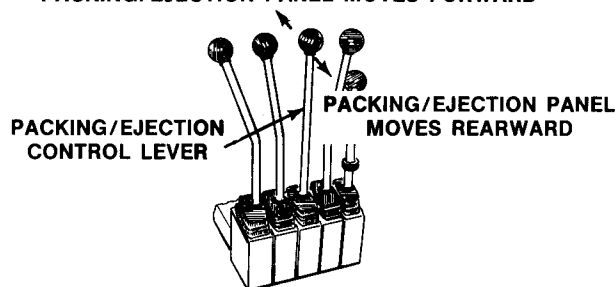
When the control is moved to the lift arm down position the lift arms will lower. Movement of the control to the lift arm up position will raise the lift arms.

**NOTE**

*The optional air control joystick allows the operator to perform two (2) functions at once by moving the joystick to the appropriate direction.*

**PACK WITH STANDARD CONTROL**

When the control lever is moved to the packing/ejection position the packing/ejection panel will move rearward compacting the refuse. When the panel no longer moves rearward the control lever is moved to the packing/ejection forward position and the packing/ejection panel is moved forward in the body. When the packing/ejection panel is moved all the way forward the control lever is moved to neutral.

**PACKING/EJECTION PANEL MOVES FORWARD****AUTO-PACK BUTTON WITH OPTIONAL AIR CONTROL OR OPTIONAL CABLE CONTROL WITH AUTO-PACK**

Depressing the green pushbutton will cause the packing/ejection panel to move rearward until reaching the mid-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**

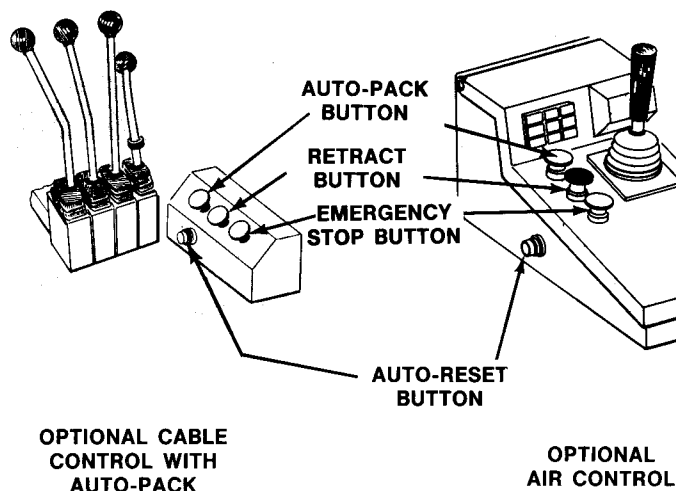
Depressing this red button at any time will stop the packing/ejection panel.

**RETRACT BUTTON**

This black button is used to manually retract the packing/ejection panel after pushing the emergency stop button but before pushing the auto reset button.

**AUTO-RESET BUTTON**

This button, located on the side of the air control console is used to continue the movement of the packing/ejection panel after depressing the red emergency stop button. The packing/ejection panel will move in the direction selected (pack "green" or retract "black") prior to depression of the auto-reset button.



## OPERATION

### TOP DOOR OPEN WITH STANDARD CONTROL OR OPTIONAL CONTROL WITH AUTO-PACK

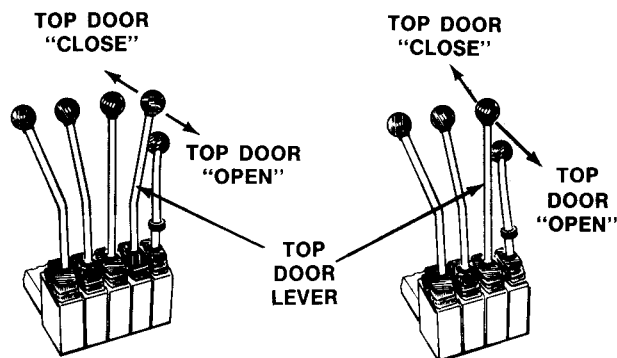
The standard sliding top door is opened manually by moving the top door control lever to the open position. The top door is usually left in the open position. A green indicator light will illuminate when the door is fully open.

Continue to hold the lever until the door is fully opened.

Close the top door by moving the top door lever to the closed position until the "top door partial open" light goes out and the top door is closed. The top door is usually closed when the unit is full or traveling long distances at highway speeds.

#### NOTE

*If the unit is equipped with the optional hinged top door the opening and closing of the door is automatic and functions each time the lift arms are raised or lowered.*

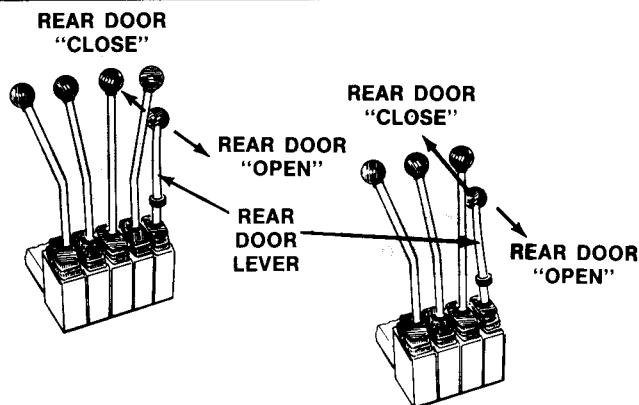


#### CAUTION

On units with the standard sliding top door the operator must 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.

### REAR DOOR OPEN WITH STANDARD CONTROL OR OPTIONAL CONTROL WITH AUTO-PACK

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



### OPTIONAL AIR CONTROL

#### REAR DOOR TOGGLE SWITCH

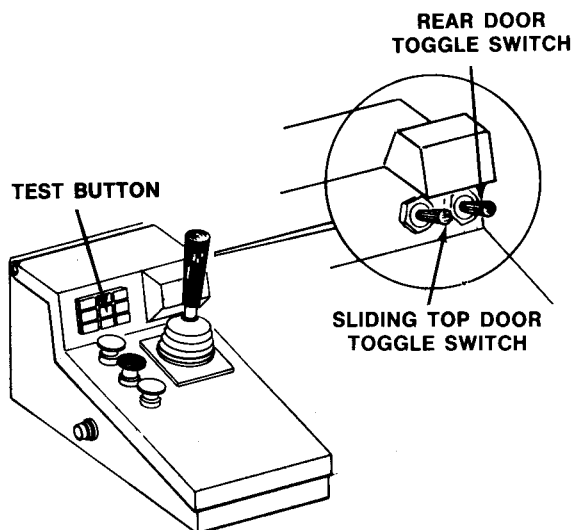
The rear door toggle switch, located under a cover on the control console, controls the movement of the rear door. Moving the toggle switch up will raise the rear door. Pushing the toggle switch down will lower the rear door.

#### SLIDING TOP DOOR SWITCH

The sliding top door toggle switch is located under a cover on the control console which 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.

#### TEST BUTTON

Depressing this button located in the center of the function light cluster will cause all of the indicator lights on the control console to light.

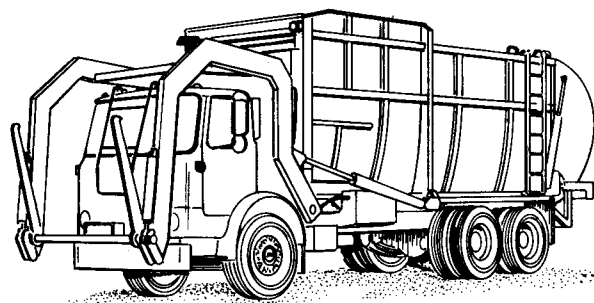


### OPERATING PROCEDURES

This section of the manual provides all the instructions necessary to start and operate the FL-104, including specific instructions for loading, packing and unloading the unit.

#### NOTE

*It's important that the operators and maintenance personnel understand these procedures.*



### PRE-OPERATING WALK-AROUND INSPECTION

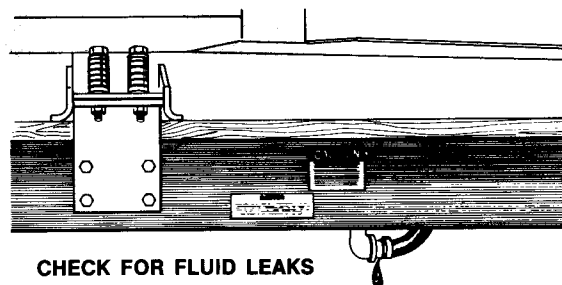
Each day, before starting the unit, perform the following "walk-around" inspection.

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

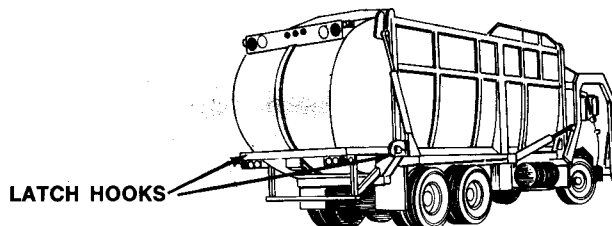
#### NOTE

*A decal kit, free of charge, is available from your local authorized Leach Distributor.*

2. As you are checking for decals, also look 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 rear door latch hooks are securely locked against the adjustable latch locks.



CHECK FOR FLUID LEAKS



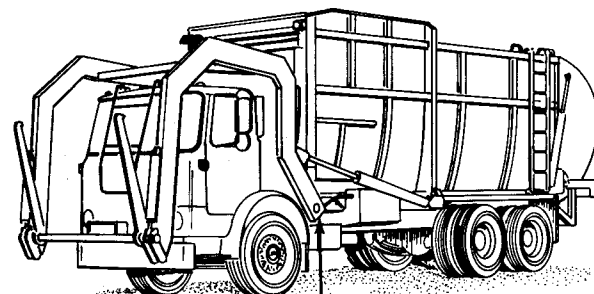
LATCH HOOKS

5. Check the lift arm bearing area to ensure that no metal to metal contact is present between the 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.**

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



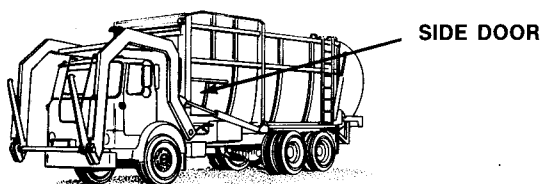
BEARING AREA

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



## OPERATION

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



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

### CAUTION

Never operate the FL-104 with any part of the control system removed, serious damage could result.

10. Check all the operating and running lights. Make sure none are missing and that there are no burned out bulbs.
11. 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.

### CAUTION

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

12. 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 rear door closed, the lift arms up and forks tilted up in the travel position and the top door open.
13. Check the return line filter indicator.
14. Again check for fluid leaks at the hydraulic cylinders, valves, and fittings.
15. Operate the controls to check each hydraulic circuit.

#### NOTE

See *Operating Instructions* for specific operation of each control.

16. 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 is working properly.

### WARNING

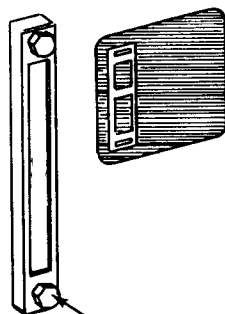
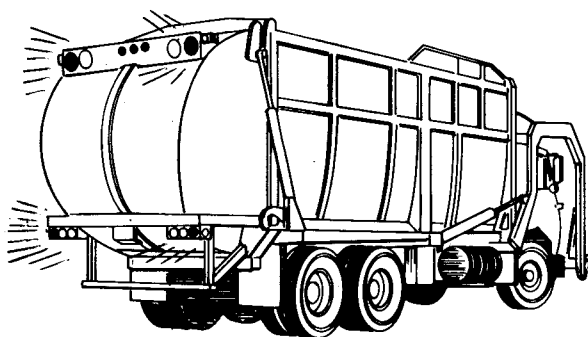
Do not operate a unit that is in need of service or repair. Death, serious injury, or damage to the equipment could result.

17. 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.

### CAUTION

The access door must be closed for the packing/ejection panel to be in operation on units equipped with the optional air control. 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 LIGHTS

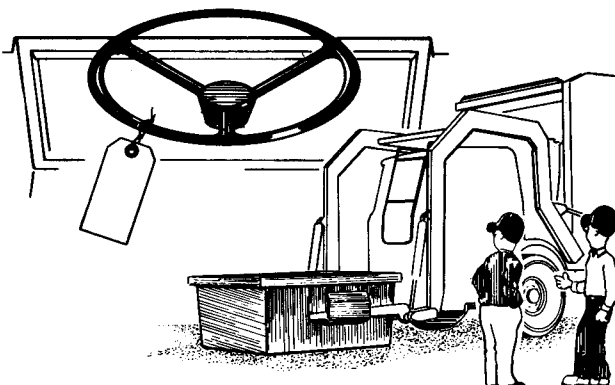


SIGHT GAUGE



FILTER INDICATOR

#### REPORT PROBLEMS TO MAINTENANCE SUPERVISOR



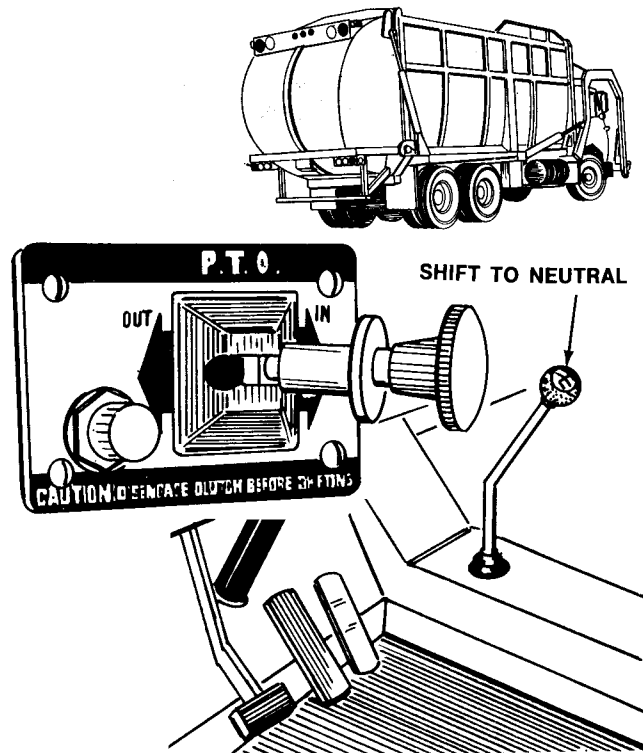
## OPERATING INSTRUCTIONS

### 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 be in the travel position; forks tilted up, lift arms down and the rear door latched shut. 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 should be engaged after the unit is close to and aligned with the container to be lifted.

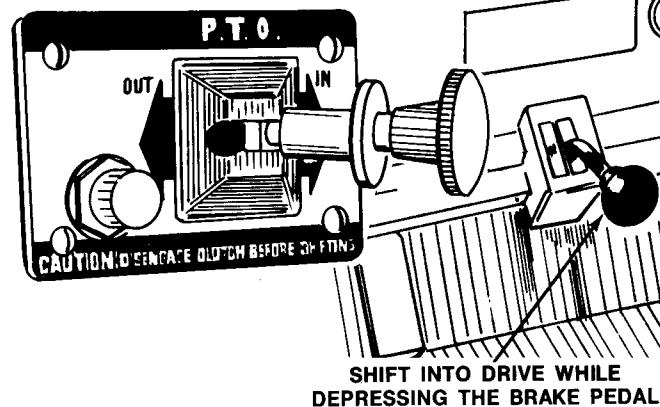
### STANDARD TRANSMISSION

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.



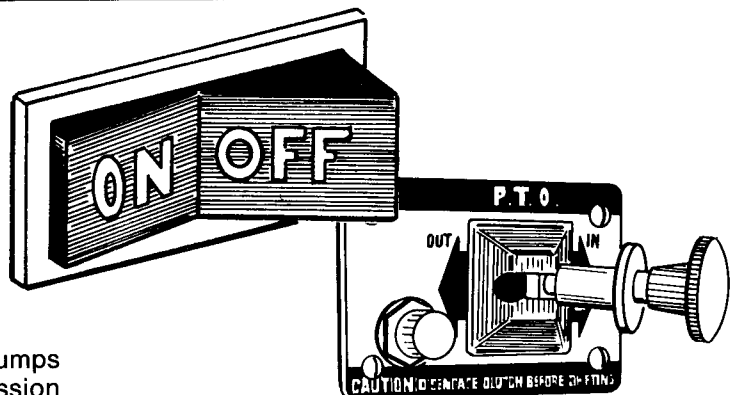
### AUTOMATIC TRANSMISSION

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.



### HOT SHIFT OR DRY VALVE

A hot shift PTO or dry valve of front mounted pumps may be engaged independent of the transmission operation, although the unit should be stopped and at an idle.



## OPERATION

### LOADING

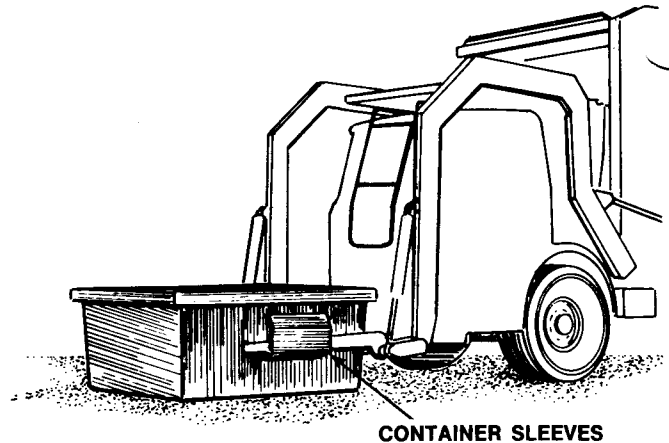
Lower the forks until they are parallel with the container sleeves. It may be necessary to raise or lower the lift arms to align the forks.

#### 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

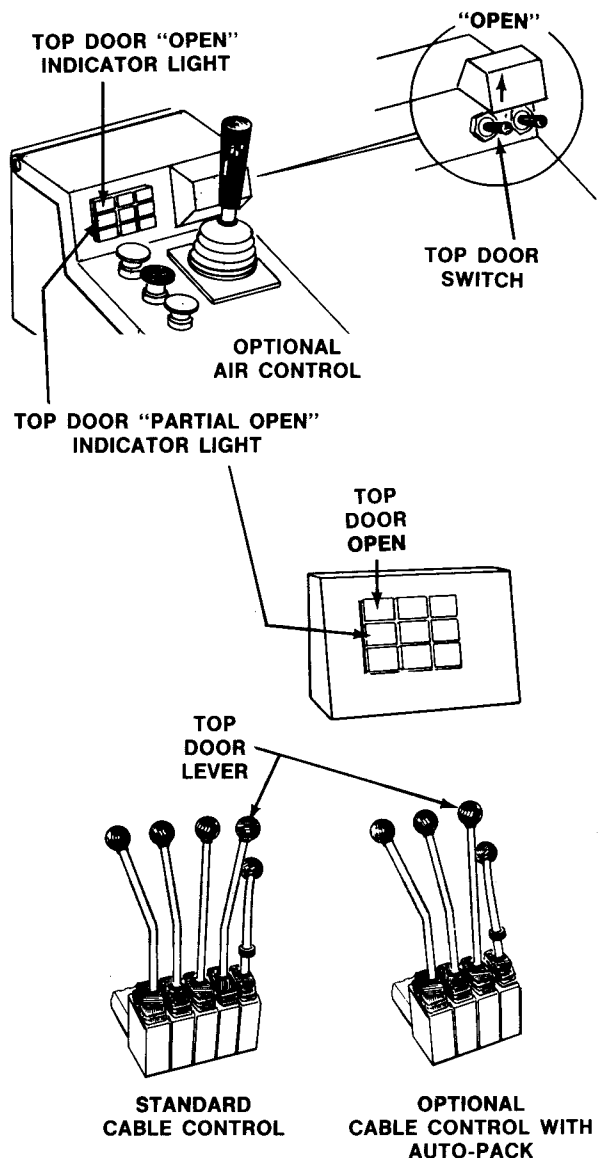
1. The standard sliding top door is manually opened by the operator. The door must be fully open before raising the container. A green indicator light will illuminate when the door reaches the full open position. The sliding top door is usually left in the open position for normal operation.
2. When the sliding top door is fully closed the "top door partially closed" light will stay on. The top door should be closed when the unit is full or for traveling long distances at highway speeds.

#### NOTE

*If the unit is equipped with the optional hinged top door the opening and closing of the door is automatic and functions each time the lift arms are raised or lowered.*

### CAUTION

On units with the standard sliding top door the operator must 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.



### LIFTING THE CONTAINER

#### CAUTION

Check to insure that there is adequate overhead clearance to raise the container for dumping.

1. Raise the container, as the 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 control lever is moved and the engine speed. The operator controls the engine speed by depressing the accelerator after the control lever is activated.
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

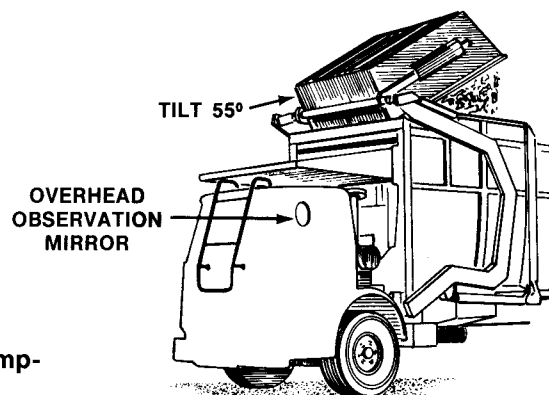
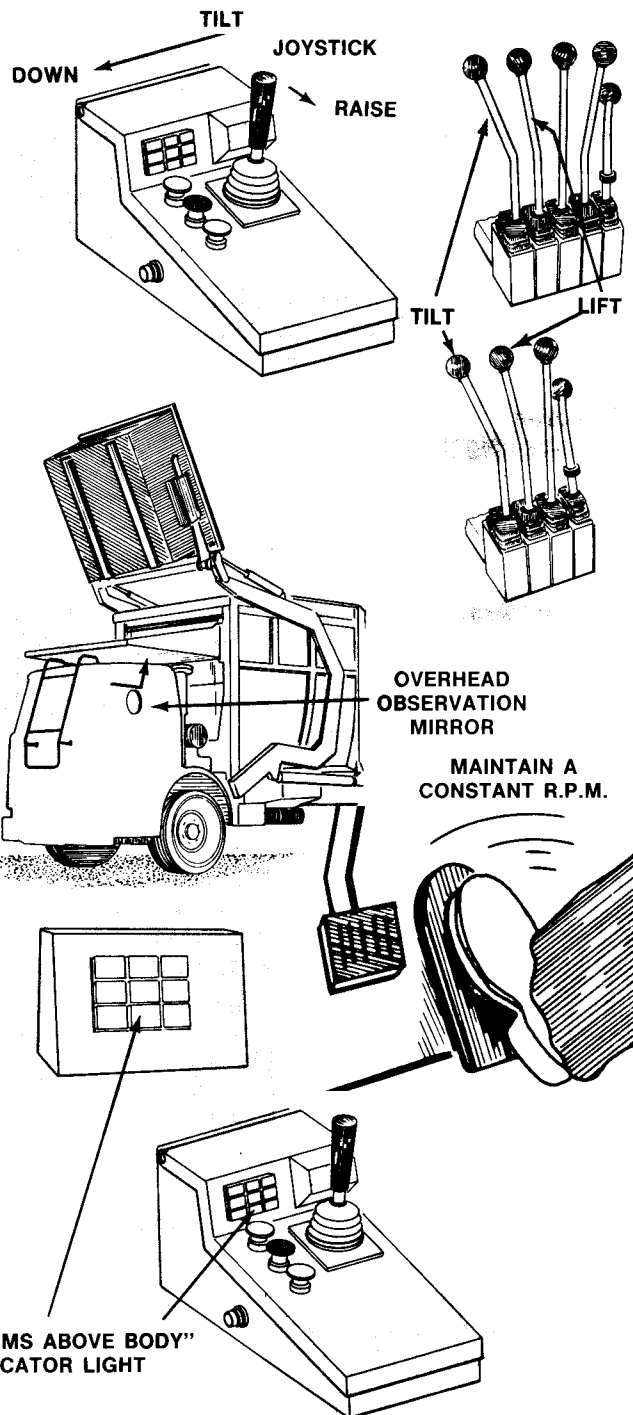
Do not attempt to dump overloaded containers.

### DUMPING THE CONTAINER AFTER RAISING THE LIFT ARMS

1. To dump the refuse from the container into the body tilt the forks back.
2. The container may be moved back and forth 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° from vertical, when dumping the container.



### LOWERING THE CONTAINER

1. Raise the empty container to a vertical position.

#### CAUTION

Lowering a container before tilting the forks down 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

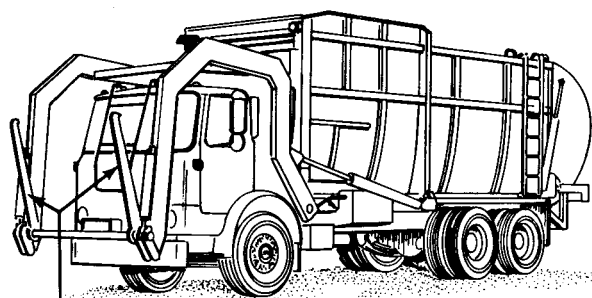
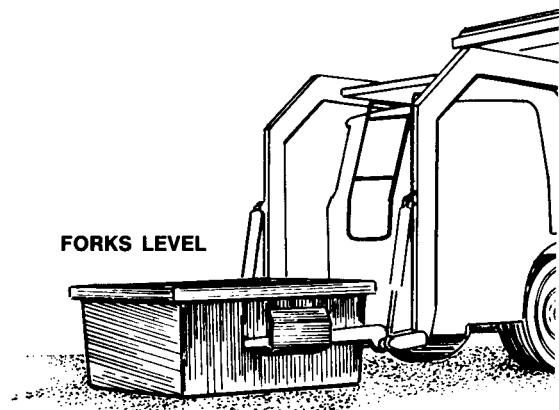
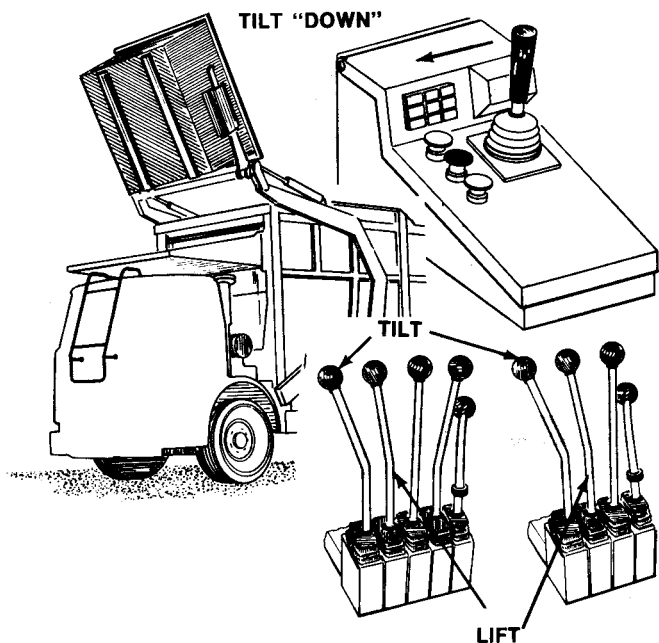
On units equipped with the optional hinged top door the top door must be closed before moving the vehicle. Use the overhead mirror provided to insure that the top door is closed.

4. Back the unit away from the container.

#### CAUTION

Make sure the roadway is clear before traveling in reverse.

5. Stop the truck and tilt the forks to the vertical position for traveling.



FORKS VERTICAL FOR TRAVEL



## COMPACTION

While packing 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 item, and not over loading the hopper, are learned skills that will affect the compaction rate of a unit.

4. To achieve maximum compaction on the FL-104, dump approximately eight (8) loose yards of refuse into the body and utilize the auto-pack function. Continue dumping approximately eight (8) loose yards and auto-packing. After dumping approximately five (5) containers, full pack the unit. Maximum compaction can be achieved by operating experience and will allow the operator to tailor the load to the conditions and type of refuse.

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.

## AUTO PACK WITH OPTIONAL AIR OR CABLE CONTROL WITH 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 located on the side of the control console after depressing either the pack or the retract button.

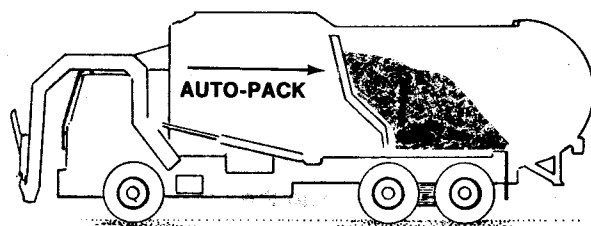
### CAUTION

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 auto-reset button.

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

## FULL PACK

If desired, the unit may be full-packed. It is necessary to depress and continually hold the "green" auto-pack button located on the control console. The packing/ejection panel will continue moving to the rear, past the normal auto-pack position. When the "green" auto-pack button is released the packing/ejection panel will automatically return to the front of the unit and stop.

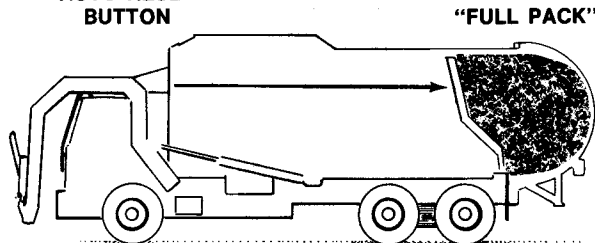
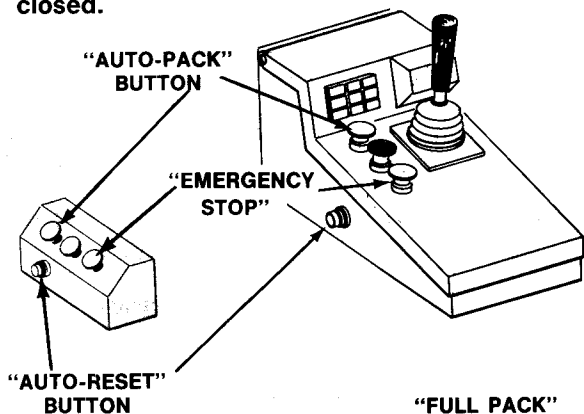


### NOTE

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

### CAUTION

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



## OPERATION

### UNLOADING WITH STANDARD CONTROL OR OPTIONAL CONTROL WITH AUTO-PACK

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

1. Engage the PTO/Pump.
2. The operator moves the control lever to raise the rear door. As the hooks begin to release, the dash warning light illuminates.

#### CAUTION

Be sure the area behind the unit is clear before raising the rear door.

#### NOTE

The backup alarm, beacon light and rear door ajar indicator light will come on.

3. On units equipped with the standard control the operator moves the packing/ejection lever. Engine RPM must be maintained at the designated speed to provide enough force to empty the unit. As the ejection plate moves rearward, refuse is pushed out.

On units equipped with the optional control and auto-pack, the operator depresses and holds the auto-packing/ejection 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, disengage the PTO/Pump and pull the truck forward enough for the rear door to clear the ejected refuse when lowered.

#### DANGER

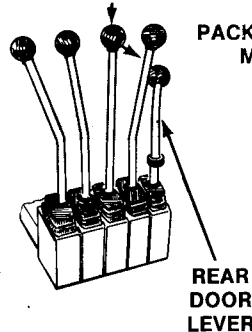
Never enter under a raised rear door.

5. Engage the PTO/Pump. The operator moves the rear door control lever to lower and latch the rear door. The rear door 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 prior to driving out of the unloading site.

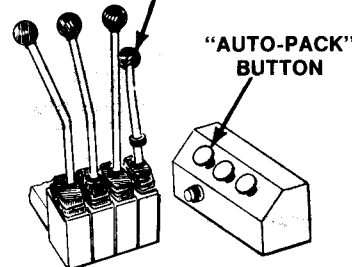
#### STANDARD CABLE CONTROL

#### PACKING/EJECTION CONTROL LEVER

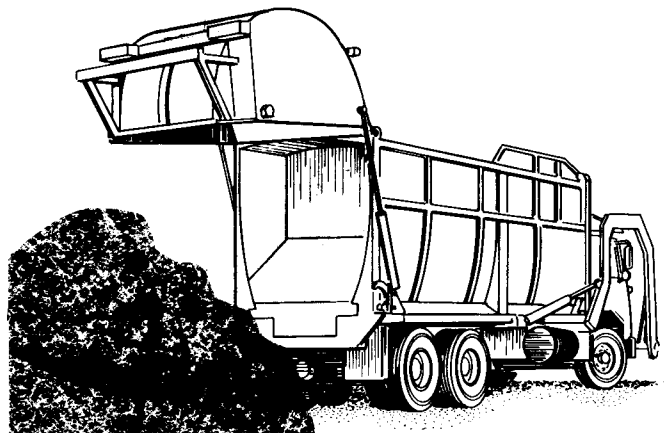
PACKING/EJECTION PANEL MOVES REARWARD



REAR DOOR LEVER



#### OPTIONAL CABLE CONTROL WITH AUTO-PACK



### UNLOADING WITH OPTIONAL AIR CONTROL

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

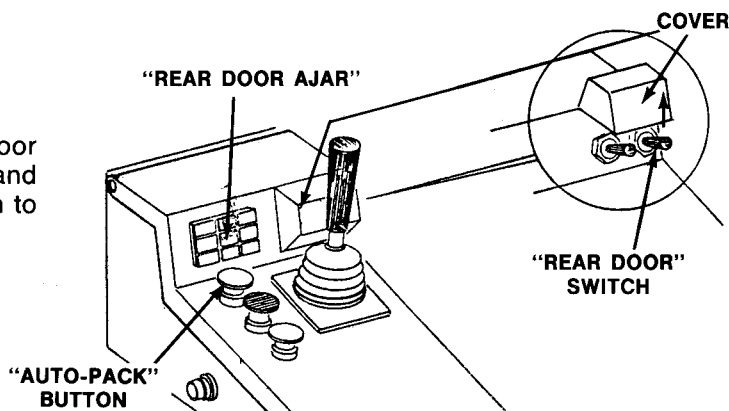
1. Engage the PTO/Pump.
2. The operator lifts the cover on the rear door switch. Moving the switch upward unlatches and then raises the rear door. As the hooks begin to release, the dash warning light illuminates.

#### CAUTION

Be sure the area behind the unit is clear before raising the rear door.

#### NOTE

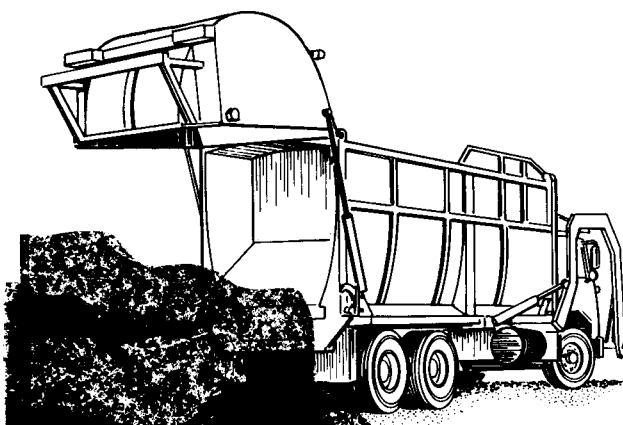
The backup alarm, beacon light and rear door ajar indicator light will come on.



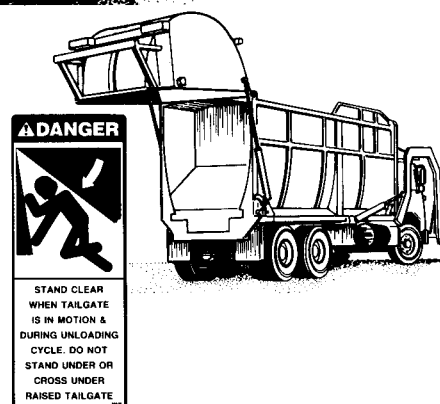
3. The operator depresses and holds the auto-packing/ejection pushbutton. Engine RPM must be maintained at the designated speed to provide enough force to empty the unit. As the ejection panel moves rearward, refuse is pushed out.
4. Once the load is ejected, disengage the PTO/Pump and pull the truck forward enough for the rear door to clear the ejected refuse when lowered.

#### DANGER

Never enter under a raised rear door.

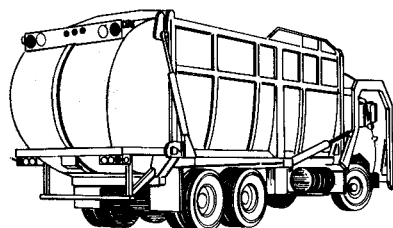


5. Engage the PTO/Pump. The operator moves the rear door toggle switch downward to lower and latch the rear door. The rear door warning light and beacon will go out and the back-up alarm will quit sounding as the hooks are latched securely.
6. Operator closes the safety cover.
7. Disengage the PTO prior to driving out of the unloading site.



### SHUTDOWN

1. Put all controls in neutral.
2. Set parking brake.
3. Shut off engine.
4. Remove key.
5. Lock vehicle.
6. Open the air tank drain valve.



#### NOTE

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



APPROX. 10  
CARS BEING  
MAINTAINED  
IN THE SHOP  
AT THE  
END OF  
THE DAY

## GENERAL REPAIR PRACTICES

**⚠ WARNING**

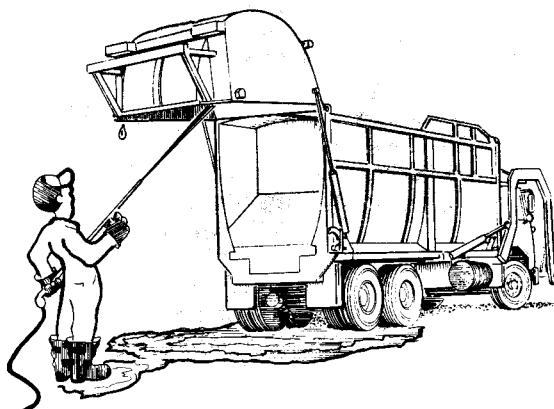
Proper service and repair is important for the safe, reliable operation of all mechanical products. The service procedures recommended and described in this service manual are effective methods for performing service operations. Some of these service operations require the use of tools specially designed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

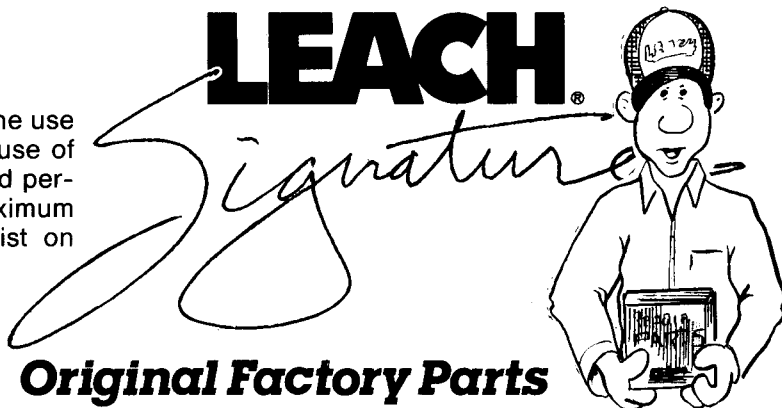
that these procedures are not all inclusive. Since Leach Company could not possibly know, evaluate and advise the service trade of all possible ways in which service might be done or of the possible hazardous consequences of each way, we have not undertaken any such broad evaluation. Accordingly, anyone 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**

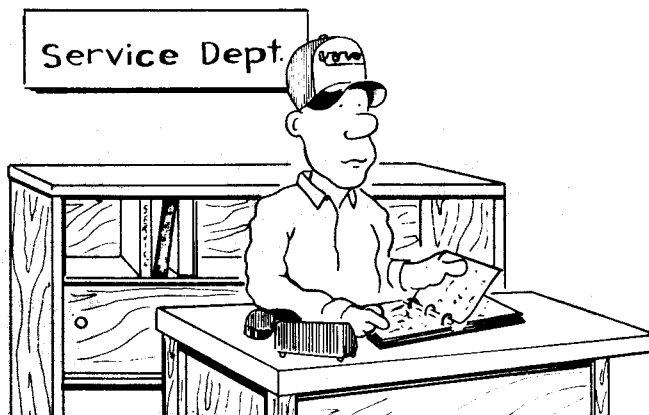
Proper preparation is very important for efficient and safe service work. A clean work area at the start of each job will allow you to perform the repair as easily and quickly as possible, and reduce the incidence of misplaced tools and parts. If the portion of the unit to be repaired is excessively 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 11.

**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. Insure maximum reliability and protect your investment — insist on Leach original factory replacement 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 rear door, place them as shown in Sec. 9, SERVICE AND REPAIR, under REAR DOOR REPAIR.
  5. When working on the unit always use the service tools listed in Sec. 11, SERVICE TOOLS if so directed by the instructions in Sec. 9, SERVICE AND REPAIR.
  6. 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.
- 

**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 rear door.
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 rear door 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. Bring the packing/ejection plate to the most forward position.
- 

**WELDING PRECAUTIONS****ELECTRIC WELDERS**

1. Electric arc welders should have a separate, fused disconnect circuit.
2. Welders must be used according to the manufacturers 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 or goggles.
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.

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 should be done in a location well away from flammable materials.

**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 the regulators must be kept free of petroleum products.
  3. Before using the equipment, inspect it for cleanliness and for leaks.
-

## 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 to release pressure.
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.
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.

### NOTE

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

## 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 CURRENT and CHECKING CONTINUITY.

### CHECKING FOR CURRENT

A 12 volt 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 current is to be checked. If current is present, the light will be on . . . if no current 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 rear door hinge area) .....	E6010, E6011, E6013
Rear door hinge area .....	E11018, E7018
Rear door .....	E6010, E6011, E6013
Top door .....	E6010, E6011
Packing/ejection panel .....	E11018, E7018

## **LIFTING INSTRUCTIONS**

Because of the size and weight of the major components found on the FL-104, 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 rear door.

### **CAPACITY OF LIFTING DEVICE REQUIRED FOR REMOVAL**

Cylinders .....	500 lbs.
Telescopic packing/ejection cylinders .....	1000 lbs.
Top door .....	1000 lbs.
Lift arm assembly .....	4000 lbs.
Packing/ejection panel .....	4000 lbs.
Rear door .....	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 rear door. 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 Branch, Oblong Link, Foundry Hook)
Size .....	½ in.
Hammer locks .....	½ in.
Oblong rings .....	½ in.



## CAPSCREW MARKING AND TORQUE VALUES

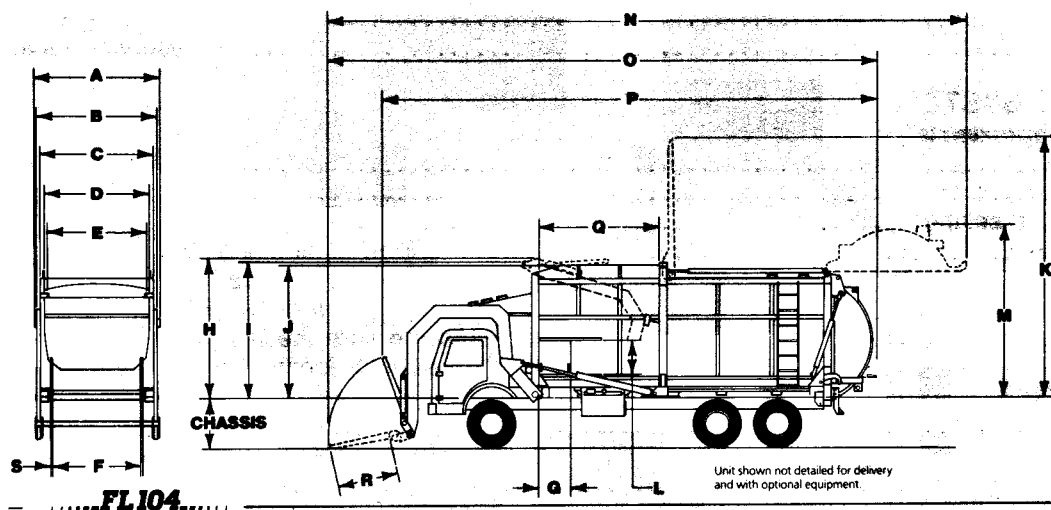
Usage	Much Used	Much Used	Used at Times	Used at Times
	To 1/2-69,000 To 3/4-64,000	To 3/4-120,000 To 1-115,000	To 5/8-140,000 To 3/4-133,000	150,000
Capscrew Diameter & Minimum Tensile Strength PSI	To 1-55,000			
Quality of Mat'l	Indeterminate	Min. Commercial	Med. Commercial	Best Commercial
SAE Grade Number	1 or 2	5	6 or 7	8
<b>CAPSCREW HEAD MARKINGS</b> Manufacturer's marks may vary. These are all SAE Grade 5 (3-line). <div>       </div>				
Capscrew Body Size (Inches) - (Thread)	Torque Ft-Lb (kg m)	Torque Ft-Lb (kg m)	Torque Ft-Lb (kg m)	Torque Ft-Lb (kg m)
1/4 - 20	5 (0.69)	8 (1.11)	10 (1.38)	12 (1.66)
- 28	(0.83)	10 (1.38)		14 (1.94)
5/16 - 18	11 (1.52)	17 (2.35)	19 (2.63)	24 (3.32)
- 24	13 (1.80)	19 (2.63)		27 (3.73)
3/8 - 16	18 (2.49)	31 (4.29)	34 (4.70)	44 (6.09)
- 24	20 (2.77)	35 (4.84)		49 (6.78)
7/16 - 14	28 (3.81)	49 (6.78)	55 (7.61)	70 (9.68)
- 20	30 (4.15)	55 (7.61)		78 (10.79)
1/2 - 13	39 (5.39)	75 (10.37)	85 (11.76)	105 (14.52)
- 20	41 (5.67)	85 (11.76)		120 (16.60)
9/16 - 12	51 (7.05)	110 (15.21)	120 (16.60)	155 (21.44)
- 18	55 (7.60)	120 (16.60)		170 (23.51)
5/8 - 11	83 (11.48)	150 (20.75)	167 (23.10)	210 (29.04)
- 18	95 (13.14)	170 (23.51)		240 (33.19)
3/4 - 10	105 (14.52)	270 (37.34)	280 (38.72)	375 (51.86)
- 16	115 (15.90)	295 (40.80)		420 (58.09)
7/8 - 9	160 (22.13)	395 (54.63)	440 (60.85)	605 (83.67)
- 14	175 (24.20)	435 (60.16)		675 (93.35)
1 - 8	235 (32.50)	590 (81.60)	660 (91.28)	910 (125.85)
- 14	250 (34.58)	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.



## SECTION 4



BODY DIMENSIONS	37 CU YD		40 CU YD	
	IN	MM	IN	MM
A) Width overall	102	2591	102	2591
B) Width over lift arms	98	2489	98	2489
C) Width over body	91	2311	91	2311
D) Width inside windcreens	84	2134	84	2134
E) Width inside hopper opening	84	2134	84	2134
F) Width inside forks	74.5	1892	74.5	1892
G) Width side door opening	24	610	24	610
H) Height-chassis to fork in dump position	115.5	2934	115.5	2934
I) Height above chassis with sliding top door	110	2794	110	2794
J) Height above chassis with hinged top door	108	2743	108	2743
K) Height above chassis with hinged top door open	213	5410	213	5410
L) Height side door opening	29.5	749	29.5	749
M) Height above chassis with rear door open	137.5	3492	156	3962
N) Length-rear door open & forks down	523	13284	523	13284
O) Length-rear door closed & forks down	447.5	11366	466	11836
P) Length-rear door closed & forks up	399.5	10147	418	10617
Q) Length of hopper opening	98	2489	98	2489
R) Usable fork length	51	1295	51	1295
S) Fork thickness	1.25	32	1.25	32

**BODY CONSTRUCTION (ALL SIZES)**

Sides	10 gauge	80,000 PSI
Top	11 gauge	80,000 PSI
Floor	3/16"	100,000 PSI
Hopper Floor	1/4"	100,000 PSI
Hopper Sides	3/16"	80,000 PSI
Floor Trough	3/16"	100,000 PSI

**TAILGATE (ALL SIZES)**  
 10 gauge 50,000 PSI  
 Raised & Lowered Hydraulically  
 Latched & Unlatched Hydraulically  
 Cylinders (2) 3" dia. x 28.62" Stroke

**PACKING & EJECTION CYLINDER**  
 Scissor-action Packing/Ejection Cylinders  
 Double-Acting Telescopic, 3 Stage  
 (2) 6 1/4" x 5 1/4" x 4 1/4"

**PACKING & EJECTION PLATE**  
 Upper Plate 11 gauge 50,000 PSI  
 Lower Plate 3/16" 50,000 PSI  
 (4) 1 1/4" x 3" x 48" Polyethylene Guide-Shoes

**HYDRAULIC SYSTEM**  
 Pump 42 GPM at 1200 RPM  
 Maximum System Pressure 3000 PSI  
 Hydraulic Tank Capacity 40 gallons  
 8 Micron In-Line Filter  
 141 Micron Suction Line Strainer

**LIFT ARM & FORK MECHANISM (ALL SIZES)**  
 8000 lb Lift Arm Capacity Rated  
 Top & Bottom Bars 50,000 PSI  
 Side Plates 50,000 PSI  
 Full Welded Steel Box Construction  
 Torque Tube 4 1/2" OD x 3 1/2" ID 46,000 PSI  
 (2) Split Bearings 4 1/2" x 6 1/2" Bronze  
 (2) Lift Cylinders 4 1/2" dia. x 40.12" Stroke  
 (2) Fork Cylinders 3 1/2" dia. x 23" Stroke

**MINIMUM CHASSIS REQUIREMENTS (ALL SIZES)**  
 GVWR 64,000 lbs  
 Front Axle 20,000 lbs  
 Rear Axle 44,000 lbs  
 Wheelbase 210" - 214"

(Refer to Leach Company Gray Book for Additional Chassis Information)

Due to our constant effort to offer the finest products available, we must reserve the right to change specifications without notice and without obligation to install them on units sold. Illustrations shown may include optional equipment and accessories, and may not include all standard equipment.

Truck selected must be capable of carrying net weight of body plus weight of refuse to be collected.  
 CA Must be usable with no obstructions protruding above frame.



SECTION 5

SPECIFICATIONS

LUBRICANTS

Oil ..... SAE #10 or equivalent

Grease ..... Multiservice (quantity grade)

HYDRAULIC SYSTEM

CAPACITY (approximately):

Fluid tank ..... 40 gal. Tank

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  
driven by the PTO from the truck transmission

Capacity ..... 42 gpm @ 1200 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	25Kv	25Kv
	40-37-3(10)	40-37-3(15)	40-37-3(15)



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:

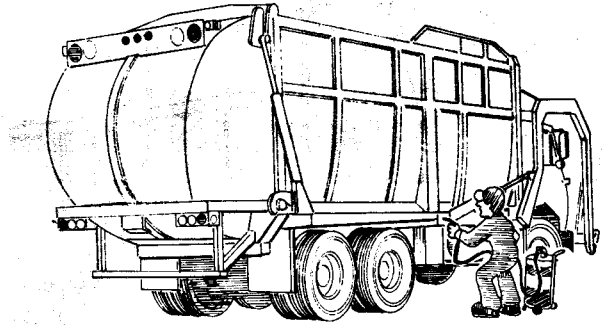
To serve its purpose and give long and satisfactory service, hydraulic fluid must possess desirable physical and chemical characteristics. Stability over a wide range of temperatures and under agitation is very important.

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.

## GENERAL

The FL-104 has been designed for long periods of efficient uninterrupted operation. Careful attention to proper preventive maintenance, as described in this section, will insure 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.

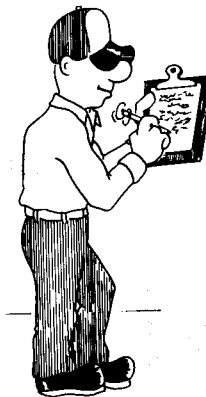


## OPERATING AND MAINTENANCE RECORDS

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-OPERATIONAL INSPECTION described in Sec. 3, OPERATION.

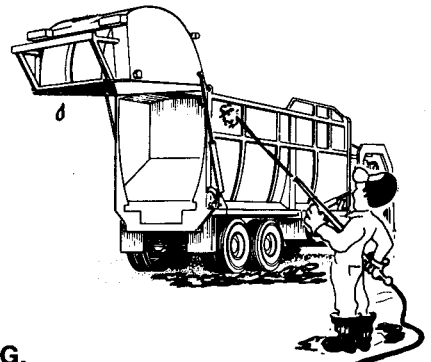
### **⚠ DANGER**

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

- 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.
- Check the visual indicator to determine the condition of the return line element.
- Check all major moving parts for smoothness and ease of operation.

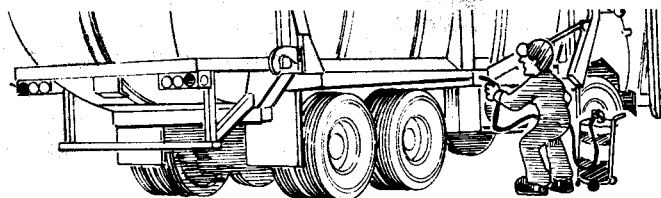
#### 2. CLEANING.

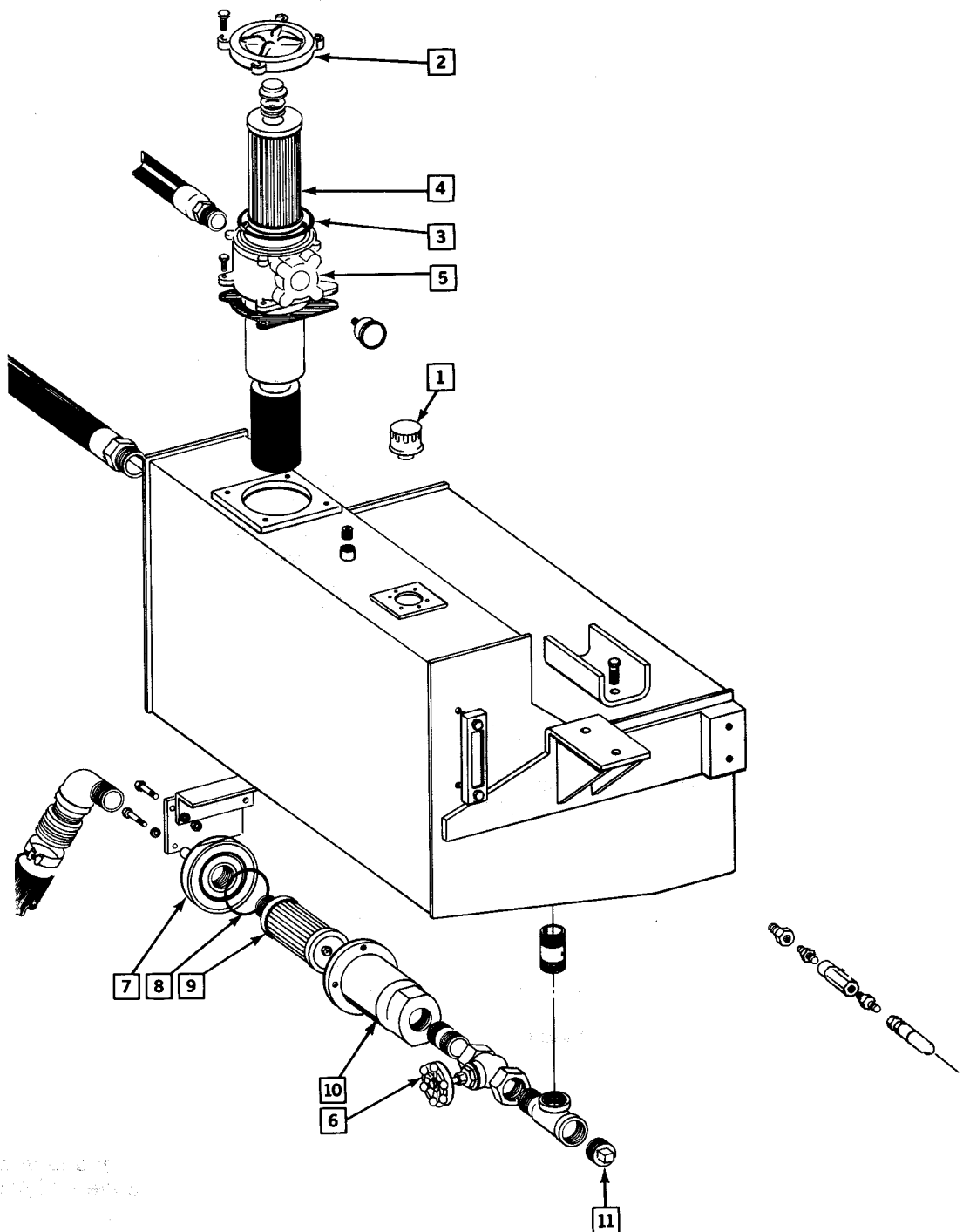
Hose the entire unit inside and out with clean water. Make sure no refuse is lodged in the body trough or behind the packing/ejection panel.



#### 3. LUBRICATION.

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





1. The first step in the assembly process is to install the base unit. This is done by securing the base unit to the mounting plate using the provided screws. Once the base unit is in place, the next step is to install the pump or valve assembly. This is done by attaching the pump or valve assembly to the base unit using the provided brackets and screws. The final step is to install the control system. This is done by connecting the control system to the pump or valve assembly using the provided wiring and connectors.

**HYDRAULIC SYSTEM SERVICE**

(See accompanying Hydraulic System illustration)

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 Sec. 5, SPECIFICATIONS according to operating and weather conditions.

**CLEAN TANK BREATHER (WEEKLY)**

Clean the air breather (1) every week. Replace a breather that can not be cleaned adequately.

**LUBRICATION POINTS (WEEKLY)**

Every week (every 40 hours of operation) lubricate the unit as shown on the LUBRICATION CHART in this section.

**CHECK/REPLACE RETURN LINE FILTER ELEMENT**

The return line filter 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.

The condition of the filter element must be checked weekly by looking at the visual indicator on the filter. Refer to item 14 on the tank illustration.

**REPLACEMENT OF FILTER ELEMENT**

(See Hydraulic System Service Illustration)

1. Remove filter cover (2) and o-ring (3).
2. Remove element (4) and discard.
3. Install a new element (4).
4. Coat a new o-ring (3) with fresh hydraulic fluid and install in filter cover (2).
5. Install the cover (2) and secure it to the housing (5) with the attaching hardware.
6. Check the fluid level and replenish with fresh fluid as described earlier in this section under CHECKING FLUID LEVEL.

**⚠ 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 (6).
2. Remove cover (7) and o-ring (8).
3. Unscrew strainer (9).
4. Clean strainer (9) thoroughly in a suitable cleaning solvent.
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 (6).

**FLUSHING HYDRAULIC SYSTEM (YEARLY)**

1. Drain all fluid from the hydraulic tank into a suitable container by removing drain plug (11).
2. Wipe out the bottom of the tank.
3. Clean the strainer (9) as described above.
4. Fill the hydraulic tank with fresh fluid as specified in Sec. 5, SPECIFICATIONS, according to operating and weather conditions.
5. Start the truck and operate as described in Sec. 3, OPERATION. Leave all hydraulic cylinders in the retracted position and shut down the unit.
6. Recheck the fluid level and add fluid as necessary to bring level to the "NORMAL FILL LEVEL" on the sight gauge.

**NOTE**

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

## PREVENTIVE MAINTENANCE

## WEEKLY PREVENTIVE MAINTENANCE

**1. CLEANING.**

Clean and paint exposed metal surfaces to remove and prevent the formation of rust.

**2. INSPECTION.**

- 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 VALUE CHART provided in Sec. 4, GENERAL REPAIR PRACTICES.
- Check electrical wiring and insulation for frays, breaks and loose connections.

**3. LUBRICATION.**

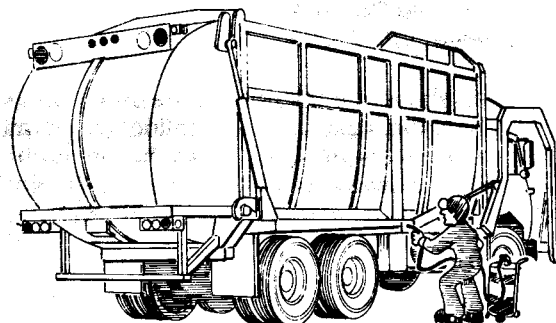
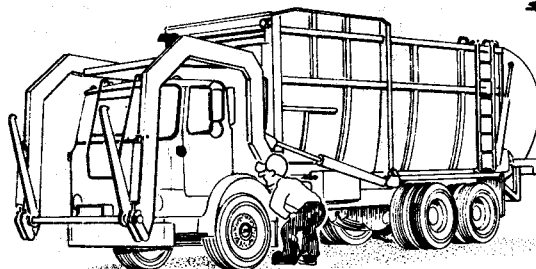
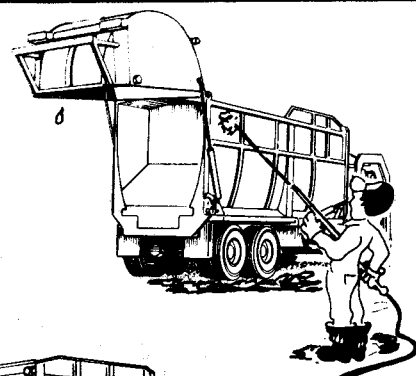
Refer to the LUBRICATION CHART in this section and service those items which require weekly lubrication.

**4. HYDRAULIC SYSTEM.**

- The return line filter element is vital to the service life of the hydraulic system. Check the replacement indicator on the filter assembly weekly. Refer to HYDRAULIC SYSTEM SERVICE later in this section for more detailed information about this important item.
- Check the breather cap on the hydraulic tank. Clean it weekly and replace it if it can not be cleaned thoroughly or is missing.

**5. CHECK-OUT PROCEDURES.**

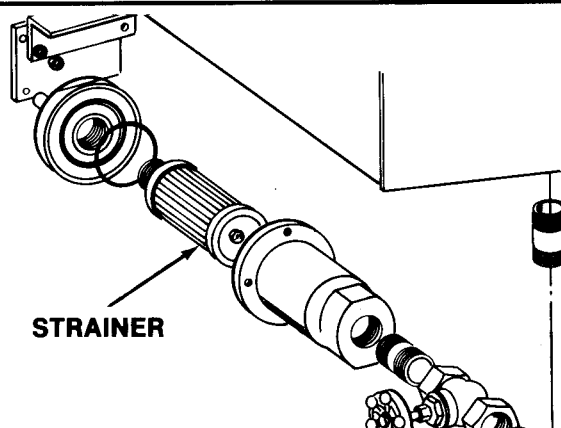
Each week perform the CHECK-OUT PROCEDURES listed in Sec. 7 of this manual.



## MONTHLY PREVENTIVE MAINTENANCE

**HYDRAULIC SYSTEM**

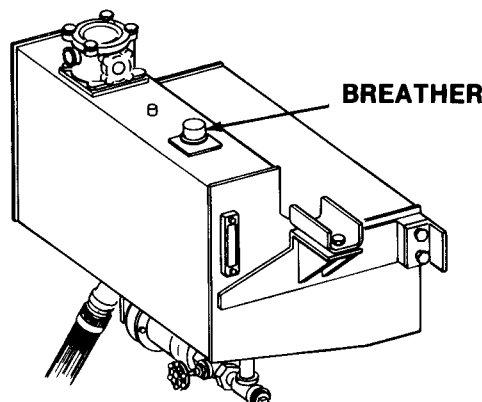
- Once a month, remove and clean the hydraulic tank fluid strainer as described in HYDRAULIC SYSTEM SERVICE in this section.



## YEARLY PREVENTIVE MAINTENANCE

**HYDRAULIC SYSTEM**

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





## PREVENTIVE MAINTENANCE

### HYDRAULIC SYSTEM SERVICE

(See accompanying hydraulic system illustration)

#### 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.

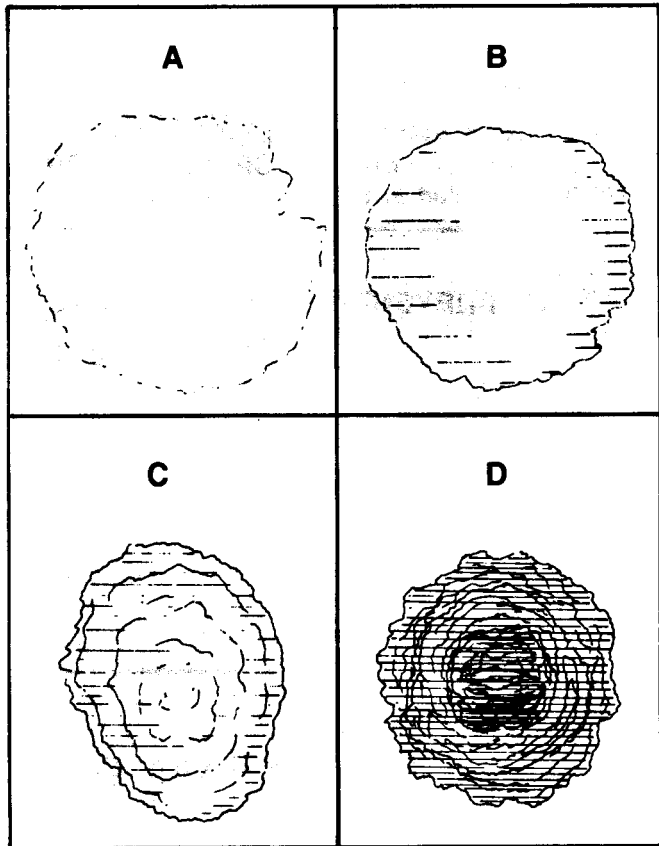
If the sample is the least bit "cloudy" it is an indication of water contamination, the source of which must be found and eliminated immediately. Common sources are inadequate outdoor storage, unsealed reservoir covers, or condensation.

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 Test will provide an indication that a more complete test may be necessary.*

- If the blotter remains colorless or develops only a light yellow ring, oxidation is under control.
- If color develops but is uniform throughout, the fluid is still serviceable but should be checked for correct additive content.
- If the sample shows distinct rings the fluid should be changed.
- 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.**

## GENERAL

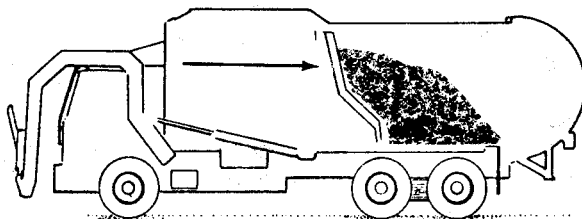
The FL-104 has been designed to provide long periods of trouble-free operation. Performing the check-out procedures below, at regular weekly intervals, will help to prevent unscheduled downtime.

### **▲WARNING**

Make sure you know and observe all safety precautions listed in Sec. 2 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**

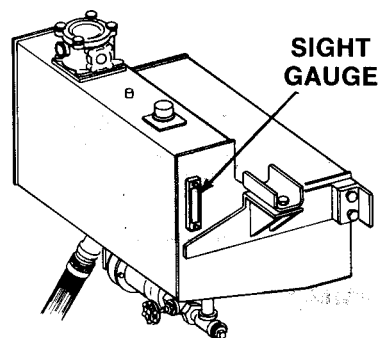
If the unit being worked on has an optional system such as the hinged top door, it is important to refer to Section 10, for specific instructions concerning those items. For example, when performing the check-out procedures listed in Section 7, refer to Section 10 to see what different or additional procedures must be followed for an optional item.

## CHECK HYDRAULIC TANK FLUID LEVEL

1. The unit must be in the following position.
  - a. Packing/ejection cylinder retracted.
  - b. Rear door 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 Sec. 6, **PREVENTIVE MAINTENANCE**, for additional information about servicing the hydraulic tank.



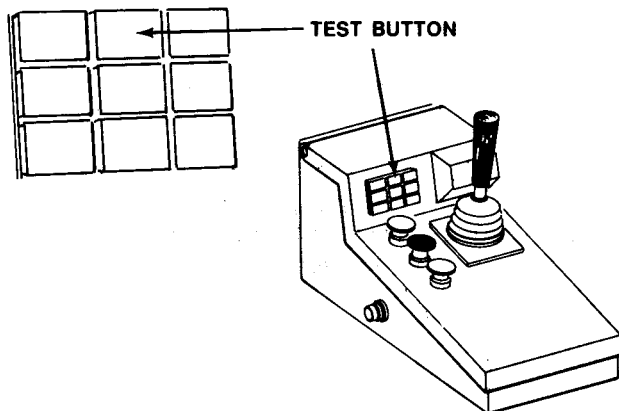
## CHECK ELECTRICAL SYSTEM

1. Check the warning lights in the cab by pushing the test button.
  - a. Arms above cab/top door partial closed.
  - b. Top door fully open.
  - c. Rear door open.

### **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-OUT

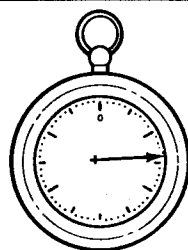
### CHECK DUMPING CYCLE TIME

Operational Status	
Truck Running	PTO Engaged

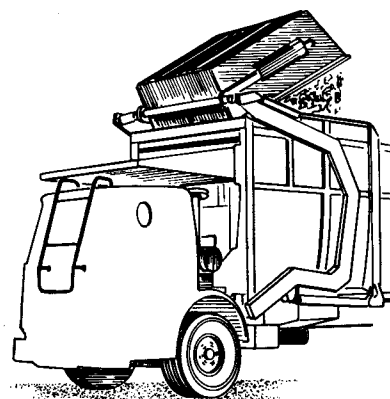
1. Move the lift arm control to fully raise the arms then immediately lower the lift arms. A complete cycle should take approximately 14 seconds. Do not tilt forks.

#### NOTE

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



APPROXIMATELY  
14 SECONDS



#### IF NOT:

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

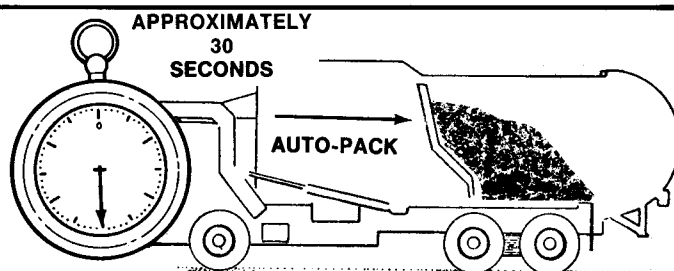
### CHECK PACKING CYCLE TIME

Operational Status	
Truck Running	PTO Engaged

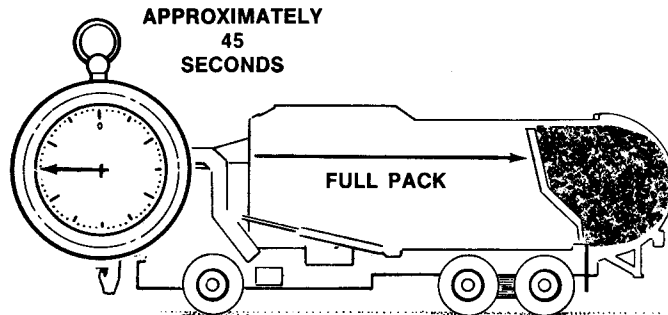
1. Move the packing control while maintaining the engine at the RPM shown on the dash decal. A complete cycle, the cylinders fully extended and then retracted should take approximately 30 seconds in the auto-pack mode and approximately 45 seconds in the full-pack mode.

#### IF NOT:

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



APPROXIMATELY  
30  
SECONDS



APPROXIMATELY  
45  
SECONDS

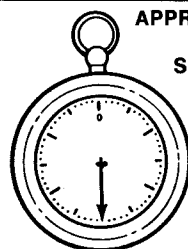
### CHECK SLIDING TOP DOOR CYCLE TIME

Operational Status	
Truck Running	PTO Engaged

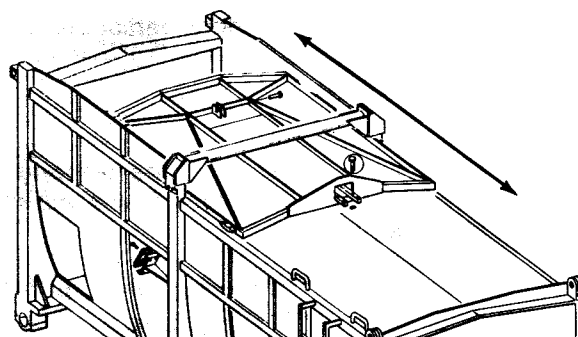
1. Move the top door control while maintaining the engine at the RPM shown on the dash decal. A complete cycle, the cylinder fully extended and then retracted, should take approximately 30 seconds.

#### NOTE

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



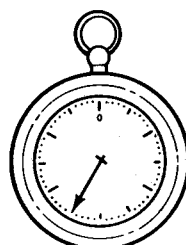
APPROXIMATELY  
30  
SECONDS



## CHECK REAR DOOR CYCLE TIME

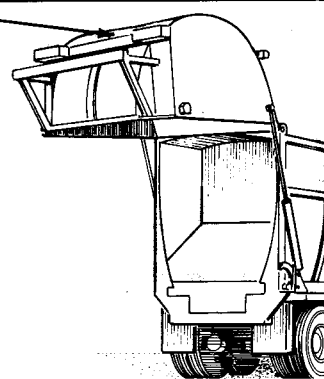
Operational Status	
Truck Running	PTO Engaged

1. Move the rear door 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 35 seconds.



APPROXIMATELY  
35 SECONDS

REAR  
DOOR



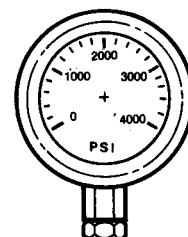
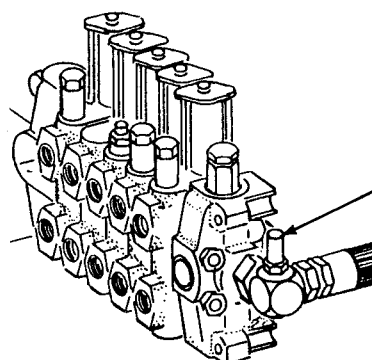
## CHECK PRESSURES

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 check-out 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 first section of the 5-spool control valve assembly.
2. Start the unit and engage the PTO.
3. Perform the following checks in order.

5  
SPOOL  
CONTROL VALVE



CONNECT  
GAUGE

## 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**

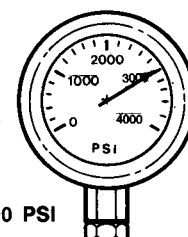
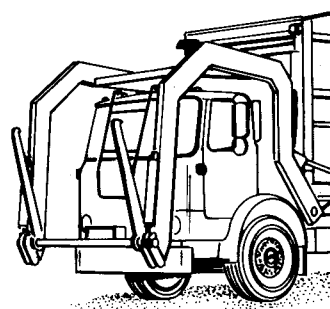
Maintain the engine RPM at the posted speed.

IF NOT:

Operational Status			
Truck	Off	Keys	Removed

3. Adjust the main relief pressure.

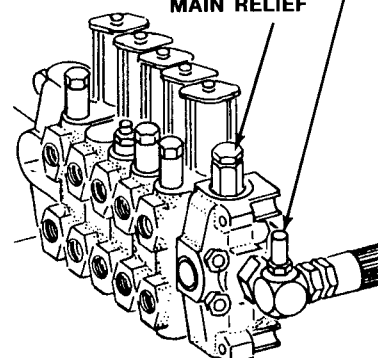
TO ADJUST THE PRESSURE, loosen the locknut on the main relief cartridge located on the first section of the 5-spool control valve assembly. Turn the adjustment clockwise to increase pressure and counter-clockwise to decrease pressure.



3000 PSI

ADJUST  
MAIN RELIEF

5-SPOOL  
CONTROL  
VALVE



IF 3000 PSI CANNOT BE ACHIEVED,

4. Check the cylinders for bypass, see Sec. 9, SERVICE AND REPAIR.
5. Replace the main relief valve cartridge, see Sec. 9, SERVICE AND REPAIR.
6. Replace the HYDRAULIC PUMP, see Sec. 9, SERVICE AND REPAIR.

## SECTION 7

### CHECK-OUT

#### 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 2800 PSI.

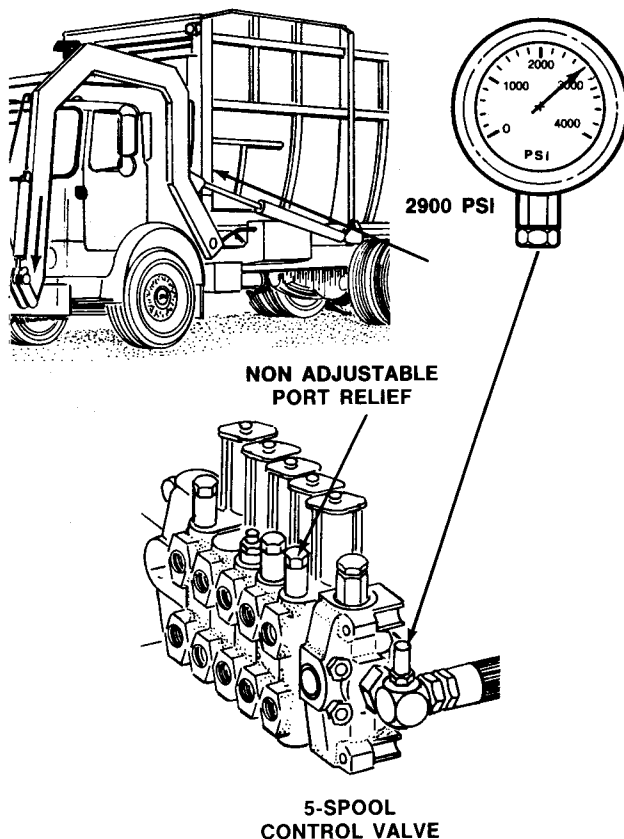
#### IF NOT:

4. Check the cylinders for bypass, see Sec. 9, SERVICE AND REPAIR.
5. Replace the port relief cartridge, see Sec. 9, SERVICE AND REPAIR.
6. Replace the HYDRAULIC PUMP, see Sec. 9, SERVICE AND REPAIR.

#### NOTE

*The lift arm pressure setting is not adjustable.*

7. Repeat items 1-6 to check the lift arm retract pressure setting.



#### CHECK THE PACKING/EJECTION PRESSURE

1. Install a pressure gauge as described earlier in check pressures.

Operational Status	
Truck Running	PTO Engaged

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

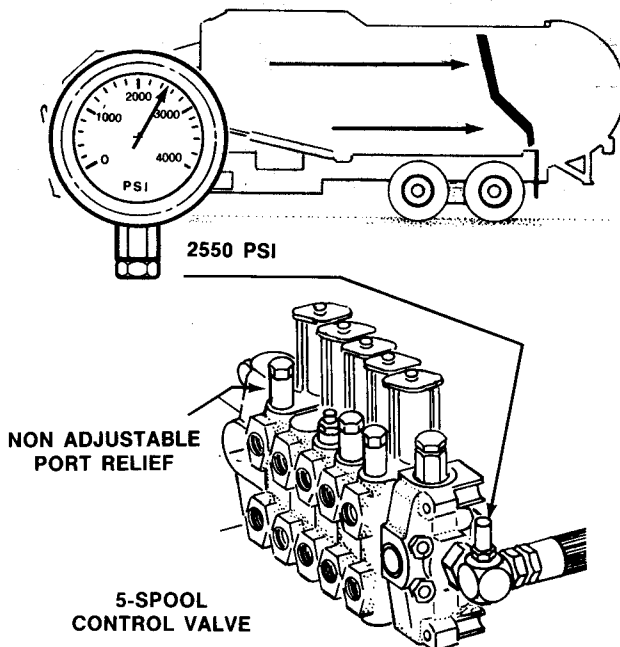
#### NOTE

*Maintain the engine RPM at the posted speed.*

3. Hold the control and read the gauge. The pressure should be 2550 PSI.

#### IF NOT:

4. Check the cylinders for bypass, see Sec. 9, SERVICE AND REPAIR.
5. Replace the port relief cartridge, see Sec. 9, SERVICE AND REPAIR.
6. Replace the HYDRAULIC PUMP, see Sec. 9, SERVICE AND REPAIR.



#### NOTE

*The packing/ejection pressure setting is not adjustable.*

7. Repeat items 1-6 to check the packing/ejection retract pressure setting.

CHECK THE REAR DOOR PRESSURE

1. Install a pressure gauge as described earlier in check pressures.

Operational Status	
Truck Running	PTO Engaged

2. Move the rear door control to fully extend the rear door cylinders.

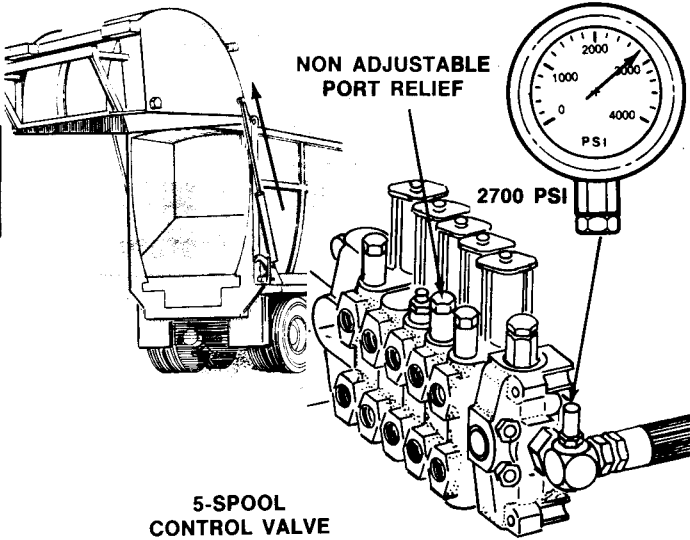
**NOTE**  
*Maintain the engine RPM at the posted speed.*

3. Hold the control and read the gauge. The pressure should be 2700 PSI.

IF NOT

4. Check the cylinders for bypass, see Sec. 9, SERVICE AND REPAIR.  
5. Replace the port relief cartridge, see Sec. 9, SERVICE AND REPAIR.  
6. Replace the HYDRAULIC PUMP, see Sec. 9, SERVICE AND REPAIR.

- NOTE**  
*The rear door pressure setting is not adjustable.*
7. Repeat items 1-6 to check the rear door retract pressure settings.



CHECK REAR DOOR LATCHES

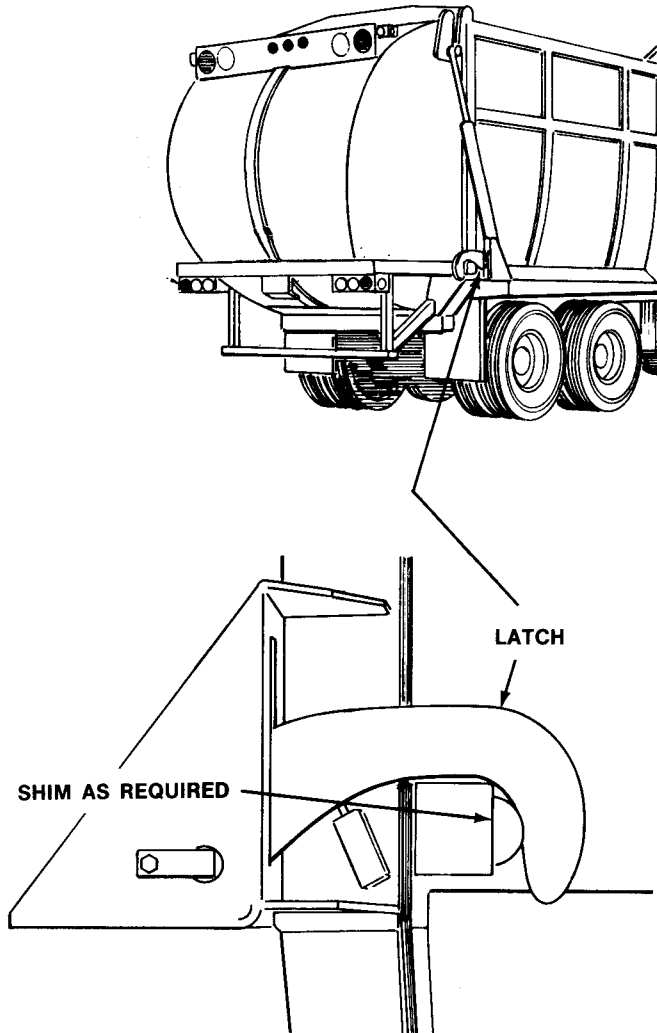
Operational Status				
Truck	Running	PTO	Engaged	Sol. Sw. ON

1. After the rear door is closed, power the latches down by holding the rear door 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 rear door tight against the body.*

IF NOT:

Add shims as required.



## CHECK-OUT

### 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 800 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 800 PSI CANNOT BE ACHIEVED:

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

#### Operational Status

Truck Running

PTO Engaged

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

#### NOTE

Maintain the engine RPM at the posted speed.

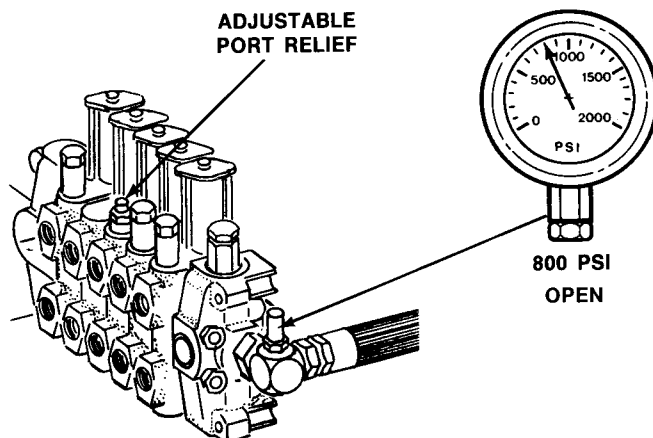
7. Hold the control and read the gauge. The pressure should be 500 PSI.

#### CAUTION

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

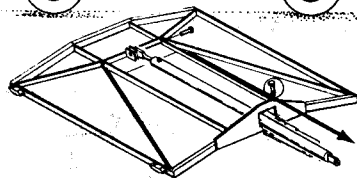
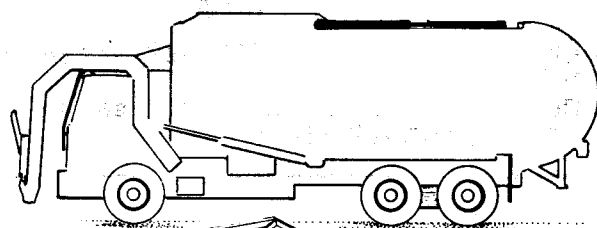
IF NOT:

8. Repeat steps 4 and 5.

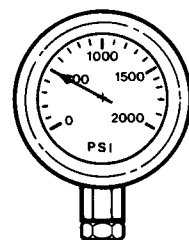


5-SPOOL  
CONTROL VALVE

RETRACT



RETRACT

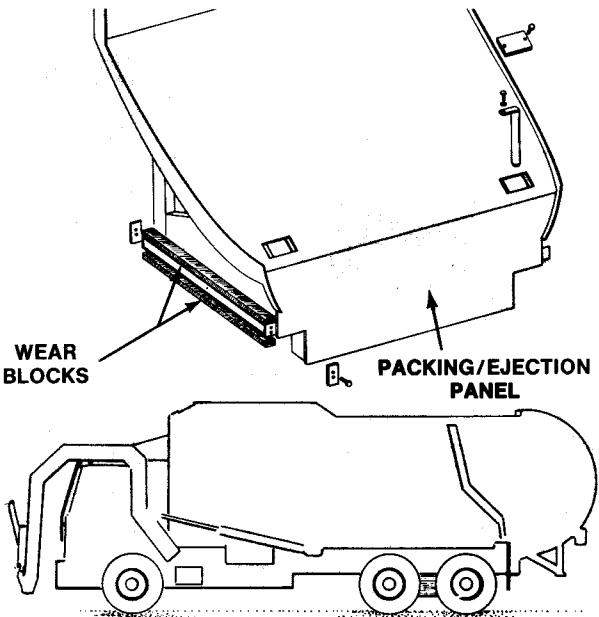


500 PSI  
CLOSED

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 Sec. 9, SERVICE AND REPAIR under packing/ejection panel.

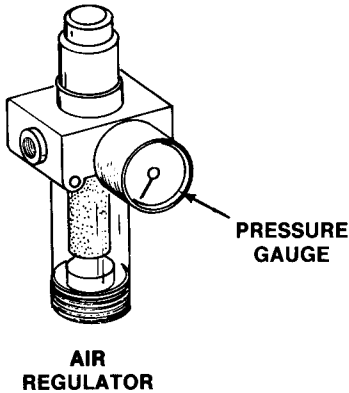


CHECK AIR REGULATOR PRESSURE WITH OPTIONAL AIR CONTROLS

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.

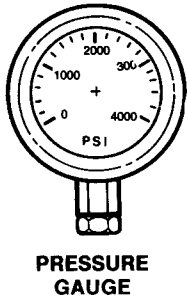


CAUTION

Exceeding the recommended pressure settings could damage the unit.

PRESSURE SETTING CHART

Function	Pressure Setting	Adjustable
Main Relief	3000 PSI	Yes
Fork Tilt	3000 PSI	No
Lift Arm Lowered	3000 PSI	No
Lift Arm Raised	2800 PSI	No
Packing/Ejection	2550 PSI	No
Rear Door	2700 PSI	No
Sliding Top Door Open	800 PSI	Yes
Sliding Top Door Closed	500 PSI	Yes
Hinged Top Door Open	3000 PSI	No
Hinged Top Door Closed	3000 PSI	No







## 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 Sec. 9, **SERVICE AND REPAIR** under **ELECTRICAL SYSTEM**.

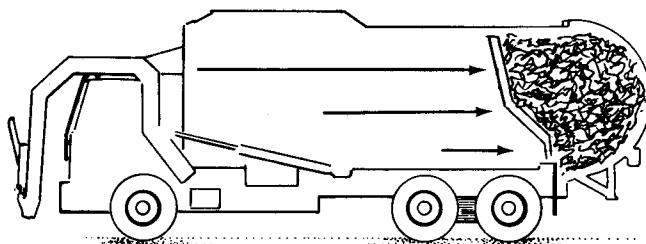
Problems in the hydraulic system may be found by performing the **PRESSURE CHECKS** found in Sec. 7, **CHECK-OUT**. Refer to Section 10 for options such as the hinged top door.

## 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 over loading 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

POSSIBLE CAUSE	REMEDY
<b>OPERATION IS ERRATIC</b>	
<ol style="list-style-type: none"> <li>1. INCONSISTENT ENGINE SPEED.</li> <li>2. HYDRAULIC FLUID TOO HOT.</li> <li>3. HYDRAULIC FLUID LEVEL TOO LOW.</li> <li>4. BY-PASS IN CYLINDERS.</li> <li>5. HYDRAULIC FLUID TOO COLD.</li> <li>6. SPOOLS IN CONTROL VALVES BENT OR BINDING.</li> </ol>	<ol style="list-style-type: none"> <li>1. MAINTAIN A CONSTANT RPM BY USE OF THE FOOT THROTTLE. DO NOT EXCEED POSTED RPM.</li> <li>2. CHECK FOR PROPER GRADE OF FLUID. SEE SEC. 5, SPECIFICATIONS.</li> <li>3. CHECK FLUID LEVEL. ADD FLUID IF NECESSARY. SEE SEC. 7, CHECK-OUT.</li> <li>4. TEST FOR LEAKING CYLINDERS. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>5a. BRING FLUID TO OPERATING TEMPERATURE.</li> <li>5b. CHECK FOR PROPER GRADE OF HYDRAULIC FLUID, SEE SEC. 5, SPECIFICATIONS.</li> <li>6. REPAIR OR REPLACE. SEE SEC. 9, SERVICE AND REPAIR.</li> </ol>
<b>FLUID LEAKING FROM BETWEEN BODY AND REAR DOOR</b>	
<ol style="list-style-type: none"> <li>1. LATCHES NOT COMPLETELY ENGAGED.</li> <li>2. LATCHES NOT LOCKING TIGHT ENOUGH.</li> <li>3. REAR DOOR SEAL DAMAGED.</li> </ol>	<ol style="list-style-type: none"> <li>1. HOLD THE CONTROL AFTER THE TAILGATE HAS CLOSED. SEE SEC. 7, CHECK-OUT.</li> <li>2. ADD SHIMS TO LATCH BLOCKS. SEE SEC. 7, CHECK-OUT.</li> <li>3. REPLACE REAR DOOR SEAL. SEE SEC. 9, SERVICE AND REPAIR.</li> </ol>
<b>REAR DOOR DOES NOT CLOSE</b>	
<ol style="list-style-type: none"> <li>1. MATERIAL LEFT ON EDGE OF BODY OPENING.</li> <li>2. LATCH LINKAGE OUT OF ADJUSTMENT.</li> </ol>	<ol style="list-style-type: none"> <li>1. REMOVE MATERIAL. SEE SEC. 2, SAFETY.</li> <li>2. ADJUST LINKAGE. SEE SEC. 9, SERVICE AND REPAIR.</li> </ol>
<b>PUMP NOISE IS EXCESSIVE</b> <i>NOTE: ALL PUMPS MAKE A CERTAIN AMOUNT OF NOISE.</i>	
<ol style="list-style-type: none"> <li>1. PUMP STARVING FOR FLUID.</li> <li>2. HYDRAULIC FLUID TOO COLD.</li> <li>3. PTO DRIVESHAFT AND/OR U-JOINTS BADLY WORN OR OUT OF BALANCE.</li> <li>4. PUMP GEARS, END PLATES, OR BEARINGS, BADLY WORN.</li> <li>5. IMPROPER GRADE OF HYDRAULIC FLUID (FLUID FOAMING).</li> <li>6. AIR ENTERING THE SYSTEM.</li> </ol>	<ol style="list-style-type: none"> <li>1. OPEN GATE VALVE.</li> <li>1a. CHECK FLUID LEVEL.</li> <li>1b. CHECK HYDRAULIC FLUID FILTER AND TANK, SEE SEC. 6, PREVENTIVE MAINTENANCE.</li> <li>1c. CHECK FOR OBSTRUCTION IN SUCTION LINES, HOSES KINKED OR COLLAPSED.</li> <li>2a. BRING FLUID TO NORMAL OPERATING TEMPERATURE.</li> <li>2b. CHANGE HYDRAULIC FLUID TO PROPER GRADE FOR OPERATING CONDITIONS. SEE SEC. 5, SPECIFICATIONS.</li> <li>3. REPAIR, REPLACE AND/OR BALANCE ALL PARTS.</li> <li>4. REPLACE PUMP.</li> <li>5. REPLACE WITH PROPER GRADE OF HYDRAULIC FLUID. SEE SEC. 5, SPECIFICATIONS.</li> <li>6a. TIGHTEN THE SUCTION HOSE.</li> <li>6b. TIGHTEN PACKING ON THE GATE VALVE STEM.</li> <li>6c. REPLACE THE PUMP SHAFT SEAL.</li> <li>6d. REPLACE THE SUCTION HOSE.</li> <li>6e. REPLACE THE O-RINGS ON THE PUMP.</li> </ol>

## TROUBLESHOOTING

POSSIBLE CAUSE	REMEDY
<b>FORKS WILL NOT TILT</b>	
<ol style="list-style-type: none"> <li>CONTROL DOES NOT OPEN CONTROL VALVE.</li> <li>LEAKS IN HYDRAULIC SYSTEM.</li> <li>DEFECTIVE OR WORN PUMP.</li> <li>DEFECTIVE CONTROL VALVE.</li> <li>LEAKING OR BY-PASSING FORK CYLINDERS.</li> <li>MAIN RELIEF VALVE OUT OF ADJUSTMENT.</li> </ol>	<ol style="list-style-type: none"> <li>CHECK AND REPAIR CABLE OR AIR CONTROL. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>CHECK SYSTEM FOR LEAKING COMPONENTS OR LINES. TIGHTEN OR REPLACE.</li> <li>REPAIR OR REPLACE PUMP. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>REPAIR OR REPLACE CONTROL VALVE. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>REPAIR, REPACK, OR REPLACE FORK CYLINDERS. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>CHECK MAIN RELIEF PRESSURE AND ADJUST. SEE SEC. 7, CHECK-OUT.</li> </ol>
<b>PACKING/EJECTION PANEL DOES NOT DELIVER FULL FORCE</b>	
<ol style="list-style-type: none"> <li>MAIN RELIEF PRESSURE LOW.</li> <li>PUMP DEFECTIVE OR WORN.</li> <li>PACKING/EJECTION CYLINDER LEAKING EXTERNALLY OR BY-PASSING.</li> </ol>	<ol style="list-style-type: none"> <li>CHECK MAIN RELIEF PRESSURE AND ADJUST. SEE SEC. 7, CHECK-OUT.</li> <li>REPAIR OR REPLACE PUMP. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>REPAIR, REPACK, OR REPLACE CYLINDER. SEE SEC. 9, SERVICE AND REPAIR.</li> </ol>
<b>PACKING/EJECTION TELESCOPIC CYLINDER EXTENDS SLOWLY</b>	
<ol style="list-style-type: none"> <li>CYLINDER IS BY-PASSING HYDRAULIC FLUID INTERNALLY.</li> </ol>	<ol style="list-style-type: none"> <li>REPLACE WORN PISTON SEALS.</li> <li>1a. REPLACE CYLINDER. SEE SEC. 9, SERVICE AND REPAIR.</li> </ol>
<b>LIFT ARMS WILL NOT MOVE</b>	
<ol style="list-style-type: none"> <li>CABLE OR AIR ACTUATOR DOES NOT OPEN CONTROL VALVE.</li> <li>LEAKS IN HYDRAULIC SYSTEM.</li> <li>DEFECTIVE OR WORN PUMP.</li> <li>DEFECTIVE CONTROL VALVE.</li> <li>EXTERNALLY LEAKING OR BY-PASSING LIFT ARM CYLINDERS.</li> <li>CONTAINER LOAD TOO HEAVY.</li> <li>PACKING/EJECTION PANEL NOT AT THE FRONT OF THE BODY.</li> <li>MAIN RELIEF VALVE OUT OF ADJUSTMENT.</li> </ol>	<ol style="list-style-type: none"> <li>CHECK AND REPAIR CABLE OR AIR ACTUATOR. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>CHECK SYSTEM FOR LEAKING COMPONENTS, OR LINES. TIGHTEN OR REPLACE.</li> <li>REPAIR OR REPLACE PUMP. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>REPAIR OR REPLACE CONTROL VALVE. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>REPAIR, REPLACE, OR REPACK CYLINDERS. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>REMOVE PART OF CONTAINER CONTENTS.</li> <li>RETRACT PACKING/EJECTION CYLINDER TO POSITION PANEL AT FRONT OF BODY.</li> <li>CHECK PRESSURES. SEE SEC. 7, CHECKOUT.</li> </ol>
<b>LIFT ARMS MOVE ERRATICALLY</b>	
<ol style="list-style-type: none"> <li>VALVE SPOOL NOT SHIFTING COMPLETELY.</li> <li>CHASSIS CAB LATCHES LOOSE.</li> </ol>	<ol style="list-style-type: none"> <li>ADJUST CONTROL CABLE OR AIR ACTUATOR. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>ADJUST CHASSIS CAB LATCHES.</li> </ol>



**TROUBLESHOOTING**

POSSIBLE CAUSE	REMEDY
<b>SLIDING TOP DOOR WILL NOT CLOSE</b>	
<ol style="list-style-type: none"> <li>1. TOO MUCH MATERIAL IN BODY.</li> <li>2. LEAK IN THE HYDRAULIC SYSTEM.</li> <li>3. DEFECTIVE CONTROL VALVE.</li> <li>4. DEFECTIVE OR WORN PUMP.</li> <li>5. LEAKING OR BY-PASSING CYLINDER.</li> </ol>	<ol style="list-style-type: none"> <li>1. PACK PREVIOUSLY DUMPED MATERIAL BEFORE EMPTYING CONTAINER.</li> <li>2. CHECK SYSTEM FOR LEAKING COMPONENTS OR LINES. TIGHTEN AND REPLACE.</li> <li>3. REPAIR OR REPLACE CONTROL VALVE. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>4. REPAIR OR REPLACE PUMP. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>5. REPACK OR REPLACE CYLINDER. SEE SEC. 9, SERVICE AND REPAIR.</li> </ol>
<b>LIFT ARMS DRIFTING DOWN</b>	
<ol style="list-style-type: none"> <li>1. SPOOL IN 5-SPOOL CONTROL VALVE.</li> <li>2. LIFT ARM CYLINDER BY-PASSING.</li> <li>3. PISTON BACKED OFF ROD.</li> </ol>	<ol style="list-style-type: none"> <li>1. REPAIR OR REPLACE VALVE SECTION. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>2. REPACK OR REPLACE CYLINDER. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>3. TIGHTEN, REPAIR OR REPLACE CYLINDER. SEE SEC. 9, SERVICE AND REPAIR.</li> </ol>

## DESCRIPTION OF HYDRAULIC SYSTEM

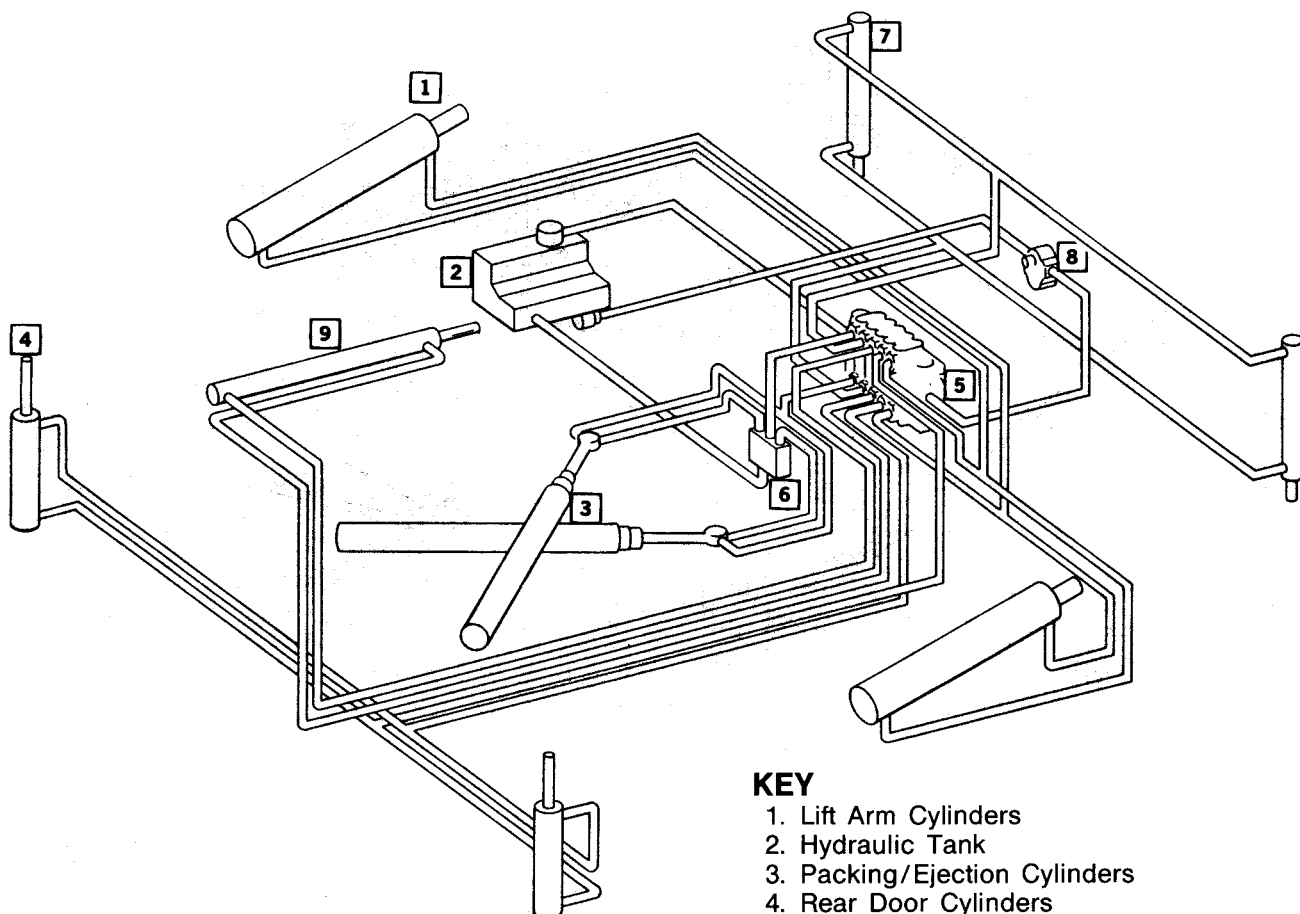
The following is a description with flow diagrams of what happens in the hydraulic system during the loading, packing and unloading operations of the unit.

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. Rear Door Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinder



## TROUBLESHOOTING

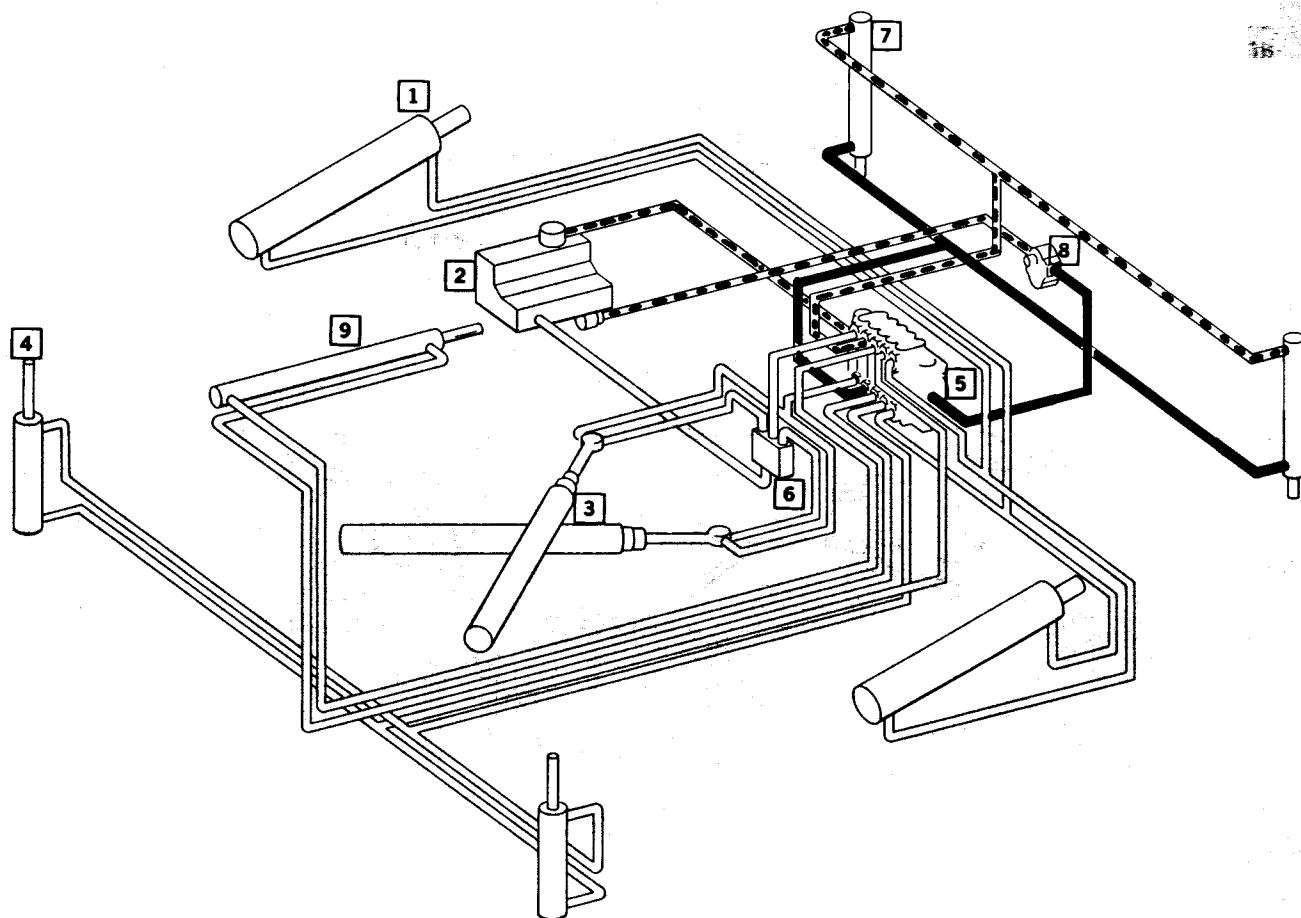
### TILT FORKS UP

#### 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 the return line filter to the tank. When the cylinders are fully retracted the main relief will open and direct the rod end flow to the tank.



#### KEY

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

Pressure —————  
Exhaust - - - - -

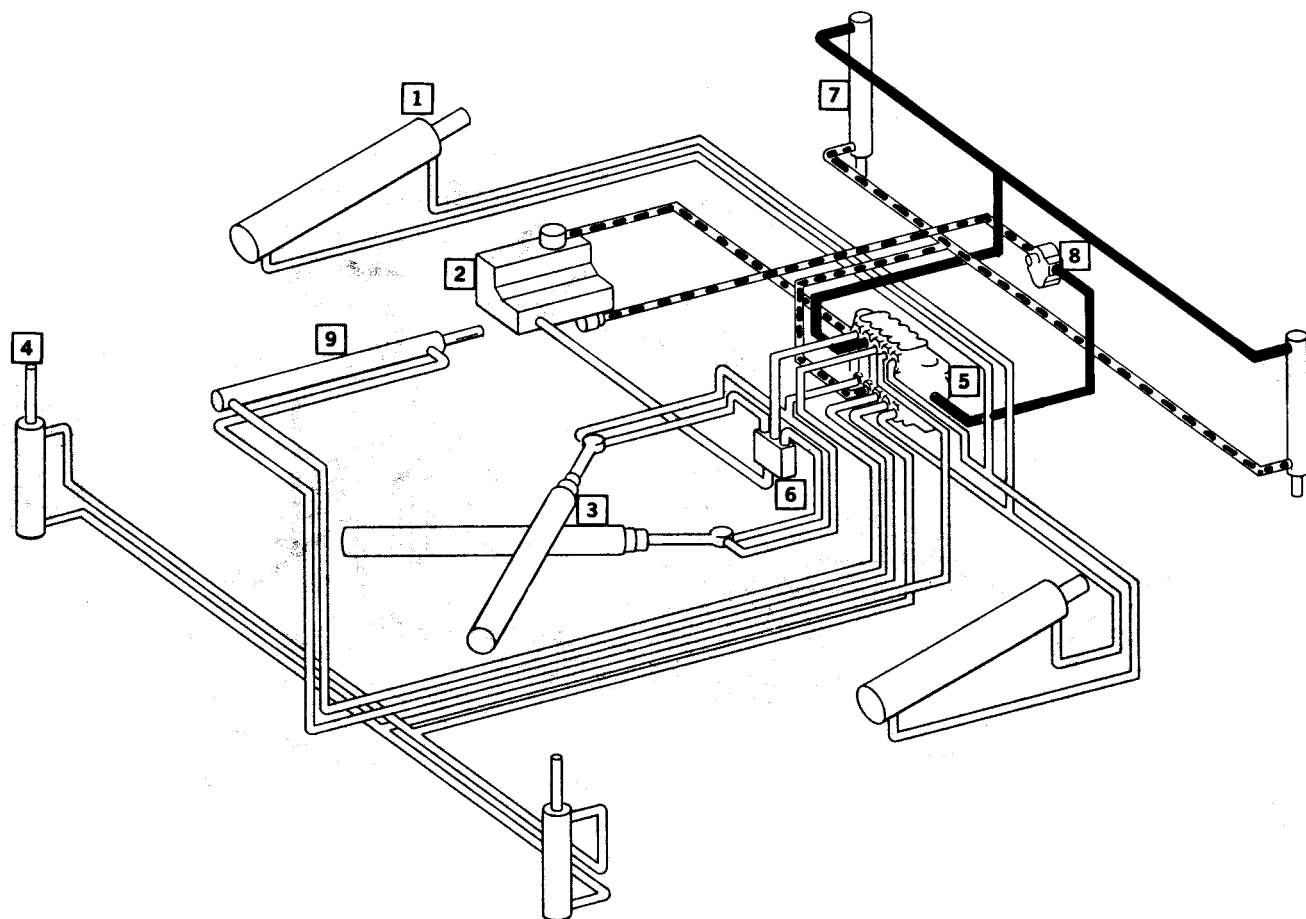
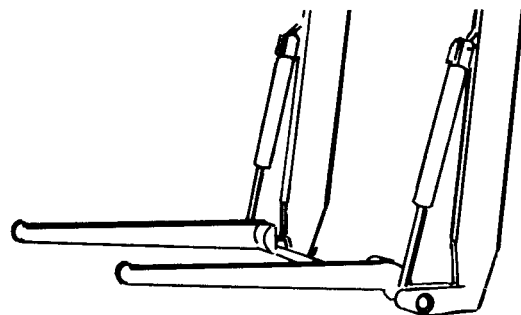
## TILT FORKS DOWN

### 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 directing the case end flow to the tank.



### KEY

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

Pressure —————  
Exhaust - - - - -





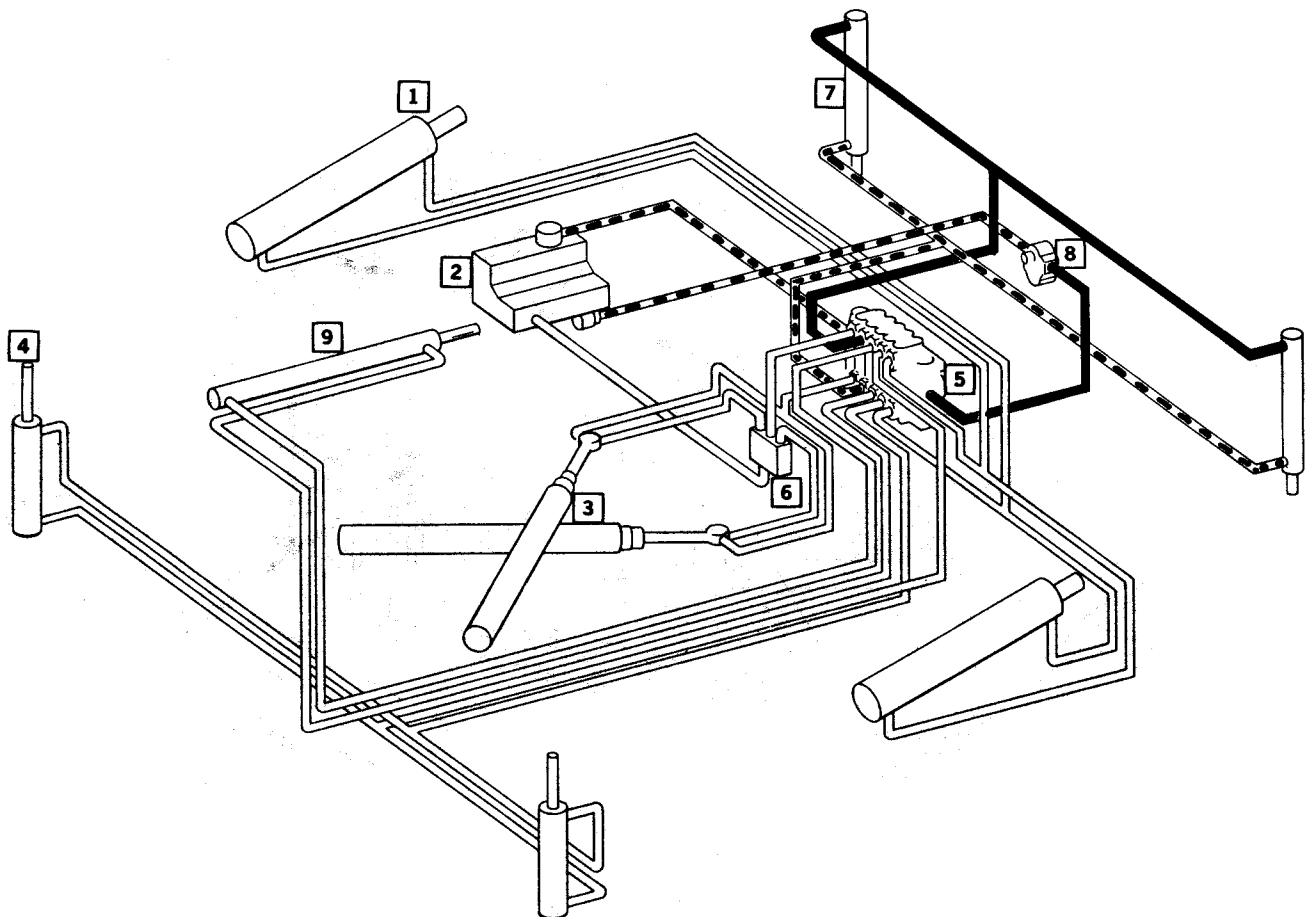
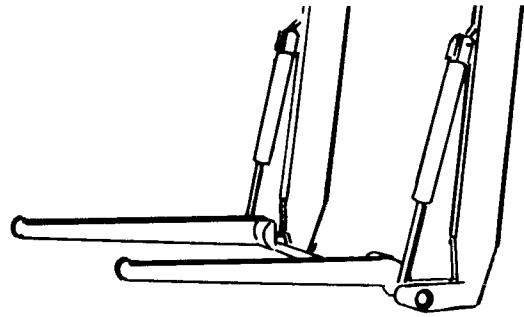
## TILT FORKS DOWN

## 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 directing the case end flow to the tank.



## KEY

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

Pressure ————  
Exhaust - - - - -



## TROUBLESHOOTING

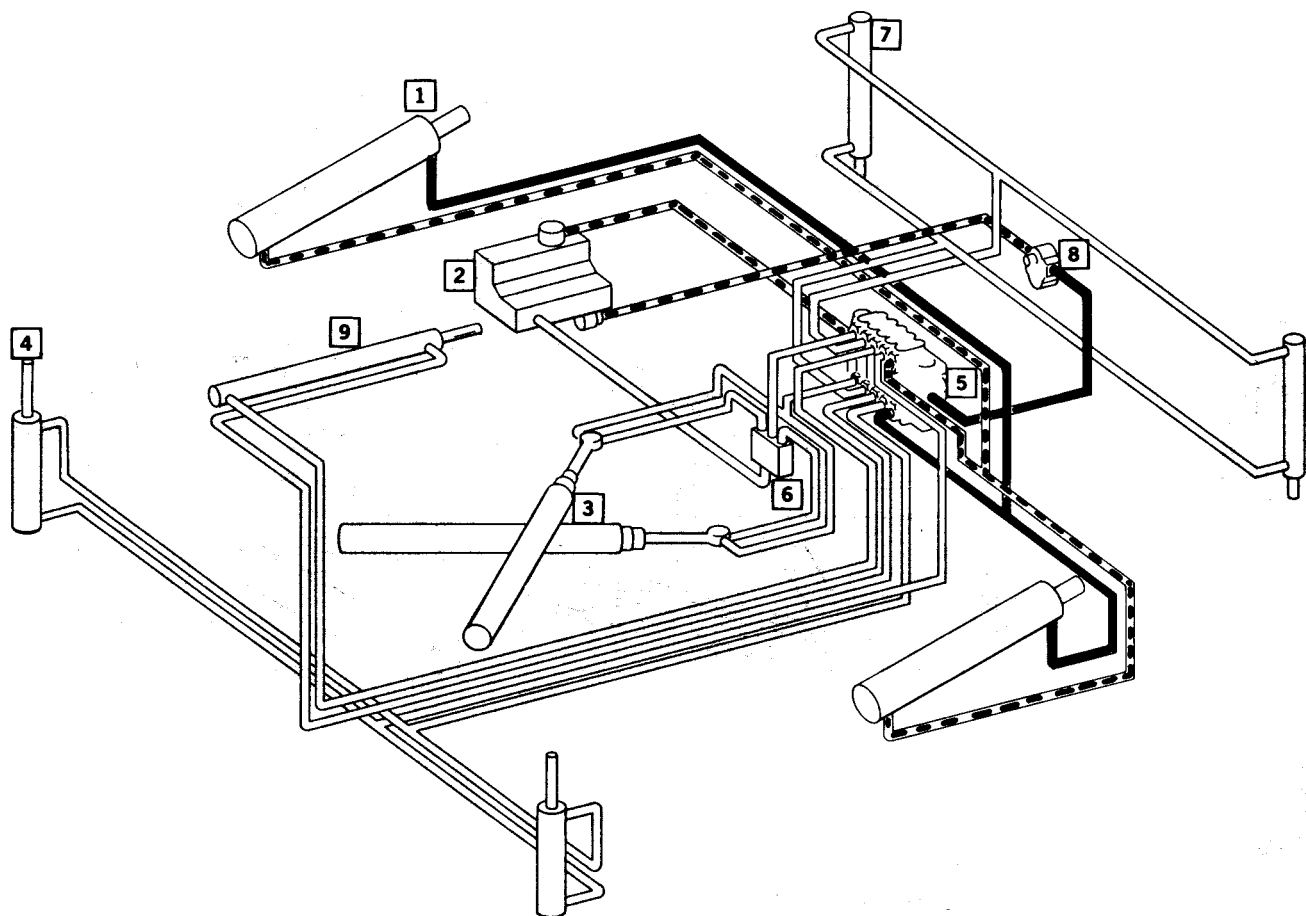
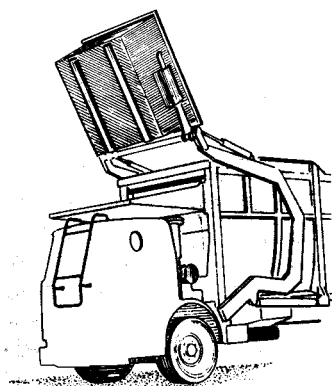
### RAISE LIFT ARMS

#### 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 main relief will open and direct the rod end flow to the tank.



#### KEY

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

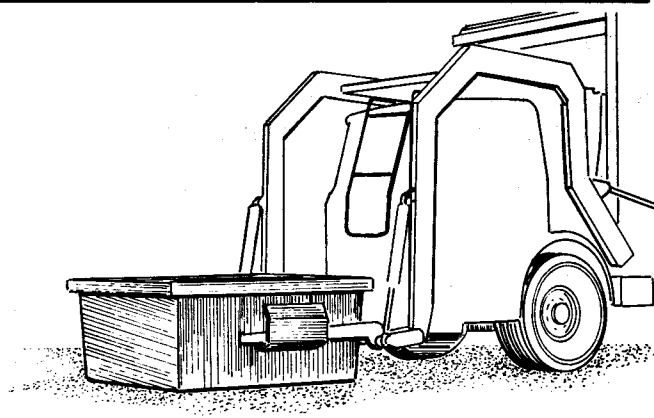
Pressure ———  
Exhaust - - - - -

# LOWER LIFT ARMS WITH SLIDING TOP DOOR

**Operator Action**  
The operator moves the lift arm control.

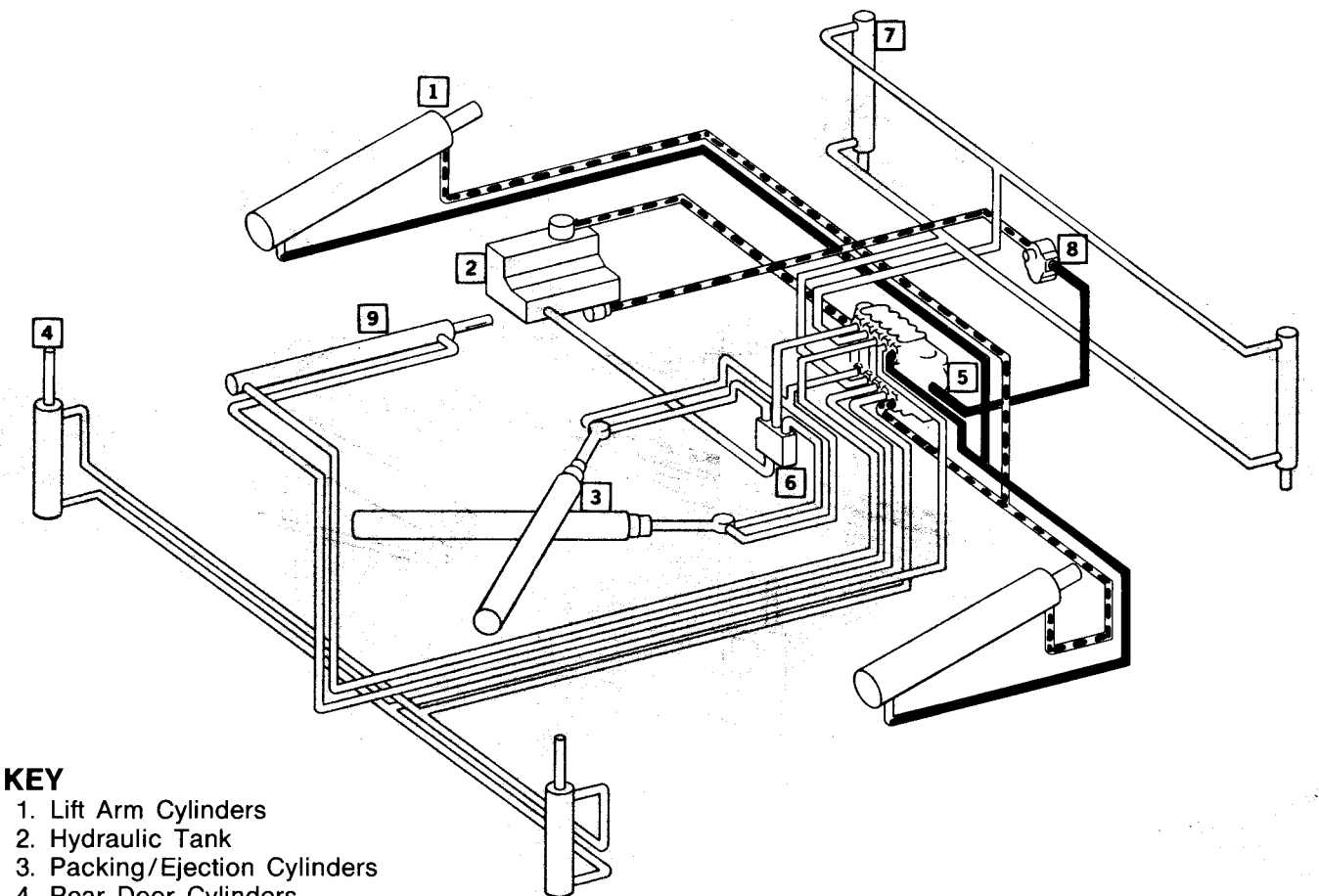
## HYDRAULIC SYSTEM

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 main relief will open and direct the rod end flow to the tank.



⚠ CAUTION

If the unit being worked on has an optional system such as the hinged top door, it is important to refer to Section 10, for specific instructions concerning those items.



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

Pressure —————  
Exhaust - - - - -



## TROUBLESHOOTING

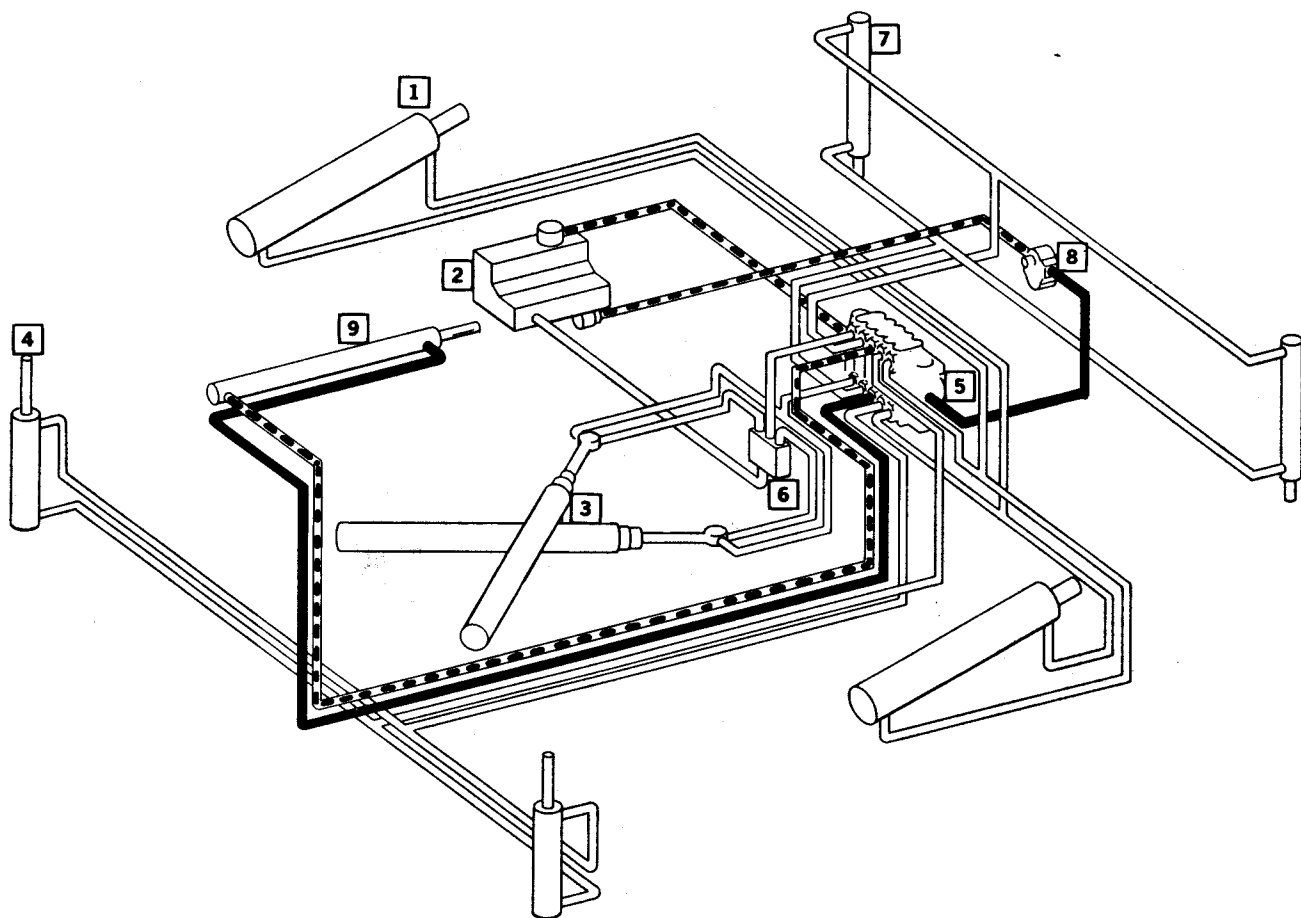
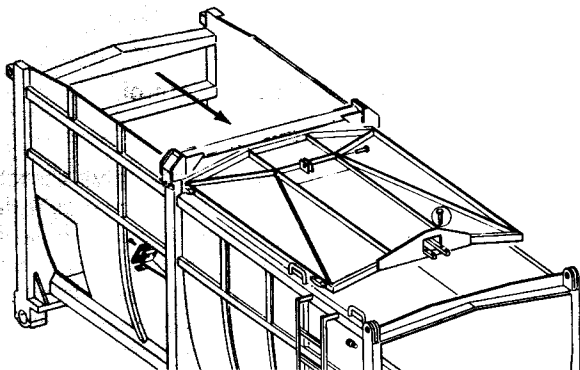
### SLIDING TOP DOOR OPENS

#### 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 and allow the flow to return to the tank.



#### KEY

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

Pressure —————  
Exhaust - - - - -

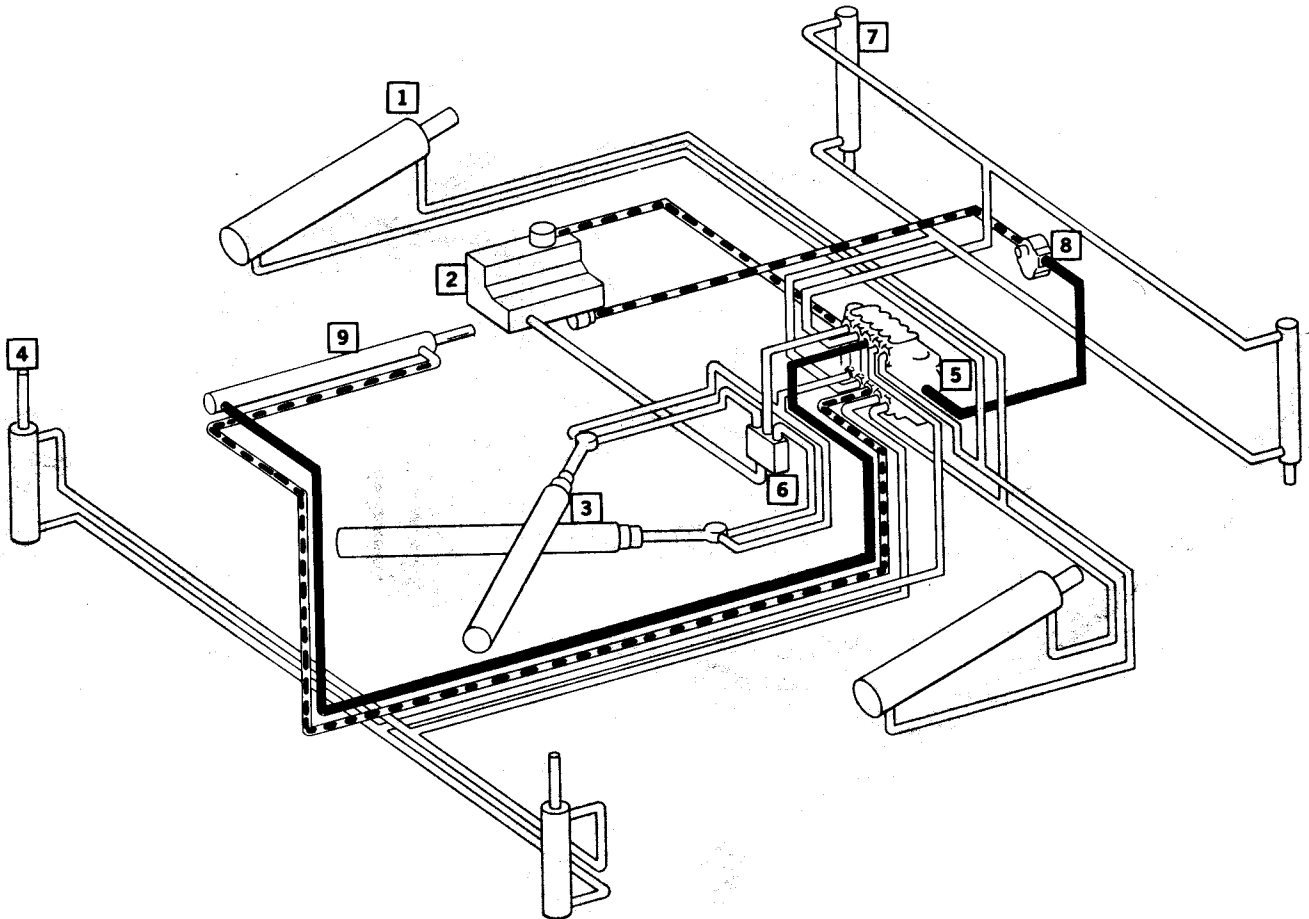
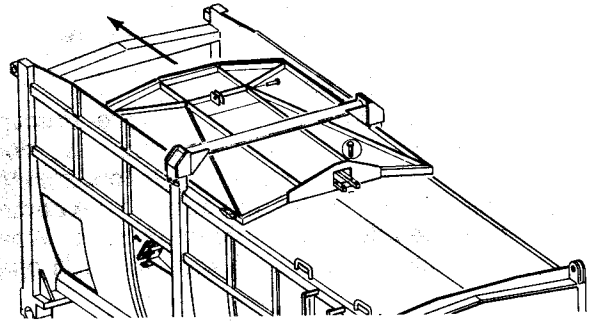
## SLIDING TOP DOOR CLOSES

**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 flow to return to the tank.

**KEY**

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

Pressure ———  
Exhaust - - - - -



## SECTION 8

### TROUBLESHOOTING

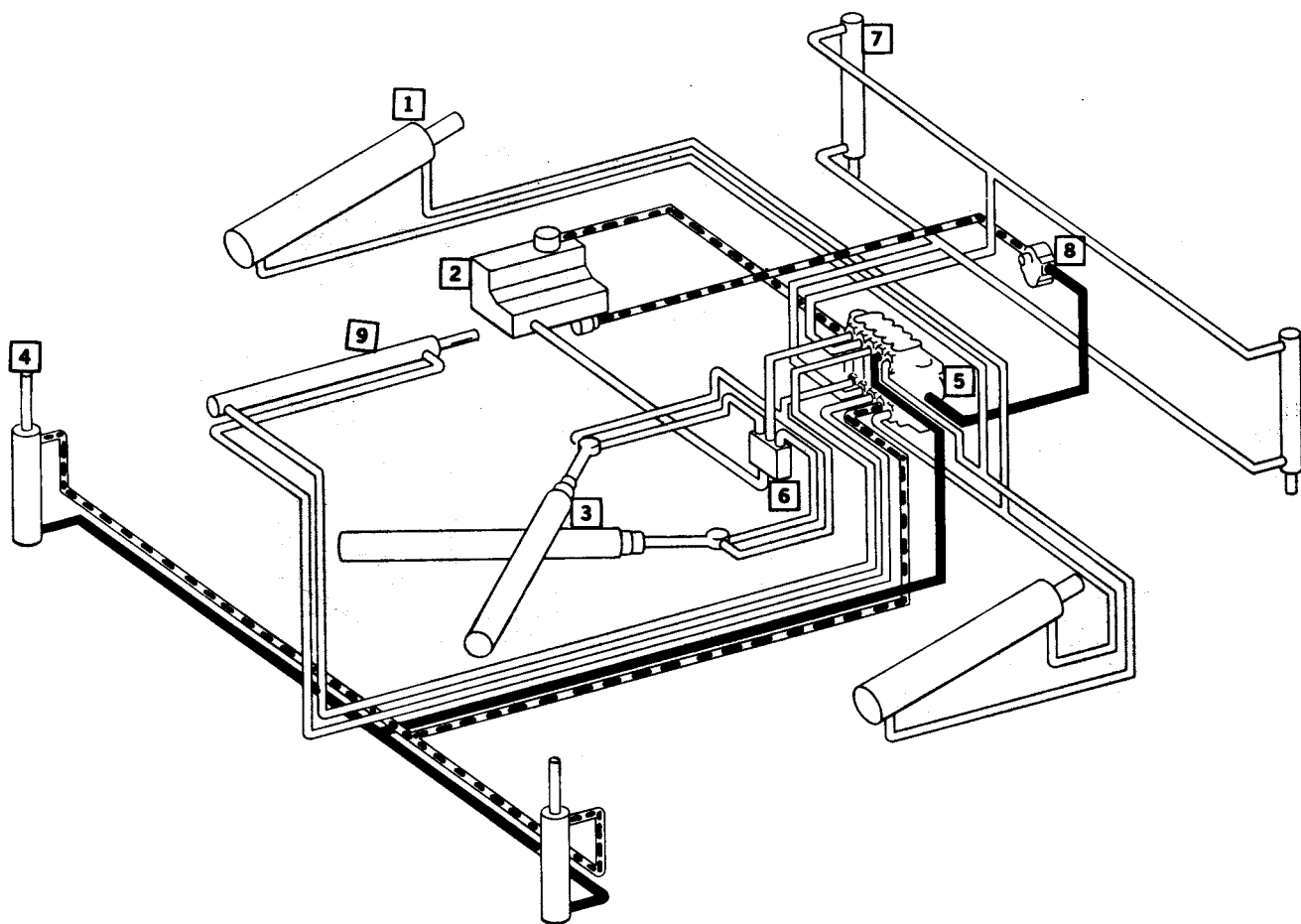
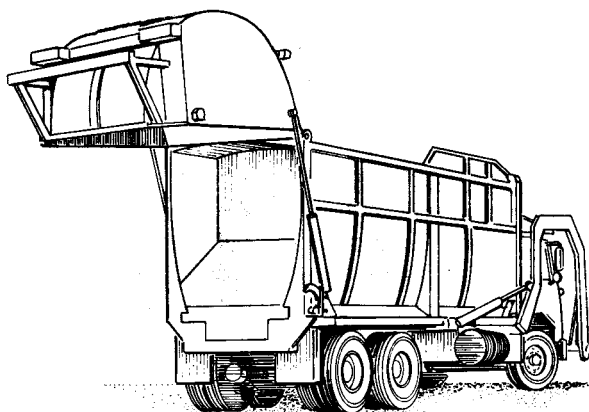
#### RAISE REAR DOOR

##### Operator Action

The operator moves the rear door control lever.

##### HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the case end of the rear 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 flow to return to the tank.



##### KEY

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

Pressure —————  
Exhaust - - - - -

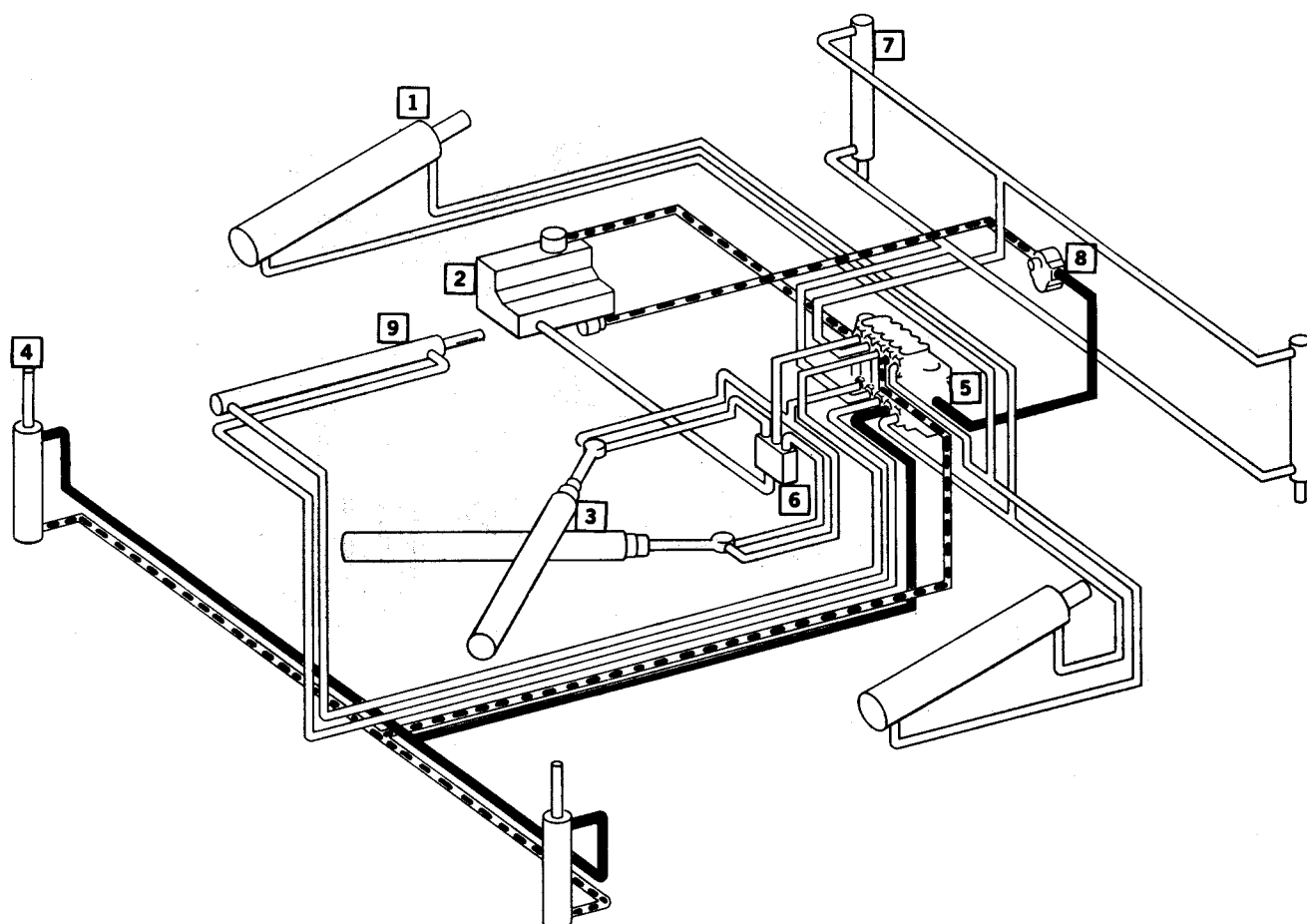
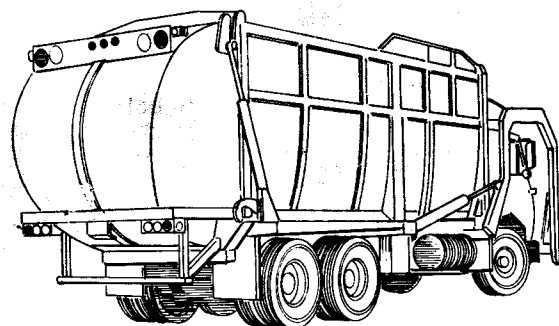
## LOWER REAR DOOR

### Operator Action

The operator moves the rear door control.

### HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the rod end of the rear 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 and allow the flow to return to the tank.



### KEY

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

Pressure —————  
Exhaust - - - - -



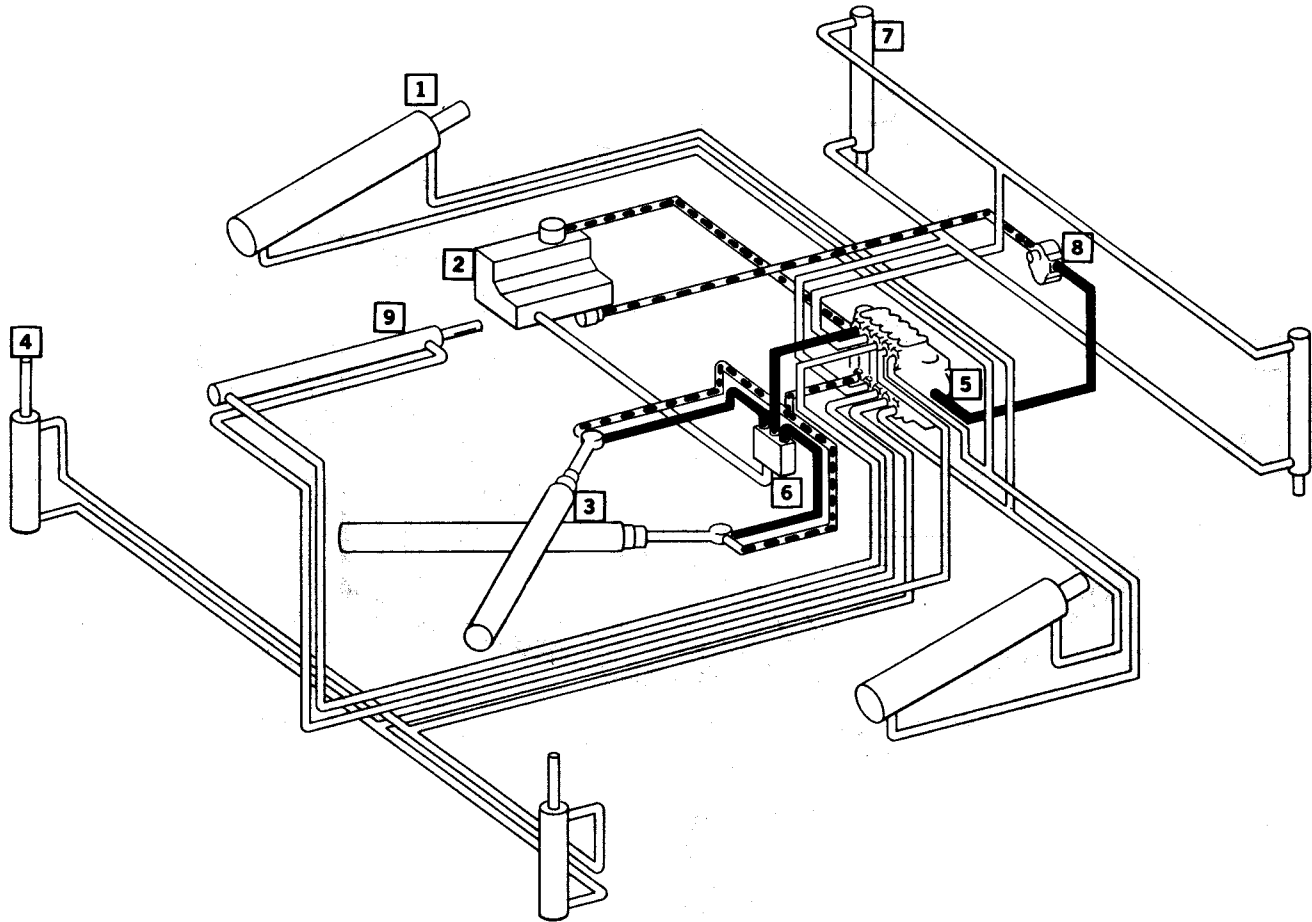
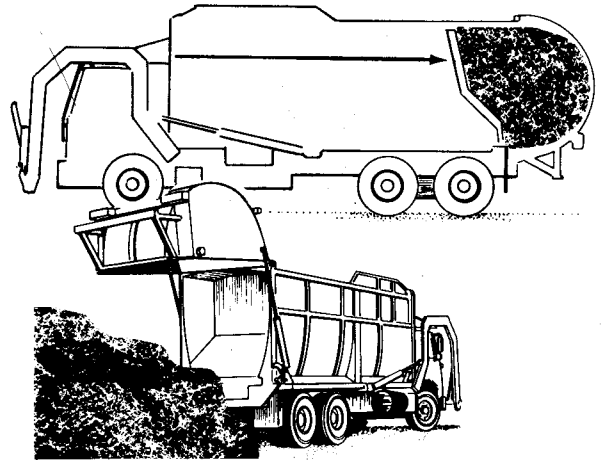
## PACK/EJECT LOAD (FULL PACK) WITH STANDARD CONTROL

### Operator Action

The operator moves the packing/ejection control.

### HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the case end of the packing/ejection 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 cylinder is fully extended the main relief will open and allow the flow to return to the tank.



### KEY

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

Pressure ———  
Exhaust - - - - -



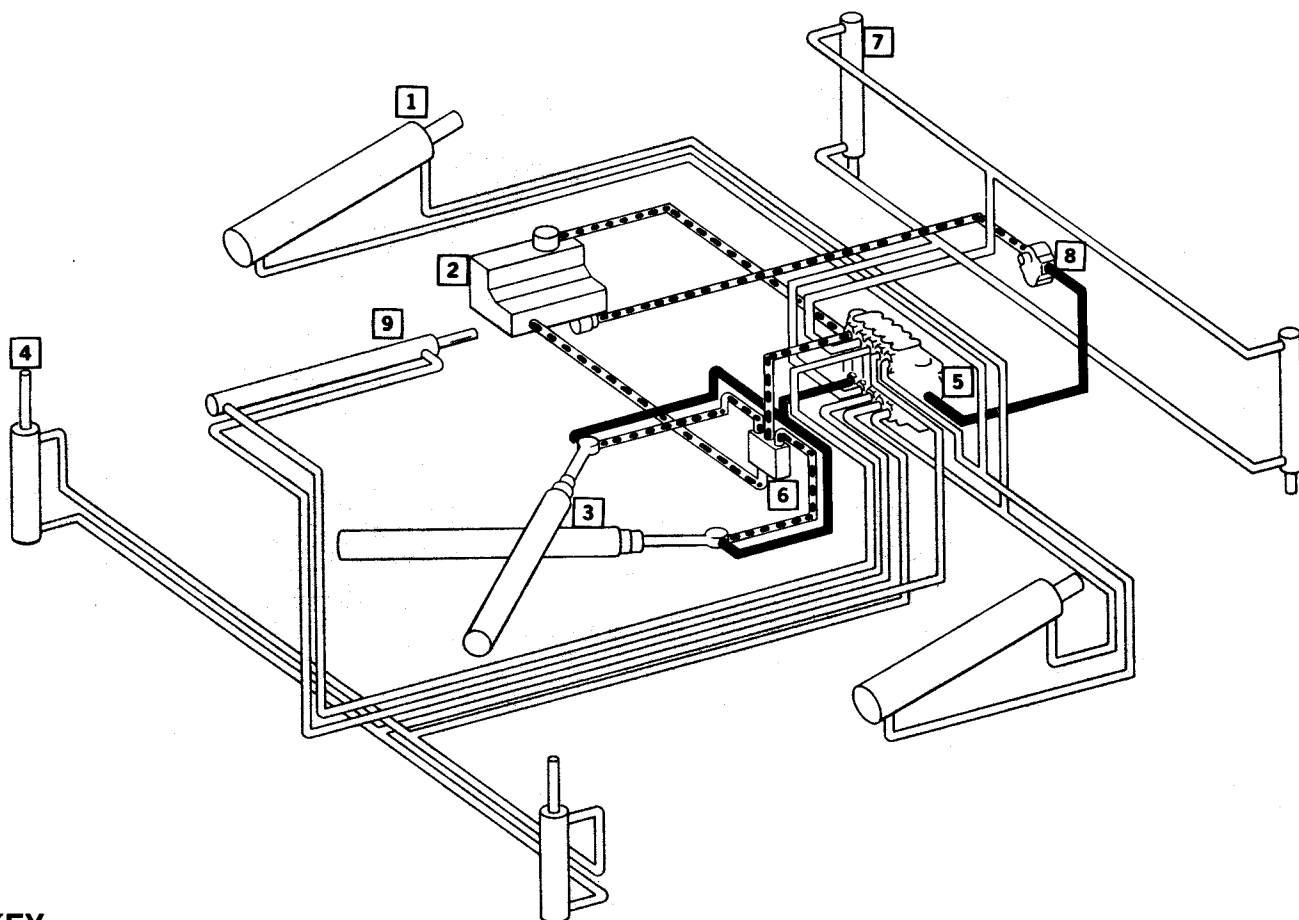
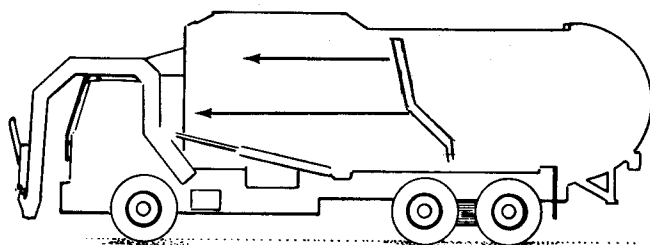
## RETRACTING PACKING/EJECTION PLATE WITH STANDARD CONTROLS

### Operator Action

The operator moves the packing/ejection control.

### HYDRAULIC SYSTEM

The operator action shifts the control valve directing the pump flow to the rod end of the packing/ejection cylinders. As the cylinders retract, return flow from the case end is directed through the dump valve directly to the tank. When the cylinders are fully retracted the main relief will open and allow the flow to return to the tank.



### KEY

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

Pressure —————  
Exhaust - - - - -





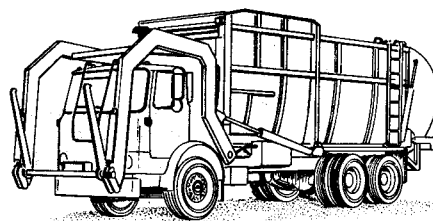
## GENERAL

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 (Sec. 3) and GENERAL REPAIR PRACTICES (Sec. 4). Also, before performing any work on the unit know and OBSERVE all SAFETY PRECAUTIONS listed in Section 2.

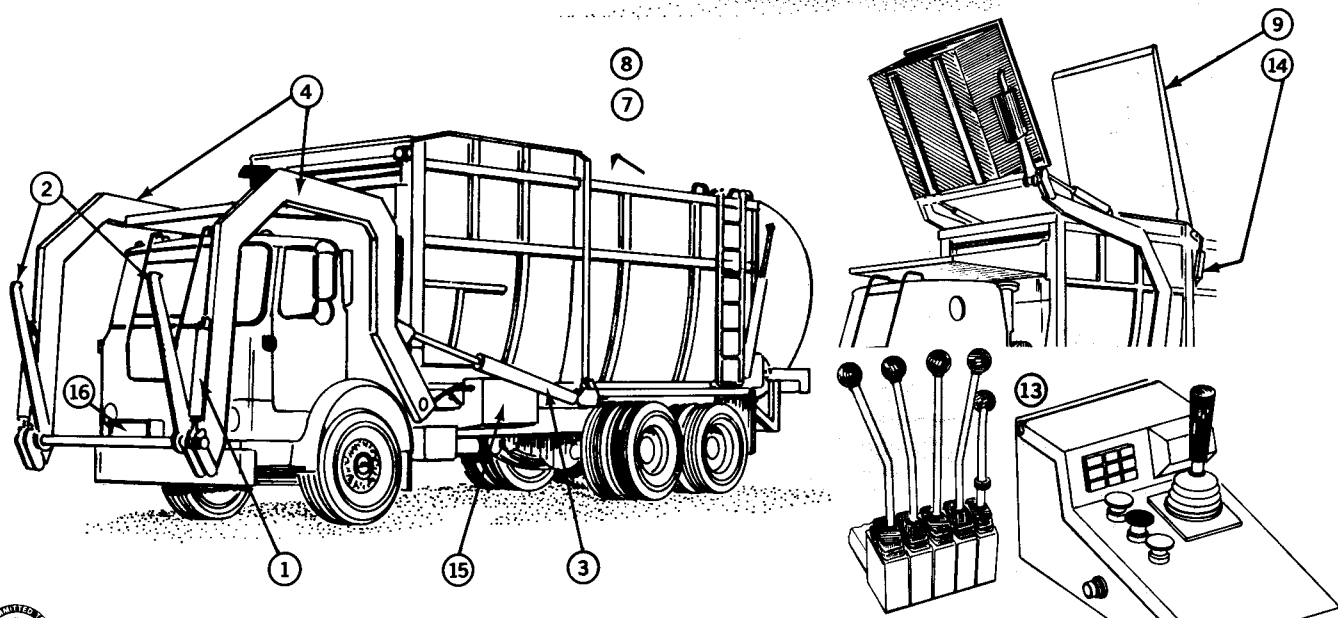
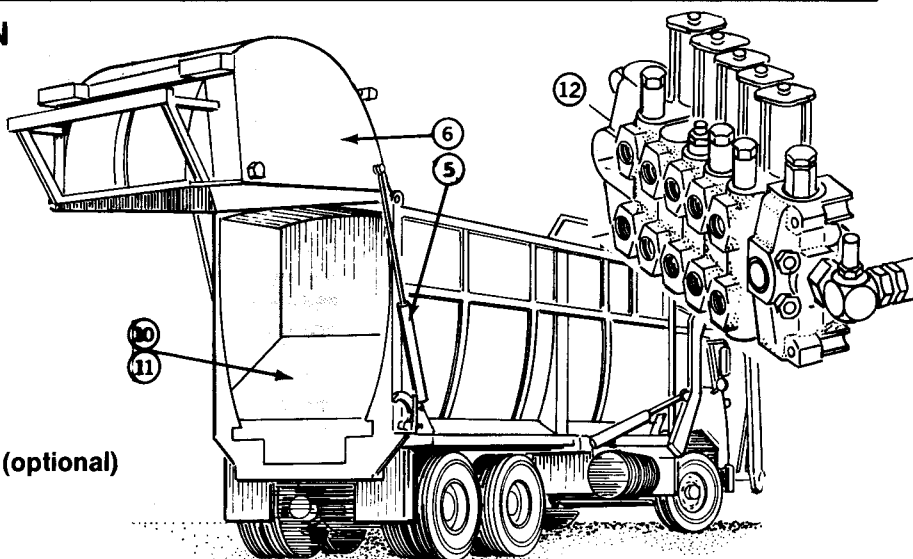
### ⚠ WARNING

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. Rear door cylinders
6. Rear door
7. Top door cylinder
8. Sliding top door
9. Hinged top door (optional)
10. Packing/ejection cylinders
11. Packing/ejection panel
12. Main control valve
13. Controls
14. Hinged top door sequence valve (optional)
15. Hydraulic tank
16. Pump (front mounted)



### TEST FOR BY PASSING 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 PROCEDURES.

#### 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 - 4 for the other cylinder.

#### Operational Status

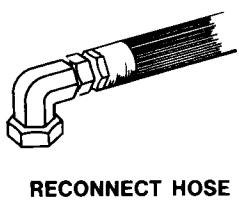
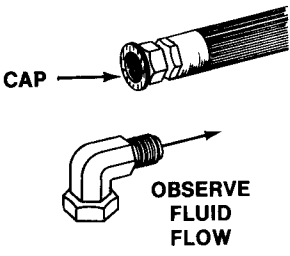
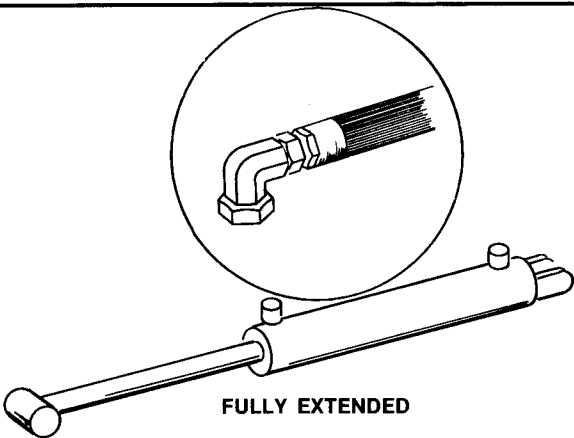
Truck Running	PTO Engaged
---------------	-------------

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.

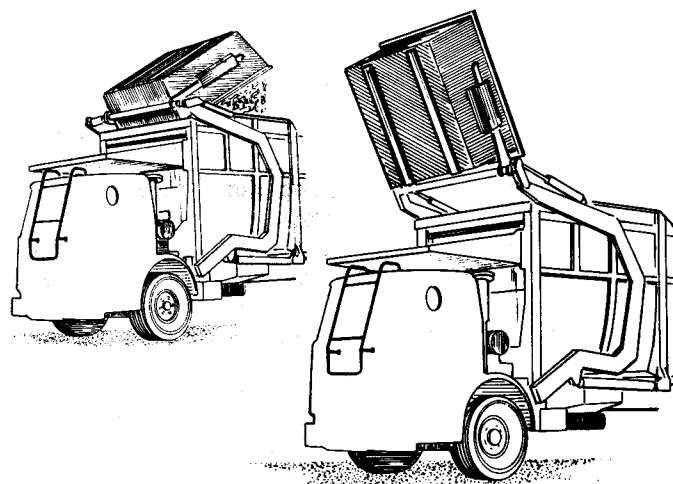
#### Operational Status

Truck Off	Keys Removed
-----------	--------------

8. Reconnect the hydraulic lines to the cylinder. Repeat steps 6, 7, 8 for other cylinder.

## 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 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

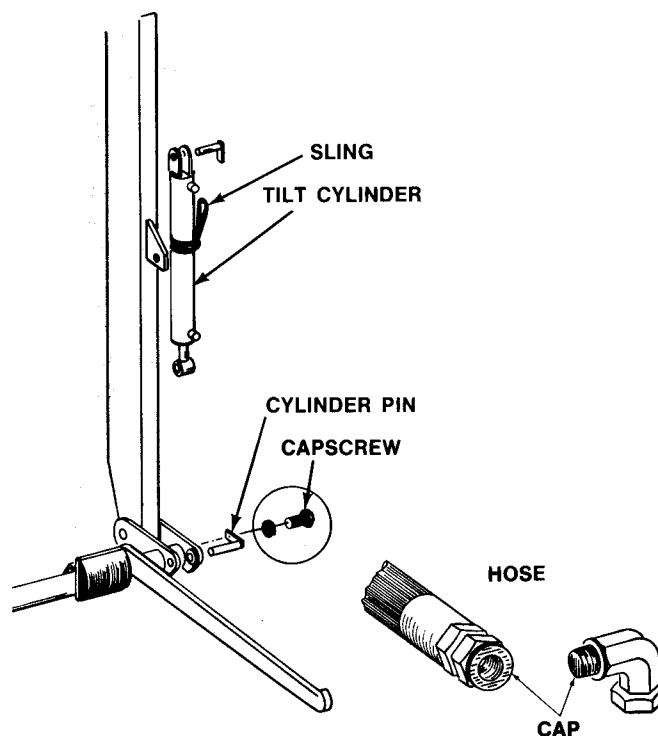
See Section 4, General Repair Practices, for more detailed information about the correct use of slings and lifting chains.

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.
5. Carefully remove the pivot pin. Check for pivot 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.

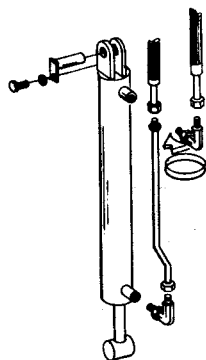
7. Disconnect both the case and rod end hoses. Immediately cap or plug hoses and cylinder ports to keep fluid in and dirt out.
8. Remove the capscrew and the retainer from the case end.
9. Make sure cylinder weight is securely supported by hoists and carefully remove the pivot pin. Check for pivot pin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



### DISASSEMBLY OF TILT CYLINDER

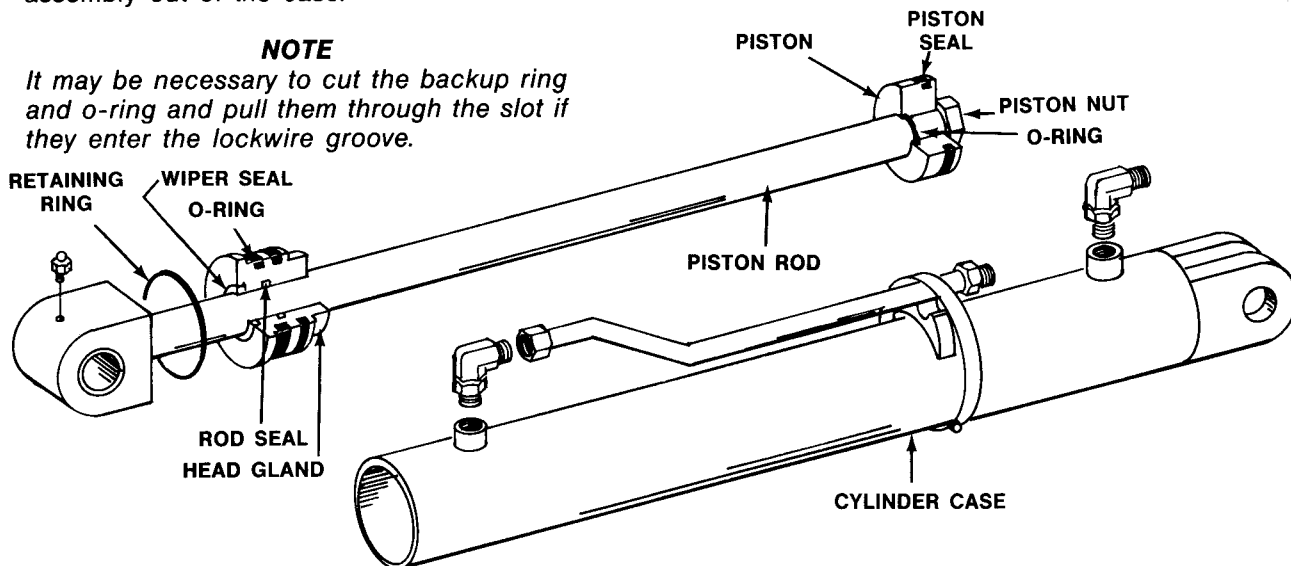
1. Clean the mounting hardware and outside of the cylinder assembly to prevent dirt and foreign matter from contaminating the cylinder components during disassembly.
2. Secure the case end of the cylinder to a work bench or floor mount and the rod end to an overhead lifting device with a minimum lifting capacity of 500 lbs. to ease the disassembly of parts.
3. Remove the plugs from the ports and drain the fluid.
4. To remove the wire lock head, rotate the head gland to position the end of the retaining wire in the slot provided in the cylinder case. Pry the wire end up until it protrudes above the cylinder case. Continue rotating the head as the wire feeds out of the slot until it can be completely removed. After the lockwire is removed push the head gland approximately four (4) inches into the cylinder case. Use an electric drill with an internal grinding wheel to remove any burrs from the internal groove on 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. Remove and discard the piston o-rings and piston seals.
6. Slide the head gland off the rod and discard the head gland o-ring, backup ring, rod seal and rod wiper.



#### NOTE

*It may be necessary to cut the backup ring and o-ring and pull them through the slot if they enter the lockwire groove.*



### INSPECTION AND REPLACEMENT OF TILT 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 anytime 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 authorized Leach distributor.

### REASSEMBLY AND INSTALLATION OF TILT CYLINDER

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

#### NOTE

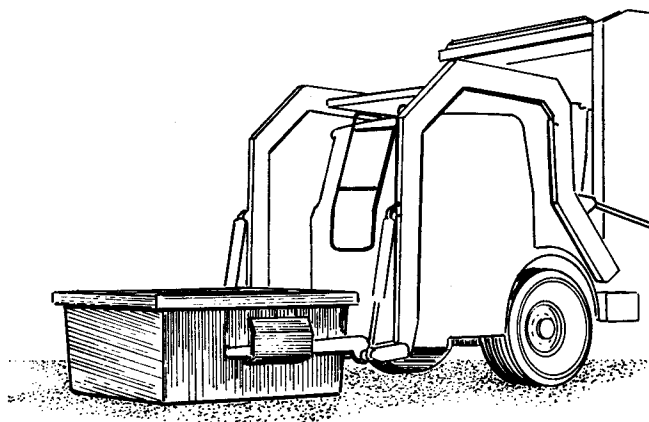
*If the cylinder is not to be installed immediately, keep the ports sealed to prevent contamination from entering the cylinder.*

#### NOTE

*Special tools, listed in Section 11 may be necessary to properly reassemble the cylinder.*

## 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 limited to replacement of the entire assembly.



## REMOVAL OF FORK ASSEMBLY

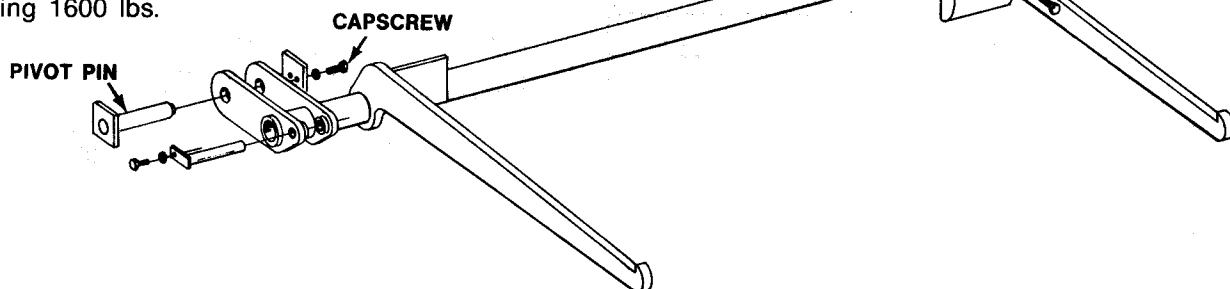
Operational Status	
Truck Off	Keys Removed

1. Disconnect the rod end 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 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.



## SERVICE AND REPAIR

### DESCRIPTION OF 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 case connects to the body.

### 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.*

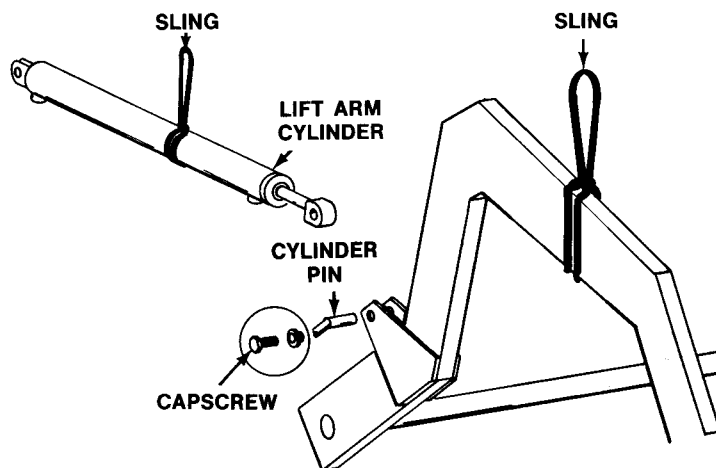
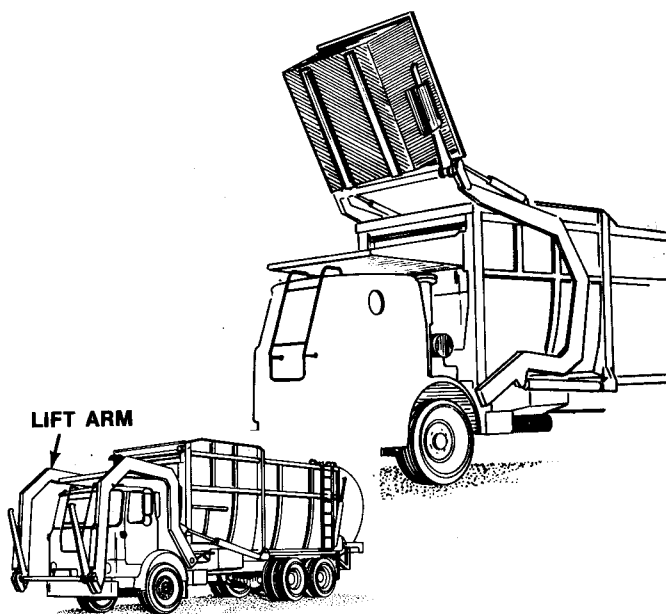
2. Secure a nylon sling around the cylinder as shown and attach to a suitable lifting device with a capacity of 500 lbs. Operate the hoist to snug the lifting slings without applying strain on the cylinder.
3. Remove the capscrew from the rod end.
4. Make sure the cylinder weight is securely supported 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 to completely retract the cylinder.

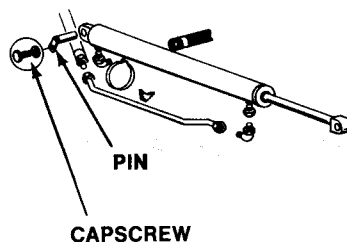
Operational Status	
Truck Off	Keys Removed

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

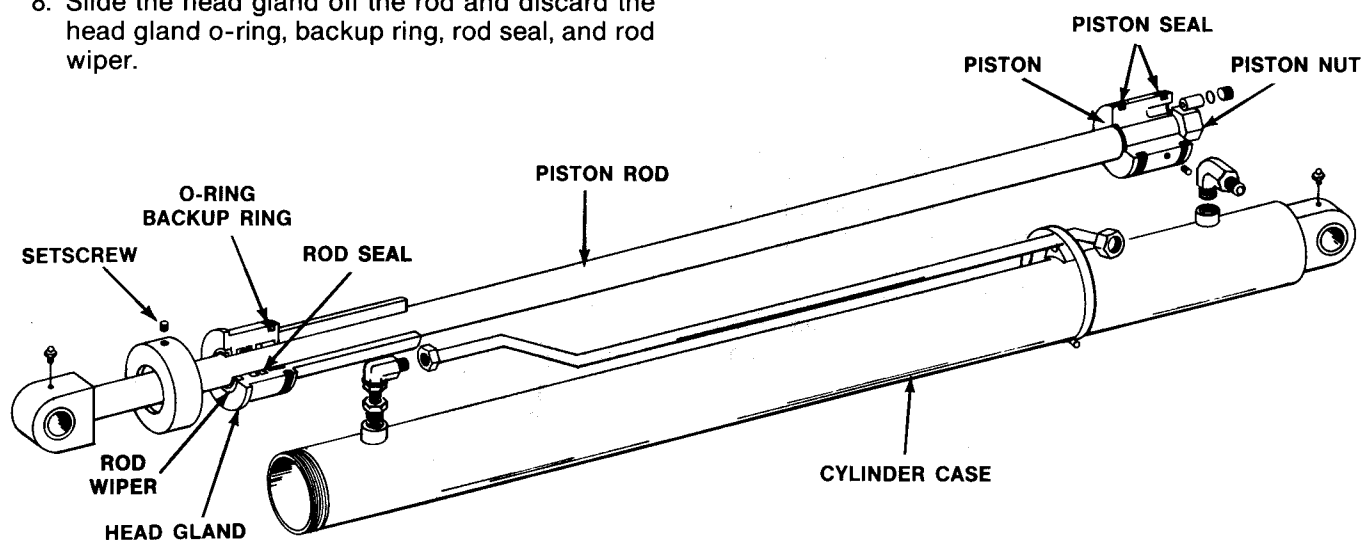
Whenever disassembling any hydraulic line, valve or cylinder, be sure to turn off the hydraulic fluid flow, relieve the pressure and slowly loosen the fittings.





## 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. 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 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 anytime 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 authorized Leach distributor.

## REASSEMBLY AND INSTALLATION

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

### 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 11 may be necessary to properly reassemble the cylinder.*

## SERVICE AND REPAIR

### DESCRIPTION OF LIFT ARM ASSEMBLY

The lift arm assembly is the structure which connects to the for assembly and raises the container over the cab and dumps refuse into the unit. It's movement is controlled by the lift arm cylinders and it pivots on two bearings where the assembly attaches to the front of the body.



### REMOVAL OF LIFT ARM ASSEMBLY

Operational Status	
Truck Off	Keys Removed

#### NOTE

See Section 4, General Repair Practices, for detailed information about the correct use of slings and lifting chains.

1. Remove the tilt cylinders and fork assembly as explained earlier.
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 cylinders as described earlier.
4. Attach chains, connected to a suitable lifting device, with a minimum lifting capacity of 4,000 lbs. to the lift arm assembly as shown. Operate the lifting device no more than necessary to support the weight of the lift arm assembly.
5. Remove capscrews and bearing cap.
6. Operate the lifting device to free the lift arm assembly from the body. Carefully raise the lift arm assembly to clear the chassis cab.
7. Position the lift arm assembly on the supports to facilitate inspection. Supports must be capable of holding 4000 lbs.

### INSPECTION AND REPLACEMENT OF LIFT ARM ASSEMBLY

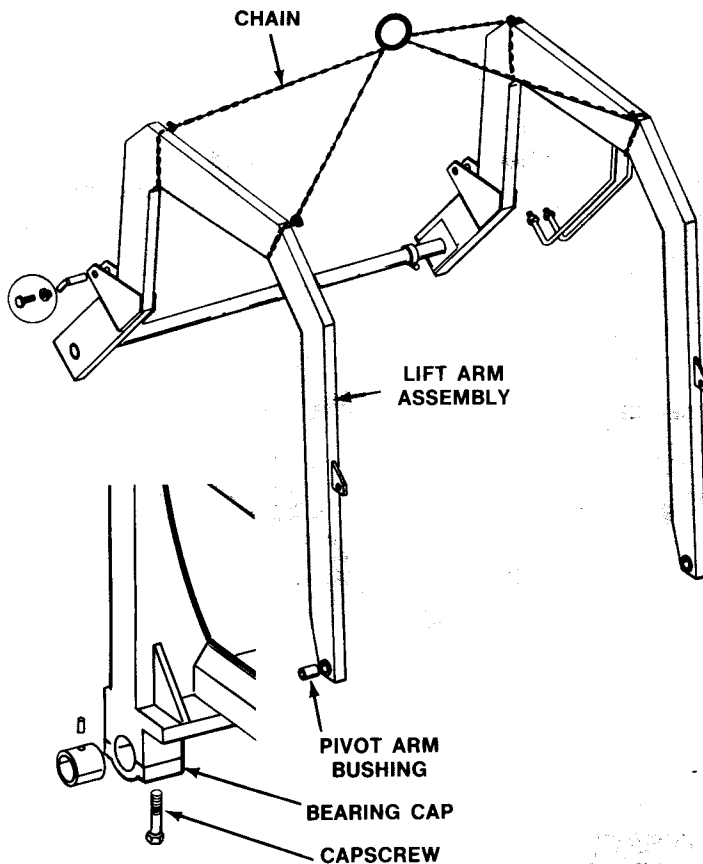
1. Inspect all metal parts and pivot points for damage. Check hardware holes for enlargement or breaks in metal or weld cracks.
2. See Section 4, General Repair Instructions, for information pertaining to welding repairs.
3. Repair to this assembly is limited and if structural damage is noted, the entire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

### REINSTALLATION OF LIFT ARM ASSEMBLY

Install the lift arm assembly in the approximate reverse order of removal.

#### NOTE

Remove the control cables electrical and hydraulic lines from between the front of the body and rear of the cab.



## DESCRIPTION OF REAR DOOR CYLINDERS.

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

## REMOVAL OF REAR DOOR CYLINDERS

Operational Status	
Truck Running	PTO Engaged

1. The rear door cylinders must be retracted and the rear door 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 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.

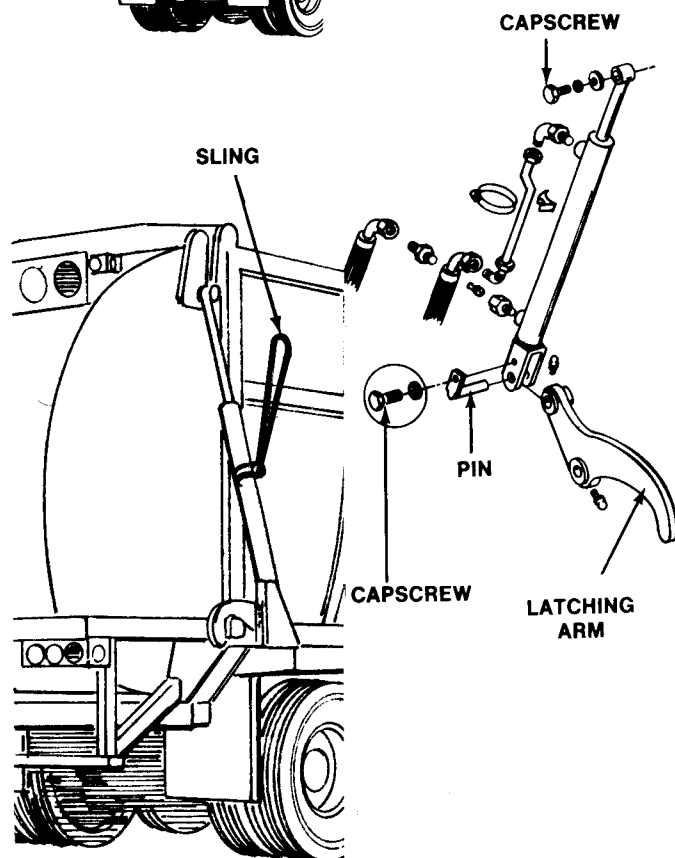
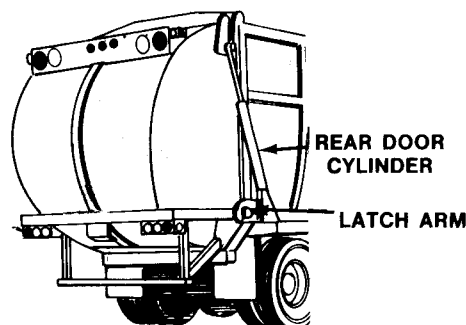
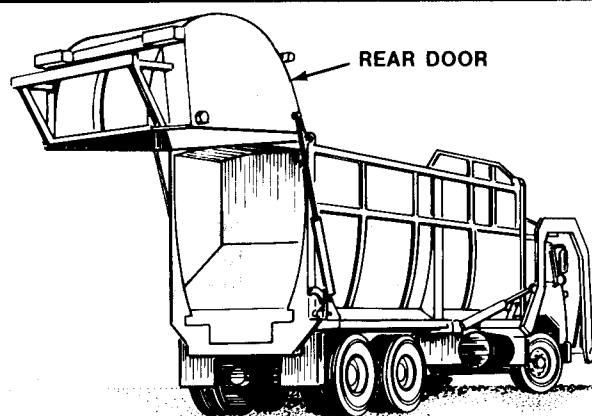
### NOTE

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

### CAUTION

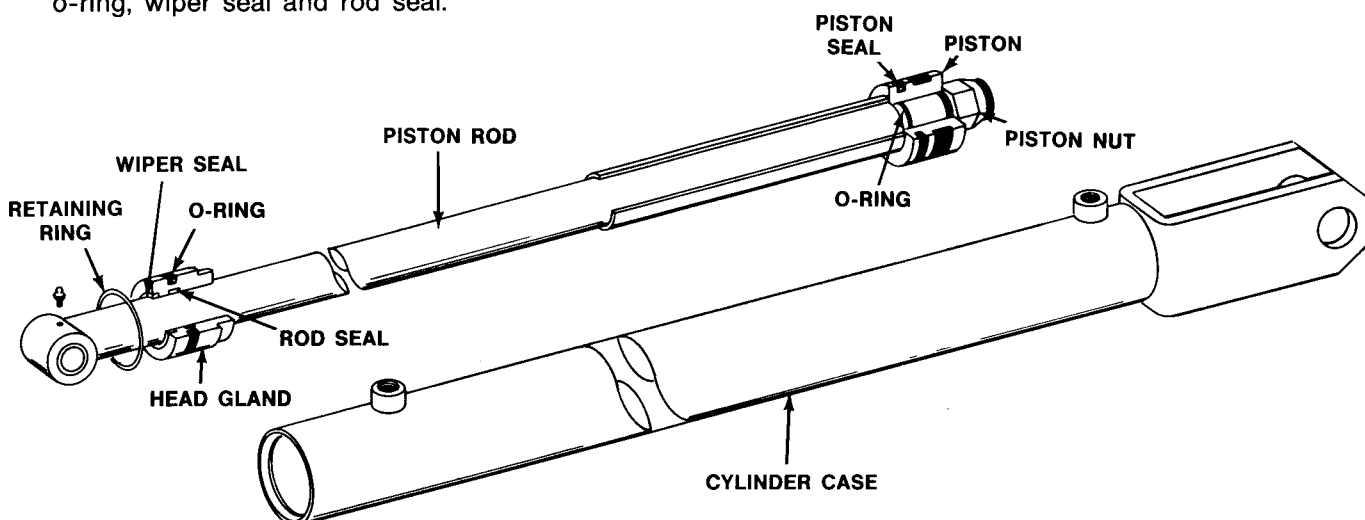
Whenever dismantling any hydraulic line, valve or cylinder, be sure to turn off the hydraulic fluid flow, relieve the pressure and slowly crack or loosen the fittings.

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 REAR 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. Remove the head gland retaining ring. Use a drill with an internal grinding wheel to remove any burrs 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 REAR 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 REAR DOOR CYLINDER

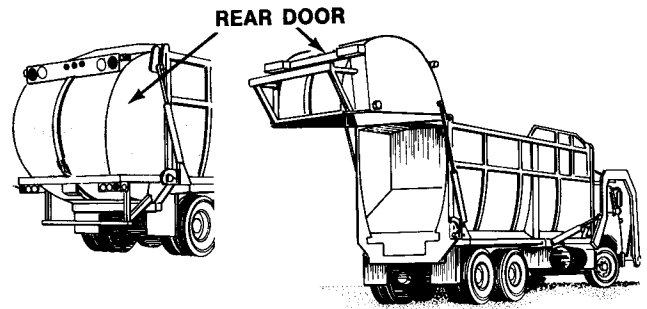
Reassemble and install the rear door cylinder in approximate reverse order of disassembly.

#### NOTE

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

## DESCRIPTION OF REAR DOOR

The rear door 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 rear door cylinders and it is locked shut by the latch hooks. The rear door on 37 and 40 yard units also serves as an extension to the body, thus increasing refuse capacity.



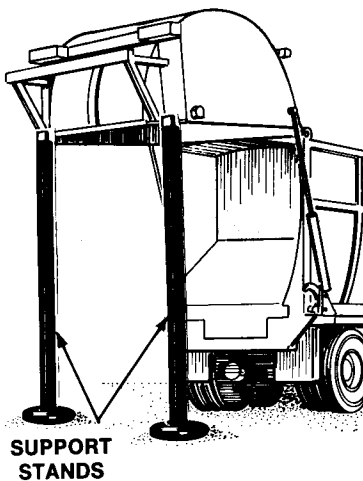
## REMOVAL OF THE REAR DOOR

Operational Status	
Truck Running	PTO Engaged

1. Extend the rear door lift cylinders enough to disengage the latch hooks.

Operational Status	
Truck Off	Keys Removed

2. Disconnect the rod end of the rear door cylinders as described earlier in this section.
3. Attach chains to a suitable lifting device with a minimum lifting capacity of 4,000 lbs. to the rear door as shown. Operate the lifting device no more than necessary to support the weight of the rear door assembly.



SUPPORT STANDS

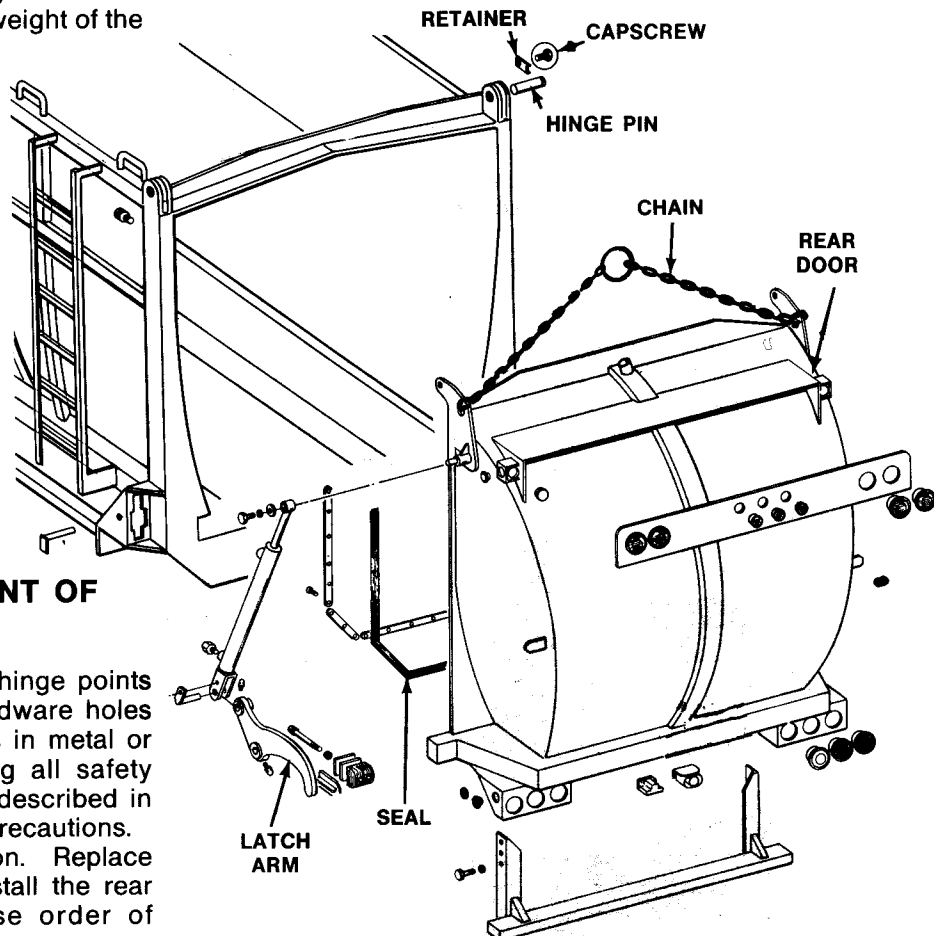
## INSPECTION AND REPLACEMENT OF REAR DOOR

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 Safety Precautions.
2. Inspect the rear door seal condition. Replace the rear door seal if required. Install the rear door in the approximate reverse order of removal.

4. Remove capscrews, retainer and hinge pin. Operate the lifting device to free the rear door from the body.
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 rear door. Install support stands as shown.



## SERVICE AND REPAIR

### DESCRIPTION OF SLIDING TOP DOOR CYLINDER

A single, 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

For a description of the optional hinged top door refer to Section 10.

### REMOVAL OF SLIDING TOP DOOR CYLINDER

#### Operational Status

Truck Running

PTO Engaged

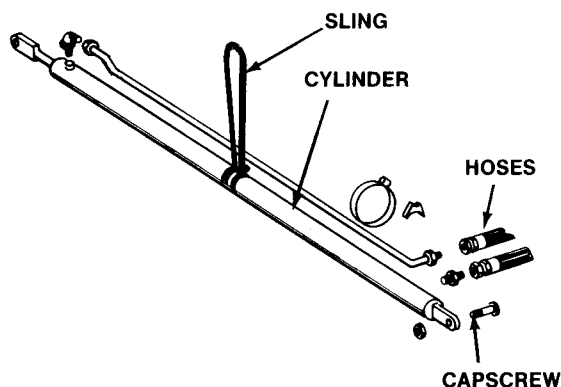
1. Lift arms must be at their lowest position and the top door must be fully open.

#### Operational Status

Truck Off

Keys Removed

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.

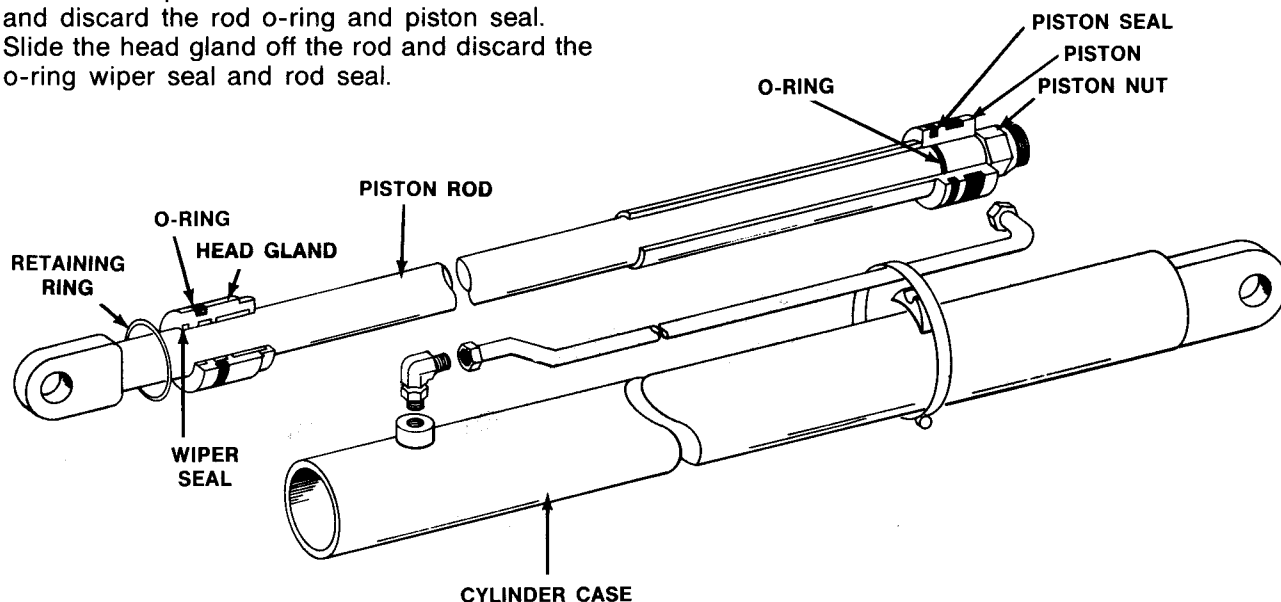


#### CAUTION

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. Remove the head gland retaining ring. Use a drill with an internal grinding wheel to remove any burrs 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 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 REAR DOOR CYLINDER.

Reassemble and install the rear door cylinder in 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 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 manually by operator action from the chassis cab.

**REMOVAL OF TOP DOOR****Operational Status**

Truck Off

Keys Removed

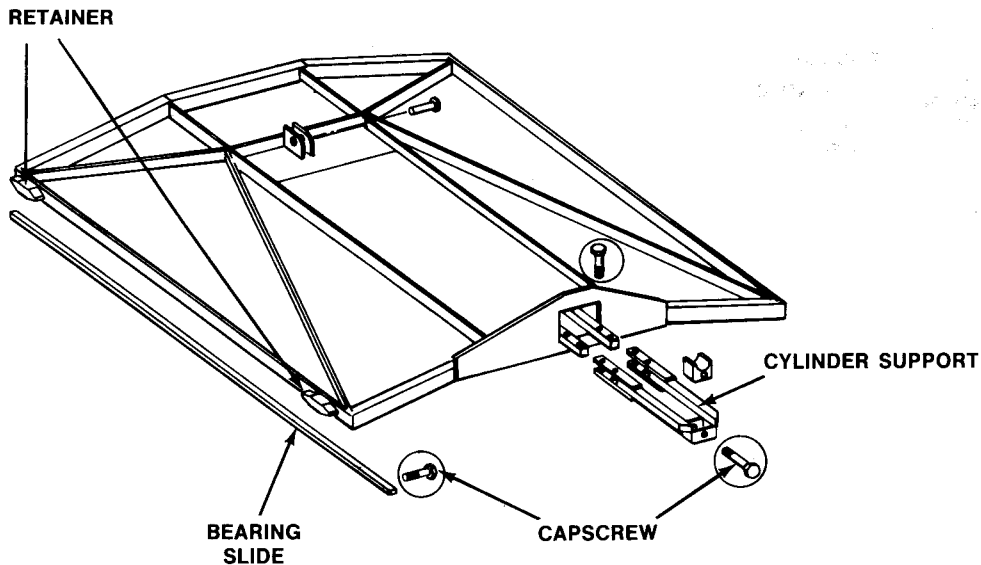
1. Disconnect the rod end of the top door cylinder as described earlier in this section.

**NOTE**

See Section 4, *General Repair Practices*, for 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 THE 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 SAFETY PRECAUTIONS*.
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 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 plate, 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 pounds. Operate the hoist to snug the sling.
4. Raise and support the rear door as described earlier in this section.
5. Remove the pin access cover and the pin retaining capscrew.
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.

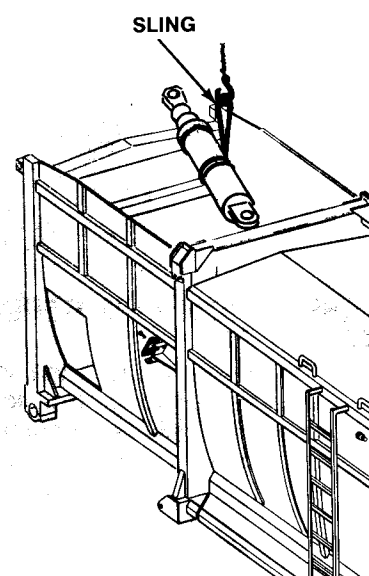
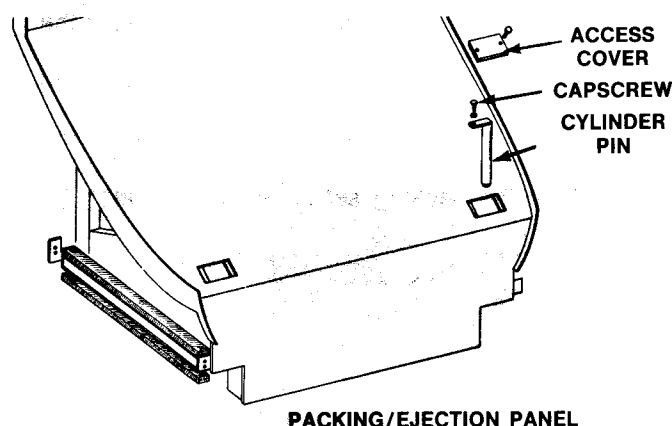
Operational Status	
Truck Running	PTO Engaged

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.

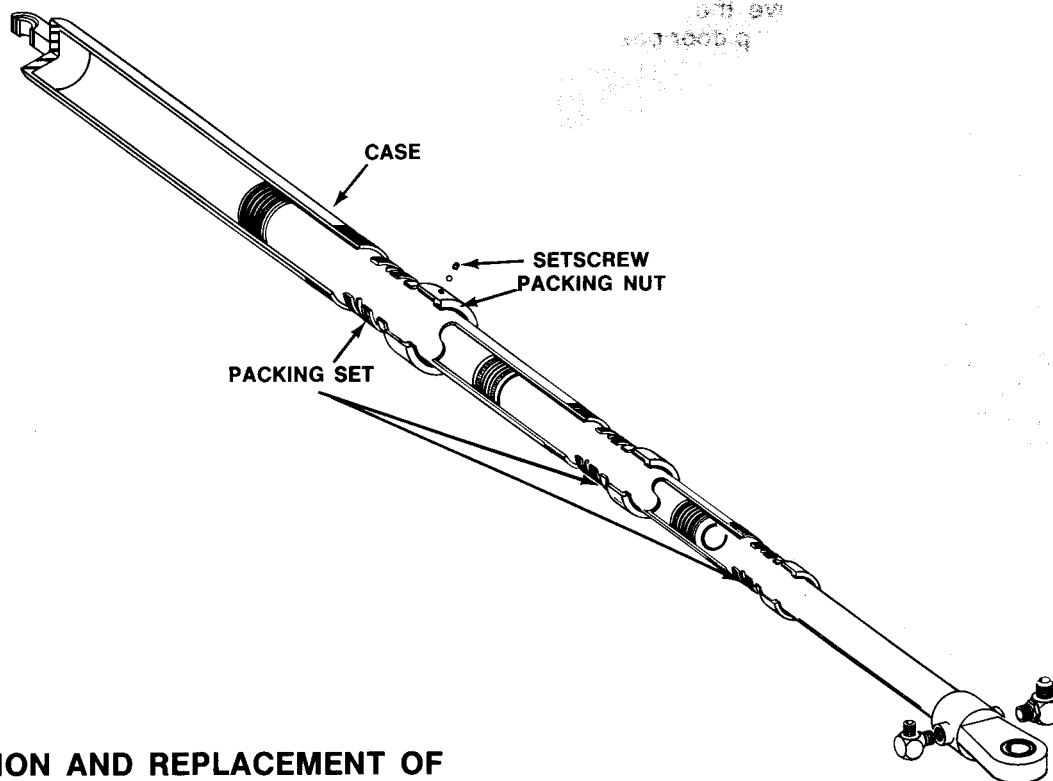


8. Disconnect both the case end and the rod end hoses. Immediately cap or plug hoses and cylinder ports to keep fluid in and dirt out.
9. Remove the capscrew from the rod end. Make sure the cylinder is securely supported by the hoist and carefully remove the pivot pin. Check for pivot pin or pin hub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

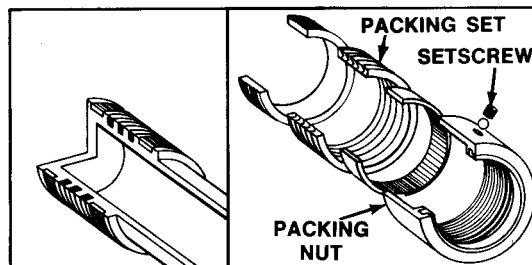
1. Thoroughly inspect the inside and outside of each section for cracks, scoring or uneven wear.
2. Check all cylinder components for damage and wear and replace as required.

#### NOTE

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

### REASSEMBLY AND INSTALLATION OF CYLINDER

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



## 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 four shoes and is moved rearward and forward by the packing/ejection cylinders.

## REMOVAL OF THE PACKING/EJECTION PANEL

Operational Status	
Truck Running	PTO Engaged

1. Raise rear door to the full up position.
2. Extend the packing/ejection cylinders to move the packing/ejection plate to its rearmost position in the body.

Operational Status	
Truck Off	Keys Removed

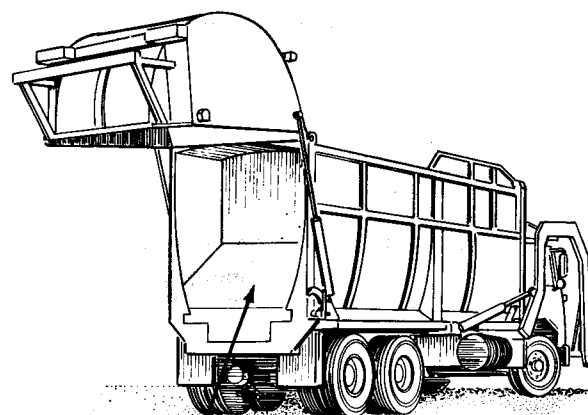
### ⚠ DANGER

**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.**

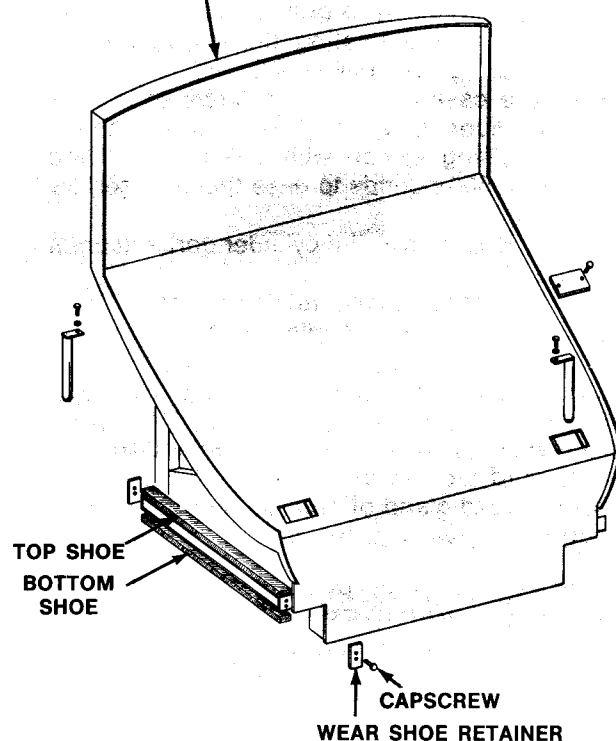
3. Disconnect the rod end of the packing/ejection cylinders as described earlier and support cylinders.
4. Weld an eye to the center of the plate and attach a chain to prevent the plate from tipping over upon removal.
5. The packing/ejection panel can now be removed by sliding it from the body. The method 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 and body floor.



PACKING/EJECTION PANEL



## INSTALLATION OF PACKING/EJECTION PANEL

1. Install the packing/ejection panel in the approximate reverse order of removal.
2. During installation, the rear top shoes may be shimmed as shown.
3. After installation, the front 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 plate.*



## SERVICE AND REPAIR

### 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, while 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

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 parts.
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 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

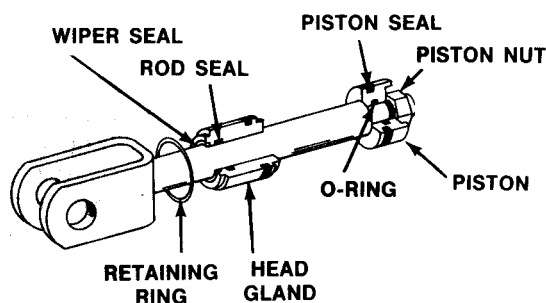
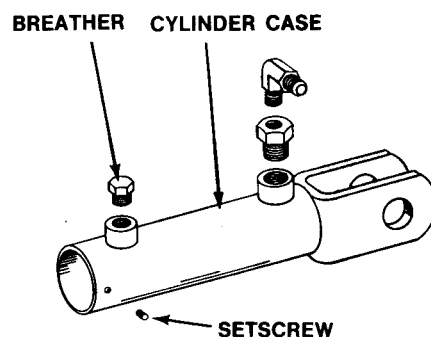
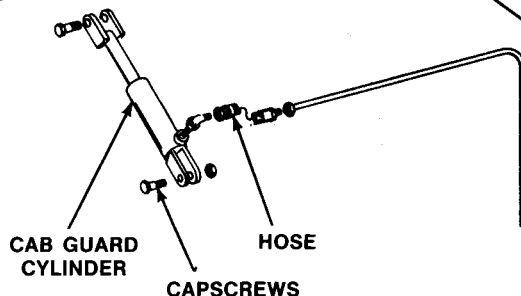
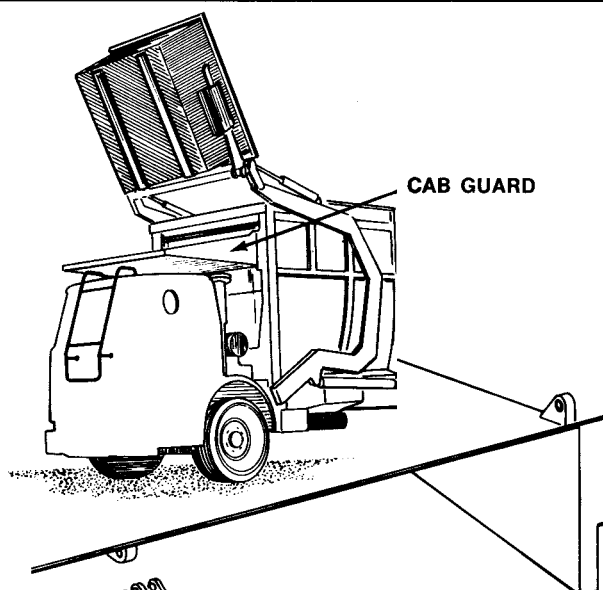
1. Thoroughly inspect the inside of the cylinder for cracks, scoring or uneven wear.
2. Check all cylinder components and mounting parts for damage and wear and replace as required. Parts that must be replaced together (o-rings and seals) are available as a repair kit from your local authorized Leach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

### REASSEMBLY AND INSTALLATION OF CAB GUARD CYLINDER

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

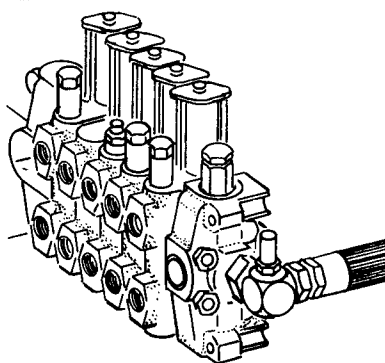
#### NOTE

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



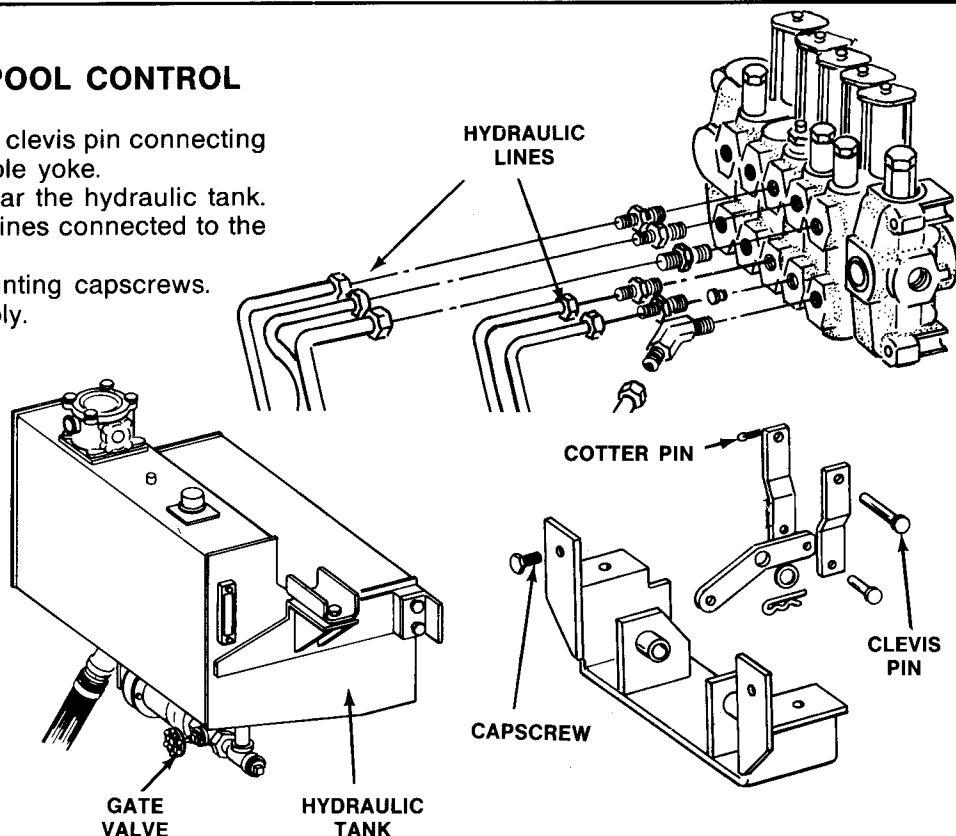
## DESCRIPTION OF 5-SPOOL CONTROL VALVE

The 5-spool 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.



## REMOVAL OF THE 5-SPOOL CONTROL VALVE ASSEMBLY

1. Remove the cotter pin and clevis pin connecting the valve spool to the cable yoke.
2. Shut off the gate valve near the hydraulic tank.
3. Disconnect the hydraulic lines connected to the main control valve.
4. Remove the three (3) mounting capscrews.
5. Remove the valve assembly.

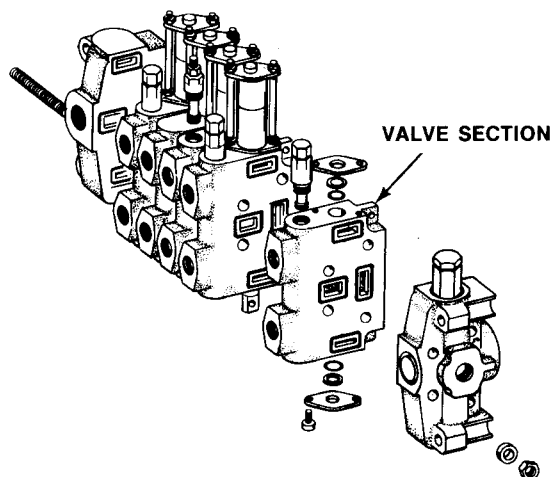


### DISASSEMBLY OF 5-SPOOL CONTROL ASSEMBLY

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.

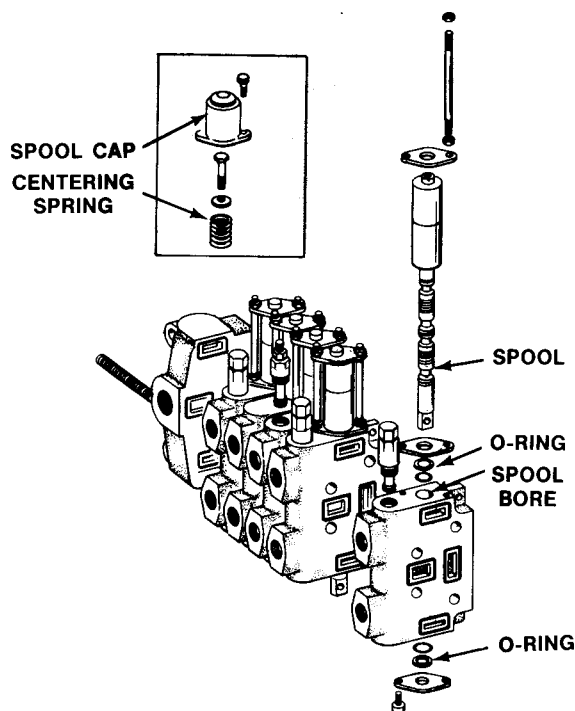
#### NOTE

*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.

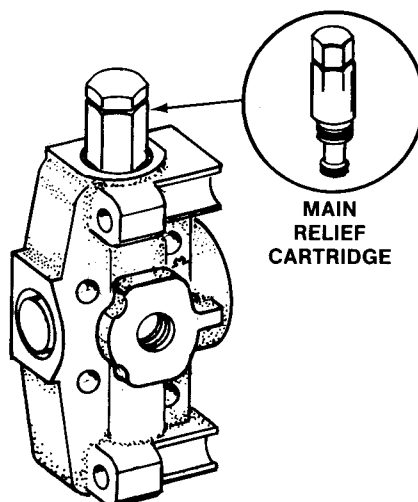


**DISASSEMBLY OF MAIN RELIEF SECTION**

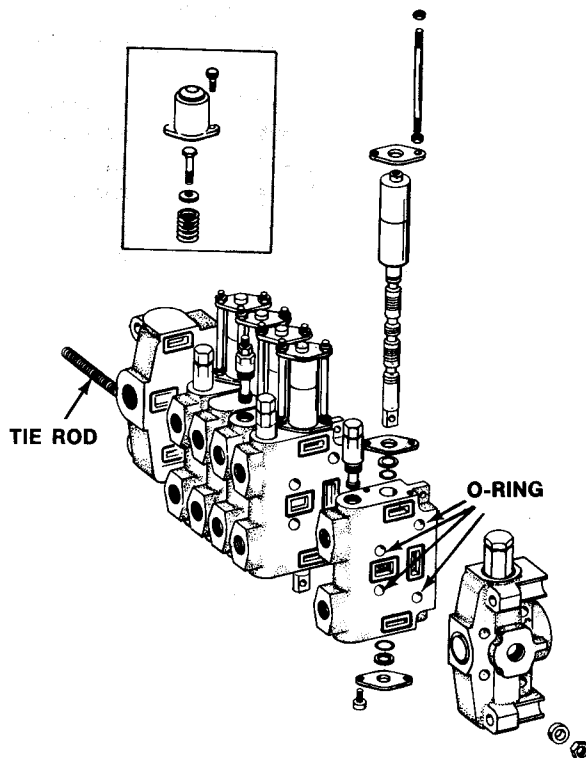
1. Remove the main relief cartridge from the valve.

**⚠ 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. Reassemble and install the parts in the approximate reverse order of disassembly.
2. When reassembling the valve sections, ensure that new seals are placed between the valve sections and aligned so that the tie rods may be installed.
3. Tighten the tie rods evenly to secure the valve sections and to prevent leaks.

**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 main relief valve pressure as described under pressure checks, Section 7, CHECK-OUT.

**NOTE**

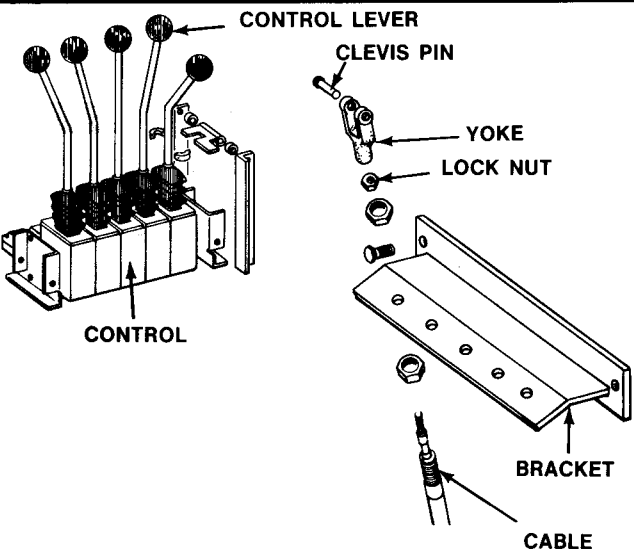
When reinstalling the spool into the valve section, always install new o-rings to prevent leakage.

### 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, packing and unloading 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.

1. To remove the linkage rods, 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 which serves the complete hydraulic system is a gear type, coupled to the PTO shaft through a yoke arrangement. It is usually mounted under the body near the front end, curb side. The Leach pump can run in either direction — clockwise or counterclockwise rotation. The locations of the suction and pressure hoses are determined by this direction of rotation; it is therefore imperative to install hoses correctly.

## 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 and cap.
5. Loosen the setscrew and free the yoke from the pump shaft by telescoping the PTO drive shaft toward the PTO.
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 Sec. 6, PREVENTIVE MAINTENANCE and the following prevent contamination of the new pump.

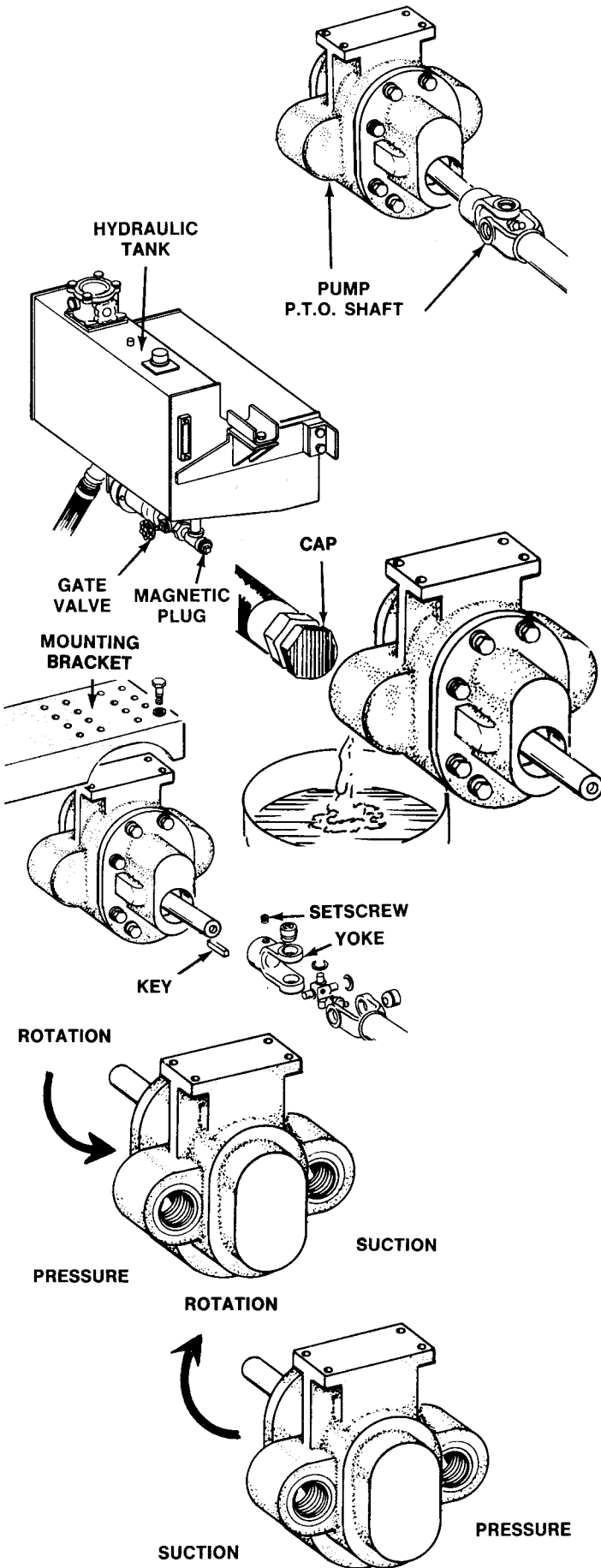
1. Remove and clean the hydraulic tank strainer.
2. Change the filter element.
3. Drain and flush the hydraulic tank as described in Sec. 6, PREVENTIVE MAINTENANCE.
4. Clean the magnetic plug.

## INSTALLATION OF HYDRAULIC PUMP

1. Install the pump in the reverse order of removal. **MAKE SURE** suction and pressure lines are installed correctly for pump rotation. 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 line pressure as described in Sec. 7, CHECK-OUT.



## SERVICE AND REPAIR

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.

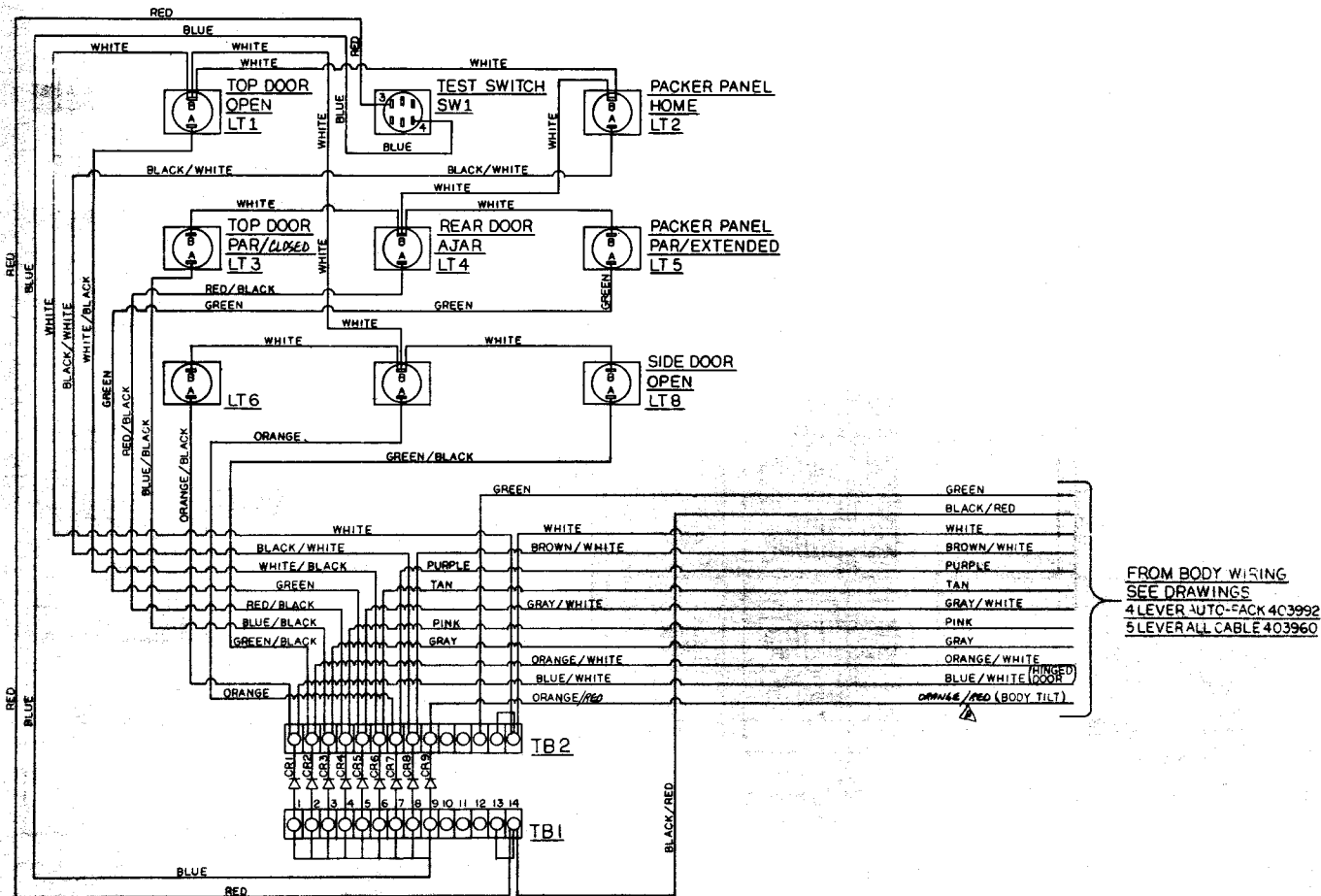
To locate a defective component or break in the wiring perform a continuity check across and between suspected components as described in Sec. 4. GENERAL REPAIR.

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

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



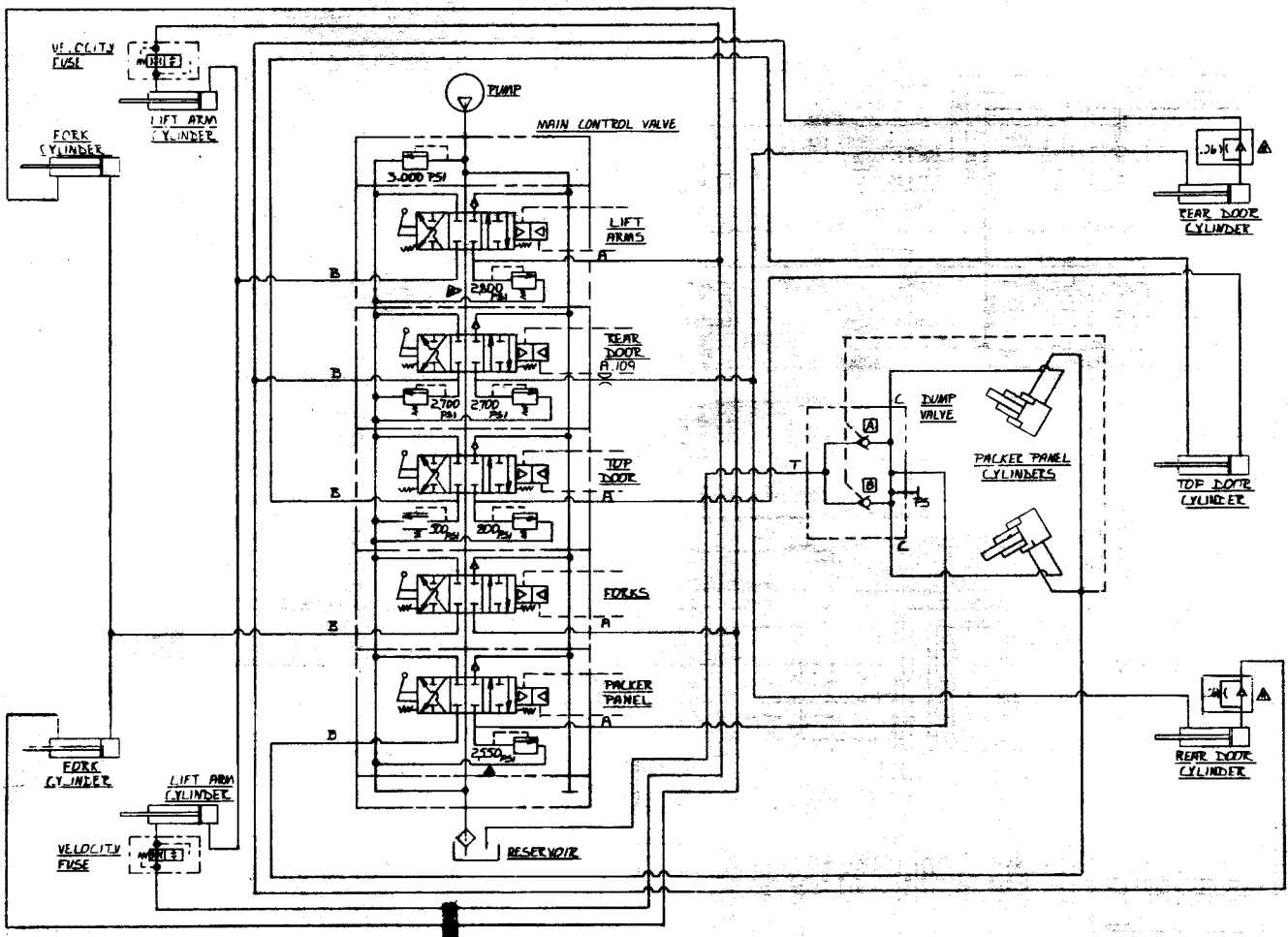
# INDICATOR CONSOLE ELECTRICAL SCHEMATIC



## SECTION 9

### SERVICE AND REPAIR

#### HYDRAULIC SCHEMATIC SLIDING DOOR



## GENERAL

The configuration of the unit as described in sections 1 through 9 is the STANDARD. The standard unit consists of a welded lift arm assembly, sliding top door, and 5-spool cable controls. Many options are available to enhance the operation of the FL-104 or to fulfill a specific requirement. This section explains the operation, checkout, and preventive maintenance of the options. Refer to sections 1 through 9 for general information and this section for specific information concerning options.



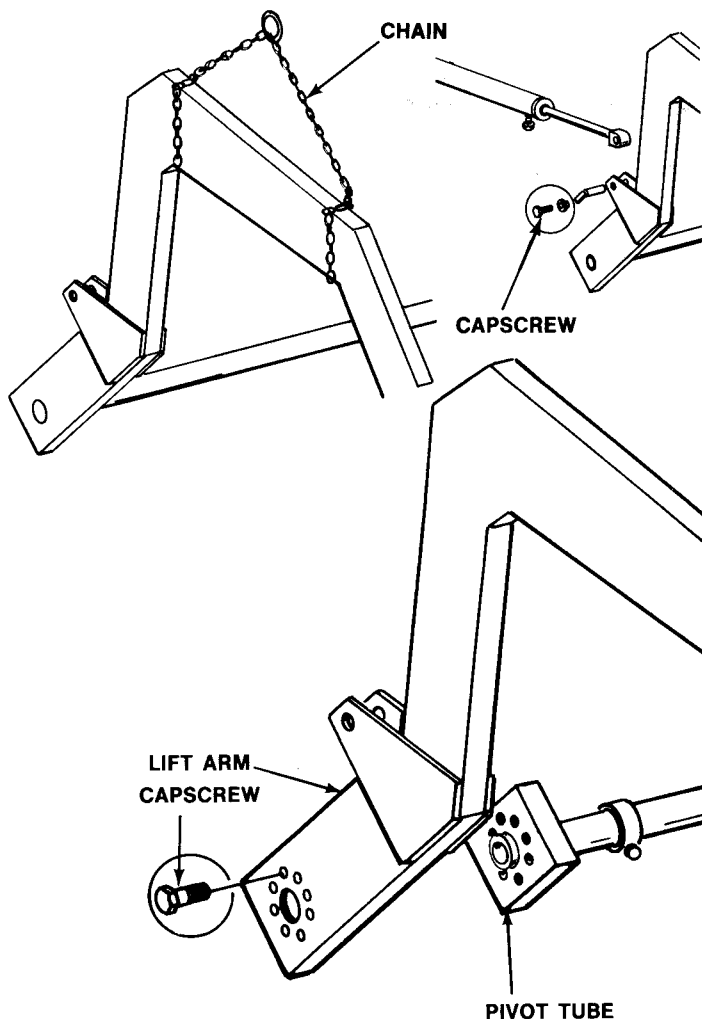
## DESCRIPTION OF BOLT ON LIFT ARM ASSEMBLY

The bolt on lift arm assembly replaces the welded left and right lift arms and joining pivot tube weldment. The bolt on option allows the individual replacement of specific components.

## REMOVAL OF ARM

Operational Status	
Truck Off	Keys Removed

1. Remove the tilt cylinder and fork assembly as described in Section 9, 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.
5. Attach chains, connected to a suitable lifting device, with a minimum lifting capacity of 2,000 pounds 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

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 INSTRUCTIONS, for information pertaining to welding repairs.
3. Repair to the lift arm is limited if structural damage is noted, the entire arm 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 foot pounds and Locktite.



### AUTO-PACK

#### GENERAL

The auto-pack option extends the packing/ejection panel to the mid point of the body.

#### OPERATION

When the auto-pack button is depressed the packing/ejection cylinders, connected to the packing/ejection panel, extend to the auto-pack position and clear refuse from the hopper area. The cylinders then automatically reverse and retract to the front of the body, then the control valve is pneumatically shifted to neutral.

#### HYDRAULIC FUNCTION

Hydraulically, units equipped with the auto-pack option operate identical to the standard controls. Auto-pack eliminates part of the manual operation.

#### PNEUMATICS

The automatic functions of the auto-pack option are controlled by a pneumatic cylinder mounted on the main control packing valve section. Two (2) pneumatic limit switches located on the left and right front corners of the body are contacted by the packing/ejection cylinders actuating the air logic valve assembly located in the chassis cab control box.

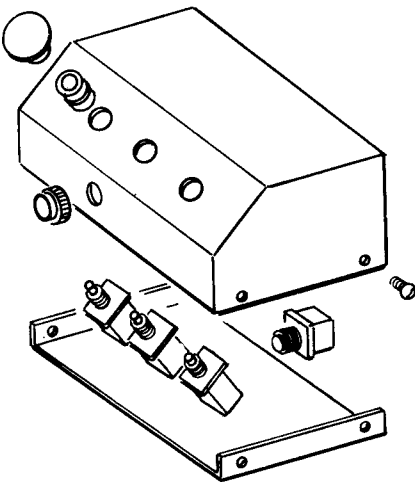
#### NOTE

*Repair of pneumatic components is limited to replacement of switches, relays, buttons, and the air logic valve assembly.*

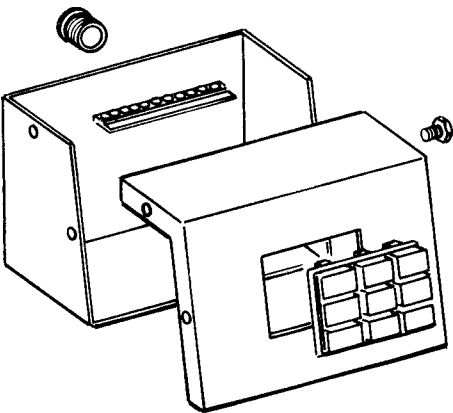
#### NOTE

*Most pneumatic problems can be traced to moisture in the system or kinked or disconnected air tubing. To ensure a properly functioning system, drain the air tanks daily and equip the chassis with an air system air dryer.*

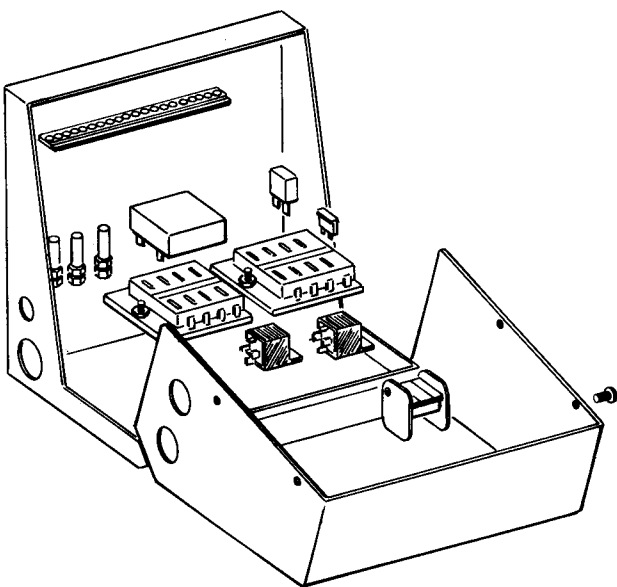
AIR CONTROL CONSOLE



INDICATION CONSOLE



ELECTRIC CONTROL CONSOLE



## BODY TILT

### GENERAL

The body tilt option 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 before attempting to tilt the body.

### RAISING

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

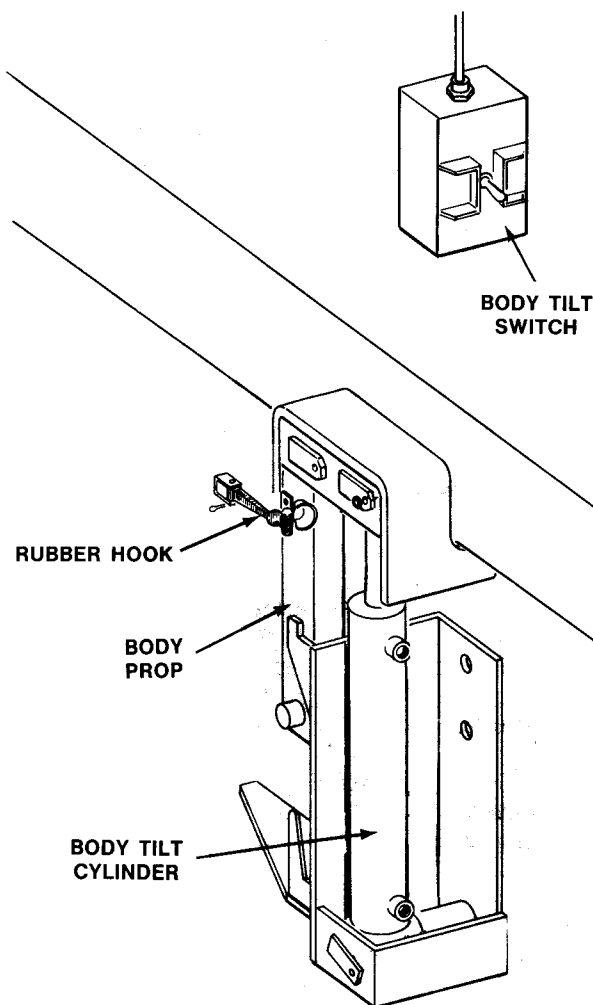
Before lowering the body, connect the rubber hooks, on each side of the body to the body props, then slightly raise the body to release the body props. Lower the body so that the body props clear the cylinder bracket. Stop lowering the body and loosen the rubber hooks from both body props. Continue to 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.

#### ⚠ DANGER

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



## HINGED TOP DOOR ADJUSTMENT

### 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 Section 7, CHECKOUT.
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 should be 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:

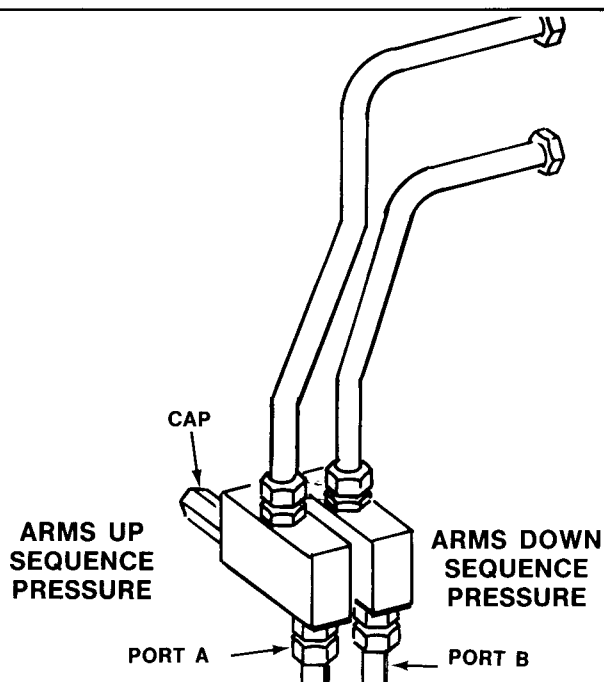
Operational Status	
Truck Off	Keys Removed

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.*



### 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 Section 7, Checkout.
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 should be 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.*



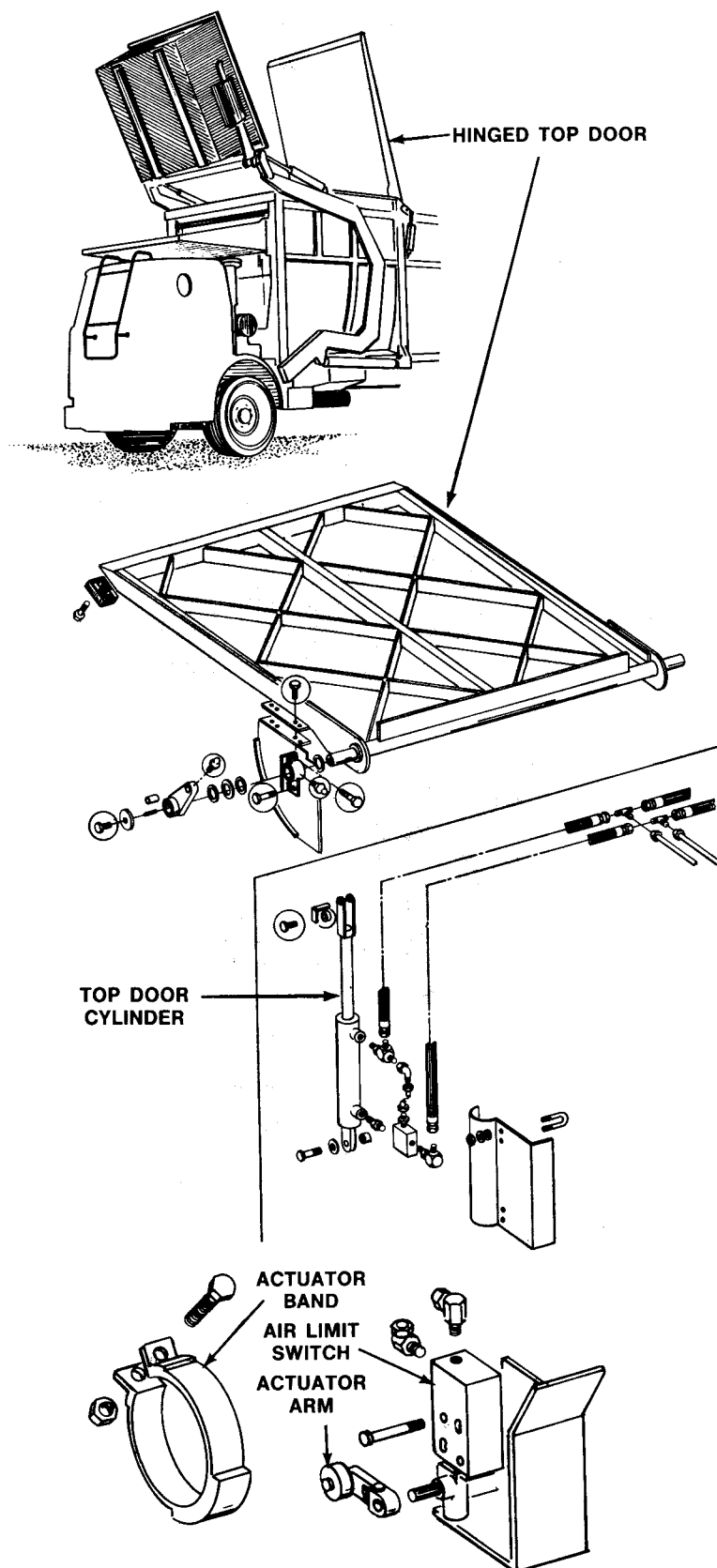
## HINGED TOP DOOR ADJUSTMENTS

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

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.

Disconnect the hydraulic lines from the valve and plug ports. Clean the valve externally and remove the cartridge. Clean thoroughly in cleaning solvent, checking for any wear in the cartridge or seals. Replace the cartridge if necessary. Remove the plugs from the valve body and thoroughly clean the interior of the body with cleaning solvent.

After cleaning be careful not to allow dirt or contamination into the valve and reinsert the cartridge in the valve body and reinstall the valve.



## OPTIONS

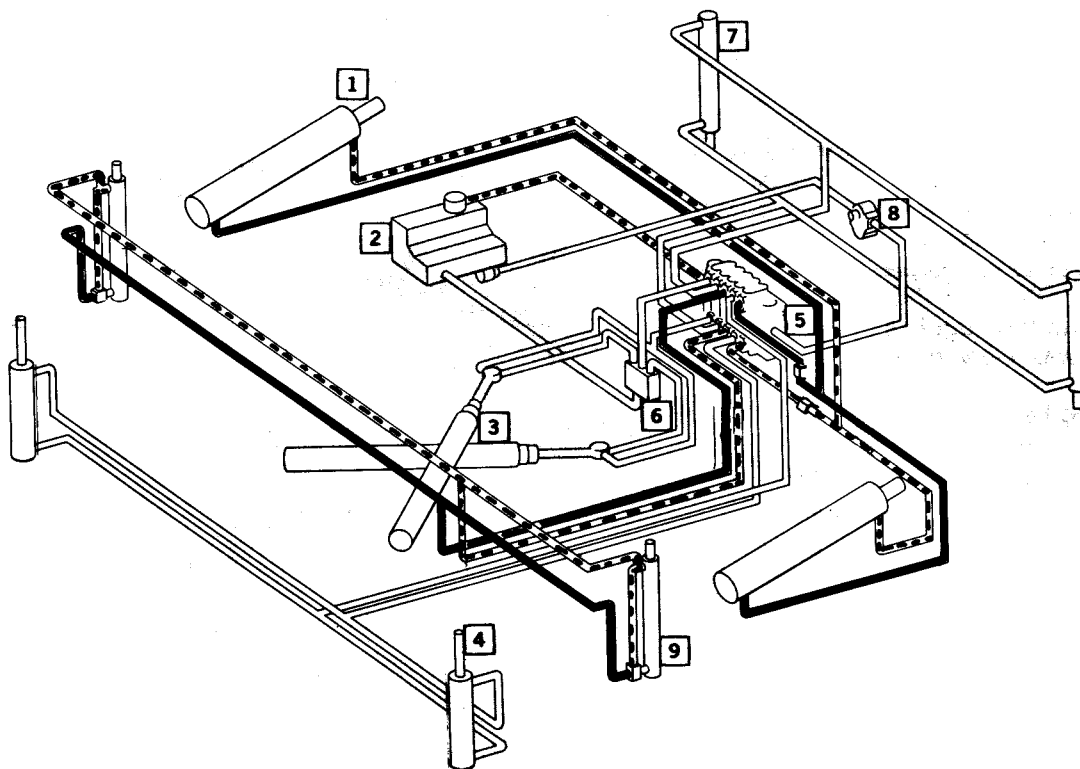
### HINGED TOP DOOR CLOSES

#### 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. Rear Door Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinders

PRESSURE ———  
EXHAUST - - - -

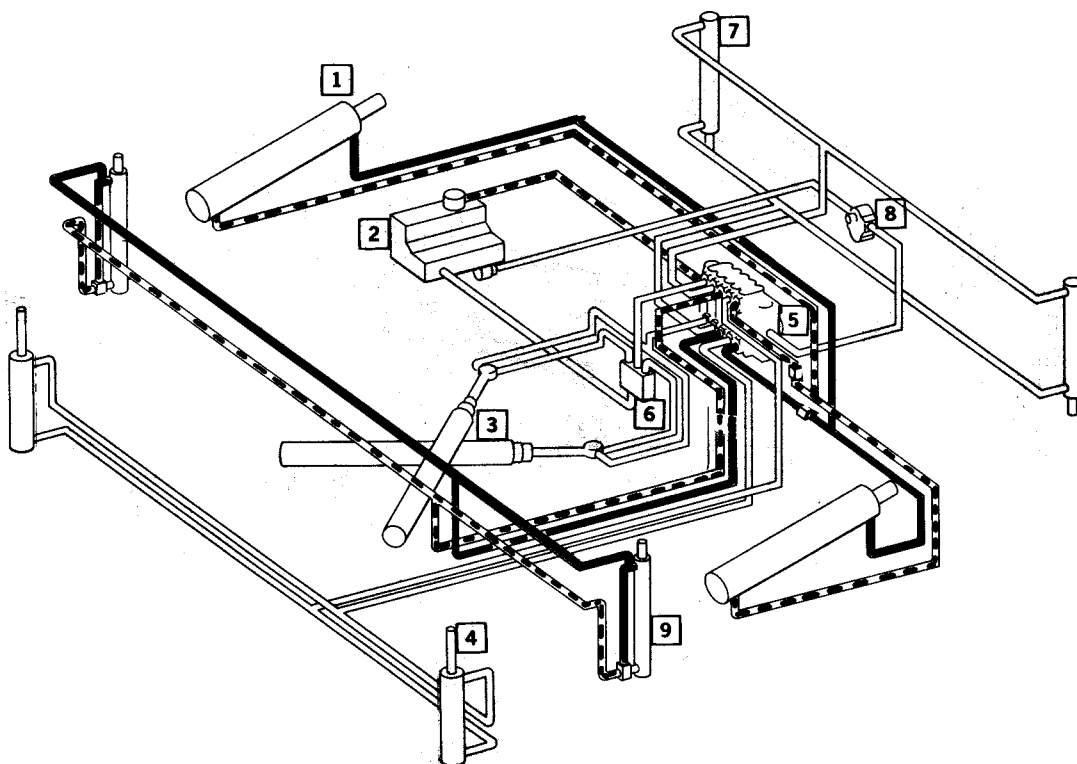
## HINGED TOP DOOR OPENS

### 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 pneumatically 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 cylinders are completely retracted the pressure builds 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. Rear Door Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinders

PRESSURE \_\_\_\_\_  
EXHAUST - - - -



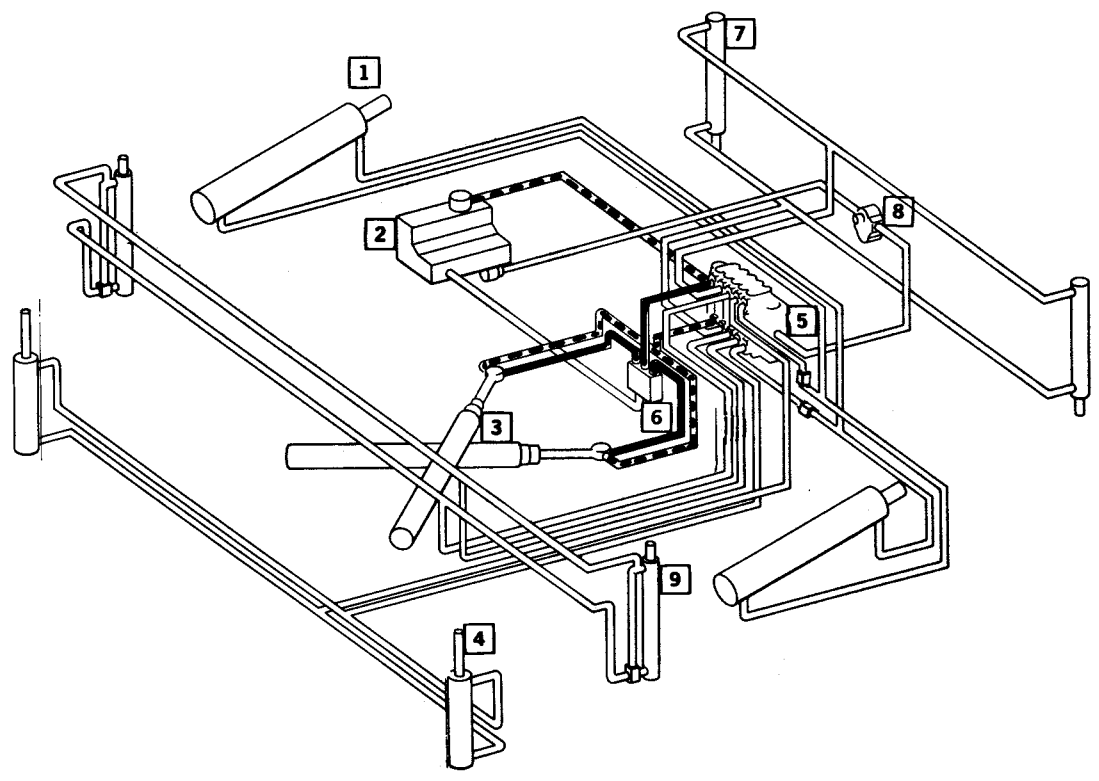
**PACKING/EJECTION (AUTO-PACK) WITH  
OPTIONAL AIR CONTROL OR CABLE  
CONTROL WITH AUTO-PACK PHASE 1  
(EXTENSION)**

**Operator Action**

The operator depresses the packing/ejection control button.

**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 auto-pack position. At this point a pneumatic switch is contacted shifting the main control valve into phase 2 (retraction).



**KEY**

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

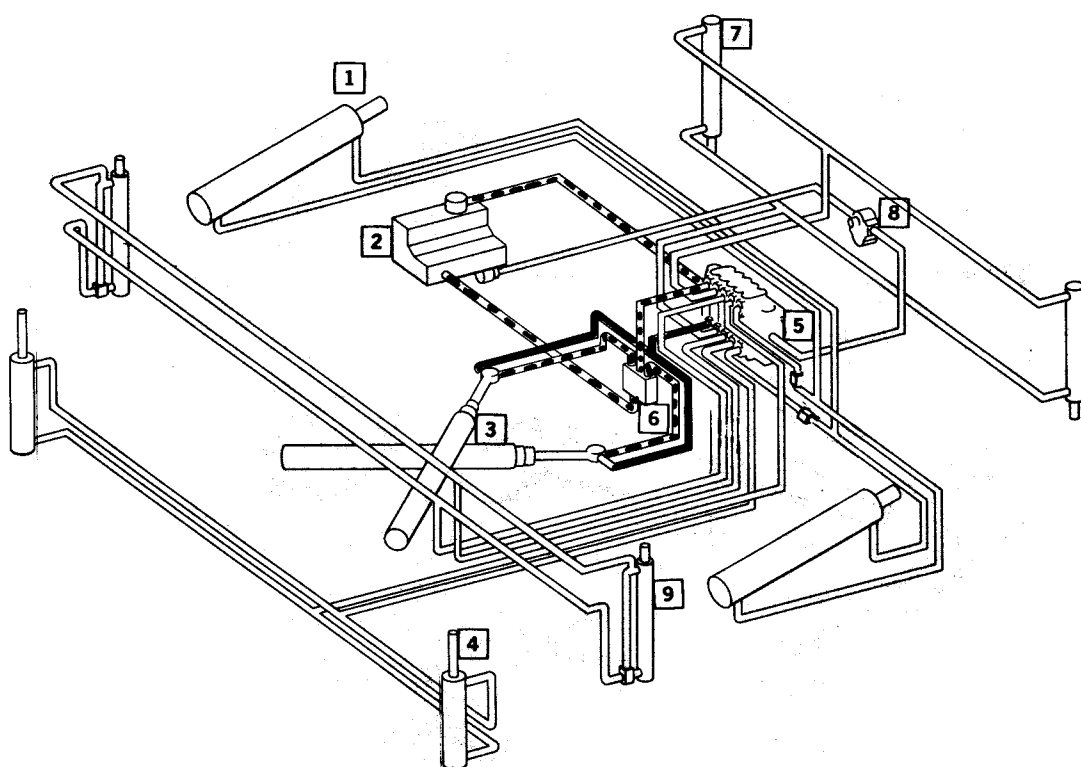
**PRESSURE** —————  
**EXHAUST** - - - - -

# PACKING/EJECTION (AUTO-PACK) WITH OPTIONAL AIR CONTROL OR CABLE CONTROL WITH AUTO-PACK PHASE 2 (RETRACTION)

**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, the control valve is automatically moved to neutral.



## KEY

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

**PRESSURE** —————  
**EXHAUST** - - - - -

## OPTIONS

### EJECTION WITH OPTIONAL AIR CONTROL OR CABLE CONTROL WITH AUTO-PACK PHASE 1 (EXTENSION)

#### Operator Action

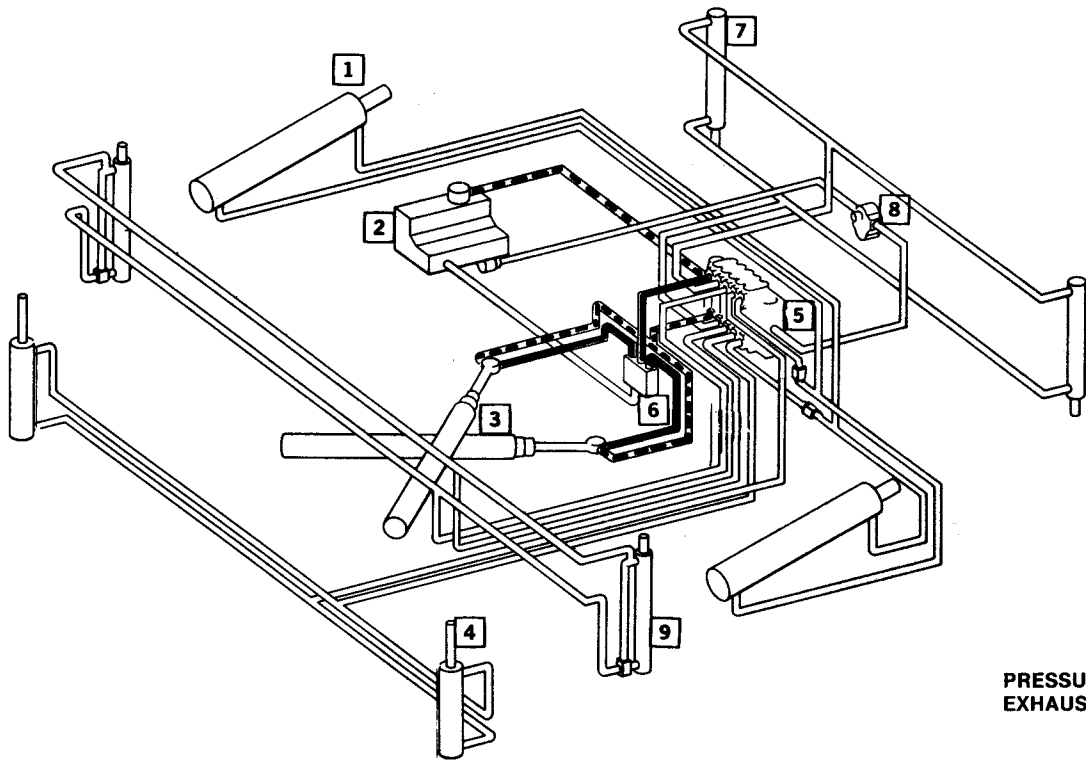
The operator depresses the packing/ejection control button and **holds it**.

#### 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. Rear Door Cylinders
5. 5-Spool Control Valve
6. Dump Valve
7. Fork Tilt Cylinders
8. Pump
9. Top Door Cylinders



PRESSURE ———  
EXHAUST - - - -

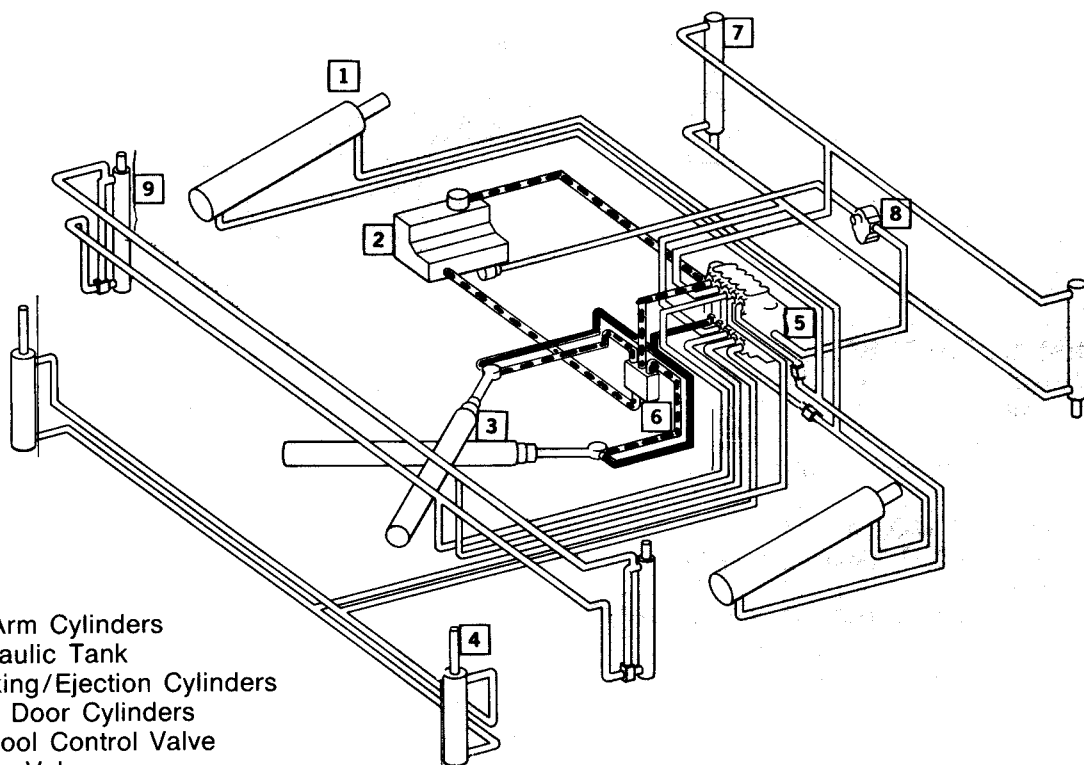
## EJECTION WITH OPTIONAL AIR CONTROL OR CABLE CONTROL WITH AUTO-PACK PHASE 2 (RETRACTION)

### Operator Action

The operator releases the packing/ejection control button after ejecting the load.

### HYDRAULIC SYSTEM

The operator action shifts the control valve, directing fluid flow 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 control valve is automatically moved to neutral.



### KEY

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

PRESSURE ———  
EXHAUST - - - -



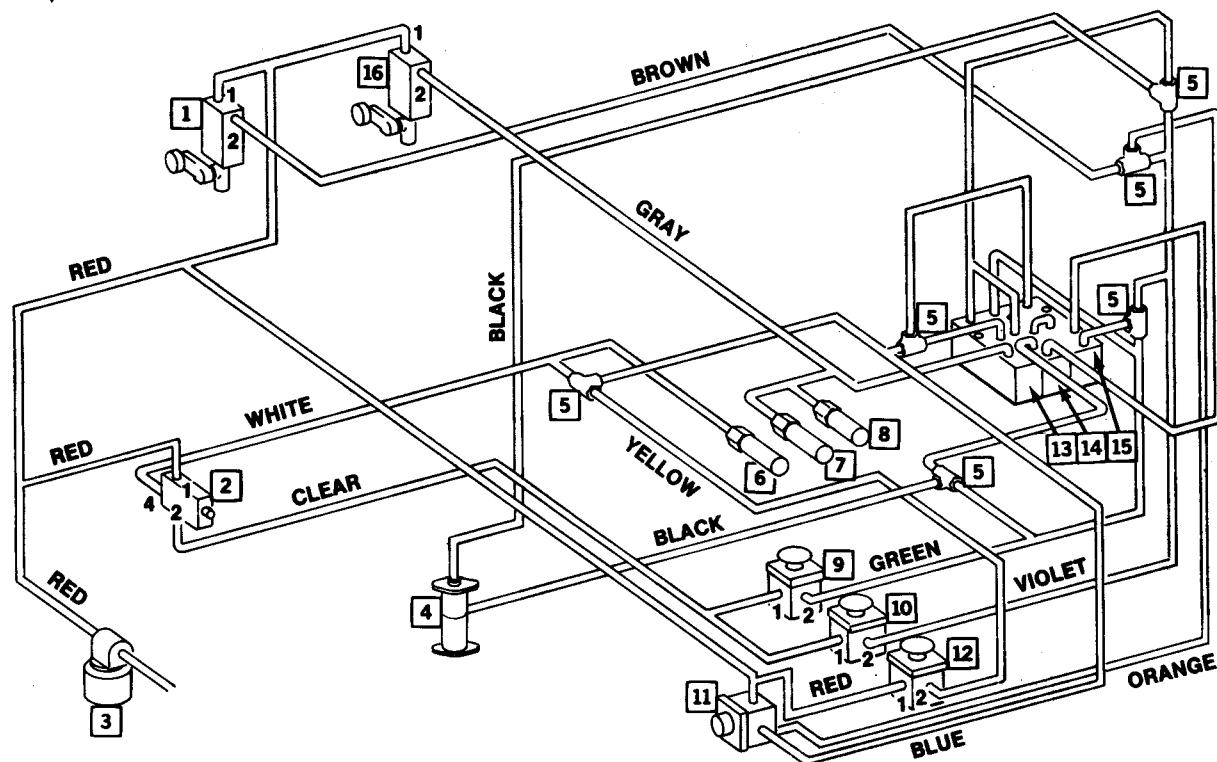
# OPTIONS

## DESCRIPTION OF PNEUMATIC SYSTEM

The following is a description with flow diagrams of what happens in a pneumatic (air) system during loading, packing, and unloading operations on units with the optional air control or cable control with auto-pack.

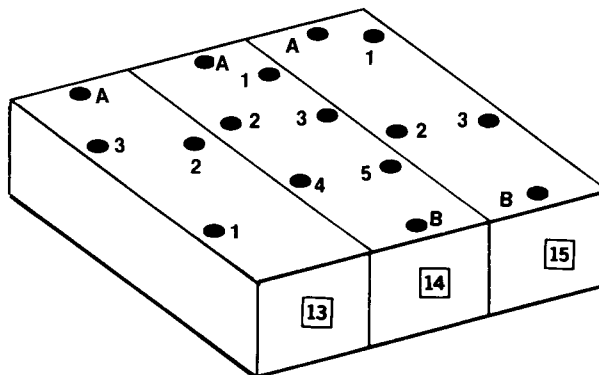
Operator action is presented and then a description of the air flow and the interaction of system components (i.e. actuators, air switch, and air relays) follows. Before proceeding to the flow diagram refer to the illustration and become familiar with the system component nomenclature.

## CABLE CONTROL W/AUTO-PACK



## AIR SYSTEM COMPONENTS KEY

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"
9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch
13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"





## SIDE DOOR CLOSED, PACKING/ EJECTION PLATE AT FRONT OF BODY (HOME POSITION)

### Operator Action

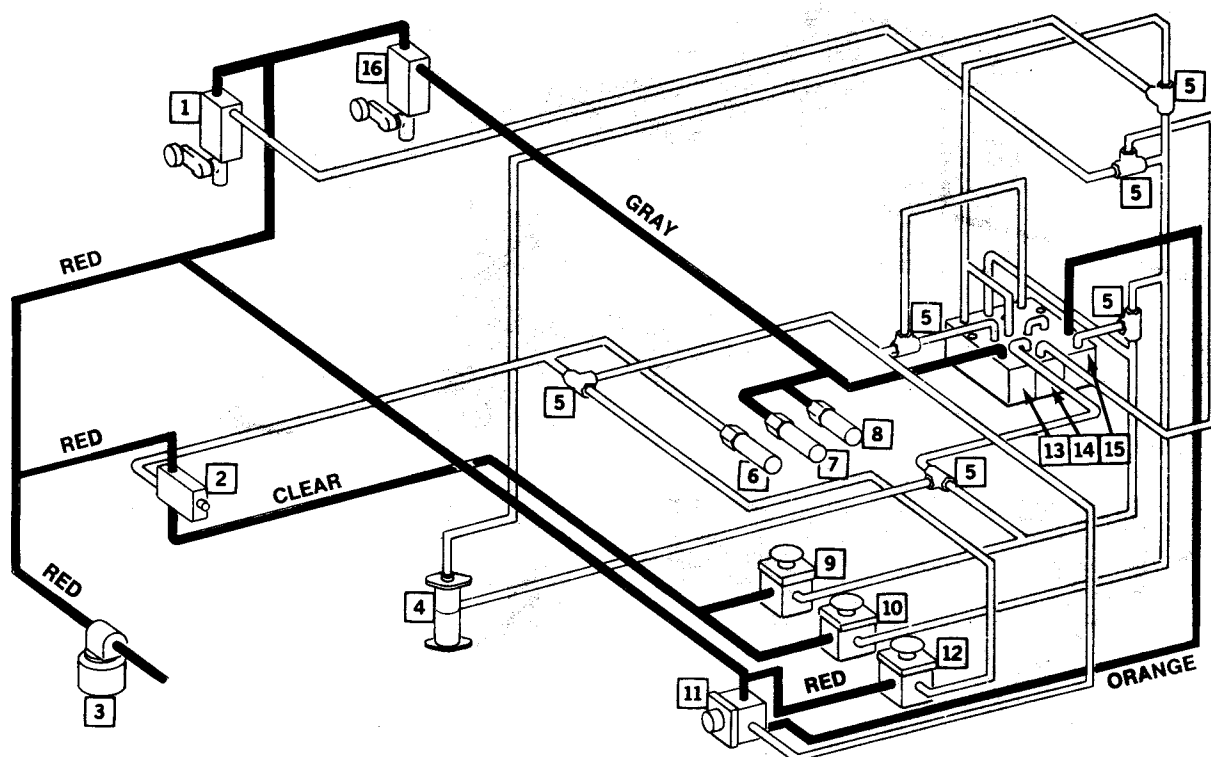
The operator starts the unit, engages the PTO and has at least 100 PSI in the chassis air system.

### PNEUMATIC SYSTEM

Air pressure flows through the side door air switch to the packing/ejection and retract buttons. Air pressure also flows to the emergency stop button, packing/ejection retract air limit switch, through the packing/ejection home air limit switch to the pressure switch (Normally Open) (turns on the packing/ejection panel home indicator light) and to the pressure switch (Normally Closed) (turns off the packing/ejection panel partial extended indicator light). Air pressure also flows to "AND" valve #1 in the air logic valve pack. Air pressure also flows through the auto-reset button to the relay #2 port #3 in the air logic valve pack.

### AIR SYSTEM COMPONENTS KEY

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"
9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch
13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"



## OPTIONS

### PACKING/EJECTION PANEL AUTO-PACKING

#### Operator Action

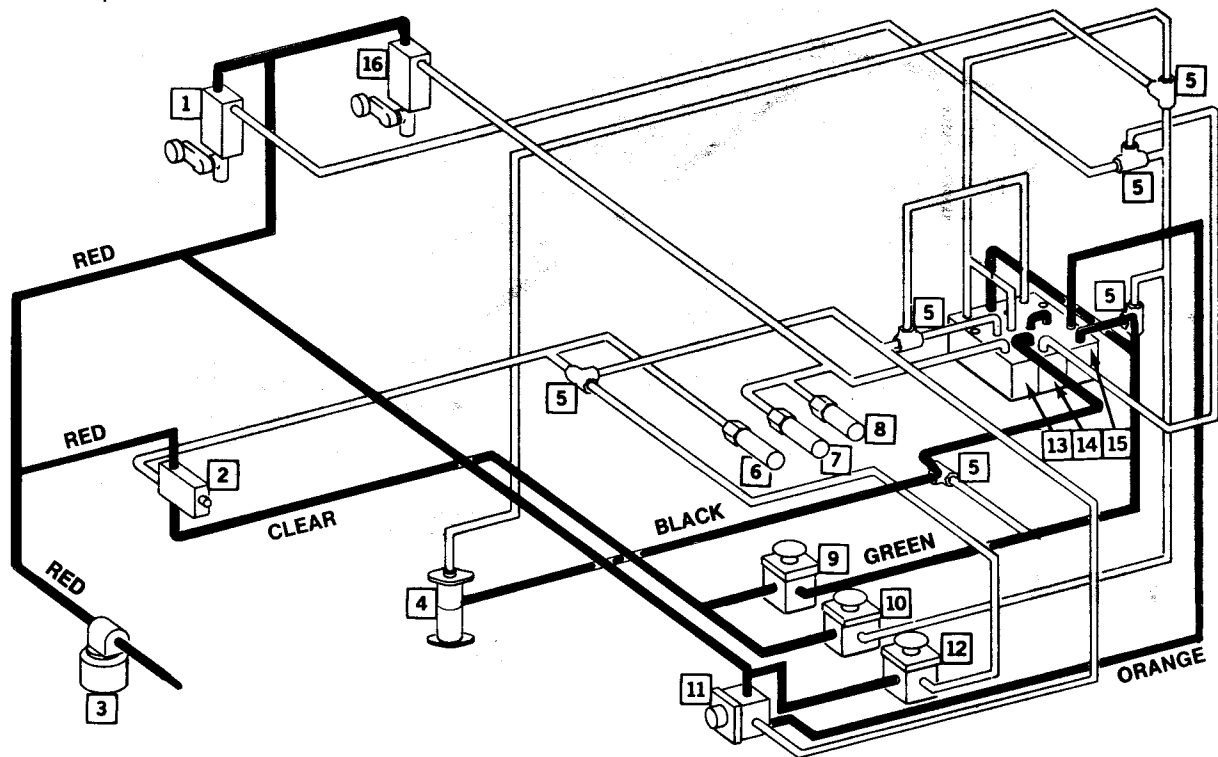
The operator depresses the "green" packing/ejection button.

#### PNEUMATIC SYSTEM

Air pressure flows through the side door air switch to the packing/ejection and retract buttons. Air pressure also flows to the emergency stop button, packer retract air limit switch, and to the packing/ejection home air limit switch. Air pressure also flows through the auto-reset button to relay #2, port #3, in the air logic valve pack. Depressing the green packing/ejection button allows air pressure to flow through the green button switch to "B" port of relay #2 shifting the relay. Also from the green button switch air travels to the "A" port in relay #1 shifting the valve. When relay #2 and #1 are both shifted this allows air pressure from #3 port on relay #2 to pass through the relay #2 out of #2, transferring air pressure to port #3 on relay #1 which then passes through relay #1 out of port #4 and allows air pressure to flow to the air actuator on the packing section of the 5 spool control valve.

#### AIR SYSTEM COMPONENTS KEY

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"
9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch
13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"



#### NOTE

When the air limit switch "packing/ejection home" is no longer activated no air pressure on the #3 N.O. and #2 N.C. pressure switches is present. Next switch #3 opens, turning off the packing/ejection home indicator light and pressure switch #2 has no air pressure which closes the switch turning on the packing/ejection panel partially extended indicator light on the control console.

**PACKING/EJECTION PANEL HAS MOVED TO THE AUTO-PACK PORTION AND HAS ACTIVATED THE PACKING/EJECTION PANEL RETRACT AIR LIMIT SWITCH**

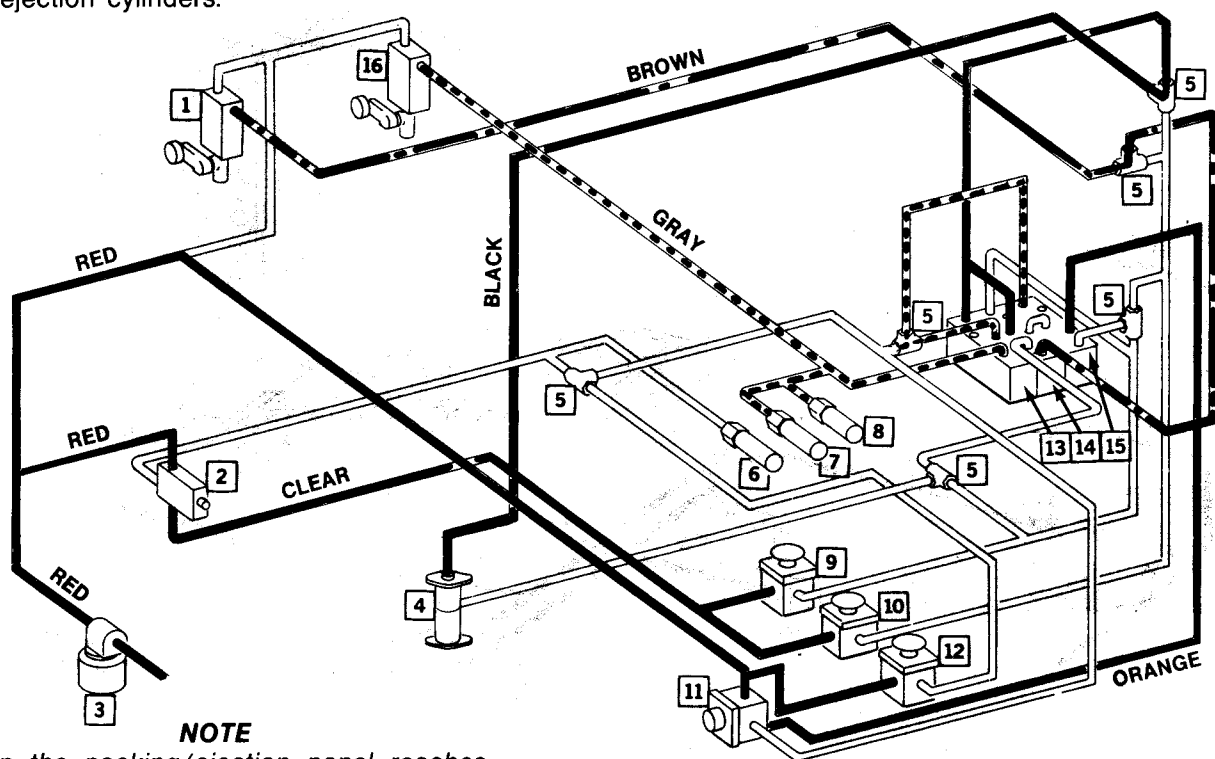
**Operator Action**  
None

**PNEUMATIC SYSTEM**

Air pressure flows through the side door switch to the packing/ejection and the retract buttons. Air pressure also flows to the emergency stop button, the packing/ejection retract air limit switch, and to the packing/ejection home air limit switch. Air pressure also flows through the auto-reset button to relay #2 in air logic valve pack. When the packing/ejection panel reaches the half way point of the body the packing/ejection retract air limit switch is activated. The activated switch provides an instantaneous flow of air to relay #1, port "B" which shifts the valve, diverting air pressure from port #2 relay #2 to port #3 on relay #1, through relay #1 and out. From port #2 on relay #1 the air pressure flows to port "A" to "AND" #1 valve and also flows to the air actuator on the packing/ejection section, valve section shifting the hydraulic valve which directs hydraulic fluid to the retract port of the packing/ejection cylinders.

**AIR SYSTEM COMPONENTS KEY**

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"
9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch
13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"



**NOTE**

When the packing/ejection panel reaches the home position, air pressure passes through the packing/ejection panel home air limit switch to port #1 on "AND" valve passing through the valve out port #2 and to port "A" of relay #2 shifting the valve back to the original position. The air logic system is reset and ready to auto-pack.

Air pressure \_\_\_\_\_  
Air pressure at point when plate is fully retracted at front of body \_\_\_\_\_  
Instantaneous pressure when plate is at middle of body - - - - -

## OPTIONS

### FULL PACK OR EJECT

#### Operator Action

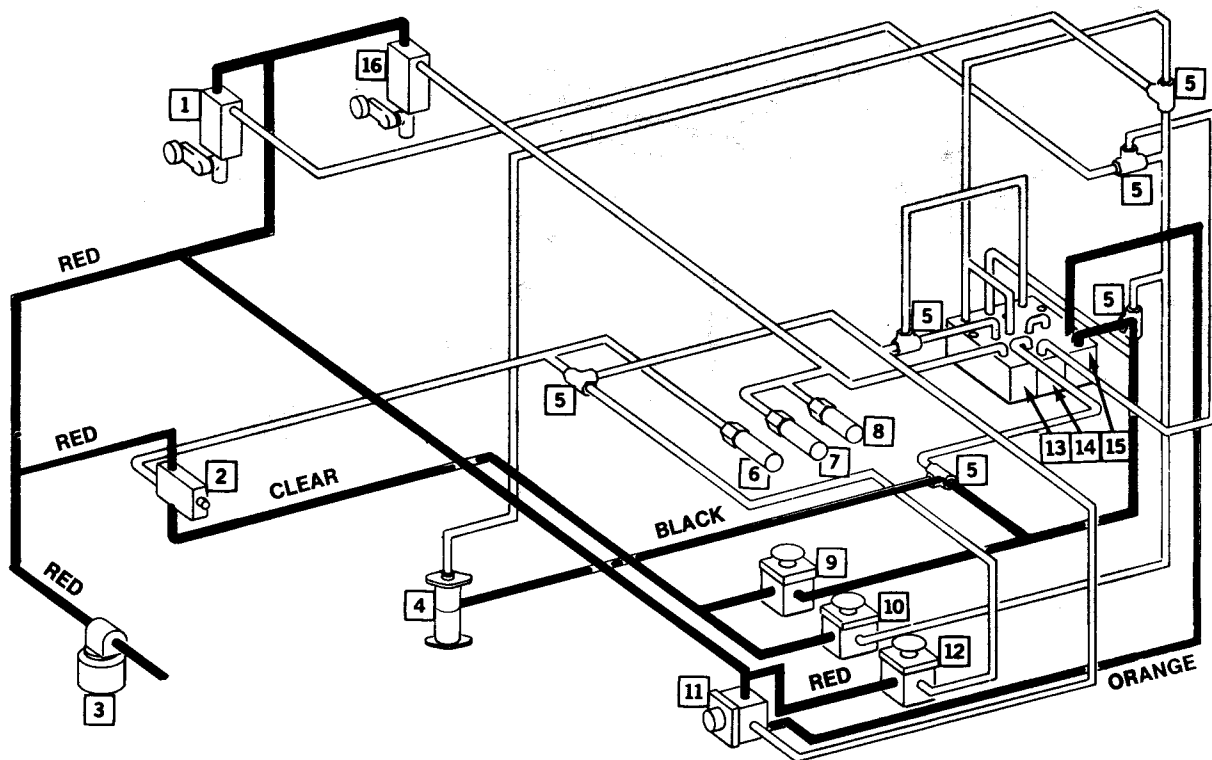
The operator holds down the green packing/ejection button at the midway point of the auto-pack function and continues to depress the packing/ejection button until the packing/ejection panel reaches the extreme rear of the refuse body (or packing/ejection telescopic cylinders are fully extended.)

#### PNEUMATIC SYSTEM

The air system begins functioning (refer to the flow diagram auto-packing with side door closed). As packing/ejection panel reaches mid-section of the body the operator depresses and holds the green packing/ejection button. As the panel moves through the mid area of the body the packing/ejection retract air limit switch is activated overriding the air pressure (as seen when the unit auto-packs). As the operator holds down the packing/ejection button air pressure is diverted through the packing/ejection button switch and to the air actuator on the 5-spool control valve packing/ejection section. As soon as the green packing/ejection button is released the air system shifts to the packing/ejection panel retract mode.

#### AIR SYSTEM COMPONENTS KEY

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"
9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch
13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"



## SIDE DOOR OPEN (PACKING/EJECTION PANEL HOME) 4 cable w/auto-pack

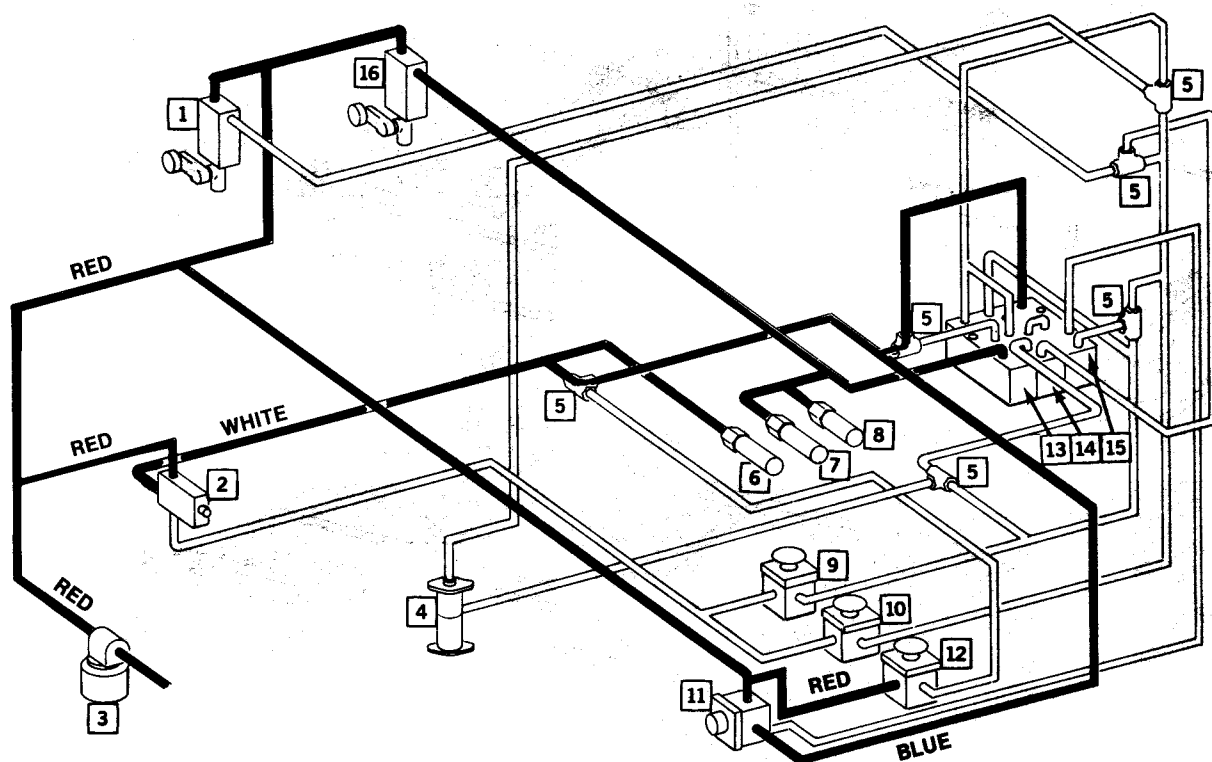
**Operator Action**  
None

### PNEUMATIC SYSTEM

Air pressure flows to the packing/ejection panel retract air limit switch, and through the packing/ejection home air limit switch to the pressure switch N.O. (turns on the packer panel home indicator light) and to the pressure switch N.C. (turns off the packing/ejection panel partial extended indicator light). Air pressure continues to the "AND" valve port #1. When the side door is open, air pressure passes through the side door air switch out port #4 to the air pressure switch N.O. and continues on to relay #2 port "A" shifting the valve to disable the auto-pack mode. Air pressure also flows to the auto mode switch port "B" shutting off air flow to the switch and the auto-pack valve block.

### AIR SYSTEM COMPONENTS KEY

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"
9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch
13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"



## OPTIONS

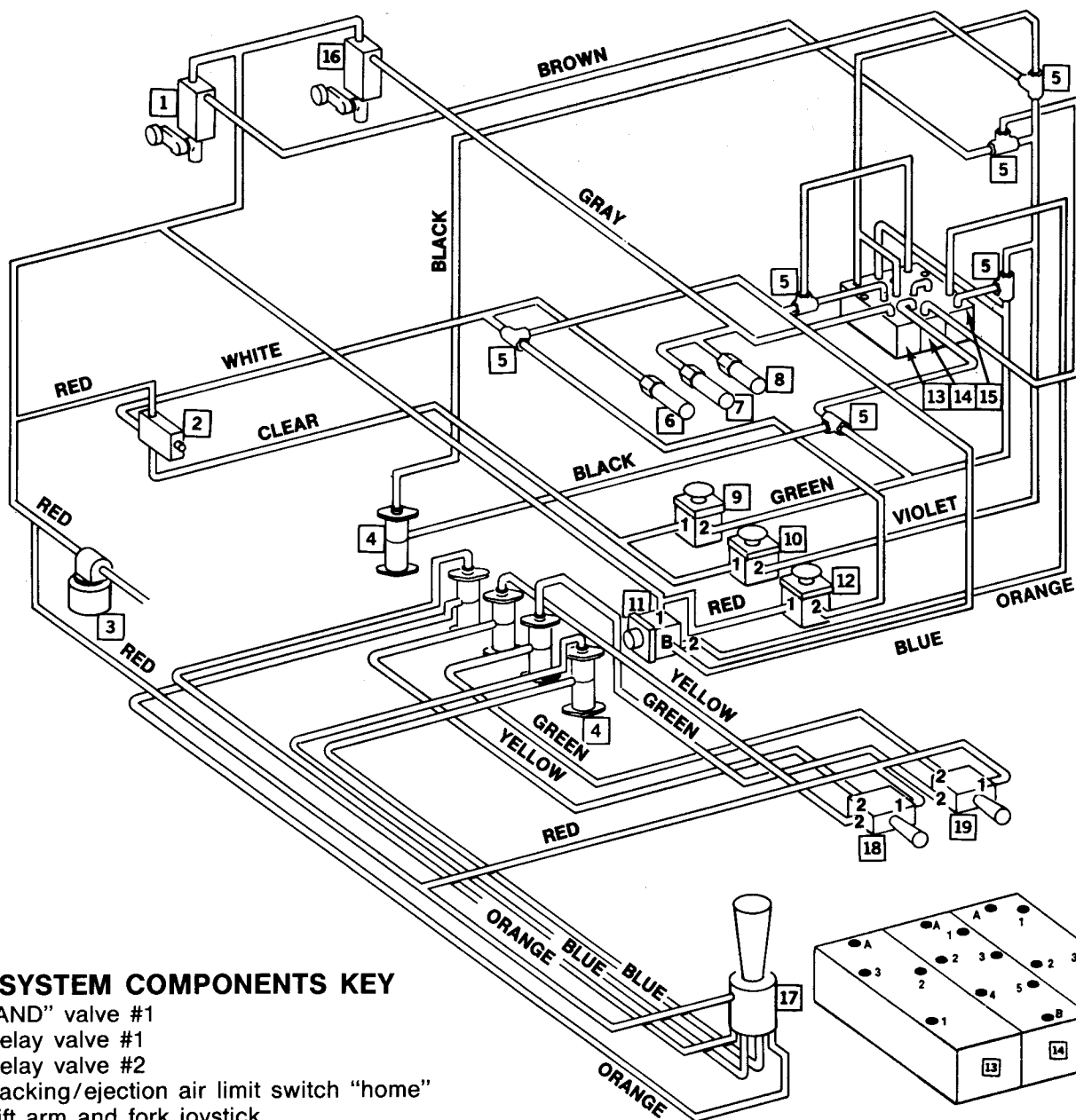
### DESCRIPTION OF PNEUMATIC SYSTEM AIR CONTROLS

The following is a description with flow diagrams of what happens in a pneumatic (air) system during loading, packing, and unloading operations on units with the optional air control or cable control with auto-pack.

Operator action is presented and then a description of the air flow and the interaction of system components (i.e. actuators, air switch, and air relays) follows. Before proceeding to the flow diagram refer to the illustration and become familiar with the system component nomenclature.

### AIR SYSTEM COMPONENTS KEY

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"
9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch



### AIR SYSTEM COMPONENTS KEY

13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"
17. Lift arm and fork joystick
18. Toggle switch "rear door"
19. Toggle switch "top door"

## SIDE DOOR CLOSED, PACKING/ EJECTION PLATE AT FRONT OF BODY (HOME POSITION)

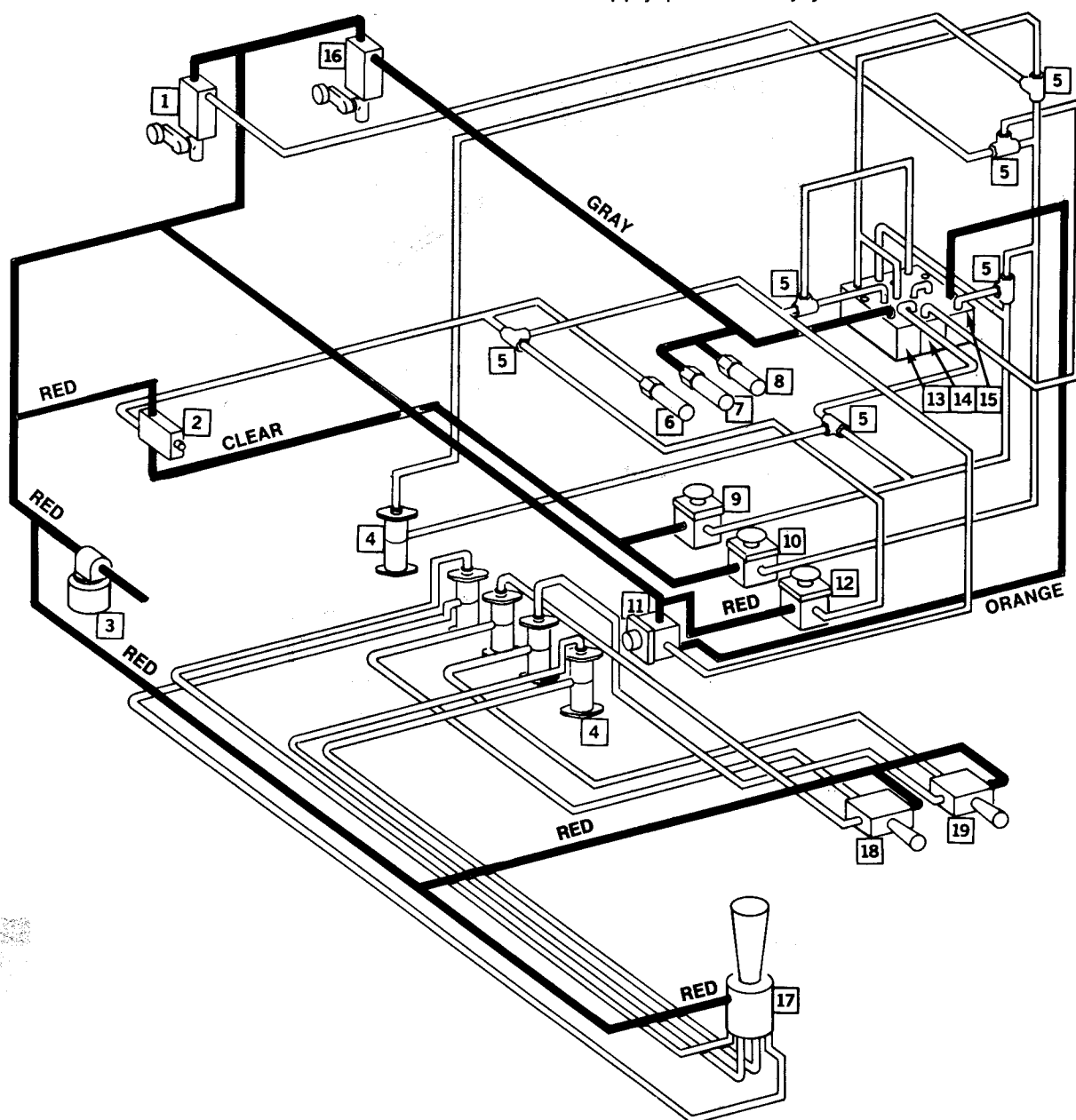
### Operator Action

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

### PNEUMATIC SYSTEM

Air pressure flows through the side door air switch to the packing/ejection and retract buttons. Air pressure also flows to the emergency stop button, packing/ejection retract air limit switch, through the packing/ejection home air limit switch to the pressure switch (Normally Open) (turns on the packing/ejection panel home indicator light) and to the

pressure switch (Normally Closed) (turns off the packing/ejection panel partial extended indicator light). Air pressure also flows to "AND" valve port #1 in the air logic valve pack. Air pressure also flows through the auto-reset button to the relay #2 port #3 in the air logic valve pack. Air pressure also flows to the top and rear door toggle switches port #1 and to the supply port of the joystick.



## OPTIONS

PACKING/EJECTION PANEL  
AUTO-PACKING

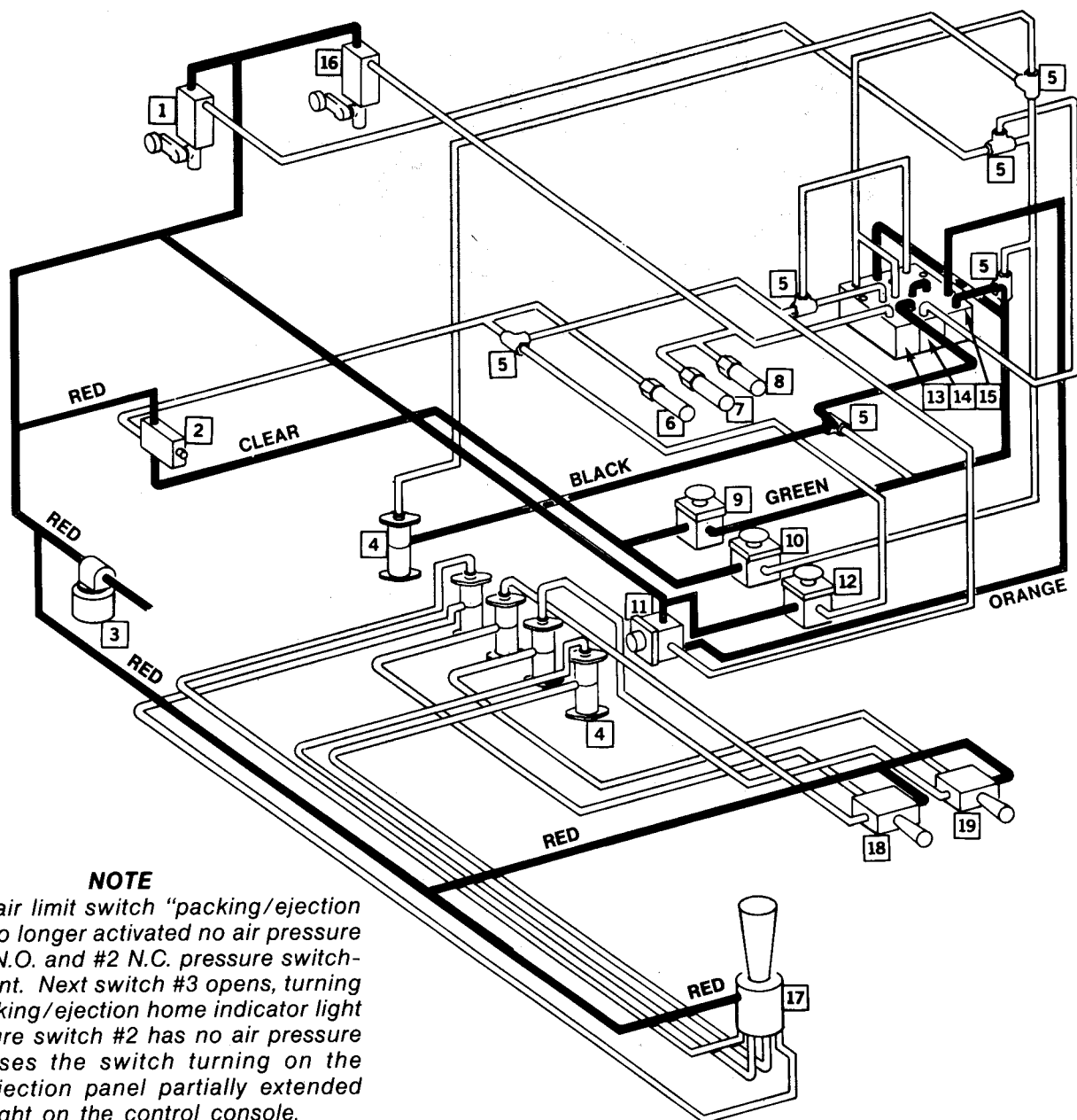
## Operator Action

The operator depresses the "green" packing/ejection button.

## PNEUMATIC SYSTEM

Air pressure flows through the side door air switch to the packing/ejection and retract buttons. Air pressure also flows to the emergency stop button, packer retract air limit switch, and to the packing/ejection home air limit switch. Air pressure also flows through the auto-reset button to relay #2, port #3, in the air logic valve pack. Air pressure also flows to the top and rear door toggle switch port #1 and to the supply port of the joystick. Depressing the green packing/ejection button allows air pressure to flow

through the green button switch to "B" port of relay #2 shifting the relay. Also from the green button switch air travels to the "A" port in relay #1 shifting the valve. When relay #2 and #1 are both shifted this allows air pressure from #3 port on relay #2 to pass through the relay #2 out of #2, transferring air pressure to port #3 on relay #1 which then passes through relay #1 out of port #4 and allows air pressure to flow to the air actuator on the packing section of the 5-spool control valve.

**NOTE**

When the air limit switch "packing/ejection home" is no longer activated no air pressure on the #3 N.O. and #2 N.C. pressure switches is present. Next switch #3 opens, turning off the packing/ejection home indicator light and pressure switch #2 has no air pressure which closes the switch turning on the packing/ejection panel partially extended indicator light on the control console.



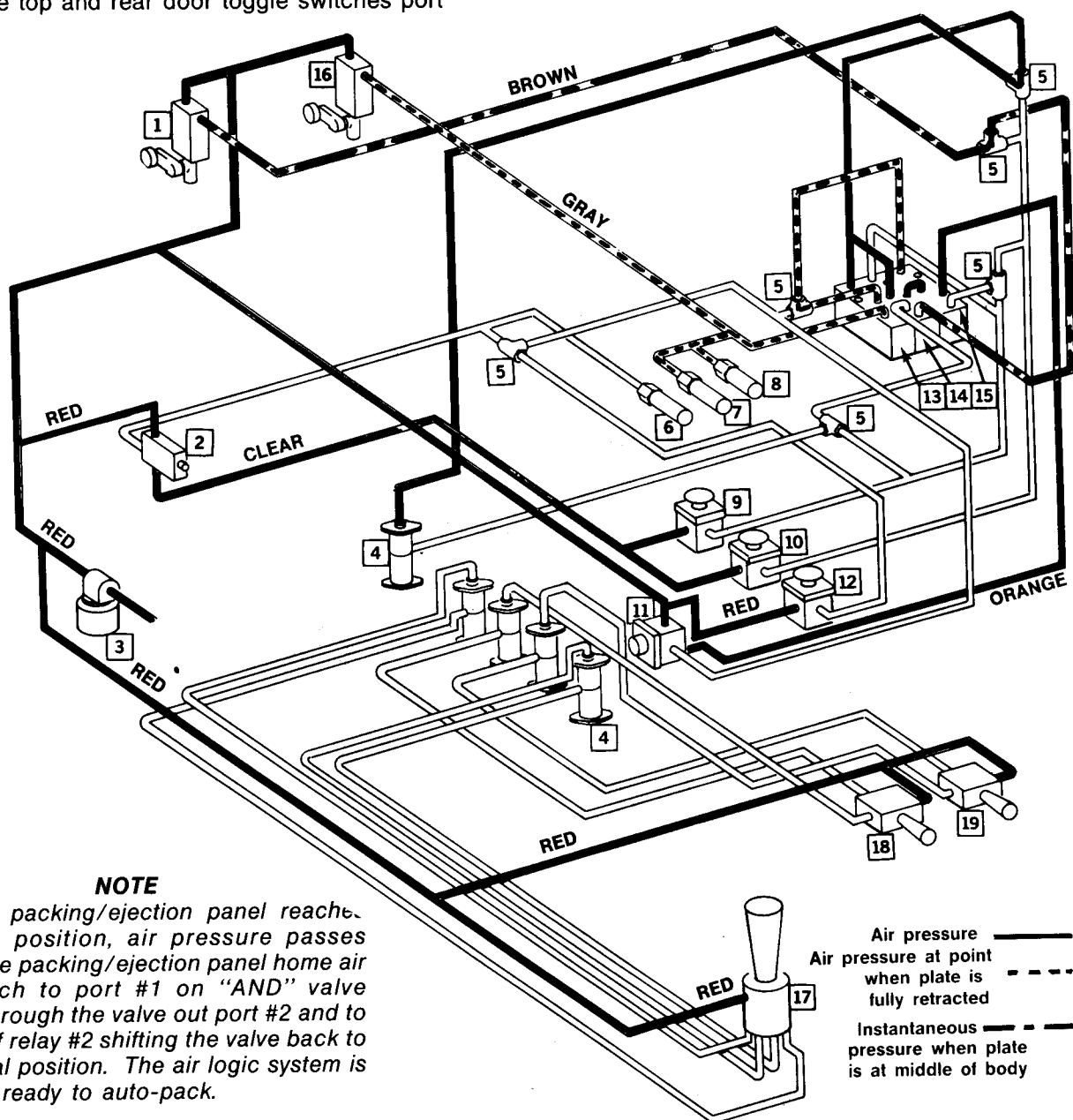
# PACKING/EJECTION PANEL HAS MOVED TO THE AUTO-PACK PORTION AND HAS ACTIVATED THE PACKING/ EJECTION PANEL RETRACT AIR LIMIT SWITCH

**Operator Action**  
None

## PNEUMATIC SYSTEM

Air pressure flows through the side door switch to the packing/ejection and the retract buttons. Air pressure also flows to the emergency stop button, the packing/ejection retract air limit switch, and to the packing/ejection home air limit switch. Air pressure also flows through the auto-reset button to relay #2 in air logic valve pack. Air pressure also flows to the top and rear door toggle switches port

#1 and to the supply port on the joystick. When the packing/ejection panel reaches the half way point of the body the packing/ejection retract air limit switch is activated. The activated switch provides an instantaneous flow of air to relay #1, port "B" which shifts the valve, diverting air pressure from port #2 relay #2 to port #3 on relay #1, through relay #1 and out. From port #2 on relay #1 the air pressure flows to port "A" on "AND" #1 valve and also flows to the air actuator on the packing/ejection section, valve section shifting the hydraulic valve which directs hydraulic fluid to the retract port of the packing/ejection cylinders.



### NOTE

When the packing/ejection panel reaches the home position, air pressure passes through the packing/ejection panel home air limit switch to port #1 on "AND" valve passing through the valve out port #2 and to port "A" of relay #2 shifting the valve back to the original position. The air logic system is reset and ready to auto-pack.

Air pressure —  
Air pressure at point when plate is fully retracted —  
Instantaneous pressure when plate is at middle of body - - -

## OPTIONS

## FORKS MOVING DOWN (PACKER HOME)

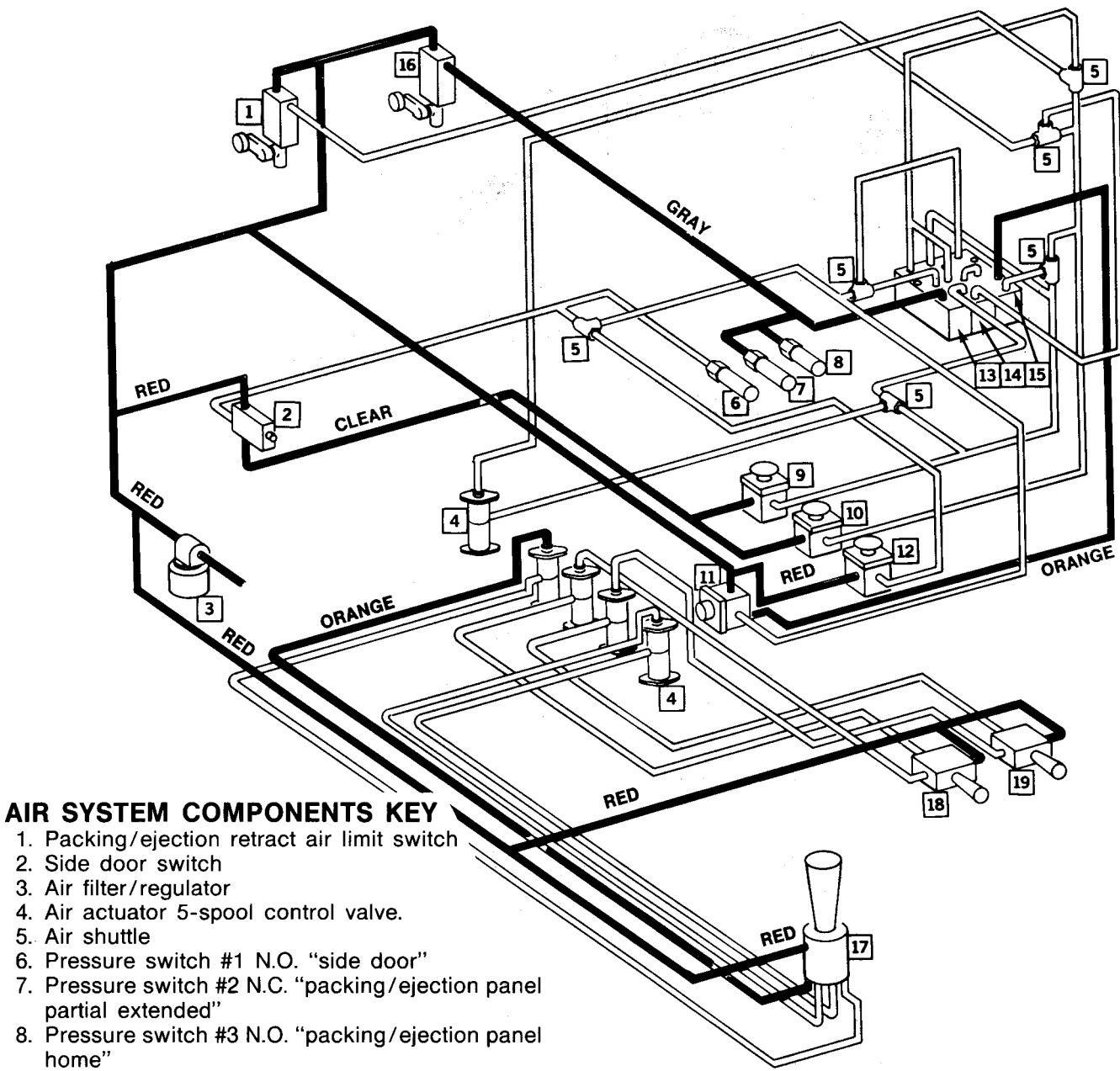
## Operator Action

The operator moves the joystick to the forks down position.

## PNEUMATIC SYSTEM

Air pressure flows through the side door switch to the packing/ejection and the retract buttons. Air pressure also flows to the emergency stop button, the packer retract air limit switch, through the packing/ejection home air limit switch to the pressure switch N.O. (turns on packing/ejection panel home indicator light) and to the pressure switch N.C. (turns off packing/ejection panel partial extended indicator light). Air pressure also flows to the "AND" valve port #1 in the air logic valve pack. Air pressure

also flows through the auto-mode button to relay #2 port #3 in the air logic valve pack. Air pressure also flows to the top and rear door toggle switches port #1 to the supply port on the joystick. When the joystick is moved, air pressure passes through the joystick valve to the air actuator on the 5-spool control valve fork section.



## FORKS MOVING UP (PACKER HOME)

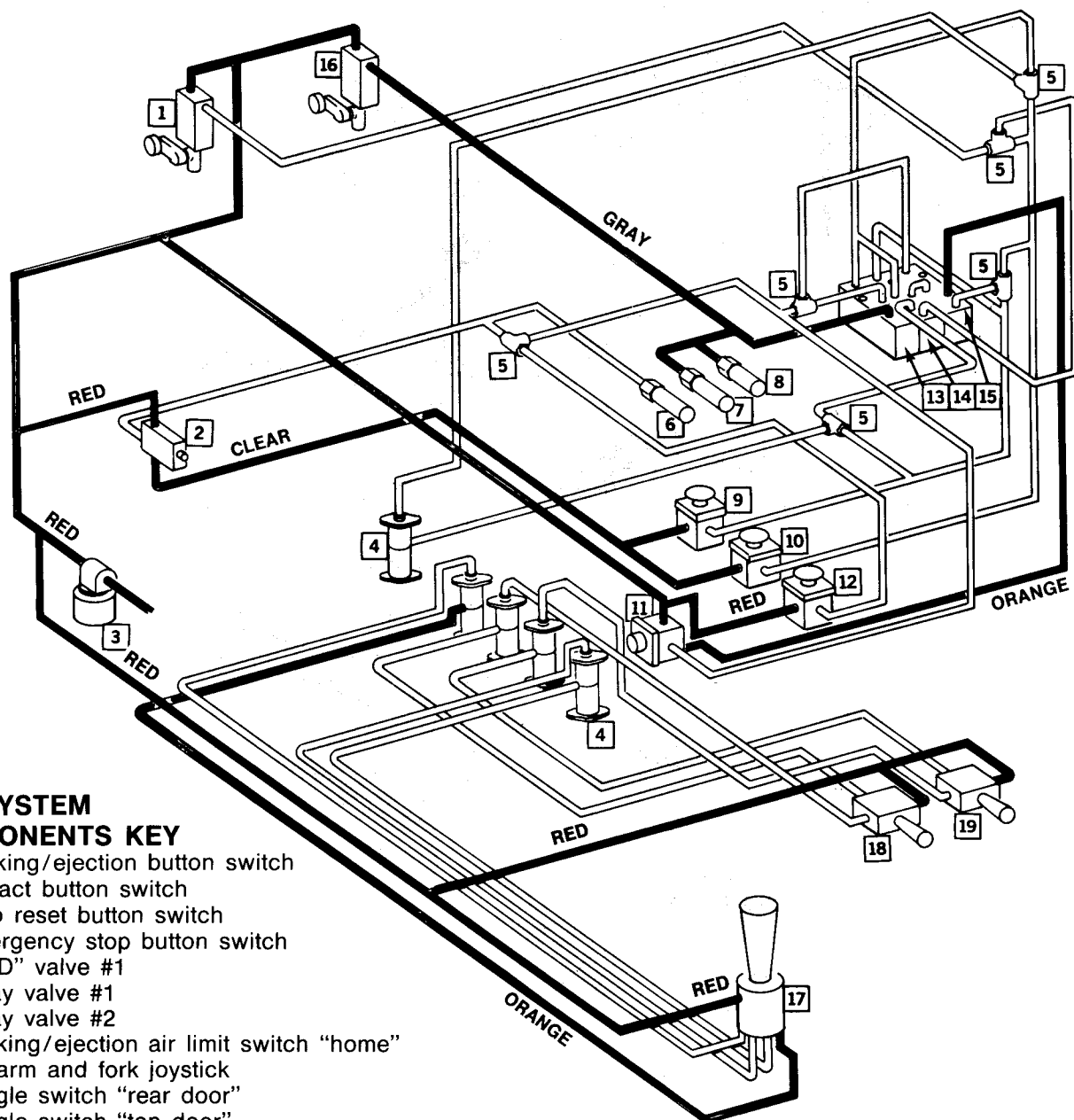
### Operator Action

The operator moves joystick to the forks up position.

### PNEUMATIC SYSTEM

Air pressure flows through the side door switch to the packing/ejection and retract buttons. Air pressure also flows to emergency stop button, packing/ejection retract air limit switch, through packing/ejection home/air limit switch to the pressure switch N.O. (turns on packing/ejection panel home indicator light) and to the pressure switch N.C. (turns off packing/ejection panel partial extended indicator light). Air pressure also flows to "AND"

valve port #1 in air logic valve pack. Air pressure also flows through auto-mode button to relay #2 port #3 in air logic valve pack. Air pressure also flows to top and rear door toggle switches port #1 to the supply port on the joystick. When the joystick is moved air pressure passes through the joystick valve to the air actuator on the 5-spool control valve fork section.



### AIR SYSTEM COMPONENTS KEY

9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch
13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"
17. Lift arm and fork joystick
18. Toggle switch "rear door"
19. Toggle switch "top door"



## OPTIONS

### LIFT ARMS MOVING UP (PACKER HOME)

#### Operator Action

The operator moves the joystick to the lift arms up position.

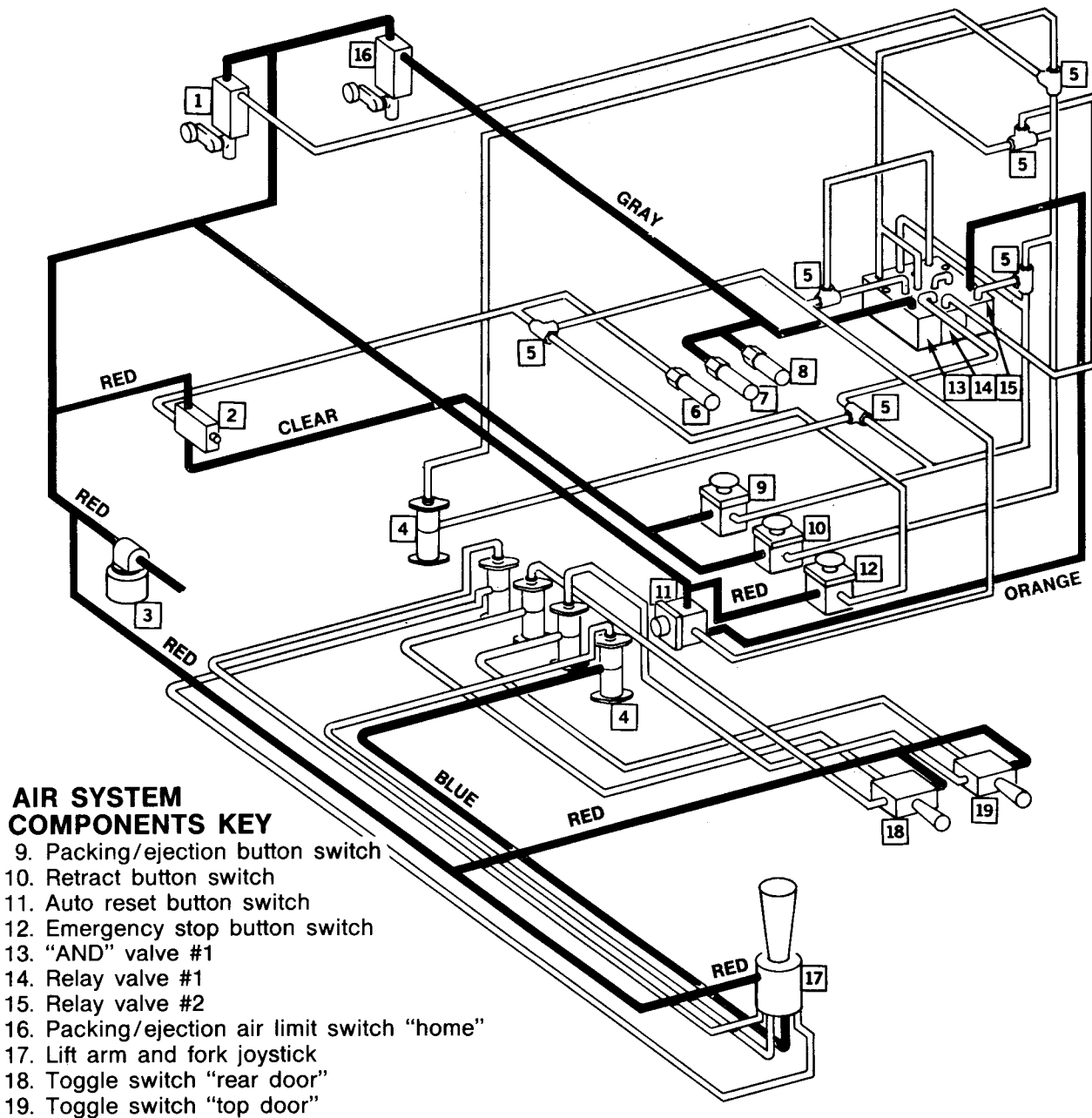
#### PNEUMATIC SYSTEM

Air pressure flows through the side door switch to the packing/ejection button and the retract button. Air pressure also flows to the emergency stop button, the packing/ejection retract air limit switch, through the packing/ejection home air limit switch to the pressure switch N.O. (turns on packing/ejection panel home indicator light) and to the pressure switch N.C. (turns off packing/ejection panel partial extended indicator light). Air pressure also flows to the "AND" valve port #1 in the air logic valve pack. Air pressure also flows through the auto-mode but-

ton to relay #2 port #3 in the air logic valve pack. Air pressure also flows to the top and rear door toggle switches port #1 to the supply port on the joystick. When the joystick is moved air pressure passes through the joystick valve to the air actuator on the 5-spool control valve lift arm section.

#### AIR SYSTEM COMPONENTS KEY

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"



#### AIR SYSTEM COMPONENTS KEY

9. Packing/ejection button switch
10. Retract button switch
11. Auto reset button switch
12. Emergency stop button switch
13. "AND" valve #1
14. Relay valve #1
15. Relay valve #2
16. Packing/ejection air limit switch "home"
17. Lift arm and fork joystick
18. Toggle switch "rear door"
19. Toggle switch "top door"

## LIFT ARMS MOVING DOWN (PACKER HOME)

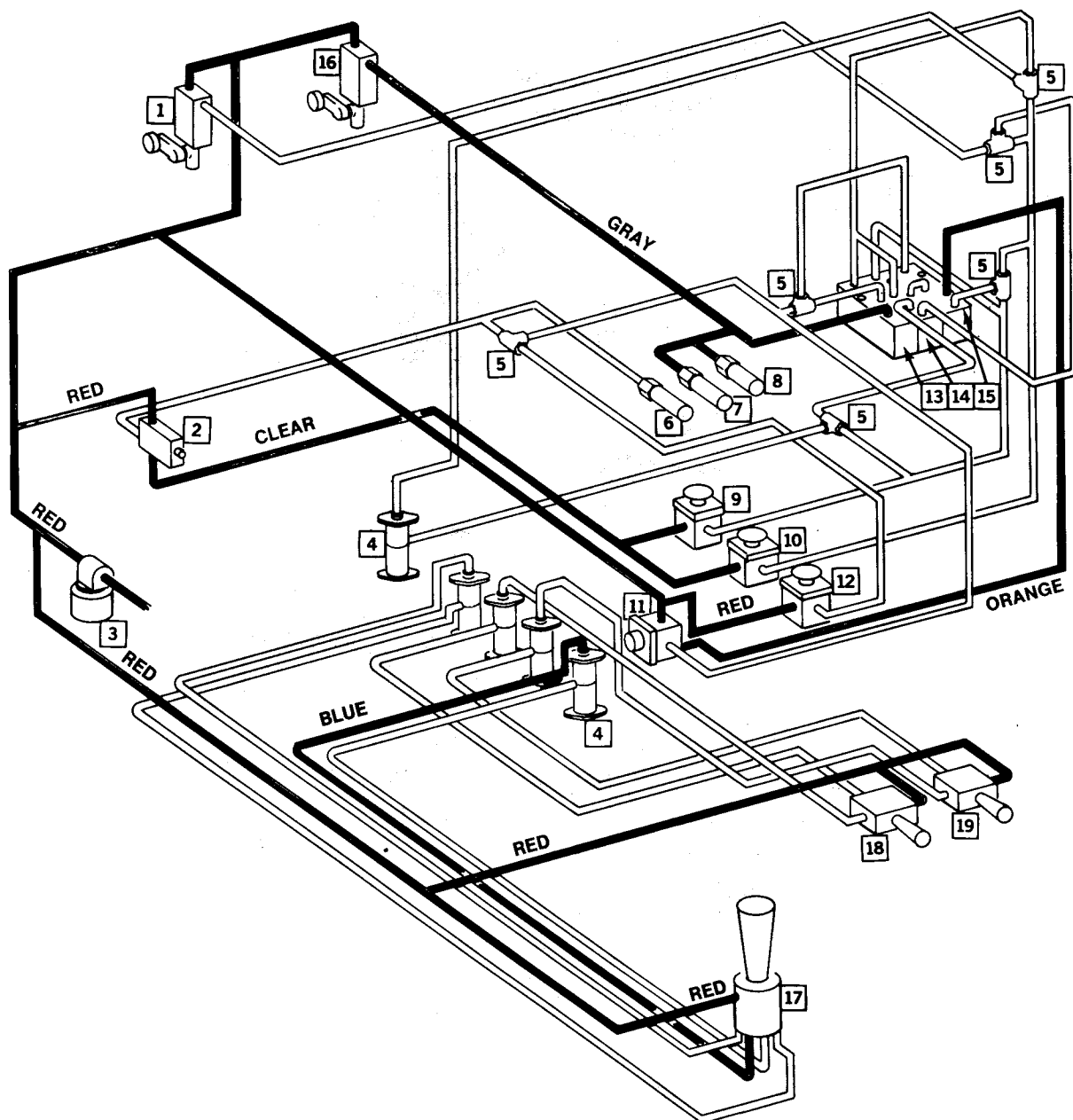
### Operator Action

The operator moves the joystick to the lift arms down position.

### PNEUMATIC SYSTEM

Air pressure flows through the side door switch to the packing/ejection and the retract buttons. Air pressure also flows to the emergency stop button, the packing/ejection retract air limit switch, through the packing/ejection home air limit switch to the pressure switch N.O. (turns on packing/ejection panel home indicator light) and to the pressure switch N.C. (turns off the packing/ejection panel partial extended indicator light). Air pressure also flows to the "AND" valve port #1 in the air logic valve

pack. Air pressure also flows through the auto-mode button to relay #2 port #3 in the air logic valve pack. Air pressure also flows to the top and rear door toggle switches port #1 to the supply port on the joystick. When the joystick is moved air pressure passes through the joystick valve to the air actuator on the 5-spool control valve lift arm section.

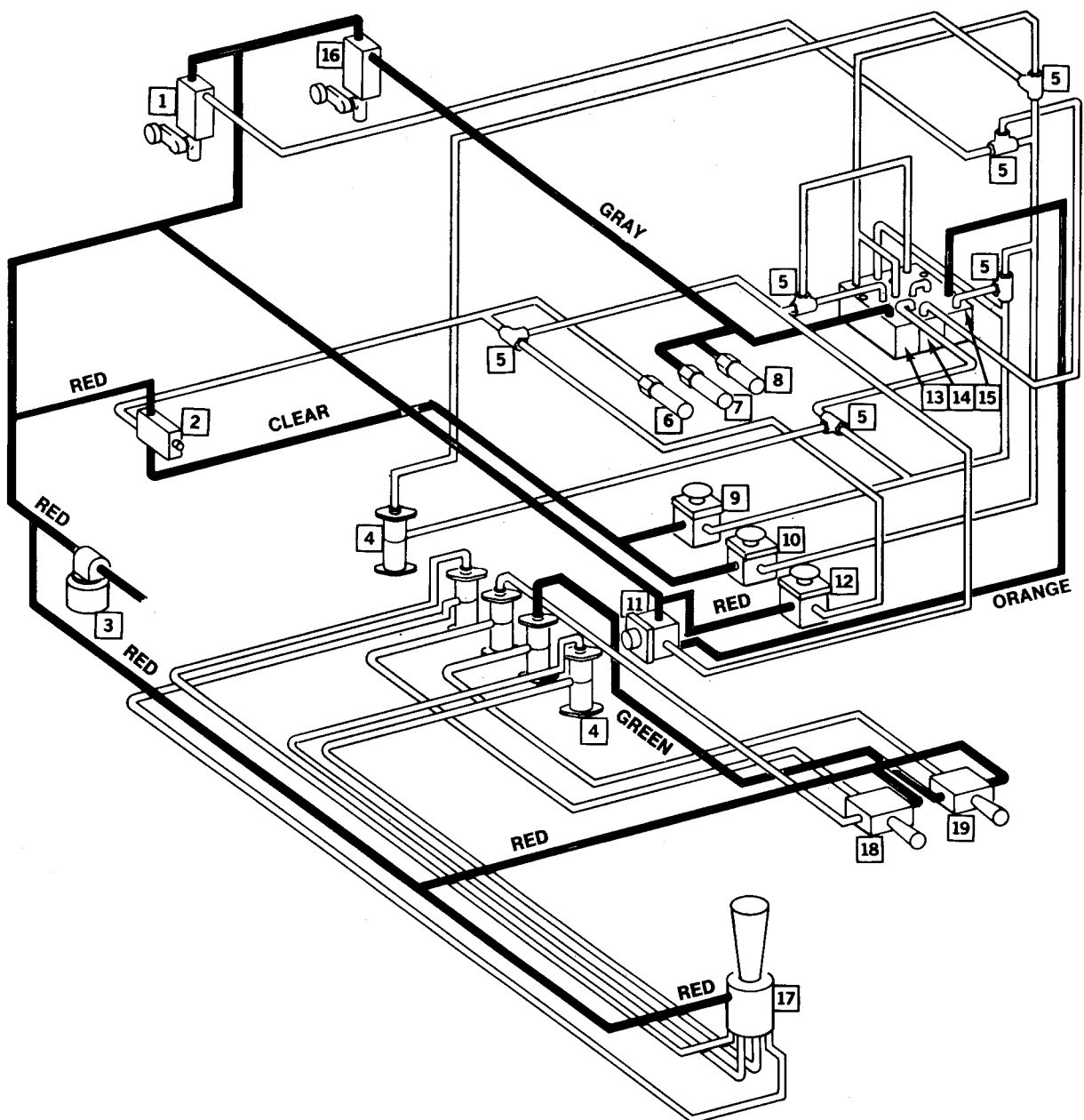


**SLIDING TOP DOOR OPEN  
(PACKER HOME)**

**Operator Action**  
The operator moves the toggle switch toward top door open motion.

**PNEUMATIC SYSTEM**  
Air pressure flows through the side door switch to the pack button and the retract button. Air pressure also flows to the emergency stop button, the packer retract air limit switch, through the packer home air limit switch to pressure switch N.O. (turns on packer panel home indicator light) and to pressure switch N.C. (turns off packer panel partial extended indicator light). Air pressure also flows to "AND" valve port #1 in the air logic valve pack. Air pressure also

flows through the auto-mode button to relay #2 port #3 in air logic valve pack. Air pressure also flows to the top and rear door toggle switches port #1 to the supply port on the joystick. When the toggle switch for the top door is moved toward the open motion air pressure passes through the toggle switch to the air actuator on the main control valve rear door section.



## SLIDING TOP DOOR CLOSE (PACKER HOME)

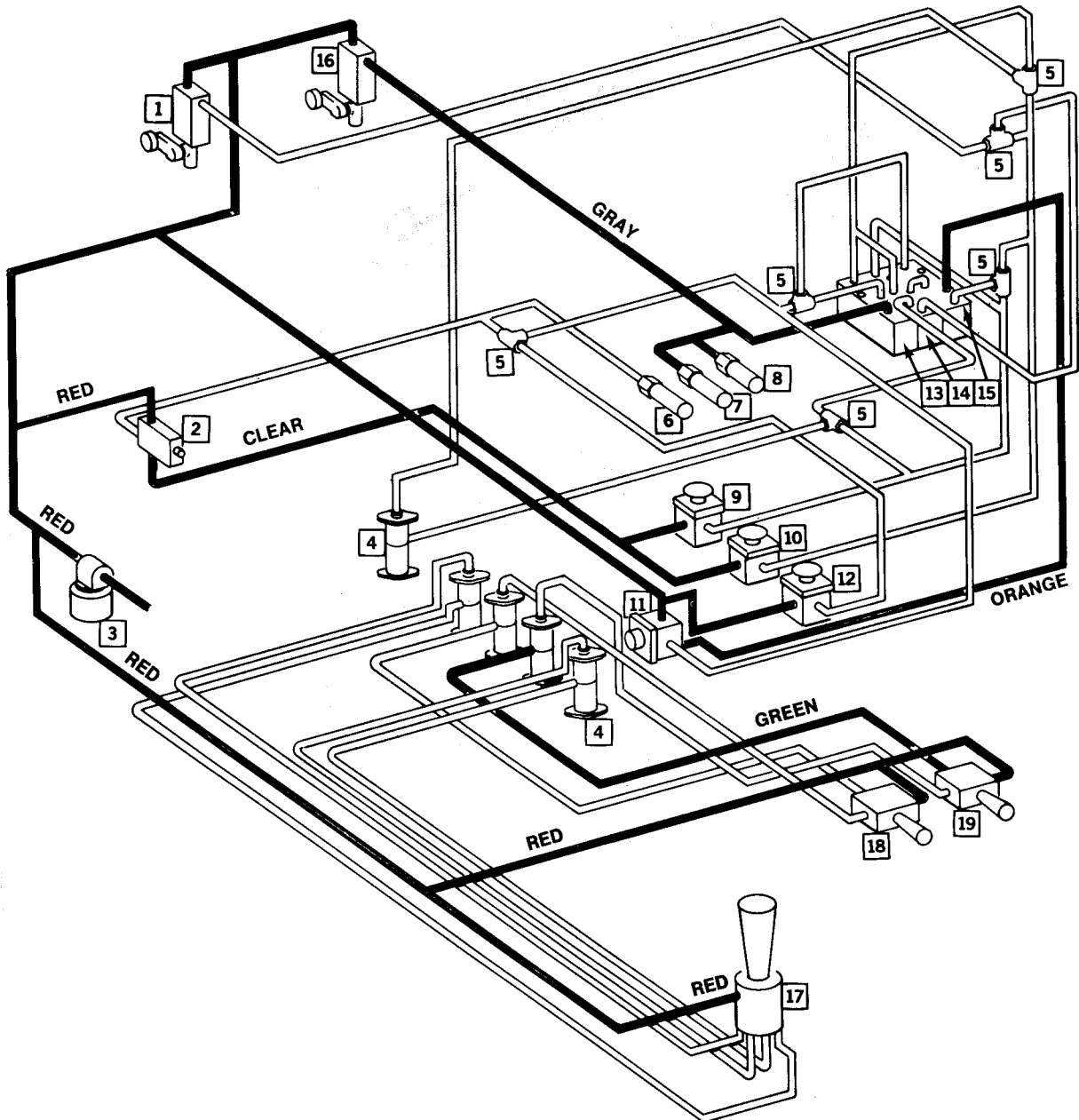
### Operator Action

The operator moves the toggle switch to the top door closed position.

### PNEUMATIC SYSTEM

Air pressure flows through the side door switch to the packing/ejection and retract buttons. Air pressure also flows to the emergency stop button, packing/ejection retract air limit switch, through the packing/ejection home air limit switch to the pressure switch N.O. (turns on packing/ejection panel home indicator light) and to pressure switch N.C. (turns off packing/ejection panel partial extended indicator light. Air pressure also flows to the "AND"

valve port #1 in the air logic valve pack. Air pressure also flows through auto-mode button to relay #2, port #3 in the air logic valve pack. Air pressure also flows to the top and rear door toggle switches port #1 and to the supply port on the joystick. When the toggle switch for the top door is moved toward the closed motion air pressure passes through the toggle switch to the air actuator on the 5-spool control valve rear door section.



## OPTIONS

### REAR DOOR OPEN (PACKER HOME)

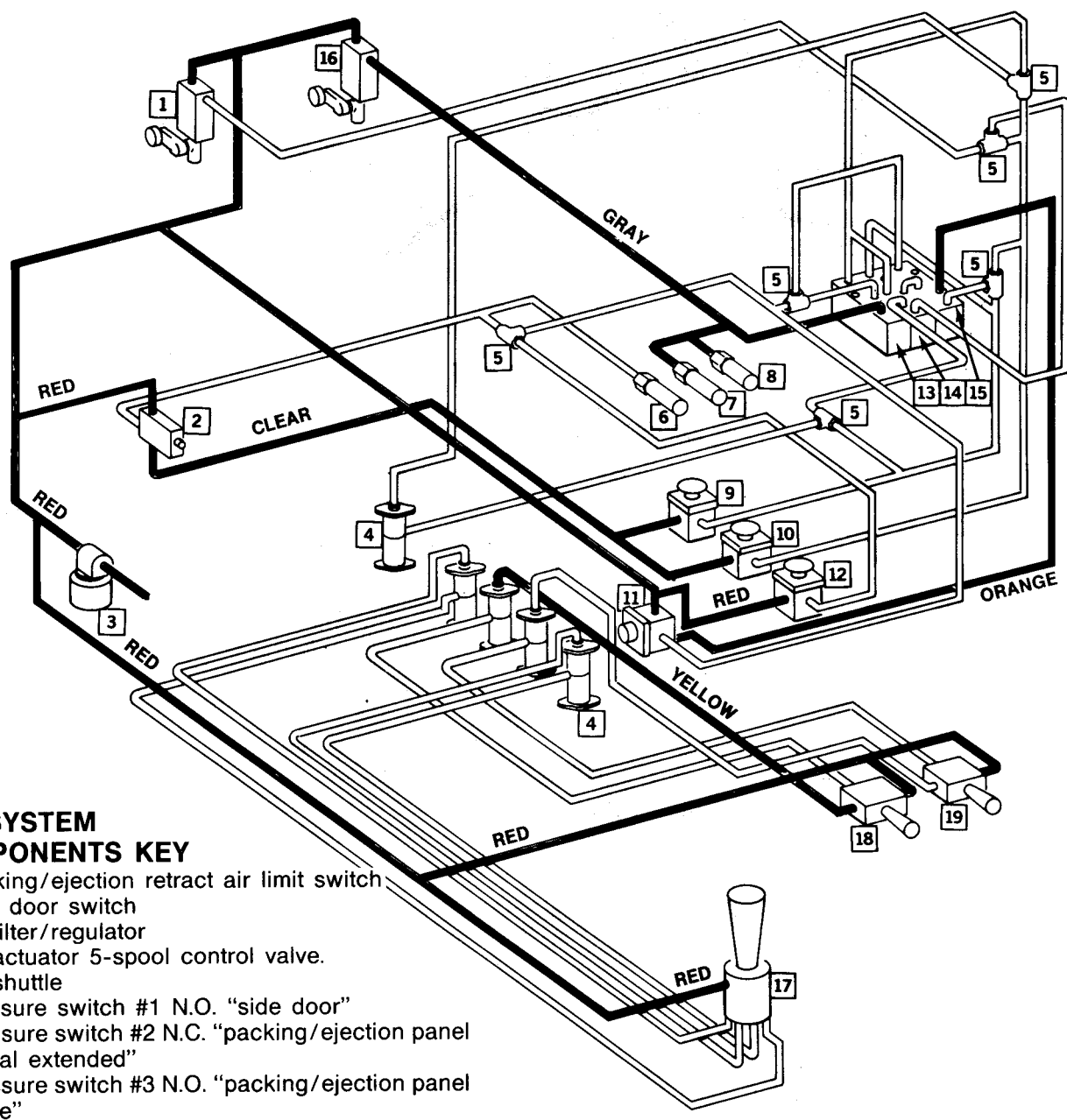
#### Operator Action

The operator moves the toggle switch to the rear door open position.

#### PNEUMATIC SYSTEM

Air pressure flows through the side door switch to the packing/ejection and the retract buttons. Air pressure also flows to the emergency stop button, the packing/ejection retract air limit switch, through the packing/ejection home air limit switch to the pressure switch N.O. (turns on packing/ejection panel home indicator light) and to the pressure switch N.C. (turns off packing/ejection panel partial extended indicator light). Air pressure also flows to the "AND" valve port #1 in the air logic valve pack. Air pressure also flows through the auto-mode but-

ton to relay #2 port #3 in the air logic valve pack. Air pressure also flows to the top and rear door toggle switches port #1 to the supply port on the joystick. When the toggle switch for the rear door is moved toward the open motion air pressure passes through the toggle switch to the air actuator on the 5-spool control valve rear door section.



#### AIR SYSTEM COMPONENTS KEY

1. Packing/ejection retract air limit switch
2. Side door switch
3. Air filter/regulator
4. Air actuator 5-spool control valve.
5. Air shuttle
6. Pressure switch #1 N.O. "side door"
7. Pressure switch #2 N.C. "packing/ejection panel partial extended"
8. Pressure switch #3 N.O. "packing/ejection panel home"



## REAR DOOR CLOSED (PACKER HOME)

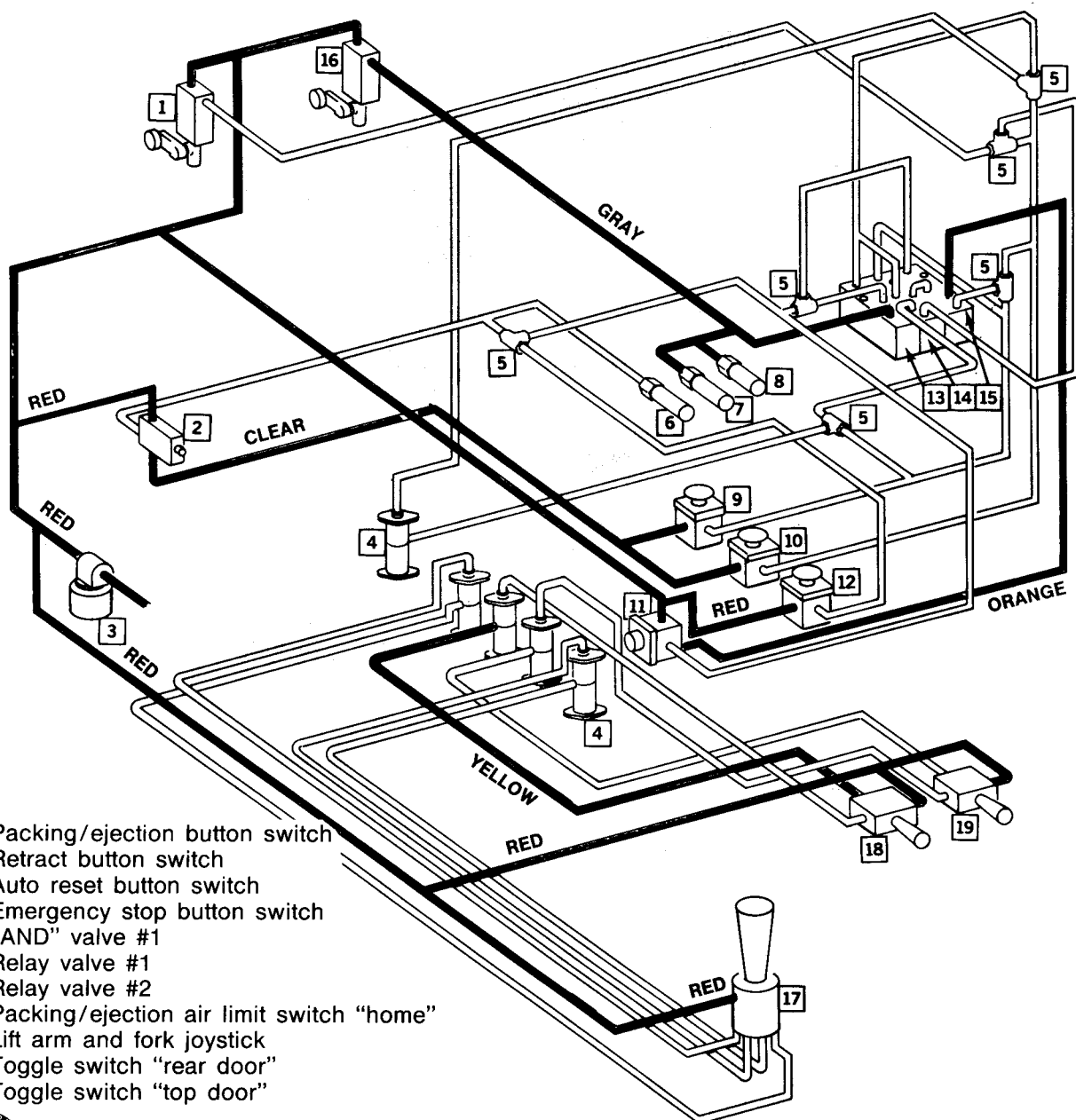
### Operator Action

The operator moves the toggle switch to the rear door closed position.

### PNEUMATIC SYSTEM

Air pressure flows through the side door switch to the packing/ejection and the retract buttons. Air pressure also flows to the emergency stop button, the packer retract air limit switch, through the packer home air limit switch to the pressure switch N.O. (turns on packing/ejection panel home indicator light) and to the pressure switch N.C. (turns off packing/ejection panel partial extended indicator light). Air pressure also flows to "AND" valve port #1 in the air logic valve pack. Air pressure also flows through the auto-mode button to relay #2 port #3 in

the air logic valve pack. Air pressure also flows to the top and rear door toggle switches port #1 to the supply port on the joystick. When the toggle switch for the rear door is moved toward the closed motion air pressure passes through the toggle switch to the air actuator on the 5-spool control valve rear door section.



- 9. Packing/ejection button switch
- 10. Retract button switch
- 11. Auto reset button switch
- 12. Emergency stop button switch
- 13. "AND" valve #1
- 14. Relay valve #1
- 15. Relay valve #2
- 16. Packing/ejection air limit switch "home"
- 17. Lift arm and fork joystick
- 18. Toggle switch "rear door"
- 19. Toggle switch "top door"



## OPTIONS

**FULL PACK OR EJECT**

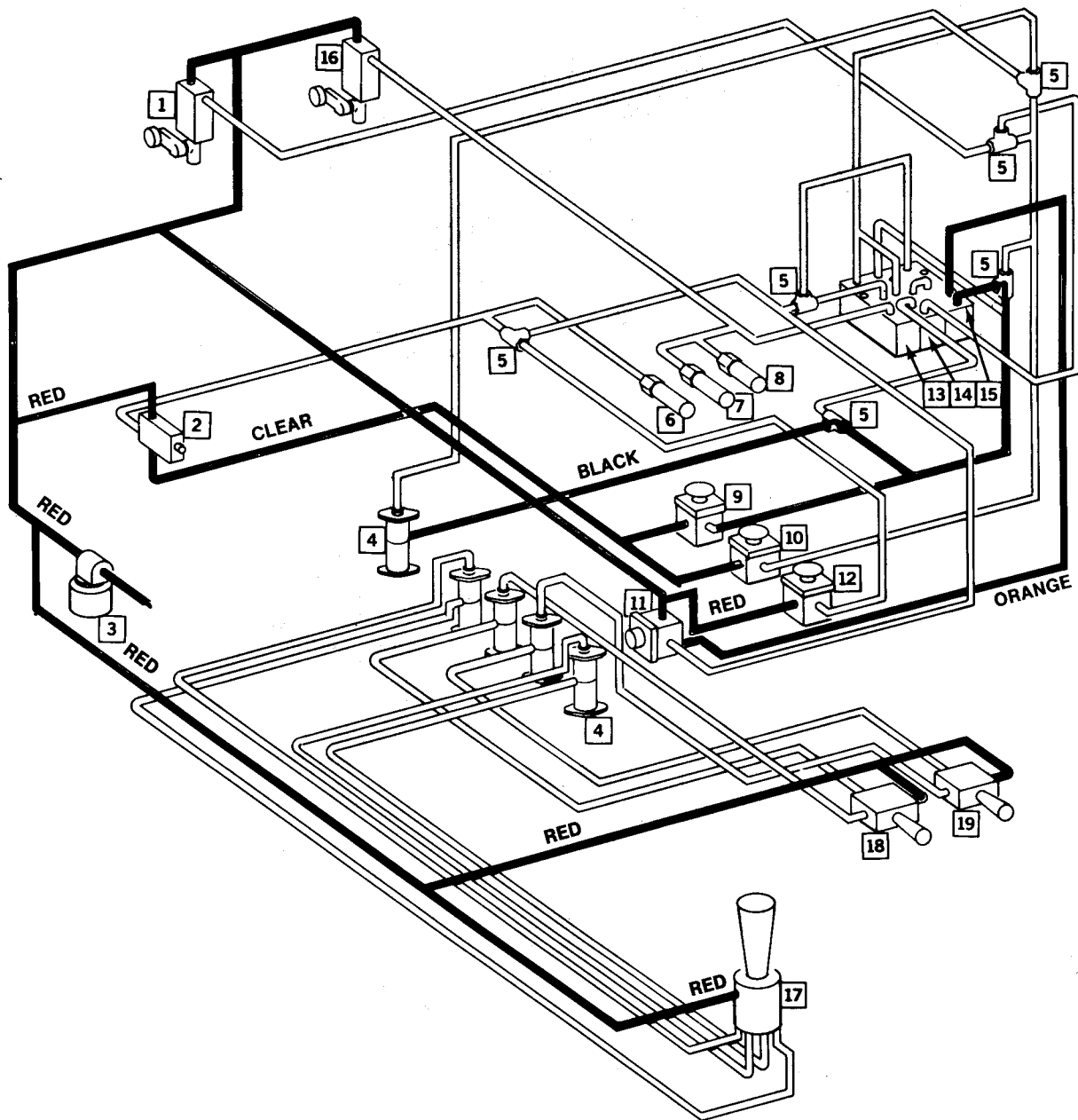
## Operator Action

The operator holds down the green packing/ejection button at 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 (or packing/ejection telescopic cylinders are fully extended.)

## PNEUMATIC SYSTEM

The air system begins functioning (refer to flow diagram auto-packing with side door closed). As packing/ejection panel reaches mid-section of the body the operator depresses and holds the green packing/ejection button. As the panel moves through the mid area of the body the packing/

ejection retract air limit switch is activated overriding the air pressure (as seen when the unit auto-packs). As the operator holds down the packing/ejection button air pressure is diverted through the packing/ejection button switch and to the air actuator on the 5-spool control valve packing/ejection section. As soon as the green packing/ejection button is released the air system shifts to the packing/ejection panel retract mode.



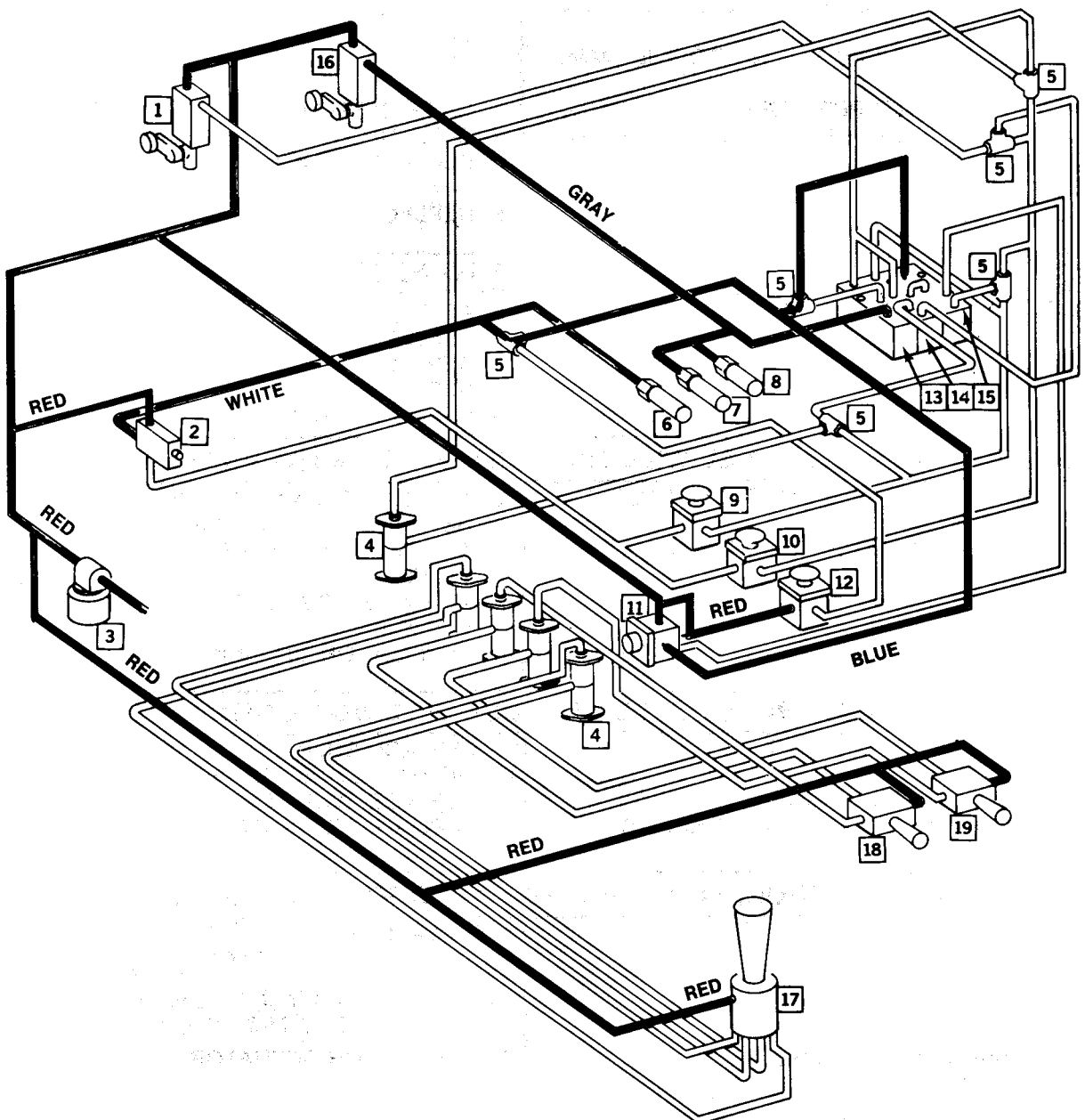
## SIDE DOOR OPEN (PACKER HOME)

**Operator Action**  
None

### PNEUMATIC SYSTEM

Air pressure flows to the rear door toggle switches, lift arms and forks joystick, packer retract air limit switch, and through the packer home air limit switch to pressure switch N.O. (turns on packer panel home indicator light) also to pressure switch N.C. (turns off packer panel partial extended indicator light). Air pressure continues on to "AND" valve port #1 in the valve pack. When the side door

is open air pressure passes through the side door air switch out port #4 to air pressure switch N.O. (turning on side door open indicator light) and continues on to relay #2 port "A" shifting this valve to non auto-pack mode. Air pressure also flows to auto mode switch port "B" discontinuing air flow through that switch to the auto-pack valve block.



OPTIONS

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 options.

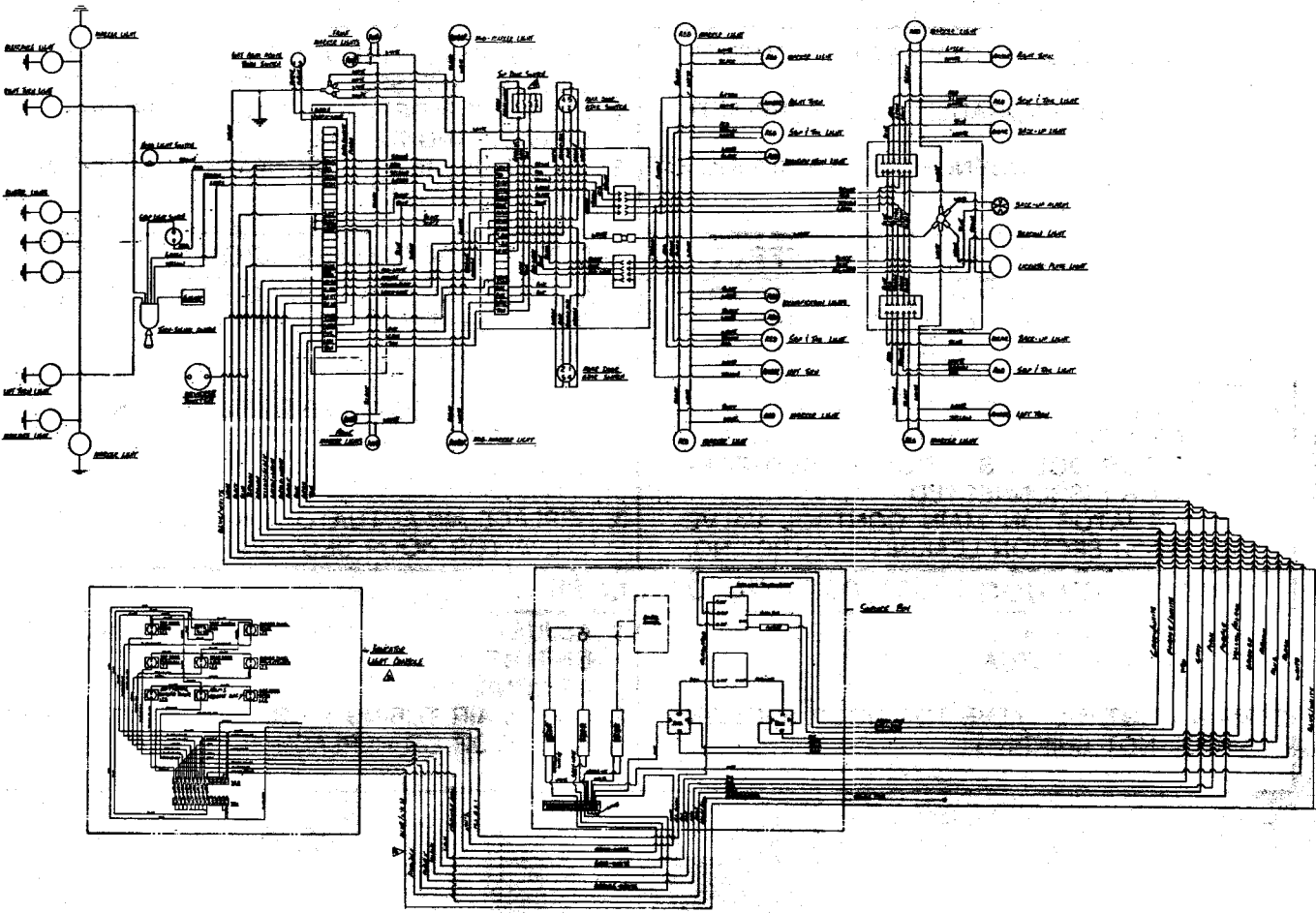
POSSIBLE CAUSE	REMEDY
PACKING/EJECTION PANEL WILL NOT MOVE	
1. SIDE DOOR OPEN. 2. AIR LINE TUBING PLUGGED. 3. AIR LINE ON AUTO-PACK BUTTON DISCONNECTED. 4. CRIMPED OR KINKED TUBING TO THE MAIN CONTROL VALVE. 5. NOT ENOUGH AIR PRESSURE. 6. AUTO-PACK VALVE DEFECTIVE. 7. DEFECTIVE AIR ACTUATOR ON THE MAIN CONTROL VALVE. 8. DEFECTIVE AUTO-PACK BUTTON.	1. CLOSE SIDE DOOR. 2. CLEAN OUT OR REPLACE AIR LINE. 3. RECONNECT AIR LINE TO AUTO-PACK BUTTON. 4. REPLACE OR STRAIGHTEN TUBING.  5. RAISE SYSTEM PRESSURE ABOVE 80 PSI. 6. REPLACE AUTO-PACK VALVE. 7. REPLACE AIR ACTUATOR.  8. REPLACE BUTTON.
PACKING/EJECTION PANEL WILL NOT GO TO NEUTRAL IN THE HOME POSITION	
1. AUTO-PACK WILL NOT GO INTO NEUTRAL.	1a. ADJUST HOME LIMIT SWITCH. 1b. REPLACE DEFECTIVE HOME LIMIT SWITCH. 1c. REPLACE KINKED AIR LINE. 1d. RECONNECT AIR LINE. 1e. REPLACE AUTO-PACK VALVE.
PACKING/EJECTION PANEL WILL NOT RETRACT IN AUTO-PACK POSITION	
1. RETRACT LIMIT SWITCH NOT ADJUSTED. 2. AIR ACTUATOR LOOSE OR BINDING.  3. LIMIT SWITCH AIR LINE KINKED OR DISCONNECTED.	1a. ADJUST AIR LIMIT SWITCH. 1b. REPLACE AIR LIMIT SWITCH. 2a. TIGHTEN AIR ACTUATOR ON MAIN CONTROL VALVE. 2b. REPLACE AIR ACTUATOR ON MAIN CONTROL VALVE. 3. REPLACE OR UN-KINK THE AIR LINE.
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 AIR LINE.
LIFT ARMS, REAR DOOR, FORK TILT, OR TOP DOOR WILL NOT MOVE	
1. KINKED AIR LINE.  2. DEFECTIVE AIR ACTUATOR. 3. KINKED AIR INLET. 4. DEFECTIVE JOYSTICK. 5. DEFECTIVE TOP DOOR OR REAR DOOR TOGGLE SWITCH.	1. REPLACE OR STRAIGHTEN AIR LINE. <div>NOTE</div> <div>AIR LINE                      AIR LINE</div> <div>BLUE — LIFT ARMS      GREEN — TOP DOOR</div> <div>ORANGE — FORK TILT    YELLOW — REAR DOOR</div> 2. REPLACE AIR ACTUATOR. 3. REPLACE "RED" AIR LINE OR UN-KINK. 4. REPLACE JOYSTICK. 5. REPLACE TOGGLE SWITCH.

POSSIBLE CAUSE	REMEDY
<b>HINGED TOP DOOR ERRATIC WHILE OPENING OR CLOSING</b>	
<ol style="list-style-type: none"> <li>1. PRESSURE INCORRECTLY SET IN SEQUENCE VALVES.</li> <li>2. WORN PUMP, HYDRAULIC PRESSURE NOT CONSTANT.</li> <li>3. CARTRIDGE IN SEQUENCE VALVE STICKING.</li> </ol>	<ol style="list-style-type: none"> <li>1. CHECK PRESSURE AND RESET SEQUENCE VALVES. SEE SEC. 7, CHECK-OUT.</li> <li>2. REPAIR OR REPLACE PUMP. SEE SEC. 9, SERVICE AND REPAIR.</li> <li>3. CLEAN OR REPAIR SEQUENCE VALVES, SEE SEC. 10, OPTIONS.</li> </ol>
<b>AIR PROBLEMS THAT WILL AFFECT HINGED TOP DOOR OPERATION.</b>	
<ol style="list-style-type: none"> <li>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.</li> <li>2. AIR TUBING OUT OF AIR LIMIT SWITCH AT LIFT ARM PIVOT TUBE TO MAIN CONTROL VALVE TOP DOOR SECTION KINKED PARTIALLY OR DISCONNECTED.</li> <li>3. AIR ACTUATOR ON MAIN CONTROL VALVE TOP DOOR SECTION LEAKING OR STICKING.</li> </ol>	<ol style="list-style-type: none"> <li>1. ADJUST AIR LIMIT SWITCH ON LIFT ARM PIVOT, SEE SEC. 7, CHECK-OUT.</li> <li>2. CHECK AIR TUBING AND CORRECT KINKING OR RECONNECT.</li> <li>3. REPLACE AIR ACTUATOR ON MAIN CONTROL VALVE TOP DOOR SECTION.</li> </ol>
<b>HINGED TOP DOOR NOT OPENING OR CLOSING</b>	
<ol style="list-style-type: none"> <li>1. AIR LIMIT SWITCH AT LIFT ARM TOP DOOR SECTION NOT ACTUATING.</li> <li>2. MAIN CONTROL VALVE TOP DOOR SECTION SPOOL NOT SHIFTING.</li> </ol>	<ol style="list-style-type: none"> <li>1. ADJUST OR REPLACE ACTUATOR ARM OR ENTIRE LIMIT VALVE. SEE SEC. 10, OPTIONS.</li> <li>2. CHECK AIR TUBING FROM LIMIT SWITCH TO ACTUATOR OR REPLACE ACTUATOR.</li> </ol>

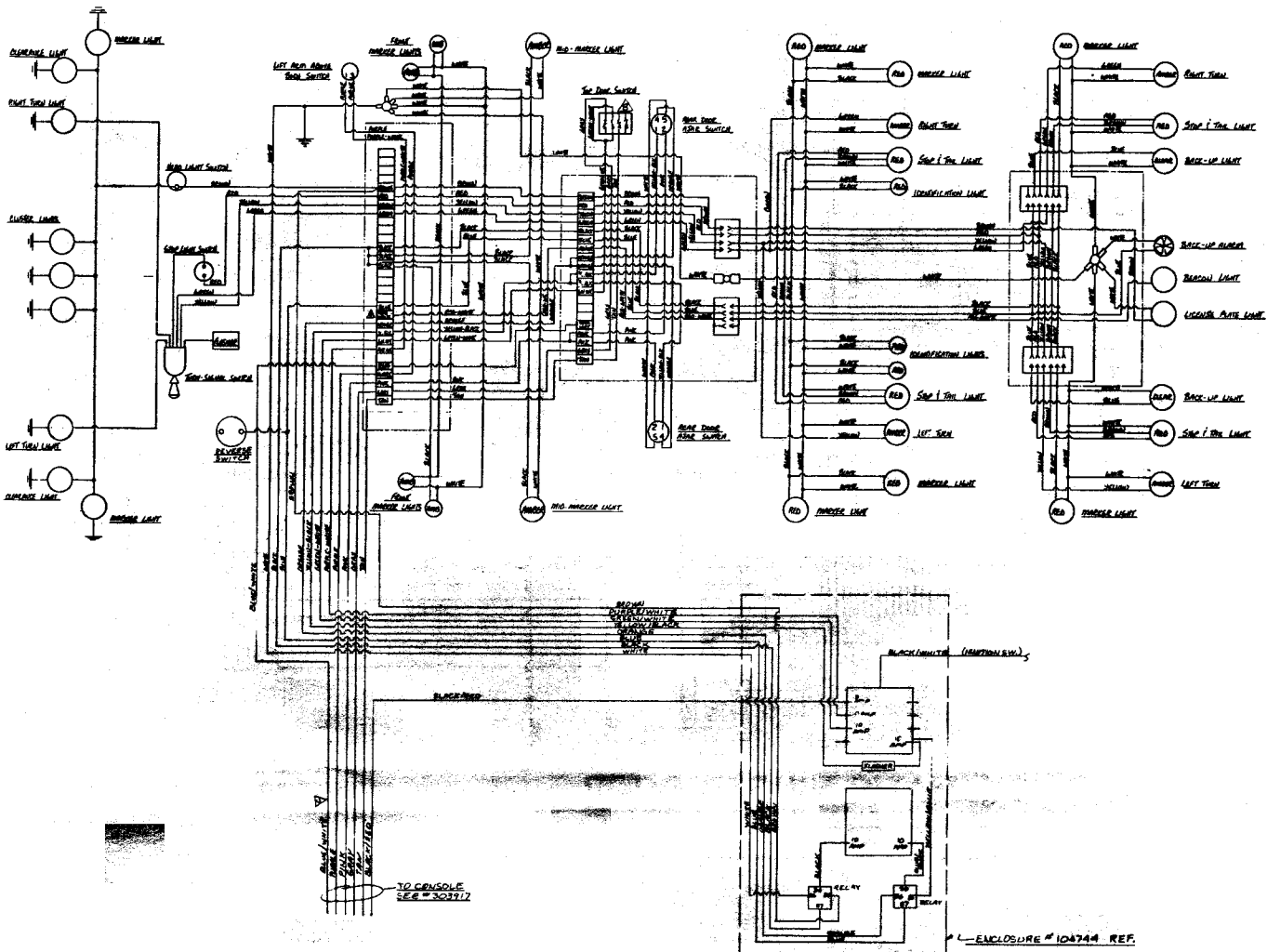


SECTION 10  
OPTIONS

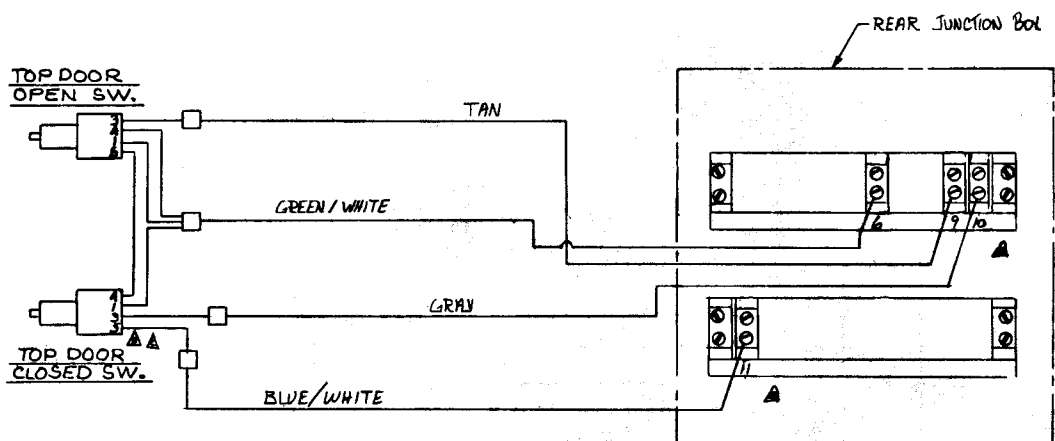
CABLE W/AUTO PACK ELECTRICAL SCHEMATIC



## STANDARD AIR ELECTRICAL SCHEMATIC

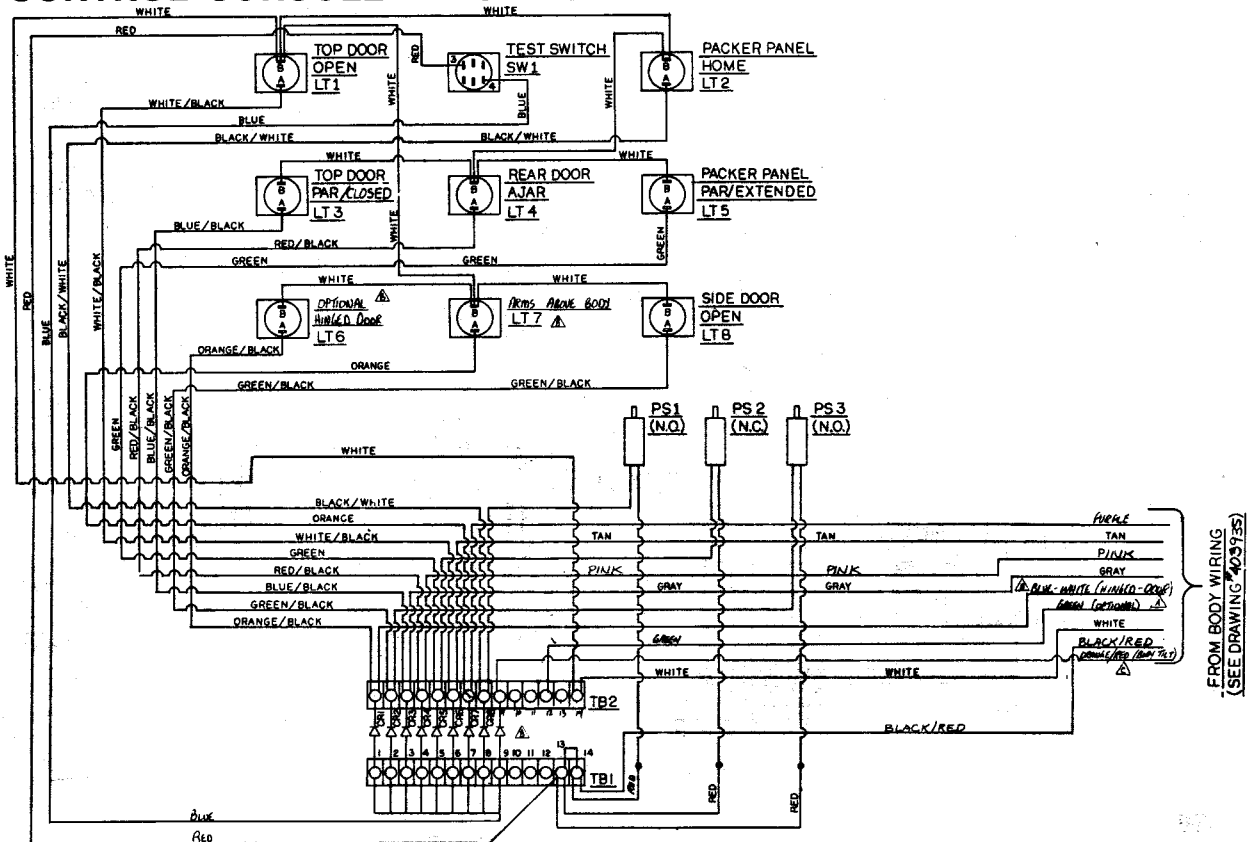


## HINGED TOP DOOR ELECTRICAL SCHEMATIC

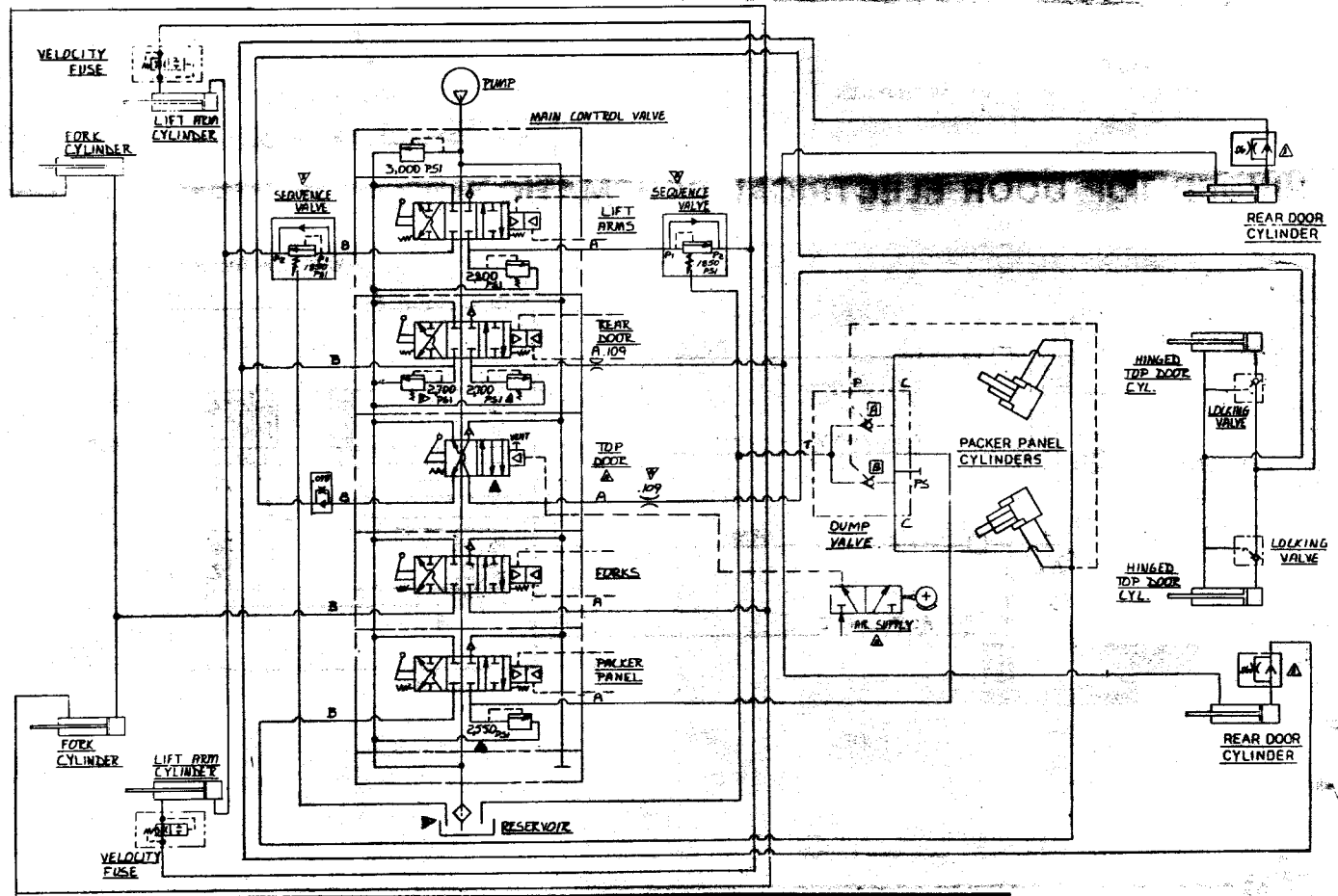


## OPTIONS

### CONTROL CONSOLE ELECTRICAL SCHEMATIC



### HYDRAULIC SCHEMATIC HINGED DOOR





**GENERAL**

The service tools shown will be required for some service and repair procedures. These tools are available from your local authorized LEACH distributor.

The actual use of each tool is described in SERVICE AND REPAIR of the appropriate service manual.

NO.	PART NO.	DESCRIPTION	EXPLANATION	UNIT
	30522	Pressure Gauge	To measure system pressure	All except FL-104/Beta
	T-SK-793-100	Pin Puller	Remove pivot pins	All
	T-19516-6	Knockout Spring Tool	Remove and install spring	2R/2RII/SCII SIII/Alpha/T-3
	T-B19516-4-626	Packing Tool	Install Chevron packings in MOV	2R/2RII/SCII SIII/Alpha/T-3
	T-B19516-4-751	Packing Tool	Install Chevron packing in MOV	2R/2RII/SCII SIII/Alpha/T-3
	T-14284	Plug Wench	Disassemble check valve on HIC block	2RII/SCII Alpha
	T-2R-1006-2	Tube Nut Wrench 1½"	Remove/Install tube nut	2R/2RII
	T-2R-1313-2	Tube Nut Wrench 2"	Remove/Install tube nut	2R/2RII
	T-SR-9541-20	Pump Shaft Seal Tool	Install seal	All
	T-SR-6021-2	U-Cup Guide	Install U-Cups	2R/2RII
	100368	Snap Connector	Quick coupling for pressure gauges	All
	402325	Pivot Puller	Remove upper carrier pivots	2RII
	T-NR-246-247-10	Cup Guide	Install U-Cups	Standard T-3/SCII
	T-PO-1166-10	Spanner Wrench	Remove cylinder cap	2R
	103081	O-Ring Kit	Various size o-rings	All Except FL-104
	T-14346	Pin Puller	Remove telescopic rod end pin	2RII
	106855	Test Fixture	Test Resistance Cartridge	All Rearloaders With Telescopic Ejection





# ORDER FORM MANUALS AND LITERATURE

No.	Title	List Price	Quantity	Extended
<b>Current Production Units</b>		(each)		
105593	2Rll Parts (over S/N 9719)	\$7.00		
105606	2Rll Operator (over S/N 9719)	\$7.00		
105594	2Rll Service (over S/N 9719)	\$7.00		
105562	Beta Parts (over S/N 2140)	\$7.00		
105560	Beta Operators (over S/N 2140)	\$7.00		
105561	Beta Service (over S/N 2140)	\$7.00		
105557	Alpha Parts (over S/N 2140)	\$7.00		
105555	Alpha Operators (over S/N 2140)	\$7.00		
105556	Alpha Service (over S/N 2140)	\$7.00		
105595	FL-104 Series B Parts (over S/N 1322)	\$7.00		
105604	FL-104 Series B Operators (over S/N 1322)	\$7.00		
105596	FL-104 Series B Service (over S/N 1322)	\$7.00		
105597	Curbtender Parts	\$7.00		
105586	Curbtender Operators	\$7.00		
105587	Curbtender Service	\$7.00		
<b>Other Publications</b>				
105599	Rear Loader Mounting	\$7.00		
100619	Main Operating Valve Service	\$7.00		
105598	Rear Loaders Container Handling Systems (over S/N 9719)	\$7.00		
105558	Rear Loaders Container Handling Systems (0001-8993)	\$7.00		
105605	Chassis Requirements Manual	N/C		
105414	Leach three ring binder	\$7.00		
<b>Previous Production Units</b>				
105547	2Rll Parts (S/N 8993-9718)	\$7.00		
105549	2Rll Service (S/N 8993-9718)	\$7.00		
105567	2Rll Parts (S/N 6972-8993)	\$7.00		
105544	2Rll Service (S/N 6972-8993)	\$7.00		
105600	2Rll Parts (S/N 0001-6972)	\$7.00		
105601	2Rll Service (S/N 0001-6972)	\$7.00		
105565	Beta Parts (S/N 0001-2139)	\$7.00		
105563	Beta Service (S/N 0001-2139)	\$7.00		
102488	Beta Lubrication Wall Chart (S/N 0001-2139)	\$7.00		
102489	Beta Check Out Wall Chart (S/N 0001-2139)	\$7.00		
105566	Alpha Parts (S/N 0001-2139)	\$7.00		
105543	Alpha Operators (S/N 0001-2139)	\$7.00		
105559	Alpha Service (S/N 0001-2139)	\$7.00		
105539	Alpha Lubrication Wall Chart (S/N 0001-2139)	\$7.00		
100655	Alpha Check Out Wall Chart (S/N 0001-2139)	\$7.00		
105591	SCII Parts	\$7.00		
105536	SCII Operators	\$7.00		
105535	SCII Service	\$7.00		
105538	SCII Lubrication Wall Chart	\$7.00		
105524	SCII Check Out Wall Chart	\$7.00		
105531	SIII Parts	\$7.00		
105545	SIII Operators	\$7.00		
105581	SIII Service	\$7.00		
105533	2R Packmaster Parts	\$7.00		
105603	2R Service	\$7.00		
102526	SaniCruiser Parts	\$7.00		

See reverse for additional manuals and literature

# ORDER FORM MANUALS AND LITERATURE

No.	Title	List Price	Quantity	Extended
102531	2F Front Loader Parts	\$7.00		
100648	2F Front Loader Operators	\$7.00		
102450	2F Front Loader Service	\$7.00		
100656	2F Front Loader Lubrication Wall Chart	\$7.00		
100657	2F Front Loader Check Our Wall Chart	\$7.00		
102541	RC 17/23 Recycling Collector	\$7.00		
105382	HSD (High Side Dump) Recycling Collector	\$7.00		
105571	FL-104 Parts (S/N 0001-1321)	\$7.00		
105408	FL-104 Operators (S/N 0001-1321)	\$7.00		
105602	FL-104 Service (S/N 0001-1321)	\$7.00		
105552	FL-104 Lubrication Wall Chart (S/N 0001-1321)	\$7.00		
105551	FL-104 Check Out Wall Chart (S/N 0001-1321)	\$7.00		
<b>Spanish Language</b>				
102534	Spanish 2Rll Operators (S/N 0001-6972)	\$7.00		
102511	Spanish 2Rll Service (S/N 0001-6972)	\$7.00		
102472	Spanish Alpha Operators (S/N 0001-2139)	\$7.00		
102541	Spanish SIII/SCII Operators	\$7.00		
105542	Spanish SCII Service	\$7.00		
<b>French Language</b>				
105577	French 2Rll Operators (S/N 8993-9718)	\$7.00		
105578	French 2Rll Service (S/N 8993-9718)	\$7.00		
<b>Safety Items</b>				
101372	Safety Vest	\$10.55		
105402	Safety Booklet	N/C		
105387	Safety Wall Posters (6 per set)	N/C		
<b>Videos</b>				
102497	2Rll Operators Video (S/N 0001-6972)	\$17.95		
102496	2Rll Preventive Maintenance/Check Out Video (S/N 001-6972)	\$17.95		
102498	Alpha Operators Video (S/N 0001-2139)	\$17.95		
102499	Alpha Preventive Maintenance/Check Out Video (S/N 0001-2139)	\$17.95		
102513	Beta Operators Video (S/N 0001-2139)	\$17.95		
102514	Beta Preventive Maintenance/Check Out Video (S/N 0001-2139)	\$17.95		
<b>TOTAL ENCLOSED</b>				

Please send literature to:

**NAME**

**BUSINESS**

**ADDRESS**

**CITY, STATE, ZIP**

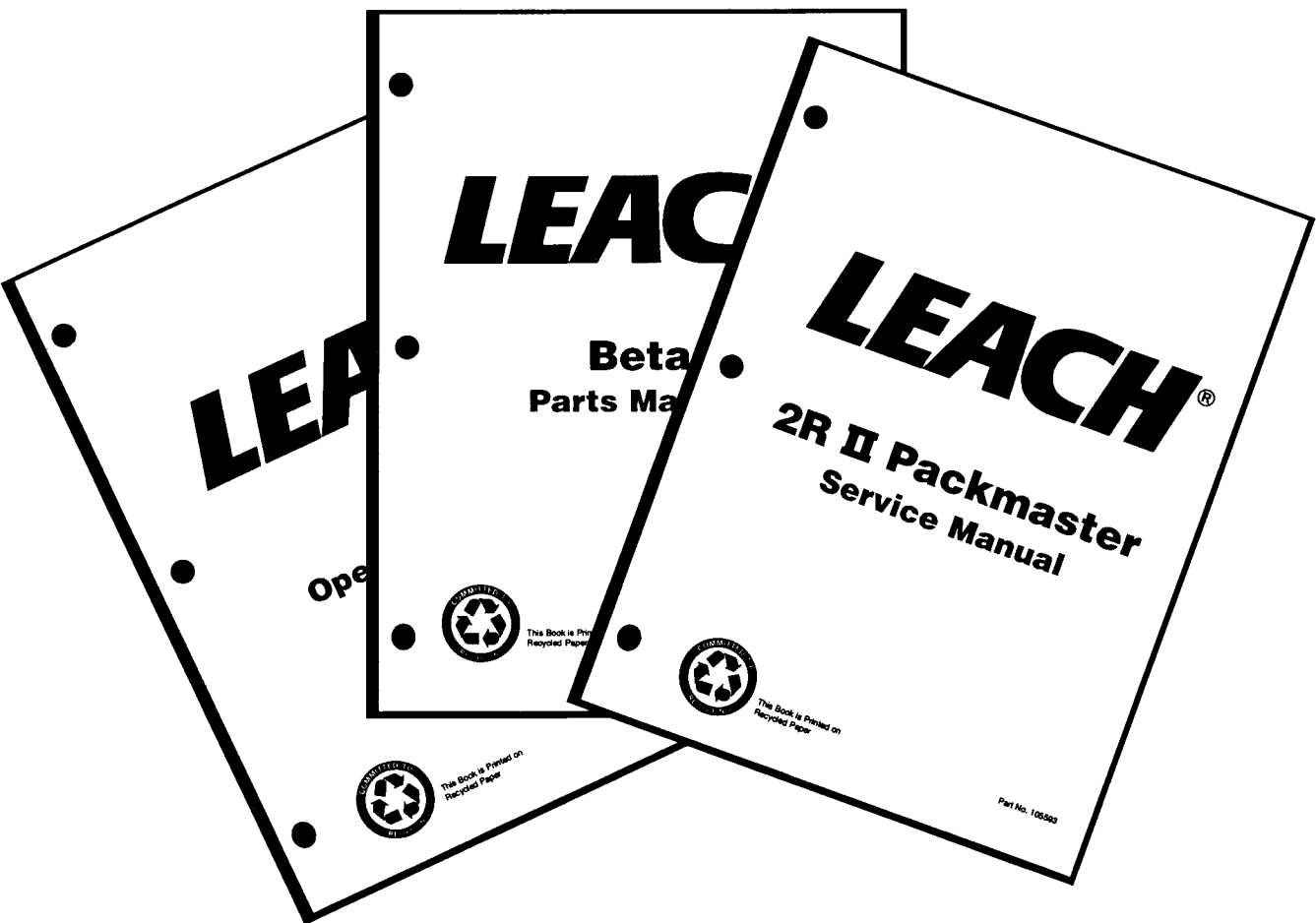
All manuals and literature are available from your local authorized Leach distributor or directly from the Leach Company. Each manual is complete, punched and ready for insertion in any three ring binder. There is no charge for the manuals provided by your local distributor, however there is a charge for shipping and handling if forwarded by the Leach Company.

Enclose the proper amount for each item ordered and forward to:

Service Department  
Leach Company, 2737 Harrison Street  
P.O. Box 2608  
Oshkosh, WI 54903-2608

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