

TM 5-9257

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TRUCK
GARBAGE
LOAD PACKER
15 CU YD
CAPACITY
5 TON, 4 X 2
TWO DUAL TIRES
LEACH MODEL
PACKMASTER
(LESS TRUCK)

TM 5-9257, TRUCK, GARBAGE, LOAD PACKER, 15 CU YD CAPACITY, 5-TON, 4 X 2, TWO DUAL TIRES, LEACH MODEL
PACKMASTER (LESS TRUCK)—1955



DEPARTMENT OF THE ARMY

AUGUST 1955

TECHNICAL MANUAL } DEPARTMENT OF THE ARMY
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TRUCK, GARBAGE, LOAD PACKER, 15 CU YD CAPACITY,
 5 TON, 4 X 2, TWO DUAL TIRES, LEACH MODEL
 PACKMASTER (LESS TRUCK)

SAFETY PRECAUTIONS

Do not stand near truck while body is being hoisted.
 Do not place hands on packing ram while in operation.

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CHAPTER 1 INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the use of the personnel to whom this garbage truck is issued. They contain information on the operation and organizational maintenance of the garbage truck as well as a description of the major units and their functions in relation to other components of the materiel. They apply only to the Leach Company 15 cubic yard load packer garbage truck, model Packmaster.

b. An appendix listing references is included in this manual.

2. Record and Report Forms

Maintenance record forms listed and briefly described in *a* through *s* below will be used in the maintenance of this equipment.

a. *DA Form 5-13, Spot Check Inspection Report of Organizational Maintenance of Engineer Equipment.* Organizations having engineer field maintenance responsibility use DA Form 5-13 for reporting the results of semiannual spot-check inspections.

b. *DA Form 5-14, Annual Technical Inspection Report of Engineer Equipment.* Organizations having engineer field maintenance responsibility use DA Form 5-14 for reporting the results of annual technical inspection.

c. *DA Form 9-71, Locator and Inventory Control Card.* DA Form 9-71 is used by highly mobile engineer units for controlling stock levels, and locating parts and supplies.

d. *DA Form 9-75, Daily Dispatching Record of Motor Vehicles.* DA Form 9-75 is filled in by the dispatcher as each piece of equipment is dispatched to a given job. The status of all equipment dispatched for any particular day is shown on this form.

e. *DA Form 9-77, Job Order Register.* A record of all work requests and job orders within the using organization is maintained on DA Form 9-77.

f. *DA Form 9-79, Parts Requisition.* DA Form 9-79 is used in engineer units to issue repair parts and common supplies from the parts supply room to the operators and mechanics.

g. *DA Form 9-81, Exchange Part or Unit Identification Tag.* DA Form 9-81 is used to accomplish the direct exchange of un-serviceable for serviceable parts.

h. *DA Form 446, Issue Slip.* DA Form 446 is used for requisitioning repair parts from sources outside the using organization.

i. *DA Form 447, Turn-In-Slip.* DA Form 447 is used by units for turning in un-serviceable and excess serviceable parts and equipment to supply officers.

j. *DA Form 460, Work Sheet for Preventive Maintenance Roster.* DA Form 460 is used for scheduling preventive maintenance services at proper intervals.

k. *DA Form 464, Work Sheet for Preventive Maintenance and Technical Inspection of Engineer Equipment.* DA Form 464 is used by personnel of the using organization and higher echelons for reporting the results of scheduled preventive maintenance services and technical inspection.

l. *DA Form 468, Unsatisfactory Equipment Report.* DA Form 468 is used for reporting manufacturing, design, or operational defects in the equipment, with a view to correcting such defects; it is also used for recommending modifications of the equipment. Form 468 is not used for reporting equipment failures, isolated defects, or malfunctions resulting from ordinary wear and tear or accidental damage. Form 468 is not used to report issue of parts and equipment, or for reporting replacements or repairs.

m. *DA Form 478, Organizational Equipment File.* Major repairs or rebuilding, replacement of major unit assemblies, and accomplishment of equipment modifications are recorded on DA Form 478.

n. *DD Form 518, Accident-Identification Card.* DD Form 518 is carried on all items of equipment at all times. In case of an accident, the operator completes the form and gives a copy to his supervisor and to each person involved.

o. *DA Form 811, Work Request and Job Order.* DA Form 811 is used to request work to be done within the using organization or by higher echelon organizations.

p. *DA Form 867, Status of Modification Work Order.* DA Form 867 is used to maintain records of all modification work performed on equipment.

q. *DD Form 6, Report of Damaged or Improper Shipment.* DD Form 6 is used for reporting damage incurred in shipment.

r. *DD Form 110, Vehicle and Equipment Operational Record.* Operators use DD Form 110 to maintain a vehicle or equipment operational record. It is also used by operators for reporting accomplishment of daily preventive maintenance services, and for reporting any deficiencies observed in the vehicle or equipment during operation.

s. *Standard Form 91, Operator's Report of Motor Vehicle Accident.* One copy of Standard Form 91 is kept with the equipment at all times. In case of an accident resulting in injury or property damage Standard Form 91 is filled out immediately (or as promptly thereafter as practicable) by the operator.

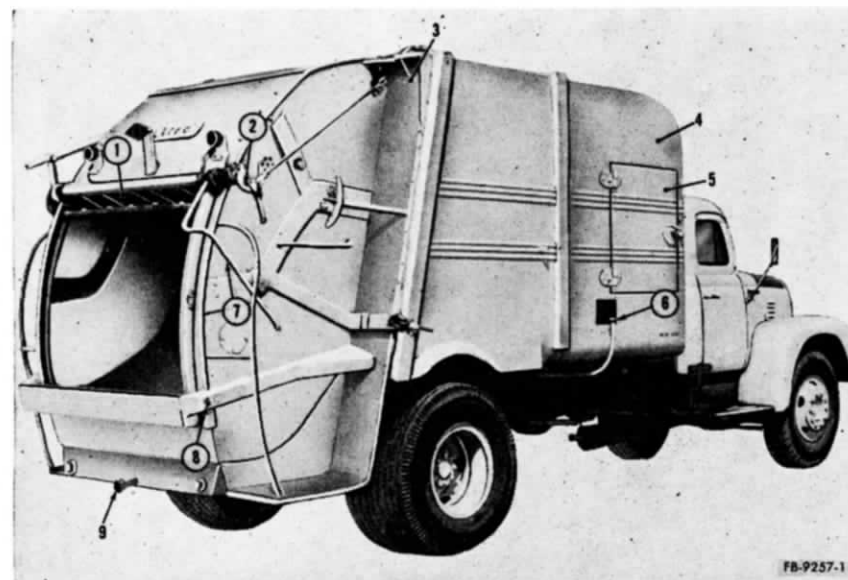
Section II. DESCRIPTION AND DATA

3. Description

a. *General Information.* The Leach Company 15 cubic yard load packer garbage truck, model Packmaster, is a fully inclosed, automatic unit for collection of garbage and refuse. It is mounted on a 4 by 2 drive truck with dual rear tires. The unit is of the hydraulic type, deriving its power from a pump operated by a power takeoff shaft from the truck engine. Material is loaded at waist height into the one cubic yard capacity hopper (9, fig. 1). Operation of a single control lever (7) automatically closes the charging door (1) and starts the loading mechanism which clears the load from the hopper and deposits it in the body (4). The force exerted by the packing plate compresses the material so that actual body capacity is in excess of 15 cubic yards of loose garbage and refuse. When the packing operation has been completed, the charging door automatically opens, and the hopper is clear for the next loading operation.

b. *Body.* The load packer body (4) is made of sheet steel, electrically welded and reinforced. The front of the body can be raised and lowered by two hydraulic pistons, pivoting on two body pivot bearings in housings bolted to the rear subframe. The body is closed at its rear by a tailgate (3).

c. *Tailgate.* The tailgate is attached at its top to the body by means of two horizontal hinges and can be swung on these hinges to open and close the body during unloading operations. The tailgate is not used during normal collection and loading operations. It is operated by two single-acting hydraulic cylinders, one on



- | | | | |
|---|-----------------------------|---|-----------------------------|
| 1 | Charging door | 5 | Side loading door |
| 2 | Packing plate control lever | 6 | Body and tailgate lever |
| 3 | Tailgate | 7 | Charging door closing lever |
| 4 | Body | 8 | Signal button |
| | | 9 | Hopper |

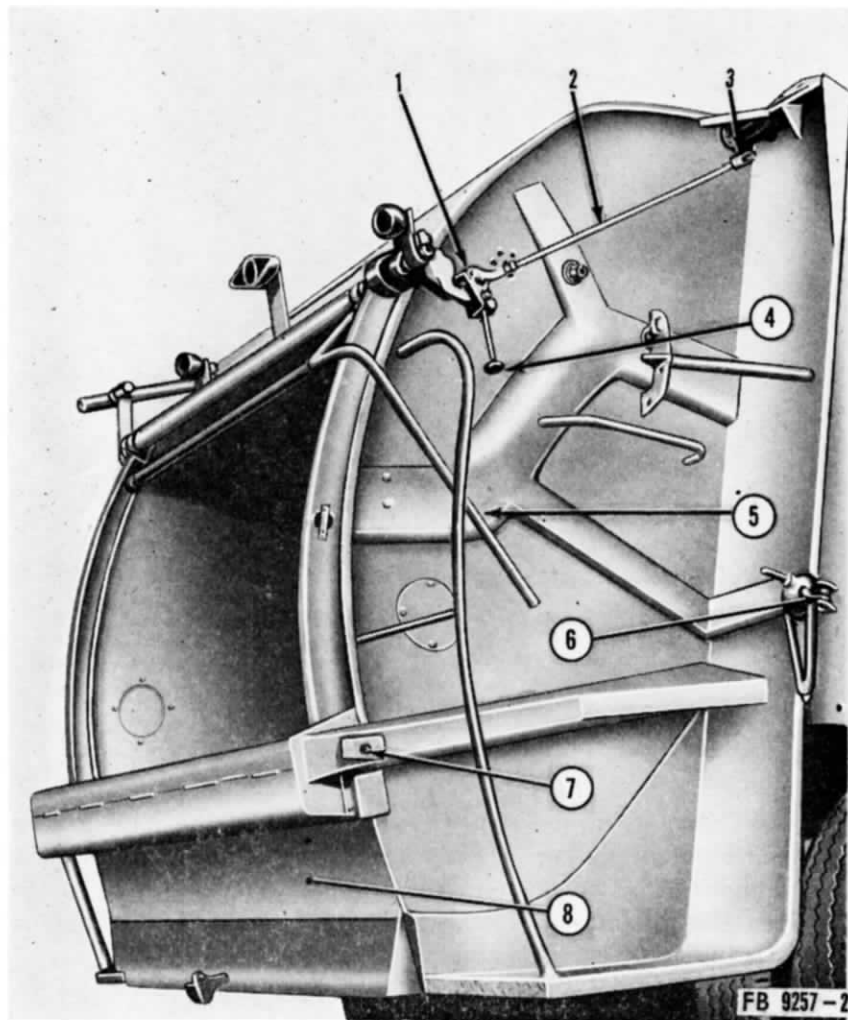
Figure 1. Right rear view of garbage truck.

each side, located in the upper rear corners of the load packer body. The tailgate is kept tightly against the body frame by two bolt clamps (6, fig. 2), one on each side near the lower end of the tailgate. The tailgate carries all parts of the loading mechanism, the charging door, the packer plate, and the hopper.

d. *Charging Door.* The charging door (1, fig. 1) is horizontally hinged at the top and in the middle. In opening, the door breaks inward at the center hinge and the two halves fold up against the top edge of the charging door opening. The charging door is automatically opened after each loading operation. It is operated with the packing plate through mechanical linkage.

e. *Packing Plate.* The packing plate is a heavy steel scoop controlled by the operating lever (4, fig. 2). When properly actuated, the plate swings down behind the refuse in the hopper, scooping it up and pushing it into the body. The cycle is automatic once the control lever is actuated.

f. *Hopper.* The hopper forms the bottom part of the tailgate and will hold one cubic yard of refuse or other material to be loaded into the load packer body.



- | | |
|-------------------------------|-------------------------------|
| 1 Cam and roller | 5 Charging door closing lever |
| 2 Control rod | 6 Tailgate clamp |
| 3 Quadrant | 7 Signal button |
| 4 Packing plate control lever | 8 Hopper |

Figure 2. Tailgate assembly.

g. Hydraulic System. A series of hydraulic pistons actuate all operations of the load packer. The hydraulic system consists of a pump, an oil tank, seven cylinders with pistons, metal and flexible piping, and valves.

(1) *Hydraulic pump.* The hydraulic pump supplies the pressure required by the hydraulic system. The pump is of the gear type, and consists of two rotary gears which revolve and mesh with one another inside a casing. The

pump is operated by a power takeoff connected to the truck transmission. A power takeoff lever located in the truck cab, engages or disengages the power takeoff.

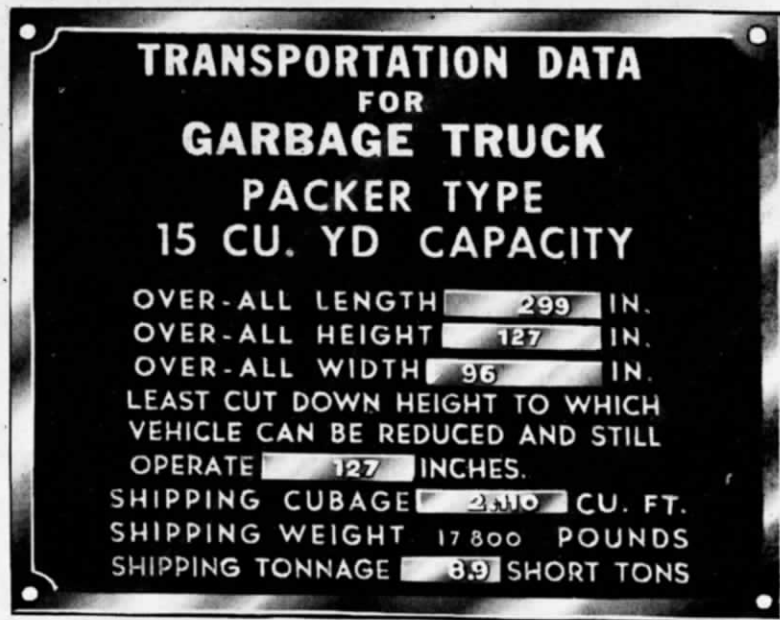
- (2) *Oil tank.* The oil tank is a rectangular steel container mounted on the left side of the truck frame. The tank is a reservoir for the oil fed to the hydraulic pump. Oil leaving the tank is directed through an oil filter located in the bottom of the tank.
- (3) *Hydraulic cylinders.* The various functions of loading, packing, and unloading of the garbage truck are controlled by hydraulic pistons and cylinders. One set of two pistons and cylinders control lifting and lowering of the tailgate. These pistons are located in the upper rear corners of the body. Another set of two pistons and cylinders control operation of the packing plate. The packing plate cylinders and a holding cylinder control movement of the packing plate. The packing plate cylinders are mounted on the packing plate. The holding cylinder is located on the left side of the packing plate. The body is lifted and lowered by two cylinders, a main double-acting cylinder and an auxiliary cylinder. The piston of the auxiliary cylinder helps push the front end of the body, and it remains extended when the body is in lifted position. A contact plate on the body pushes the piston into the cylinder when the body is lowered. The body is lowered through control of the main body hoist cylinder. Both the main body hoist cylinder and the auxiliary body hoist cylinder are attached to the body subframe.
- (4) *Piping.* High pressure flexible rubber hose with couplings connects the hydraulic pump with the oil tank and the main control valve. Flexible hose is also used as connection between the body and the hydraulic system units located on the truck chassis. Steel pipe is used for fixed hydraulic lines attached to the body.
- (5) *Valves.* The hydraulic system is controlled through several hand-operated and automatic valves.

4. Identification (fig. 3)

The garbage truck has a Corps of Engineers identification plate (A) and a transportation data plate (B) mounted on the left front side of the body. The identification plate specifies the official



A



B

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Figure 3. Identification plates.

nomenclature, the model number, and the serial number of the equipment. The transportation plate includes information on garbage truck dimensions and weights. An instruction plate is mounted on the right side of the body immediately behind the tailgate and body control lever. Additional instruction plates are found on the oil tank, and on the side of the tailgate, immediately under the loading and packing control lever. When requisitioning spare parts for this equipment, specify the Department of the Army registration and serial numbers.

5. Difference in Models

This manual covers the Leach Company 15 cu yd load packer garbage truck, model Packmaster, only.

6. Tabulated Data

a. General.

Manufacturer	Leach Company
Model	Packmaster
Mounting	Truck mounted

b. Dimensions and Weights.

Overall length of body	15 ft 3 in.
Overall width of body	8 ft
Height of body	8 ft 6 ¹ / ₁₆ in.
Weight (body only)	8,500 lbs

c. Shipping Data.

Shipping cubage (body only)	1,200 cu ft
Shipping weight (body only)	8,500 lbs
Shipping weight (body and truck)	17,800 lbs

d. Capacity.

Body volume	15 cu yd
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CHAPTER 2

OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

7. New Equipment

a. General. For domestic shipment, the garbage truck is not crated or boxed. For overseas shipment the equipment is boxed and processed in accordance with instructions given in TB 5-9711-1 and TB 5-9713-1. In both instances the equipment is processed in accordance with military specifications.

b. Unloading. The garbage truck can be driven to its destination under own power, or it can be shipped on a railroad flatcar or by flatbed truck or trailer. If the unit is shipped by rail or truck, remove it using a hoist or crane, or by driving it off under own power, after removing all blocks, cleats, supports, and strappings. If necessary, build a ramp for driving the unit off the flatcar or truck.

c. Removal of Preservative Compounds and Lubricants. Remove all protective paper, tape, coatings, and preservative compounds from the unit.

d. Inspection. Check the entire garbage body, including control levers, hydraulic cylinders, and exposed lines for loose connections, bent or damaged parts, improper assembly, broken connections, and dirt and grit. If the body arrives mounted on a truck, and the hydraulic system is connected, check all controls for proper operation. Report all damage found on DD Form 6, Report of Damaged or Improper Shipment.

e. Service.

- (1) Service the equipment as instructed in the daily before-operation services (par. 29).
- (2) Lubricate the unit as instructed in the current lubrication order.

8. Used Equipment

Instructions for service upon receipt of used equipment are the same as for new equipment (par. 7). Special attention must be given to inspection.

Section II. CONTROLS AND INSTRUMENTS

9. General

This section describes, locates, illustrates, and furnishes the driver and crew sufficient information about the various controls and instruments for the proper operation of the garbage truck.

10. Solenoid Controls

a. Location and Description. The solenoid control consists of a solenoid magnet interconnected with the engine carburetor throttle, two solenoid switches, and a circuit switch on the dash in the truck cab. The solenoid is mounted on the truck fire wall near the engine. One solenoid switch is mounted on top of the body hoist and tailgate control valve, the other in the upper part of the tailgate.

b. Purpose. The truck engine, when running at idling speed turns the hydraulic oil pump too slowly to deliver the required amount of oil to actuate the valves. The solenoid automatically steps up the engine speed when the valves are opened. (This increase in power output occurs only when either of the two solenoid switches are tripped.) The packing plate solenoid switch, located in the upper part of the tailgate, causes the engine to provide higher pressure needed to move the packing plate. When the packing operation is completed, and the charging door opens, the truck engine returns to idling speed. Similarly, the solenoid switch located on the hoist and tailgate control valve speeds up the engine when either the body or the tailgate is being raised.

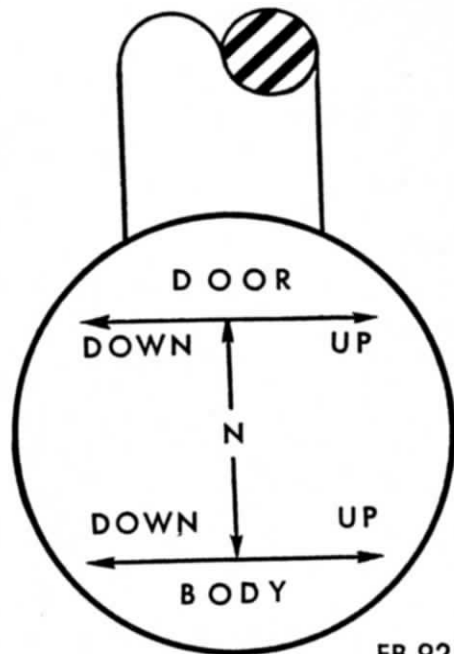
11. Body and Tailgate Lever

a. Location. The body and tailgate lever (6, fig. 1) is located on the right side of the truck body and is connected to the body and tailgate control valve.

b. Purpose. The body and tailgate lever provides a four-way control of body and tailgate. Raising and lowering of the tailgate is done by pushing the lever in and moving it either right or left. Raising and lowering of the body is done with the lever pulled out. The various positions of the lever are marked on the lever knob (fig. 4).

12. Packing Plate Control Lever

a. Location. The packing plate control lever (4, fig. 2) is located on the upper right side of the tailgate.



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Figure 4. Tailgate and body control lever.

b. Purpose. The packing plate lever controls the operation of the packing plate. The packing plate may be stopped at any time by throwing the lever to neutral position so it points approximately straight downward.

13. Charging Door Closing Lever

a. Location. The charging door closing lever (5, fig. 2) is located on the right side of the tailgate.

b. Purpose. The charging door closing lever, when pulled back, closes the charging door.

14. Power Takeoff Lever

a. Location. The power takeoff lever is located in the driver's cab.

b. Purpose. The power takeoff lever is used to engage the truck engine with the hydraulic pump.

15. Signal System

a. Location. The signal system consists of a buzzer in the driver's cab, and two push buttons (7, fig. 2) located on the lower rear corners of the tailgate.

b. Purpose. The push buttons and buzzer form a one-way communication system between the driver and the loaders. The system is connected to the ignition switch, and works only when the ignition switch is turned on.

Section III. OPERATION UNDER USUAL CONDITIONS

16. General

a. The instructions in this section are published for the information and guidance of the personnel responsible for the operation of this garbage truck.

b. It is essential that the operator know how to perform every operation of which the unit is capable. This section gives instructions on starting and stopping the equipment, instructions on the basic motions of the components of the unit, and instructions on how to coordinate the basic motions to perform the specific tasks for which the garbage truck is designed.

17. Starting

a. Perform the before-operation services as instructed in paragraph 29.

b. With the truck engine idling, depress the clutch pedal and move the power takeoff lever to engage power takeoff shaft.

c. Release the clutch slowly. The engine is now connected to the hydraulic oil pump and oil is being pumped through the hydraulic circuit.

18. Stopping

a. Set all control levers in neutral position.

b. To stop the hydraulic pump, depress the clutch and disengage the power takeoff from the engine by moving the power takeoff lever to neutral position.

19. Operation Details

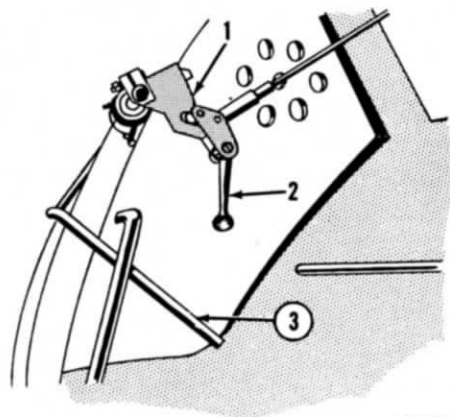
a. Loading and Packing. Normally, the charging door is automatically opened after each loading operation. If the door is closed, push inward at the center hinge and raise the lower edge until the door is locked in fully open position.

- (1) When the hopper is loaded, close the charging door by pulling back on the charging door closing lever (3, fig. 5). As the door closes, a cam (1) rotates with the door

shaft and moves the packing plate control lever (2) to the position shown in figure 6.

- (2) With the packing plate control lever in this position, the packing plate moves back and down behind the garbage and refuse in the hopper, scoops the material, and pushes the load into the body.
- (3) While the packing is taking place, the controls are in the position shown in figure 7. Note that the packing plate control lever has moved from forward to rear position.
- (4) As the packing plate completes its operation the charging door is automatically opened, and garbage can be deposited in the hopper before packing operation has actually been completed.
- (5) The packing plate can be stopped at any time by throwing the control lever (2, fig. 5) to neutral position. The controls are so arranged that the packing plate cannot be operated until the charging door has been closed.

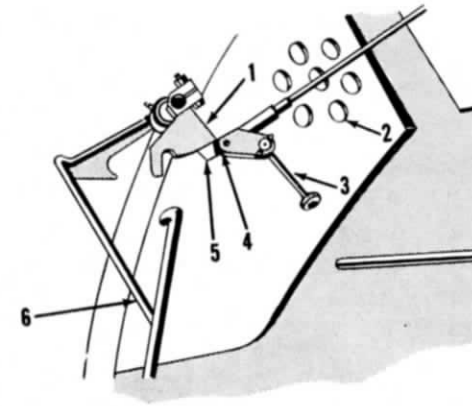
Caution: When loading the hopper, do not pile garbage or refuse above the lower tip of the packing plate. If too much is put in hopper, excess material will be pushed back against the charging door and prevent the packer plate from performing a complete cycle. If this happens, it will be necessary to run the packing plate through another cycle. This is poor practice and will eventually damage the packer plate controls.



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- | | |
|-------------------------------|-------------------------------|
| 1 Cam | 2 Packing plate control lever |
| 3 Charging door closing lever | |

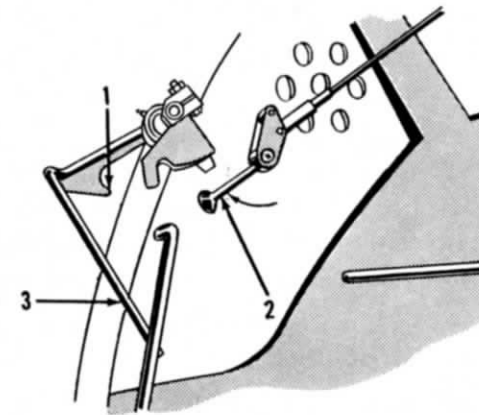
Figure 5. Position of controls when packing unit is not in operation.



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- | | |
|-------------------------------|-------------------------------|
| 1 Cam | 4 Roller |
| 2 Viewing window | 5 Lug |
| 3 Packing plate control lever | 6 Charging door closing lever |

Figure 6. Position of controls when charging door is closed.



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- | | |
|-------------------------------|-------------------------------|
| 1 Hook | 2 Packing plate control lever |
| 3 Charging door closing lever | |

Figure 7. Position of controls when packing plate is pushing load from hopper into body.

b. Dumping Load. The load is dumped by opening the tailgate and raising the front of the load packer body. Operation of the tailgate and body is controlled by the lever on the right side of the body (6, fig. 1). The lever and shaft have a sliding movement of about 1 inch in or out to change valve operation for either tailgate or body. Markings on top of the knob indicate the position for each operation (fig. 4).

- (1) *Clearing hopper.* To clear the hopper when the load is dumped, the packing plate should be run part way back and over the refuse in the forward part of the hopper. This will permit refuse to fall from the hopper when tailgate is opened. To clear the hopper move control lever (2, fig. 5) to forward position as shown in figure 6. When the guide roller on the packing plate can be seen through the viewing window (2, fig. 6) return the lever to neutral position. This stops the packing plate.
- (2) *Opening tailgate.* Loosen the clamps (6, fig. 2) on each side of the tailgate by backing the nut part way off the bolt. Swing the clamps aside and hook them to the pins provided to hold them clear of the tailgate. Push the body and tailgate lever inward to engage the valve. The shaft should slide easily into position. Push the lever toward front of truck and hold it in this position until the tailgate is raised to desired height. To stop the tailgate from rising further, release the lever and it will return to neutral position, stopping the flow of oil into the tailgate cylinders.
- (3) *Raising body.* After the tailgate is opened, raise the body by pulling the lever outward and moving it forward. Hold lever in this position until the body is raised to desired height. The body is tapered slightly from front to rear to make it easier to discharge the contents.

Caution: Do not eject load by jerking body with sudden movement of truck.

- (4) *Lowering body.* After the load has been dumped, the body must be lowered before the tailgate can be closed. To lower the body, move the lever outward and toward rear of truck. Hold it in this position until the body comes to rest on the subframe. Release the lever to neutral position.
- (5) *Closing tailgate.* After the body is lowered, close the tailgate by moving the lever first inward, and then toward the rear of truck. Release the lever when the tailgate is fully closed. Secure the tailgate by swinging the clamps into position and tightening the nuts.

Caution: Do not drive over rough ground with body or tailgate raised.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

20. Operation in Extreme Cold

Operation of the load packer garbage truck in extreme cold (below 10° F.) presents no special problems except that particular attention should be paid to lubrication. Lubrication at low temperatures is covered in the current lubrication order. Detailed lubrication information is given in paragraph 26.

21. Operation Under Extremely Dusty Conditions

Under extremely dusty conditions the piston rods of all hoisting and operating cylinders must be inspected frequently and dust and sand wiped off the surface. Unless this is done regularly, small particles of dust will accumulate on the oily surface of the piston rod and be carried into the hydraulic oil system, contaminating the oil. Abrasive sand particles will also stick to the seal ring and score the piston rod as it moves in and out of the cylinder.

CHAPTER 3

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. ORGANIZATIONAL TOOLS AND EQUIPMENT

22. General

The tools and equipment required to perform organizational maintenance are standard mechanics hand tools.

23. Operator Maintenance Tools

There are no operator maintenance tools supplied with the unit.

24. Special Organizational Maintenance Tools and Equipment

A special tool called "Spring compressing tool" must be used for compressing or holding the charging door balance spring during assembling or disassembling of the unit. This tool is listed as part number SK-5214 by the manufacturer and is not available through the normal supply procedures.

Section II. LUBRICATION AND PAINTING

25. General Lubrication Information

a. Lubrication Order 5-9257 prescribes first and second echelon lubrication maintenance for the garbage truck.

b. A lubrication order is published for each item of equipment and is to be carried with the unit at all times. The lubrication order shown in figure 8 is a reproduction of the approved lubrication order for this garbage truck. For the current LO 5-9257 refer to Pam. 310-4.

c. Lubrication orders prescribe approved first and second echelon lubrication procedures. The instructions contained therein are mandatory.

26. Detailed Lubrication Information

a. *Care of Lubricant.* Keep all lubricants in airtight containers. Clean all lubrication equipment such as grease guns and oil cans periodically while in storage to prevent the formation of a

LUBRICATION ORDER

LO 5-9257

8 July 1954

TRUCK, GARBAGE, LOAD PACKER, 15 & 20 CU YD CAPACITY, 5 TON, 4 x 2, TWO DUAL TIRES, LEACH MODEL PACKMASTER (LESS TRUCK)

Reference: TM 5-9257, TB 5-9257-1

Intervals given are maximums for normal 8-hour day operation. For abnormal conditions or activities, intervals should be shortened to compensate.

Clean fittings before lubricating.

Clean parts with SOLVENT, Dry Cleaning, or with OIL, fuel, Diesel. Dry before lubricating.

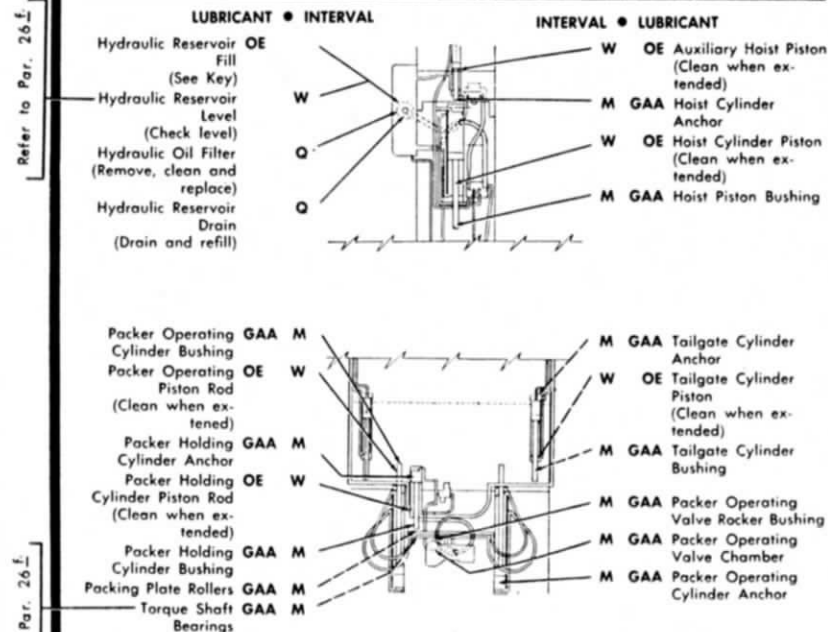
Relubricate after washing or fording.

Drain oil housings only when hot after operation; replenish and check level when cool.

Lubricate points indicated by dotted arrow shafts on both sides of equipment.

- KEY -

LUBRICANT	CAPACITY	EXPECTED TEMPERATURE			INTERVALS
		Above +32°F	+32°F to -10°F	Below -10°F	
OE -Oil, Engine, Heavy Duty		OE 30 or 9250	OE 10 or 9110	OHA	W-Weekly
Hydraulic Reservoir					M-Monthly
Oil Can Points		OE 30 or 9250	OE 10 or 9110	OE 10 or 9110	Q-Quarterly
OHA-OIL, Hydraulic, Aircraft, Petroleum Base					
GAA-GREASE, Automotive and Artillery					



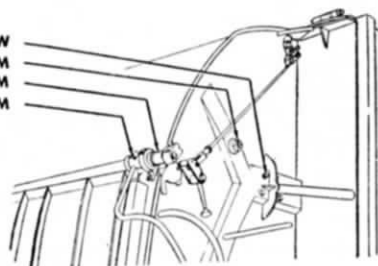
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Figure 8. Lubrication order.

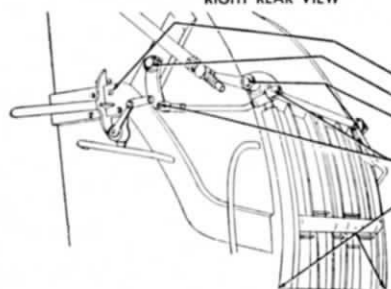
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Track Risers GAA W
 Track Latch Cam GAA M
 Operating Latch GAA M
 Door Release Handle GAA M



RIGHT REAR VIEW



LEFT REAR VIEW

W GAA Track Risers
 M GAA Door Lift Cam
 M GAA Loading Door Bearings
 M GAA Clevis Pins
 M GAA Subframe Bearings

NOTES:

1. FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -10°F—Clean parts with SOLVENT, Dry Cleaning, and drain hydraulic oil reservoir. Relubricate with lubricants prescribed in the Key for below -10°F temperatures.

2. OIL CAN POINTS—Weekly clean and coat charging door spring cover tube, link pins, door hinge tube, operating lever and clevis pins, quadrant, safety rod bearing, tailgate operating shaft, shaft bearing, selecting pin, link pins, springs, chains, and exposed threaded surfaces with OE.

Copy of this Lubrication Order will remain with the equipment at all times; instructions contained herein are mandatory and supersede all conflicting lubrication instructions dated prior to the date of this Lubrication Order.

BY ORDER OF THE SECRETARY OF THE ARMY:

M. B. RIDGWAY,
 General, United States Army,
 Chief of Staff.

OFFICIAL:
 JOHN A. KLEIN,
 Major General, United States Army,
 The Adjutant General.

dusty film which tends to settle on greasy surfaces. Wipe oil cans and grease containers clean before they are opened and protect them from dust while their covers are removed. Clean lubrication equipment with an approved cleaning solvent before and after use, and keep it in a place safe from damage and free from dirt and dust.

b. *Cleaning.* Before lubricating, clean all points of lubrication with an approved cleaning solvent. Do not use gasoline for this purpose. Brush hardened or caked grease collected if necessary with a stiff wire brush. Dry thoroughly with a lint-free cloth before applying lubricant. Reclean after lubrication.

c. *Points of Application.* Lubrication fittings, grease cups and oil holes are readily located by reference to the lubrication order. Follow the detailed lubrication instructions given in the lubrication order.

d. *Operation Immediately After Lubrication.* After lubricating the equipment, always operate the lubricated parts. This will spread the lubricant to all wearing surfaces.

e. *Temperature Ranges* Lubricants are listed in the key on the lubrication order for each of the three temperature ranges: above plus 32° F., plus 32° F. to minus 10° F., and below minus 10° F. Check unit operation closely during the approach of another temperature range to determine when to change grades of lubricant. Sluggish operation is an indication of thickened lubricants and the sign to change to grades specified for the next lower temperature range.

f. *Lubrication Notes.*

- (1) *Torque shaft bearings.* Operate the packer plate to the lowest position at rear of hopper. Open the tailgate about 3 feet so that bearings can be greased from inside the hopper.
- (2) *Hydraulic reservoir level.* The reservoir is properly filled when the level is between the two marks on the dipstick.

27. **Painting**

No special painting instructions are needed for this equipment. Refer to TM 9-2851 for general painting instructions.

Section III. PREVENTIVE MAINTENANCE SERVICES

28. **General**

The operator or crew of the garbage truck and the organizational maintenance personnel must perform their preventive main-

Figure 8. Lubrication order—Continued.

FB-9257-B

tenance services regularly to make sure the load packer operates well and to lessen the chances of mechanical failure.

29. Operator, Driver, or Crew Maintenance

a. Inspections. Inspections must be made before operation, during operation, at halt, and after operation, as described in this section. All inspections of assemblies, subassemblies, or parts must include any supporting members or connections and must determine whether the unit is in good condition, correctly assembled, secure, or badly worn. Any mechanical condition which may result in further damage to the unit must be corrected before the equipment is operated. The inspection terms used in this section are listed and fully explained in TM 5-505.

b. Reporting Deficiencies. The operator will report all deficiencies on DD Form 110.

c. Before-Operation Services. The following services will be performed to determine if the condition of the equipment has changed since it was last operated, and to make sure the equipment is ready for operation. Any deficiencies must be corrected or reported to the proper authority before the unit is put into operation.

- (1) *Oil.* Check the oil level in the oil supply tank. Keep level between the two marks on the dipstick.
- (2) *Lubrication.* Lubricate as directed in LO 5-9257.
- (3) *Controls.* Check buzzer signal circuits to see that buzzer operates. Check the tailgate to see if it is locked and if the control lever is in neutral position. Check the solenoid control to see that it automatically speeds up the truck engine when the packing operation takes place or when the packer hoist cylinders are in operation. Check the circuit switch provided on the dash to turn the solenoid on and off.
- (4) *Leaks, general.* Check for leaks in the hydraulic system, paying particular attention to all cylinders, hose and fittings, and for signs of leaks around the tank and valve assembly.
- (5) *Visual inspection.* Make a visual inspection of the entire unit for loose or missing screws, nuts, bolts, and pins. Look for cracks, breaks, or damaged parts.

d. During-Operation Services. The operator is responsible for correcting or reporting unusual sounds or odors, deficiencies in performance, or other signs of abnormal operation. He will perform the following specific services:

- (1) *Unusual operation.* Check for unusual operation, such as failure of the packer to deliver full force to pack the load into the body, failure of the door to open or close, or failure of either the track latch or door opening cam to hold the rollers from engaging the tracks as the packer plate starts back over the load. If irregularities are noticed, stop operation immediately, and correct the condition or report it to the proper authority.
- (2) *Unusual noises.* Check for unusual noises in the power takeoff, the hydraulic system, especially at the cylinders, or any part of the hoist control. If unusual noise is noticed, stop operation immediately and correct the deficiency. Report uncorrected deficiencies to the proper authority.

e. At-Halt Services. During halts, except those which are part of the stop-and-go collection of refuse and garbage, the operator or crew should make a general check of the equipment and correct or report all deficiencies noticed, in addition to performing the following specific duties:

- (1) *Leaks, general.* Check the hydraulic system for leaks, paying particular attention to hose and fittings. Check for signs of leaks around and underneath the cylinders and the tank and valve assembly.
- (2) *Visual inspection.* Make a visual inspection of the entire body, checking for worn, bent, cracked or broken parts, and for loose or missing bolts, screws, nuts, and pins.

f. After-Operation Services. To make sure that the equipment is ready to operate at all times, the following services must be performed by the operator or crew immediately after an operating period of 8 hours or less. All deficiencies must be corrected or reported to the proper authority.

- (1) *Shutdown precautions.* Shut down the equipment as described in paragraph 18.
- (2) *Clean equipment.* Flush the interior of the body. Clean out all foreign material. Clean all dirt accumulated from the exterior of the body, paying particular attention to gummed grease and foreign material on the moving parts.
- (3) *Lubrication.* Lubricate as required by LO 5-9257.
- (4) *Visual inspection.* Make a visual inspection of the entire body for loose or missing bolts, screws, nuts, and pins, and for damaged or missing parts. Check the hydraulic

system for leaks and for loose, missing, or damaged hose and fittings.

30. Maintenance Precautions

a. Always correct or report mechanical deficiencies that may result in damage to the unit if operation is continued.

b. Do not attempt to close ram by power, as this will be opposed automatically by the safety cam and stop block which will shift the control lever to neutral, preventing descent of the ram.

c. Do not drive over rough ground with the body or tailgate raised.

d. The door must open and close freely and not drag at any point in the track; otherwise the door-lifting parts will be damaged.

e. Do not run packer with any part of the packing control system or levers removed as serious damage will result.

31. Organizational Maintenance

a. Organizational preventive maintenance is performed by organizational maintenance personnel, with the aid of the operator, at weekly and monthly intervals. The weekly interval will be equivalent to 60 hours of use. The monthly interval will be equivalent to 4 weeks, or 240 hours, of use, whichever occurs first.

b. The technical inspection column is provided for the use of personnel performing technical inspection, and constitutes the minimum requirements for the equipment.

c. The preventive maintenance services to be performed at these regular intervals are listed and described below. The numbers appearing in the columns opposite each service refer to a corresponding number appearing on DA Form 464, and indicate that a report of the service should be made at that particular number on the form. These numbers appear in either second, third, or both columns, as an indication of the interval at which the service is to be performed.

Technical inspection	Services	
	Monthly	Weekly
1	1	1
2	2	2

Before-operation services. Check and perform services listed in paragraph 29c.

Lubrication. Inspect the entire unit for missing or damaged lubrication fittings, and for indications of insufficient lubrication. Record the lubrication order number and its

Technical inspection	Services	
	Monthly	Weekly
3	2	2
	3	3
	3	3
4	4	4
	4	4
5	4	4
	5	5
6	6	6
	6	6
7	6	6
	7	7
50	6	6
	50	50
	50	50

date of publication in the spaces provided on Form 464.

Replace missing or damaged fittings.

Tools and equipment. Inspect the condition of all tools and equipment assigned to the unit. See that all tools and equipment assigned to the garbage truck are clean, serviceable, and properly stowed or mounted.

Fire extinguisher. Check carbon tetrachloride type for full charge and secure mounting. See that there are no signs of corrosion. Inspect carbon dioxide (CO₂) type for insecure mounting, kinked or damaged hose, and missing or broken seal. If the seal is missing or broken, the extinguisher should be weighed to determine the amount of charge. The empty and full weights are stamped on the body. Check date of last hydrostatic test stamped on the cylinder, just below the neck. It should not exceed 5 years.

See that all extinguisher deficiencies are corrected or reported to the proper authority.

Publications. See that a copy of this technical manual, LO 5-9257, TB 5-9257-1, and Standard Form 91, are on or with the garbage truck and in serviceable condition.

Appearance. Inspect the general appearance of the garbage truck, paying particular attention to cleanness, legibility of identification markings, and condition of paint.

See that all deficiencies noticed are corrected or reported to the proper authority.

Modifications. See that all available modification work orders applying to this garbage truck have been completed and recorded on DA Form 478 (Organizational Equipment File).

Switches. Check the mountings of the buzzer switches, the solenoid packing switch, the solenoid hoist switch, and the solenoid switch on the dash for loose or missing nuts, bolts, or screws. Check the mountings of the buzzer and solenoid units. Check the switch on the dash for proper operation. Check all visible wiring for breaks, worn or frayed insulation, and loose or corroded connections.

Tighten the mountings of all switches, the buzzer, and the solenoid. Renew all defective wiring. Tighten and clean faulty connec-

Technical inspection	Services		
	Monthly	Weekly	
			tions. Both the buzzer and the solenoid must be wired through the ignition switch. Correct all deficiencies, or report them to the proper authority.
60	60	60	<i>Pump (hydraulic)</i> . Check the level of the fluid in the hydraulic oil supply tank. The level should be between the two marks on the dipstick. Check the pump for secure mounting, correct operation and evidence of leaks. Check all hydraulic lines and hose for wear and loose fittings. Check the filter in the oil supply tank.
	60	60	Tighten loose screws and line connections. Replace damaged lines and fittings. Replace the filter and add oil if necessary. Refer to LO 5-9257.
61	61	61	<i>Hydraulic cylinders</i> . Check the hydraulic cylinder assemblies for loose packing glands, leaks, and worn mountings and connections. Check for loose or missing bolts, screws, and nuts. Inspect mounting pins and bushings for wear. Check for bends or scoring in the piston rod.
	61	61	Correct all oil leaks. Add extra packing rings if necessary. Tighten mounting bolts. Do not tighten the rod nut too much as a slight seepage of oil lubricates the piston rod. Replace pins and bushings as needed. Report damaged pistons to the proper authority.
62	62	62	<i>Levers, linkage</i> . Inspect the lever for the power takeoff, the lever for raising and lowering the body and tailgate, and the lever for controlling loading and packing, for loose mounting or defective operation. Check to see that the levers operate freely and position properly when engaged. Check the linkage between the levers and control valves for missing or damaged parts and for loose or unsatisfactory operation.
	62	62	Tighten all levers and mountings. Replace parts that are unserviceable. Tighten and correct the control valve linkage, replace all defective parts or report them to the proper authority.
71	71	71	<i>Hose, pipes</i> . Inspect all hose and pipes for leaks, loose connections, and loose or missing mounting bolts and clamps. Check hose for excessive deterioration and cracks.

Technical inspection	Services		
	Monthly	Weekly	
	71	71	Tighten all loose pipe and hose connections, mounting bolts, brackets, and clamps. Replace all defective hose and pipes.
72	72	72	<i>Control valves</i> . Inspect the body and tailgate valve, the packing plate valve, and the packing plate holding valve for loose mounting bolts and oil leaks. With the truck engine operating, move the control lever on the body and tailgate valve to the different positions and see whether the truck body and tailgate respond properly. Move the packing plate operating lever into position and see if the packing plate goes through its complete cycle properly.
	72	72	Tighten loose mounting bolts. If body, tailgate, or the packing plate fails to respond properly to controls, or if any of the valves leak, report the deficiency to the proper authority.
80	80	80	<i>Subframe</i> . Inspect body subframe for cracks, breaks, broken welds, and for loose and missing bolts.
	80	80	Tighten or replace all loose or missing bolts. See that cracks, breaks, and broken welds are repaired before further damage results.
108	108	108	<i>Drive shafts and universal joints</i> . Inspect the power takeoff shaft for damage. Check universal joints for wear and see if any companion flange or bearing cap bolts are loose or missing.
	108	108	Tighten or replace loose or missing bolts and nuts. Replace or report worn or damaged parts.
133	133	133	<i>Packer plate mechanism</i> . Check the operation of the packer plate to see that it delivers full force in packing the load into the body, and that the safety rod which prevents the body from being raised when the tailgate is in closed position is not set too tight. Check the packer cylinder cups and the hydraulic pump for indications of wear. Check for indications of broken springs in the safety valves. Check the knockout spring, located in the packer valve inside the top portion of the tailgate under the sheet metal cover back of the tailgate hinge point, for proper operation or for indications of its being broken.

Technical inspection	Services		
	Monthly	Weekly	
	133	133	Correct or report all deficiencies in the packing plate mechanism to the proper authority.
134	134	134	<i>Torque shaft bearings.</i> Check the torque shaft bearings for play.
	134		Adjust the torque shaft bearings if they have more than one-thirty-second of an inch play.
183	183	183	<i>Gear pump.</i> Inspect the hydraulic gear pump for loose or missing bolts and other signs of insecure mounting. Check the gears for wear.
	183	183	Tighten or replace missing mounting bolts. If any damage to gears is noticed, report this deficiency to the proper authority.
184	184	184	<i>Pump shaft and bearings.</i> Check pump shaft for alinement with power takeoff shaft. Inspect coupling and universal joints for looseness, cracks, and breaks.
	184	184	Aline pump with power takeoff shaft if necessary. Tighten coupling if loose, or replace if cracked or broken.
185	185	185	<i>Pump housing.</i> Inspect pump housing for cracks and damage. Check for leaks at flanges and gaskets. Check for loose or missing assembly bolts and nuts.
	185	185	Tighten or replace any loose, missing or broken studs, bolts, and nuts. If tightening of bolts fails to stop leaks at gaskets, report this condition to the proper authority.

Section IV. TROUBLESHOOTING

32. Use of Troubleshooting Section

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the garbage truck body or any of its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause.

Note. All references in this section to paragraphs in chapter 4 (pars. 64 to 79) pertain to operations that are the responsibility of the field and depot maintenance personnel. Organizational maintenance personnel should not proceed without proper authority.

33. Pump Not Delivering Oil

Probable cause
Tank oil level is low.

Possible remedy
Add recommended oil and check oil level.

Probable cause
Oil intake pipe or filter is plugged.

Possible remedy
Check oil intake line to see that it is not obstructed. Clean filter screen.

Air leak in suction line.

Check line for cuts or breaks. Replace if necessary.

Oil viscosity too heavy to pick up prime.

Use oil as recommended for given temperature and service.

Broken pump shaft or gear.

Replace broken part or parts.

34. Pump Not Developing Pressure

Probable cause
Pump not delivering oil because of causes listed in paragraph 33.

Possible remedy
Apply suitable remedy prescribed in paragraph 33. Check oil circulation by watching oil in tank or by removing plug in pressure line near pump.

Relief valve setting is not high enough.

Test pressure as described in paragraph 72.

Relief valve sticking open.

Remove dirt from valve seat.

Relief valve leaking.

Check seat for score marks and re-seat.

Leak in hydraulic control system (cylinders or valves).

Test the system independently by blocking off circuit progressively.

Broken core passages in pump body.

Replace body and check maximum relief valve setting for shock overload condition.

35. Pump Making Noise

Probable cause
Clogged intake line, intake filter or restricted intake pipe.
Small air leak at pump intake piping joints.

Possible remedy
Clean thoroughly to prevent cavitation.
Test by pouring oil on joints while listening for change in sound of operation. Tighten as required.

Relief valve chattering. (Air being drawn into system at pump intake or pump shaft packing.)

Make test as stated above.

Bolts holding small front or rear covers to large cover are loose. Defective gasket in either case.

Tighten bolts. Test gaskets by pouring oil over covers. Replace gaskets if necessary.

Coupling misalignment.

Realign and replace shaft packing.

Restriction pulled into intake (rag or paper).

Remove small and large front cover and remove obstruction.

36. Slow or Jerky Motion in Hydraulic System

Probable cause
Pump not delivering oil.
Pump not developing pressure.

Possible remedy
Refer to paragraph 33.
Refer to paragraph 34.

37. Tailgate Will Not Remain Open

<i>Probable cause</i>	<i>Possible remedy</i>
Oil bypassing the valve plunger due to wear of the valve plunger or damaged lands in the valve housing.	Replace the valve.
Leak in lines.	Tighten all joints and correct leaks.
Dirt or foreign matter lodged between check valve and plunger.	Disassemble, clean, and reassemble the cylinder. Clean the entire system to prevent recurrence.
Scored check valve plunger or seat.	Reseat the damaged parts. If the check valve plunger is badly scored, it must be replaced.

38. Body Will Not Remain Raised

<i>Probable cause</i>	<i>Possible remedy</i>
Oil bypassing the valve plunger due to wear of the valve plunger or damaged lands in the valve housing.	Replace the valve.
Leak in lines.	Correct leaks by tightening all connections.
Dirt or foreign matter lodged between check valve and plunger.	Disassemble, clean, and reassemble the cylinder. Clean the entire system to prevent recurrence.
Scored check valve plunger or seat.	Reseat the damaged parts. If the check valve plunger is badly scored, it must be replaced.

39. Charging Door Does Not Close

<i>Probable cause</i>	<i>Possible remedy</i>
Lack of lubrication.	See that the bearings and center hinge are well lubricated and move freely.
Obstruction in roller tracks.	Check the clearance of the door rollers in the track. If track is bent, the rollers will bind. Remove obstructions.
Failure of release hook.	See that the release hook releases door when release handle is pulled back.
Shock absorber failure.	Check adjustment of shock absorber. If stiff from cold weather, or set up too tight, it will not allow the door to close. See lubrication instruction for proper hydraulic fluid.
Overloaded body.	If the body is fully loaded or the packing plate has not been run all the way in, the door will not close. Operate packing plate, removing excess refuse if necessary.

40. Charging Door Does Not Open

<i>Probable cause</i>	<i>Possible remedy</i>
Hopper is overloaded.	Load only up to proper height.
Door opening cam is not engaged by roller during the packing cycle.	Remove the top sheet on the tailgate and watch the left hand packer plate guide roller during the latter part of the packing cycle. The roller should engage the door opening cam and pull the door open far enough to engage the door release hook.
Door release hook is not engaged.	If the door is not lifted far enough to engaged door release hook, shorten the door lift rod by turning the nut at the adjustable yoke a turn at a time until the door roller travels up past the release hook about $\frac{3}{4}$ inch.
Broken shear bolt.	Replace the bolt.
Door opening cam may be bent.	The door opening cam should lay flat against the left hand side inside the unit and have about $\frac{1}{8}$ inch clearance. If clearance is more than $\frac{1}{4}$ inch, remove, straighten, or replace.

41. Packing Plate Drops

<i>Probable cause</i>	<i>Possible remedy</i>
Not enough oil in hydraulic oil tank.	Insufficient oil in oil tank is the most likely cause of the failure of the cylinder and valve to hold the packer plate while it travels out over the load. Check the oil level in tank. If too low, air will get into the packing plate holding cylinder. Add oil if necessary.
Spring failure in packing plate holding valve.	Replace with a new spring or add washers to restore tension. Never add more than $\frac{1}{8}$ inch thickness of washers or serious damage to tailgate will result. After installing a new spring or washers, test valve. Refer to paragraph 73b.
Worn valve plunger.	Replace with a new valve plunger (par. 73b).
Worn piston cups.	Replace the piston cups.
Restriction valve spring failure.	Replace with new spring or add up to $\frac{3}{16}$ inch in thickness of washers.
Plunger under light spring in packing plate holding cylinder valve may be stuck open or spring may be too weak.	Remove and polish plunger with fine emery paper about 260 grit or finer. If the spring is weak, add up to $\frac{1}{8}$ inch thickness of washers.

Section V. BODY AND TAILGATE

42. Body

a. General. The truck body (4, fig. 1) is a steel shell and under ordinary conditions will require no maintenance other than regular cleaning and painting.

b. Cleaning. A regular and thorough washing and cleaning of the body is especially important because of the nature of the material being carried. Wet garbage and refuse sticks to the body sides and must be scraped and washed off at the end of each operating period. The material being collected may contain chemicals and residues which may develop various harmful acids. These acids will cause rust, corrosion, and other damage to the metal body.

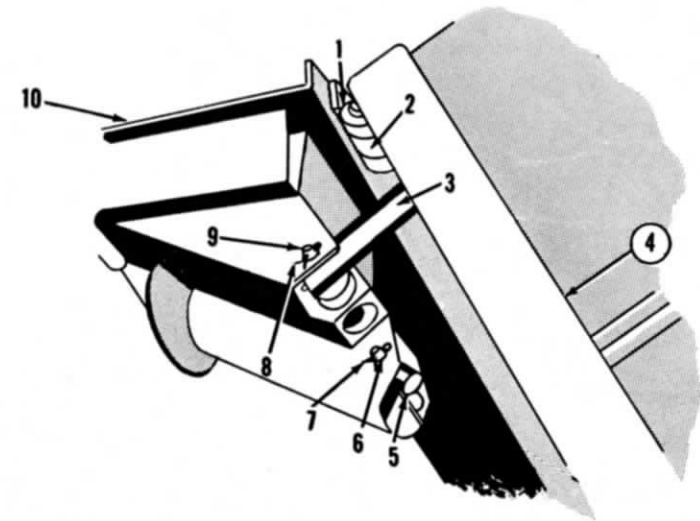
c. Inspection. Regular inspections are indispensable after each cleaning to discover and remove minor faults such as rust, dents, or other damage, which, if left uncorrected, may eventually require major repairs.

43. Tailgate

a. General. The tailgate (3, fig. 1) is a hinged closure which covers the entire back of the garbage truck. It holds the packing plate with its cylinders and valves, the charging door, and control and linkage mechanisms. The tailgate swings open on its top hinges to permit the dumping of the load when the body is raised. The tailgate is raised by the action of two double-acting cylinders located in the upper corners of the tailgate. A safety mechanism prevents the raising of the body unless the tailgate is in the wide-open position.

b. Removal.

- (1) Loosen the clamps (6, fig. 2) on the sides of tailgate and hook over pins on side of the body.
- (2) Disconnect the hydraulic lines between the tailgate and the truck body. Stuff a clean rag in both open ends of hydraulic lines to keep dust and dirt out of the system.
- (3) Disconnect piston rods on tailgate lift cylinders by pushing out cotter pin (8, fig. 9) on the piston rod front pivot pin (9) and removing pivot pin.
- (4) Attach cable to the angle braces and horizontal hand hold on each side of the tailgate.
- (5) Open the hinges on top of the tailgate by unscrewing setscrews which will release the tailgate hinge pins (1). Push hinge pins out of hinges.



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- | | |
|--------------------------|-------------------|
| 1 Tailgate hinge pin | 6 Upper pivot pin |
| 2 Tailgate hinge | 7 Cotter pin |
| 3 Door lift cylinder | 8 Cotter pin |
| 4 Tailgate | 9 Front pivot pin |
| 5 Packing plate cylinder | 10 Body |

Figure 9. Packing and tailgate cylinders.

- (6) Lift tailgate up slightly using A-frame, crane, or other lifting device. Set tailgate on ground with charging door side upward.

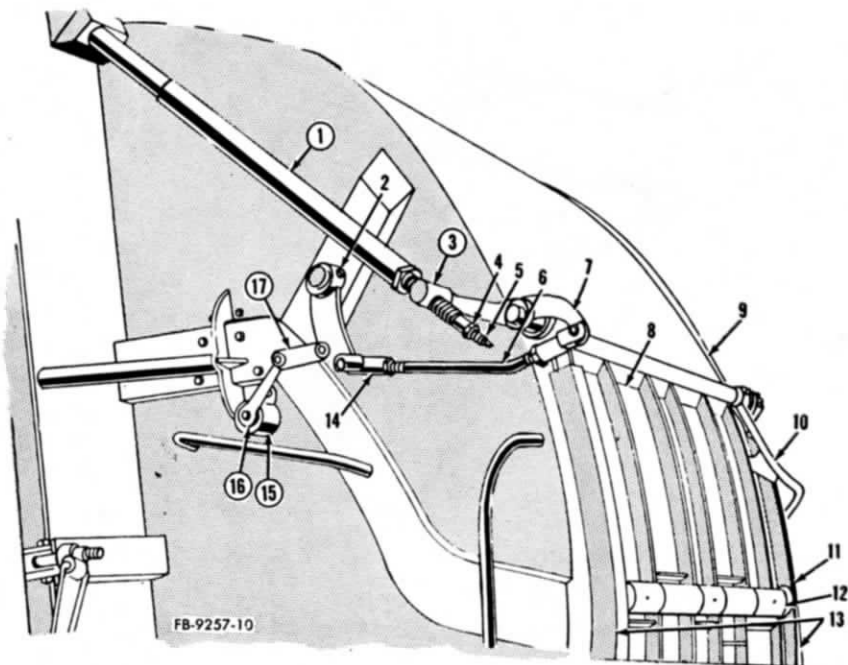
c. Cleaning and Inspection. Clean the tailgate with water, using hose, soap, or other approved cleaning preparation, and brush if necessary. Wipe dirt, water, and excess oil from the tailgate linkage, packing control lever, and other mechanical parts attached to the tailgate. Inspect for dents and badly worn or rusted spots on the tailgate body. Repaint if necessary.

d. Installation. To install the tailgate on the truck, lift it into position with A-frame, crane, or other lifting device, and connect hinges, piston rods, and hydraulic lines.

Section VI. CHARGING DOOR AND LINKAGE

44. Charging Door

a. General. The charging door consists of two steel plates slightly curved and reinforced on the outside with steel ribs. The top charging door plate (8, fig. 10) is welded to the top charging



- | | |
|-----------------------------|-------------------------------|
| 1 Spring tube | 9 Top charging door weldment |
| 2 Door opening cam weldment | 10 Door release handle |
| 3 Overhung pivot | 11 Door hinge bolt |
| 4 Hex nut | 12 Bottom charging door plate |
| 5 Spring compressing tool | 13 Tracks |
| 6 Door lift rod | 14 Adjustable yoke |
| 7 Spring lever | 15 Shock absorber |
| 8 Top charging door plate | 16 Nut |
| 17 Shock absorber link | |

Figure 10. Charging door and balance mechanism.

door weldment (9). The bottom of the upper plate is hinged to the bottom charging door plate (12). The bottom plate is equipped with two rollers riding in tracks (13), one on each side of the charging door.

b. Removal.

- (1) Remove the two steel guard strips bolted across the two round holes midway in the charging door tracks.
- (2) Fold the door inward until the rollers on the bottom weldment are in line with the holes.
- (3) Loosen the setscrews holding the roller assembly shafts to the bottom charging door weldment, and remove the shafts through the holes in the tracks.
- (4) Return the door to closed position.
- (5) Remove the door hinge bolt (11), nut, and lockwasher holding the hinge tube to the outer, right-hand segment

of the center hinge. The nut is located inside the tube, and can be reached through the opening in the track.

- (6) Push the tube out through either of the holes in the track, and remove the bottom half of the door.
- (7) Detach the upper half of the charging door from the charging door frame and lift the upper half of the door out of the tailgate.

c. *Inspection.* Clean the charging door with water and proper cleaning solution. Inspect for dents and badly worn or rusted spots. Repaint the charging door while it is disconnected from the tailgate.

d. Installation.

- (1) Connect top charging door weldment (9) to the hinges of the tailgate, first making sure that bearings and bushings are clean and properly lubricated.
- (2) Place the lower half of the door so its hinges match the hinges on the upper half, and slide the hinge tube in place. Make sure the fastening hole in the tube is aligned with the hole in the outer, right-hand hinge segment.
- (3) Install and tighten the bolt, nut, and lockwasher holding the tube to the hinge. The nut and lockwasher must be inserted in the hinge tube through the opening in the right-hand track.
- (4) Fold the door inward until the bottom weldment of the lower half of the door is in line with the two holes in the tracks.
- (5) Aline the rollers with the weldment, and insert the shafts through the holes in the tracks.
- (6) Make sure the shafts clear the outer edge of the tracks, and tighten the setscrews.
- (7) Install the metal strips across the openings in the tracks.
- (8) After the door is installed, start the packing operation to see that the door functions properly.

45. Charging Door Linkage

a. *Charging Door Balance.* The charging door is counter balanced by a heavy spring enclosed in a tube (1, fig. 10) on the left side of the body. When the door is closed the spring lever (7) turns with the door shaft and compresses the spring. The shock absorber (15) retards movement so the door does not drop too fast. Speed at which the door closes can be controlled by turning an adjusting nut (16) on the shock absorber. Turning the adjust-

ing nut in a clockwise direction will cause the door to close more slowly; turning it in the opposite direction will make it close faster. Seasonal adjustment will be found necessary.

b. Removal. The various parts of the linkage which cause the charging door to operate may be removed by unscrewing or unbolting the appropriate part. Removal and disassembly of the spring tube assembly requires a specific method as outlined in *e* below.

c. Inspection. See that all moving parts are properly lubricated at bearings and wear points. Inspect the various parts of the linkage for cracks, wear, and freedom of travel. Clean leaking or dripping lubricants from the linkage components.

d. Installation. In installing replacement parts in the linkage, make sure the parts are clean and free from dirt. Use proper lubricant at wear points, bushings, and bearings.

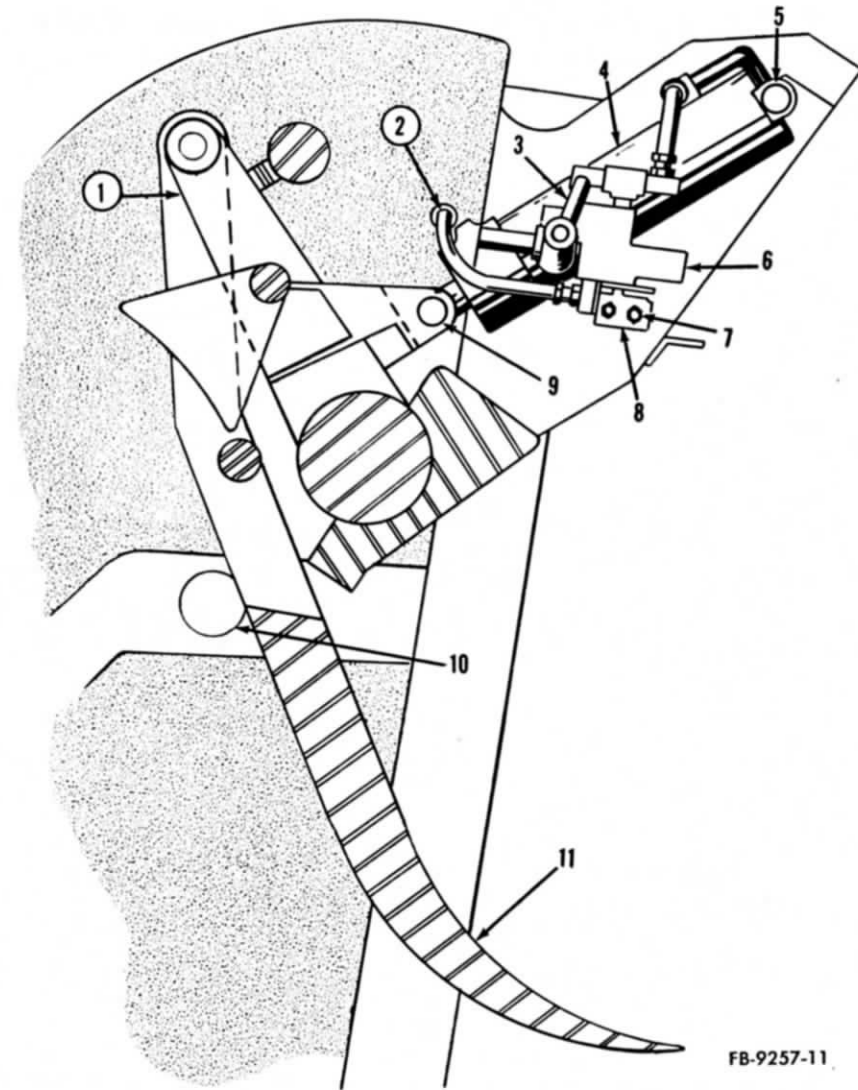
e. Removing Spring Tube Assembly. The instruction given below for removing spring tube assembly must be followed exactly to avoid possible personal injury. The balance spring is held under tension at all times and if the tube is not taken apart as directed, the spring can shoot out with great force. A special tool (5) must be used.

- (1) The small end of the tool is inserted into the spring tube. Push the tool all the way in, then with a wrench on the square end, tighten tool into the base of the tube. Hold the base end of the tube against turning and be sure that the tool is screwed in tight.
- (2) Turn the nut on the outer end of the tool down to the head end of the spring tube. This will keep the spring from shooting out.
- (3) Remove the overhung pivot (3).
- (4) Back the nut (4) off the tool, allowing the spring to push the head tube outward until all spring tension is relieved. Slip off the spring tube or screw the tool out of the tube.
- (5) When putting the parts together again, use the nut on the tool to compress the spring, put the tube assembly on the unit, and screw on pivot. The tool can be removed after this.

Section VII. PACKING PLATE ASSEMBLY

46. Maintenance of Packing Plate

a. General. The packing plate (11, fig. 11) when actuated by the packing plate pistons moves out over the load, and dropping



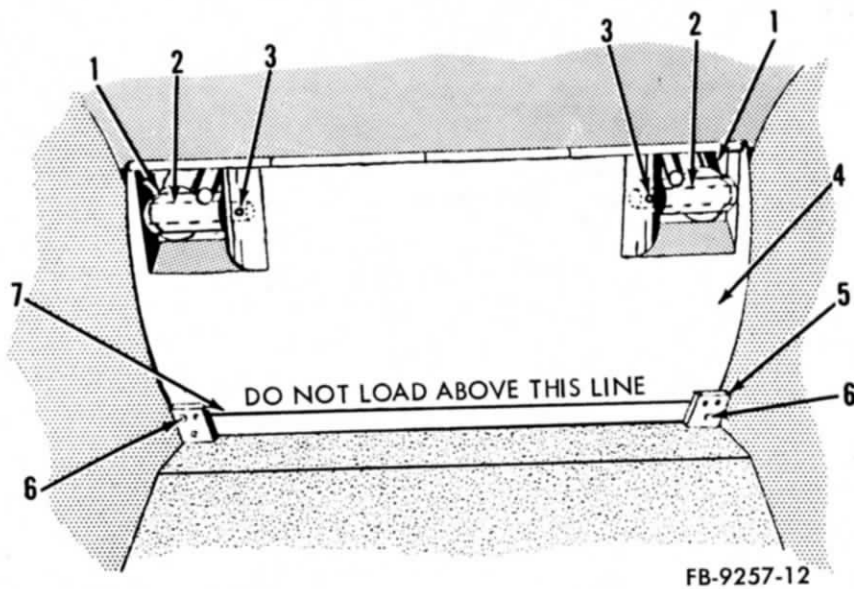
- | | |
|---------------------------|--------------------------|
| 1 Equalizer arms assembly | 6 Cylinder holding valve |
| 2 Flexible tubing | 7 Cap screw |
| 3 Flexible tubing | 8 Valve mounting bracket |
| 4 Holding cylinder | 9 Lower pivot pin |
| 5 Upper pivot pin | 10 Roller socket |
| | 11 Packing plate |

Figure 11. Packing plate holding cylinder and valve.

downward scoops up material and moves it forward into the body. A holding cylinder (4) on the left side of the body operates in conjunction with the two packing cylinders.

b. Removal.

- (1) Disconnect the packing plate cylinder pistons (1, fig. 12) by removing the pivot pins (2).
- (2) Remove the roller socket assemblies by unbolting them from the packing plate (4).
- (3) Disconnect the equalizer arms assembly (1, fig. 11).
- (4) Slide the packing plate to the bottom of the charging hopper, and after attaching a cable to it, pull it out of the tailgate.



- | | |
|---------------------------------|---------------------|
| 1 Packing plate cylinder piston | 4 Packing plate |
| 2 Lower pivot pin | 5 Corner slide shoe |
| 3 Cap screw | 6 Cap screw |
| 7 Packing plate blade | |

Figure 12. Packing plate cylinders.

c. Inspection. Clean the packing plate with water, using hose and scrubbing brush if necessary. Inspect the plate for dents, and badly worn or rusted spots. Repaint the plate while it is still disassembled from the tailgate.

d. Installation.

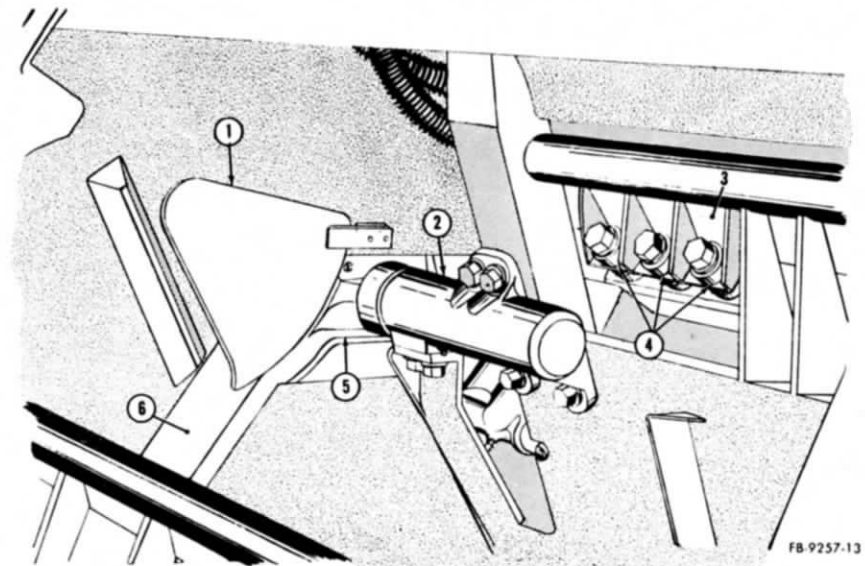
- (1) Using A-frame, crane, or other lifting device, lift the packing plate into the tailgate by having cable run

through the opening made at the top of the tailgate and truck body when the tailgate is raised.

- (2) Attach equalizer arm assembly (1, fig. 11).
- (3) Attach the roller socket assemblies to the packing plate.
- (4) Connect pistons of the packing plate cylinder (1, fig. 12) by attaching the lower pivot pins (2).

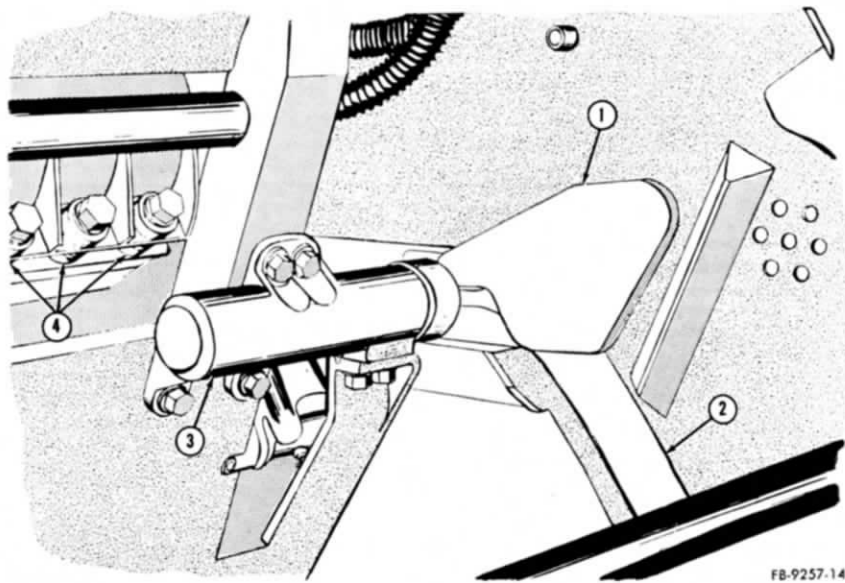
47. Packing Plate Guide Rollers

a. General. Rollers are attached to the packing plate to guide the plate through a packing cycle by following tracks in the sides of the tailgate and hopper. These rollers must be free to travel within the tracks. During the first part of the packing operation, the rollers are held in a retracted position by the door opening cam (1, fig. 13) and track latch (1, fig. 14). When the packing plate reaches the bottom of its stroke, the rollers are forced into the tracks by springs located inside the roller socket assemblies (2, fig. 13) and (3, fig. 14). During the packing stroke the rollers follow the tracks (6, fig. 13) and (2, fig. 14) until they strike the wedge shaped track risers which pushes them inward against the springs in the roller sockets. When the packer plate has finished its packing cycle, a track latch (1, fig. 14) on the right side falls behind the right hand roller, preventing it from engaging the



- | | |
|--------------------------|---------------|
| 1 Door opening cam | 4 Washer |
| 2 Roller socket assembly | 5 Track riser |
| 3 Bearing cap | 6 Track |

Figure 13. Left packing plate mechanism.



- | | | | |
|---|-------------|---|------------------------|
| 1 | Track latch | 3 | Roller socket assembly |
| 2 | Track | 4 | Washer |

Figure 14. Right packing plate mechanism.

track upon starting the next packing cycle. When the charging door is closed, the door opening cam (1, fig. 13) falls in front of the left hand roller and prevents it from engaging the track as it passes over the track.

b. Removal. To remove the guide rollers back off the four bolts which hold each roller to the packing plate, and the two bolts which hold it to the mounting bracket attached to the packing plate.

c. Inspection. Clean the rollers with an approved cleaning solvent and inspect the roller assembly body for cracks and the rollers for uneven wear. Check bearing inside of roller for wear. Check the oil seal for leaks and the roller shaft for uneven wear. Replace all unserviceable parts.

d. Installation. Lubricate the roller assembly and install it on the packer plate by bolting with the six bolts.

e. Torque Shaft Bearings. The torque shaft bearings will have to be adjusted when they have worn to such extent that they have more than $\frac{1}{32}$ -inch play. Adjust the bearings by removing the shim washers (4, fig. 13) under the bearing flanges.

48. Track Latch and Door Opening Cam

a. General. The track latch (1, fig. 14) and the door opening cam (1, fig. 13) control the operation of the packing plate. Both

should work freely and be as close to the sides of the unit as possible without binding.

b. Removal. The door opening cam (1, fig. 13) is attached to the door opening linkage and will have to be disengaged from it by removing the shock absorber link (17, fig. 10) and the door lift clevis or adjustable yoke (14) before it can be removed from inside the tailgate. The shock absorber link and the door lift clevis will also have to be disconnected before the cam can be checked for free travel or bind. The track latch cam may be removed by backing off the bolt holding it to the tailgate side.

c. Inspection. Clean the two cams with an approved solvent. Lay the cams on a flat surface and check for straightness. Failure of either the door opening cam or the track latch cam to hold the rollers from engaging the tracks as the packing plate starts back over the load may be traced to bent or broken cams. When mounted on the tailgate side, the door opening cam should lay flat against the side and have about $\frac{1}{8}$ -inch clearance. If the clearance is more than $\frac{1}{4}$ inch, remove and straighten, or replace the cam.

d. Installation. The two cams are attached to the tailgate body with one bolt on which they pivot. The track latch cam is lubricated through a fitting in the pivot bolt. The door opening cam is lubricated through the door opening cam weldment (2).

Section VIII. HYDRAULIC PUMP AND OIL TANK

49. Hydraulic Pump

a. General. The hydraulic pump furnishes the pressure to the hydraulic system. It is attached to the body subframe by a pipe and flange mounting bolts and nuts.

b. Removal.

- (1) Disconnect the inlet and outlet pipes at the two unions.
- (2) Disconnect the pump from the power-takeoff shaft by loosening setscrew in yoke of the universal joint nearest to the pump. This will release the key in the yoke, permitting the shaft of the long shaft gear to be slipped out when the pump is unbolted from mounting.
- (3) Back off the bolts holding pump to mounting and remove the pump.

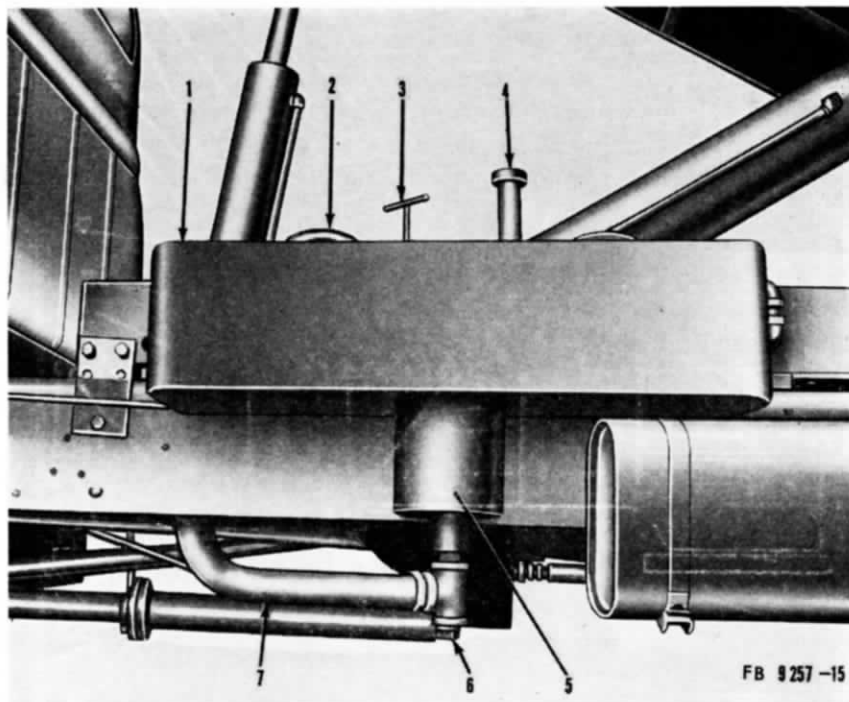
c. Inspection. Clean pump with an approved solvent. Inspect for cracks in the pump body, inspect the gaskets between the small

and large side covers, and between large covers and pump body for leaks. If there is evidence of leakage, tighten bolts on pump body and covers. Stop leakage around shaft by loosening locknut, tightening packing gland, and tightening locknut.

d. Installation. To install the pump, place the key into the keyway of the long shaft gear, and insert end with key into yoke of universal joint. Position the pump over the bolt holes, and insert and tighten the bolts. Tighten setscrew over key in keyway. Connect the inlet and outlet pipes at the two unions.

50. Oil Tank

a. General. The oil supply tank (1, fig. 15) acts as a reservoir for the oil in the hydraulic system. It also contains a filter which removes foreign matter as the oil flows through the tank into the various pistons and valves. The tank is mounted to the left of the body subframe with four bolts and nuts. The tank is equipped with an oil measuring stick (3) and a magnetic pipe plug (C).



- | | |
|-------------------|----------------------|
| 1 Oil supply tank | 4 Vent cap |
| 2 Flexible tubing | 5 Filter body |
| 3 Oil stick | 6 Magnetic pipe plug |
| 7 Flexible tubing | |

Figure 15. Oil supply tank.

The plug is in an elbow of the outlet pipe under the tank. It attracts and holds on to metal particles which may get into the oil. The tank is drained by the opening of this outlet.

b. Removal. To remove tank from subframe disconnect the inlet and outlet lines and back off and remove the 4 bolts holding the tank to the subframe.

c. Inspection. Examine the tank for cracks and bad dents, after cleaning it with an approved solvent.

d. Installation. Install the tank on the body subframe by bolting it with the four bolts. Connect the inlet and outlet lines.

e. Filter Screen. The filter screen unit in the oil supply tank should be removed and cleaned periodically. To remove screen:

- (1) Remove the six cap screws holding the small rectangular cover to the top of the tank. Lift cover off completely with measuring stick and filler pipe.
- (2) Drain the oil from the tank by removing the magnetic pipe plug (6, fig. 15). Lift out the screen unit and wash it in an approved solvent or cleaning solution.
- (3) While cover is off, inspect the inside of the tank, clean any residue on walls and sides of tank and flush with an approved solvent.
- (4) Install the pipe plug and filter screen. Place the cover on the tank and install and tighten the six cap screws with lockwashers. Fill the tank with the proper grade of hydraulic oil. Refer to LO 5-9257.

Section IX. HYDRAULIC LINES AND PISTONS

51. Hydraulic Lines

a. General. Oil under pressure is delivered to the pistons through rigid pipes attached to the body subframe and through flexible tubing connecting the pipes to the various components of the hydraulic system.

b. Removal. All tubing can be removed by loosening and disconnecting threaded metal couplings at the joints.

c. Inspection. Clean tubing with an approved cleaner. Wipe dry. Inspect tubing for cracks, leaks, and worn or frayed spots. Replace all defective tubing.

d. Installation. All flexible tubing is connected to other hydraulic system components with couplings. Be sure coupling threads are started properly before tightening with wrench.

52. Packing Plate Pistons

a. General. The two packing plate pistons are located in the upper ends of the packing plate and are held in place between the packing plate and the tailgate by pivot pins through end of piston rods and bottom of cylinders.

b. Removal. The packing plate pistons are removed by taking out the cotter pins on the two pivot pins on each piston cylinder and piston rod, and pushing the pivot pins out carefully. Disconnect the two hydraulic lines before removing pivot pins. Tape up or otherwise protect the openings in the cylinder and lines to prevent entry of dirt.

c. Inspection.

- (1) Before cleaning cylinder with an approved solvent, check for leaks around packing gland. A seeping packing gland shows that the packing has been worn slightly and should be tightened. Leaking of the packing gland indicates that the packing assembly is worn out and must be replaced. Report leakage to the proper authority.
- (2) Clean the piston rod and inspect its surface for scratches. Slight scratches on the surface indicates grit wear. Deep scratches indicate that either there is an excessive amount of dirt in the packing, or there is a slight misalignment between the cylinder end and the piston rod end. Notify the proper authority if any scratches are noticed.
- (3) See that the action of the piston rod is in a straight-line motion. Any misalignment between the cylinder and piston will bind the piston causing rapid wear of the packing, packing gland, piston packing and rod, and tend to break the weld on the cylinder tube assembly. This welded joint is designed to hold hydraulic pressure, and should not be called upon to hold any bending action due to misalignment of the cylinder and components. Notify the proper authority of any misalignment of the piston rod and cylinder.

d. Installation. To install the packing plate piston cylinders, fit eye at bottom of cylinder into mounting, insert lower pivot pin, and secure with cotter pin. Be sure the pins and eyes are clean and free of dirt and other foreign matter before attaching cylinder. Repeat procedure on piston rod end. Connect the two hydraulic lines on each cylinder, making sure no dirt or foreign matter is caught in threaded openings of piston or on threads of the hy-

draulic tubing couplings. Lubricate the joints on each cylinder through the two grease fittings.

53. Packing Plate Holding Cylinder and Valve

a. General. The purpose of the packing plate holding cylinder (4, fig. 11) and valve (6) is to hold the packing plate from falling while it travels back over the load in the hopper. The cylinder and valve are attached to the tailgate. The piston rod is attached with a pivot pin to the equalizer arms assembly (1) of the packing plate.

b. Removal. With the packing plate in the closed packing position, remove the holding cylinder by disconnecting the hydraulic lines, and removing the two pivot pins which hold the cylinder at the base and the piston rod at the end. The valve may be removed by disconnecting the hydraulic lines and unbolting it from the mounting bracket to which it is secured by two cap screws.

c. Inspection. Refer to paragraph 52c for inspection instructions on cylinder. Inspect the holding cylinder valve for cracks and evidence of damage to its outside. Report all deficiencies to the proper authority.

d. Installation. To install the packing plate holding cylinder, position it in place, insert the pivot pins through the bushings in the cylinder base and piston rod end, and secure with cotter pins. To replace the holding cylinder valve, mount it on the bracket provided, and attach with two cap screws. Connect the hydraulic lines to cylinder and valve.

54. Tailgate Cylinders

a. General. The tailgate cylinders are located in the upper rear corners of the body and are held in place between the body and tailgate by pivot pins through end of piston rods and bottom of cylinders.

b. Removal.

- (1) Disconnect the hydraulic lines.
- (2) Remove the cotter pins from both pivot pins and push out the pivot pins.
- (3) Tape up or otherwise protect the openings in the piston cylinder and the lines to prevent entry of dirt or other foreign matter.

c. Inspection. See paragraph 52c for inspection instructions.

d. Installation.

- (1) Fit eye at bottom of cylinder mounting inside of body, insert pivot pin, and secure with cotter pin.
- (2) Attach end of piston rod to tailgate mounting in the same manner.
- (3) Connect the two hydraulic lines, making sure no dirt or foreign matter is caught on the screw threads.
- (4) Lubricate the pivot joints through the two grease fittings.

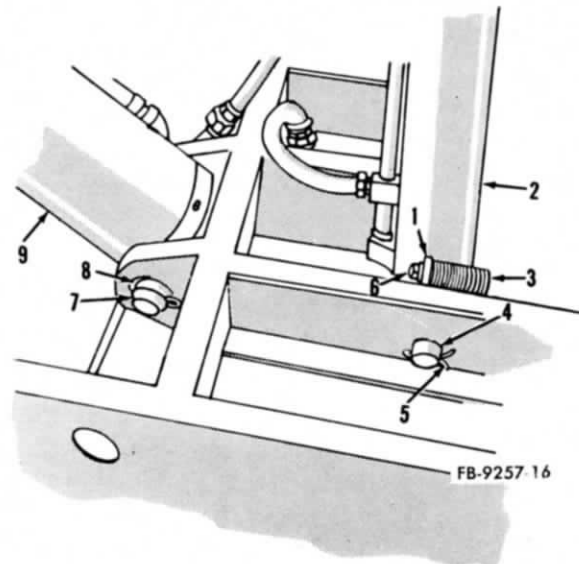
55. Body Hoist Cylinder

a. General. The body hoist cylinder is in the main hoisting cylinder. The base of the cylinder is mounted to the center of the body subframe by a pivot pin (7, fig. 16). The top of the cylinder rod is similarly attached to the garbage body.

b. Removal. The body hoist cylinder can be removed by disconnecting the two hydraulic lines, taking cotter pins (1, fig. 17) out of the piston rod pins (3) and the pivot pin (7, fig. 16), and pushing the pins out of the bracket bushings.

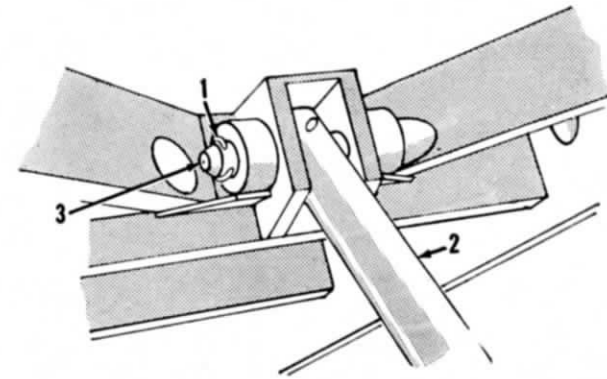
c. Inspection. See paragraph 52 for inspection instructions.

d. Installation. To install the main hoisting cylinder, proceed as follows:



- | | |
|--------------------------------|-----------------|
| 1 Washer | 5 Cotter pin |
| 2 Auxiliary hoist cylinder | 6 Hex head bolt |
| 3 Compression spring | 7 Pivot pin |
| 4 Pivot pin | 8 Cotter pin |
| 9 Main hoist cylinder assembly | |

Figure 16. Body and auxiliary hoist cylinders.



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- | | | |
|--------------|------------------|--------------|
| 1 Cotter pin | 3 Piston rod pin | 2 Piston rod |
|--------------|------------------|--------------|

Figure 17. Body hoist piston rod connection.

- (1) Hold bottom of cylinder in place at mounting bracket in subframe, insert pivot pin (7, fig. 16) and secure with cotter pin (8).
- (2) Connect the piston rod to the body.
- (3) Connect the two hydraulic lines, making sure no dirt or foreign matter is caught on the screw threads.
- (4) Lubricate the pivot joints through the two grease fittings.

56. Auxiliary Hoist Cylinder

a. General. The auxiliary hoist cylinder (2, fig. 16) is a single-acting cylinder used to assist the main hoist cylinder to lift the body during dumping operation. The base of the cylinder is mounted on a pivot pin (4). The top of the piston rod is not attached to any part of the truck or body.

b. Removal.

- (1) Disconnect the hydraulic line to the cylinder.
- (2) Disconnect the hex head bolt (6) and remove the compression spring (3) from the base of the cylinder.
- (3) Disconnect the cylinder by pushing out the pivot pin (4).

c. Inspection. See paragraph 52c for inspection instructions.

d. Installation.

- (1) Place end of cylinder in subframe mounting and insert the pivot pin. Secure pivot pin with cotter pin.
- (2) Install the compression spring in its position, push the bolt through spring, and tighten the hex head bolt with nut.

- (3) Connect the hydraulic line.
- (4) Lubricate pivot joint. As instructed in the current lubrication order.

Section X. VALVES AND LEVERS

57. Packing Plate Valve

a. General. The packing plate operating valve is located in the tailgate. It is a complex device which automatically controls the packing cycle once the packing plate control lever (2, fig. 7) has been actuated.

b. Removal. The packing plate valve may be removed by disconnecting the hydraulic lines attached to it, and by removing the cap screws which hold it to the tailgate.

c. Inspection. Clean the packing plate valve with an approved cleaning solvent and inspect for cracks and surface damage.

d. Installation. To install the packing plate valve, position it over the mounting holes, install and tighten the four cap screws with lockwashers, and reconnect the hydraulic lines.

58. Body and Tailgate Operating Valve

a. General. The body and tailgate operating valve is attached to the right side of the body subframe. The valve controls the flow of oil to the two body hoist cylinders, and to the two tailgate cylinders.

b. Removal. The body and tailgate operating valve can be removed from the body subframe by backing off and removing the mounting bolts and nuts. Disconnect the hydraulic lines, and remove the control lever before unbolting the valve. Disconnect the electric wiring from the solenoid control mounted on top of the valve.

c. Inspection. Clean the valve with an approved cleaning solvent. Inspect it for cracks and surface damage. Check the valve components to see that they are bolted together tightly, and that the pins and slides move freely. Report all deficiencies to the proper authority.

d. Installation. To install the body and tailgate hoist valve, position it over the holes in the body subframe, and install and tighten the bolts with lockwashers. Connect the hydraulic lines. Insert and secure the control lever. Connect the electric wires to the solenoid control.

59. Restriction Valve

a. General. The restriction valve is located on the left side of the body subframe. This valve exerts back pressure on the packing plate holding cylinders, and keeps it filled with oil.

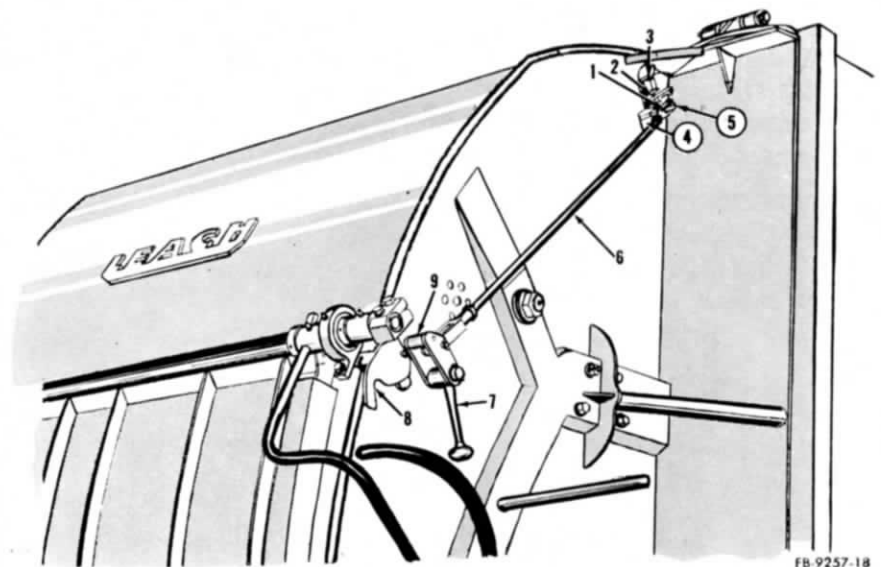
b. Removal. To remove this valve, disconnect the two hydraulic lines at the nearest connections.

c. Inspection. Clean with an approved cleaning solvent and examine the outside of the valve for cracks and other surface damage. Report all deficiencies to the proper authority.

d. Installation. To install restriction valve, connect it to the hydraulic line from which it was removed.

60. Packing Plate Operating Lever

a. Removal. The packing plate operating lever (7, fig. 18) is part of the packing control assembly which includes an operating rod assembly (6) connecting the lever to a quadrant weldment (5) in the upper part of the tailgate. The entire lever assembly may be removed by backing off and removing the mounting bolts and nuts, and removing cotter pins and attaching pins.



- | | |
|-----------------------------|---------------------------------|
| 1 Adjustable yoke | 5 Quadrant weldment |
| 2 Roller arm rest | 6 Operating rod assembly |
| 3 Bolting strap | 7 Packing plate operating lever |
| 4 Quadrant support weldment | 8 Safety plate weldment |
| 9 Roller | |

Figure 18. Packing plate controls.

b. Inspection. Check the rod assembly to see that it is not bent, and that the joints at the adjustable yoke (1), roller (9), and quadrant weldment (5) are free to move.

c. Installation. The operating lever and lever assembly can be installed on the tailgate by connecting the components and bolting them to the tailgate.

61. Body and Tailgate Operating Lever

a. Removal.

- (1) Back off and remove the two cap screws holding the lever bearing block to the subframe extension in front of the body and tailgate valve.
- (2) Remove the bearing block.
- (3) Disconnect the two valve selector weldments from the links by removing the cotter pins and the yoke pins. This will free the operating lever at this point.
- (4) Back off and remove the setscrew on the hoist lever knob on the end of the lever.
- (5) The lever can then be removed by pushing the upright end of the lever through the bearing hole in the body subframe. The horizontal end of the lever, with its attached selector weldments must be lifted up slightly to clear the two welded uprights attached to the subframe extension.

b. Inspection. Inspect the lever for undue wear at the bearing points.

c. Installation.

- (1) Push lever through the opening in the body subframe from inside of truck frame, and attach lever knob to upright end with socket setscrew.
- (2) Position lever over welded uprights, insert bearing block over horizontal end, and attach block to the body subframe extension.
- (3) Attach the two selector weldments with yoke pins and cotter pins.

Section XI. ELECTRICAL SYSTEM

62. Solenoid Control

a. General. The solenoid control system consists of a solenoid, two solenoid switches, a relay, a dashboard switch, and wiring.

b. Removal. The solenoid, solenoid switches, and other parts of the system can be removed by removing the mounting screws which hold them to the truck chassis or garbage body.

c. Inspection.

- (1) See that the solenoid and the switches are free of dirt, grease or oil, and other foreign matter.
- (2) If a solenoid fails to operate, check the switches one at a time for shorts or open circuits. Put a wire or screwdriver across the switch terminal to bypass the switch. If the switch operates with the terminals shorted it is defective and must be replaced with a new one.
- (3) Check the switch operating lever mounted on the quadrant weldment (5, fig. 18) at top of the tailgate, to see that it operates the switch when the operating lever is moved.
- (4) Check the hoisting solenoid switch, located on top of the hoist valve in the same manner. This switch operates only when the tailgate or body is raised.
- (5) Check all wiring. Replace all connecting wires which are frayed or have broken insulation.

d. Installation. The various components of the solenoid control are attached to the body by mounting screws. The wires are taped to the truck chassis and garbage body subframe or attached with mounting clips. In attaching the switches and solenoid units, use lockwashers. Make sure that components which are meant to be grounded have a clean contact with the truck chassis or garbage truck body or subframe.

63. Signal System

a. Removal. The two push buttons on the tailgate and the buzzer in the driver's cab are secured with screws. To remove these parts take out screws.

b. Inspection. Inspect wiring. Replace all wires which are frayed or have broken insulation. Tighten all connections.

c. Installation. The buzzer and pushbuttons are screwed to the truck chassis and garbage body. Make sure the pushbuttons are properly grounded.

CHAPTER 4

FIELD AND DEPOT MAINTENANCE

Section I. INTRODUCTION

64. General

Instructions in this chapter are published for the use of maintenance personnel responsible for third and higher echelons of maintenance of the Leach Model 15 cubic yard load packer garbage truck. They contain information on maintenance which is beyond the scope of the tools, equipment, or supplies normally available to using organizations. No specially designed tools or equipment are required for maintenance by field and depot personnel.

65. Procedure

Complete disassembly, repair, and reassembly of each major unit or system comprising the garbage truck is described in paragraphs 66 through 79. Before proceeding with overhaul, check to see that replacement parts are available.

Section II. PACKING PLATE ASSEMBLY

66. Description

The packing plate assembly consists of the packing plate which is a one-piece reinforced and welded unit, two hydraulic cylinders, a packing plate valve, a packing plate holding cylinder, a packing plate holding cylinder valve, and a packing plate lever.

67. Packing Plate Pistons

a. General. Action of the two double-acting packing plate pistons is controlled through the packing plate valve.

b. Removal. The removal of the packing plate pistons is described in paragraph 52.

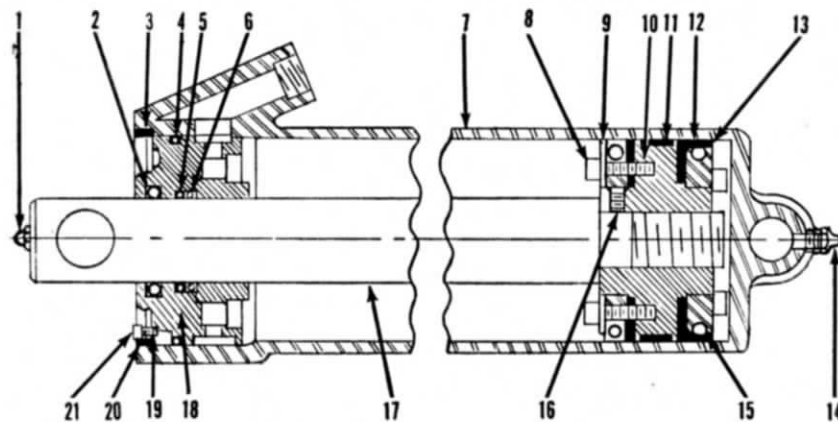
c. Disassembly.

- (1) The piston is closed at the top with a bolted cylinder head (18, fig. 19). The head holds a U-cup (2), an O-ring (5), and a nonextrusion ring (6) on the inside bearing surface to prevent leakage of oil past the piston rod. An-

- other O-ring (4) prevents leakage of oil between the cylinder head and the inside of the piston walls.
- (2) The cylinder head is removed by backing off socket head cap screw (21) and removing the retainer bar (19). The piston includes a leather strip and a leather cup held tight against cylinder walls by cup expander springs (15). The assemblies are held together with retaining disks and cap screws. To disassemble piston, back off and remove cap screws, remove disks, springs and leather rings and strips.

d. Inspection and Repair. Refer to paragraph 52c for cylinder inspection instructions. Do not attempt to repair a bulging cylinder. A bulged cylinder tube shows that the piston was subject to a heavy shock load. The cylinders are designed to take shock loads at the recommended pressure.

e. Reassembly. In reassembling the cylinder, first completely assemble the piston on the end of the piston rod. Push piston carefully into cylinder. Slip the completely assembled cylinder



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- | | |
|-------------------------------|--------------------------|
| 1 Grease fitting | 11 Leather strip |
| 2 U-cup | 12 Leather cup |
| 3 Internal snap ring | 13 Spring retaining disk |
| 4 O-ring | 14 Grease fitting |
| 5 O-ring | 15 Cup expander spring |
| 6 Nonextrusion ring | 16 Socket head setscrew |
| 7 Operating cylinder weldment | 17 Piston rod |
| 8 Socket head cap screw | 18 Cylinder head |
| 9 Heavy lockwasher | 19 Retaining bar |
| 10 Piston disk | 20 Medium lockwasher |
| 21 Socket head cap screw | |

Figure 19. Packing cylinder assembly.

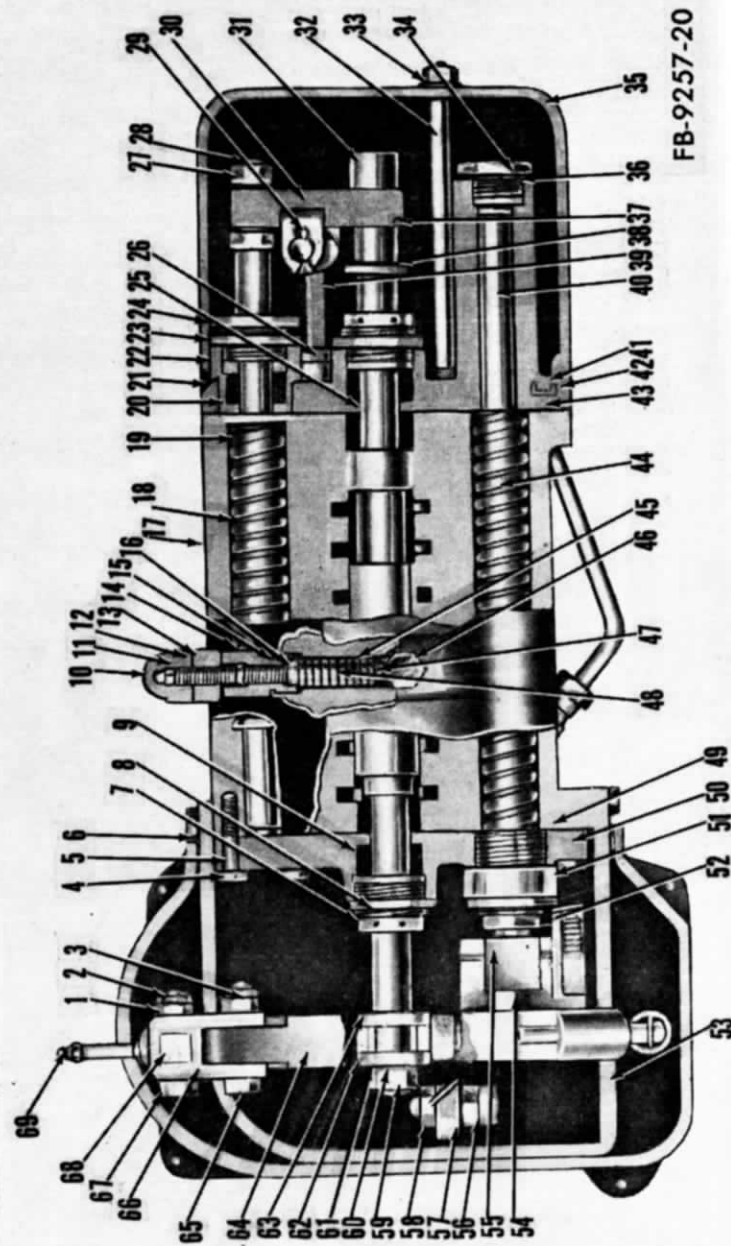


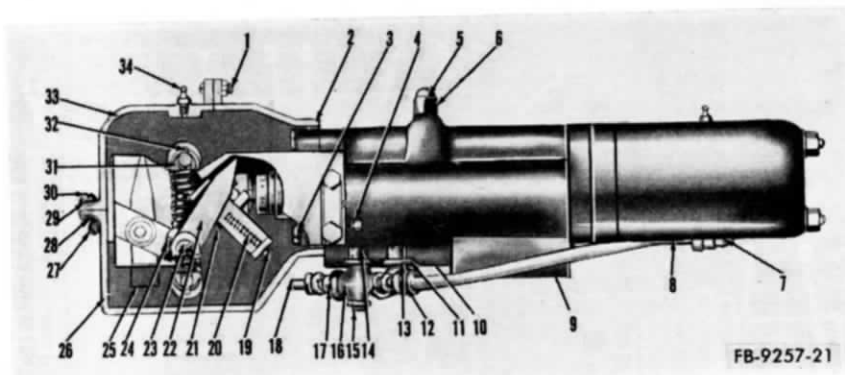
Figure 20. Packing cylinder valve assembly.

- | | | | |
|----|-------------------|----|-------------------------------|
| 1 | Castellated nut | 35 | Hood for knockout end |
| 2 | Castellated nut | 36 | Copper ring gasket |
| 3 | Cotter pin | 37 | Socket set screw |
| 4 | Cap screw | 38 | Collar |
| 5 | Medium lockwasher | 39 | Support for knockout lever |
| 6 | Cap screw | 40 | Reversing plunger |
| 7 | Gland nut | 41 | Cap screw |
| 8 | Locknut | 42 | Cover |
| 9 | Packing | 43 | Gasket |
| 10 | Cap | 44 | Reversing spring |
| 11 | Adjusting screw | 45 | Seat |
| 12 | Shim | 46 | Socket setscrew |
| 13 | Locknut | 47 | Steel ball |
| 14 | Nut | 48 | Safety bypass spring |
| 15 | Shim | 49 | Valve gasket |
| 16 | Button | 50 | Cover |
| 17 | Valve body | 51 | Adapter nut |
| 18 | Knockout plunger | 52 | Gland nut |
| 19 | Knockout spring | 53 | Valve control cam |
| 20 | Packing | 54 | Washer |
| 21 | Copper gasket | 55 | Pivot block |
| 22 | Adapter nut | 56 | Cap screw |
| 23 | Locknut | 57 | Plain washer |
| 24 | Washer | 58 | Hex nut, half nut, lockwasher |
| 25 | Main plunger | 59 | Hex nut |
| 26 | Cap screw | 60 | Medium lockwasher |
| 27 | Hex head bolt | 61 | Fork |
| 28 | Hex nut | 62 | Collar |
| 29 | Pin | 63 | Collar |
| 30 | Knockout lever | 64 | Roller arm |
| 31 | Nut | 65 | Cap screw |
| 32 | Stud | 66 | Roller arm fork |
| 33 | Hex nut | 67 | Bolt |
| 34 | Screw plug | 68 | Roller arm pin |
| | | 69 | Grease fitting |

Figure 20—Continued.

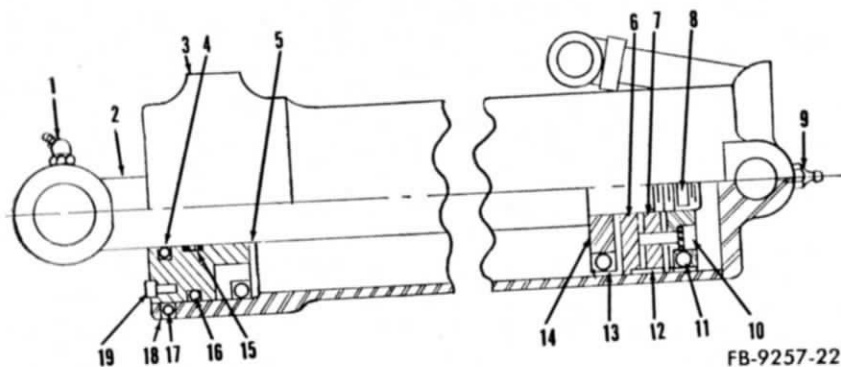
top head on piston rod and fit into cylinder top. All components must be clean and free of dirt or other foreign matter. Oil piston, inside of cylinder and cylinder top head to make assembly easier. After installing cylinder in place and connecting hydraulic lines, check the newly assembled cylinder by running the packing plate through several complete cycles. Then, disconnecting the return or low pressure line, and applying pressure to the cylinder, look for any oil flow through the disconnected end. If oil is visible, the rings, cups or other packing on piston are not properly installed.

f. Installation. Refer to paragraph 52.



- | | |
|--------------------------|----------------------|
| 1 Stove bolt | 18 Short tubing |
| 2 Hood | 19 Spring pin |
| 3 Hex head cap screw | 20 Spring |
| 4 Square head pipe plug | 21 Reversing yoke |
| 5 Acorn nut | 22 Finger |
| 6 Gasket | 23 Yoke pin |
| 7 Elbow | 24 Cotter pin |
| 8 Long tubing | 25 Finger |
| 9 Countersunk pipe plug | 26 Hood |
| 10 Countersunk pipe plug | 27 Wire |
| 11 Elbow | 28 Cap screw |
| 12 Straight connector | 29 Medium lockwasher |
| 13 Nipple | 30 Stove bolt |
| 14 Oil jet | 31 Roller |
| 15 Plug assembly | 32 Spring |
| 16 Pipe cross | 33 Hood |
| 17 Check valve | 34 Grease fitting |

Figure 21. Packing cylinder valve assembly (top view).



- | | |
|--------------------------|-------------------------------|
| 1 Grease fitting | 10 Socket head cap screw |
| 2 Piston rod assembly | 11 Piston cup pressure spring |
| 3 Cylinder weldment | 12 Leather strip |
| 4 U-cup | 13 Leather cup |
| 5 Cylinder top head | 14 Cup retaining disk |
| 6 Socket head setscrew | 15 O-ring |
| 7 Piston disk | 16 O-ring |
| 8 Tapped disk | 17 Snap ring |
| 9 Grease fitting | 18 Retaining bar |
| 19 Socket head cap screw | |

Figure 22. Packing plate holding cylinder.

68. Packing Plate Valve (figs. 20 and 21)

a. *General.* The packing plate valve, located in the upper center of the packing plate, automatically controls the packing cycle by controlling the flow of oil into the packing plate cylinders.

b. Removal.

- (1) Back off and remove cap screws holding packing plate valve assembly to the packing plate.
- (2) Disconnect hydraulic lines leading to and from the packing plate valve.
- (3) Carefully remove valve from packing plate.
- (4) Inspect for damage or wear. Repair or replace as necessary.

c. Installation.

- (1) Insert and tighten cap screws, using lockwashers.
- (2) Connect hydraulic lines to the packing plate valve.
- (3) Test the packing plate valve by operating the packing plate in the normal manner.

69. Packing Plate Holding Cylinder

a. *Removal.* Removal of the packing plate holding cylinder is described in paragraph 53.

b. Disassembly.

- (1) Remove cylinder top head (5, fig. 22) after releasing retaining bar (18).
- (2) Pull out piston rod assembly (2) from cylinder.
- (3) Disassemble piston by backing off and removing cap screws.

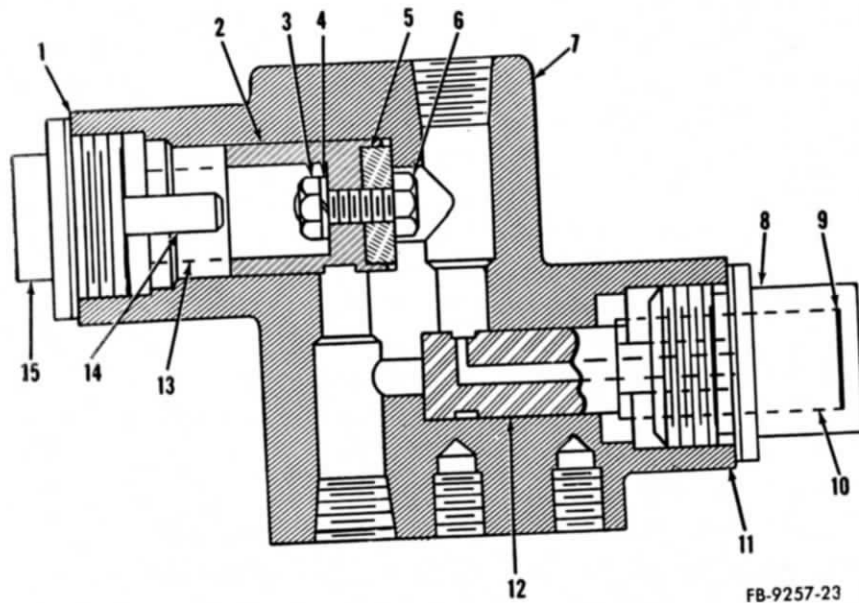
c. *Inspection and Repair.* Refer to paragraph 53.

d. Reassembly.

- (1) Assemble piston at end of piston rod.
- (2) Insert piston with piston rod into piston cylinder.
- (3) Install and secure cylinder head (5, fig. 22) and retaining bar (18).
- (4) Connect hydraulic lines to lines from the oil tank and from the packing plate holding cylinder valve (fig. 23).

70. Packing Plate Guide Rollers

a. *Removal.* Removal of the packing plate guide rollers is described in paragraph 47.



- | | |
|----------------------|-----------------------|
| 1 Copper ring gasket | 8 Screw plug |
| 2 Plunger | 9 Shim washer |
| 3 Automotive nut | 10 Heavy spring |
| 4 Lockwasher | 11 Copper ring gasket |
| 5 Washer | 12 Plunger |
| 6 Cap screw | 13 Light spring |
| 7 Valve body | 14 Stud |
| 15 Valve cap | |

Figure 23. Packing plate holding cylinder valve.

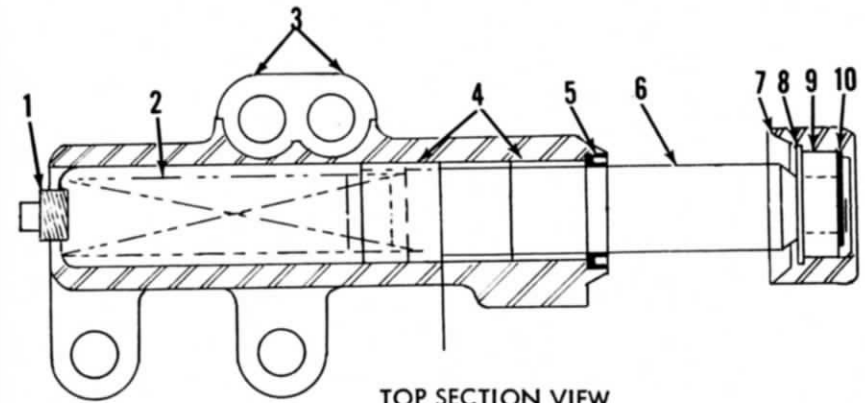
b. Disassembly.

- (1) Pull roller shaft (6, fig. 24) from the bushing in the roller socket.
- (2) Pull out compressing spring (2).
- (3) Remove roller (7) from end of shaft by releasing external snap ring (8).
- (4) Remove internal snap ring (10). This will free the ball bearings (9).

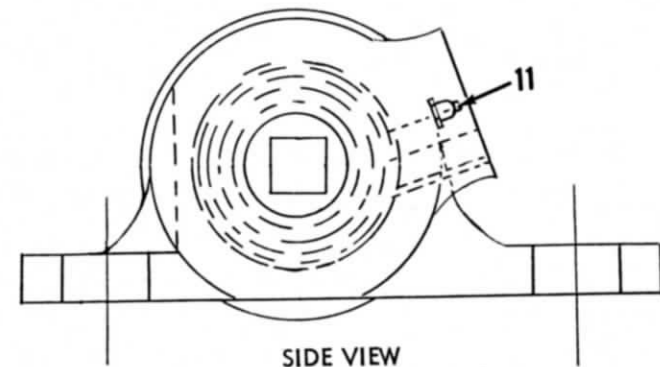
c. Inspection. Refer to paragraph 47.

d. Reassembly.

- (1) Make sure all parts are clean.
- (2) Assemble roller (7) on end of roller shaft (6).
- (3) Insert compression spring (2) into socket.
- (4) Lubricate roller shaft lightly on outside and push into roller socket. Make sure the oil seal (5) is not damaged.



TOP SECTION VIEW



SIDE VIEW

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- | | |
|----------------------|----------------|
| 1 Pipe plug | 6 Roller shaft |
| 2 Compression spring | 7 Roller |
| 3 Roller socket | 8 Snap ring |
| 4 Bushing | 9 Ball bearing |
| 5 Oil seal | 10 Snap ring |
| 11 Grease fitting | |

Figure 24. Roller socket assembly.

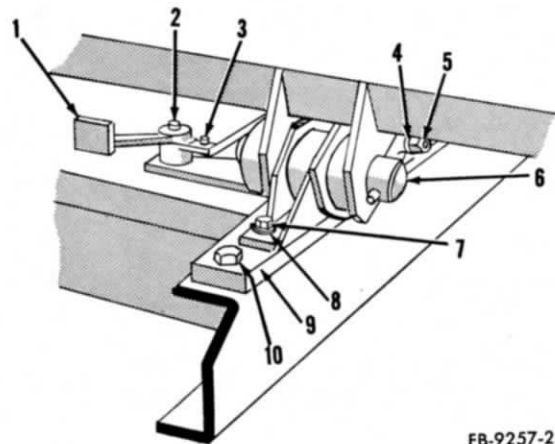
If oil seal is worn or loose-fitting, replace it with a new one.

- (5) Lubricate assembly through the grease fitting (11).

e. Installation. Refer to paragraph 47.

71. Adjusting Packing Plate Pressure

Failure of the packing plate to deliver full force to pack the load into the body may be traced to one of the following conditions, listed in the sequence in which they are likely to occur:



FB-9257-25

- | | |
|-----------------------|----------------------|
| 1 Rear lever weldment | 6 Body pivot pin |
| 2 Cotter pin | 7 Cap screw |
| 3 Cotter pin | 8 Medium lockwasher |
| 4 Locking pin | 9 Rear mounting shoe |
| 5 Hex nut | 10 Hex head bolt |

Figure 25. Body pivot.

a. The safety rod which prevents the body from being raised while the tailgate is in closed position may be set too tight. The body of the garbage truck pivots on the body pivot pin (6, fig. 25); therefore, the safety rod should be adjusted so that it prevents the body from being raised unless the tailgate is opened first. The rod should not be adjusted too close as to cause the body control valve to be held partly open. This adjustment should be made with the tailgate closed and tightened down.

b. The packer cylinder piston cups may be worn. Test for worn cups as described in paragraph 72.

c. The hydraulic pump may be worn and not delivering full pressure. Test it as described in paragraph 72.

d. One or both of the safety bypass valves may have a weak or broken spring. Refer to paragraph 72.

e. The hydraulic system may be low on oil. Fill with approved oil to prescribed level.

f. The oil filter located in the oil tank may be dirty and causing the pump to be starved of oil. This will cause the hydraulic system to be noisy.

g. The oil may be too thin. Replace with proper grade of oil.

h. The knockout spring (19, fig. 20) may be weak or broken. This spring is located in the packing plate cylinder valve. Test the spring as described in paragraph 72.

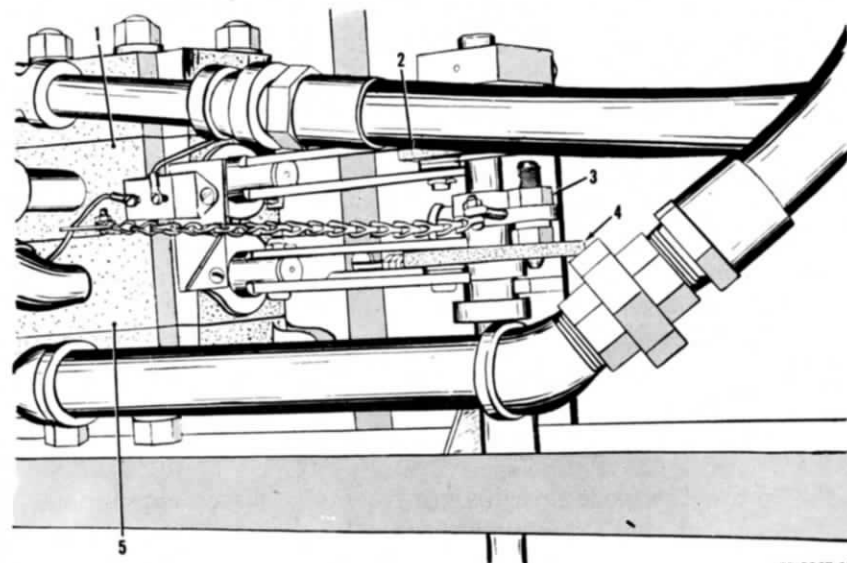
i. The reversing spring (44, fig. 20) may be weak or broken. While this spring does not control the packing plate on its packing stroke, it may cause faulty packing action. This spring controls the amount of pressure exerted in forcing the packing plate down behind the refuse in the loading hopper. Test the spring as described in paragraph 72.

72. Testing Hydraulic Pump and Parts

To locate the cause of trouble which is preventing the packing plate from delivering full force to pack the load into the body, proceed as follows:

a. Raise the tailgate about 5 feet, and raise the body as far as it will go. Raising or lowering the body of the garbage truck is effected by the actuation of the body valve (5, fig. 26). The tailgate is operated by the actuation of the tailgate valve (1) which is effected by the engaging of the pin (3) with selector plate (2) and releasing selector plate (4). Install a hydraulic pressure gage in the tee located in the body control valve (5, fig. 26). The gage should be equipped with a snubber and read up to 1800 psi.

b. With the pump running and the truck motor turning at about 1,000 rpm, move the hoist control lever (fig. 4) to "body up" position. With the pump in good condition, the hydraulic gage should read 1,200 psi.



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- | | |
|------------------|------------------|
| 1 Tailgate valve | 3 Pin |
| 2 Selector plate | 4 Selector plate |
| 5 Body valve | |

Figure 26. Tailgate and body hoist controls.

c. If a satisfactory test is not obtained by using method in *b* above, proceed as follows: Put hoist and tailgate lever in "tailgate up" position. When the tailgate reaches its extreme up position, the gage should read 1,200 psi as the lever is held in the "tailgate up" position. If neither this test nor test in *b* above show the proper pressure, set the relief valve on top of the hoist valve down a turn or two. If gage then shows 200 psi short of 1,200 psi, do not attempt to adjust the relief valve, but make test given in *d* below.

d. Remove the flexible pressure hose running to the top end of the body main hoist cylinder. Plug this line, then hold the hoist lever in "body down" position. When making this test, have another person start the engine and engage the truck clutch slowly. Check gage. If it reads 1,200 psi or is no more than 200 psi short, tighten the relief valve. If this does not bring up the pressure, the pump is faulty and should be replaced. After the pump has been tested and found to deliver full pressure to the hydraulic system, the next step is to test the packing cylinders and safety bypass in the packing operating valve.

e. With the truck engine turning over about 1,000 rpm, run the packing plate through a cycle to see if it is reversing automatically at the lower end of its stroke and knocking out (shifting into neutral automatically at the finish of its packing stroke). If the packing plate operating lever does not reverse automatically, the piston cups in the packer cylinders may be worn, the reversing spring (44, fig. 20) may be weak or broken, or the safety bypass in the packer operating valve may be weak or broken. To test the safety bypass run the packer in to the end of its packing stroke, then hold the packer control lever back toward the rear of the truck, and look at the gage. It should read 1,200 psi. If gage reads no more than 200 psi short, try setting the safety bypass. One half turn is equal to about 50 pounds. Do not attempt to increase the pressure more than 200 pounds at this adjustment. If tightening this valve two turns does not bring the pressure up to 1,200 psi, then the safety bypass spring (48) is broken or the piston cups (12, fig. 19) in the cylinders need replacing.

f. To test the packing cylinders for faulty piston cups, remove the union end of the flexible hose that leads to the bottom end of the one of the packer cylinders. With the pump running, pull the packing control lever toward the rear of the truck and hold it in this position while watching the oil flow out of the hose just removed. This flow of oil should not exceed a stream larger than

$\frac{1}{4}$ inch in diameter. Now test the other cylinder the same way. If either cylinder leaks more than $\frac{1}{4}$ -inch diameter of oil, the piston cups have to be replaced.

g. After the packing plate cylinders are found to be in good condition, the knockout spring (19, fig. 20) can be tested as follows. Run the packing plate back about 2 feet, then reverse it by moving the packing control lever to packing plate "in" position. Release the lever. Look at the gage. It should read 1,050 psi as the lever shifts into neutral, (as when packing cycle stops automatically). This test may have to be repeated several times because the gage has to be watched closely. If the knockout pressure is below 1,050 psi, add a washer under the spring. Do not have more than five washers under this spring. Do not increase the knockout pressure above 1,050 psi or serious damage to packing mechanism will result.

h. To test the reversing spring (44, fig. 20), run the packing plate through the packing cycle and watch the gage while the packer reverses at the bottom of its stroke. This should be 900 psi. If less, add a washer. There are not to be more than five washers under this spring. Do not increase the reversing pressure above 900 psi or serious damage will result to the packing mechanism.

i. If the packer still fails to reverse automatically, inspect the restricting pin. There may be dirt or lint in the hole in which it fits. Further reversing failure may be traced to a check valve (17, fig. 21). The spring in it may be broken or the valve may be damaged. Replace valve or spring if necessary.

73. Testing Packing Plate Holding Cylinder and Valve

a. *General.* The purpose of the packer plate holding cylinder (fig. 22) and valve (fig. 23) is to hold the packing plate from falling while it travels back over the load in the hopper. After the packing plate has reached the rear of the hopper and starts down behind the load, oil from the lower or piston rod end of the cylinder is forced past the cylinder holding valve heavy spring (10, fig. 23) and up into the top end of the holding cylinder, which acts as a reservoir for the oil. When the packing plate reaches the end of its downward stroke, it reverses and starts packing the load from the hopper into the body. During this stroke, the lower end of the cylinder is recharged by the oil being forced past the holding valve light spring (13).

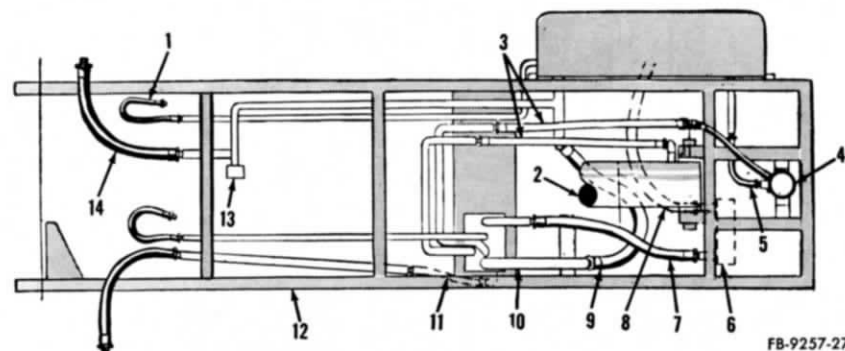
b. *Hoisting Cylinder Failure.* Failure of the cylinder and valve to hold the packing plate while it travels out over the load in the hopper can be traced to one of the following conditions listed below in the sequence in which they are likely to occur :

- (1) Oil level too low. Check oil level in tank. If too low, air will get into the packing plate holding cylinder.
- (2) The heavy spring (10, fig. 23) may have lost some of its original tension or may be broken. Replace with a new spring or add $\frac{1}{32}$ inch thick x 1 inch diameter washer. Never add more than $\frac{1}{8}$ inch of washers or serious damage to tailgate may result. After installing a new spring or washers, the valve can be tested as follows: Run the packing plate out and down until packing plate guide rollers are about 6 inches from the point where they engage the track. Now with the pump at rest, loosen the screw plug (8, fig. 23) that holds the heavy spring. Count the number of turns you loosen the plug or cap before the packer plate starts to fall. This should be approximately two turns. If more than two turns, remove a washer or grind $\frac{1}{32}$ inch off the end of the spring. Retest as outlined above. Do not set this spring tighter than is necessary to hold the packing plate.
- (3) The valve plunger (12, fig. 23) may be worn. It should not have more than 0.008 inch total radial play in its bore. If it is worn, replace with a new valve plunger.
- (4) The leather cups (13, fig. 22) may be worn and need replacing. Inspect the cups and replace if necessary.
- (5) The spring in the restriction valve may have lost some of its initial tension. This valve causes a back pressure in the main oil line which forces oil into the packing plate holding cylinder. Up to $\frac{3}{16}$ inch thickness of washers may be added under this spring. Replace spring if weak.
- (6) The plunger (2, fig. 23) under the light spring may be stuck in the open position, or the spring (13) holding it may be too weak. Do not put more than $\frac{1}{8}$ inch thickness of washers under this spring, nor substitute a heavier spring. If this valve is held down too tight, no oil will get to the packer plate holding cylinder. If the valve is stuck, remove it and polish it with fine emery paper about 260 grit or finer. Check the bore for scores or burs, polish and reassemble.

Section III. HYDRAULIC SYSTEM

74. Description

The hydraulic system consists of piston cylinders, hydraulic pump, hydraulic tank, flexible lines (fig. 27), individual valve assemblies, and a restriction valve assembly (fig. 28).



- | | |
|-------------------------------------|---------------------------|
| 1 Flexible tubing | 8 Flexible tubing |
| 2 Main hoist cylinder assembly | 9 Flexible tubing |
| 3 Flexible tubing | 10 Vickers valve assembly |
| 4 Auxiliary hoist cylinder assembly | 11 Flexible tubing |
| 5 Flexible tubing | 12 Garbage body subframe |
| 6 Hydraulic pump | 13 Restriction valve |
| 7 Flexible tubing | 14 Flexible tubing |

Figure 27. Subframe flexible tubing.

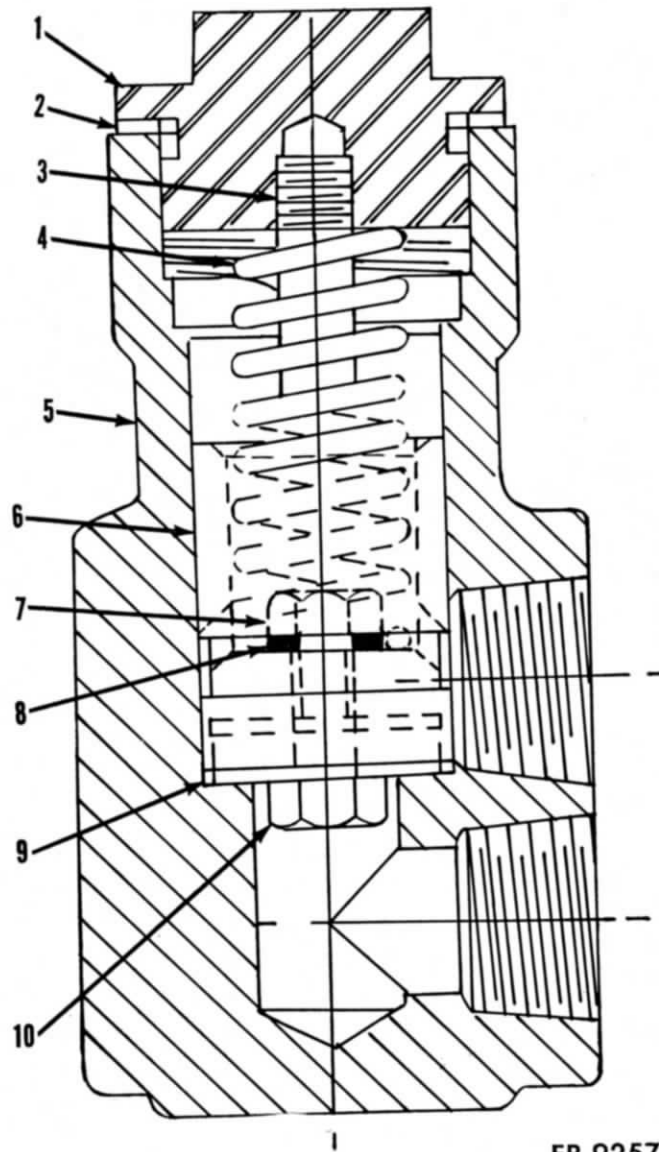
75. Hydraulic Pump

a. *Removal.* Refer to paragraph 49.

b. *Disassembly.*

- (1) Remove small rear cover (21, fig. 29) and small front cover (3) by backing off and removing cap screws holding the small covers to the large covers (16).
- (2) Remove pump bearings (23) from the ends of the shafts.
- (3) Remove the large rear and front covers by backing off and removing cap screws holding them to the pump body (17).
- (4) Remove the short (25) and the long (24) shaft gears from pump body.

c. *Inspection and Repair.* Clean all parts thoroughly. Inspect them for damage or wear. Replace roller bearings if worn. Replace gears if worn. Do not attempt to rebuild them. Both gears must be replaced at one time. Cracks in pump covers may be welded.



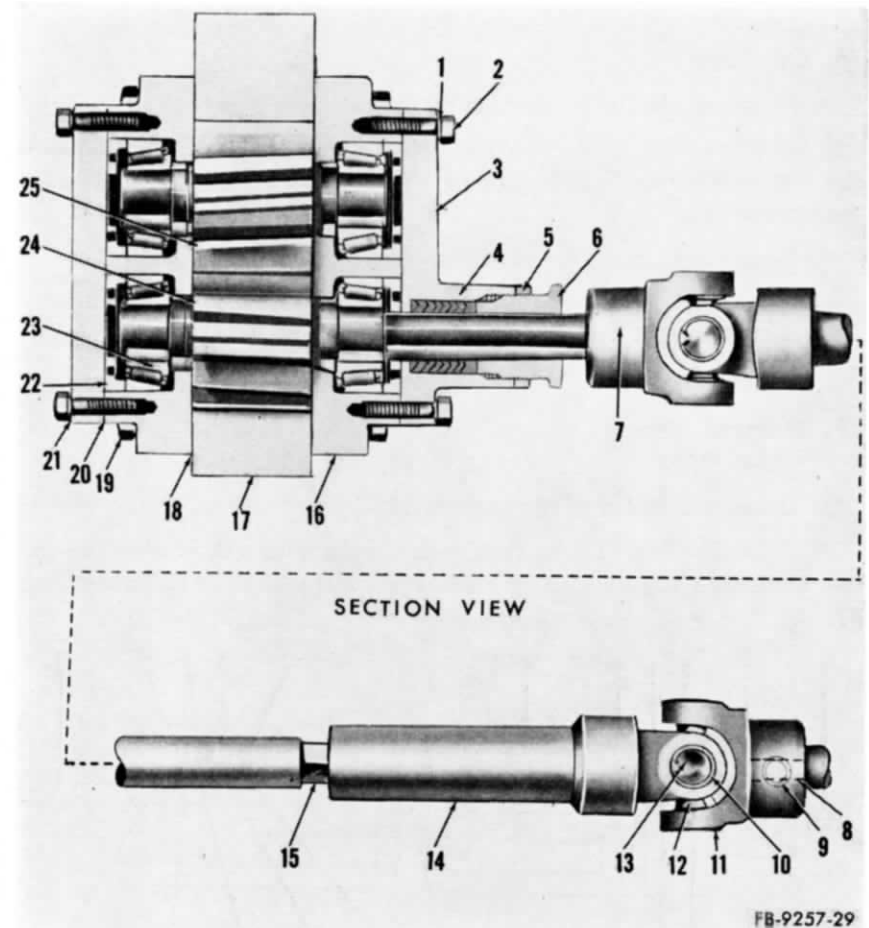
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- | | |
|--------------|-------------------------|
| 1 Valve cap | 6 Plunger |
| 2 Gasket | 7 Automotive nut |
| 3 Stud | 8 Shakeproof lockwasher |
| 4 Spring | 9 Aluminum washer |
| 5 Valve body | 10 Hex head cap screw |

Figure 28. Restriction valve assembly.

d. Reassembly. Reassemble hydraulic pump as follows:

- (1) Make sure all parts are clean and free of dirt or other foreign matter.
- (2) Position the two shaft gears in the pump body, and using new gaskets secure the large front and rear covers to body with cap screws. Use lockwashers.



FB-9257-29

- | | |
|------------------------------|-----------------------------|
| 1 Plain brass washer | 13 Bearing assembly |
| 2 Cap screw | 14 Yoke and sleeve weldment |
| 3 Small front cover | 15 Drive shaft |
| 4 Packing for hydraulic pump | 16 Large cover |
| 5 Locknut | 17 Pump body |
| 6 Packing gland | 18 Gasket |
| 7 Straight key | 19 Socket head cap screw |
| 8 Woodruff key | 20 Gasket |
| 9 Socket setscrew | 21 Small rear cover |
| 10 Bearing snap ring | 22 Bearing locknut |
| 11 Yoke | 23 Pump bearing |
| 12 Center cross | 24 Long shaft gear |
| | 25 Short shaft gear |

Figure 29. Pump and drive shaft assembly.

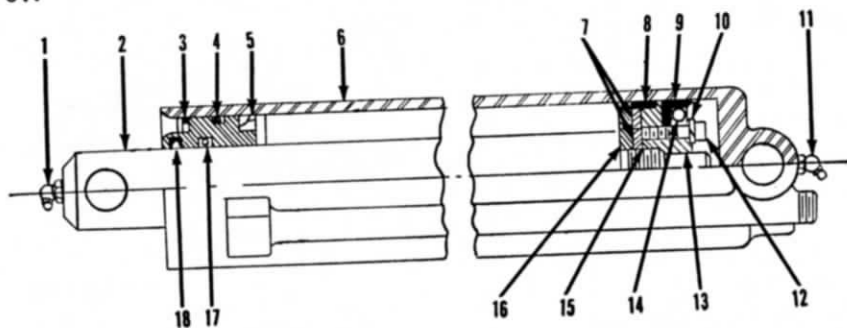
- (3) Insert roller bearings on the gear shaft ends.
- (4) Using new gaskets position and secure the small covers to the large covers with cap screws. Use lockwashers.
- (5) Tighten the packing gland (6) and secure it in position with a locknut (5).
- (6) Mount the pump in place and secure it to the power take-off shaft as directed in paragraph 49d.

76. Oil Tank

- a. *Removal.* Refer to paragraph 50.
- b. *Disassembly.* To remove dipstick cover, back off and remove the six cap screws. Removal of the filter screen is described in paragraph 50.
- c. *Inspection.* Refer to paragraph 50.
- d. *Reassembly.* Position the dipstick cover in place and insert and tighten the six cap screws.
- e. *Installation.* Refer to paragraph 50.

77. Tailgate Pistons (fig. 30)

- a. *Removal.* Refer to paragraph 54.
- b. *Disassembly.* These two piston cylinders are similar to the two packing plate pistons. Follow instructions given in paragraph 67.



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- | | |
|------------------------|--------------------------|
| 1 Grease fitting | 10 Medium lockwasher |
| 2 Piston rod | 11 Grease fitting |
| 3 Internal snap ring | 12 Socket head cap screw |
| 4 O-ring | 13 Spring retaining disk |
| 5 Cylinder head | 14 Cup pressure spring |
| 6 Cylinder weldment | 15 Plug |
| 7 Socket head setscrew | 16 Piston disk |
| 8 Leather strip | 17 O-ring |
| 9 Leather cup | 18 U-cup |

Figure 30. Tailgate cylinder assembly.

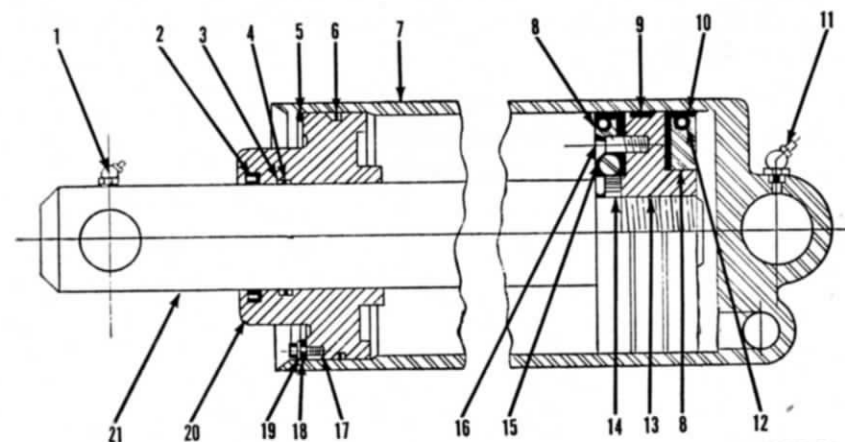
- c. *Inspection.* Refer to paragraph 52.
- d. *Reassembly.* Refer to paragraph 67.
- e. *Installation.* Refer to paragraph 54.

78. Main Body Hoist Cylinder (fig. 31)

- a. *Removal.* Refer to paragraph 52.
- b. *Disassembly.* The main body hoist cylinder can be disassembled in the same manner as the packing plate cylinders. Refer to paragraph 67.
- c. *Inspection.* Refer to paragraph 52.
- d. *Reassembly.* Refer to paragraph 67.
- e. *Installation.* Refer to paragraph 52.

79. Auxiliary Body Hoist Cylinder (fig. 32)

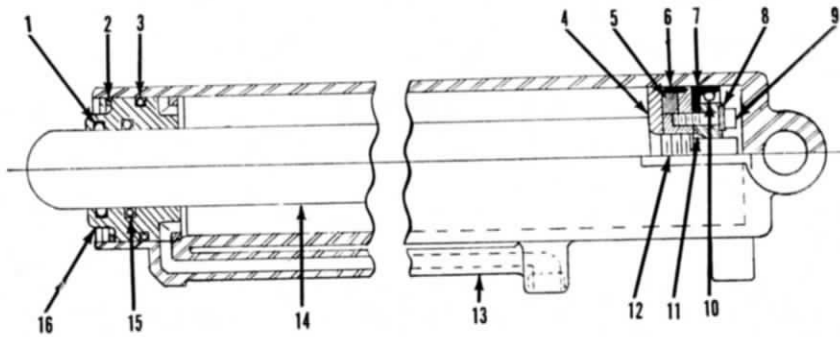
- a. *Removal.* Refer to paragraph 56.



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- | | |
|------------------------|--------------------------|
| 1 Grease fitting | 11 Grease fitting |
| 2 U-cup | 12 Pressure cup spring |
| 3 Nonextrusion ring | 13 Piston disk |
| 4 O-ring | 14 Socket head setscrew |
| 5 Snap ring | 15 Shakeproof lockwasher |
| 6 O-ring | 16 Flathead cap screw |
| 7 Cylinder weldment | 17 Socket head cap screw |
| 8 Spring retainer disk | 18 Stop bar |
| 9 Leather strip | 19 Medium lockwasher |
| 10 Leather cup | 20 Cylinder head |
| 21 Piston rod | |

Figure 31. Main body hoist cylinder assembly.



FB-9257-32

- | | |
|------------------------|--------------------------------|
| 1 U-cup | 9 Cap screw |
| 2 Snap ring | 10 Pressure cup spring |
| 3 O-ring | 11 Spring retainer disk |
| 4 Piston disk | 12 Plug |
| 5 Socket head setscrew | 13 Auxiliary cylinder weldment |
| 6 Leather strip | 14 Piston rod |
| 7 Leather cup | 15 O-ring |
| 8 Medium lockwasher | 16 Cylinder head |

Figure 32. Auxiliary body hoist assembly.

b. Disassembly. The auxiliary body hoist cylinder can be disassembled in the same manner as the packing plate cylinders. Refer to paragraph 69.

c. Inspection. Refer to paragraph 52.

d. Reassembly. Refer to paragraph 69.

e. Installation. Refer to paragraph 56.

CHAPTER 5 SHIPMENT, LIMITED STORAGE, AND DEMOLITION TO PREVENT ENEMY USE

Section I. SHIPMENT AND LIMITED STORAGE

80. Limited Storage

a. Storage Under Usual Conditions.

(1) *Inspection.* Inspect the garbage truck as outlined in the preventive maintenance services (par. 31). Deficiencies will be corrected prior to placement of the garbage truck in storage.

(2) *Cleaning and painting.* Before painting or the application of any preservative, thoroughly clean all surfaces to be coated by use of the most applicable of the following methods:

- (a) Washing with soap and water.
- (b) Washing with an approved cleaning solvent.
- (c) Cleaning with high-pressure steam.
- (d) Sanding by hand or machine.

Surfaces will be cleaned of all rust and corrosion. Unpainted surfaces which may be effectively protected by paint without interference to the function of the surface will be painted.

(3) *Lubrication.* Completely lubricate the garbage truck in accordance with instructions in LO 5-9257.

(4) *Protection in storage.*

(a) *Batteries.* Storage batteries will be fully charged and filled with sufficient electrolyte. Batteries will be recharged to full charge each time the truck is stored. If storage batteries are not sufficiently charged, the truck will be checked to determine cause of the discharge; defective batteries will be replaced.

(b) *Pneumatic tires.* Pneumatic tires standing in storage under load will be inflated to the proper pressure.

(c) *Upholstery.* Upholstery will be covered with waterproof barrier material or a suitable substitute, sealed with tape, and securely anchored to the equipment.

- (d) *Preservative.* Preservative engine oil will be used for oilcan point lubrication and for application to external surfaces which are subject to corrosion and not otherwise protected by more permanent type corrosion preventives.

b. *Storage Under Unusual Conditions.*

(1) *Extreme cold.*

- (a) Service as outlined in *a* above.
(b) Make certain that all water is drained from the cooling system and that the proper antifreeze solution is added.
(c) Use a suitable covering over the entire unit to protect it from snow and freezing rain.

(2) *Extreme heat.*

- (a) Service as outlined in *a* above.
(b) Make certain that the garbage truck is properly lubricated and protected with preservatives.

(3) *Sandy or dusty conditions.*

- (a) Service as outlined in *a* above.
(b) Make certain that openings such as exhaust pipes, breather caps, open brakes, clutches, and generator are covered.

(4) *Salt water areas.*

- (a) Service as outlined in *a* above.
(b) Make certain that the garbage truck is properly lubricated and protected with corrosion preventives.

81. Domestic Shipment

a. *General.* Prepare the garbage truck for domestic shipment as described in paragraph 80.

b. *Hoisting and Handling.* The garbage truck may be driven under its own power to its destination point, or it may be driven onto a railroad flatcar for shipment by railroad. Under normal conditions shipment on truck trailer is impractical because the combined height of garbage truck and trailer truck would prevent its passage under highway and railroad bridges.

c. *Packaging and Blocking.* When shipped on a railroad flatcar, the garbage truck wheels should be securely blocked with chocks or large pieces of timber and the chassis tied to the flatcar with wire cable or other suitable fastening.

Section II. DEMOLITION TO PREVENT ENEMY USE

82. General

When capture or the abandonment of the garbage truck to an enemy is imminent, the responsible unit commander makes the decision either to destroy the garbage truck or to render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all garbage trucks and all corresponding repair parts.

83. Preferred Demolition Methods

Explosives and mechanical means, either alone or in combination, are the most effective methods to employ. Listed below are the vital parts in order of priority of demolition for each preferred method. In each case, completion of the first two steps will render the unit inoperative. Completion of the additional steps listed will further destroy the unit.

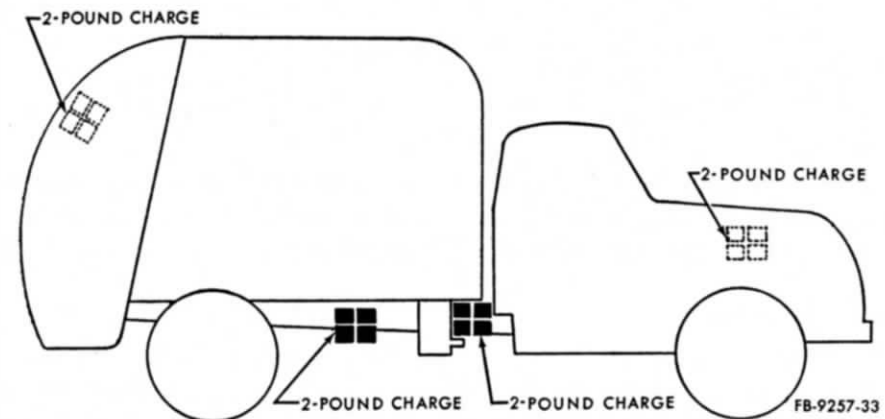


Figure 33. Placement of demolition charge.

a. *Explosives* (fig. 33). Place as many of the following charges as the situation permits and detonate them simultaneously with detonating cord and a suitable detonator:

- (1) Place a 2-pound charge on the cylinder head of the engine.
- (2) Place a 2-pound charge on the hydraulic oil pump.
- (3) Place a 2-pound charge on the hydraulic oil valve.
- (4) Place a 2-pound charge on the tailgate valve.

b. *Mechanical Means.* Use sledge hammers, crowbars, picks, axes, or any other heavy tools normally included with the garbage truck, to destroy the following:

- (1) Smash the engine cylinder head, cylinder block, crankcase, carburetor, generator, starting motor, battery, and radiator.
- (2) Cut all hydraulic flexible hose.
- (3) Smash the hydraulic oil pump.
- (4) Puncture and smash the hydraulic oil tank.
- (5) Puncture and smash the gasoline tank.

84. Other Demolition Methods

If the situation prohibits employing either of the preferred methods, use the following, either singly or in combination.

a. *Weapons Fire.* Fire on the garbage truck, particularly the engine, hydraulic oil tank and pump, with the heaviest weapons available.

b. *Scattering and Concealment.* Remove all easily accessible vital parts, engine spark plugs, storage battery, body and tailgate control lever, and solenoid control switch on top of body and tailgate control valve, and scatter them through dense foliage, bury them in dirt or sand, or throw them into a lake, stream, well, or other body of water.

c. *Submersion.* Totally submerge the garbage truck in a body of water to provide some water damage and concealment. Salt water will do the greatest damage to metal parts.

85. Training

All operators should receive thorough training in the destruction of the garbage truck. Simulated destruction using all the methods listed above, should be included in the operator training program. It must be emphasized in training that demolition operations are usually necessitated by critical situations, when the time available for destruction is limited. For this reason, it is necessary that operators be thoroughly familiar with all methods of destruction and be able to carry out demolition instructions without reference to this or any other manual. Refer to FM 5-25.

APPENDIX REFERENCES

1. Accessory Equipment

- | | |
|-----------|--|
| TM 5-687 | Inspection and Preventive Maintenance Services for Fire Protection Equipment and Appliances. |
| TM 9-1799 | Ordnance Maintenance: Fire Extinguishers. |

2. Dictionaries of Terms and Abbreviations

- | | |
|-------------|---|
| SR 320-5-1 | Dictionary of United States Army Terms. |
| SR 320-50-1 | Authorized Abbreviations |

3. Lubrication and Painting

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|-----------|---|
| LO 5-9257 | Truck, Garbage, Load Packer, 15 to 20 Cu Yd Capacity, 5 Ton 4 x 2, Two Dual Tires, Leach Model Packmaster. (Less Truck) |
| TM 9-2851 | Painting Instructions for Field Use |

4. Preparation for Export Shipment

- | | |
|-------------|--|
| TB 5-9711-1 | Preparation of Corps of Engineers Equipment for Overseas Shipment. |
| TB 5-9713-1 | Preparation for Export, Spare Parts for Corps of Engineer Equipment. |

5. Preventive Maintenance

- | | |
|-------------|---|
| TB 5-9257-1 | Preventive Maintenance Services: Truck, Garbage, Load Packer, 15 to 20 Cu Yd Capacity, 5 Ton, 4 x 2, Two Dual Tires, Leach Model Packmaster. (Less Truck) |
| TM 5-505 | Maintenance of Engineer Equipment |

6. Demolition to Prevent Enemy Use

- | | |
|---------|----------------------------|
| FM 5-25 | Explosives and Demolitions |
|---------|----------------------------|

7. Publication Indexes

Pam 108-1	Index of Army Motion Pictures, Television Recordings.
DA Pam 310-2	Index of Blank Forms
Pam 310-3	Index of Training Publications
Pam 310-4	Index of Technical Manuals Technical Regulations, Technical Bulletins, Supply Bulletins, Lubrication Orders and Modification Work Orders.
DA Pam 310-25	Index of Supply Manuals—Corps of Engineers.

8. Training Aids

FM 21-8	Military Training Aids
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[AG 451.2 (20 Jun 55)]

BY ORDER OF THE SECRETARY OF THE ARMY:

MAXWELL D. TAYLOR,
General, United States Army,
Chief of Staff.

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JOHN A. KLEIN,
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USAR: None.

For explanation of abbreviations used, see SR 320-50-1.

