

G E URBAN

**OPERATING AND MAINTENANCE MANUAL
WITH PARTS CATALOG**

HEIL MANUAL NO. MR-1814

**HEIL COLECTOMATIC
REFUSE COLLECTION UNIT**



MANUFACTURED BY

THE HEIL CO.

MILWAUKEE, WISCONSIN, U. S. OF A.

HILLSIDE, NEW JERSEY, U. S. OF A.

G E URBAN

To The Owner

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Distributors carry ample stocks of essential genuine Heil parts and are backed in every case by the full facilities of The Heil Co.

Instructions For Ordering Parts

FIRST: All parts listed in this manual should be ordered from your Authorized Heil Distributor.

SECOND: Always order by part number and description as shown in this manual. Be sure to put the dash in its right position or it will change the meaning of the order. Do NOT order by illustration reference number. State specifically how many parts or assemblies are wanted. Do not order sets or pairs. When complete assemblies are ordered, it is not necessary to list the parts that make up the assembly; give only assembly number.

THIRD: Give model, serial and identification numbers found on identification plate of the unit or sub-assembly. Be sure numbers are complete and include the prefix and suffix, if any.

FOURTH: Give full instructions for shipping, including your street address. State whether shipment is to be made express, parcel post or freight, and give freight shipping point if different from mailing point. Rush shipments can be sent mail "Special Delivery." Shipments so made receive same service as first class letter mail.

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1. Your name and address.
2. Name and description of part.
3. Serial, identification and model number of unit from which part was removed.
4. Reason for returning part (Credit, Replacement or Repair?) If returned for credit, send the invoice number on which the part was replaced. If the part is defective, mark the defect with chalk.
5. How parts are returned (Parcel Post, Express, Freight).

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SECOND: Claims for damage or loss in shipment must be made immediately after receipt of shipment and must be made against the carrier. Any other claims for damage or shortages should be filed immediately with your Authorized Heil Distributor.

Heil Warranty

THE HEIL CO. WARRANTS ITS TRUCK BODIES, HYDRAULIC HOISTS, HYDRAULIC TAILGATES AND REFUSE UNITS TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP, UNDER NORMAL USE AND SERVICE, FOR A PERIOD OF NINETY (90) DAYS, SAID PERIOD TO RUN FROM THE DATE WHEN THESE PRODUCTS ARE FIRST PLACED INTO OPERATION.

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HEIL *bodies and hoists*

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HEIL *bodies and hoists*

DESCRIPTION

CHAPTER 1. DESCRIPTION

SECTION 1. GENERAL DESCRIPTION

Heil Colectomatic refuse units are completely enclosed units designed to provide means of collecting garbage, ashes and refuse in a sanitary manner. All-enclosed steel body is water-tight and encloses refuse at all times. Packer plate eliminates void spaces by automatically compressing material each time bucket is unloaded.

Unit is hydraulically operated with a hydraulic pump, driven by a power take-off as basic means of power. Body is raised and lowered by means of standard type double acting hydraulic cylinders (one on 16 yard units and two on 20 yard units.) Two double acting cylinders in tailgate control both the loading cycle and the raising and lowering of the tailgate.

An automatic safety door drops into place over loading opening at start of a loading cycle and opens when cycle is completed.

Control lever on right (curb side) of tailgate controls loading cycle. Cycle is started by lifting lever out of NEUTRAL slot on quadrant plate and from then on the sequence is performed automatically with lever going back into NEUTRAL at end of cycle. It is possible to take over manually at any point in cycle by moving control lever to position desired.

An electric solenoid is connected to engine throttle and is energized when packer plate starts to move. This speeds up truck engine so that loading cycle is completed quickly.

There is a buzzer in the cab connected to two switches at back of tailgate so that collectors may signal to driver.

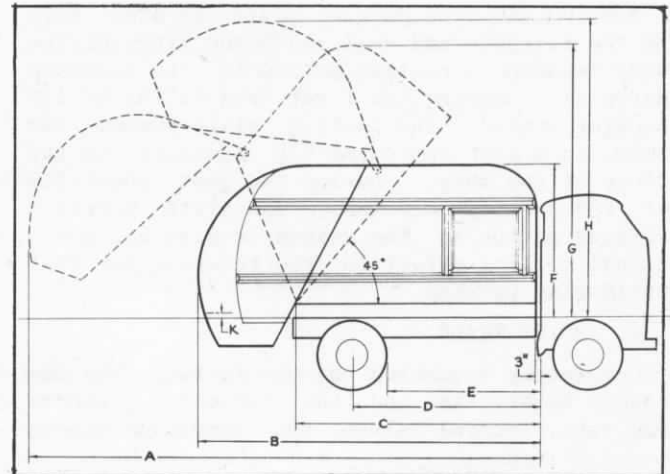


Figure 1. Dimensions

SECTION 2. SPECIFICATIONS

	16 Cu. Yd.	20 Cu. Yd.
a. BODY		
Taper (front to rear)	3"	3-3/4"
Floor	Flat	Flat
Utility Door, Side loading (one each side).	30" x 36"	30" x 36"
Maximum Outside Width	95-1/2"	95-3/4"
b. HOIST		
Double-Acting Arm Type.	Single	Twin
Mounting Height	11-1/2"	13-1/8"
Dump Angle.	45°	45°
c. TAILGATE		
Hopper Capacity	1-1/4 Cu. Yd.	1-1/4 Cu. Yd.
Loading Height (same as top of chassis)	36" Average	37-5/8" Average
Cycle Time (average engine speed)	22 seconds	22 seconds
Loading Opening	48" x 70-3/8"	48" x 70-3/8"
d. DIMENSIONS		
A - Maximum Length, Dumping Position.	280-1/2"	316-3/4"
B - Length, Cab to Rear, Body Closed.	186-1/4"	218-1/4"
C - Length, Cab to Body Hinge	130-1/4"	162-1/4"
D - Cab to Axle, Single Axle Truck.	102"	136"
E - Cab to Axle, Tandem Axle Truck.	None	112"
F - Body Height	80-3/4"	84-1/4"
G - Body Height, Dumping.	138-1/2"	161-3/4"
H - Body Height, Tailgate Up.	166"	167-3/4"
K - Truck Frame to Loading Sill	0"	+ 1-5/8"
L - Body Width.	95-3/4"	95-3/4"
M - Unit Weight Approximately	8,200 lbs.	10,300 lbs.

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DESCRIPTION

SECTION 3. DETAILED DESCRIPTION

a. BODY

All enclosed body is of all welded steel construction, horizontally reinforced to prevent any bulges. A taper from front to rear of body assures speedy refuse discharge.

b. TAILGATE ASSEMBLY

Encloses the packing mechanism, including two hydraulic cylinders to perform the combined function of operating the loading and packing mechanism and the raising and lowering of the tailgate.

A moldboard type packing plate located high in the tailgate and well above the floor of the body imparts a rolling motion to the incoming material. During the first four-fifths of its packing action, the packing plate pushes the load in a line approximately parallel to the floor of the body. During the last one-fifth of the packing movement, the plate exerts a lifting motion to the refuse to give an additional rolling effect to the material for real bulldozing packing.

c. HOIST FRAME

Completely assembled at the factory and includes hoist, arm and link assembly, reserve oil tank, control valves, and hydraulic piping and fittings.

d. HYDRAULIC CYLINDERS

Cylinders are of seamless steel tubular construction, bored and honed to high precision standards. Cylinder heads are threaded so that they may be removed for servicing. Piston rings

of special cast iron prevent oil leakage which would result in loss of pressure and consequent settling of body. Chevron packing and a special oil seal prevents seepage along polished cold rolled steel piston rod.

e. HYDRAULIC PUMP

The pump, which circulates oil through the hydraulic system, is a precision gear-type hydraulic pump. Gear shafts rotate in needle and ball bearings. Gears are precision cut of heat-treated steel.

f. CONTROL VALVES

There are two control valves mounted in the hoist frame, a double spool (primary) valve with built in relief valve set at 1200 P.S.I. at front, and a single spool (secondary) valve at rear. Double spool valve is operated by two controls in cab and has two functions; left hand spool controls raising and lowering of body, and right hand spool controls raising and lowering tailgate, and also directs oil to single spool valve which in turn controls operation of loading cycle. Single spool valve at rear of hoist is controlled by a lever mounted on curb side of tailgate.

g. POWER TAKE-OFF

A simple transfer case bolted to truck transmission. It is a compact, heavy-duty transfer case used to activate lifting mechanism and is controlled by a cable from dashboard of cab.

h. DRIVE SHAFT

Pump is driven by a propeller shaft connecting power take-off with pump. Shaft is fitted with a universal joint at each end.

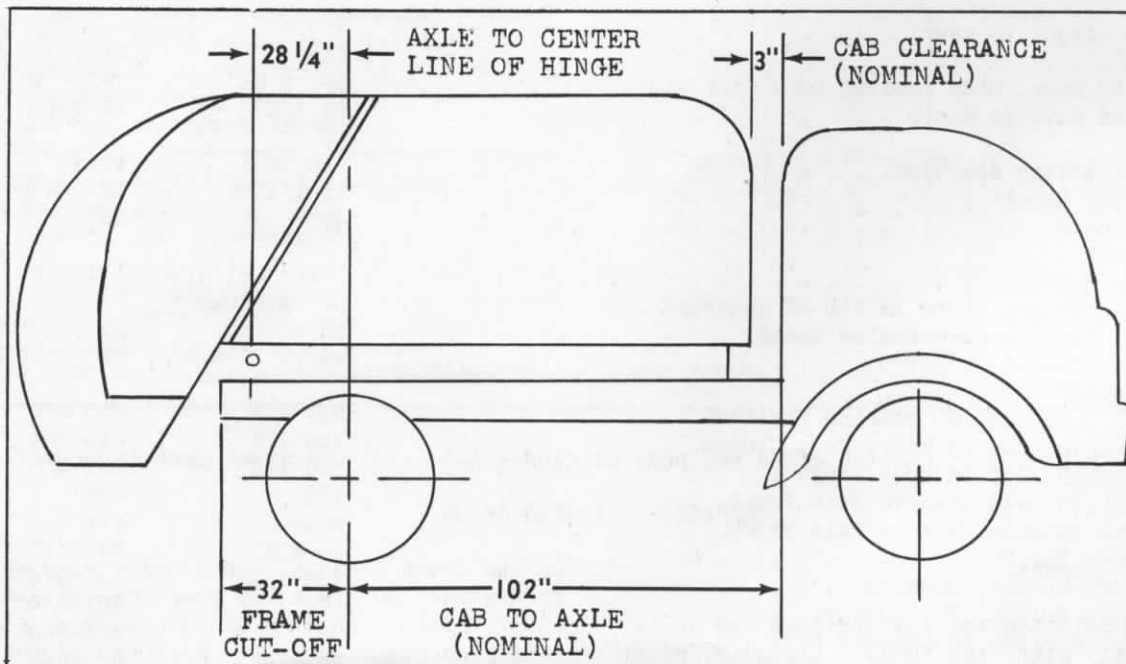


Figure 2. Location of 16 Yd. Body on Single Axle 102" C/A Truck Chassis

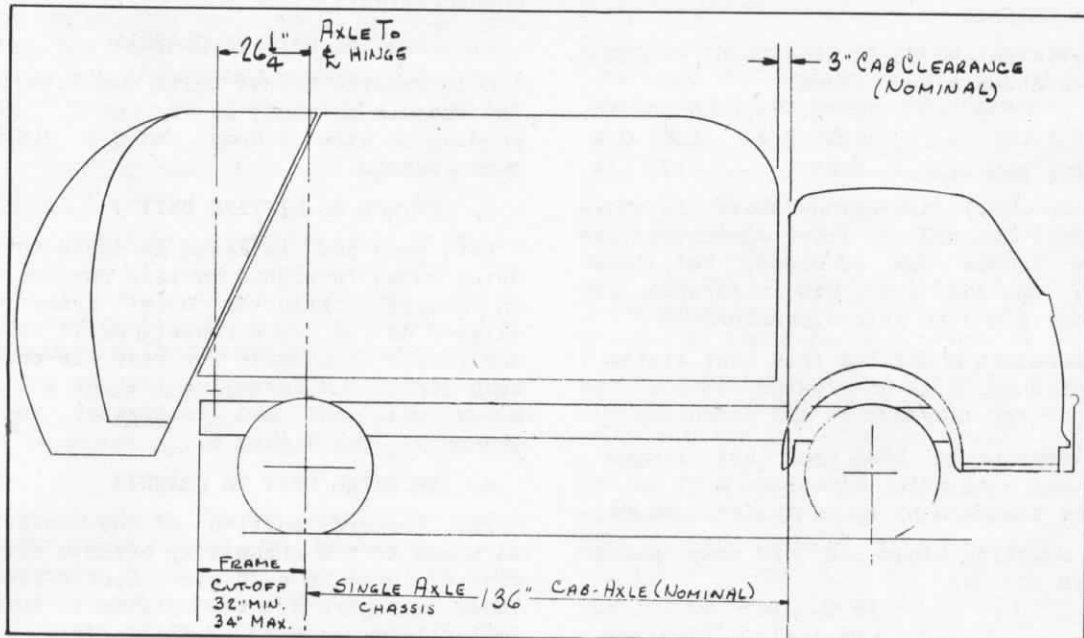


Figure 3. Location of 20 Yd. Body on Single Axle 136" C/A Truck Chassis

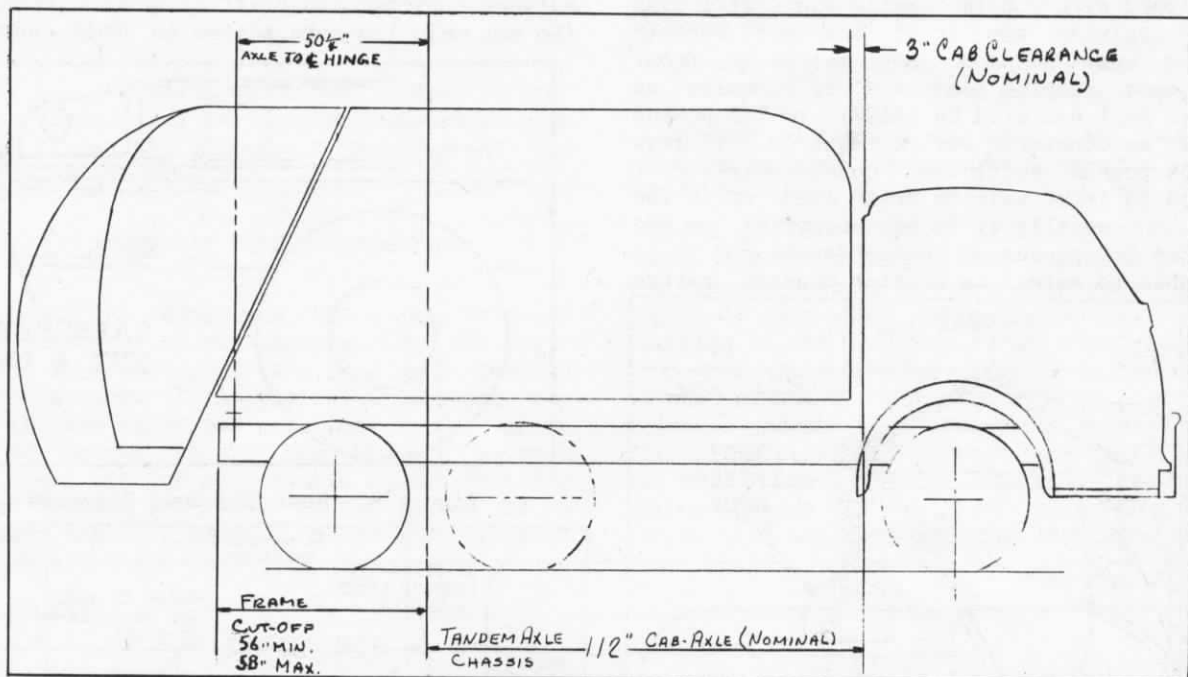


Figure 4. Location of 20 Yd. Body on Tandem Axle 112" C/A Truck Chassis

CHAPTER 2. INSTALLATION

SECTION 1. GENERAL

The Heil Colectomatic is shipped as an integral unit with the body, tailgate, hoist frame, control valves, hydraulic piping, etc., all completely assembled and ready to install

on the truck chassis. Hydraulic pump mounting is designed so that the pump can be placed on either side of chassis to accommodate right or left hand power take-off openings on the truck transmission. These mountings will apply in general to all types of truck chassis.

HEIL *bodies and hoists*

INSTALLATION

SECTION 2. HOIST FRAME AND BODY INSTALLATION

a. TRUCK CHASSIS

Colectomatic Refuse Units have been designed to fit truck chassis as follows:

	16 Cu. Yd.	20 Cu. Yd.
Single Axle Truck.	102" C/A	136" C/A
Tandem Axle Truck.	None	112" C/A

C/A (cab to axle) dimensions shown in above table are most desirable. These dimensions can vary a few inches plus or minus, but those given will provide a 3" cab clearance and optimum hinge pin - to axle dimensions.

If C/A dimensions is GREATER than that listed - the cab clearance will be greater than 3" by the amount of the increase in C/A dimension.

If C/A dimension is LESS than that listed - the "hinge pin - to axle" dimension must be increased over standard by an equivalent amount.

Standard mounting hinge pin - to axle dimensions are as follows:

	16 Cu. Yd.	20 Cu. Yd.
Single Axle.	28-1/4"	26-1/4"
Tandem Axle.	None	50-1/4"

b. COUNTERWEIGHTS

To determine if a particular chassis model, if equipped with a Colectomatic body, will dump without raising the front wheels, certain formulas must be used. If weight on front wheels when dumping (computed by formulas as given in Heil Bulletin BH-55127) is 750 pounds or more, no counterweight is required. If less than 750 pounds, sufficient counterweight must be added to front axle to bring load up to 750 pounds. Generally it is not practical to add more than 800 pounds of counterweight and it is preferable to select a heavier chassis rather

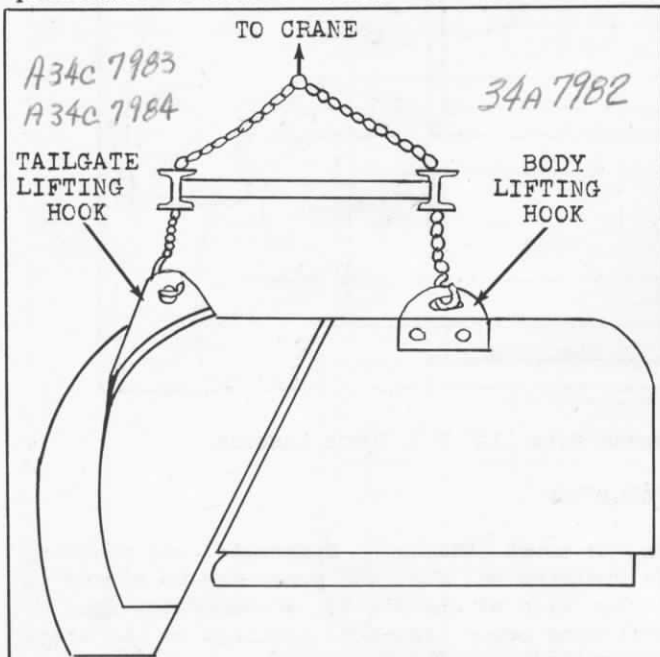


Figure 5. Method of Lifting Unit

than add more than a few hundred pounds of counterweight.

c. LOCATING UNIT ON CHASSIS

Colectomatic Refuse Units should be located on the chassis as shown in Figures 2, 3, or 4, depending on size of body and C/A dimension of your chassis.

d. METHOD OF LIFTING UNIT

Lift body and tailgate as shown in Figure 5 using hooks furnished for this purpose and place on chassis. With the hoist frame correctly aligned on the truck chassis, drill hole through top flange of chassis for rear tie-down bolt on each side, and install a 1/2" NF x 1-1/2" cap screw with nut and lockwasher and tighten securely. See Figure 6.

e. SECURING UNIT TO CHASSIS

The forward portion of the hoist frame is attached to the chassis by means of six tie down plates, three on each side. Locate tie-downs as shown in Figure 7. Weld plates to hoist frame, full all around with 1/4" fillets and drill holes in chassis side rail for 1/2" capscrews using holes in tie-down plates as a guide. Attach with 1/2" NF capscrews, lockwashers and nuts and tighten securely. Remove shipping tie between subframe and hoist frame after mounting. (Do not weld tie-down plates to truck chassis.)

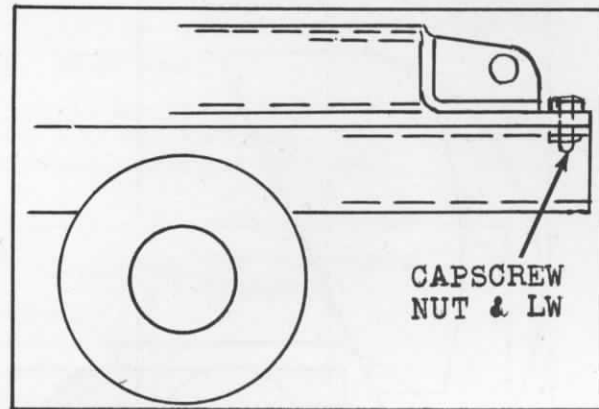


Figure 6. Rear Tie-Down Cap screw

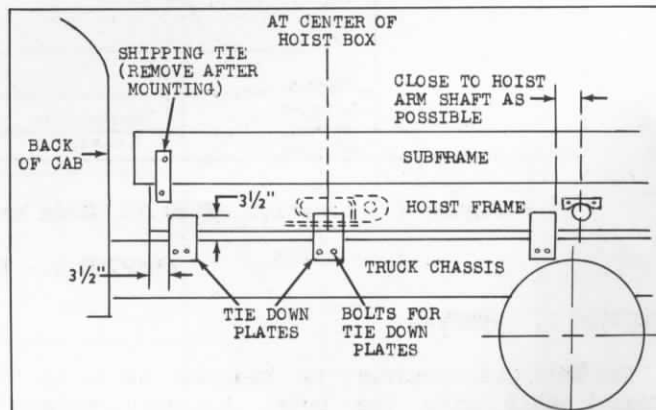


Figure 7. Securing Unit to Truck Chassis

HEIL *bodies and hoists*

INSTALLATION

SECTION 3. POWER TAKE-OFF INSTALLATION

The power take-offs for most chassis are assembled on the right hand side of the transmission. In a few instances the power take-offs are installed on the left hand side. Install as follows:

(a) Drain truck transmission and remove power take-off opening plate.

(b) Before installing power take-off be positive that the pitch (the distance from the center line of one gear tooth to the center line of the next gear tooth) of the power take-off gear checks with the transmission drive gear.

(c) Install power take-off over truck transmission opening using gaskets furnished with the power take-off for proper meshing of the gear teeth.

(d) Check carefully to see that the power take-off gear rolls freely and meshes smoothly with transmission gears. If gears do not turn freely, install additional gaskets to increase clearance between power take-off and transmission gears.

(e) Fill transmission with lubricant and test the assembly running the engine and engaging the power take-off to see whether the proper fit has been obtained. There must not be undue chatter because of too much clearance at the pitch line of the gears nor a howling noise due to gear centers being too close. When either of these conditions are present, re-adjust the various thickness of gaskets until gears run smoothly and quietly.

SECTION 4. HYDRAULIC PUMP INSTALLATION

(a) Mount the pump in a convenient location on the same side of the chassis that the power take-off is mounted. Rotate pump on bracket to a position where it is easiest to connect the hoses to the valve and oil tank. Cut drive shaft to proper length and install between power take-off and pump shafts using #6 taper pins to connect the shaft to the joints and to the power take-off shaft. Allow 3/8" between

the pump face and the edge of the universal joint as shown in Figure 8.

NOTE: Fingers of universal joints MUST BE IN LINE and the maximum angle of the universal joints is not to exceed 15 degrees.

(b) Check pump rotation by engaging the power take-off for a few seconds and observe the direction of rotation of the pump. Heil pump #219A190 can only be run Counter-Clockwise facing the shaft end; Heil pump #219A189 can only be run Clockwise facing the shaft end. These pumps are single directional and can only be used in the direction noted.

(c) Connect the high pressure hose from the pump to the right hand side of the two-spool valve mounted in the hoist frame; this is the primary valve. Connect the low pressure hose to the right hand (if possible) opening in the bottom of the oil tank. If these hoses are not long enough in some installations it may be necessary to use pipe and pipe fittings leading from the valve and tank outlets to the hose ends.

SECTION 5. CAB CONTROL

The cab controls are of the cable type and are mounted below the dash in a special bracket furnished for this purpose. There are three controls that fit into this bracket and must be located as follows:

(a) Left hand control for operation of power take-off.

(b) Center control to lever on left hand spool of primary valve (this raises and lowers the body.)

(c) Right hand control to lever on right hand spool of primary valve (this transmits power to the secondary valve for operation of the packing cycle and also controls the raising and lowering of the tailgate.) The right hand control is a self-locking type and is kept in locked position ONLY when the unit is being loaded. Anchor the cables at several points with clips furnished so that they will not rub and wear. On tilt-type cab units the cables must go around the cab pivot point so that the cables will not tear out when the cab is tilted.

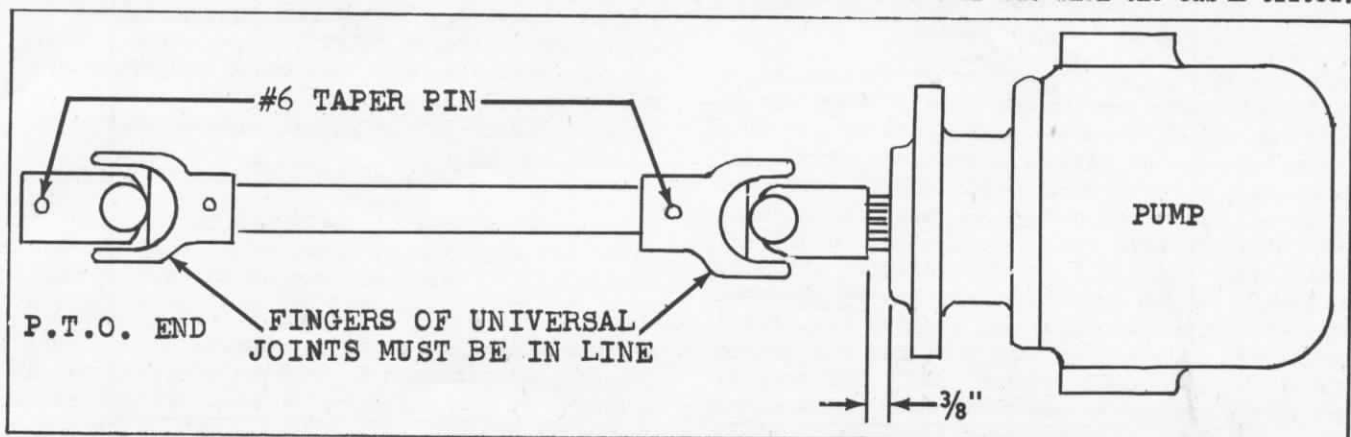


Figure 8. Drive Line Installation

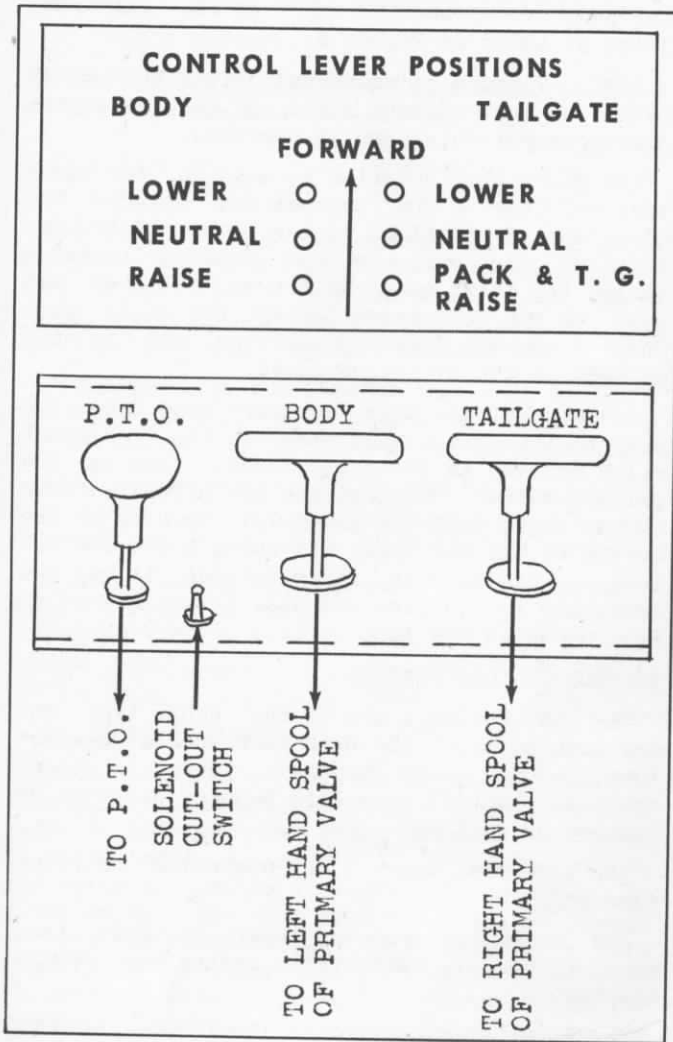


Figure 9. Cab Controls

Bracket and controls must be located as close to the driver as possible for convenience in operating the unit. An instruction plate showing the control positions for each operation is mounted above the control bracket (see Figure 9.) For details of parts and exact details of control mountings see illustrations and parts lists for Valve and Power Take-Off Group in parts catalog section of this manual.

SECTION 6. SOLENOID AND BUZZER INSTALLATION

(a) The solenoid is an electrical device that is connected to the carburetor by means of a linkage and is energized by switches that are controlled by the packing mechanism in the tailgate. This speeds up the engine so that the proper time length of a packing cycle is obtained. The linkage attached to the end of the solenoid plunger should be attached to the carburetor lever or linkage so that the plunger has to overcome a minimum resistance in operating. The pull on the plunger should be on as straight a line as possible to the center of the solenoid. The solenoid is mounted on a bracket which is easily reworked, if necessary to fit all trucks and has an extra cut out switch mounted in the cab so that the solenoid can be engaged or disengaged. The solenoid is to be engaged **ONLY** during the loading cycle. For details of parts, installation and wiring see illustration and parts list in parts catalog section of this manual. For electrical circuits see Figure 10.

(b) The buzzer is located in the cab and is used as a signaling device between the crew and the driver. Buzzer switches are at the back of the tailgate, one on each side (see Figure 10.)

(c) The lights at the rear of the tailgate (stop, tail and directional) are to be connected to the truck light switch (see Figure 10.)

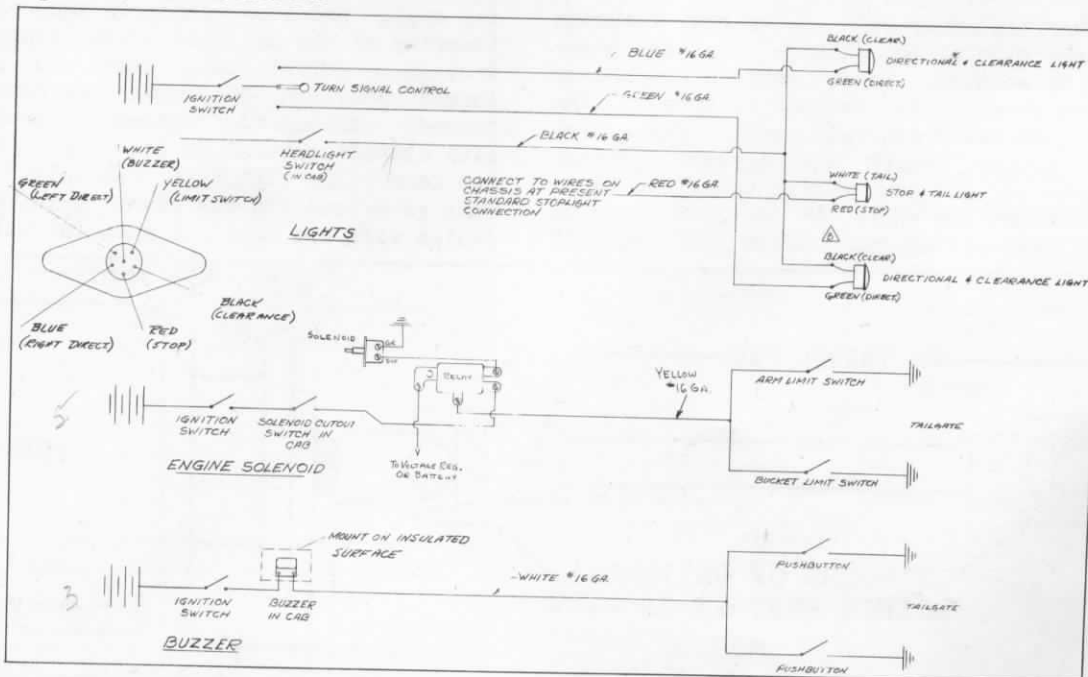


Figure 10. Electrical Circuits

HEIL *bodies and hoists*

OPERATION

CHAPTER 3. OPERATION

SECTION 1. PREPARING UNIT FOR OPERATION

a. Check the following items:

- (1) Have all tie down bolts been added and securely tightened?
- (2) Have all tie down bars been welded to the hoist frame?
- (3) Have shipping ties between hoist frame and subframe been removed?
- (4) Has transmission been re-filled with oil after installing power take-off?
- (5) Does pump rotate in proper direction?
- (6) Do valve spools move to their full travel? (1/2" each side of neutral) when cab controls are shifted?
- (7) Grease universal joints and cable controls.
- (8) Oil pump shaft and valve lever bearings.

b. To fill oil tank, lift body with crane so that front end is off of hoist frame about 24 to 30 inches. Block body in this position and fill tank with hydraulic oil to within approximately three inches from top of tank (about 12 gallons). Remove blocking and lower body.

c. Body hoist cylinder should be filled as follows:

With all cab controls in NEUTRAL position, and the tailgate still locked to the body, start the engine and engage power take-off, move BODY control handle BACK (or OUT) until body rises off the hoist frame about 18 inches. Then move the BODY control handle FORWARD (or IN) so the body settles on the frame. Repeat this operation about twelve times so that all air is driven out of hoist cylinder. NOTE: THIS IS VERY IMPORTANT. Raise body once more (to a height of 24 to 30 inches), block in this position and check oil level in tank. If necessary, add more oil, for normal operation there should be approximately 6 inches of oil (about 12 gallons) in the tank. Remove blocking and lower body.

CAUTION: Make absolutely certain that all air is driven out of hoist cylinders before raising body to its full height. When body passes balance point and air is present in the cylinders, the body could fall backward and cause considerable damage to the unit.

SECTION 2. PRINCIPLE OF OPERATION

Double acting hydraulic cylinders (one in 16 yard and two in 20 yard) mounted in the hoist frame raises and lowers the body. This action is controlled from the cab.

Two double acting hydraulic cylinders mounted in the tailgate perform a combined function of operating the loading mechanism and of raising and lowering the tailgate. The loading mechanism

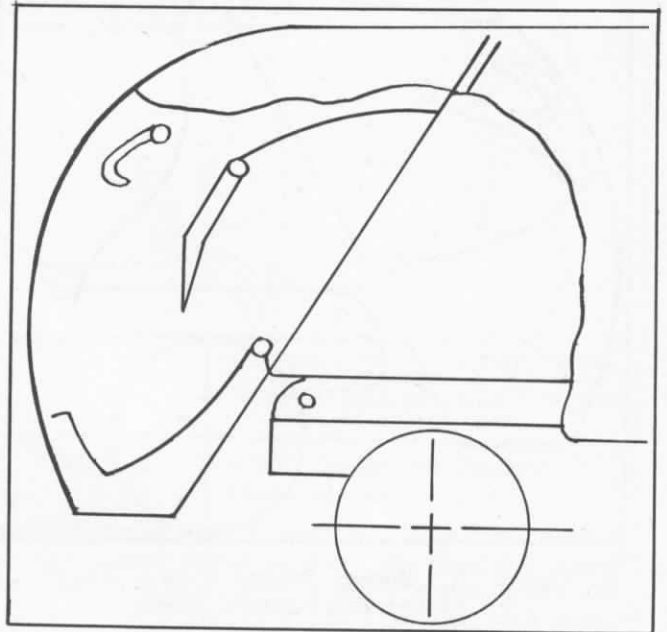


Figure 11. Packer Swings Back, Bucket Stationary

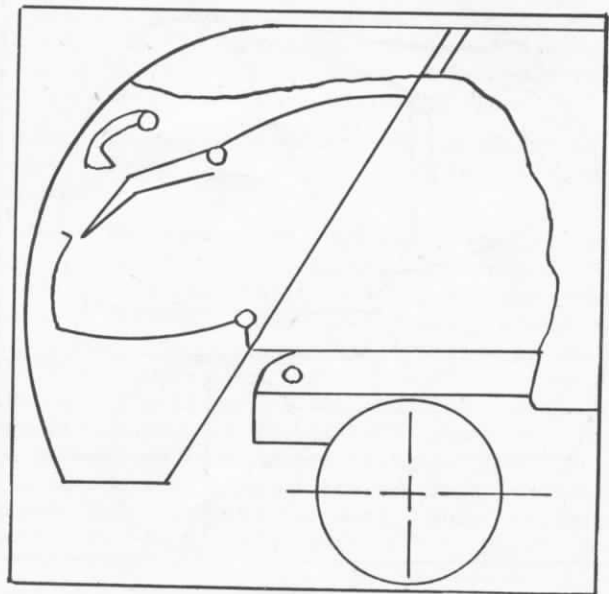


Figure 12. Packer Swings Back Against Stop, Bucket Still Riding

is automatically controlled by a lever mounted on the curb side of the tailgate and the movement can be stopped or reversed at any point in the cycle. The packer and the bucket are interconnected with a lost motion link so that when the control lever is moved to start the cycle the tip of the packer swings back about 18" before the bucket starts to lift (see Figure 11). When the packer has moved back to the limit of its travel (Figure 12) the bucket still keeps moving and swings around the tip of the packer (Figure 13). The bucket then engages on two hooks which hold it up and at the same time the control handle automatically reverses the

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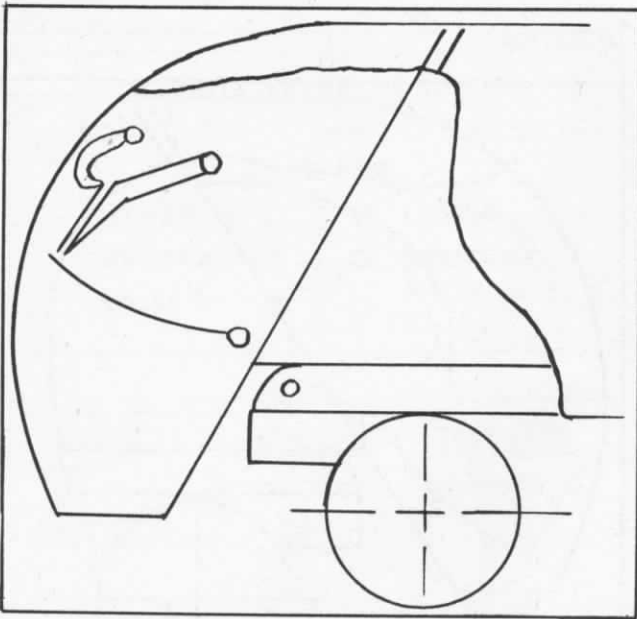


Figure 13. Bucket Swings Around Tip of Packer and Engages Hooks

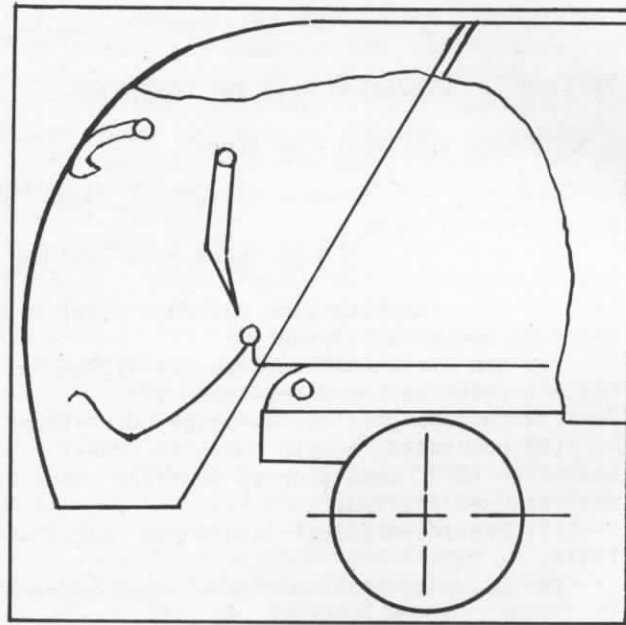


Figure 15. Bucket Drops Completing the Loading Cycle

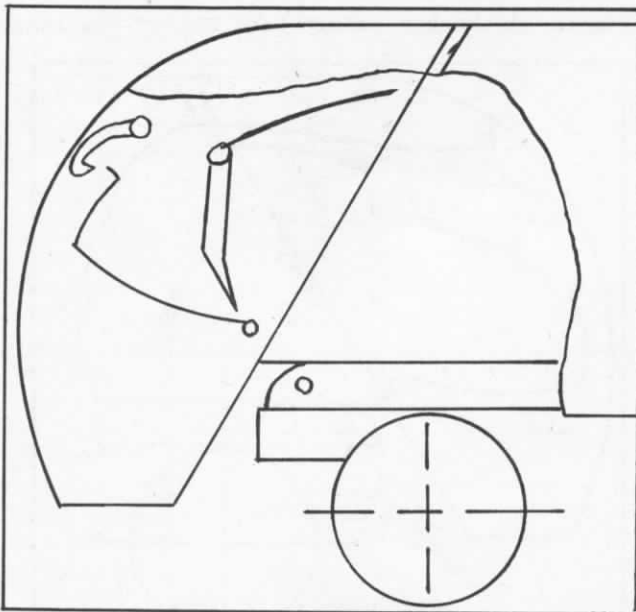


Figure 14. Packer Moves Forward and Disengages Bucket Hooks

cylinders. The packer then reverses direction and forces the refuse out of the bucket and into the body and holds it there (Figure 14.) As the packer reaches the limit of its forward travel it releases the hooks which hold the bucket and allows it to drop to its normal loading position, ready to be reloaded (Figure 15.) A pair of automotive type shock absorbers attached to the bucket cushions its fall.

SECTION 3. OPERATING INSTRUCTIONS

a. LOADING CYCLE

The operation of the loading cycle is controlled by both the primary and secondary valves

by means of a control in the cab and one on the tailgate. To start the loading cycle, engage the power take-off and move the cab control for the tailgate (BACK or OUT) to the PACK position and lock it in position by giving the handle approximately a quarter turn. This sets the primary valve for tailgate operation (see Figure 20 for hydraulic flow diagram), and the loading cycle is then controlled by the lever on the curb side of the tailgate. Move this lever out of the NEUTRAL notch on the quadrant plate so that it can move to the RETRACT position (see Figure 21). This will start the cycle and the control will then move to PACK position, see Figure 22) and back to the NEUTRAL all automatically. When the control lever does NOT move from PACK to NEUTRAL automatically but stays in the PACK position, this is normally an indication that the body is full. It is always a good idea to work the control lever manually a few times after this happens to be sure that it was not a temporary jamming that occurred which often gives the same reaction on the controls that a full load does. The positions of the valve spools on both the primary and secondary valves as well as the flow through the valves when the spools are moved are shown in Figures 16 and 17. Very infrequently the packer may become jammed in the bucket so that it cannot move in either direction due to the wedging action of the load. When this happens the bucket can be manually tripped by inserting a handle furnished for this purpose in a hole in the left hand side of the bucket hook support shaft and pushing up (see Figure 18.) This trips the bucket hooks and allows the bucket to drop. Remove handle and recycle.

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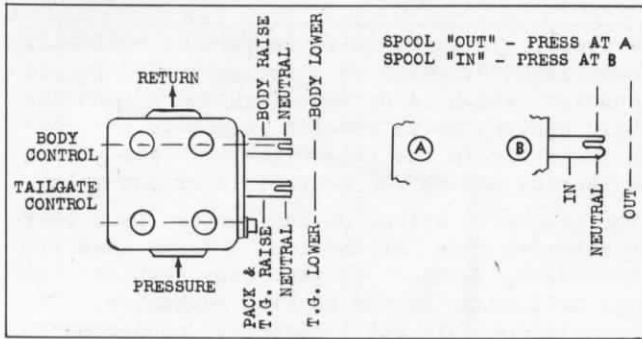


Figure 16. Primary Valve Positions (Spring Centered Spools)

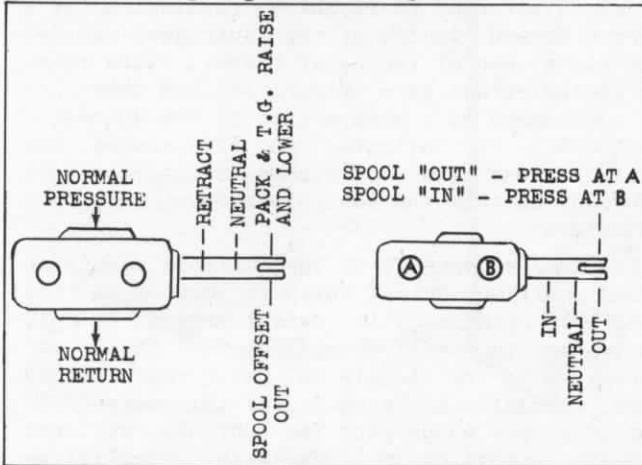


Figure 17. Secondary Valve Positions (Spool Offset "Out")

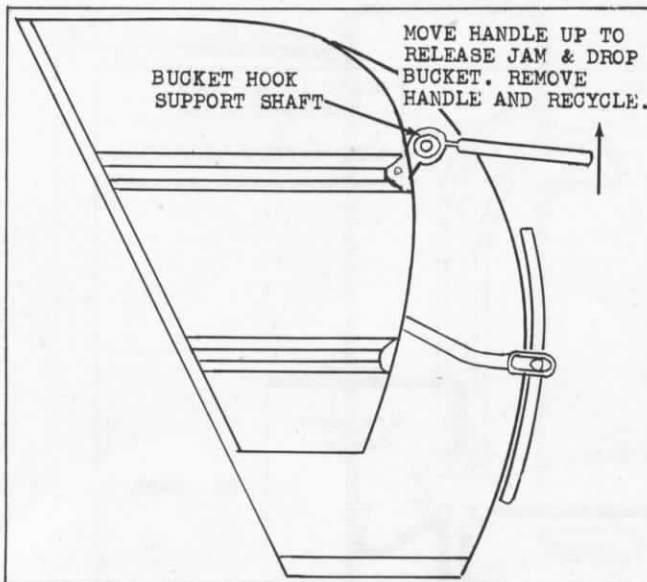


Figure 18. Method of Tripping Bucket Manually

b. TAILGATE RAISE AND LOWER

In **STARTING** this operation the controls are left in the same position as they were for the loading cycle. That is, the cab control for the tailgate **BACK** (or **OUT**) to the **PACK** position and locked, and the control lever on the

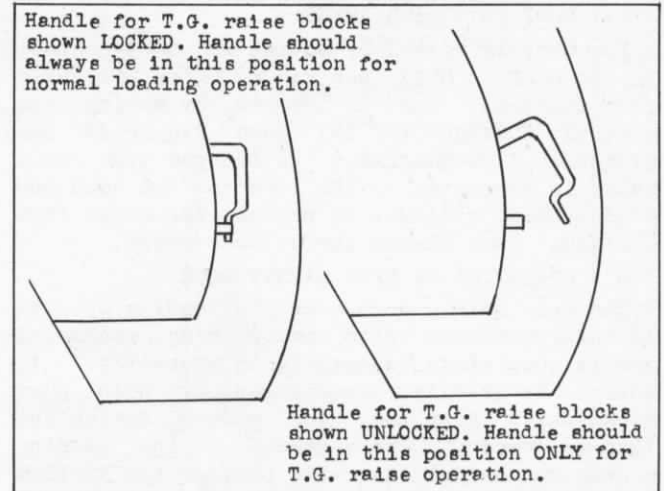


Figure 19. Control Handle for Tailgate Raise Blocks

tailgate in **NEUTRAL** position. Then run packer through a half cycle so that the bucket engages the hooks. Approximately two seconds after the control handle shifts forward to the **PACK** position pull it back to the **RETRACT** position to trip the control toggle and slip into the **NEUTRAL** notch on the quadrant plate to completely stop the mechanism. Place all cab controls in **NEUTRAL** and disengage solenoid switch to slow the truck engine to idling speed.

NOTE: The above procedure should all be done before driving unit to the dump to discharge the load.

After the above preliminary procedure has been completed, the tailgate is ready to be raised as follows, still leaving all cab controls in **NEUTRAL**. **UNLOCK** tailgate clamp on both sides, unlock handle on left side of tailgate (see Figure 19,) and lift control lever on side of tailgate out of the **NEUTRAL** notch so that it can move to the **RETRACT** position, (in the process of raising the tailgate this lever will automatically move to the **PACK** position before the tailgate raises). Move tailgate control in cab **BACK** (or **OUT**) to **T.G. RAISE** position (see Figure 23 for hydraulic flow diagram) and hold until tailgate is raised to its maximum position, then move to **NEUTRAL** (then raise and lower body per paragraph "c" of instructions.) To lower tailgate move tailgate control in cab **FORWARD** (or **IN**) and hold in this position for about three seconds after tailgate closes against body (see Figure 24 for hydraulic flow diagram) and let cab control return to **NEUTRAL**. Then lock handle for tailgate raise blocks (see Figure 19,) lock and securely tighten tailgate clamps.

Move tailgate control in cab to **PACK** position and mechanism will return to normal loading position.

NOTE: **DO NOT** engage solenoid when raising or lowering tailgate.

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c. BODY RAISE AND LOWER

The body is raised by moving the body control in cab BACK (or OUT) (see Figure 25 for hydraulic flow diagram,) and is lowered by moving the control FORWARD (or IN) (see Figure 26 for hydraulic flow diagram.) A flapper type check valve is connected in the line to the head end of the hoist cylinder to prevent the body from "falling" back beyond the balance point.

d. OPERATION OF REAR SAFETY DOOR

The rear safety door over the loading opening is interconnected with the packing mechanism and is completely automatic in operation. It lowers by gravity and engages two hold down hooks which keep the door closed during the loading cycle. The movement of the packing mechanism through its cycle charges two springs which are attached to the door mechanism so that when the bucket drops after the loading cycle is completed it disengages the door hold down hooks and the door swings open. The door is cushioned when it swings open by two adjustable air type shock absorbers. For details of door and parts see illustration and parts list "A12E3889 Tailgate Door Assembly," (Figure 45).

e. OPERATION OF AUTOMATIC CONTROLS

The controls for the loading cycle are completely automatic after the operator starts the cycle by lifting the control lever on the tailgate out of the NEUTRAL notch on the quadrant plate and allowing it to move to the RETRACT position. The control lever then moves to the PACK position and back to NEUTRAL, to complete

the cycle. This automatic feature is basically accomplished by means of a spring loaded toggle mechanism which is driven slightly beyond the toggle center, which results in the toggle moving instantly to the full extent of its stroke and thereby moving the control lever and valve.

The toggle is driven beyond center by a long rod with two cams at the top. These cams are actuated by either of two capscrews on the large bell crank in the packing mechanism. The automatic controls are indirectly connected to the secondary valve by a push rod at the front of the tailgate. The secondary valve has a linkage attached to it which terminates at a target housed inside of the outrigger box at the right rear of the hoist frame. This valve is spring offset (see Figure 16) and therefore is positioned by a push action of the automatic controls in the tailgate. For this reason, the tailgate must always be clamped tightly against the body so that the controls remain in proper adjustment.

The toggle assembly of the controls contains a one position detent which is located on the long bell crank. This detent serves to hold the valve in position against its "built in" spring while the toggle is being repositioned from "retract" to "pack." If this detent is not in proper adjustment the controls will not operate automatically. For details see illustrations and parts list for A254E347 Toggle Assembly and A254E348 Automatic Control Assembly (Figures 46 and 47).

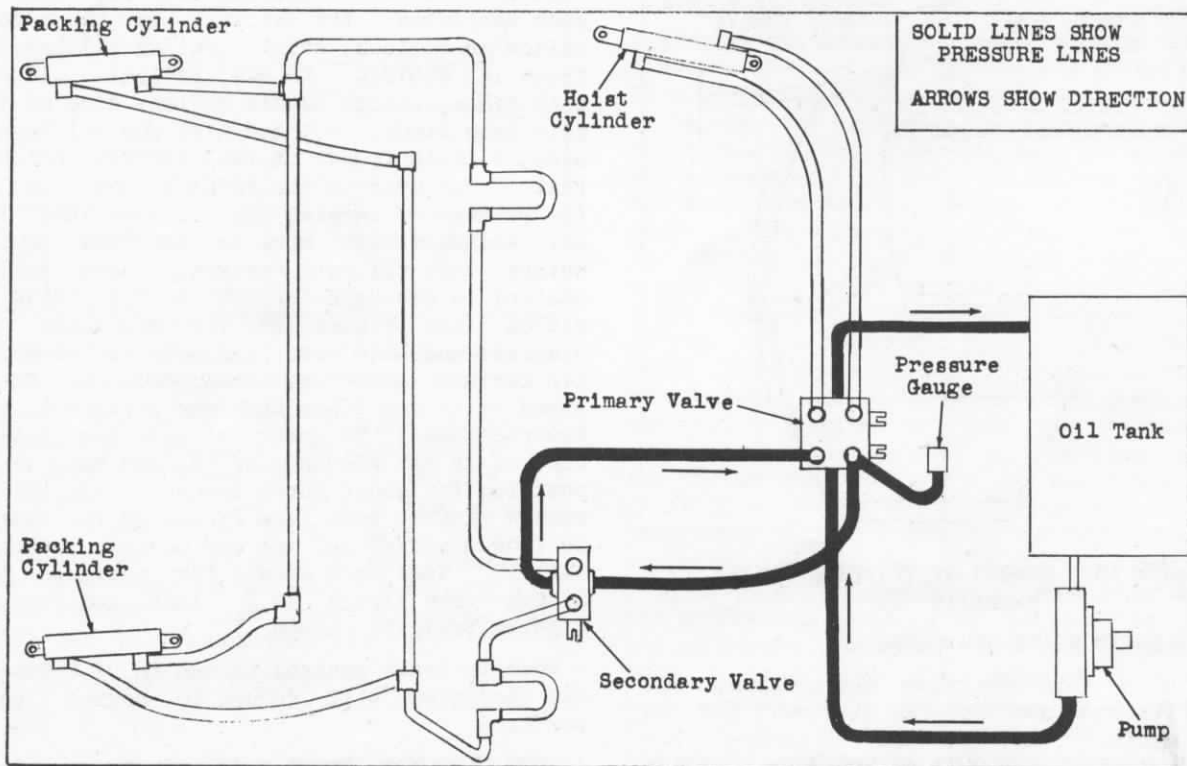


Figure 20. Flow Diagram. Cab Control in "Pack". Tailgate Control in "Neutral".

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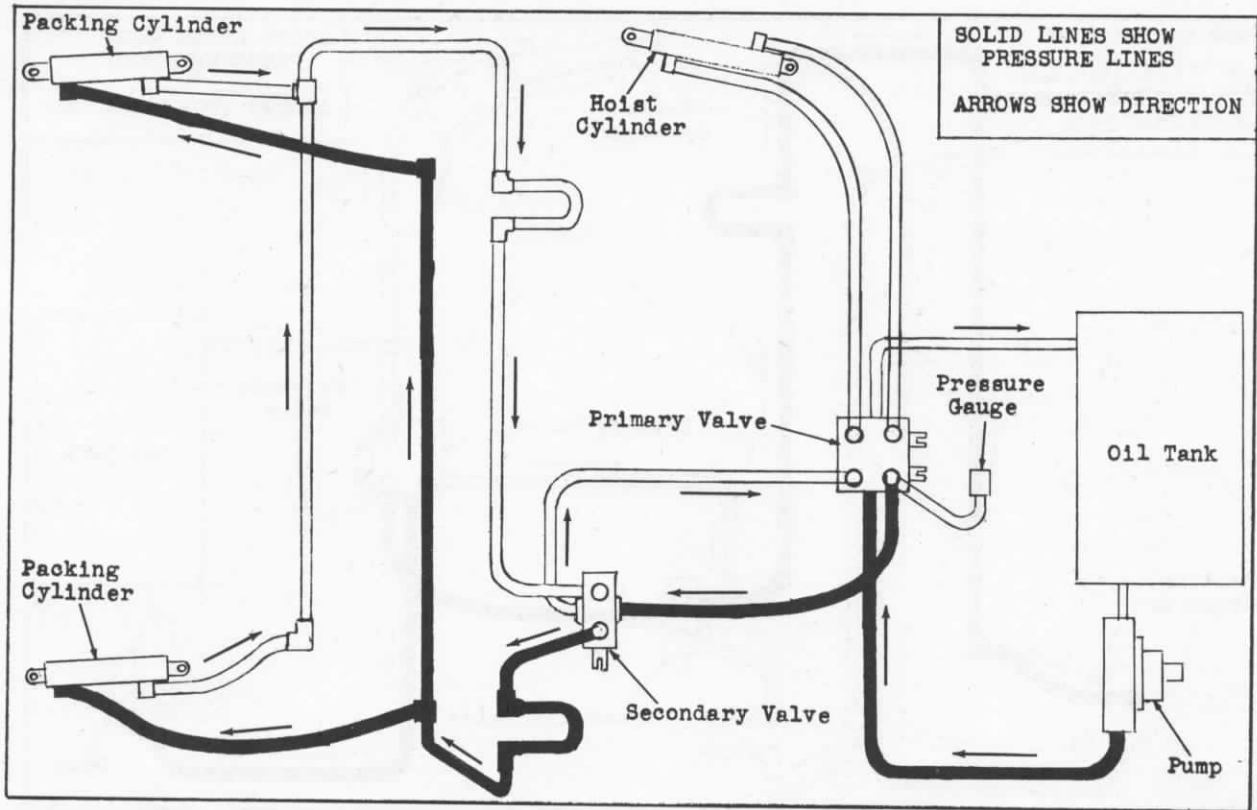


Figure 21. Flow Diagram (Retract Section of Loading Cycle). Cab Control in "Pack". Tailgate Control in "Retract".

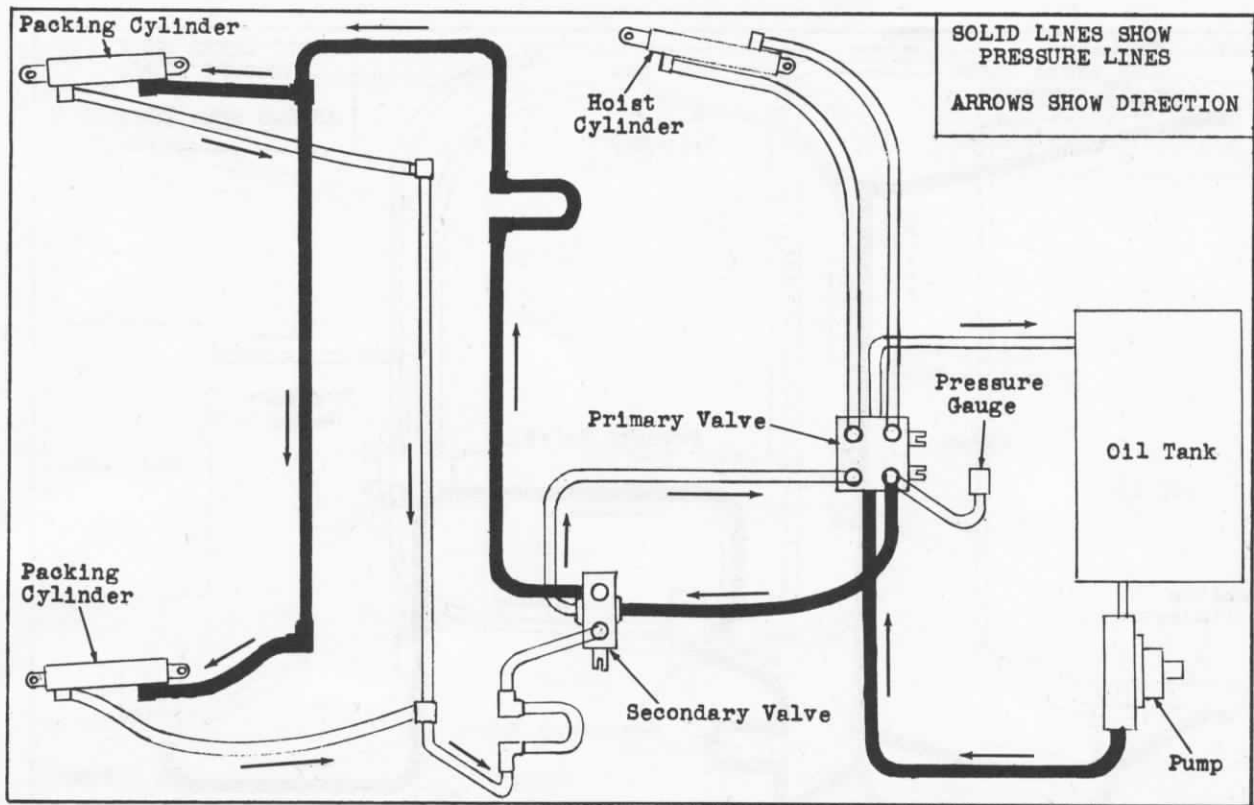


Figure 22. Flow Diagram ("Pack" Section of Loading Cycle). Cab Control in "Pack". Tailgate Control in "Pack".

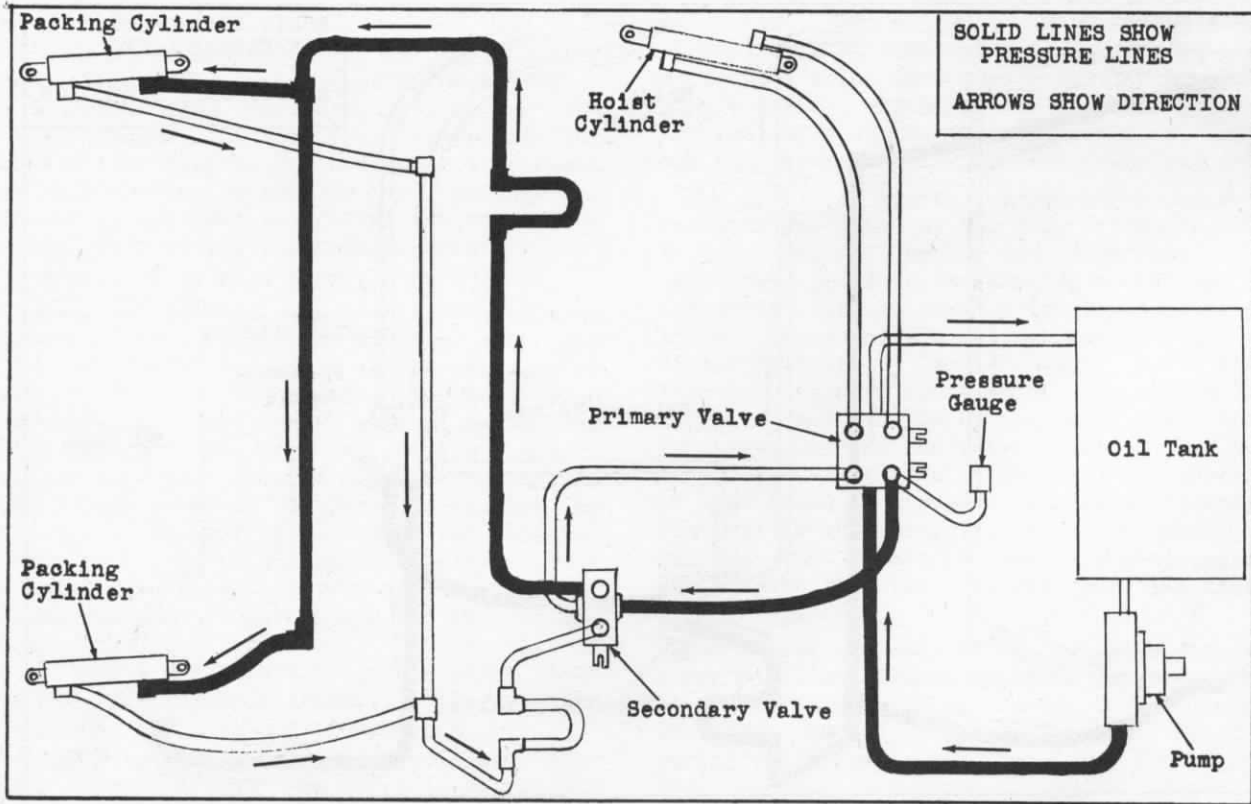


Figure 23. Flow Diagram (Tailgate Raise) Cab Control in "T.G. Raise".

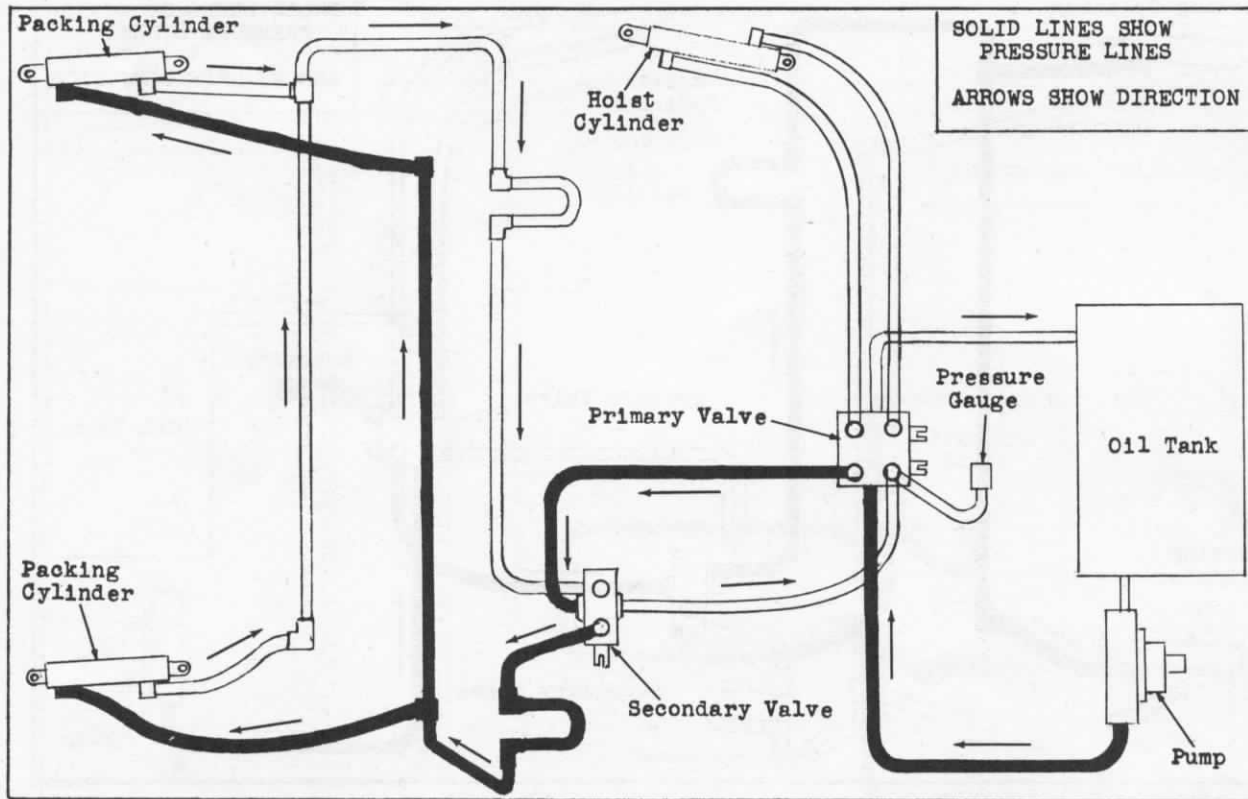


Figure 24. Flow Diagram (Tailgate Lower). Cab Control in "T.G. Lower".

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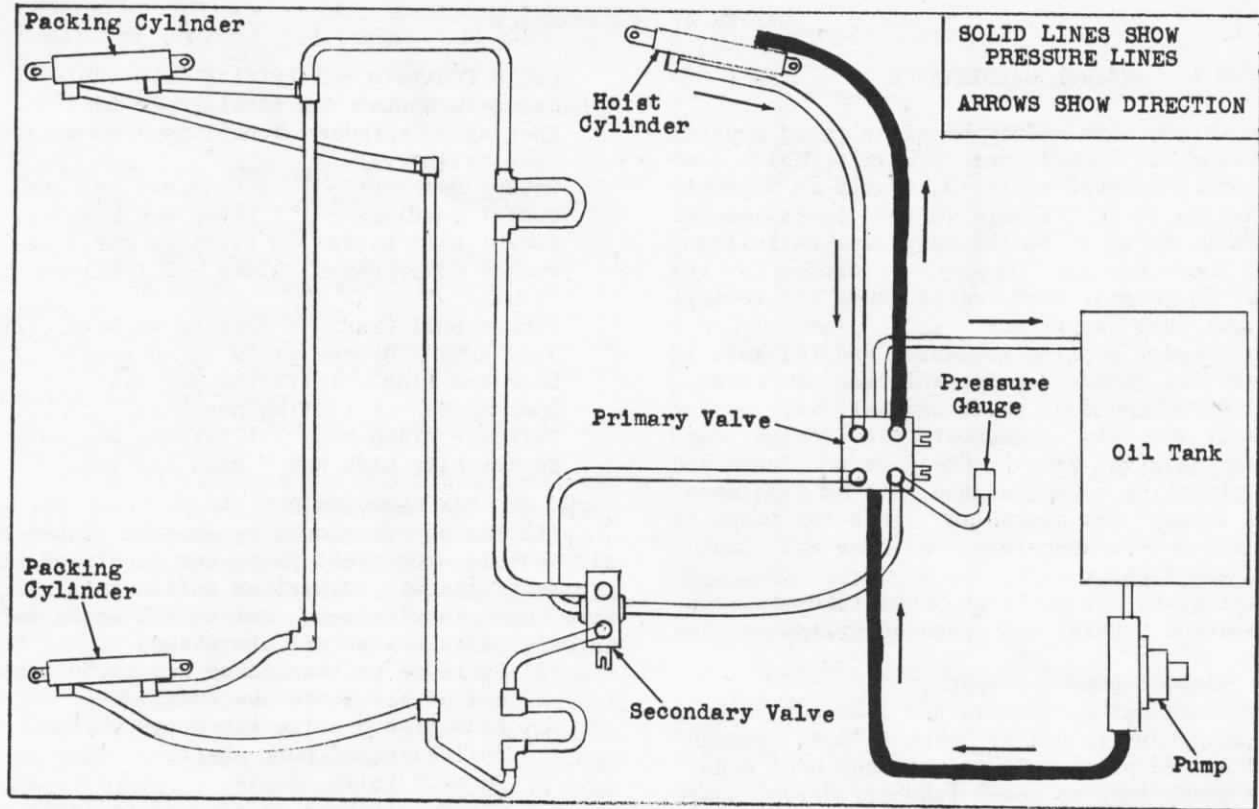


Figure 25. Flow Diagram (Body Raise). Cab Control in "Body Raise".

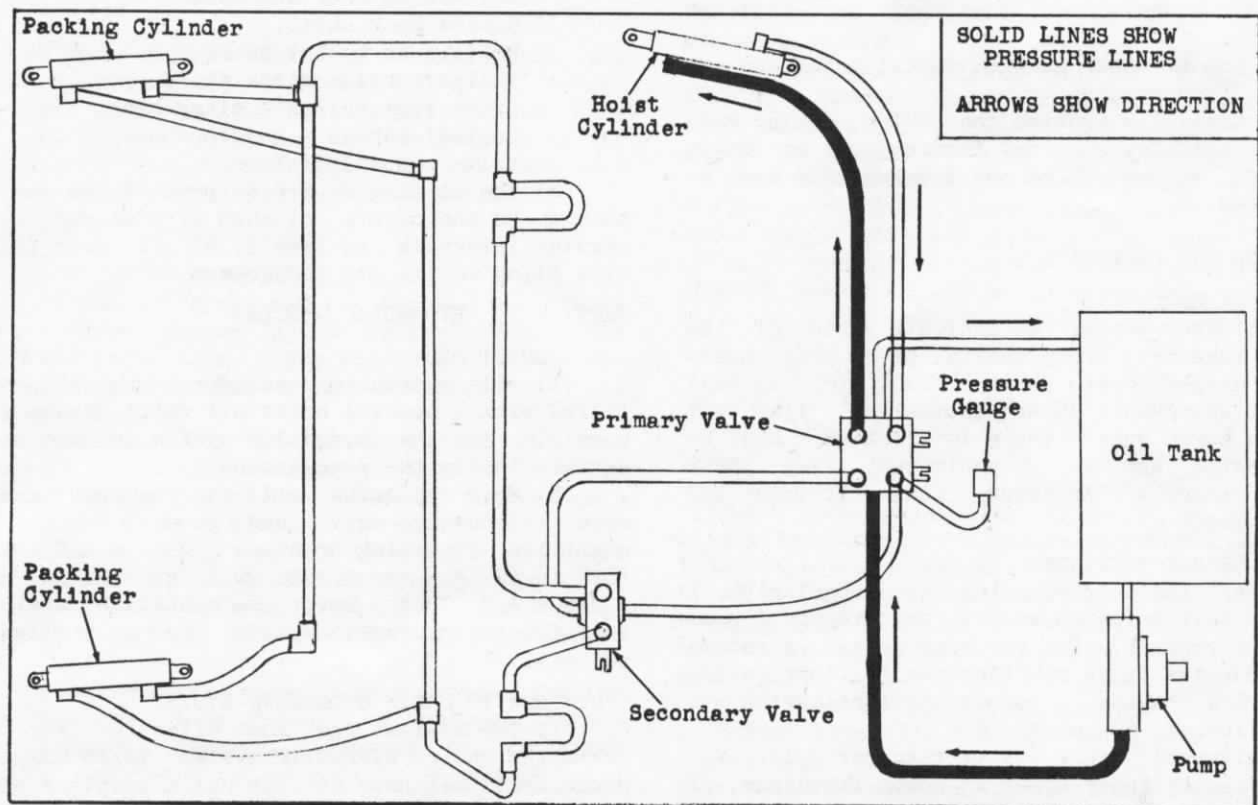


Figure 26. Flow Diagram (Body Lower). Cab Control in "Body Lower".

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CHAPTER 4. MAINTENANCE

SECTION 1. GENERAL MAINTENANCE

The entire unit should be given a good general checkover at least once a week. This precautionary measure will aid greatly in preventing any untimely failure in the operation of the unit. Parts to be inspected are as follows:

(a) Look for any injury or damage to the truck in general that might cause it to fail when put into operation.

(b) Inspect packing mechanism and tailgate in general and remove any accumulation of refuse.

(c) Raise the body about one-half way up and block it securely. Inspect all locking capscrews on pivot pins. Check hoist frame and body attaching capscrews and nuts for tightness.

(d) Inspect the hydraulic lines for leaks in hose and hose connections. Be sure all connections are tight.

(e) Inspect oil seals in power take-off, control valves, hoist and packing cylinders for leaks.

(f) Inspect pump for leaks.

(g) Check valve controls and linkages, making certain that all cotter pins at yoke connections are in place. Straighten any bent rods.

(h) Check pump to power take-off drive shaft to be certain that all taper pins are in place and the universal joints are operating smoothly.

(i) Remove blocking, and raise and lower the body, listening for such noises as rattles, knocks, squeaks, or hums that may indicate trouble.

(j) Check rubber gasket on tailgate and replace if necessary.

(k) Carefully examine the cables, making certain that they are not frayed, cut or badly rusted. If the cables are damaged they must be replaced.

SECTION 2. LUBRICATION

a. GENERAL

(1) The moving mechanical parts of the power take-off, cross shafts, pivot pins, bearings, hinges, drive shaft sleeve, etc., as well as the universal joints themselves, like all moving parts where there is friction, **MUST** be lubricated and kept lubricated. For these parts there are provided grease fittings and oil holes.

b. GREASE FITTINGS

When the unit is being used regularly it should be lubricated weekly, or oftener if conditions require. Use the same grease as recommended by the truck manufacturer for lubricating the truck chassis. Points of lubrication are as follows:

Universal Joints - 1 fitting per joint.

Hoist Cylinder Upper & Lower Trunnions - 2 fittings per cylinder.

Hoist Arm Links - 2 fittings per link.

Hoist Arm - 2 fittings.

Body Hinges - 1 fitting per hinge.

Cable Controls - 1 fitting each cable.

Tailgate Hinges - 1 fitting per hinge.

Packing Cylinder Trunnions - 2 fittings per cylinder.

Packer Bearings - 1 fitting per bearing.

Bucket Bearings - 1 fitting per bearing.

Bucket Lift Links - 2 fittings per link.

Packer Compression Links - 2 fittings per link.

Packer Bell Crank - 1 fitting per bell crank.

Door Arms - Grease slots (hand applied.)

Door Arm Pins - 1 fitting per pin.

Door Hooks - 1 fitting per hook.

Tailgate Clamp Nuts - 1 fitting per nut.

Bucket Lift Link Rod - Hand applied.

c. OIL CAN LUBRICATION

(1) Engine oil should be used to lubricate all movable mechanical parts not furnished with grease fittings. Squirt on sufficient oil to give good lubrication, but do not bathe parts in oil. Always wipe off the excess.

(2) Parts to be lubricated are as follows:

Rod of air shock absorber.

Ends of hydraulic shock absorber.

Spline end of pump shaft.

Ends of valve spools.

Control linkage on side of tailgate.

Outrigger control box parts (Right hand side at rear of hoist frame.)

Control box bearings.

Rollers on door and hooks.

Bucket hook shaft.

Rollers on bucket hooks.

Tailgate raise block shaft.

Lever type tailgate clamp pins.

Control cables - handle end.

Valve control linkage.

(3) The sliding sleeve on pump drive shaft should be thoroughly cleaned with solvent at regular intervals to free it of all grit that will cling to the oil and grease.

SECTION 3. HYDRAULIC SYSTEM

a. HOIST OIL

(1) All hydraulic cylinders are shipped filled with a special hoist oil which makes it possible for the hydraulic system to operate satisfactorily the year around.

(2) When replacing oil, use oil having an even viscosity curve and good lubricating qualities (freezing or below - use S.A.E.10,) (32° to 80° F.- use S.A.E. 20,) (80° F. and up - use S.A.E. 30.) Never use crankcase drainings for the hydraulic system; use only clean, new oil.

b. HOW TO DRAIN HYDRAULIC SYSTEM

(1) The easiest and most effective way to drain the entire hydraulic system is to simply disconnect all hose at the union adapters and allow the oil to drain into suitable containers.

(2) Work the controls in the cab back and forth through all positions in order to thoroughly drain the control valves.

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(3) After the system has been drained and tank cleaned, connect and tighten all hose, and refill the system with the proper oil.

CAUTION: Block body and tailgate when working underneath.

c. HOW TO FILL HYDRAULIC SYSTEM

(1) Check the entire system to make sure all connections are tight.

(2) Lift body with a crane so that front end is off of hoist frame about 24 to 30 inches. Block body in this position and fill tank with hydraulic oil to within approximately 3 inches from top of tank (about 12 gallons.) Remove blocking and lower body.

(3) Body hoist cylinder or cylinders should be filled as follows:

With all cab controls in NEUTRAL position, and the tailgate still locked to the body, start the engine and engage the power take-off, move body control handle BACK (or OUT) until cylinders fill with oil and body rises off the hoist frame about 18 inches. Then move the BODY control handle FORWARD (or IN) so the body settles on the frame. Repeat this operation about twelve times so that all air is driven out of cylinders. **NOTE: THIS IS VERY IMPORTANT.** Raise body once more (to a height of 24 to 30 inches,) block in this position and refill tank to within approximately 3 inches from top of tank. For normal operation there should be approximately 6 inches (about 12 gallons) of oil in the tank. Remove blocking and lower body.

CAUTION: Make absolutely certain that all air is driven out of hoist cylinders before raising body to its full height. When body passes balance point and air is present in the cylinders, the body could fall backward and cause considerable damage to the unit.

SECTION 4. ADJUSTMENTS

a. SOLENOID ADJUSTMENT

Solenoid linkage can be adjusted to increase or decrease engine speed which affects the packing cycle time. See solenoid mounting instructions in Chapter 2, Paragraph 6, and Figure 39.

Solenoid circuit is protected by fuse located on relay. Excessive fuse blowing is caused by any one of the following conditions:

(1) Short circuit between relay and solenoid (control circuit from relay to limit switches is NOT protected by this fuse.)

(2) Wire between solenoid relay and power source should not be less than #10 automotive wire.

(3) Primary winding in solenoid remains energized too long, caused by improper linkage to solenoid, plunger alignment or excessive pull. Maximum solenoid pull is 12 pounds.

b. CONTROL CABLES

Control cables from cab to primary valve have adjustable clevis at valve end. Cable

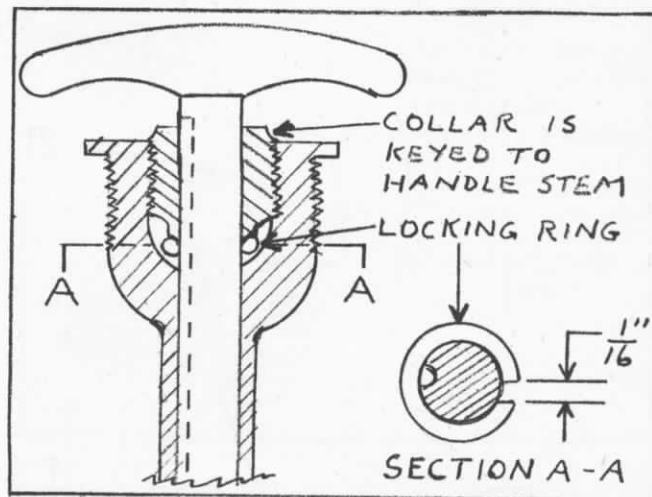


Figure 27. Locking Type Control Cable Head

should be adjusted to allow full stroke of valve spool (one inch) before cable itself reaches end of stroke.

c. LOCKING TYPE CONTROL CABLE

The control head on the tailgate control cable (locking type) may, after prolonged use, slip after locking. This may be corrected by shortening the lock wire just enough to provide 1/16" opening. See Figure 27.

d. AUTOMATIC CONTROLS ADJUSTMENT (see Figure 28)

To properly adjust the automatic controls, the following checks should be made, in the sequence listed.

(1) See that tailgate is drawn up firm. The 1"x1"x3" spacer blocks (Item 1,) located on each side of the tailgate below the gasket, should be against the rear body crossmember.

(2) With truck engine shut off and cab controls in NEUTRAL, check position of control lever target A13A3939 (Item 2,) located inside of valve control rod support A77B2122 (Item 3.) Face of target should be approximately square with the truck frame when valve is in mid position (neutral.)

(3) Place operating handle (Item 4) on the tailgate in RETRACT and adjust length of bronze control link 4A1022 (Item 5) extending from underside of toggle assembly (Item 6) forward to valve target lever, by loosening jam nut (Item 7) and turning link (Item 5) by hand or with pliers until a distance of approximately 1/32" appears between the 1/8" cotter pin (Item 8) and the base of the toggle spring housing A6A1454 (Item 9). Wiggle cotter pin to be sure it is clear of base of toggle spring housing.

(4) Unscrew hex. lock nuts (Item 10) on lock bar A53A573 (Item 11) about 1/8". With controls in RETRACT position, lock bar (Item 11) should be moved until steel balls in spring cages 6A1453 (Items 12 and 14) snaps into detent in the lock bar. Tighten lock nuts by hand without moving lock bar, until snug.

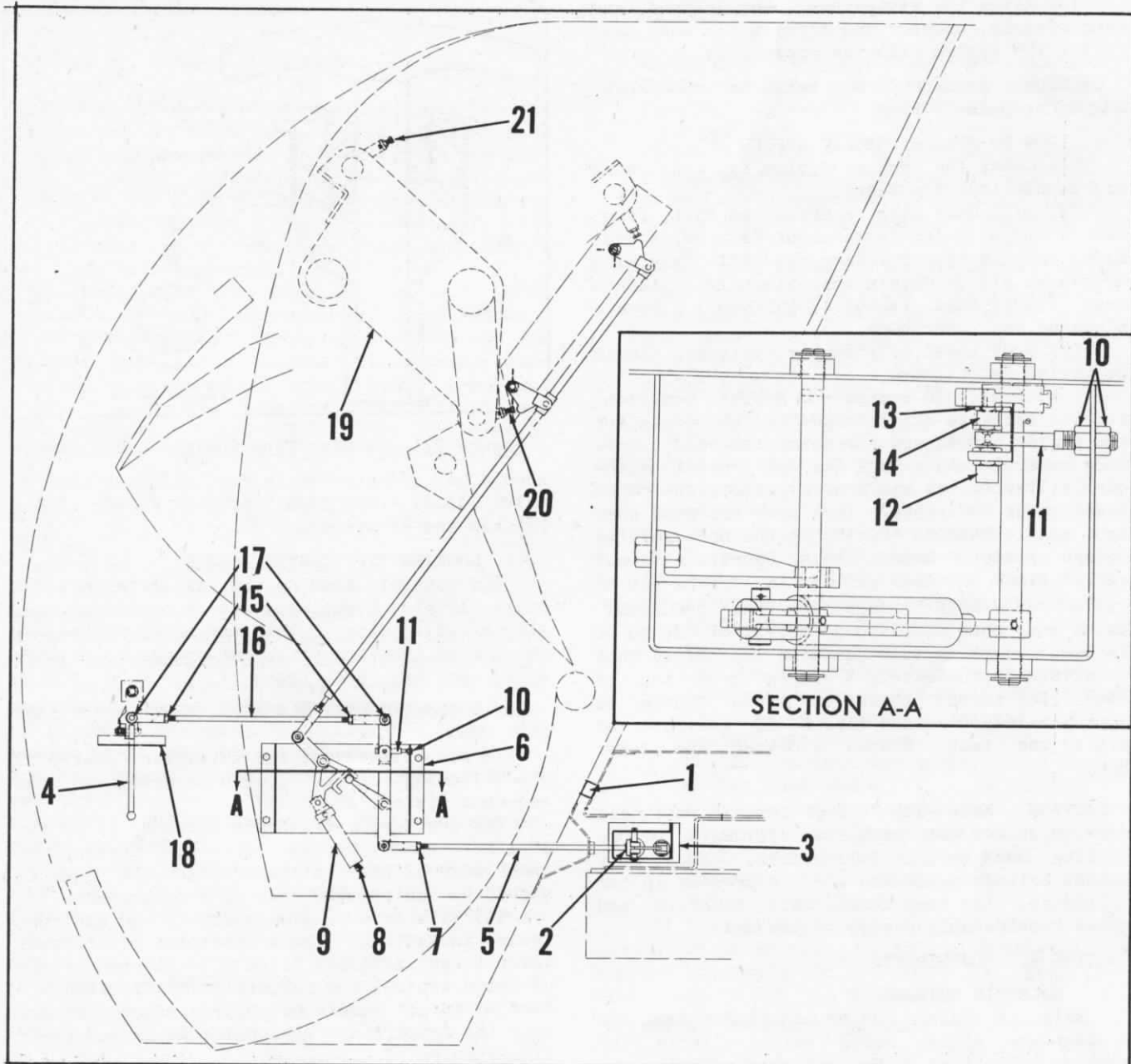


Figure 28. Automatic Controls Adjustment

Move control handle in and out of RETRACT position several times and recheck lock bar position to be certain detent effect takes place. Tighten lock nuts firmly with lock bar in proper position.

(5) The spring cage 6A1453 (Item 12) should be adjusted so that the detent effect (see paragraph (4) above,) is strong enough to hold valve in retract position until toggle (Item 9) is driven through dead center position. This adjustment is made by loosening locknut (Item 13) on spring cage (Item 14) behind the lock bar A53A573 (Item 11) and then turning the spring cage out towards the lock bar. DO NOT turn out so that the lock bar is held tight by the spring cages, parts must move freely.

Tighten lock nut securely when adjustment is completed.

(6) Unscrew both locking nuts (Item 15) on hand lever link 4A1021-1 (Item 16) and remove both yoke pins (Item 17.) Shorten up or lengthen out yokes, until hand lever link (when yoke pins are replaced) allow the operating handle (Item 4) to rest against the neutral stop in the quadrant plate (Item 18,) when the valve is approximately in the center of neutral range. To check this adjustment, place cab controls in PACK position, but turn solenoid switch to OFF position so that unit will operate at slow speed. Slowly move operating handle (Item 4) towards RETRACT position and mark the handle position at the instant the bell crank

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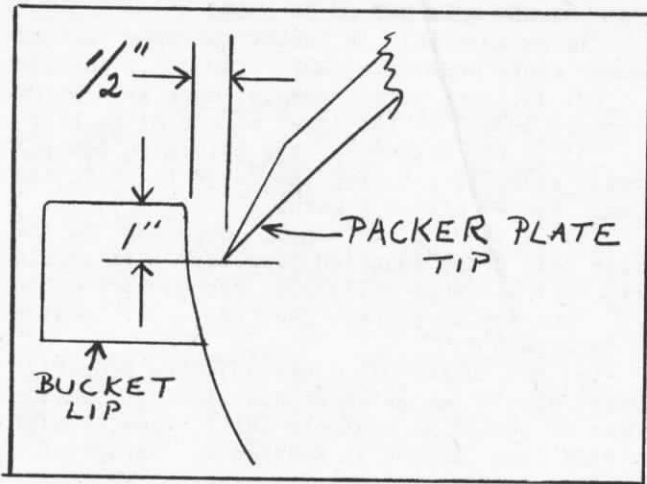


Figure 29. Packer Plate Adjustment

(Item 19) begins to rotate. Then move handle slowly towards PACK position and again mark the handle position at the instant the bell crank begins to rotate. These two extreme neutral limits should be approximately equidistant from the neutral stop. Lengthen or shorten hand lever link (Item 16) accordingly. DO NOT lengthen to the point where controls will not go all the way into RETRACT (Handle may hit end of quadrant opening before detents engage - see paragraph d (4) above.) Tighten all lock nuts and replace cotter pins.

(7) Start truck engine, engage power take-off and solenoid switch, place cab controls in PACK position and cycle unit to see how it works as a final check.

e. PACKER PLATE SHIMS AND ADJUSTMENTS

(1) Refer to Figure 42, Item 79 in parts list of this manual. All units with serial No. 191517 and lower were shipped with a rubber bumper. All units with serial No. 191518 and higher were equipped with the No. A252A1351 packer bumper kit. The bumper kit will be supplied as a replacement part for all units. When installing, use only enough shims to provide $\frac{1}{2}$ " clearance between the packer plate tip and the bucket lip, when the packer plate tip is about one inch into the bucket (see Figure 29.)

CAUTION: To check, operate unit slowly and stop unit completely when measuring $\frac{1}{2}$ " clearance.

(2) Refer to Figure 42, Item 22, bucket release lever assembly A13A3976. All units with serial No. 191498 and lower had no adjustment. Units with serial No. 191499 and higher, and all replacement parts have shim adjustments. Proper adjustment is as follows:

(a) Adjust 47A812. Hex. Hd. Capscrew (Figure 28, Item 20) located on bottom of right bell crank (Figure 28, Item 19) so that controls return to NEUTRAL when packer plate tip is approximately $\frac{1}{2}$ " from its innermost position (end of packing cylinder stroke.) This can be checked by placing control handle in PACK position, after unit has completed a cycle, and observing the movement of the packer plate tip.

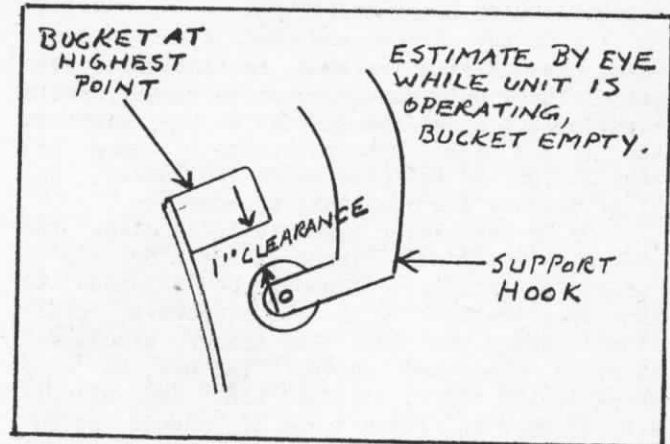


Figure 30. Bucket Adjustment

Be sure that the packer plate is stopped by the cylinder rather than the control valve moving into NEUTRAL.

(b) When packer plate travel is completely adjusted, remove or add shims to bucket release lever so that bucket hooks are tripped at, or just before the instant the controls trip.

f. BUCKET ADJUSTMENTS

(1) Cycle unit and watch bucket going up to bucket support hooks. The bucket will pass the hooks and then should drop back on them. At the highest point of travel, the underside of the bucket loading sill where the rollers on the hooks come to rest, should be approximately 1" above the top of the rollers (see Figure 30.)

(2) Now check stroke of packing cylinders as follows: At the end of the "IN" stroke, as controls shift from RETRACT to PACK, there should be approximately $\frac{1}{8}$ " of piston rod showing between oil seal in the cylinder head and the piston rod clevis. Check both cylinders and adjust 47A812 capscrew (Figure 28, Item 21) in top of right hand bell crank (Figure 28, Item 19,) in or out so that $\frac{1}{8}$ " dimension is satisfied on one or both cylinders.

(3) After cylinder length has been checked, adjust as follows: Bucket lift link rods 27A2622 (Figure 42, Item 46,) located on each side of tailgate, can be turned in to raise bucket position or turned out to lower bucket position. One complete turn of this rod will raise or lower the bucket lip approximately $\frac{1}{4}$ ". Adjust as required.

CAUTION: Do not allow packer plate to hit bottom of bucket. This can be determined by cleaning out the rear inside corner of the bucket, spotting grease along the bottom edge of the packing plate, cycling the unit and then check the bottom corner of the bucket for grease from the packer plate. Should grease be transferred from the packer plate to the bucket, unscrew the lift link rods a quarter of a turn and cycle. Repeat until no grease appears on bottom of bucket. Check to be sure both lift link rods are adjusted the same amount. Both links should start to lift the bucket at the same time.

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g. TAILGATE CLAMP ADJUSTMENT

(1) On the screw and nut type tailgate clamp the only adjustment is tightening the nuts. These nuts should be drawn up snug and a visual check should be made to be certain that the 1" x 1" x 3" spacer blocks (Figure 28, Item 1) on the tailgate below the gasket, are tight against the rear body crossmember.

(2) On the lever type tailgate clamp the lock clevis A32A643 (Figure 42, Item 50) can be turned on or off. It should be adjusted so that when the lock is in its overcenter position (locked position) the spacer blocks are tight as described above. The hex. hd. stop screw in the lock, A53C617 L.H. and A53C618 R.H. (Figure 43, Items 4 and 5) should be adjusted so that the lock goes over center far enough to be locked, but not far enough to allow the tailgate to spring open.

SECTION 5. TROUBLE SHOOTING HINTS

a. SLOW LOADING CYCLE

(1) Blown fuse on solenoid relay.

(a) Check for short circuit in wiring.

(b) Is carburetor linkage pull too great? Maximum pull should be 12 pounds to insure cutting out of primary winding in solenoid (see Chapter 4, Section 4, Paragraph a.)

(2) Loose connections between solenoid and carburetor linkage (see Chapter 4, Section 4, Paragraph a.)

(3) Are cab controls providing full movement of primary valve spools? See Chapter 4, Section 4, Paragraph b.)

(4) Is there enough oil in the oil tank? See Chapter 3, Section 1, Paragraph c.

(5) Are automatic controls adjusted properly to allow secondary valve to shift fully? See Paragraph f below.

(6) Slow bucket drop in extremely cold weather may be speeded up by disconnecting the left hand shock absorber from the bucket.

b. NOT ENOUGH PACKING FORCE

(1) Check relief valve - should be set for 1200 P.S.I. See Chapter 5, Paragraph 4.

(2) Is lower limit switch for solenoid circuit (operated by bucket) keeping engine speeded up until packer plate reaches end of travel?

(3) Is any material wedged between packer plate and bucket?

c. PACKER PLATE JAMMED IN MID CYCLE

(1) Pull operating lever into RETRACT for 2 to 3 seconds and then hold in PACK until bucket drops or jam re-occurs. Repeat several times.

(2) Pull operating lever into RETRACT for 2 to 3 seconds and lock in NEUTRAL. Trip bucket hooks manually (see Chapter 3, Section 3, Paragraph a and Figure 18) and remove material causing jam.

d. BUCKET DOES NOT GO ON HOOKS

(1) Is material in bucket wrapped around packer plate causing a jam?

(2) Is there solid material such as a brick or board wedged in the lower corner of bucket?

(3) Is the detent in the automatic control toggle assembly allowing the valve to shift too soon? See Paragraph f below.

(4) Is the top actuating capscrew on the large bell crank adjusted properly? It should trip controls when cylinders are no more than 1/8" from end of stroke. See Chapter 4, Section 4, Paragraph f.

(5) Are bucket lift links adjusted properly? Bucket should go up to within 1/8" of bottom edge of packer as controls shift from RETRACT to PACK (see Chapter 4, Section 4, Paragraph f and Figure 13.)

(6) Are bucket hooks free to drop around lip of bucket? Oil at support bearings.

e. SAFETY DOOR DOES NOT OPERATE PROPERLY

(1) Are tension springs adjusted to open door fully?

(2) Are air shock absorber relief valves set to cushion door as it nears the fully open position?

(3) Are the door latches set to hold the door down and yet allow the bucket to push them out readily.

f. AUTOMATIC CONTROLS (see Figures 46 and 47.)

(1) Is the body seated tight against the body guides?

(2) Is tailgate tight against body? Spacer block on tailgate must be tight against sub-frame rear crossmembers. See Chapter 4, Section 4, Paragraph d (1).

(3) Is bronze control link (with tailgate control lever in RETRACT) adjusted so that the cotter pin in the toggle spring plunger is approximately 1/32" from the housing? See Chapter 4, Section 4, Paragraph d (3).

(4) Does the detent engage and hold the valve spool in RETRACT? See Chapter 4, Section 4, Paragraph d (5).

(5) Can the operating lever be moved fore and aft an equal distance from the NEUTRAL notch in the quadrant plate before the large bell crank moves? See Chapter 4, Section 4, Paragraph d (6).

(6) Are the actuating capscrews on the large bell crank tripping the toggle before the cylinders bottom at the end of their stroke? See Chapter 4, Section 4, Paragraph f (2).

g. BODY DOES NOT RAISE

(1) Is the tailgate control (in cab) in NEUTRAL?

(2) Is the body control shifting the valve spool 1/2" from NEUTRAL?

(3) Is the hole in the flapper of the swing check valve open?

(4) Check oil level.

HEIL *bodies and hoists*

REPAIR

CHAPTER 5. REPAIR

SECTION 1. SCOPE

This chapter deals with disassembly, repair and reassembly of major units of this equipment. Only those repairs which do not require special machining, finishing or special handling facilities are given. Some parts are fitted to close tolerances and repairs should not be attempted. Maladjustments of these parts will cause unit to function incorrectly. Note is made in following instructions of all such parts and assemblies. Return these parts to THE HEIL CO., for servicing. The following assemblies are considered already removed for the unit for inspection and repair.

CAUTION: Always block body firmly in RAISED position before attempting to work under it.

SECTION 2. POWER TAKE-OFF

The heavy duty power take-off requires little attention. However, an annual inspection is advisable at which time the following should be checked.

a. GEARS

If excessive wear is evident, or if teeth are broken, chipped or pitted, the gears should be replaced.

b. BEARINGS

If more than 1/64" side play is present, they should be replaced.

c. OIL SEALS

If seals are soft and soggy, or if lips are worn or ragged, they should be replaced.

SECTION 3. HYDRAULIC PUMP

The hydraulic pump is a precision built unit and it is recommended that NO REPAIRS BE ATTEMPTED, but that the complete unit be returned to THE HEIL CO. for repairs or replacement.

If repairs are attempted on the pump they should be limited to the replacement of the seal seat assembly, rotary seal and "O" ring on the seal retainer housing. When making repairs to the pump it should not be disassembled any more than is absolutely necessary. The pump is built to give either clockwise or counter-clockwise rotation and if disassembled for repairs the direction of rotation could very easily be changed in re-assembly without the addition of any new parts.

SECTION 4. PRIMARY CONTROL VALVE

Repairs on the primary control valve should be limited to the replacement of oil seals, springs, spring guides, and other parts that are easily accessible without completely disassembling the unit.

The plungers and body are machined and hone-fitted to exact tolerances and should be returned to THE HEIL CO., for repairs or replacement.

This valve housing contains the relief valve for the entire hydraulic system. If any repairs are made, it is important that the relief valve be set properly before the unit is put into operation. The entire Colectomatic has been designed to operate at 1200 P.S.I. maximum hydraulic operating pressure and the relief valve should be set no higher. To check the setting, the body and tailgate may be raised as a unit, to gain access to the relief valve.

CAUTION: Do not allow bottom of tailgate to strike the floor or ground. Block body before working under it.

With body down, controls in operating position, and solenoid energized, hold operating handle in RETRACT position so that packing cylinders reach the end of their stroke. Relief valve pressure may then be read off of the pressure gauge located on the right side of the hoist frame.

SECTION 5. SECONDARY CONTROL VALVE

The oil seal on this valve is easily replaced but repairs beyond this SHOULD NOT BE ATTEMPTED. Return the complete unit to THE HEIL CO., for repairs or replacement.

SECTION 6. HOIST CYLINDER

a. GENERAL

Machining repairs to inside bore of cylinder would result in an oversize diameter and should NOT be attempted. Return cylinder and piston to THE HEIL CO., for reborings and fitting. New rings and piston will be installed if necessary. Refinishing piston surface to eliminate deep scoring is not advised but a new piston should be installed. All other parts may be serviced or replaced by the mechanic.

b. DISASSEMBLY (see Figure 31.)

(1) Remove two self locking nuts and 1/2" NF and 2-1/4" capscrews (Item 1) and unscrew clevis (Item 2) from piston rod (Item 3).

(2) Remove two 1/2" NF x 1 1/2" capscrews and lockwashers (Item 4) and remove packing gland (Item 5.)

(3) Unscrew cylinder head (Item 6) from cylinder (Item 7) and from the head, remove "O" ring (Item 8) and packing set (Item 9.)

(4) Withdraw piston and rod assembly (Item 3) from cylinder and remove spacer (Item 10) from rod. Remove piston rings (Item 11) from piston.

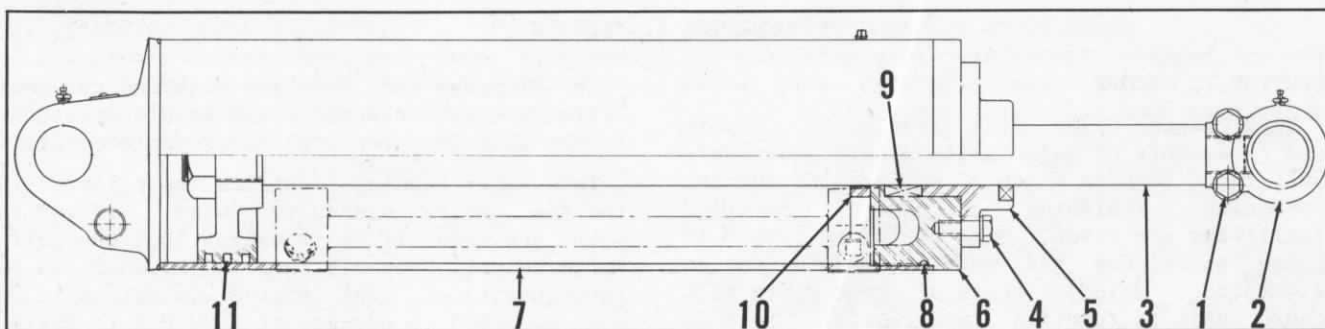


Figure 31. Cross Section of Hoist Cylinder

CAUTION: Piston and rod are fitted and aligned to cylinder at the factory and should NOT be disassembled but serviced as an assembly only.

c. CLEANING AND INSPECTION

(1) Clean all parts except oil seal and packing with solvent or Diesel fuel oil.

(2) Inspect all parts for excessive wear that might impair efficient operation. Inspect piston rod for scratches or grooves, and piston and cylinder for nicks or other damage. Check piston rings and bushing in clevis for excessive wear. Replace whatever is necessary. If cylinder head leaks oil at piston rod, replace oil seal and packing. If cylinder head leaks oil at cylinder wall replace "O" ring.

d. ASSEMBLY

To assemble cylinder, reverse disassembly procedure, however, when installing piston rings be sure to install first ring toward cylinder head so "Top" faces head of cylinder. Other two rings should be installed with "Top" facing base of cylinder.

e. TEST

(1) Before reinstalling cylinder, move piston rod in and out manually to check free movement of piston and rings.

(2) Install cylinder in hoist frame, fill hydraulic system and operate cylinder under pressure. Check movement of piston rod and inspect seal and cylinder head joint for oil leaks.

SECTION 7. TAILGATE CYLINDERS

The tailgate cylinders are basically of same design and construction as hoist cylinder and same procedure should be used in disassembly, inspection, reassembly and testing.

SECTION 8. TAILGATE ASSEMBLY

All loose and mounting parts as shown in parts list (Figure 42) as being serviceable can be removed and serviced by the average mechanic. Packer plate and bucket shafts are held in place by (2) two through bolts in each shaft located inside of load area.

SECTION 9. OTHER PARTS

Repairs or service on all other assemblies and parts are simple. Only general instructions are given.

a. HYDRAULIC PIPING, HOSE AND FITTINGS

A periodic check of condition of all piping joints is good practice. Parts having damaged threads should be replaced. Check rubber portion of hydraulic hose for cuts or bruises which might cause them to fail under operating pressure. Install new hose where necessary.

b. PIVOT PINS AND HOLES

Inspect all pivot pins and holes frequently for wear or grooving. To do this remove pins for inspection.

c. CONTROL LEVERS AND RODS

Inspect all lock pins and bushings on control levers and rods and if worn too badly, replace with new parts.

d. FABRICATED ASSEMBLIES

Body, Tailgate, Packer Plate and Hoist Frame are fabricated of steel plate and require no servicing under ordinary conditions. Damage caused by accident or abuse of unit can usually be repaired by mechanic. Parts that are bent can be pressed back in line. Broken parts can be repaired by welding.

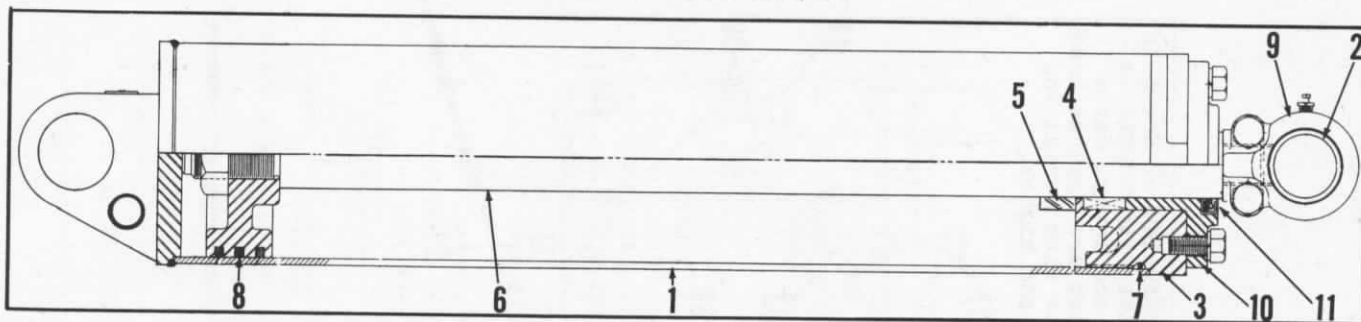
e. ELECTRICAL

Refer to Figure 10 for schematic wiring diagram of unit to aid in tracing electrical problems.

HEIL *bodies and hoists*

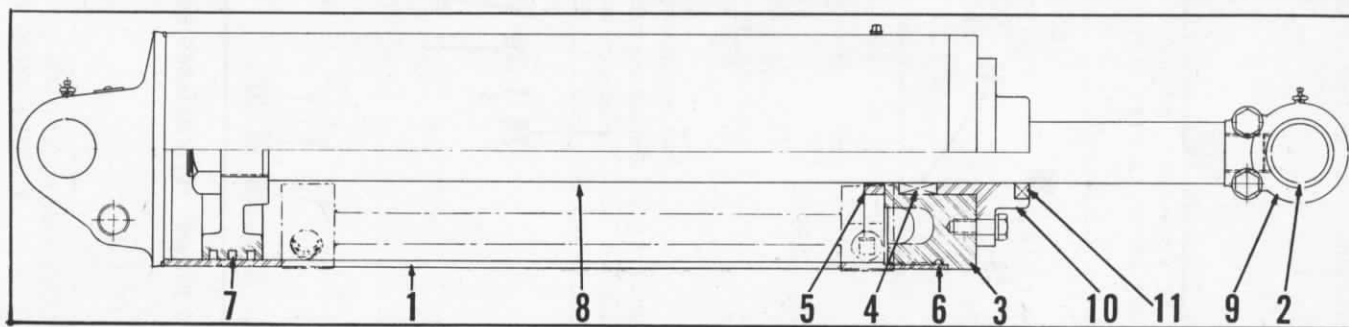
PARTS CATALOG

CHAPTER 6. PARTS CATALOG



A1D1075 HOIST CYLINDER ASSEMBLY—FOR 16 CUBIC YARD COLECTOMATIC

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	A1C1074	Cylinder.	1
2	3A2097	Bushing - Piston Rod Clevis	1
3	RM10C604	Head - Cylinder	1
4	X12A140	Packing	1
5	15A1611	Spacer.	1
6	A24B304	Piston and Rod Assembly	1
7	RM26B941	Ring - "O".	1
8	26A1269	Ring - Piston	3
9	A32B593	Clevis - Piston Rod, includes one 3A2097.	1
10	64B1618	Gland - Packing	1
11	RM146-23	Seal - Oil.	1



A1D1092 HOIST CYLINDER ASSEMBLY - FOR 20 CUBIC YARD COLECTOMATIC

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	A1C1091	Cylinder.	1
2	3A2097	Bushing - Piston Rod Clevis	1
3	10C1339	Head - Cylinder	1
4	X12A140	Packing	1
5	15A1681	Spacer.	1
6	RM26B819	Ring - "O".	1
7	26A1275	Ring - Piston	3
8	A27B2736	Piston and Rod Assembly	1
9	A32B593	Clevis - Piston Rod, includes one 3A2097.	1
10	64B2064	Gland - Packing	1
11	RM146A23	Seal - Oil.	1

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

HEIL bodies and hoists

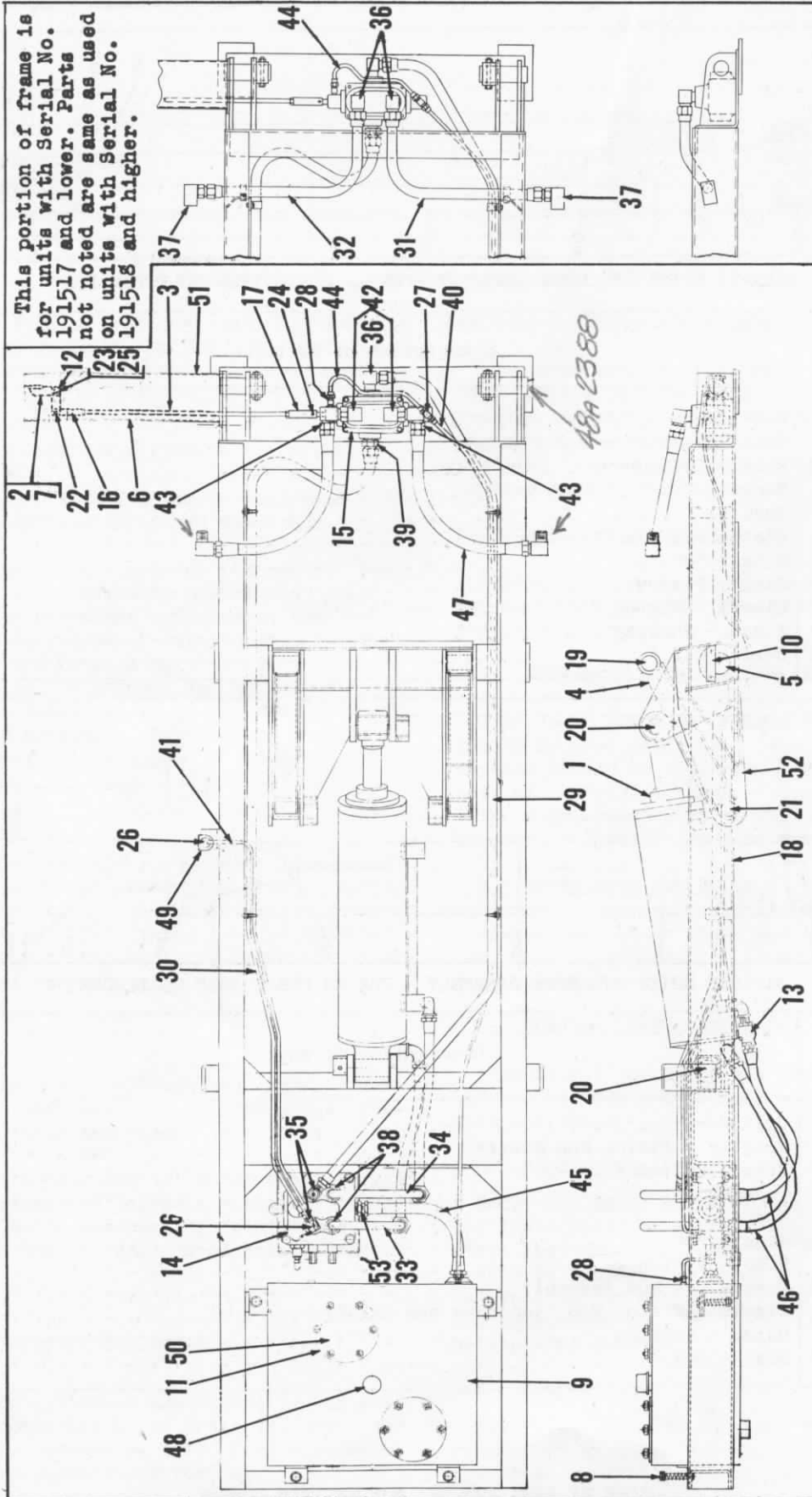


Figure 34. A239E65 Hoist Assembly

HEIL *bodies and hoists*

PARTS CATALOG

A239E65 HOIST ASSEMBLY
SINGLE CYLINDER - FOR 16 CUBIC YARD BODY

Item No.	Heil Part No.	Description of Part	Item	Heil Part No.	Description of Part
1	ALD1075	Cylinder Assembly - For component parts see page 23	30	54A1831	Tube - 1"
2	3A2130	Bushing - Valve Control Lever (3 reqd.)	31	54A1832	Tube - L.H., 1" (Used on units with Serial No. 191517 and lower only)
3	4A1021-2	Rod - Control.	32	54A1833	Tube - R.H., 1" (Used on units with Serial No. 191517 and lower only)
4	A4B1036	Link - Lift (2 reqd.)	33	54A1834	Tube - 3/4"
5	8A6864	Shaft	34	54A1835	Tube - 3/4"
6	12B3882	Cover - Valve Support Rod	35	54A1839	Elbow - Tube, 1" (2 reqd.)
7	1A3A3939	Link - Valve Control Target	36	54A1841	Elbow - Tube, 1" (3 reqd.)
8	19A61	Spring (4 reqd.)	37	54A1843	Elbow - Swivel, 1" Tube (Used on units with Serial No. 191517 and lower only)
9	A20C975	Tank - Oil	38	54A1861	Adapter - Tube, 3/4" (2 reqd.)
10	21A2119	Bar - Lock (2 reqd.)	39	54A1864	Fitting - Tube, 1"
11	22A1240	Gasket (2 reqd.)	40	54B1915	Tube
12	26A1653	Ring - Retaining (3 reqd.)	41	54B1916	Tube
13	31A378	Valve - Check	42	54A2001	Elbow - Swivel (Used on units with Serial No. 191518 and higher only) (2 reqd.)
14	A31A844	Valve - Primary, for component parts see page 28	43	54A2002	Elbow (Used on units with Serial No. 191518 and higher only) (2 reqd.)
15	A31A845	Valve - Secondary, for component parts see page 29	44	54B2042	Tube
16	32A2	Yoke	45	57A353	Hose - Low Pressure
17	32A602	Clevis - Valve Control Rod	46	57A354	Hose - High Pressure (2 reqd.)
18	A37D2584	Frame - Hoist	47	57A409	Hose (Used on units with Serial No. 191518 and higher only) (2 reqd.)
19	48A1604	Pin - Upper Link (2 reqd.)	48	60A100	Cap - Breather
20	48A1608	Pin - Upper and Lower Trunnion (2 reqd.)	49	67A292	Gauge - Pressure
21	48A1615	Pin - Link (2 reqd.)	50	74A1298-7	Flange - Oil Tank (2 reqd.)
22	48A1621	Pin - Yoke	51	A77B2122	Support - Valve Control Rod Arm
23	48A2270-11	Pin - Roll, 3/16" x 1-1/4"	52	A93C1134	Adapter - Union, 1"
24	48A2412	Pin - Valve Control Rod	53	104A146	Plate - Instruction
25	48A2413	Pin - Valve Control Lever	*	212B85	
26	54A1826	Elbow - Tube, for 3/8" tube (2 reqd.)			
27	54A1827	Tee - Tube, for 3/8" tube			
28	54A1828	Adapter - Tube, for 3/8" tube (2 reqd.)			
29	54A1830	Tube - 1"			

* Not Illustrated.

● NOTE: When replacing No. 54B2042 tube (Item 44) on units with Serial No. 191517 and lower, it is necessary to remove bolts from valve cap of secondary valve (Item 15) at stem end. Loosen cap (being careful not to damage seal under cap) and rotate 90 degrees so that fitting is turned to the rear as shown. Replace and tighten bolts.

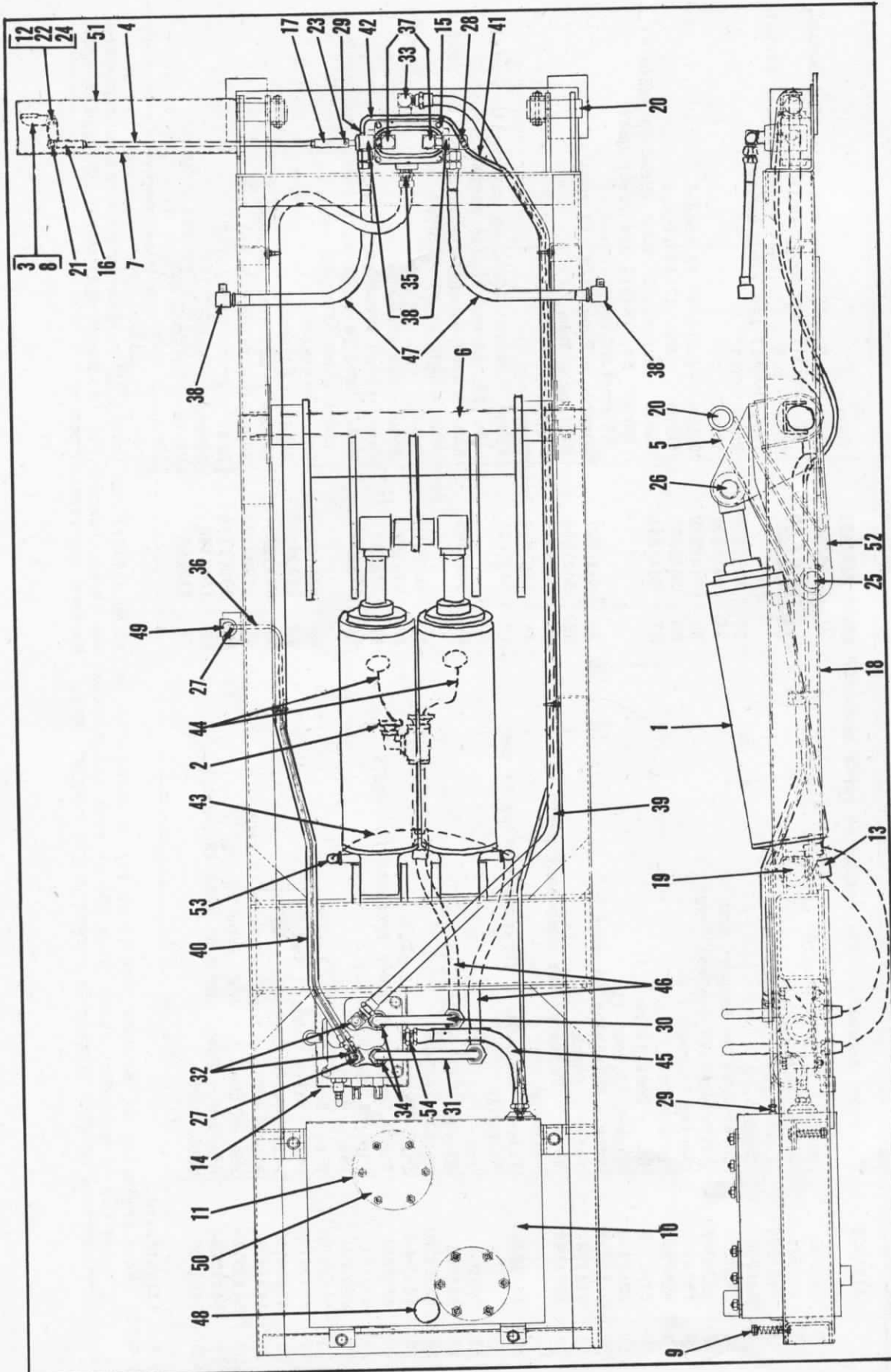


Figure 35. A239E75 Hoist Assembly

HEIL *bodies and hoists*

PARTS CATALOG

A239E75 HOIST ASSEMBLY
TWIN CYLINDER - FOR 20 CUBIC YARD BODY

Item No.	Heil Part No.	Description of Part	Item No.	Heil Part No.	Description of Part
1	ALD1092	Cylinder Assembly - For component parts see page 23 (2 reqd.)	27	54A1826	Elbow - Tube, for 3/8" tube (2 reqd.)
2	104A144	Adapter - Union, 1/2" (2 reqd.)	28	54A1827	Tee - Tube, for 3/8" tube
3	3A2130	Bushing - Valve Control Lever (3 reqd.)	29	54A1828	Adapter - Tube, for 3/8" tube (2 reqd.)
4	4A1021-2	Rod - Control	30	54A1834	Tube
5	A4B1047	Link - Lift (2 reqd.)	31	54A1835	Tube
6	8A4873	Shaft - Lever Arm	32	54A1839	Elbow - Tube, 1" (2 reqd.)
7	12B3882	Cover - Valve Support Rod	33	54A1841	Elbow - Tube, 1"
8	AL3A3939	Lever - Valve Control	34	54A1861	Adapter - Tube, 3/4" (2 reqd.)
9	19A61	Spring (4 reqd.)	35	54A1864	Fitting - Tube, 1"
10	A20C975	Tank - Oil	36	54B1916	Tube
11	22A1240	Gasket (2 reqd.)	37	54A2001	Elbow - Swivel (2 reqd.)
12	26A1653	Ring - Retaining (3 reqd.)	38	54A2002	Elbow (4 reqd.)
13	31A378	Valve - Check	39	54A2004	Tube
14	A31A844	Valve - Primary, for component parts see page 28	40	54A2005	Tube
15	A31A845	Valve - Secondary, for component parts see page 29	41	54B2007	Tube
16	32A2	Yoke	42	54B2042	Tube
17	32A602	Clevis - Valve Control Rod	43	57B151-33	Hose (2 reqd.)
18	A37D2768	Frame - Hoist	44	57B320-12	Hose
19	48A1608	Pin - Lower Trunnion (2 reqd.)	45	57A353	Hose
20	48A1610	Pin - Hinge and Upper Link (4 reqd.)	46	57A354	Hose (2 reqd.)
21	48A1621	Pin - Yoke	47	57A409	Hose (2 reqd.)
22	48A2270-11	Pin - Roll, 3/16" x 1-1/4"	48	60A100	Cap - Breather
23	48A2412	Pin - Valve Control Rod	49	67A292	Gauge - Pressure
24	48A2413	Pin - Valve Control Lever	50	74A1298-7	Flange - Oil Tank (2 reqd.)
25	A48A2519	Pin - Lower Link (2 reqd.)	51	A77B2122	Support - Valve Control Rod
26	48A2520	Pin - Wrist, Cross Shaft	52	A93C1159	Arm
			53	104A145	Adapter - Union, 3/4"
			54	104A146	Adapter - Union, 1"
			*	212B85	Plate - Instruction

* Not Illustrated.

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

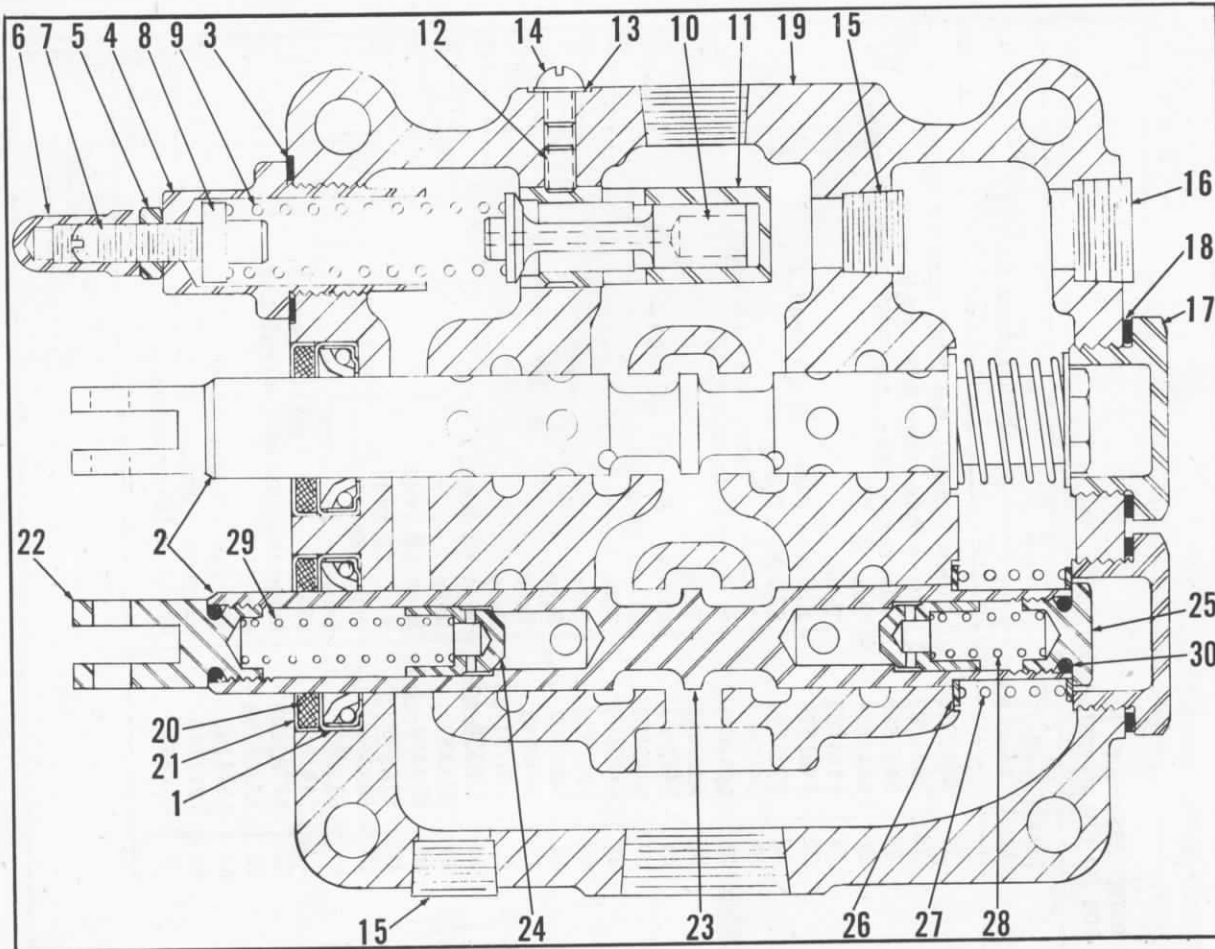


Figure 36. A31A844 Primary Valve

A31A844 PRIMARY VALVE

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	31C792-2	Seal - Oil.	2
2	31C792-3	Plunger Assembly - Consists of Items 22, 23, 24, 25, 26, 27, 28, 29 and 30	2
3	31C792-6	Washer.	1
4	31C792-7	Housing - Relief Valve.	1
5	31C792-8	Nut - Relief Valve.	1
6	31C792-9	Cap - Relief Valve.	1
7	31C792-10	Screw - Relief Valve.	1
8	31C792-11	Guide - Spring, Relief Valve.	1
9	31C792-12	Spring - Relief Valve	1
10	31C792-13	Plunger - Relief Valve.	1
11	31C792-14	Guide - Relief Valve.	1
12	31C792-15	Screw	1
13	31C792-16	Washer.	1
14	31C792-17	Screw	1
15	31C792-18	Plug - Pipe, Countersunk Hd., 1/2"	2
16	31C792-19	Plug - Pipe, Countersunk Hd., 3/4"	1
17	31C792-20	Cap	2
18	31C792-21	Washer.	2

Continued on Next Page.

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

HEIL *bodies and hoists*

A31A844 PRIMARY VALVE - Continued

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
19	31A844-1	Body.	1
*	31A844-20	Plug - Pipe, Countersunk Hd., 3/8".	1
20	31A844-21	Seal - Oil.	2
21	31A844-22	Ring - Seal	2
22	31A844-23	Eye	1
23	31A844-24	Spool	1
24	31A844-25	Check	2
25	31A844-26	Cap	1
26	31A844-27	Washer.	2
27	31A844-28	Spring - Return	1
28	31A844-29	Spring - Check.	1
29	31A844-30	Spring - Check.	1
30	31A844-31	Ring - Seal	2

* Not Illustrated.

NOTE: Quantity per unit as given for Items 22 through 30 are for one plunger only. If parts are required for both plungers these quantities should be doubled.

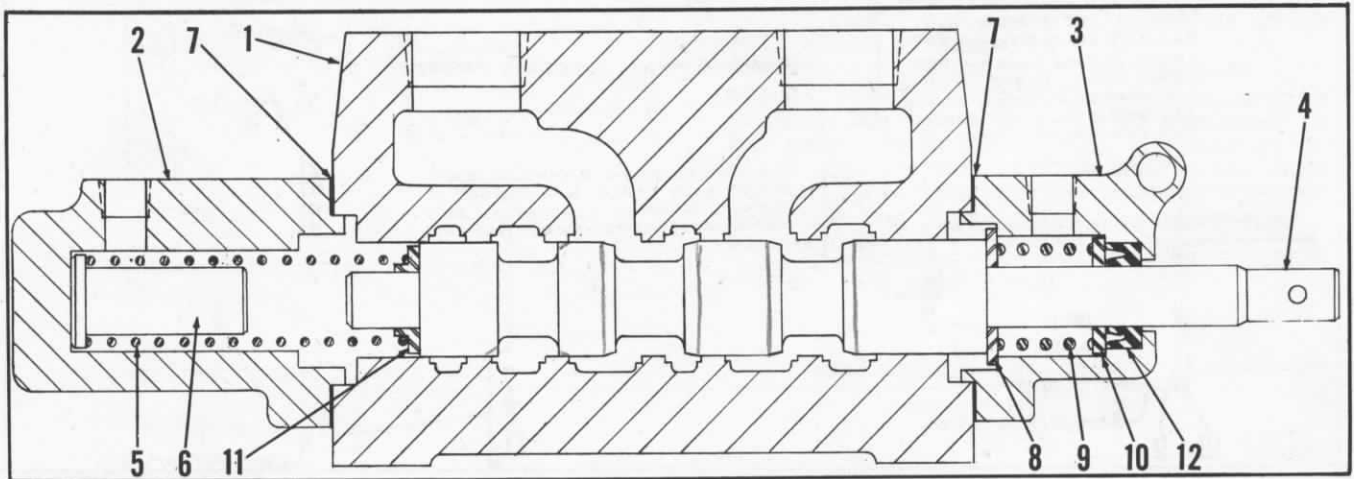


Figure 37. A31A845 Secondary Valve

A31A845 SECONDARY VALVE

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	31A845-1	Body.	1
2	31A845-2	Cap	1
3	31A845-3	Cap - Stem End.	1
4	31A845-4	Spool	1
5	31A845-5	Spring.	1
6	31A845-6	Stop - Spool.	1
7	31A845-7	Gasket.	2
8	31A845-8	Washer.	1
9	31A845-9	Spring.	1
10	31A845-10	Washer.	1
11	31A845-11	Guide - Spring.	1
*	31A845-13	Capscrew - Socket Hd., 3/8" NC x 3/4"	8
12	RM146A189	Seal - Oil.	1

* Not Illustrated.

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

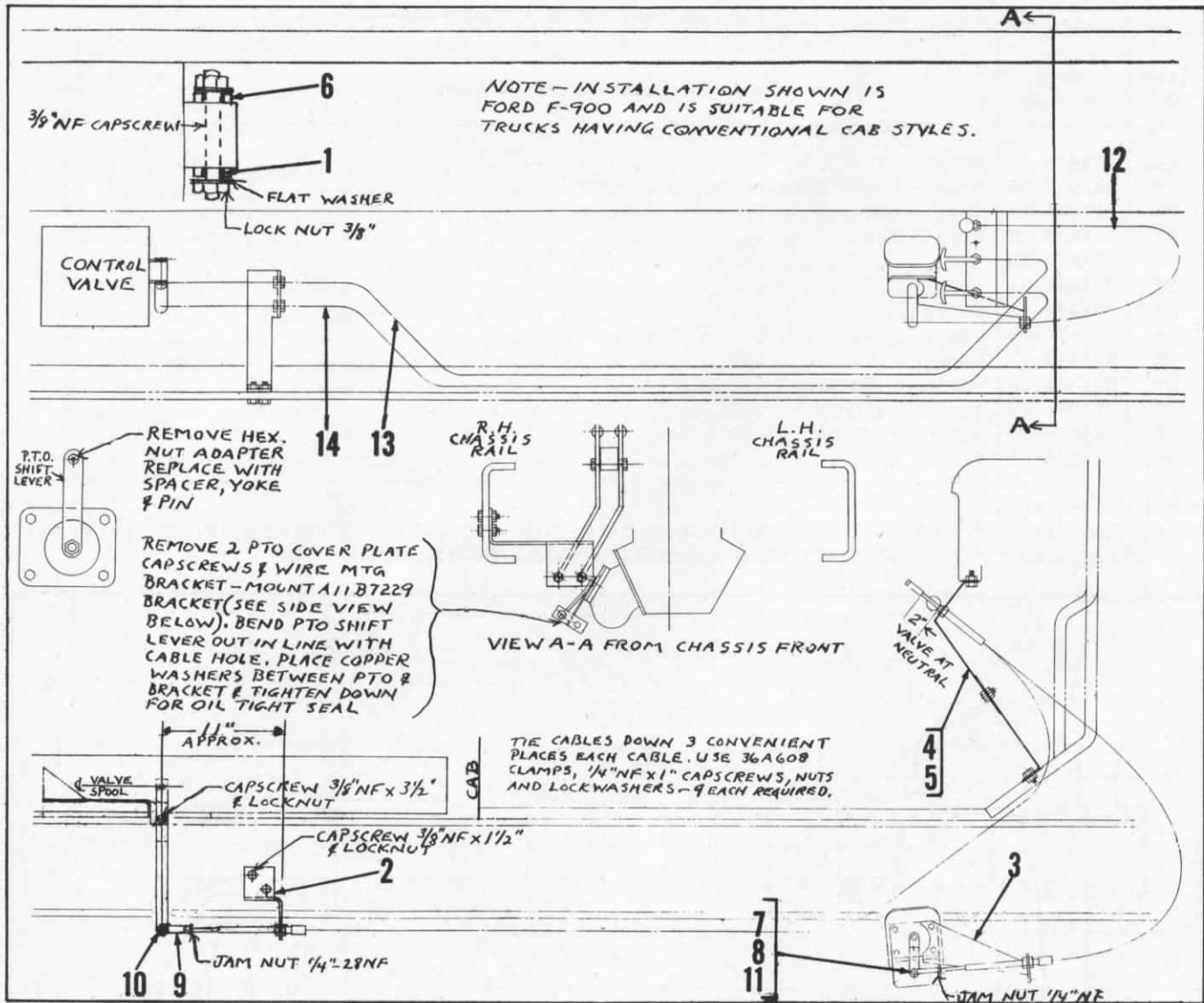


Figure 38. Valve and Power Take-Off Control Group

VALVE AND POWER TAKE-OFF CONTROL GROUP

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	9A993	Bushing	2
2	11B7216	Bracket - Valve Cable	1
3	A11B7229	Bracket - Power Take-Off Cable.	1
4	11B7231	Bracket - Cab Cable	1
5	11B7232	Bracket - Cab Cable	1
6	13A3964	Lever - Valve	2
7	15A1665	Spacer.	1
8	32A618	Yoke.	1
9	32A627	Yoke.	2
*	36A608	Clamp - Cable	9
10	48A6	Pin - Yoke.	4
11	48A2462	Pin - Yoke.	1
*	212A269	Plate - Instruction	1

* Not Illustrated.

Continued on Next Page.

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

HEIL bodies and hoists

PARTS CATALOG

VALVE AND POWER TAKE-OFF CONTROL GROUP - Continued

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
12	254A381-3	Cable - Power Take-Off, 8' long . . . (CONV. CAB)	1
12	254A381-6	Cable - Power Take-Off, 11' long. . . (TILT CAB)	1
13	254A382-4	Cable - Body Control, 11'6" long (Non-Locking). . . 164D CONV.	1
13	254A382-6	Cable - Body Control, 12'6" long (Non-Locking). . . 164D TILT	1
13	254A382-7	Cable - Body Control, 13' long (Non-Locking). . . 204D CONV.	1
13	254A382-8	Cable - Body Control, 14' long (Non-Locking). . . 204D TILT	1
14	254A383-4	Cable - Tailgate Control, 11'6" long (Locking Type) 164D CONV.	1
14	254A383-6	Cable - Tailgate Control, 12'6" long (Locking Type) 164D TILT	1
14	254A383-7	Cable - Tailgate Control, 13' long (Locking Type) . . . 204D CONV.	1
14	254A383-8	Cable - Tailgate Control, 14' long (Locking Type) . . . 204D TILT	1

NOTE: Length given on all cables is full length of outer sheath of cable, not including handle or movable core.

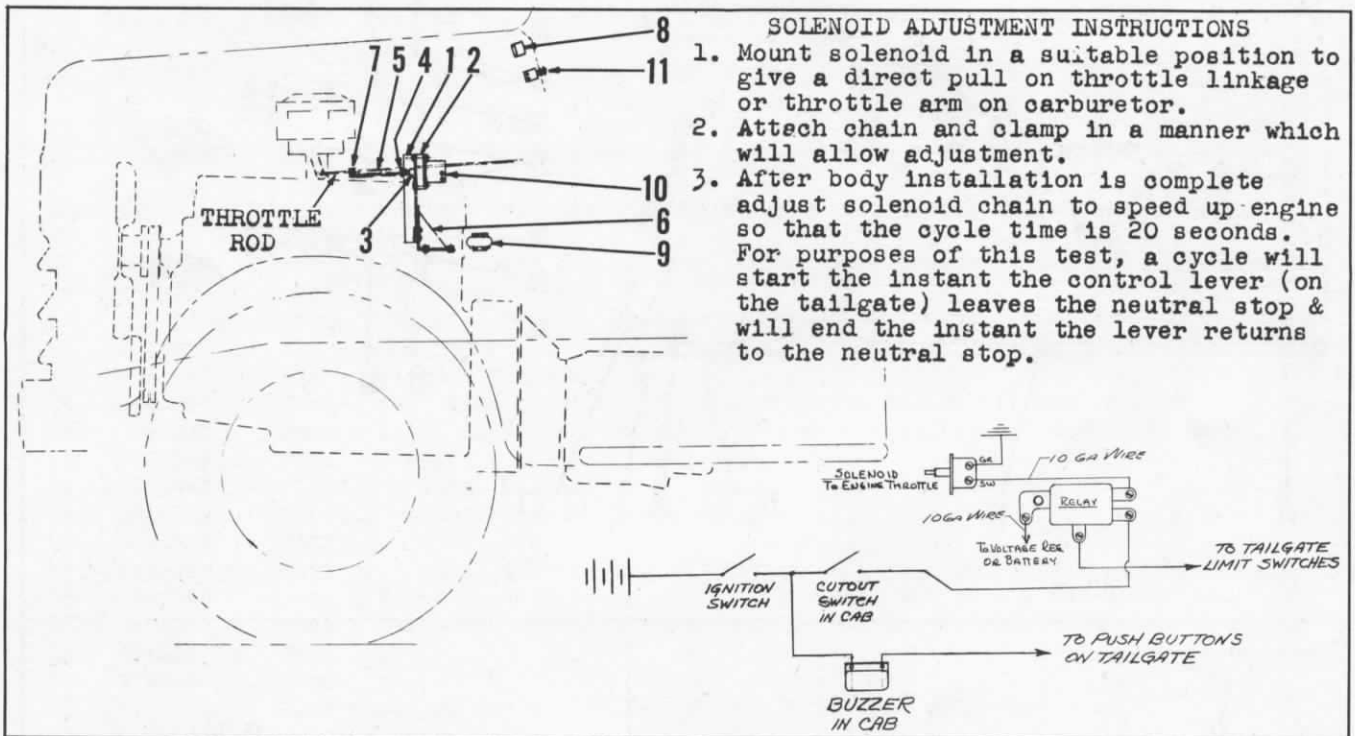


Figure 39. Cab and Engine Electrical Group

CAB AND ENGINE ELECTRICAL GROUP FOR 6 AND 12 VOLT SYSTEMS

Item No.	Heil Part No.	Description	Item No.	Heil Part No.	Description
1	11A6853	Bracket	7	97A157	Clamp
2	15A1645	Spacer	8	108A147	Buzzer
3	24A305	Plunger	9	108A381	Relay - 6 Volt
4	32A630	Clevis	9	108A415	Relay - 12 Volt
5	43A345	Chain	10	108A382	Solenoid - 6 Volt
6	A77A2151	Support	10	108A416	Solenoid - 12 Volt
			11	254A353	Switch

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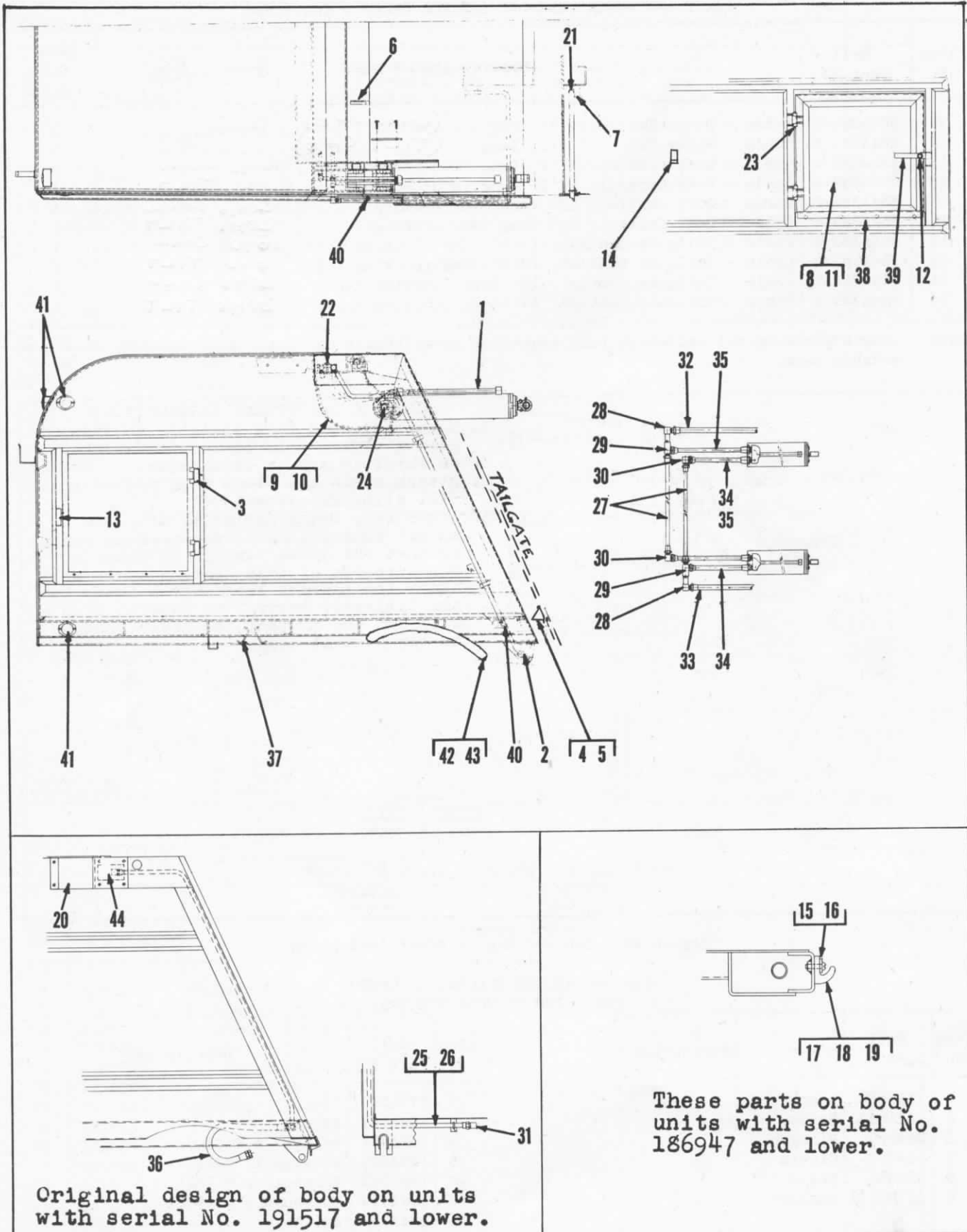


Figure 40. Body Assembly

HEIL *bodies and hoists*

PARTS CATALOG

BODY ASSEMBLY - 16 AND 20 CUBIC YARD

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	A1D1051	Packing Cylinder Assembly - For component parts see page 34.	2
2	5A2379	Hinge - Body	2
3	5A2380	Hinge.	4
4	A11B6867	Guide - Tailgate, Right Hand	1
5	A11B6868	Guide - Tailgate, Left Hand.	1
6	11A7046	Bracket - Electrical Connector	1
7	11A7284	Bracket - Hydraulic Tube	4
8	A12B3833	Door - Side, Right Hand.	1
9	12B3877	Cover - Left Hand Hinge.	1
10	12B3878	Cover - Right Hand Hinge	1
11	A12B4013	Door - Side, Left Hand	1
12	15A1616	Spacer - Side Door	2
13	21A2124	Bar - Door Lock.	2
14	21A2125	Bar - Door Latch	2
15	21A2131	Bar - Seal Retainer, Bottom (Used on units with Serial No. 186947 and lower only)	1
16	21A2132	Bar - Seal Retainer, Side (Used on units with Serial No. 186947 and lower only)	2
17	22B2090	Seal - Rubber, Lower (Used on units with Serial No. 186947 and lower only)	1
18	22B2091	Seal - Rubber, Right Hand (Used on units with Serial No. 186947 and lower only)	1
19	22B2092	Seal - Rubber, Left Hand (Used on units with Serial No. 186947 and lower only)	1
20	34B8063	Plate - For 16 yard bodies only.	1
21	36A572	Bolt - "U", Tube Clamp	4
22	36A574-2	Clamp - Tube	2
23	48A2395	Pin - Door	4
24	48A2403	Pin - Cylinder Trunnion.	2
25	54B1836	Tube - Left Hand (Used on units with Serial No. 191517 and lower only) . .	1
26	54B1837	Tube - Right Hand (Used on units with Serial No. 191517 and lower only). .	1
27	54A1838	Tube - Cross	2
28	54A1842	Fitting - Tube, Long Elbow	2
29	54A1844	Fitting - Tube, Special Tee.	2
30	54A1845	Fitting - Tube, Elbow.	2
31	54A1846	Fitting - Tube, Elbow (Used on units with Serial No. 191517 and lower only)	2
32	54B1998	Tube - Right Hand (Used on units with Serial No. 191518 and higher only) .	1
33	54C1999	Tube - Left Hand (Used on units with Serial No. 191518 and higher only). .	1
34	57A355-24	Hose	2
35	57A355-27	Hose	2
36	57A356	Hose (Used on units with Serial No. 191517 and lower only)	2
37	66A654	Guide - Body	4
38	68A876	Sill - Door.	2
39	70B962	Handle - Door.	2
40	108A472	Grommet.	2
41	115B188	Reflector - Amber.	6
42	217B52	Fender - Left Hand	1
43	217B53	Fender - Right Hand.	1
44	252C1252	Cover (Used on 16 yard units with Serial No. 191517 and lower only).	2

NOTE: For Seals and Seal Retainer Bars as used on units with Serial No. 187547 and higher, see Tailgate parts as shown on page 35.

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

HEIL *bodies and hoists*

PARTS CATALOG

TAILGATE ASSEMBLY - FOR 16 AND 20 CUBIC YARD BODIES

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	AlB1057	Cylinder - Bucket Lift	1
2	1A1064	Shock Absorber Assembly.	2
3	3A1999	Bushing - Bucket Hook Roller	2
4	3A2097	Bushing - Compression Link Clevis.	1
5	3A2110	Bushing - Lever Arm.	2
6	3A2111	Bushing - Packer Bearing	2
7	3A2115	Bushing - Bucket Bearing	2
8	A3A2118	Bucket Bearing Assembly - Consists of 3A2115, 22A1863 & 42B631	2
9	A3A2119	Packer Bearing Assembly - Consists of 3A2111, 22A2051 & 42B634	2
10	3A2187	Bushing - Shock Absorber	8
11	A4C1013	Link - Compression, includes one A32B593	2
12	A4C1015	Bucket Lift Link Assembly - Consists of AlB1057, 27A2622, A32B598 & 42A633	2
13	8B6869	Shaft - Bucket	1
14	8B6875	Shaft - Packer	1
15	8B6878	Shaft - Hook	1
16	8B6884	Shaft - Link Cross	1
17	8B6885	Shaft - Tailgate Raise Block	1
18	AlB6741	Bracket - Bucket Lift.	1
19	11A6751	Bracket - Shock Absorber	2
*	12C3870	Door - Side, Upper Left Hand	1
*	12C3871	Door - Side, Upper Right Hand.	1
*	12C3872	Door - Side, Lower Left Hand	1
*	12C3873	Door - Side, Lower Right Hand.	1
*	Al2C3874	Door - Side, Center Left Hand.	1
*	Al2C3875	Door - Side, Center Right Hand	1
*	Al2E3889	Automatic Tailgate Door Assembly - For component parts see page 39	1
20	Al3E3921	Crank - Bell, Packer, Left Hand, includes one 3A2110	1
21	Al3E3922	Crank - Bell, Packer, Right Hand, includes one 3A2110.	1
22	Al3A3976	Bucket Release Lever Assembly.	2
23	13B3924	Lever - Tailgate Raise (Used on units with Serial No. 191498 & lower only)	2
23	13B3975	Lever - Tailgate Raise (Used on units with Serial No. 191499 & higher only)	2
24	13A3931	Lever - Hook Return.	1
25	Al3A3932	Nut - Clamp (Used on units with Serial No. 191517 & lower only).	1
26	13A3938	Lever - Tailgate Raise Return.	2
*	Al3A3968	Lever - Manual Bucket Trip (Loose Part).	1
27	14B851	Seal - Bucket.	1
28	15A1623	Spacer - Link.	1
29	15A1624	Spacer - Shock Absorber.	4
30	15A1626	Spacer - Pulley.	2
31	15A1627	Spacer - Lever Release Handle.	1
32	15A1629	Shim - Spacer.	4
33	19B957	Spring	2
34	19A971	Spring - Engine Solenoid Control	2
35	21A2126	Bar - Tie, Shock Absorber.	2
36	21B2127	Bar - Clamp, Bucket Seal	1
37	21A2151	Bar - Lock	12
38	21A2192	Bar - Seal Retaining, Bottom (Used on units with Serial No. 187547 & higher)	1
39	21A2193	Bar - Seal Retaining, Side (Used on units with Serial No. 187547 & higher)	2
40	22A1863	Seal - Bucket Bearing.	1
41	22A2051	Seal - Packer Bearing.	1
42	22B2142	Seal - Side (Used on units with Serial No. 187547 & higher).	2
43	22B2143	Seal - Bottom (Used on units with Serial No. 187547 & higher).	1
44	A24A302	Plunger - Limit Switch	2

* Not Illustrated.

CAUTION - Part No. A4C1013 (item 11) Compression Link is spring loaded and under no circumstances should it be disassembled as it could cause serious injury to any one attempting to release the spring tension by removing the head.

Continued on Next Page.

HEIL *bodies and hoists*

PARTS CATALOG

TAILGATE ASSEMBLY - Continued

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
45	A24B309	Plunger Assembly.	1
46	27A2622	Rod - Bucket Lift Link.	1
47	A32B593	Clevis - Compression Link, includes one 3A2097.	1
48	A32B598	Clevis - Bucket Lift Link	1
49	32A618	Clevis - Rod End.	2
50	A32A643	Clevis - Lock (Used on units with Serial No. 191518 & higher)	1
51	A34D7755	Plate - Packer.	1
52	36B560	Clip - Spring, Bucket Seal.	4
53	40A1421	Collar - Packer Shaft	2
54	40A1422	Spacer - Collar	8
55	42B631	Cap - Bucket Bearing.	1
56	42A633	Cap - Bucket Lift Link.	1
57	42B634	Cap - Packer Bearing.	1
58	47A870	Bolt - Lock (Used on units with Serial No. 191517 & lower).	2
59	47A942	Bolt - Lock (Used on units with Serial No. 191518 & higher)	2
60	48A2250	Pin - Roller.	2
61	48A2270-14	Pin - Roll, 3/16" x 1-5/8"	2
62	48A2272-5	Pin - Roll, 3/8" x 2-1/2"	AR
63	48A2396	Pin - Upper Bucket Lift Link.	2
64	48A2397	Pin - Lower Bucket Lift Link.	2
65	48A2403	Pin - Hinge	2
66	48A2404	Pin - Tailgate Lock (Used on units with Serial No. 191517 & lower).	2
67	48A2407	Pin - Cylinder.	2
68	48A2408	Pin - Compression Link.	2
69	48A2462	Pin - Rod End Clevis.	2
70	48A2555	Pin - Clevis (Used on units with Serial No. 191518 & higher).	2
71	48A2557	Pin - Lock Bolt (Used on units with Serial No. 191518 & higher)	2
72	53C566	Hook - Bucket Support	2
73	53A579	Fastener - Hood	12
74	A62A441	Roller - Includes one 3A1999.	2
75	A64B2066	Guide - Valve Rod	1
76	68B879	Sill - Wood, Bucket	1
77	70C695	Handle.	1
78	72B576	Pulley.	2
79	A252A1351	Packer Bumper Kit	2
80	80A287	Bumper - Rubber	2
81	A93A1125	Arm - Lower Limit Switch.	1
82	A94D235	Bucket.	1
83	97B161	Wire Rope Assembly.	1
84	108A303	Switch - Buzzer	2
85	108A424	Grommet (Used on units with Serial No. 191517 & lower).	1
86	108A472	Grommet (Used on units with Serial No. 191518 & higher)	1
87	115B189	Reflector - Red	6
88	115A239-1	Light - Directional and Clearance - Dietz	2
*	115A239-11	Lens - Red, for 115A239-1	1
*	115A239-12	Ring - Lens Retaining, for 115A239-1.	1
*	115A239-13	Gasket - Lens, for 115A239-1.	1
89	115A240-1	Light - Stop and Tail, Grote.	1
89	115A240-2	Light - Stop and Tail, Dietz.	1
*	115A240-11	Lens - Red, for 115A240-1	1
*	115A240-12	Lens - License, for 115A240-1	1
*	115A240-13	Gasket - Red Lens, for 115A240-1.	1
*	115A240-14	Gasket - License Lens, for 115A240-1.	1
*	115A240-15	Door - Lens, for 115A240-1.	1
*	115A240-16	Plug - Connector, for 115A240-1	1
*	115A240-17	Lens - Red, for 115A240-2	1
*	115A240-18	Lens - License, for 115A240-2	1
*	115A240-19	Gasket - Red Lens, for 115A240-2.	1
*	115A240-20	Gasket - License Lens, for 115A240-2.	1
*	115A240-21	Door - Lens, for 115A240-2.	1
*	115A240-22	Plug - Connector, for 115A240-2	1

* Not Illustrated. AR - As Required.

Continued on Next Page.

TAILGATE ASSEMBLY - Continued

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
*	212B265	Plate - Name	1
*	212A268	Plate - Instruction	1
*	A254E348	Automatic Control Assembly - For component parts see page 40)	1
90	254A352	Switch - Engine Solenoid Control.	2
91	A615E187	Tailgate (Used on units with Serial No. 191517 & lower)	1
92	A615E251	Tailgate (Used on units with Serial No. 191518 & higher).	1
93		Screw - Self Tapping, No. 14 x 1" (Parker - Kalon Type Z)	80

* Not Illustrated.

NOTE: For Seals and Seal Retainer Bars as used on units with Serial No. 186947 and lower, see Body Parts on Page 33.

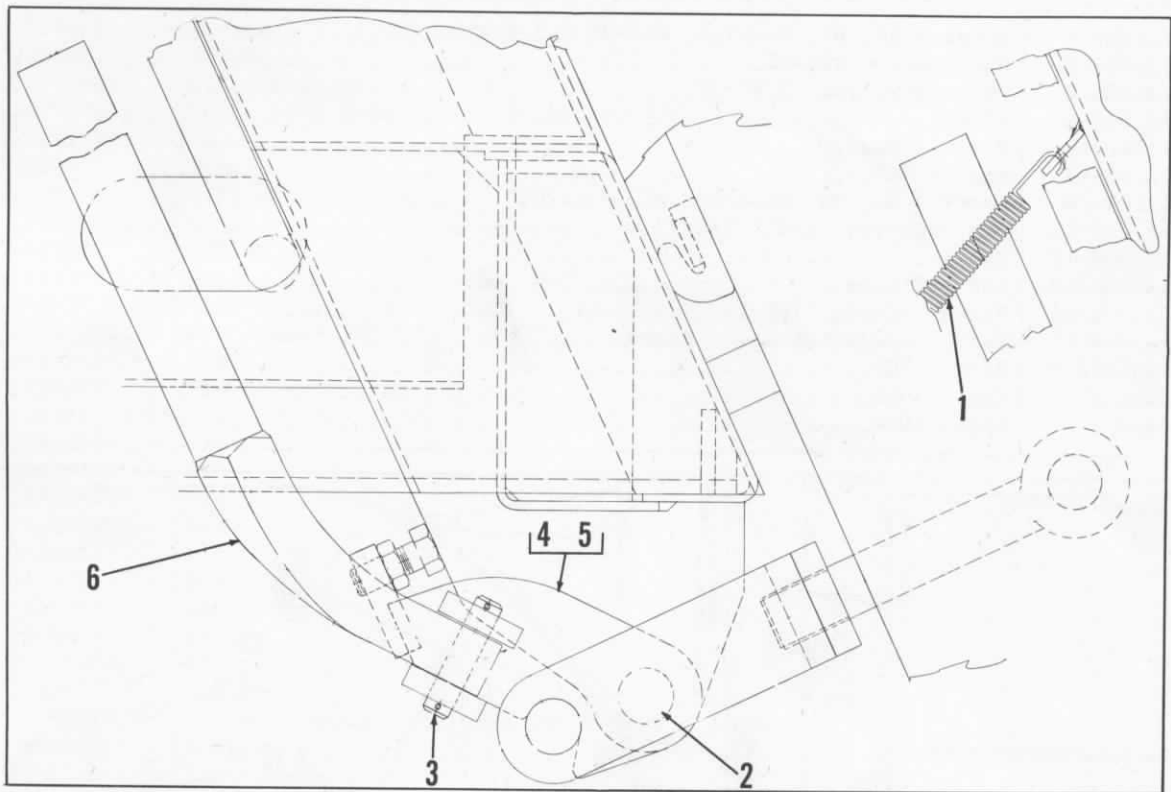


Figure 43. 700C3059 Tailgate Clamp

700C3059 TAILGATE CLAMP

Used on 16 yard units with Serial No. 191518 and higher, and all 20 yard units.

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	19A1001	Spring.	1
2	48A2556	Pin	1
3	48A2575	Pin	1
4	A53C617	Lock - Left Hand.	1
5	A53C618	Lock - Right Hand	1
6	A70B716	Handle.	1

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

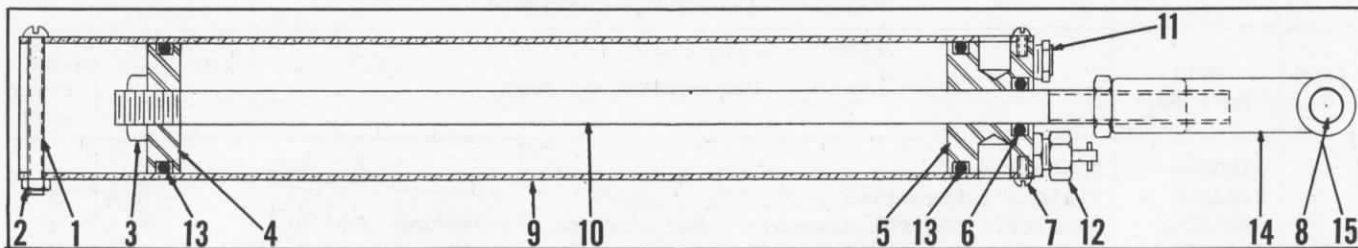


Figure 44. 1A1066 Air Shock Absorber

1A1066 AIR SHOCK ABSORBER

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	1A1066-1	Screw - Rd. Hd. Machine, #10-32 x 1-3/4"	1
2	1A1066-2	Nut - Hex., #10-32.	1
3	1A1066-3	Nut - Hex. Jam, 3/8" NF	2
4	1A1066-5	Piston.	1
5	1A1066-6	Plate - End	1
6	1A1066-7	Ring - "O".	1
7	1A1066-8	Screw - Rd. Hd. Machine, #6-32 x 1/4"	2
8	1A1066-11	Pin - Cotter, 3/32" x 3/4"	1
9	1A1066-12	Shell	1
10	1A1066-13	Rod - Piston.	1
11	1A1066-14	Valve - Check, Intake	1
12	1A1066-15	Valve - Adjustable Air Bleed.	1
13	26A1613-9	Ring - "O".	2
14	32A1	End - Yoke.	1
15	48A6	Pin - Yoke.	1

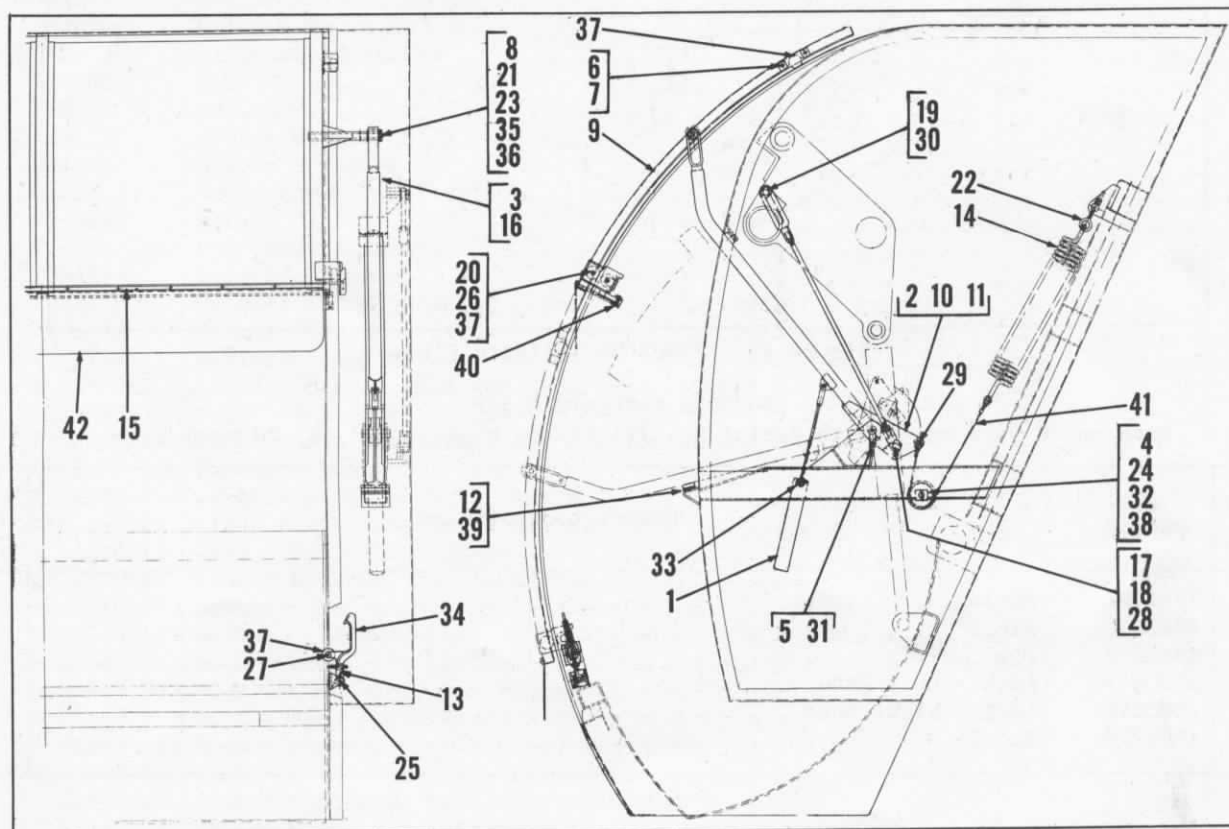


Figure 45. A12E3889 Tailgate Door Assembly

HEIL *bodies and hoists*

PARTS CATALOG

A12E3889 TAILGATE DOOR ASSEMBLY

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	1A1066	Air Shock Absorber Assembly - For component parts see page 38	2
2	3A2142	Bushing - Door Opening Lever.	4
3	3A2143	Bushing - Door Raising Rod.	1
4	3A2220	Bushing - Cable Sheave.	2
5	3A2287	Bushing - Arm Pin	2
6	A6B1475	Housing - Roller, Right Hand.	1
7	A6B1476	Housing - Roller, Left Hand	1
8	8A6890	Shaft	2
9	A12C3888	Door.	1
10	A13C3944	Lever - Door Opening, Right Hand, includes two 3A2142	1
11	A13C3945	Lever - Door Opening, Left Hand, includes two 3A2142.	1
12	15A1630	Spacer.	8
13	19A974	Spring.	2
14	19A975	Spring.	2
15	21A2138	Bar - Retainer.	1
16	A27B2635	Rod - Door Raising, includes one 3A2143	2
17	27A2636	Rod	2
18	32A610	Clevis.	2
19	32B611	Clevis - Rod End.	2
20	36A575	Clip.	2
21	40A1427	Collar.	2
22	47A881	Bolt - Eye.	2
23	48A2269-13	Pin - Roll, 1/8" x 1-1/4"	6
24	48A2270-11	Pin - Roll, 3/16" x 1-1/4"	2
25	48A2422	Pin	2
26	48A2423	Pin	4
27	48A2424	Pin	2
28	48A2429	Pin	2
29	48A2430	Pin	2
30	48A2431	Pin	2
31	A48A2432	Pin	2
32	48A2433	Pin	2
33	48A2434	Pin - Pivot	4
34	53C570	Hook.	2
35	55A842	Washer.	2
36	62A449	Roller.	2
37	62A450	Roller.	8
38	A72B579	Sheave - Cable, includes two 3A2220	2
39	80A289	Bumper.	4
40	A80A337	Bar - Stop.	1
41	97A158	Cable Assembly.	2
42	217A46	Flap - Rear Door.	1

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

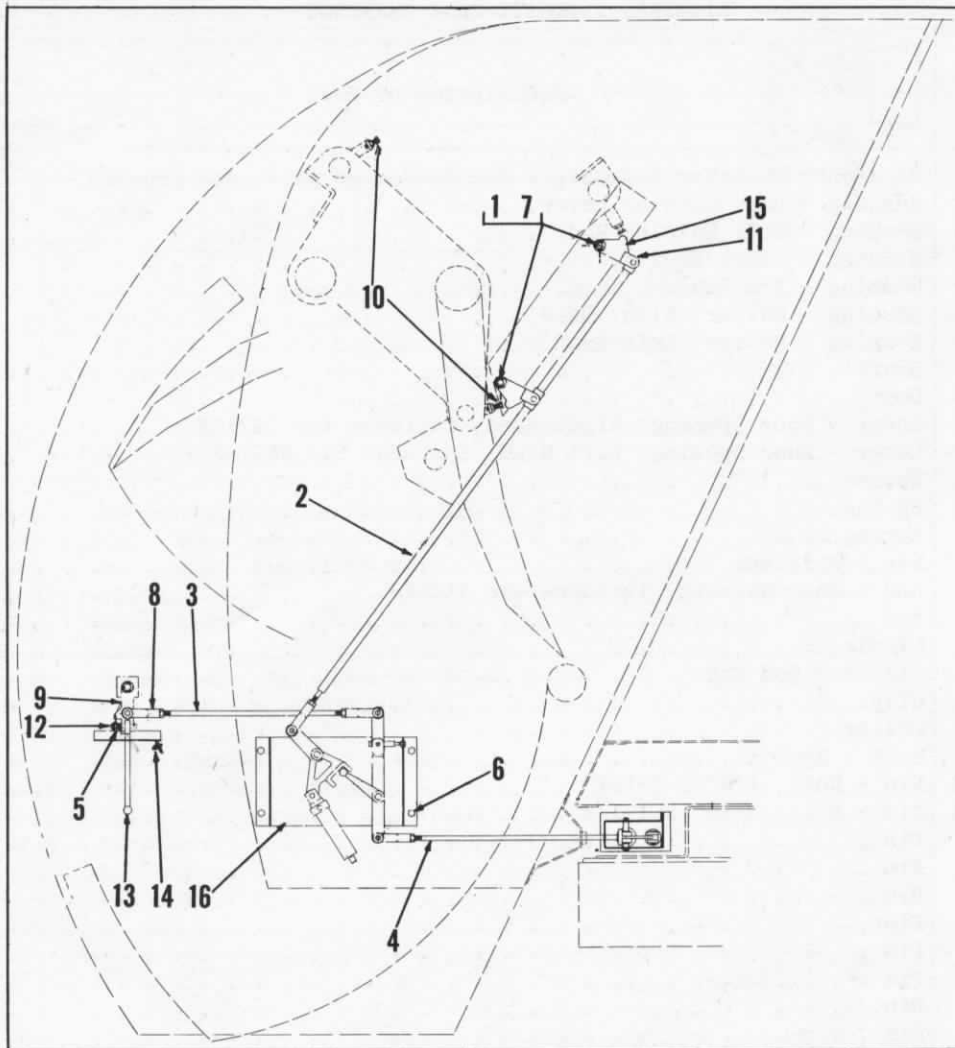


Figure 46. A254E348 Automatic Control Assembly

A254E348 AUTOMATIC CONTROL ASSEMBLY

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	3A2130	Bushing	7
2	A4B1020	Link - Toggle Control, includes two 3A2130.	1
3	4A1021-1	Link - Hand Lever	1
4	4A1022	Link - Control (Bronze)	1
5	19A968	Spring - Torsion.	1
6	22A2121	Gasket.	2
7	26A1653	Ring - Retaining.	5
8	32A2	Yoke.	4
9	A32A601	Yoke - Control, includes three 3A2130	1
10	47A812	Capscrew - Hex. Hd.	2
11	48A1621	Pin - Yoke.	6
12	48A2410	Pin - Pivot, Valve Control.	1
13	70A694	Handle - Control.	1
14	80A331	Bumper - Control Handle	1
15	A96A339	Cam - Crank Control, includes two 3A2130.	2
16	A254A347	Toggle Assembly - Hydraulic Control, for component parts see page 41. . .	1

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

HEIL *bodies and hoists*

PARTS CATALOG

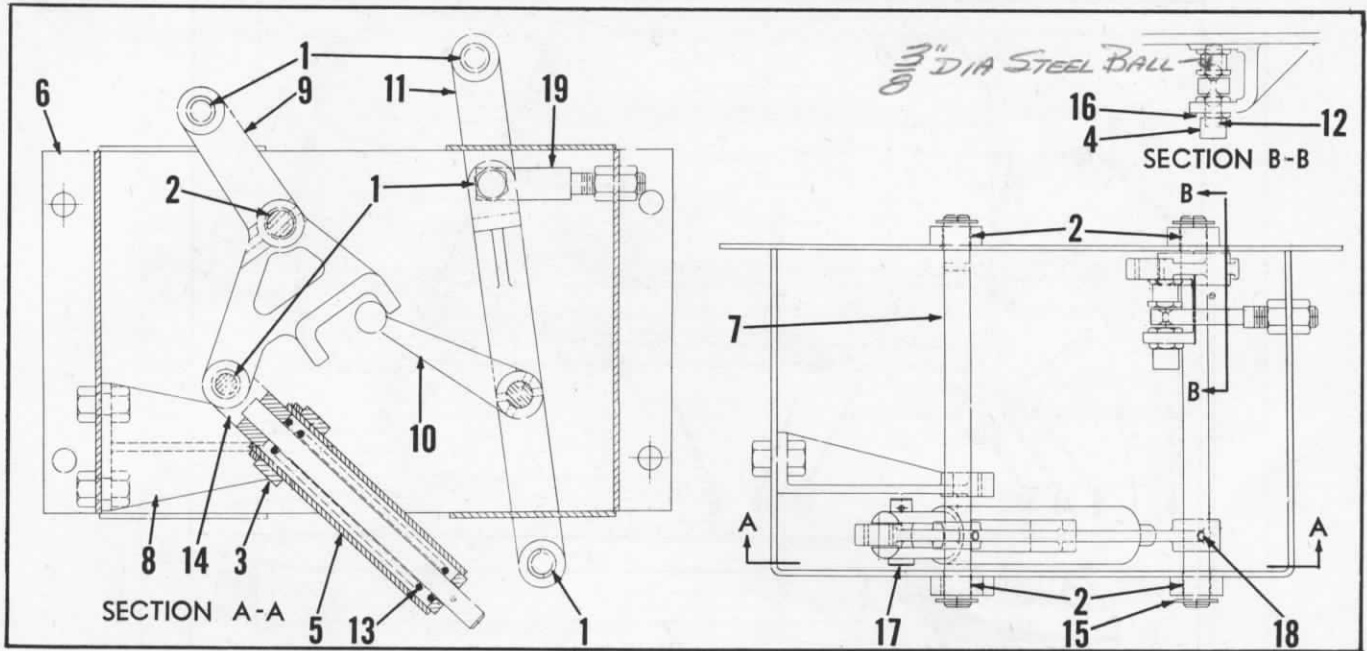


Figure 47. A254E347 Toggle Assembly

A254E347 TOGGLE ASSEMBLY

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	3A2130	Bushing	6
2	3A2131	Bushing	4
3	3A2132	Trunnion - Housing.	1
4	6A1453	Cage - Spring	2
5	A6A1454	Housing - Toggle Spring	1
6	A6C1455	Housing - Toggle Lever, includes one 3A2130 & four 3A2131	1
7	8A6887	Shaft - Toggle.	2
8	A11B6768	Bracket - Toggle Housing, includes one 3A2130	1
9	A13C3933	Lever - Toggle, includes two 3A2130	1
10	13A3935	Lever - Actuating	1
11	A13B3937	Lever - Detent, includes two 3A2130	1
12	19A969	Spring - Compression.	2
13	19A978	Spring - Compression.	1
14	A24A301	Plunger - Toggle Spring	1
15	26A1654	Ring - Retaining.	4
16	47A891	Nut - Jam, 5/8" NF.	2
17	48A1621	Pin - Yoke.	1
18	48A2483-4	Pin - Roll, 5/16" x 1-3/4".	3
19	A53A573	Bar - Lock.	1

NOTE: When parts 13A3935, 8A6887 and A13B3937 are replaced it is very important that levers A13B3937 and 13A3935 be welded to shaft 8A6887. This should be done before final adjustments are made.

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

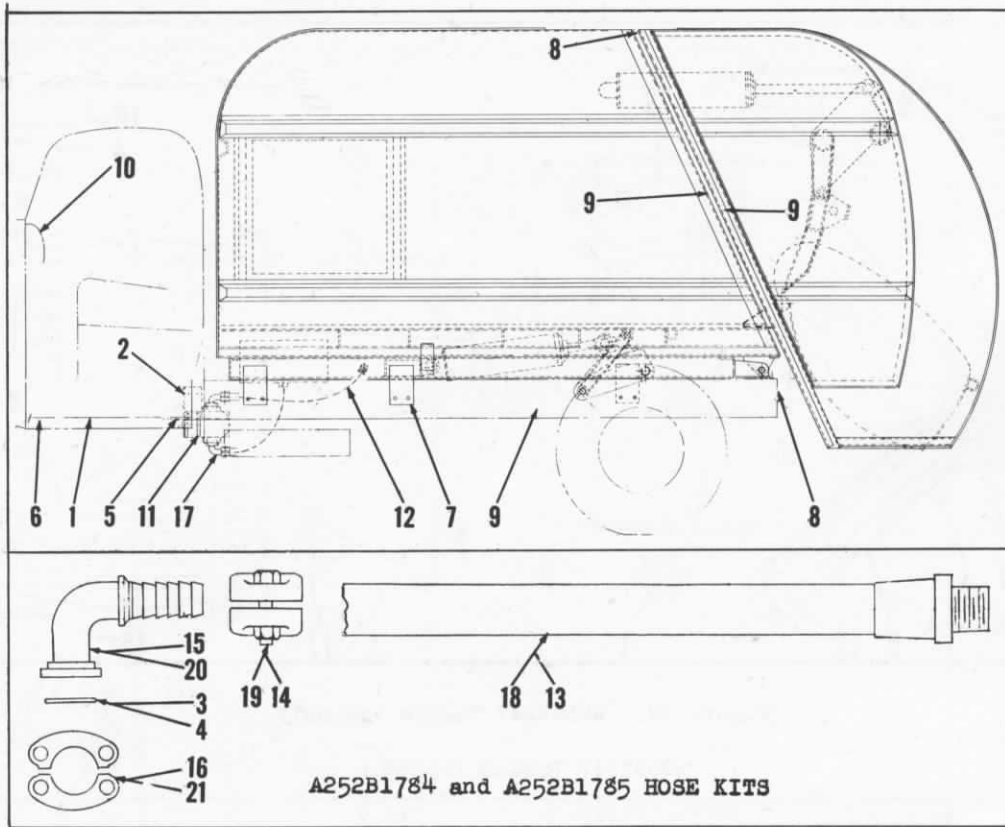


Figure 48. Miscellaneous Parts

MISCELLANEOUS PARTS - FOR 16 AND 20 CUBIC YARD BODIES

Item No.	Heil Part No.	Description of Part	Quan. Per Unit
1	8A6924	Shaft - Drive	1
2	A11B6860	Bracket - Pump.	1
3	26A1613-13	Ring - "O", for 1-3/4" O.D. Pressure Line	1
4	26A1613-16	Ring - "O", for 2-1/8" O.D. Suction Line.	1
5	30A306	Joint - Universal, Pump	1
6	30A308	Joint - Universal, Power Take-Off	1
7	34A7783	Plate - Tie Down.	6
8	97A75	Connector - Six Prong	2
9	108A501	Cable - Six Conductor (14'9" reqd. for Body; 16'3" reqd. for Tailgate; 24'6" reqd. for Chassis) Specify length required when ordering	AR
10	212B271	Plate - Instruction	1
11	A219A189	Pump Assembly - Clockwise Rotation, for component parts see page 43	1
11	A219A190	Pump Assembly - Counter-Clockwise Rotation, for component parts see page 43.	1
12	A252B1784	Hose Kit - High Pressure, includes Items 3, 13, 14, 15 and 16	1
13	252B1784-1	Hose - High Pressure, 1" I.P.S. Male End.	1
14	252B1784-2	Clamp - Hose, for 1" Hose	2
15	252B1784-3	Coupling - 90° Clamp Type, 1-1/4" x 1" Special.	1
16	252B1784-4	Clamp - Coupling, Split Flange, 1-1/4".	1
17	A252B1785	Hose Kit - Low Pressure, includes Items 4, 18, 19, 20 and 21.	1
18	252B1785-1	Hose - Low Pressure, 1-1/2" I.P.S. Male End	1
19	252B1785-2	Clamp - Hose, for 1-1/2" Hose	2
20	252B1785-3	Coupling - 90° Clamp Type, 1-1/2"	1
21	252B1785-4	Clamp - Coupling, Split Flange, 1-1/2".	1

AR - As Required.

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

HEIL *bodies and hoists*

PARTS CATALOG

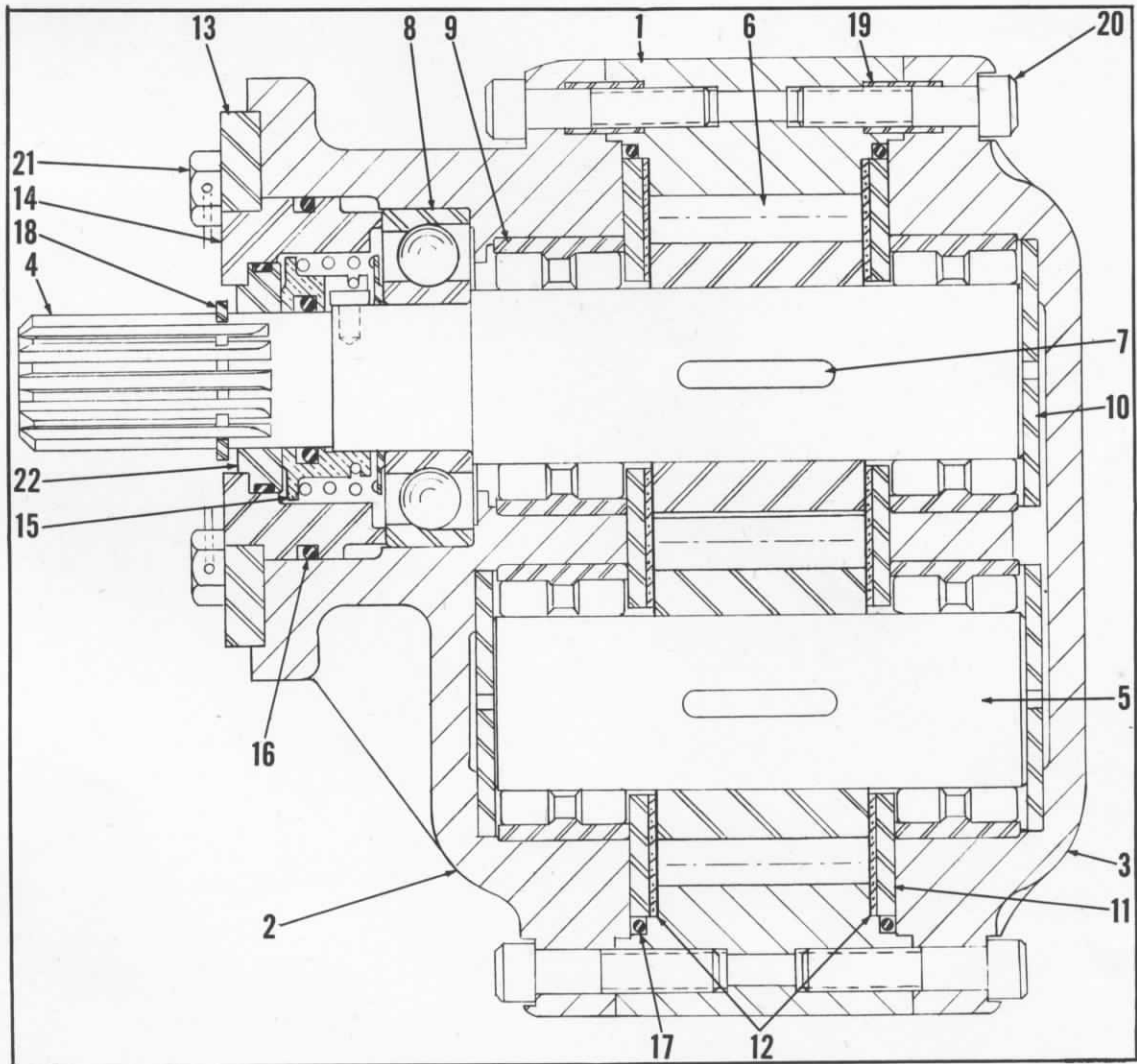


Figure 49. Hydraulic Pump

HYDRAULIC PUMP ASSEMBLY - A219A189 CLOCKWISE ROTATION - A219A190 COUNTER-CLOCKWISE ROTATION.

Item No.	Heil Part No.	Description	Item No.	Heil Part No.	Description
1	219A189-1	Housing	14	219A189-14	Housing - Seal Retainer
2	219A189-2	Cover - Front	15	219A189-15	Seal - Rotary
3	219A189-3	Cover - Rear	16	219A189-16	Ring - "O"
4	219A189-4	Shaft - Drive	17	219A189-17	Ring - "O" (2 reqd.)
5	219A189-5	Shaft - Idler	*	219A189-18	Ring - "O" (4 reqd.)
6	219A189-6	Gear (2 reqd.)	18	219A189-19	Ring - Retaining
7	219A189-7	Key (2 reqd.)	19	219A189-20	Tube - Dowel (2 reqd.)
8	219A189-8	Bearing - Ball	20	219A189-21	Capscrew - Socket Hd. (4 reqd.)
9	219A189-9	Bearing - Needle (4 reqd.)	*	219A189-22	Capscrew - Socket Hd. (4 reqd.)
10	219A189-10	Washer - Thrust (3 reqd.)	21	219A189-23	Capscrew - Hex. Hd. (6 reqd.)
11	219A189-11	Plate - Spacer (2 reqd.)	22	219A189-24	Seal Seat Assembly
12	219A189-12	Gasket (As Required)			
13	219A189-13	Plate - Seal Retainer			

* Not Illustrated.

NOTE: All parts for both pumps are interchangeable. Method of assembly varies to change rotation.

ORDER BY PART NUMBER, NOT BY ITEM NUMBER

NOTES



NOTES

GE URBAN

