

# HL 2500 LOADER



Owner's Manual

<https://tractormanualz.com>

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## Mr. Owner:

Your decision to purchase Gehl equipment is a wise one. You have made a sound and lasting investment. Gehl Company has been building quality equipment for well over a century. Our entire manufacturing and marketing philosophy is built upon quality. The quality built into Gehl products assure you the performance and reliability you need to make a profit. Your authorized Gehl Dealer is equipped to service your Gehl equipment. They maintain genuine Gehl service parts.

All service parts should be obtained from or ordered through your Gehl dealer. Give complete information when ordering service parts. The model number and serial number should always be given. Numbers for the HL2500 are stamped on a plate located on the Left side of the Upper Frame Cross Member. Record numbers in space provided as a handy record for quick reference.

<b>GEHL</b>	
MODEL NO.	SERIAL NO.
HL2500	
<b>GEHL COMPANY</b>	
<b>WEST BEND, WIS. U.S.A.</b>	

"Right" and "Left" are determined from a position sitting on the seat and looking forward. From this position, the Ignition Starter Switch is on the Right.

Gehl Company reserves the right to make changes or improvements in the design or construction of any part without incurring the obligation to install such changes on any unit previously delivered.

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# GEHL

## LOADER WARRANTY

Gehl Company will furnish without charge f.o.b. its factory a part to replace any material in its machinery and/or attachments which, within six months after date of sale, or 720 hours of operation, whichever first occurs, is proven to have been defective at the time it was sold. Repair or replacement of any parts found defective must be authorized in writing, for return to the Company's factory, charges prepaid. Claims for replacement or repairs not previously authorized cannot be recognized.

This replacement and repair policy applies to all new machines and/or attachments not altered, changed or repaired by the customer.

Replacement or repair of allied equipment not manufactured by the Company shall depend upon the standard replacement and repair policy of the manufacturer of such allied equipment.

### EXCLUSION OF WARRANTIES

Except as otherwise expressly stated herein, Gehl Company makes no representation or warranty of any kind, express or implied, AND MAKES NO WARRANTY OF MERCHANTABILITY IN RESPECT TO ITS MACHINERY AND/OR ATTACHMENTS AND MAKES NO WARRANTY THAT ITS MACHINERY AND/OR ATTACHMENTS ARE FIT FOR ANY PARTICULAR PURPOSE. Gehl Company shall not be liable for, and Buyer assumes all liability for, all personal injury and property damage resulting from the handling, possession or use of the goods by Buyer.

### AGENT'S AUTHORITY TO MAKE WARRANTIES

No agent, employee or representative of Gehl Company has any authority to bind Gehl Company to any affirmation, representation or Warranty concerning its machinery and/or attachments except as specifically set forth herein.

### IMPORTANT

The Gehl Loader Warranty is valid only after this card is received and recorded at the Gehl Company. Provide information requested on the card. Tear on dotted line and mail. No postage is required in the U.S.A.

### OWNER'S WARRANTY CARD

TO MAKE THE WARRANTY EFFECTIVE, MAIL THIS CARD NOW

GEHL COMPANY, West Bend, Wisconsin Date \_\_\_\_\_ 19\_\_\_\_

Gentlemen: I received a new Gehl Loader:

MODEL NO. \_\_\_\_\_ SERIAL NO. \_\_\_\_\_ from your dealer

Dealer's Name \_\_\_\_\_

Address \_\_\_\_\_

and I will contact this dealer for service during the warranty period.

Owner's Name \_\_\_\_\_

Address \_\_\_\_\_

City, State & Zip Code \_\_\_\_\_

DID YOU GET AN OPERATOR'S MANUAL WITH YOUR MACHINE? Yes \_\_\_\_\_ No \_\_\_\_\_

THIS IS YOUR  
GEHL LOADER  
WARRANTY CARD

PLEASE FILL OUT  
AND MAIL  
PROMPTLY!

<https://tractormanualz.com/>

Complete and mail (postage paid in the U.S.A.).  
It establishes a record of your purchase and represents the best way we have of serving you.

**BUSINESS REPLY MAIL**

No Postage Necessary if Mailed in U.S.A.

First Class  
PERMIT No. 2  
West Bend, Wis.



Postage will be paid by

**GEHL COMPANY**

WEST BEND, WISCONSIN 53095

**THIS IS YOUR  
GEHL LOADER  
WARRANTY CARD**



**PLEASE FILL OUT  
REVERSE SIDE  
AND MAIL PROMPTLY!**

## GEHL HL2500 LOADER PRE-DELIVERY CHECK LIST

After the Loader has been completely set-up, check it to be certain it is in correct running order before delivering it to the customer. The following is a list of points to inspect. Check off each item as you have made the proper adjustments and found the item operating satisfactorily.

- \_\_\_ Visually inspect unit for any obvious damage such as dented, broken or missing parts. Report any discrepancies in quality or quantity of equipment.
- \_\_\_ Check Engine Assembly for secure mounting, loose connections and damage.
- \_\_\_ Check Fuel Tanks, Fuel Lines, and fittings for leaks and damage. Tighten loose connections as necessary.
- \_\_\_ Check Battery for secure mounting, loose connections, cracks and proper Electrolyte. The Battery has been filled at the factory in domestic shipment.
- \_\_\_ Inspect the Tilt and Lift Cylinders for damage.
- \_\_\_ Check all hoses, clamps and fittings for damage and proper attachment. Inspect for fluid leakage.
- \_\_\_ Inspect Hydraulic Pump and Motors for damage and secureness of attachment. Observe for indications of leakage. Tighten if necessary.
- \_\_\_ Inspect Hydraulic Reservoir Hoses and Fittings for obvious damage and secureness of attachment. Check Filter for damage. Tighten components as necessary.
- \_\_\_ Be sure all grease fittings have been lubricated and Hydraulic System is filled to proper level. See "Lubrication" section in this manual.
- \_\_\_ Inspect Lift, Tilt and Drive Control Levers for damage and freedom of movement.
- \_\_\_ Inspect Gauges for broken lenses and other obvious damage.
- \_\_\_ Check Wheels, making certain they are securely mounted and free of damage.
- \_\_\_ Inspect Tires for damage and proper inflation. Tires should be inflated to 35 pounds-per-square inch pressure for normal operating conditions.
- \_\_\_ Machine has been test run and all mechanisms are operating trouble free.
- \_\_\_ Be sure Lug Nuts on Wheels are tight.
- \_\_\_ Be sure Drive Chains are checked and adjusted properly.

This Gehl HL2500 Loader pre-delivery check list, when properly filled out and signed by the customer, assures that pre-delivery and delivery service was satisfactorily performed.

\_\_\_\_\_  
Signature (Set-Up Man)

Date Set-Up \_\_\_\_\_

\_\_\_\_\_  
Signature (Customer)

## DELIVERY CHECK LIST

The check list that follows is an important reminder of valuable information that should be passed on to the customer at the time the Loader is delivered. Check off each item as you explain it to the customer.

- \_\_\_ Explain all the safety precautions the customer must exercise when operating the Loader.
- \_\_\_ Give the customer the Owner's Manual instructing him to be sure to read it completely before operating machine and explain to him all operating instructions.
- \_\_\_ Explain to the customer that regular lubrication is required for proper operation and long life of the machine. Show the customer the "Lubrication" section of this manual.
- \_\_\_ Explain "Service" section of the Owner's Manual to the customer.
- \_\_\_ Explain how important it is for the operator to thoroughly familiarize himself with all controls and how to operate them before operating this unit.
- \_\_\_ Explain to the customer that he must consult the Engine Operator's Manual for Engine operation and maintenance.
- \_\_\_ Advise customer to record all serial numbers in spaces provided in the Owner's Manual.
- \_\_\_ Advise the customer to complete and mail the "Warranty Card".

Dealer's Name \_\_\_\_\_

Date Delivered \_\_\_\_\_

By \_\_\_\_\_

Signature

(DEALER'S FILE COPY)

<https://tractormanualz.com/>



## GEHL HL2500 LOADER PRE-DELIVERY CHECK LIST

After the Loader has been completely set-up, check it to be certain it is in correct running order before delivering it to the customer. The following is a list of points to inspect. Check off each item as you have made the proper adjustments and found the item operating satisfactorily.

- |  |   |
|--|---|
| <input type="checkbox"/> Visually inspect unit for any obvious damage such as dented, broken or missing parts. Report any discrepancies in quality or quantity of equipment.       | <input type="checkbox"/> Be sure all grease fittings have been lubricated and Hydraulic System is filled to proper level. See "Lubrication" section in this manual.     |
| <input type="checkbox"/> Check Engine Assembly for secure mounting, loose connections and damage.  | <input type="checkbox"/> Inspect Lift, Tilt and Drive Control Levers for damage and freedom of movement.  |
| <input type="checkbox"/> Check Fuel Tanks, Fuel Lines, and fittings for leaks and damage. Tighten loose connections as necessary.  | <input type="checkbox"/> Inspect Gauges for broken lenses and other obvious damage.   |
| <input type="checkbox"/> Check Battery for secure mounting, loose connections, cracks and proper Electrolyte. The Battery has been filled at the factory in domestic shipment.     | <input type="checkbox"/> Check Wheels, making certain they are securely mounted and free of damage.   |
| <input type="checkbox"/> Inspect the Tilt and Lift Cylinders for damage. Check all hoses, clamps and fittings for damage and proper attachment. Inspect for fluid leakage.         | <input type="checkbox"/> Inspect Tires for damage and proper inflation. Tires should be inflated to 35 pounds-per-square inch pressure for normal operating conditions. |
| <input type="checkbox"/> Inspect Hydraulic Pump and Motors for damage and secureness of attachment. Observe for indications of leakage. Tighten if necessary.                      | <input type="checkbox"/> Machine has been test run and all mechanisms are operating trouble free.   |
| <input type="checkbox"/> Inspect Hydraulic Reservoir Hoses and Fittings for obvious damage and secureness of attachment. Check Filter for damage. Tighten components as necessary. | <input type="checkbox"/> Be sure Lug Nuts on Wheels are tight.  |
|  | <input type="checkbox"/> Be sure Drive Chains are checked and adjusted properly.  |

This Gehl HL2500 Loader pre-delivery check list, when properly filled out and signed by the customer, assures that pre-delivery and delivery service was satisfactorily performed.

\_\_\_\_\_  
Signature (Set-Up Man)

Date Set-Up \_\_\_\_\_

\_\_\_\_\_  
Signature (Customer)

## DELIVERY CHECK LIST

The check list that follows is an important reminder of valuable information that should be passed on to the customer at the time the Loader is delivered. Check off each item as you explain it to the customer.

- |  |   |
|--|---|
| <input type="checkbox"/> Explain all the safety precautions the customer must exercise when operating the Loader.  | <input type="checkbox"/> Explain how important it is for the operator to thoroughly familiarize himself with all controls and how to operate them before operating this unit. |
| <input type="checkbox"/> Give the customer the Owner's Manual instructing him to be sure to read it completely before operating machine and explain to him all operating instructions.               | <input type="checkbox"/> Explain to the customer that he must consult the Engine Operator's Manual for Engine operation and maintenance.                                      |
| <input type="checkbox"/> Explain to the customer that regular lubrication is required for proper operation and long life of the machine. Show the customer the "Lubrication" section of this manual. | <input type="checkbox"/> Advise customer to record all serial numbers in spaces provided in the Owner's Manual.   |
| <input type="checkbox"/> Explain "Service" section of the Owner's Manual to the customer.  | <input type="checkbox"/> Advise the customer to complete and mail the "Warranty Card".  |

Dealer's Name \_\_\_\_\_

Date Delivered \_\_\_\_\_

By \_\_\_\_\_

Signature

(NOTE: PAGES 3 AND 4 HAVE BEEN REMOVED AT PERFORATION)

## HL2500 - SPECIFICATIONS

Lift Capacity	800 lbs. Full Height with two counter weights
Bucket Capacity	6½ Cu. Ft. and up
Travel Speed	0-7 MPH infinite variable
Speed and Directional Control	Single T-Bar
Lift and Tilt Control	Single T-Bar
Drive System	Dual Sunstrand Hydro-Transmission driving through gear and chain reduction
Hydraulic System	Engine Driven Borg-Warner gear pump wear compensated 7.25 GPM at 3000 RPM, 2000 PSI Capacity.
Valving	Lift and tilt with float detent on full lift, 20 GPM Capacity.
Cylinders	Lift, double-acting 2 bore x 1 rod. Tilt, double-acting 2½ bore x 1 rod.
Filtration	Disposable spin-on cartridge type 10 micron element
Hydraulic Cooler	All steel construction
Reservoir	9½ gallon capacity
System Pressures	Hydraulics, 2000 PSI Relief Setting, Hydro Statics, designed for Wheel Slip at maximum load.
Engine	Onan NHC 22.5 BHP at 3000 RPM
Fuel	Gasoline
Cooling	Air cooled with engine shroud.
Crankcase Capacity	4 quarts
Electrical	12 volt alternator

Starting	Enclosed electric
Air Cleaner	Replaceable Spin-on
Fuel Capacity	6½ U. S. gallons
Structure	Unitized welded 3/8" thick high tensile steel plate construction with integral Belly Pan. Booms are box-tubed high tensile steel.
Tires	7.00 x 13, 6 ply construction grip type tread design
Seat	Upholstered, extra wide form fit bucket type with seat belt
Shipping Weight	2350 lbs. less bucket

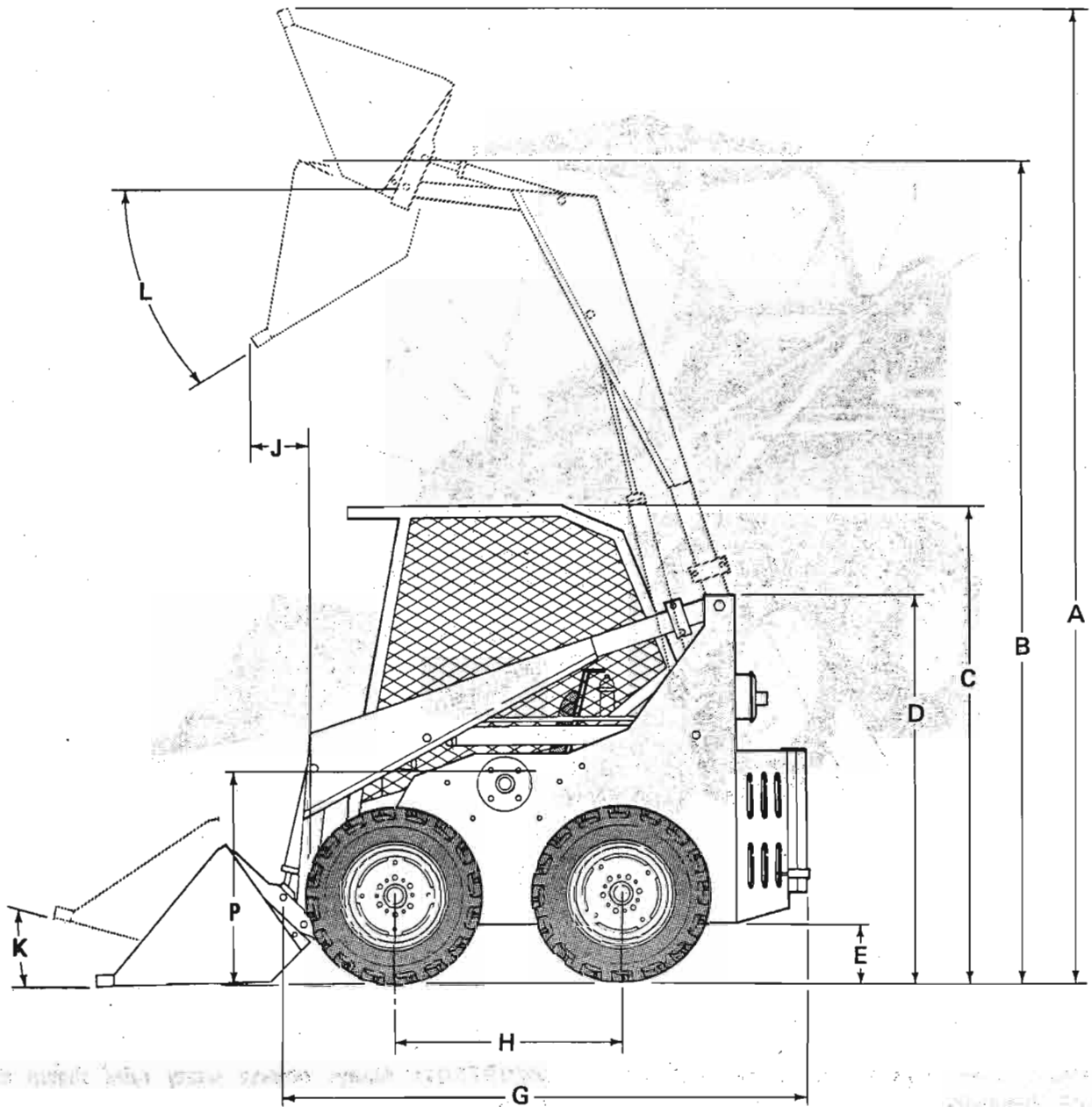
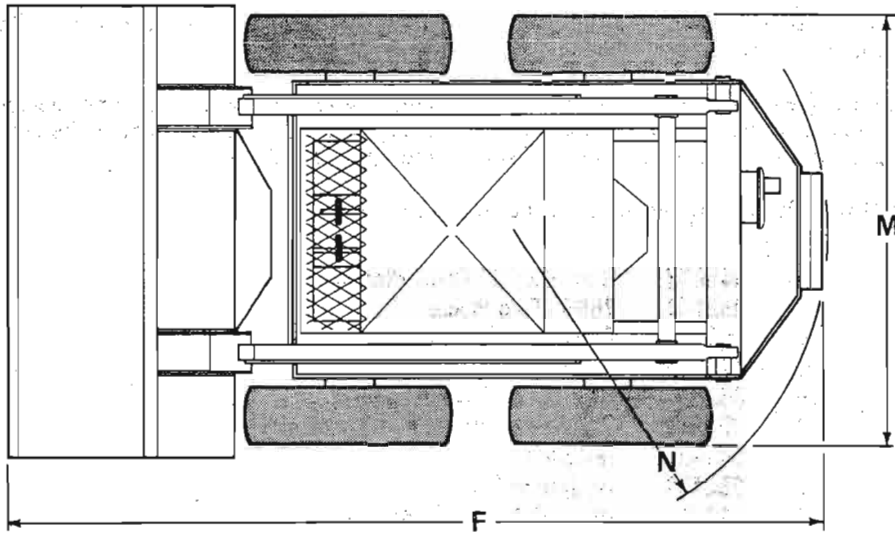
### OPTIONAL EQUIPMENT:

Buckets 6½ cu.ft. and up capacity
Counterweights
Electric Lights
Backhoe
Scarifier
LP Gas
Trailer
Pallet Forks
Hydraulic Kit
Ammeter
Drawbar Kit
Flotation Tires
Post Hole Auger
Grapple for Manure Bucket

### KEY TO ILLUSTRATION

A.	Overall Operation Height - Fully Raised	108¼"
B.	Dump Height	98"
C.	Overall Height with Operator Guard.	68"
D.	Height from Ground to Top of Frame	55"
E.	Ground Clearance.	9"
F.	Overall Length	98"
G.	Overall Length less Bucket	78¼"
H.	Wheel Base	32"
J.	Dump Reach	19¾"
K.	Rollback at Ground	17°
L.	Dump Angle	30°
M.	Overall Width	52"
N.	Clearance Circle Radius	42½"
P.	Ground to Top of Seat Cushion	30-1½"





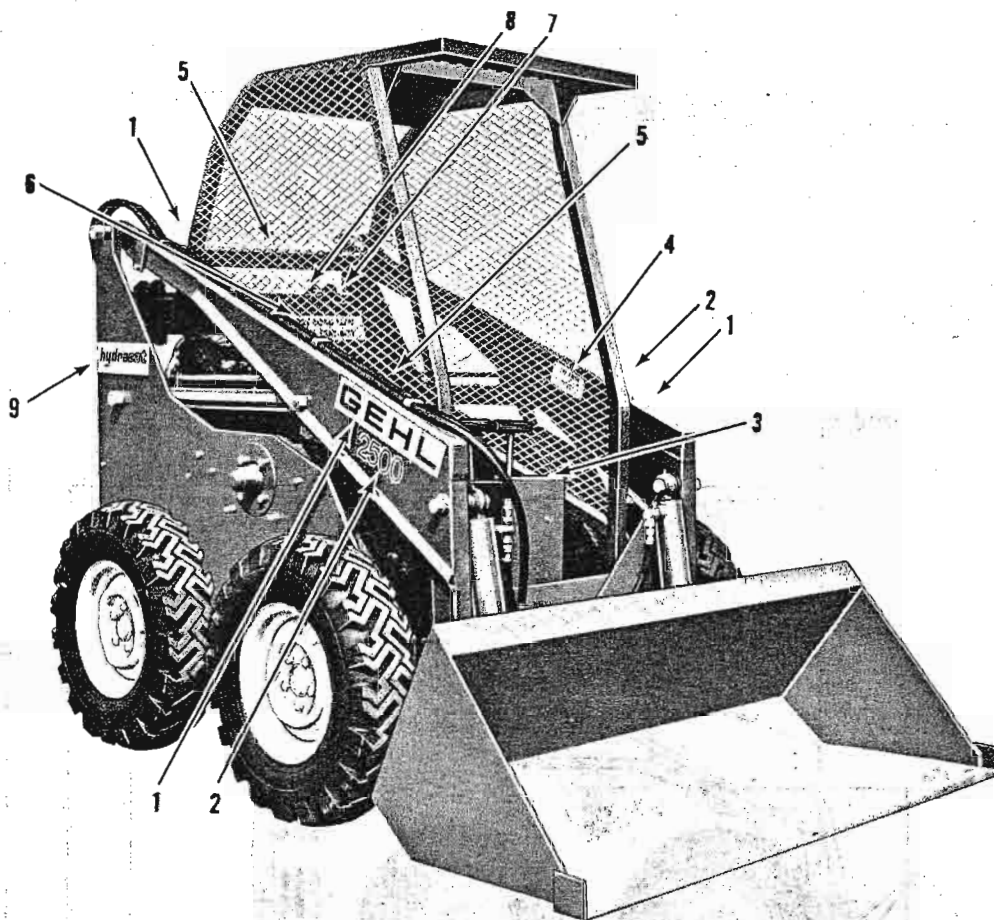
## DECAL LOCATIONS

Decal locations are shown to assist in application of new decals in the event of damage to the decal or refinishing of the machine. Check below for their locations.

Surfaces must be free from dirt, dust, grease and other foreign material before applying decals. To apply decals, remove the smaller portion of the decal backing paper and apply this part of the exposed adhesive backing to the clean surface in respective position. Peel other portion of the backing paper off slowly and apply decal.

The Decal Set Number for HL2500 is 600251. The set includes the following Decals:

- |     |        |                            |
|-----|--------|----------------------------|
| 1 - | 045698 | Gehl 3 x 16 (Three Places) |
| 2 - | 052141 | 2500 (Two Places)          |
| 3 - | 053753 | Console - Warning          |
| 4 - | 047977 | Caution                    |
| 5 - | 053354 | Be Careful (Two Places)    |
| 6 - | 052007 | Carry Load Low             |
| 7 - | 052433 | Gasoline                   |
| 8 - | 052434 | Hydraulic Oil              |
| 9 - | 047551 | HydraCat (Two Places)      |




**NOTE:** Always order decals by set number. DO NOT order decals separately.

**IMPORTANT:** Always observe safety rules shown on decals.

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# SAFETY FIRST

Gehl Company has taken operator safety into consideration when designing this unit and has included a Roll Over Guard and Seat Belt. These features are included as standard equipment on all units.

This safety alert symbol --  -- used throughout this manual means - **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!** It stresses an attitude of "HEADS UP" for safety.

Remember: The careful operator is the best operator. Most accidents are caused by human error. Certain precautions must be observed to prevent the possibility of error that can cause injury or damage.

**DO NOT** leave the machine parked unattended while on an incline or grade without positive braking.

When transporting machine on highway use adequate warning to operators of other vehicles. Slow Moving Vehicle holder is attached to left rear of unit and safety lights are available from the manufacturer.

Travel slowly over rough terrain and never make sharp turns with lift arms raised. Always carry loaded bucket with lift arms down against main frame stops, especially on side hills or inclines and when dumping over an excavation.

Always use extra mechanical stop when Lift Arm is raised for servicing the unit.

**DO NOT** allow minors to operate or be near the machine unless properly supervised.

Never push lift arm control full forward into float with bucket loaded and raised. Keep lift arms "Down" for carrying, digging or when dismounting from the unit.

**DO NOT** clean, adjust or lubricate the machine when any part is in operation. Escaping fluid under pressure can cause serious injury. Relieve pressure before disconnecting lines and inspect hoses and connections regularly. Steering and hydraulic controls must be in Neutral when starting engine.

**DO NOT** enter or leave machine with Lift Arm in raised position.

**DO NOT** extend feet beyond front edge of operator's platform.

**DO NOT** enter or leave machine when engine is running.

Never drive too close to an excavation or ditch.

Avoid "HOT-ROD" starts, reversals, stops or turns.

Rest bucket on ground when machine is not in use.

Avoid operating engine in a closed or confined area.

Always fasten seat belt before starting engine.

Keep the area of operation as level as possible.

Back-up all inclines, curbs, ramps, etc.

Keep all shields in place and secured.



### GENERAL DESCRIPTION

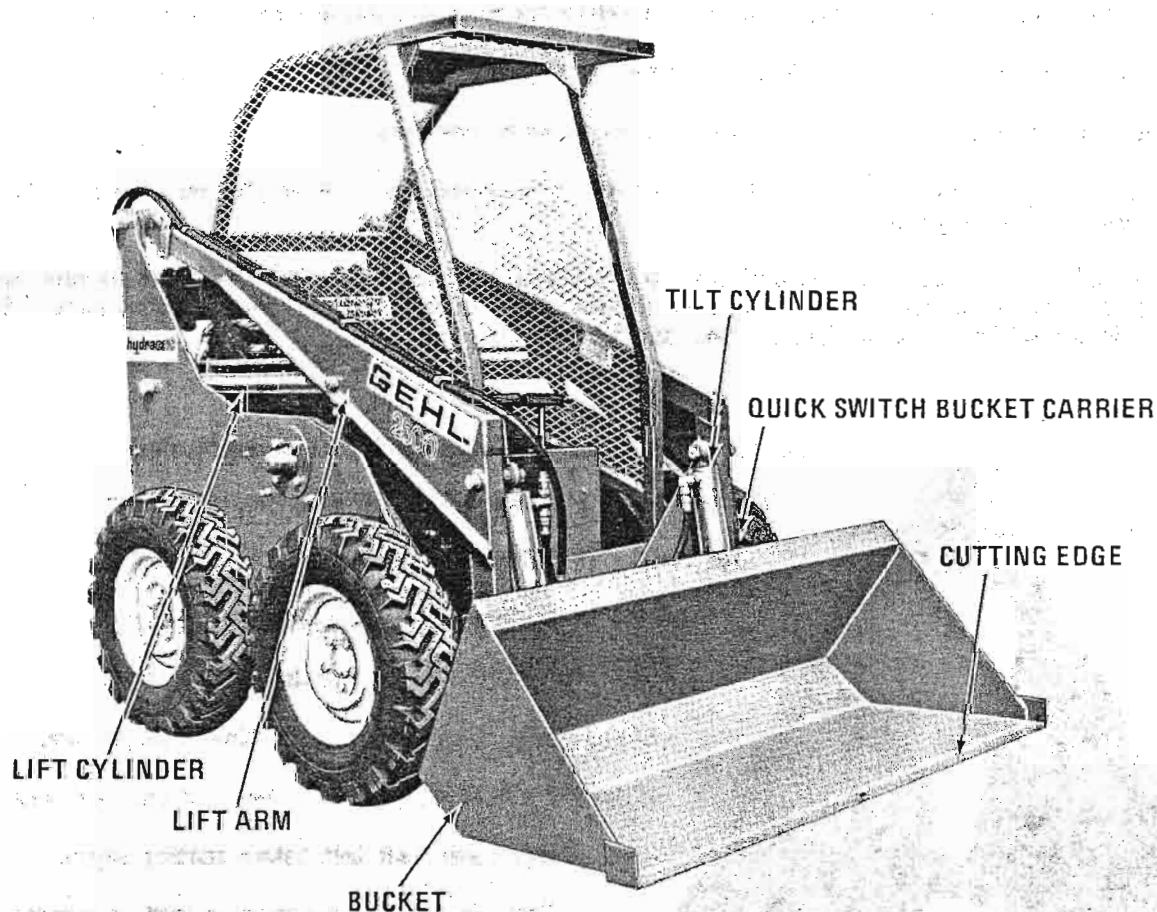
The Loader is designed for handling construction, industrial, mining, and agricultural materials. In its capacity as a self-contained rider type, mechanized piece of handling equipment, the Loader is completely equipped to lift loads of 800 pound capacity to a maximum height of 108¾". The vehicle is designed for transporting of loads from one area to another, both indoors and out-of-doors. With the variety of Gehl attachments available, the Loader can be equipped to perform a multitude of job site uses.

The Engine Assembly is located directly behind the Operator's Seat. The Engine is a two cylinder, air cooled, 22.5 horsepower, Model NH (used before Serial No. 1445 and on Serial No. 1446) or NHC (used on Serial No. 1445 and after Serial No. 1446) Onan Gasoline Engine. Refer

to the Onan instruction book for further information concerning the Engine; its components, specifications and repair. Standard Engine Accessories include a dry-type Air Cleaner, Oil Filter, a 12-volt dust sealed Alternator, Starter, Fuel Pump and Velocity Governor.

Standard instruments are a Key Ignition Starter Switch, Hourmeter and Engine Oil Pressure Gauge (on NH Engine only). Controls consist of the Choke, Hand Throttle and the Hydraulic Lift, Tilt and Drive Controls.

The unit contains a separate Hydraulic Lifting Circuit, Two 2 inch diameter Cylinders provide lift to the Boom Arm. Two 2½ inch diameter double acting Tilt Cylinders provide downward movement, or Tilt, to the Bucket, or Attachment. The system has 9½ gallon oil capacity, Filter and Oil Cooler.

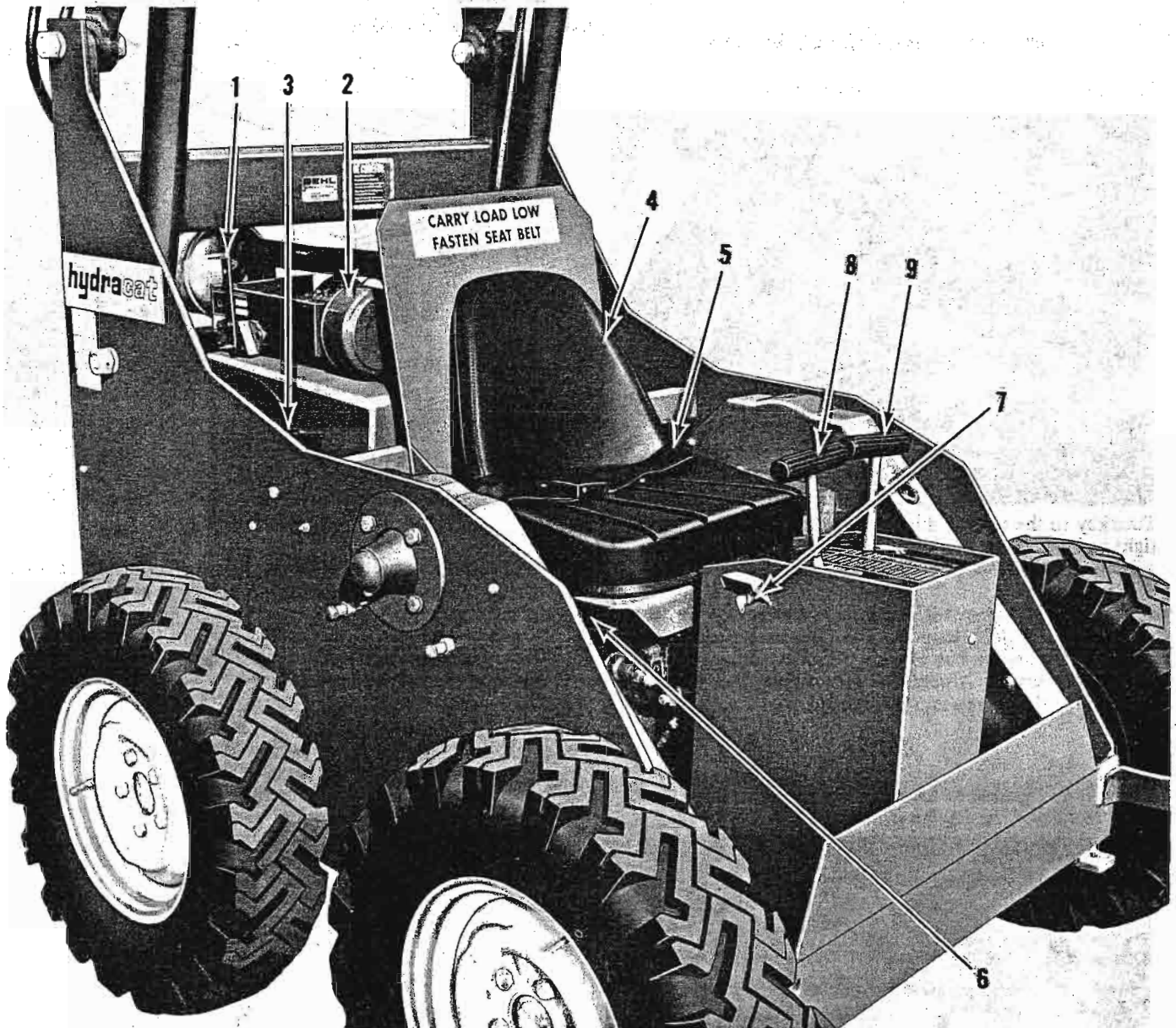


Steering is accomplished by a swash plate arrangement which controls the Hydraulic Drive Circuit to each side of the vehicle. Difference in hydraulic flow drives one side faster or slower than the other side and results in turning. Rotating the Left Control Lever one way causes the unit to turn right -- rotating the Lever in the opposite direction causes the unit to turn left.

The unit has heavy duty 13-inch wheels, each separately mounted on heavy duty Axles and 7.00 x 13, 6 ply construction grip type tread pneumatic tires all around.

The Frame Assembly is unitized welded high tensile steel plate construction with integral belly pan. Booms are box-tubed high tensile steel.

The Lift, Tilt and Drive Control Levers are located directly in front of the driver and are operated by both hands of the driver. They control forward and reverse movements of the vehicle, as well as turning. The controls also operate the Lifting and Tilting Cylinders of the vehicle.



#### OPERATING CONTROLS

- |                     |                                     |
|---------------------|-------------------------------------|
| 1 - Hand Throttle   | 6 - Battery                         |
| 2 - Air Cleaner     | 7 - Ignition/Starter Switch         |
| 3 - Oil Cooler      | 8 - Lift/Tilt Control Lever (Right) |
| 4 - Operator's Seat | 9 - Drive Control Lever (Left)      |
| 5 - Seat Belt       |                                     |

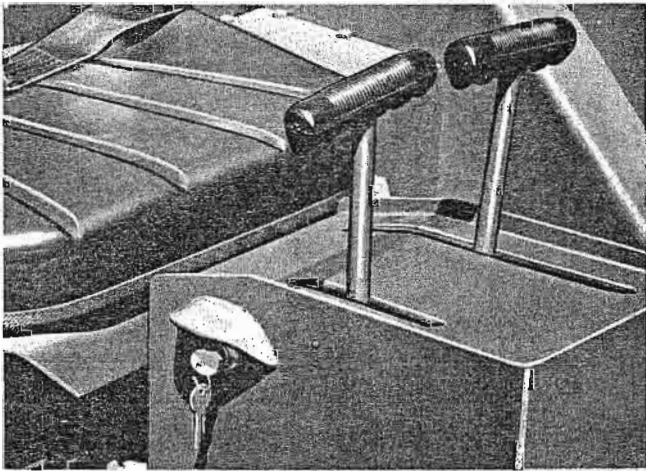


## GENERAL OPERATION

1. Re-tighten lug nuts after 10 hours of operation.
2. Maintain 35 PSI tire pressure.
3. Observe and follow all safety precautions to prevent the possibility of error that can cause injury or damage.
4. Check Wheel Bearing tightness at least once a year.
5. Should the need arise to tow the unit, clips are available for installation on hydrostatic pumps to lock By-Pass Valves. Clips are available as accessory items and are to be used for emergency only and towing at a very low speed and for short distances. To order Clips, specify Part Number 601988. **NOTE:** Two Clips must be used.

## IGNITION AND STARTER SWITCH

The Ignition and Starter are controlled with one Switch.

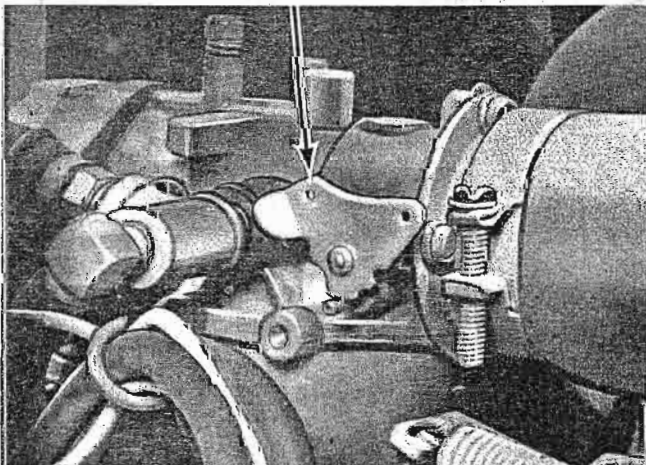


Turn key to the right and ignition is "on". Turn key farther right and the Starter will engage. Release the key, the Starter will disengage and the Switch will return to "on" position.

The Accessory Ammeter indicates whether the Battery is being charged or discharged. The Ammeter Needle should register zero when the Engine is not running and charge when the Engine Alternator is charging the Battery or zero when the Battery is fully charged.

## CHOKE

The Choke Control is located directly behind the Driver's Seat on side of the Carburetor.

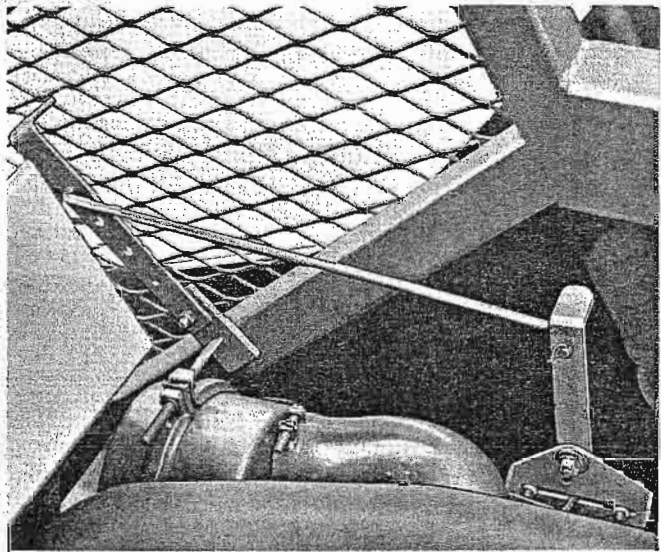


In the event of cold weather starting, turn the Choke Control Lever to close the Choke. After the Engine starts, open the Choke Control.

## THROTTLE

The Hand Throttle is located on right side of the Driver's Seat and is attached to the Overhead Guard.

The Throttle is hand operated and controls the vehicle Engine speed. The Engine operates at the maximum governed speed when the Throttle is fully opened. When the Throttle is closed, the Engine operates at the pre-determined idle speed.



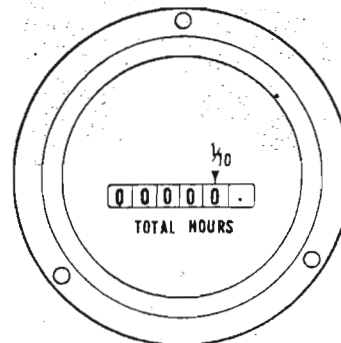
## HOURLMETER

The Engine Hourmeter indicates the total hours of operation of the Engine in tenths of an hour to a maximum of 9,999.9 hours.

The Hourmeter provides a true record where hours of operation are important such as:

1. How long since oil was changed?
2. How long since the filter was changed?
3. How long since unit was lubricated?
4. How many hours has equipment run?
5. How long did it take to do a job?

Red numbers on the Meter indicate tenths of hours.



After 9999.9 hours, the Meter will repeat automatically.

## SEAT BELT

The Seat Belt is located and installed as are conventional Automobile Seat Belts.



**Be seated with the Seat Belt fastened prior to starting Engine. BE SURE the Seat Support is secure. Never enter or leave the vehicle while Engine is running. DO NOT start the Engine when not seated in the Driver's Seat.**

## STARTING THE ENGINE

Prior to starting the Engine, the operator must become familiar with the purpose and location of the Controls and Instruments as described in the preceding paragraphs.

- Check to be certain Control Levers are in neutral position.
- Turn the Key in the Key Switch to start the Engine.

**NOTE:** If necessary, use the Choke Control to assist in starting.

**NOTE:** The Starting Motor must not be operated for more than a 30-second interval. If the Engine fails to start within this period of time, wait 10 or 15 seconds before attempting again. If Engine does not start within a reasonable time, refer to STARTING DIFFICULTIES in the Onan instruction book included with this manual.

**IMPORTANT:** Warm Engine for several minutes at half Throttle before operating under full load.

## OPERATING THE LOADER

The most efficient and smoothest operation is achieved when the Engine operates from half to full Throttle and speed is controlled by means of the T-Bar and Hydrostatic Transmission. The T-Bar should be moved slowly and positive with a firm hand grip and rigid arm extension. Good coordination of Loader forward or rearward movement, controlled by the left hand, in relation to Lift Arm and Bucket operation, controlled by the right hand, is necessary to obtain the most efficiency from the Loader.

Spend some time in an open area practicing turns and movements in conjunction with raising Lift Arms, rolling the Bucket and dumping the Bucket. Beginning operators should set the Hand Throttle one half open. As proficiency improves, engine speed can be increased.

## LOADER CONTROLS

Prior to operating the Loader, the operator should become familiar with the Controls and their functions.

### LEFT T-BAR CONTROL LEVER

After being seated and without starting the Engine, move Left T-Bar with left hand from neutral detent forward. With T-Bar in this position and Engine running, the Loader will move forward. Moving the T-Bar back from neutral will cause the Loader to move rearward. Return T-Bar to neutral, twist lever clockwise and the Loader will spin turn to the right. The two right wheels will rotate rearward and the two left wheels will rotate forward. A twist counter-

clockwise results in a spin turn to the left. Right wheels rotate forward and left wheels rotate rearward. When the T-Bar is moved slightly forward and twisted, a slow gradual forward turn is maneuvered. The farther the T-Bar is moved forward or rearward or twisted in either direction, the faster the resulting maneuver.

### RIGHT T-BAR CONTROL LEVER

Move Right T-Bar with right hand from neutral position back towards the Seat. Lift Arms will raise. Pushing the T-Bar forward an equal amount lowers the Lift Arms. Pushing the T-Bar full forward past a detent stop allows the Lift Arms to float with no control.

With the Right T-Bar in neutral position, twist counter-clockwise to roll the Bucket to carry position. Twist T-Bar clockwise to dump Bucket. Both forward and rearward motions with twisting motion can be done simultaneously.

**NOTE:** The Console Decal shows functions of both Right and Left T-Bars.

## LOADING AND DIGGING WITH BUCKET

Roll Bucket downward until cutting edge contacts the ground. Approach material at a moderate speed so momentum will carry Bucket into the pile. When loading causes Engine to lose speed, start rolling the Bucket backward slowly and at the same time reduce forward travel speed to maintain maximum wheel torque. In some conditions, it may be necessary to raise Lift Arms slightly when rolling the Bucket backward. Do not drive onto pile of material. Back away and place load in carry position with Lift Arms down on the Frame.



**Never put T-Bar in float position with bucket loaded and Lift Arms raised. When bucket is full, roll upward while traveling forward.**

If digging an excavation below normal grade, use ramp as flat as possible. Always drive Loader with loaded Bucket forward up the ramp. If unloaded, always back up the ramp.

When digging hard packed material, a slight down pressure on the cutting edge is necessary. Always try to cut a thin layer so material rolls back into the Bucket. **IMPORTANT:** Never cut with Lift Arms up off frame stops.

**NOTE:** If Unit becomes stuck, curl Bucket to its rearmost down position. Set the cutting edge into the soil in front of the tires and push the Unit backwards.

## DUMPING LOADED BUCKET

Carry loaded Bucket low while moving to dumping area. If material is to be dumped over an embankment, drive only close enough so Bucket is half over the edge. Stop and roll Bucket forward as far as possible, then pull back T-Bar and raise Lift Arms to clean the Bucket.

When dumping into a truck, align Loader perpendicular to truck with Bucket at carry position. Then, raise Lift Arms while slowly moving forward. Dump when front of Frame nears truck body. The Bucket can be used to move material to opposite side of the truck by placing Bucket on nearest

side of the pile and actuating the T-Bar to roll Bucket upward.

### LEVELING

Spread material while driving forward with Bucket slowly dumped just above the ground.

### GRADING

Grading material level should be done in reverse. Raise Lift Arms at least one third of the way up and tilt Bucket downward at approximately 45 degrees. Lower cutting edge to the ground, then push T-Bar full forward to float position.

*NOTE: A higher Lift Arm position and steeper Bucket angle results in a deeper more severe grading effect. Less Bucket angle and lower Lift Arm position provides less aggressive grading effect and more smoothing action.*

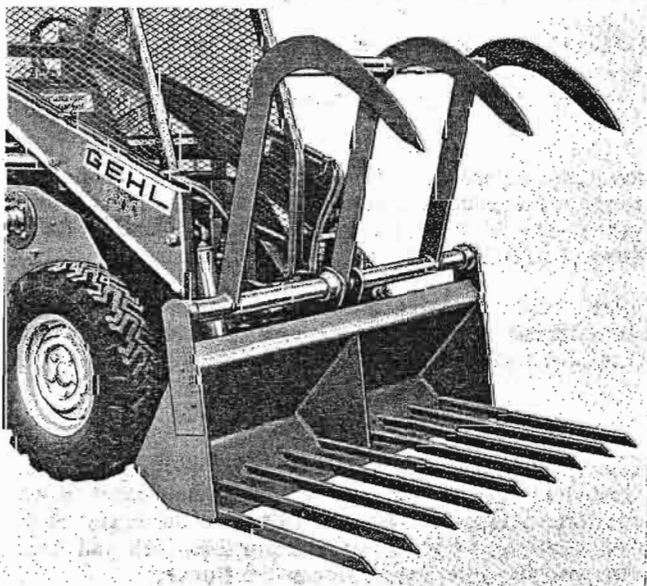
### LIFT ARM FLOAT

Use Float position when grading in reverse or scraping a concrete yard or hard surface in forward direction. This will allow the cutting edge to follow contour of the surface. Time and effort can also be saved after dumping into a truck if the T-Bar is pushed full forward to float and allow Lift Arm to lower automatically while backing away.

### MANURE FORK WITH GRAPPLE

The Manure Fork with Grapple provides for a larger load of bedding with straw. It is lifted, tilted and loaded as are the other Buckets.

The Grapple must be connected to the Loader Hydraulic System and is opened and closed by using the foot operated Hydraulic Valve.



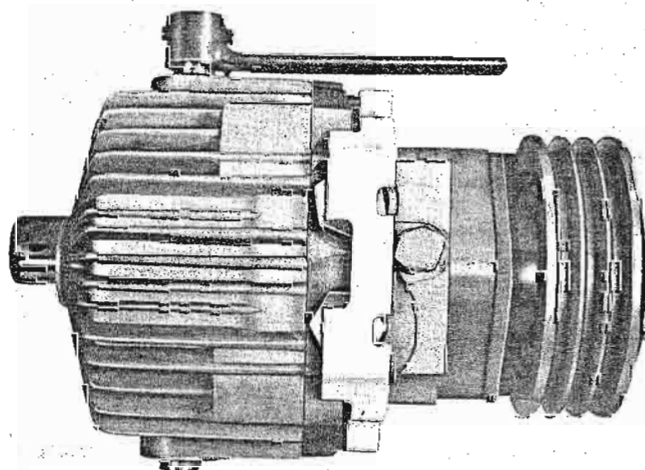
### POST HOLE AUGER

To drill holes, position T-Bar in detented float position. Operate Auger with the Hydraulic Foot Lever. *NOTE: The Foot Lever operates a two way Valve.*



### TOWING THE LOADER

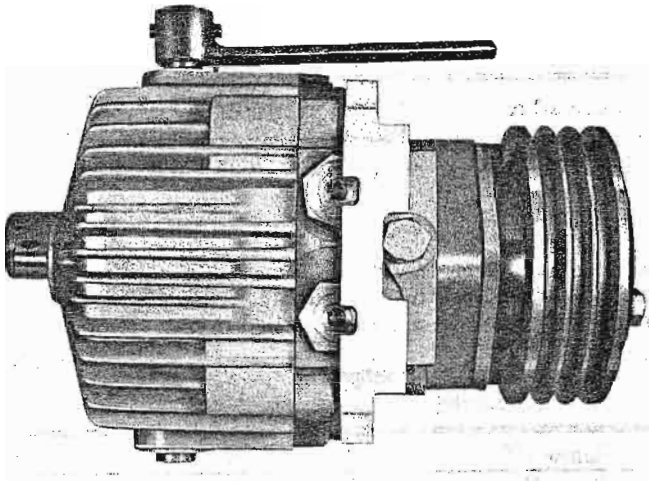
Emergency By-Pass Valves are incorporated in Hydrostatic Pumps located beneath the Operator's Seat. Position optional emergency towing clips as shown to depress the Valves. Secure over bolt heads. Install towing clips on both pumps. Now, the Loader can be towed, but not more than 2 M.P.H. or for a long distance.



**Towing Clips are for emergency only. Never tow machine fast or for long distances as serious damage can be done to the pumps.**

When finished towing, remove clips and re-install them in storage position as shown.





## DRIVE CHAIN ADJUSTMENT

**IMPORTANT:** Adjust after first 10 hours of operation and check at 50 hour intervals thereafter.

To take-up Drive Chain:

1. Loosen Idler Hub bolts.
2. Use Handyman or Automobile Bumper Jack to raise Idler until tires are raised slightly off the ground. This allows wheels to turn releasing slack on back side of the Sprocket.
3. Tighten Idler Hub bolts securely.
4. Remove Jack.

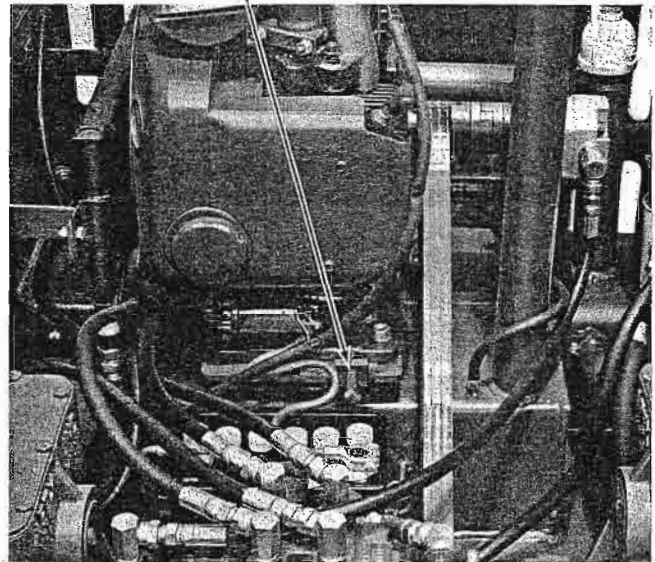
It is recommended that a good quality chain lubricant is applied to each chain by removing rubber plug at top of each chain case after chain adjustment and before putting the machine in operation.

Failure to keep chains at proper adjustment will result in damage to chain, axles and sprockets.



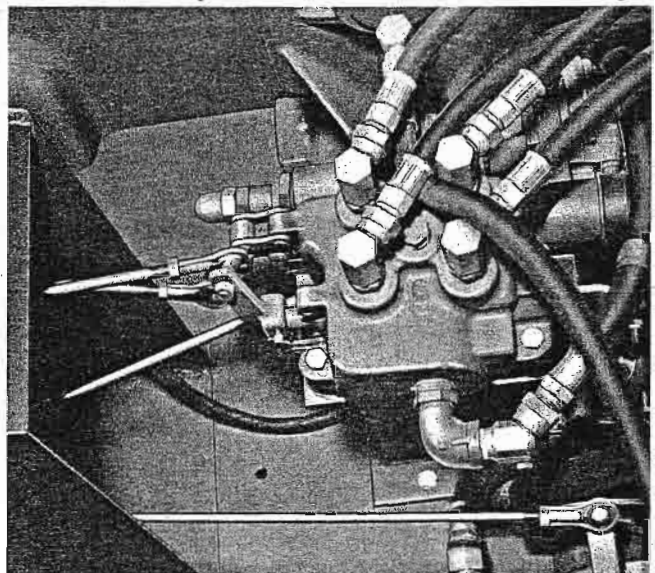
## DRIVE BELT ADJUSTMENT

The Drive Belt must be kept at proper tension and in alignment at all times. To take-up Belt slack to the proper operating tension, loosen Engine Mounting Bolts slightly. Then turn Adjustment Screw. The belt will be at proper tension when belt deflection is 5/8" when 10 to 12 lbs. pressure is applied across entire width of the belt midway between the drive and driven sheaves. **IMPORTANT:** Tighten Engine Mounting Bolts before starting the Engine.



## CONTROL LEVER ADJUSTMENT

1. Adjust length of traction drive control (Left T-Bar) rods to pump so that lever is at center of detent and the "Tee Handle" is parallel to the axle center line. To adjust rod length, remove Joint from Valve and turn in or out for desired length. Be sure all Joints are secure.
2. Check detent and friction strip in upper Console for tension and adjust by compressing or expanding springs.
3. Adjust length of Lift Arm control rods so that lever is vertical and "Tee Handle" is parallel to the axle center line. Adjust in same manner as in step 1.
4. Make sure all joints and connections are fastened tight.



## HL2500 - LUBRICATION

To be assured of long Loader life and satisfactory operation, the entire Unit must be lubricated at regular intervals as specified with oil and grease recommended.

### GREASE

All Grease Fittings are of standard style commonly found on farm implements and automotive equipment. The HL2500 Loader has 16 Fittings.

Grease all Fittings listed in the "Key To Lubrication" at intervals specified with a good grade of SAE Multi-Purpose grease.

### OILS

Loader and Engine operation are dependent on correct good grade lubricating oils. Use only recommended grades stated.

The Hydraulic System is filled with a total of 9½ gallons of Type F Hydraulic Transmission Fluid. For re-fill, use same type fluid. Some replacement brands follow:

1. Automatic Transmission Fluid — Type A - Suffix A
2. Automatic Transmission Fluid — Type F
3. Dexron Automatic Transmission Fluid

Typical Specifications:

### VISCOSITY INDEX 150-210

Temperature	0° F	100°F	210°F
SUS Viscosity	6000 max.	180 min.	47 min.

Use a good quality motor oil that meets API Service Classification, SE or SE/CC. Use the proper SAE viscosity for expected start-up temperature conditions.

Air Temperature	Multiple Viscosity Oil
Below 0°	5W - 30
0 - 30°	10 W - 40, or 5 W - 30
30 - 90 °	30
90° and above	50

Crankcase Capacity:

Onan Engine with Filter - 4 quarts

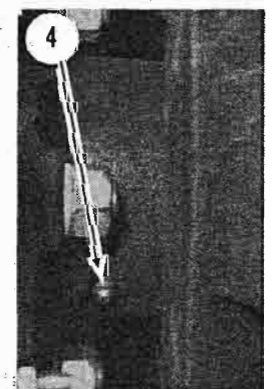
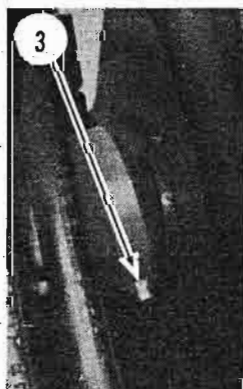
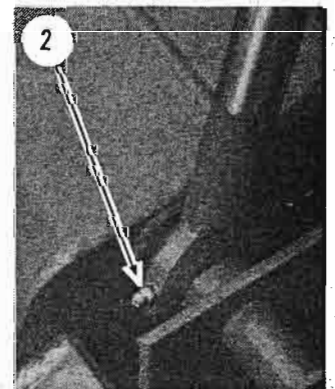
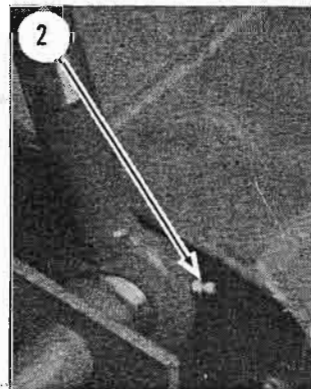
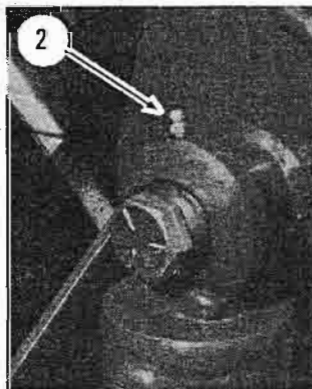
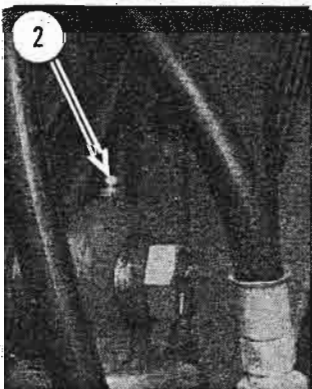
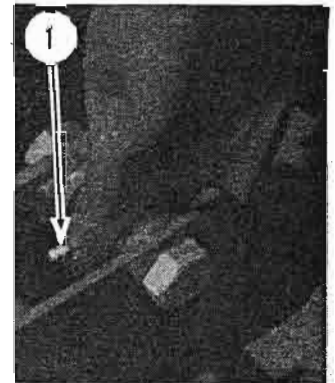
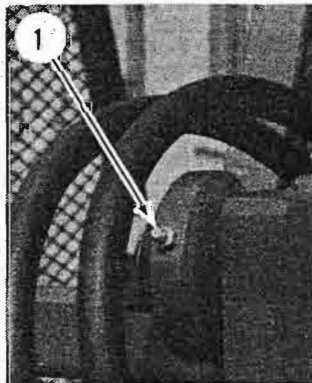
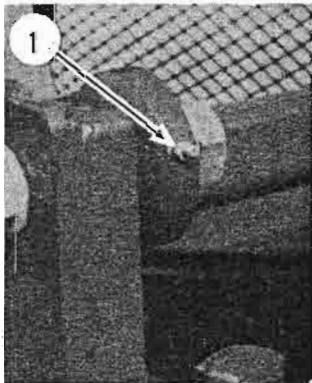


## KEY TO LUBRICATION

- 1 - Load Arms (Four Places) - 10 Hours
- 2 - Tilt Cylinders (Four Places) - 10 Hours
- 3 - Lift Cylinders (Four Places) - 10 Hours
- 4 - Wheel Hub (Four Places) - 50 Hours

**NOTE:** Oil T-Bar Swivel Balls every 100 hours. Drop 10-15 drops of oil on each Swivel Ball.

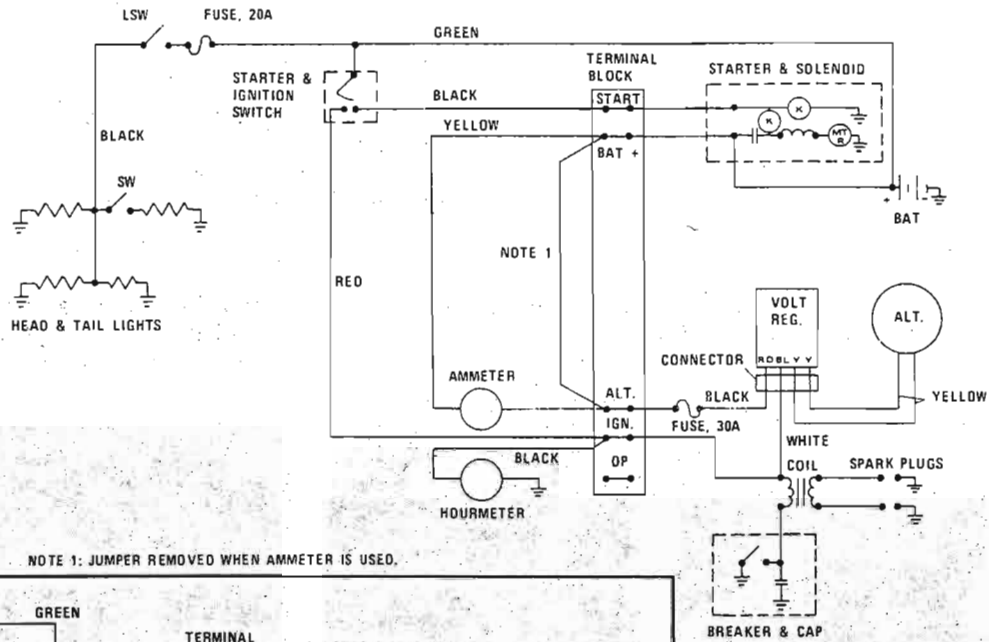
**IMPORTANT:** Remove rubber plugs from Chain Covers occasionally and spray lubricating compound on the Drive Chains when they are in motion.



Never lubricate when any part of the machine is in motion.

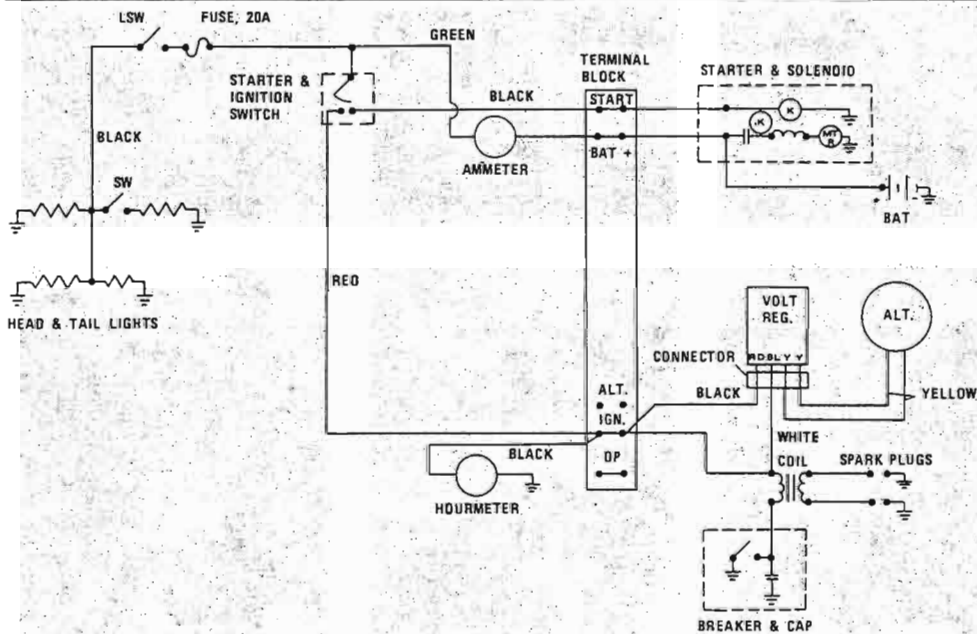
**NOTE:** Replacement Oil Filter Element has part number 048959.

## ENGINE WIRING DIAGRAM MODEL NH ONAN ENGINE



NOTE 1: JUMPER REMOVED WHEN AMMETER IS USED.

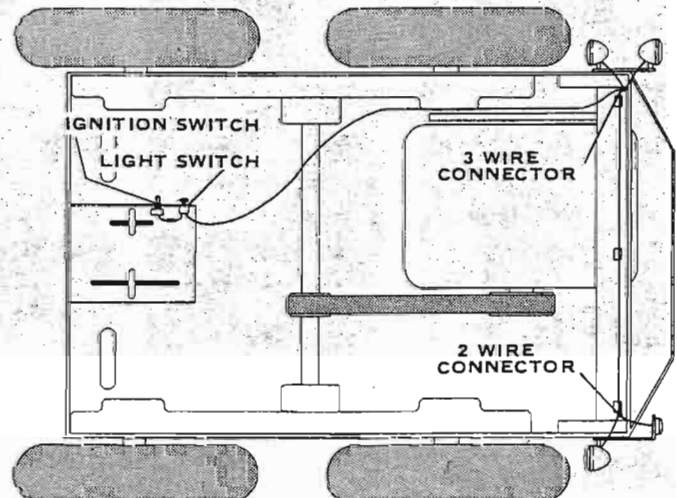
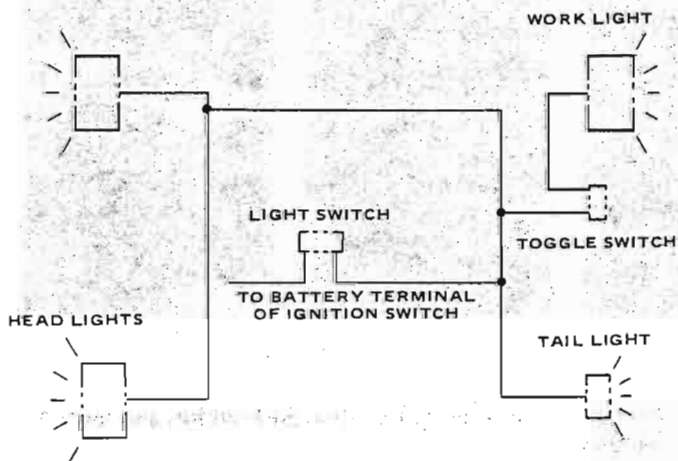
## ENGINE WIRING DIAGRAM MODEL NHC ONAN ENGINE



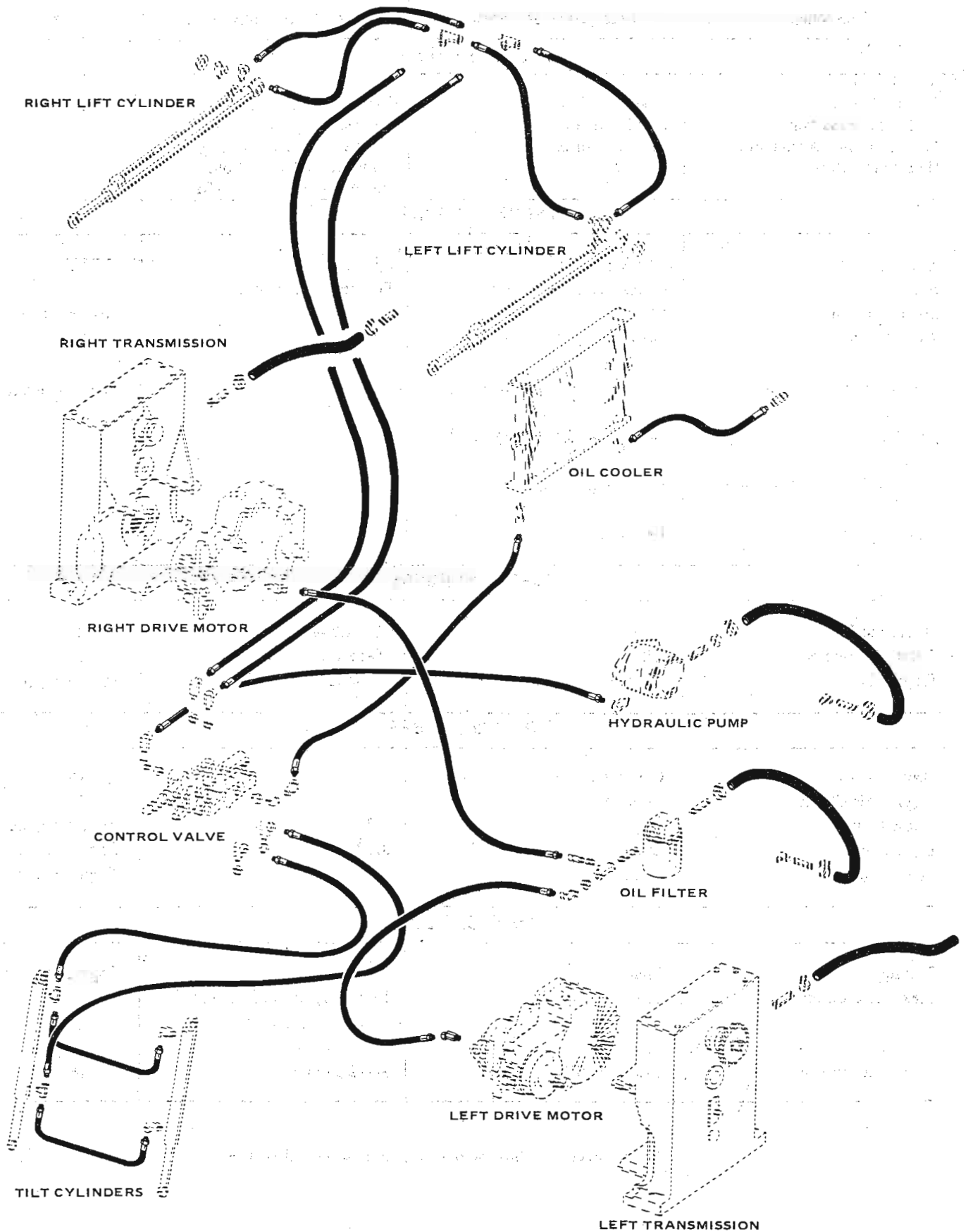
## LIGHT WIRING DIAGRAM

(USED AFTER  
SERIAL NO. 1369)

(USED BEFORE SERIAL NO. 1370)



# HYDRAULIC SYSTEM





# HL2500 - SERVICE

## SERVICE PERIODS

Component	Description of Service	Capacity or Adjustment	Ref. Page
<b>EVERY 10 HOURS</b>			
Air Cleaner	Check oil level	Between High and Low	21
Engine Crankcase	Check oil level	Between High and Low	Engine Manual
Hydraulic Reservoir	Grease fittings	Visible evidence greasing	16
Lift Arm and Bucket Pins	Change.	Done in first 6-10 hours and every 100 hours after	17
Hydraulic Filter			21
<b>EVERY 50 HOURS</b>			
Tires	Check pressure	35 psi	12
Battery	Check electrolyte level	Bottom of filler neck	21
Engine Oil Filter	Change		Engine Manual
Axle Bearings	Grease - 4 fittings lightly - 2 pumps		17
Engine Cooling Fins and Screen	Back flush with compressed air		Engine Manual
Oil Cooler	Back flush with compressed air		
Traction Control Ball Joints	Check tightness both ends		15
*Hoses and Pumps	Leaks		
<b>EVERY 100 HOURS</b>			
Hydraulic Filter	Replace	10 micron	21
T-Bar Ball Swivels	Oil	10-15 drops	23
Engine Oil	Change	4 quarts	Engine Manual
<b>EVERY 200 HOURS</b>			
Drive Chains	Check tension		15
Engine Air Cleaner	Replace		21
Spark Plugs	Regap.	.025	Engine Manual
Breaker Points	Check	.020	Engine Manual
Engine Oil Filter	Change		Engine Manual
<b>EVERY 500 HOURS</b>			
Timing	Check		Engine Manual
Flex Drive Coupler	Check	Inspect fiber couplers for wear and replace if necessary	
Hydraulic Reservoir	Drain Refill.	9-1/2 gallons	16

\*First check or adjustment -- 200 hour service thereafter.

This section contains instructions for the maintenance and repair of the assemblies used on the Front End Loader.

### BATTERY SERVICING

**Adding Water To Battery:** The water in the Battery Electrolyte solution evaporates at high temperatures or with excessive charging rates. Inspect the Electrolyte level and add distilled water, when necessary, to bring the Electrolyte level to the split ring.

**Battery Cleaning:** The top of the Battery must be kept clean. Tighten the vent plugs and clean the Battery with a brush dipped in an alkaline solution such as ammonia or a solution of bicarbonate of soda and water. After the foaming action stops, flush the top of the Battery with clean water. If the terminals and cable clamps are corroded, disconnect the cables and clean in the same manner as described above.

### CHECKING ENGINE OIL LEVEL

**IMPORTANT:** Engine Oil Level must be checked daily to prevent "freezing" of the pistons and bearings.

With the Engine stopped and standing in a horizontal position, pull out Dipstick, wipe clean with a lint free cloth, Reinsert Dipstick and push in as far as it will go. Turn and pull Dipstick "out". The Dipstick should have a coating of oil extending to the upper mark. If the oil coating is below the upper mark, oil must be added. Do not overfill.

### REPLACING HYDRAULIC FILTER

The Hydraulic Oil Filter must be changed after 6-10 hours of initial operation of machine from factory. This precaution insures long trouble free life of Hydro-Transmissions. Hydraulic Filter should be changed periodically, depending upon machine operating conditions. Dusty, dry conditions require more frequent filter changes. When control of transmissions become sluggish, this condition is an indication of a Hydraulic Filter change. The less contamination of foreign particles in the oil will result in an extremely long Hydro-Transmission life. When Filter Element needs replacing, order part number 048959.



**NOTE:** Fill Oil Filter with oil before installing. Be sure there is tight seal between filter and base. An air leak will cause malfunctioning of the hydrostatic transmission on one or both sides.

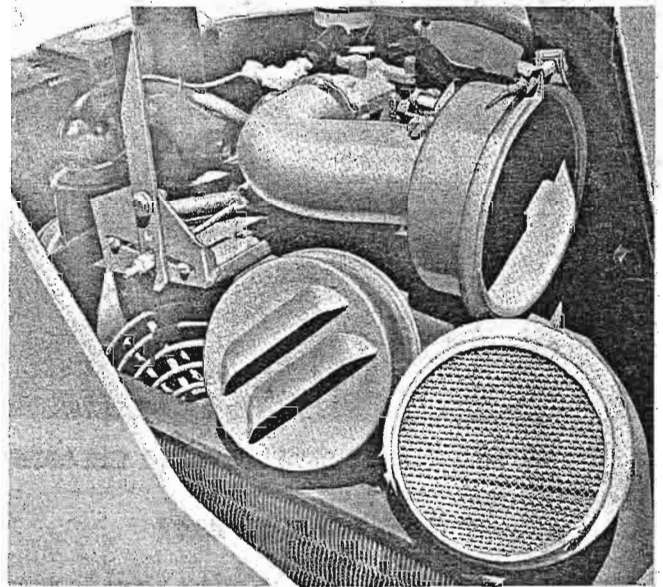
### SERVICING THE AIR CLEANER

Proper maintenance of the Engine Air Cleaner is extremely important. Negligence of regular maintenance will result in inefficient engine performance and reduced engine life.

Allowing the paper element, used on units with serial numbers 1446 and before 1445, to become plugged with dirt will restrict the intake of air into the engine. Inspect the element for tiny holes or tears which would permit particles of dust or dirt to enter the engine.

Remove the paper element every 100 operating hours and clean by tapping against a flat, solid object to loosen dust and dirt accumulation. The element can be washed in a solution of warm water and mild detergent if additional cleaning seems necessary.

The paper element will normally require replacement every 500 hours; more often under severe operation conditions. When filter needs replacing, order Part Number 052218.



Service paper filter element as indicated in the following steps:

Direct dry, clean air up and down pleats on the "clean air" side of the Filter.

**WARNING:** Air pressure at Nozzle must not exceed 100 PSI. Maintain reasonable distance between Nozzle and Filter.

To wash oily and soot laden Filters, use No. 600015 Filter Cleaner. Proportions are 2 ounces of cleaner to one gallon of water. For best mixing results, use small amount of cool tap water, then add to warm (70° - 100° F) water to give proper proportion. The warmer (100° F) the solution the better the cleaning. Soak Filter Element for 15 minutes. Rinse thoroughly with clean water from hose (maximum water pressure 40 PSI). Air dry completely before reusing.

**NOTICE:** Do not heat Element to speed up drying.

After Element has been dried, inspect for damage by placing bright light inside the Element. Thin spots, pin holes or the slightest rupture will render the Element unfit for further use.

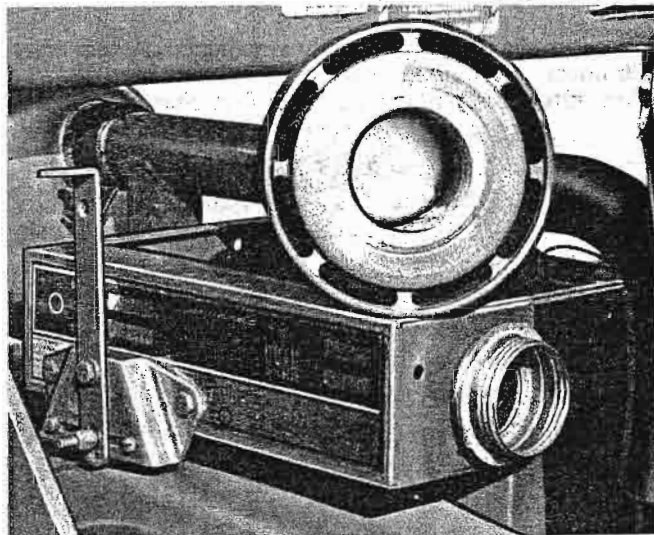
**IMPORTANT:** Filter Element should be replaced after six (6) cleanings or annually.

Reassemble Air Cleaner in reverse order - inspecting all Gaskets and replacing any that are questionable.

**NOTE:** DO NOT use oil in Dust Cup.

Inspect and tighten all Air Cleaner Induction System connections:

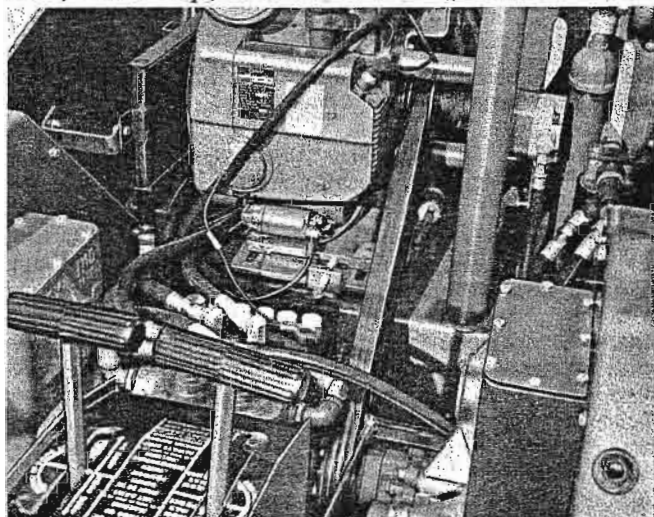
The Spin-On Element, used on units with serial number 1445 and after serial number 1446, should be removed and replaced every 200 hours. To order replacement Spin-on element, specify part number 600987.



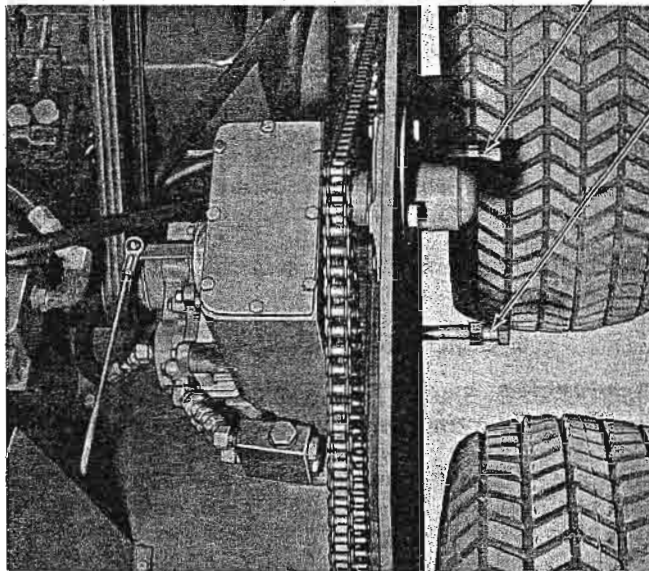
**DO NOT RUN ENGINE WITH AIR CLEANER REMOVED.**

## DRIVE BELT REPLACEMENT

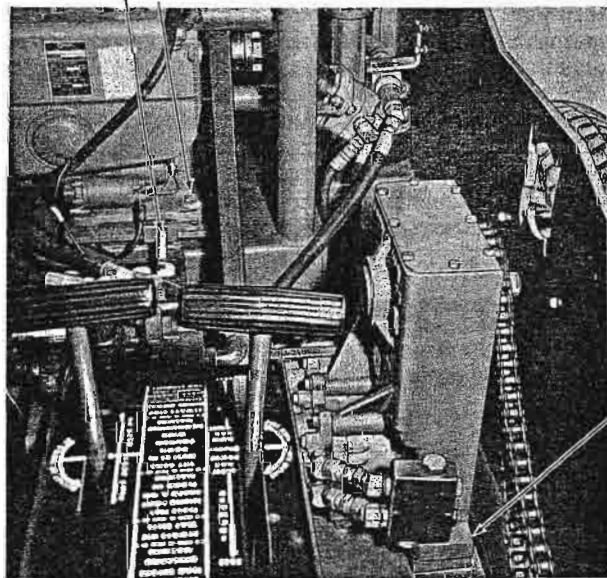
To replace the Drive Belt on Units before Serial Number 1827, follow steps as listed:



1. Remove Seat and Seat Mounting Bar.
2. Remove bolts attaching Hydraulic Filter to the Frame Side.
3. Remove Chain Shield. **NOTE:** Back off Transmission Set Screws to remove Shield.
4. Remove Chain Tightener bolts and Chain Tightener from the Chassis.

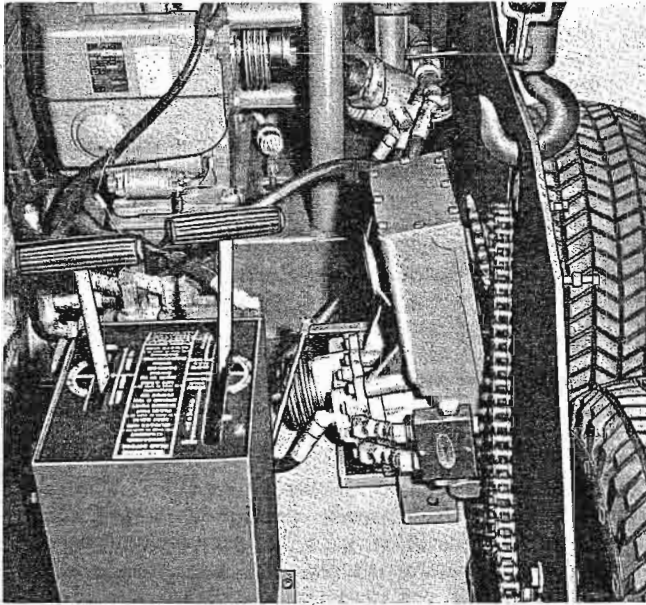


5. Remove Deck bolts holding the Left Transmission. **NOTE:** Bolts are located underneath the machine.
6. Lift Left Side of the Machine "Up" until both wheels are off the ground. If Overhead Hoist is not available, block up to prevent injury.
7. Loosen Motor Mount bolts and Belt Adjustment Set-screw.



8. Remove Hydraulic Pump from the Engine Mounting. **NOTE:** The Drive Coupler will split apart.
9. Lift Transmission and pull toward Left Frame Side. The Drive Coupler will slide apart between the Universal Joint Yoke and Belt Pulley. **WARNING:** Place washer and 1/4" Counter bolt on the opposite ends of the Hydrostatic Input Shafts on both sides to prevent internal damage to the Hydrostatic Units.
10. Slide Belt around bottom and top Sheaves to remove.

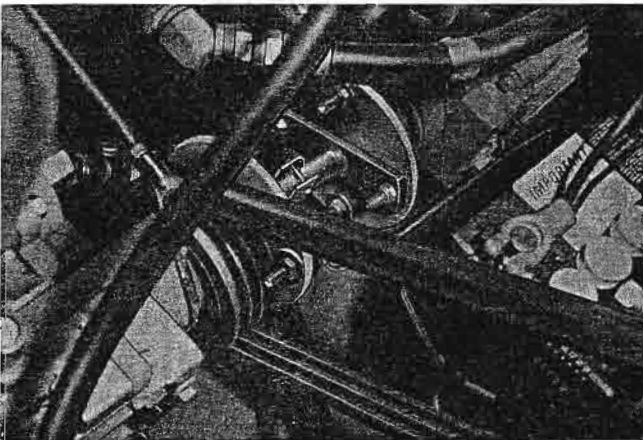




11. Reverse procedure for reassembly.

To replace Drive Belt on Units after Serial Number 1826, follow steps as listed:

- A. Remove Seat and Seat Mounting Bar.
- B. Loosen Motor Mount Bolts and Belt Adjustment Set Screw.



- C. Remove Hydraulic Pump from the Engine Mounting.  
**NOTE:** The Drive Coupler will split apart.
- D. Remove bolts from one end of the Center Drive Bar of the flexible Drive Coupling.
- E. Flex Center Drive Bar and remove Belt from the Lower Sheave. Slide Belt around Top Sheave and remove.
- F. Reverse procedure for reassembly.

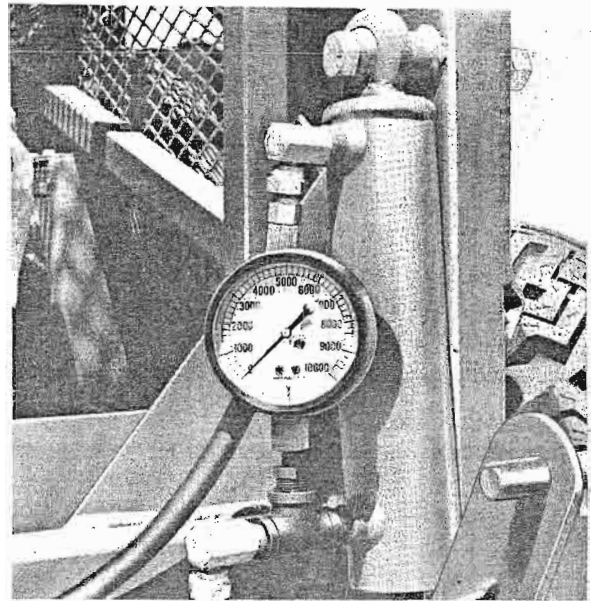
#### HYDRAULIC PRESSURE CHECK



Escaping fluid under pressure can cause serious injury. Relieve pressure before disconnecting lines.

To check Hydraulic Pressure:

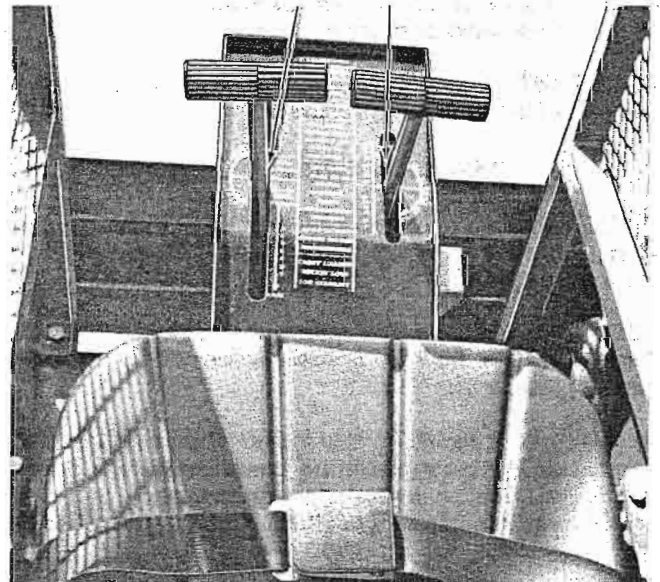
1. Disconnect 3/4" Upper Tilt Cylinder Hose and 90° Swivel Elbow from Rod End of the Left Tilt Cylinder.
2. Turn 3/8" close nipple into the Cylinder Port as shown. Attach 3/8" Tee and Pressure Gauge.



3. Connect Cylinder Hose to the Tee. Roll Bucket Full Back and hold the Bucket Control in the Full Back Position. Gauge reading should be from 1900 to 2000 PSI.
4. Pressure can be increased by turning Relief Valve Adjustment Screw of the Control Valve "Inward". Reduce Pressure by turning the Adjustment Screw "Outward".

#### OILING T-BAR SWIVEL BALLS

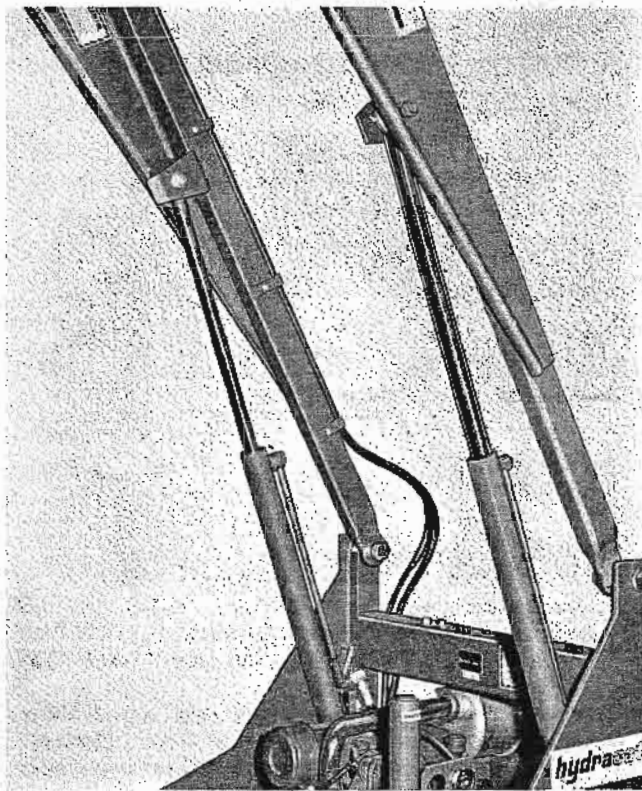
With an oil can, drop 10-15 drops of oil down to where Ball, at base of lever, is located.



#### LIFT ARM LOCK

When it is necessary to work on the Loader Drive Mechanism with the Lift Arms in raised position, a Lift Arm Brace must be used. Install the Brace as described. **NOTE:** The Lift Arm Brace is not furnished as Standard Equipment and must be furnished by the customer. Suggested Brace Size is 3/16 x 1-1/4 x 1-1/4 x 23 Angle.

1. Raise Lift Arms to maximum height.
2. Position Lift Arm Brace on the Lift Cylinder as shown.



3. Lower Lift Arms until contact is made with upper end of the Lift Arm Brace.

**NOTE:** As soon as Lift Arm strikes Brace, Release Control Lever. Do not apply pressure to Lock.

**IMPORTANT:** Raise Lift Arms and remove Lift Arm Brace before putting the Unit in transport.

### REPLACING VALVE SEALS

**GENERAL:** If necessary to replace Valve Seals, use the special tool that is part of Seal Kit 047736 and perform the following steps.

**NOTE:** For the purpose of these instructions, consider the Control Handle side of the Valve as the "Front" and the opposite side as the "Back".

1. At the "Back" of the Valve, remove all Bonnet Assembly parts which are connected to the Spool. Keep parts in the order of disassembly.
2. From the "Front" of the Valve, remove all parts connected to the Spool (Handle, etc.)

3. Push Spool into Housing from the "Front" of the Valve until Front Seal is exposed. Remove Front Seal. Pull Spool out of Housing from "Front end."

**NOTE:** Be very careful not to scratch or damage Spool or Bore when removing Spool.

4. Remove Back Seal.
5. Thoroughly clean both Seal Grooves.
6. Replace the Spool through the front of the Housing, being certain that the end having the bolt hole enters the Housing first. Push the Spool into the Valve until the Spool End touches the "Back" Seal Groove. Insert a new Seal in the "Back" Groove, being very careful that the U-Cup of the Seal is placed toward the Valve body. It is helpful to pinch one side of the Seal, causing the Seal to bend into a shape slightly smaller than the Seal Groove in the Valve. When the Seal has been properly placed in Seal Groove, straighten Seal by running a smooth rod around the exposed surface of the Seal until there is a perfect fit. To check this, run finger around the exposed edge of the Seal. There should be a smooth, perfect ridge with no kinks.
7. Insert special tool into housing from the "Back" of Valve and through the Seal until the shoulder of the tool touches the Valve Housing.
8. Push the Spool into the Housing from the "Front" keeping a firm grip on the special tool in back until the front of the Spool has been forced into the Housing and the Front Seal Groove is visible. In pushing the Spool through the Housing a slight twisting of the Spool and special tool will assist in the movement.

**NOTE:** DO NOT push the Spool too far, as this may allow the "Back" Seal to enter the Grooves of the Spool and cut the new Seal.

9. When installing a new Front Seal, be certain to keep the U-Cup side of the Seal in toward the Valve Housing. When the Seal has been properly placed in the Groove, straighten Seal as in paragraph 6 under Replacing Valve Seals.
10. Insert the special tool into the Spool Bore from the "Front" and with a twisting motion carefully push tool through the new Seal until Spool Shoulder stops progress. With a twisting action, push the Spool back against the special tool until 1/4 inch of the polished surface of the Spool remains exposed at the "Front" of the Valve. Remove the special tool from the "Front" of the Valve.
11. Reassemble all parts disassembled in step 2.
12. Reassemble, in reverse order, all parts disassembled in step 1.

**NOTE:** When tightening bolt, use 10 foot pounds of torque.

**TROUBLE SHOOTING**  
**HYDROSTATIC DRIVE SYSTEM**

	CAUSE	REMEDY
<b>System will not operate in either direction</b>	<ol style="list-style-type: none"> <li>1. System low on oil</li> <li>2. Oil cold</li> <li>3. Damaged Input/Output Shaft</li> <li>4. Damaged By-Pass Valves</li> <li>5. Low charge pressure</li> <li>6. Faulty control linkage</li> <li>7. Pump or motor seized</li> <li>8. Filter dirty</li> </ol>	<p>Check Filter, or fill reservoir Check for leaks</p> <p>Allow sufficient warm-up period 10-15 minutes</p> <p>Replace Drive Shaft or Transmission. Correct problem which caused failure</p> <p>Check By-Pass, charge Relief, check Valves for sticking or erosion of seats</p> <p>Caused by:</p> <ol style="list-style-type: none"> <li>A. Faulty charge Relief Valve - replace or shim</li> <li>B. Plugged Filter or suction line - clean and replace</li> <li>C. Faulty charge - pump replace</li> <li>D. Charge Pump Drive Sheared</li> <li>E. Internal damage to pump or motor</li> <li>F. Cold oil</li> </ol> <p>Check linkage and roll pin drive Correct as necessary</p> <p>Replace Transmission</p> <p>Change Filter</p>
<b>System operates in one direction only</b>	<ol style="list-style-type: none"> <li>1. Faulty control linkage</li> <li>2. Faulty check valve (2 used)</li> </ol>	<p>Check linkage and repair</p> <p>Check and replace bad valve</p>
<b>Loss of power</b>	<ol style="list-style-type: none"> <li>1. Filter or suction line clogged</li> <li>2. Check valve(s) faulty</li> <li>3. Worn or slipping linkage</li> <li>4. Faulty charge relief valve</li> <li>5. By-Pass valve open</li> </ol>	<p>Replace and re-fill system</p> <p>Replace faulty valve(s)</p> <p>Replace or adjust external linkage</p> <p>Inspect valve - replace or reshim</p> <p>Close valve or replace worn parts.</p>

## HYDROSTATIC DRIVE SYSTEM (cont'd)

	CAUSE	REMEDY
Loss of power (cont'd).	<ol style="list-style-type: none"> <li>Internal damage to Transmission.</li> <li>Input/Output Shaft slipping</li> <li>Engine lugs down.</li> <li>Air in system.</li> </ol>	<p>Replace or repair as necessary.</p> <p>Inspect couplings and drive train.</p> <p>Consult engine manual. Inspect sheave bearing for drag and replace if necessary.</p> <p>Fill system and check for leaks.</p>
System operating hot.	<ol style="list-style-type: none"> <li>Reservoir oil level low.</li> <li>Excessive dirt on Transmission.</li> <li>Partially plugged filter.</li> <li>Internal damage to Transmission.</li> <li>Faulty By-Pass Valves - worn or stuck open.</li> <li>Charge pump worn or damaged.</li> </ol>	<p>Fill to proper level - check for leaks.</p> <p>Clean external surfaces - do not use solvent harmful to paint or seals.</p> <p>Replace filter and fluid.</p> <p>Replace or repair.</p> <p>Inspect seats - replace as needed.</p> <p>Replace charge pump.</p>
Transmission leaking oil.	<ol style="list-style-type: none"> <li>Leaking Drive Shaft Seal.</li> <li>Body plugs leaking.</li> <li>Loose mounting bolts.</li> <li>Hydraulic fittings or lines leaking.</li> <li>External or internal O-Ring damage.</li> <li>Leaking trunnion shaft seals.</li> <li>Pump or motor housing gasket broken.</li> </ol>	<p>Replace - check for mis-alignment or burrs on shafts; Tape over key slot to avoid cutting seal during replacement.</p> <p>Tighten plugs firmly.</p> <p>Tighten to specified torque, 25-35 foot pounds.</p> <p>Tighten or replace lines.</p> <p>Replace as necessary.</p> <p>Replace as necessary.</p> <p>Replace as necessary.</p>

**POWER UNIT**

(Only basic items are covered in this section. For more detailed information, refer to Engine Owners Manual.)

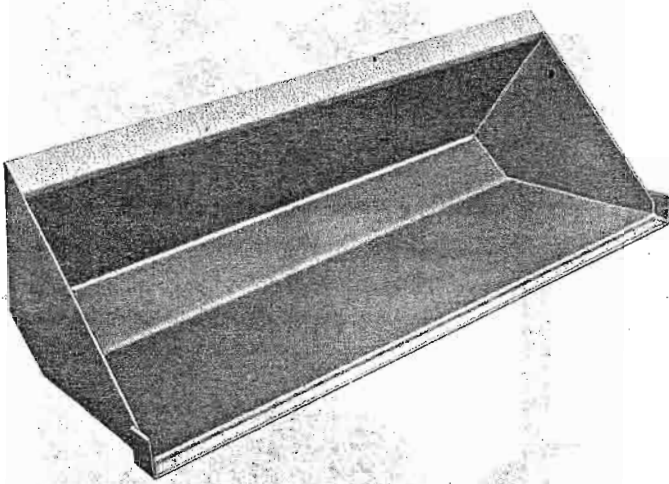
	CAUSE	REMEDY
<b>Engine will not turn over.</b>	<ol style="list-style-type: none"> <li>1. Battery connections are loose or corroded.</li> <li>2. Battery is discharged or defective.</li> <li>3. Wires leading to and from the ignition switch, regulator, solenoid and starting motor are loose or disconnected.</li> <li>4. Ignition switch, regulator, solenoid and starting motor are defective.</li> </ol>	<p>Clean the battery terminals and replace the cables and tighten securely.</p> <p>Recharge or replace battery.</p> <p>Check all terminals and wires for loose connections.</p> <p>Check each component and replace or repair as necessary.</p>
<b>Engine turns over but will not start.</b>	<ol style="list-style-type: none"> <li>1. No fuel in tank.</li> <li>2. Battery is weak.</li> <li>3. Fuel is not reaching carburetor.</li> <li>4. Fuel Filter is clogged.</li> </ol>	<p>Check fuel level and fill if necessary.</p> <p>Check battery. Replace or recharge.</p> <p>Remove, clean and inspect fuel line into filter.</p> <p>Replace.</p>
<b>Engine overheats.</b>	<ol style="list-style-type: none"> <li>1. Crankcase oil supply is over full or low.</li> <li>2. Engine is overloaded.</li> <li>3. Engine cooling fins are dirty.</li> <li>4. Air circulation is restricted.</li> <li>5. Shrouding on engine is removed.</li> <li>6. Dirty or improper grade of engine oil.</li> <li>7. Exhaust is restricted.</li> <li>8. Ignition timing is incorrect.</li> </ol>	<p>Add or remove oil.</p> <p>Operate at 3/4 to full throttle.</p> <p>Back flush with compressed air to clean.</p> <p>Remove restriction.</p> <p>Replace shrouding.</p> <p>Change to proper grade engine oil.</p> <p>Remove restriction.</p> <p>Re-time engine.</p>

# HYDRAULIC SYSTEM

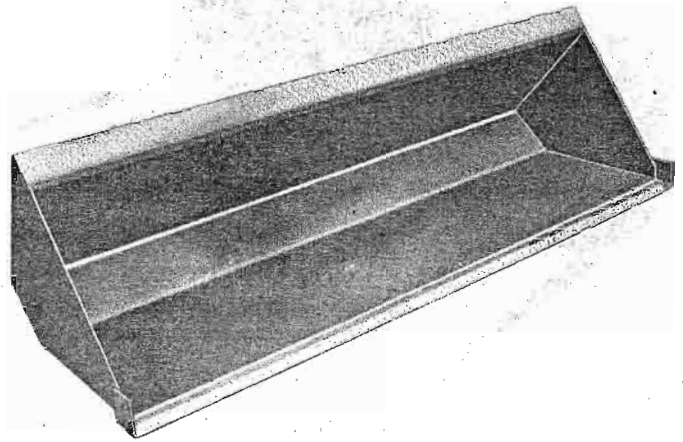
	CAUSE	REMEDY
Excessive drift of lift and tilt cylinders.	<ol style="list-style-type: none"> <li>1. External cylinder leakage.</li> <li>2. Internal cylinder leakage.</li> <li>3. Leakage at fittings.</li> <li>4. Valve leakage through stuck spool.</li> </ol>	<p>Inspect cylinder rod packing.</p> <p>Inspect piston seals.</p> <p>Inspect and correct.</p> <p>Actuate T-Bar to free for self-centering.</p>
Lift cylinder will not maintain raised position with load.	<ol style="list-style-type: none"> <li>1. Leakage at hydraulic lines and fittings.</li> <li>2. Cylinder leakage.</li> <li>3. Valve leakage.</li> </ol>	<p>Inspect and correct.</p> <p>Replace packings and seals.</p> <p>Inspect and correct.</p>
Lift arm will not return to carry position.	<ol style="list-style-type: none"> <li>1. Linkage to valve misadjusted.</li> </ol>	<p>Check to see if linkage is binding or unfastened.</p>
Gear pump is noisy.	<ol style="list-style-type: none"> <li>1. Oil supply low.</li> <li>2. Oil is too heavy.</li> <li>3. Suction line plugged.</li> <li>4. Pump excessively worn.</li> </ol>	<p>Check oil level, fill.</p> <p>Use proper viscosity oil.</p> <p>Clean line.</p> <p>Repair or replace pump.</p>
Oil is heating.	<ol style="list-style-type: none"> <li>1. Oil supply low.</li> <li>2. Oil is contaminated.</li> <li>3. Relief valve located in control valve is set too high or too low.</li> <li>4. Oil in system is too light.</li> <li>5. Continuous operation over relief.</li> </ol>	<p>Check oil level, fill.</p> <p>Drain reservoir and refill with clean oil.</p> <p>Set to correct pressure - 2000 PSI.</p> <p>Drain reservoir and refill with proper viscosity oil.</p> <p>Return T-Bars to neutral.</p>



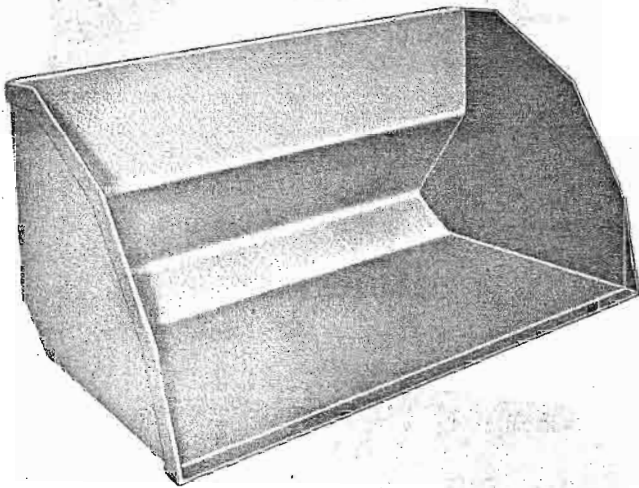
**UTILITY BUCKET**  
(54" Wide - 6-3/4 Cu. Ft. Capacity)



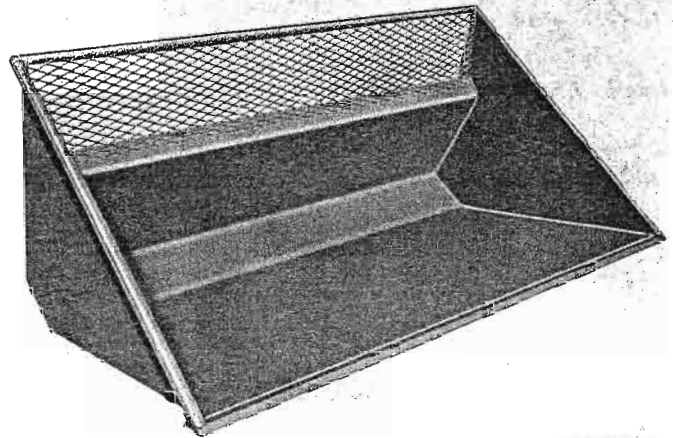
**UTILITY BUCKET**  
(64" Wide - 6-3/4 Cu. Ft. Capacity)



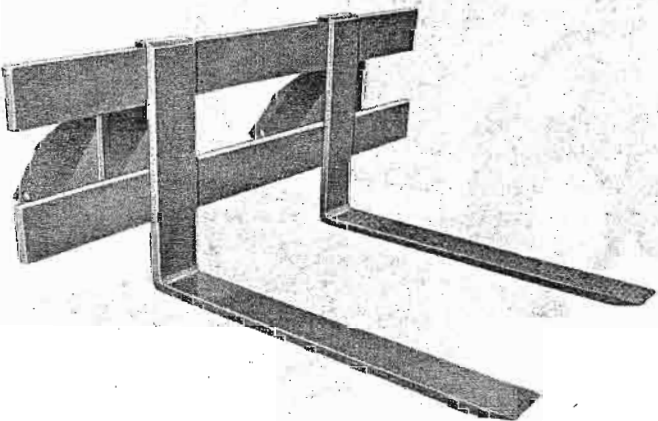
**FERTILIZER BUCKET**  
(54" Wide - 12-3/4 Cu. Ft. Capacity)



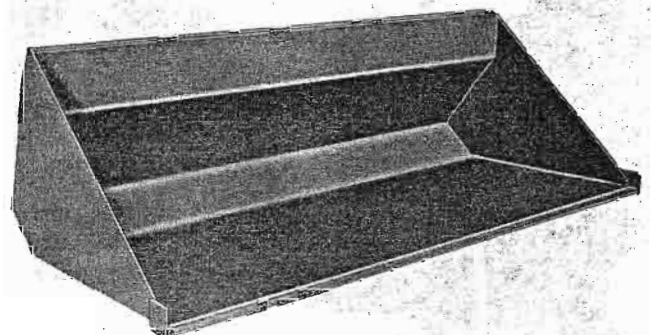
**POTATO BUCKET**  
(60" Wide - 10 Cu. Ft. Capacity)



**PALLET FORK**  
(30" Forks - Adjustable Width)

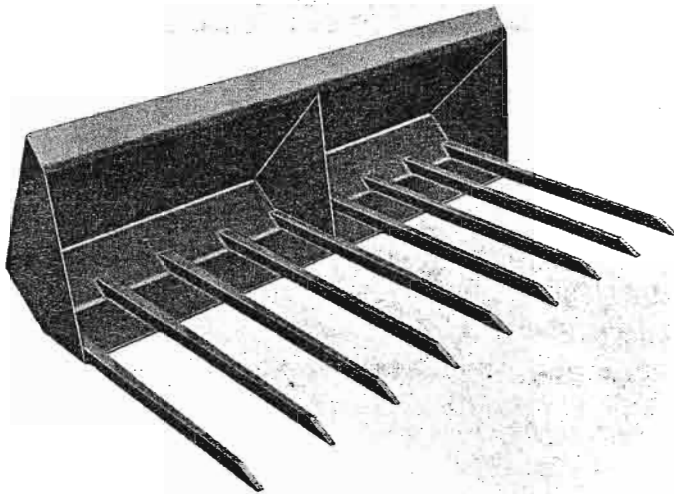


**SNOW BUCKET**  
(72" Wide - 16 Cu. Ft. Capacity)

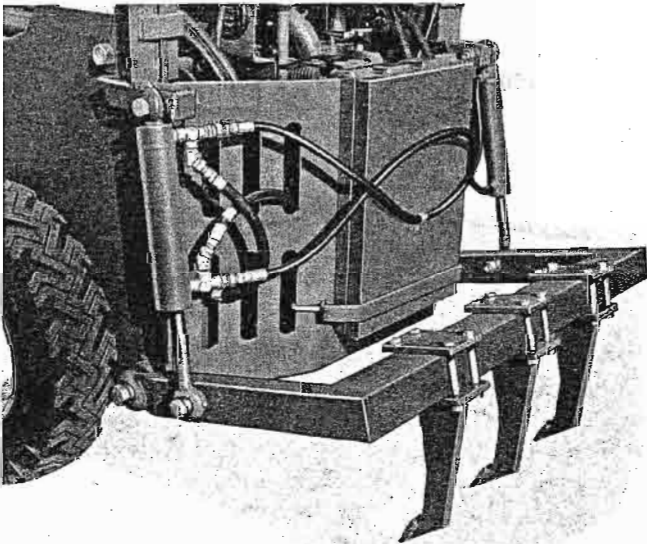


## HL2500 - OPTIONAL ATTACHMENTS

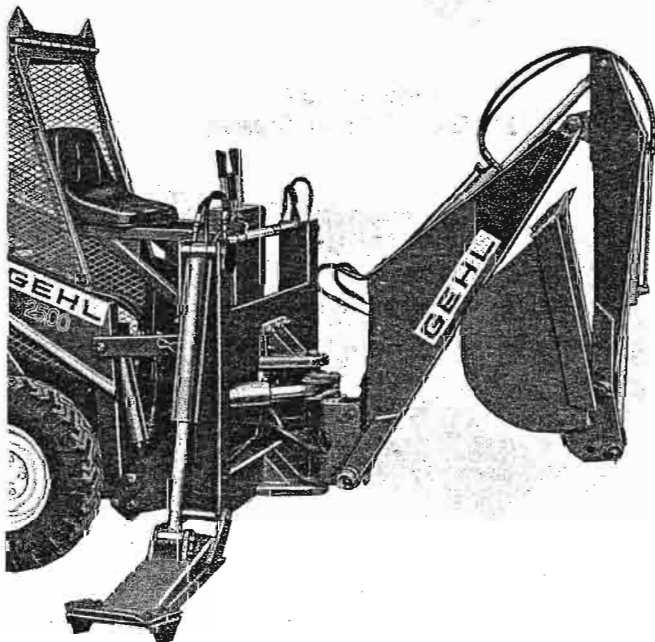
**MANURE FORK**  
(54" Wide - 9 Tines)



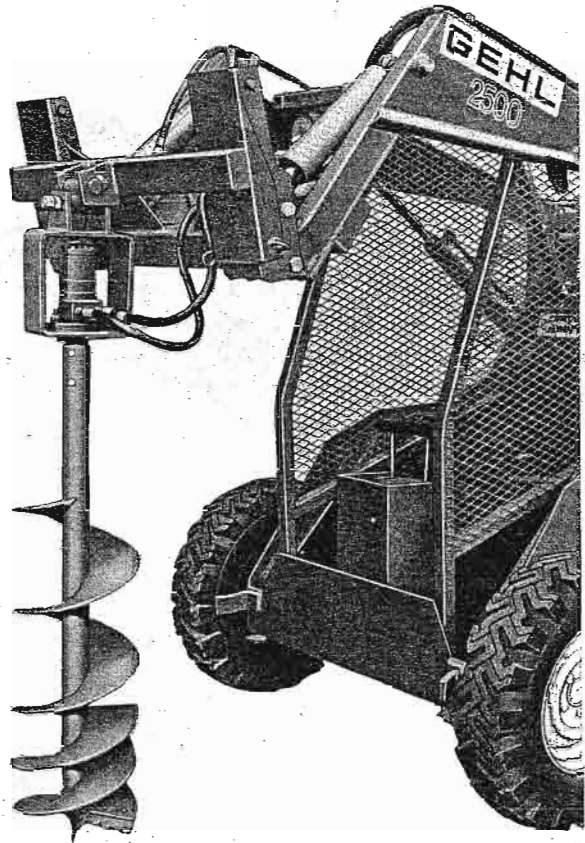
**SCARIFIER**



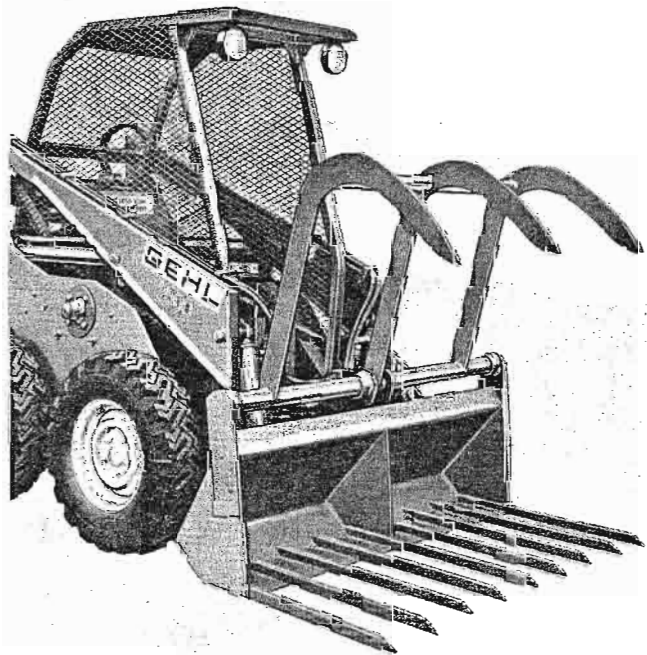
**BACKHOE**



**POST HOLE AUGER**

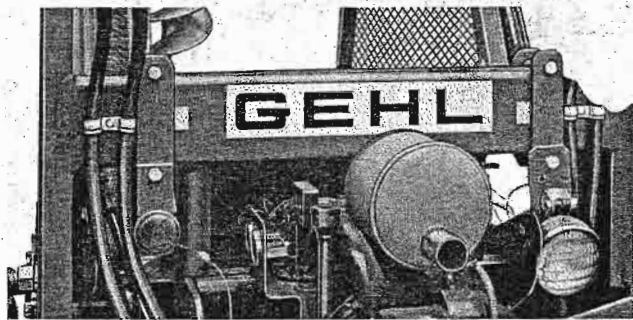
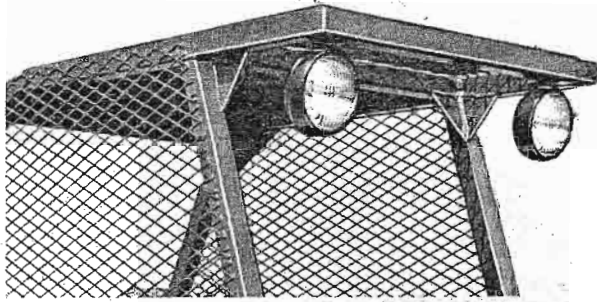


**GRAPPLE FORK**

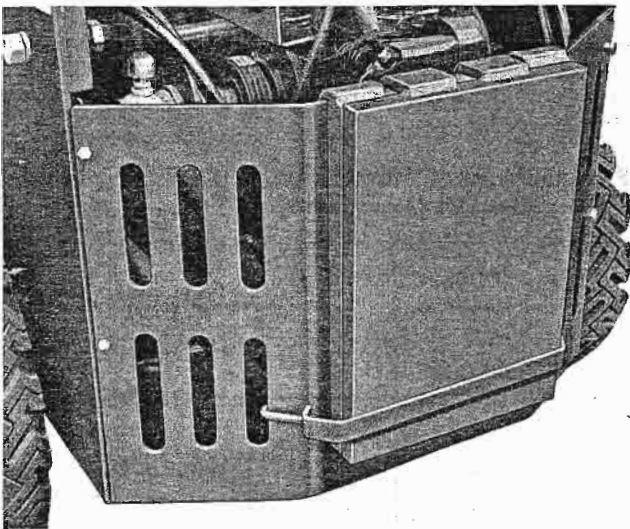




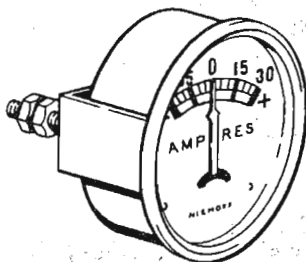
LIGHTS



COUNTERWEIGHTS

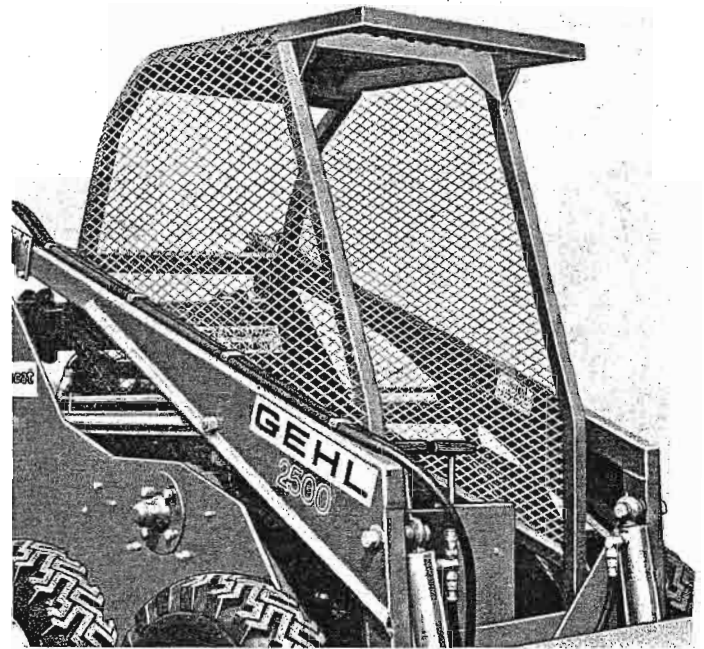


AMMETER



OVERHEAD GUARD

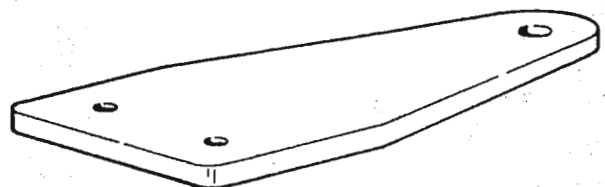
(Included as Standard Equipment after Serial No. 1369)



FLOTATION TIRES

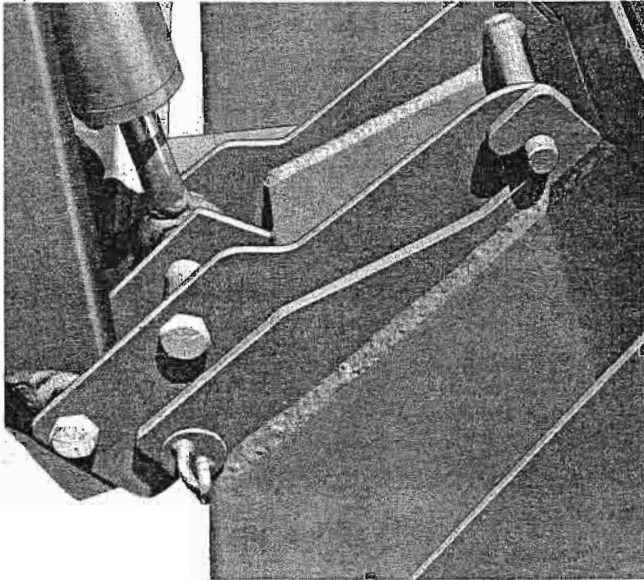


DRAWBAR



## MOUNTING ATTACHMENTS Buckets, Pallet Forks and Manure Fork

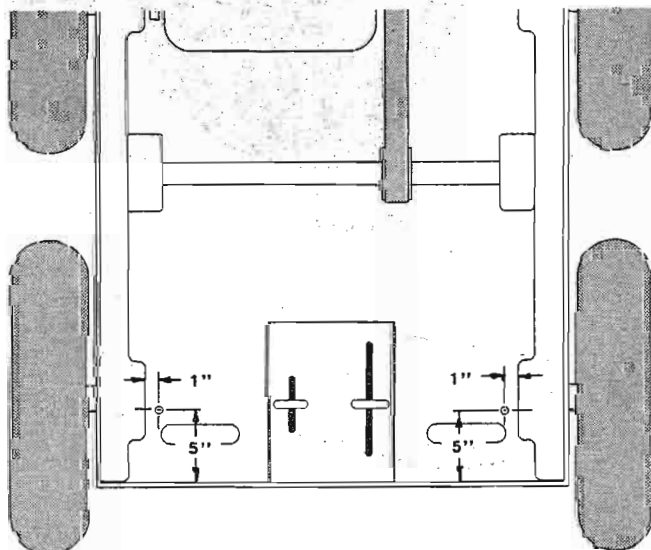
To mount Buckets, Pallet Forks and Manure Fork, tilt Attachment Mounting Bracket ahead and drive unit to position where Mounting Brackets fit between Attaching Brackets as shown. Raise Load Arms until attachment is off the ground. Align pin holes and insert Quick Switch Pins. Secure with hair pin cotters.



## OVERHEAD GUARD (Included as Standard Equipment after Serial No. 1369)

The Overhead Guard is available to guard the operator against falling objects such as stones, ice, snow and other objects being lifted overhead and can be mounted on all HL2500 Loaders; however, some models must be reworked before starting to mount the Overhead Guard.

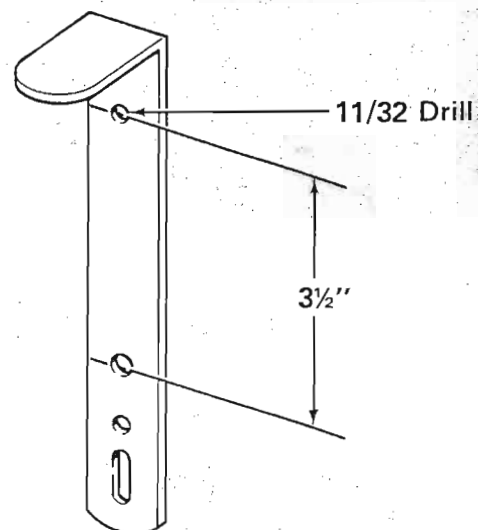
1. Measure 1 inch in from the Chain Shield on each side and 5 inches back from the Front Frame Member. Center punch and drill 11/32 inch holes.



2. Remove hose clamps from the Right Load Arm Member. Discard the clamps, but save the bolts. Relocate Hoses on top of the Load Arm as shown and fasten with new clamps.



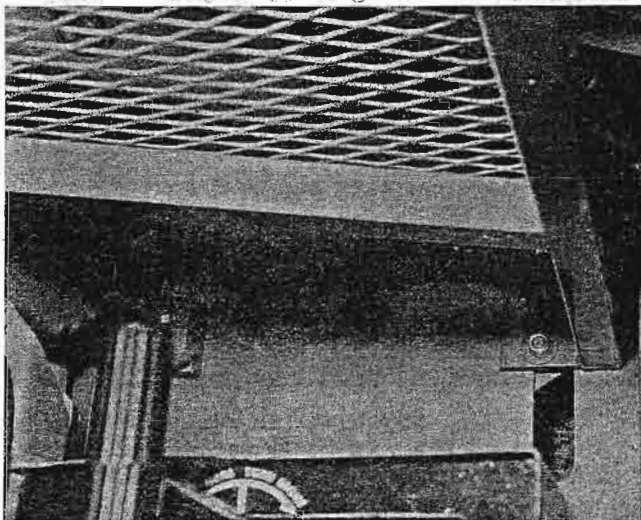
3. Lower Load Arms until vertical portion rests against front of the Loader Frame. Remove Pivot bolts from rod end of both Lift Cylinders. Replace bolts with new bolts and arm guide.
4. Remove Engine Throttle Lever. Drill 11/32 diameter hole. Re-assemble the Lever.



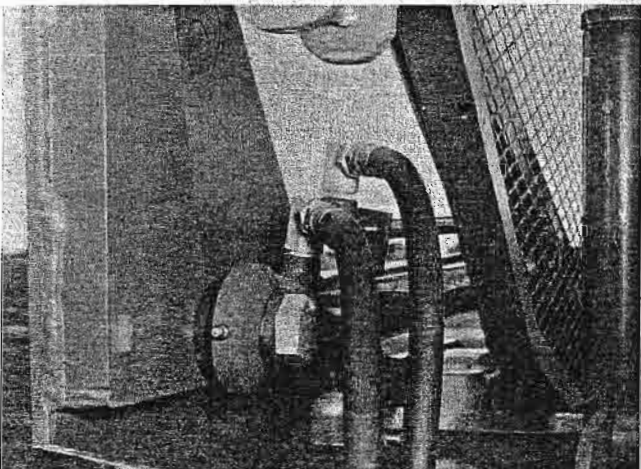
5. Raise Overhead Guard and set in position on the Loader Frame. **IMPORTANT: The Overhead Guard must be centered between the Load Arms.** Clamp to the Rear Cross Member.



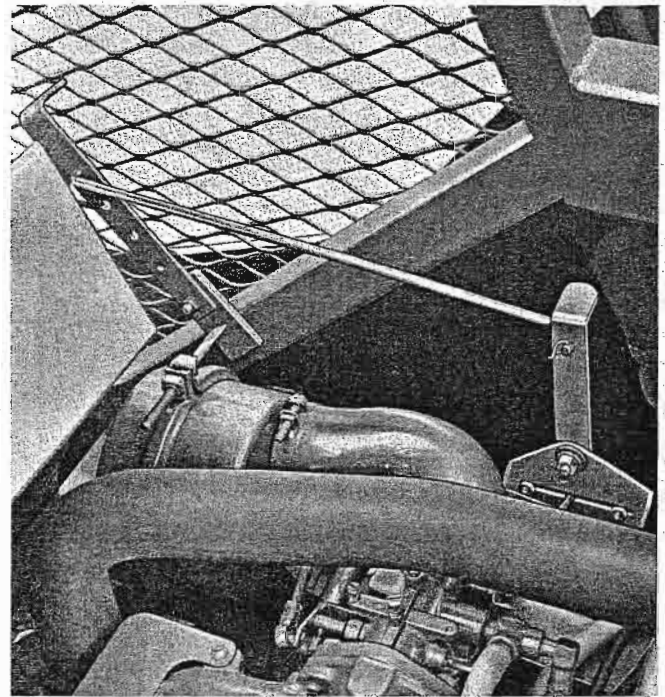
Fasten at the front with retainer plates and  $1/2 \times 2 1/2$  hexagon head bolts. *NOTE: Shim side members if necessary to prevent screen from buckling.*



**IMPORTANT:** Check Lift Cylinder Hose Couplings and be sure they clear Rear Overhead Guard Mounting Brackets before raising Load Arms to maximum height. Rotate fittings to provide maximum clearance.



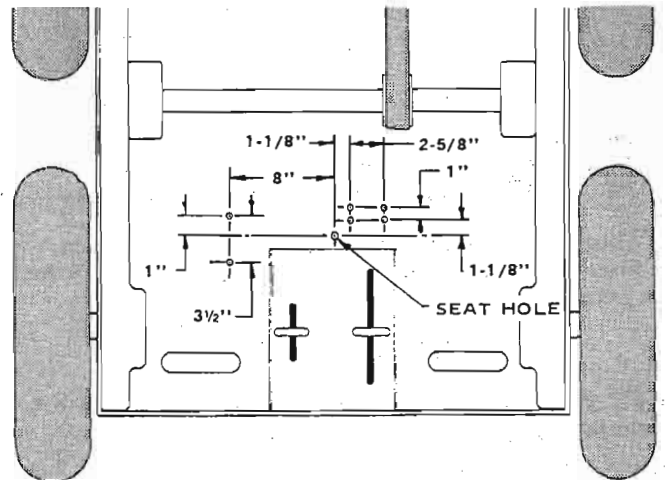
5. Fasten Throttle Lever to Bracket on inside of Lower Right Overhead Guard Member with  $1/4 \times 3/4$  hexagon head bolt and lock nut. Connect link to new Throttle Lever and Throttle Lever on the Engine.



### HYDRAULIC KIT

Before starting installation of the HydraCat Hydraulic Kit, it will be necessary to add holes in the Lower Main Frame Member. Follow instructions exactly as stated when installing the Hydraulic Kit.

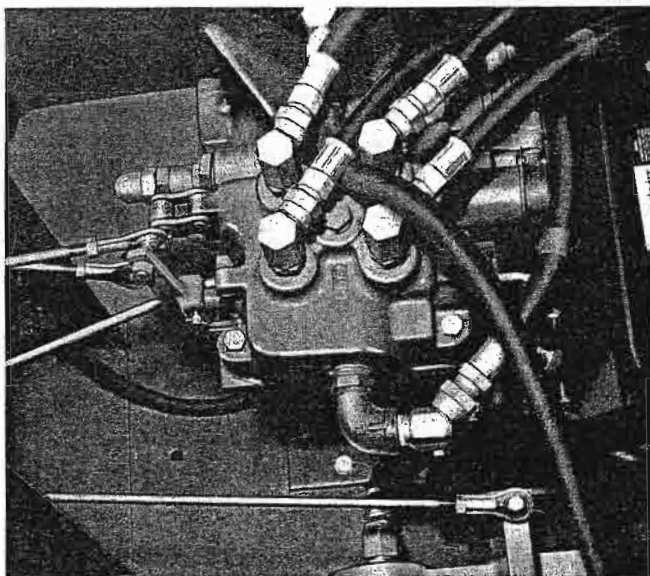
1. Remove bolts from the Seat Support Cross Member. Remove Seat Assembly and set to side of the Loader.
2. Use vertical seat support hole and locate valve mounting holes and pedal mounting holes as shown in the illustration.



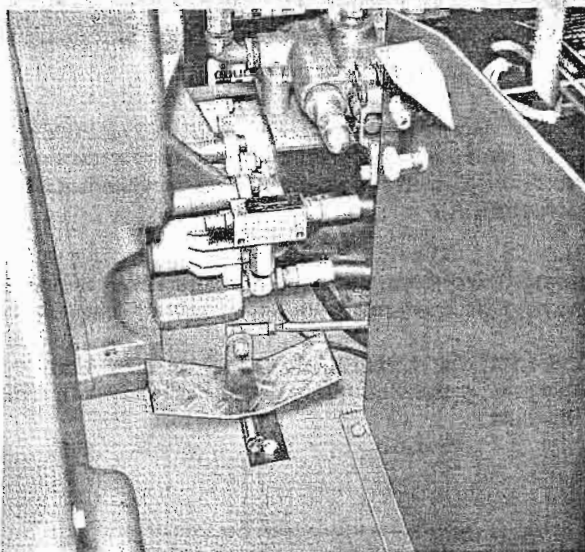
3. Turn  $3/4$ - $1/2$  Reducing Bushing into both Front and Rear Port of the Hydraulic Valve. Then turn  $90^\circ$  Adapter Union into the Front Bushing facing "up" and  $45^\circ$  Adapter Union into the Rear Bushing facing "left".



- Position and fasten the Hydraulic Valve with  $3/8 \times 1\frac{1}{2}$  hexagon head bolts.



- Position and fasten the Control Pedal with  $3/8 \times 1\frac{1}{2}$  hexagon head bolts. Connect linkage and adjust as necessary to center the Pedal.



- Disconnect Pump to Valve Hose from  $90^\circ$  Adapter Union on right side of the Control Valve. Connect this hose to  $45^\circ$  Adapter Union assembled in step 3.
- Connect Hose from the Kit to  $90^\circ$  Adapter Unions – front of the Hydraulic Valve and right side of the Hydraulic Control Valve.

## POST HOLE AUGER

**NOTE:** The Loader must be equipped with Hydraulic Kit before mounting the Post Hole Auger.

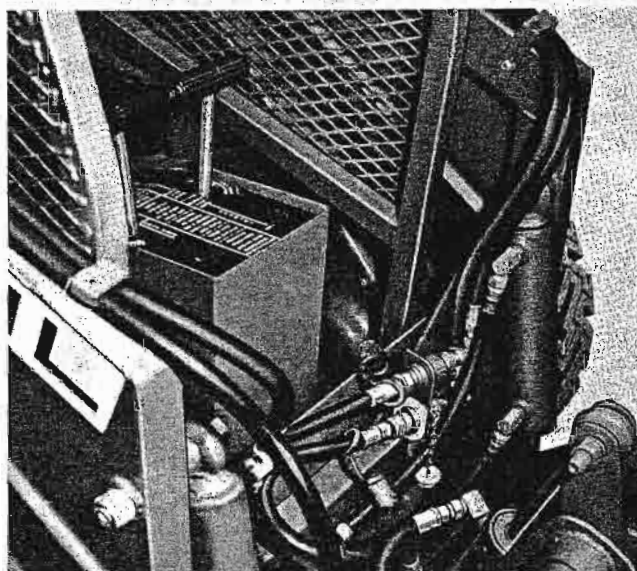
Perform the following in addition to steps for installing the Hydraulic Kit.

- Drill  $13/64$ " diameter holes in Left Load Arm directly across from hose clamp holes in the Right Load Arm. Tap holes for  $1/4$ " bolts.

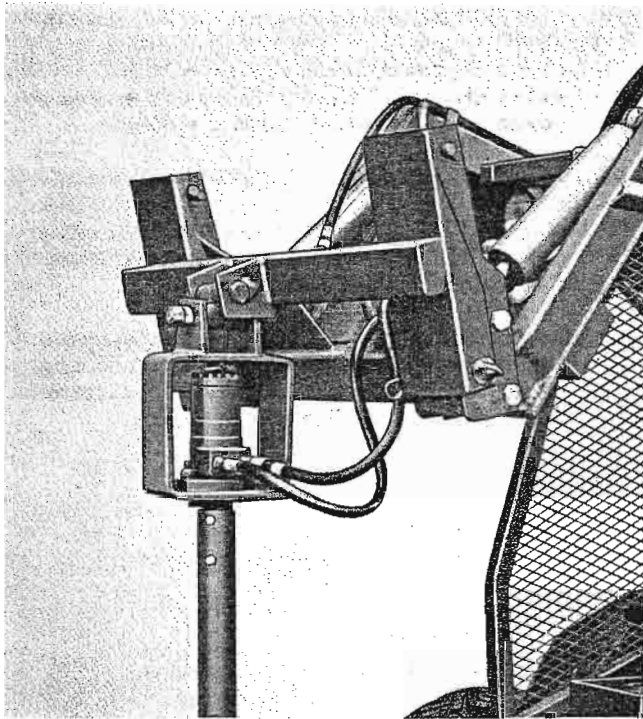
- Connect 156 inch hoses to Adapter Unions on the Hydraulic Control Valve. Thread hoses along inside of Frame and to the rear. Locate hoses on top of the Left Load Arm as shown and fasten with 4 clamps with  $1/4 \times 3/4$  hexagon head bolts.



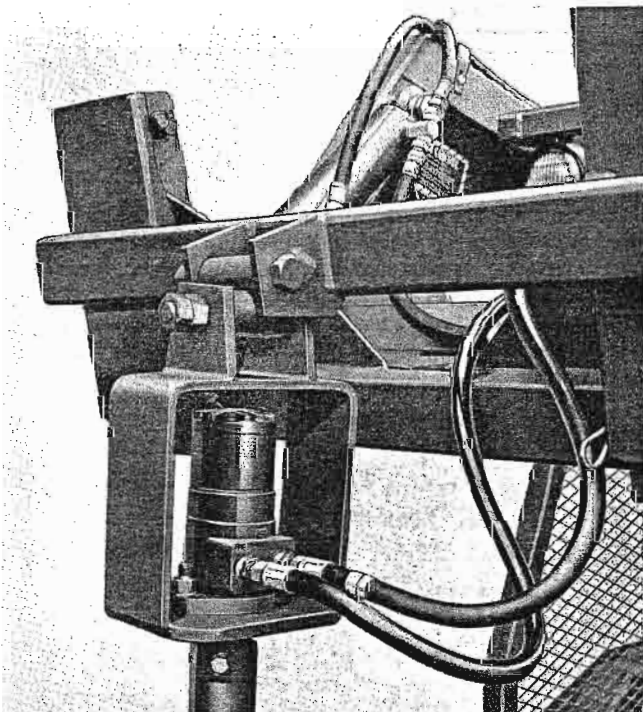
- Drill  $11/32$ " hole in the Left Load Arm Support Gusset and fasten the Coupler Bracket with  $5/16 \times 1$  hexagon head bolt. Connect couplers and hoses.



- Mount Auger Bracket on the Load Arm. Fasten as Buckets are fastened.



5. Attach Auger and hinge linkage as shown. Connect hoses to the Motor and Couplers on the Load Arm.

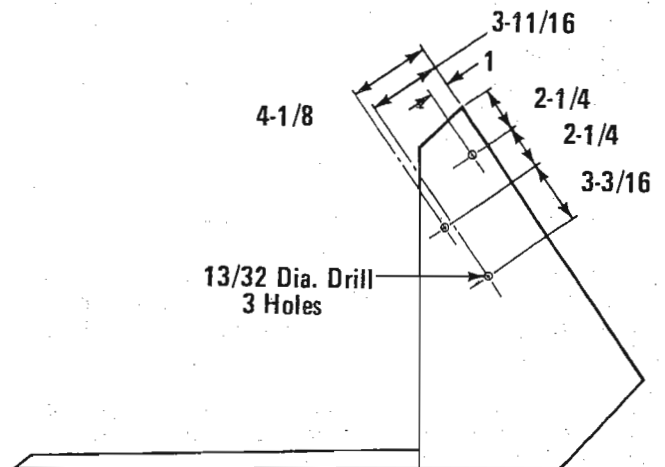


### GRAPPLE FORK

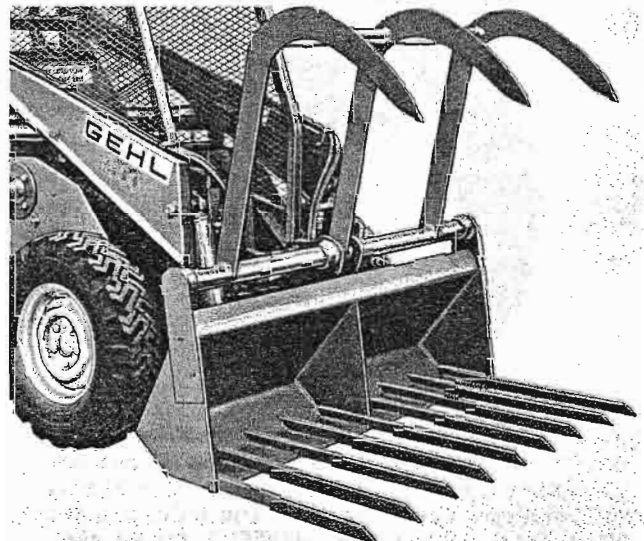
**NOTE:** The Loader must be equipped with Hydraulic Kit before mounting the Grapple Fork.

Mount Grapple on the Manure Bucket as described.

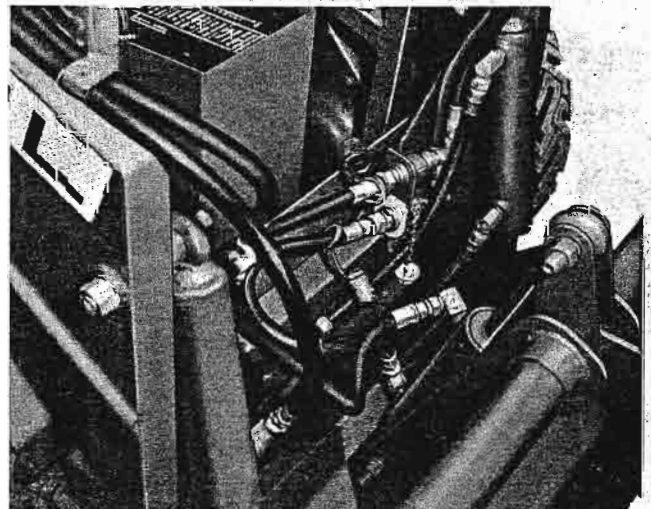
1. Mark and drill 13/32 diameter holes in header on both ends of the Bucket as shown.



2. Position Grapple as shown. Fasten end hinges with 3/8 x 1-1/4 hexagon head bolts. Use holes in center Grapple hinge and mark location. Drill 13/32 diameter holes. Fasten center hinge with 3/8 x 1-1/4 hexagon head bolts.



3. Position and fasten Hydraulic Cylinder to center Grapple hinge. Attach 34" hose to top port of the Cylinder - 24" hose to lower port.

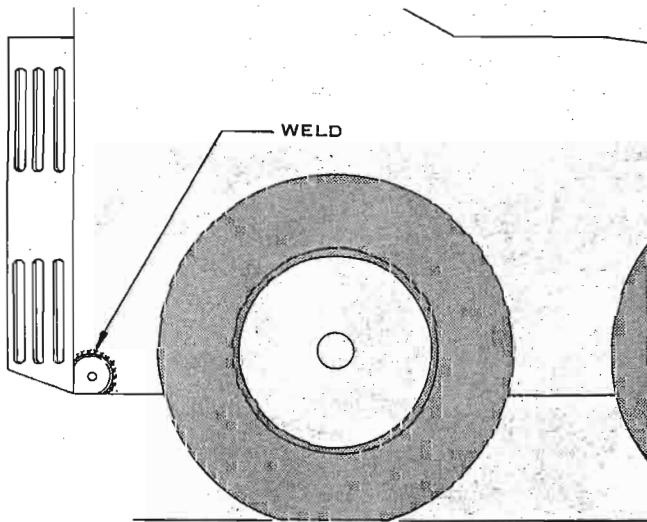


4. Connect Hydraulic hoses to the Control Valve and attach to the Left Load Arm as instructed under Post Hole Auger Assembly.
5. Mount Grapple Fork as other Buckets are mounted. Connect Cylinder Hoses to the Quick Couplers.

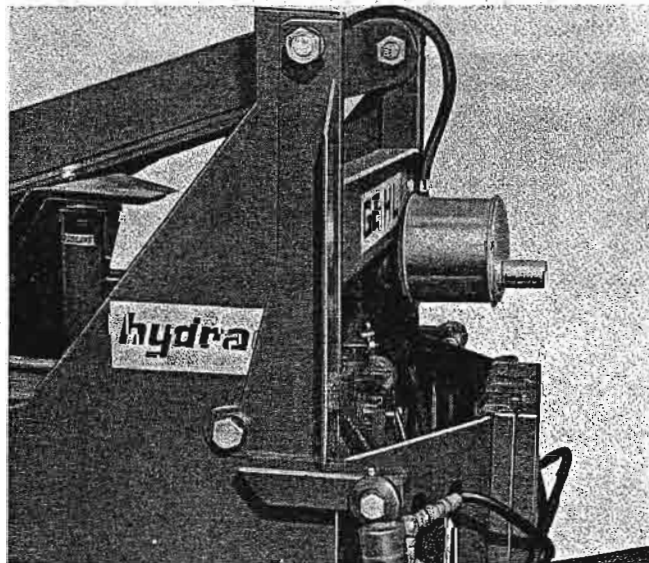
## SCARIFIER (Unloader Must Be Equipped With Hydraulic Kit To Use Scarifier Attachment)

The Scarifier can be mounted on all HL2500 Loaders equipped with Hydraulic Kit; however, Lower Mounting Brackets must be added to the Loader Frame before installing the kit of parts.

Position Lower Mounting Bracket flush with bottom and rear of the Side Frame Member and weld in place as shown. *NOTE: Brackets must be added on both right and left sides of the machine.*



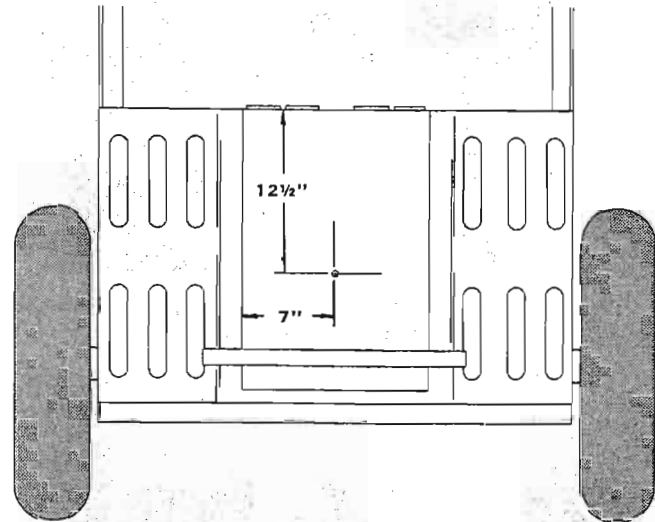
Remove nut and lock washer from the Rear Lift Cylinder Bolt and Load Arm Bolt on each side. Position the Scarifier Cylinder Mounting Brackets as shown. Fasten with nuts removed from the Cylinder and Load Arm Bolts. It is not necessary to use the lock washers. *NOTE: There are Right and Left Hand Mounting Brackets.*



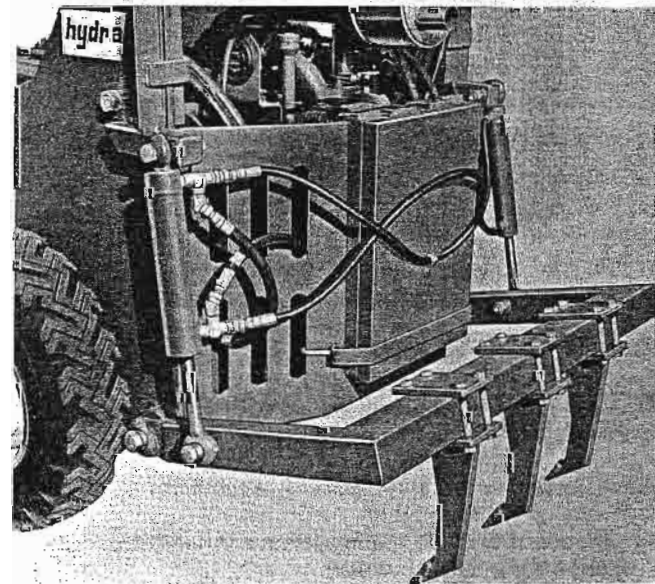
Position the Tool Beam on the Lower Mounting Brackets and fasten with special 1 inch x 3 inch hexagon head bolts. Fasten the Hydraulic Lift Cylinders with 3/4 x 4 1/2 inch hexagon head bolts as shown. *NOTE: Be sure grease fitting on lower end is facing toward the rear.*

Position Scarifier Teeth on the Tool Beam. Place one tooth in center of the Tool Beam. Fasten with Shank Plate and special 1/2 x 4 1/2 inch hexagon head bolts, hexagon nuts and lock washers. Fasten remaining teeth equal distance to each side of the center tooth.

Before connecting the Hydraulic Lines, it will be necessary to add a tapped hole to the Outer Counterweight. Locate position of hole, Center punch and drill 7/32" diameter hole 1" deep. Tap 1/4" - 20 thread 7/8" deep.

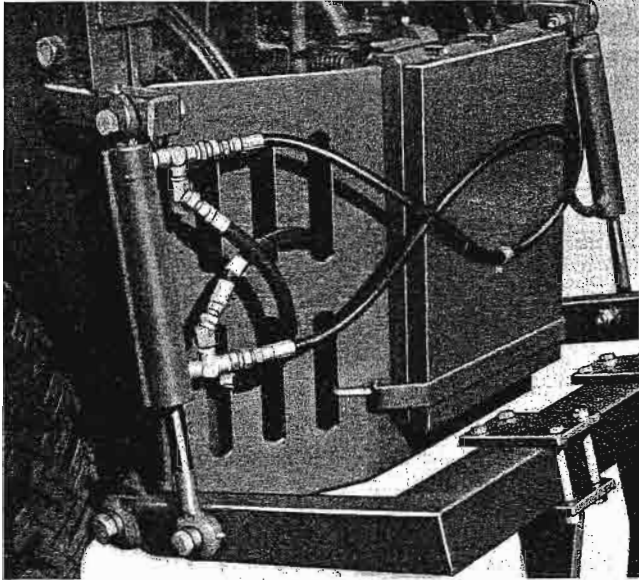


Turn end of 45 inch hose into each port of the Right Hydraulic Cylinder. Connect other end of the hose to straight adapter union on the Left Hydraulic Cylinder. **IMPORTANT: Hoses must be assembled exactly as shown in the photograph.** Position Clamp over the hose and fasten to the counterweight with 1/4 x 3/4 hexagon head bolt.





Turn 45 degree adapter unions into the two top ports of the Hydraulic Control Valve. Connect long Control Valve to Scarifier Cylinder Hoses to these 45 degree adapter unions. Connect hose fastened to the Right Hand Control Valve fitting to lower 45 degree adapter union of the Scarifier Lift Cylinder as shown. Connect other hose to upper fitting. Test unit for leaks and proper operation.



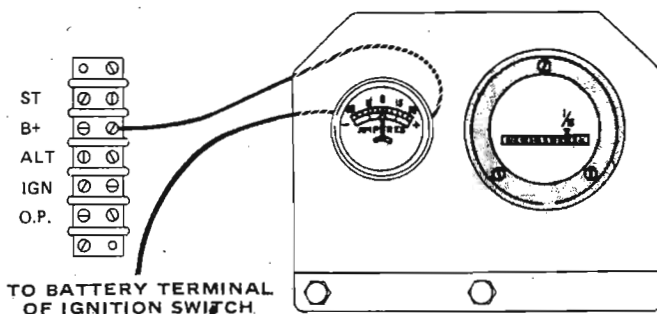
**AMMETER**

Mount Accessory Ammeter in the Instrument Panel next to the Engine Hourmeter.

Remove Jumper from the Engine Junction Block. Connect length of No. 10 stranded automotive wire to one post of the Ammeter. Fasten other end of the wire to the Battery (Bat.) Terminal of the Junction Block.

Connect another length of No. 10 stranded automotive wire from other post of the Ammeter to Battery Terminal on Ignition Switch.

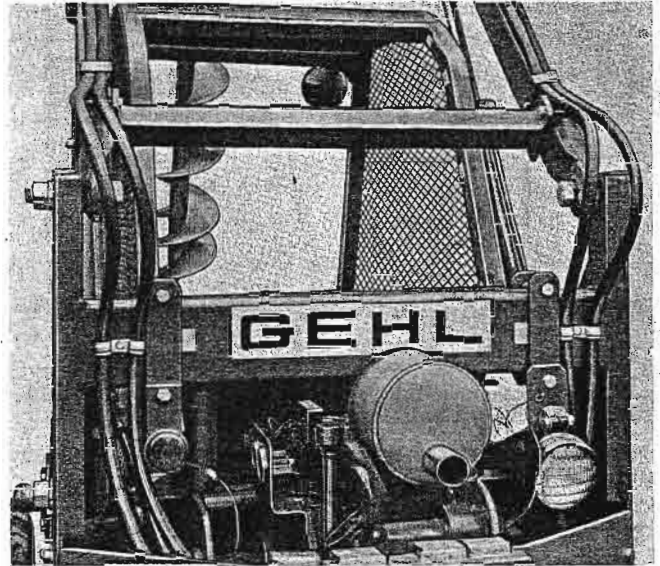
Turn Ignition Switch on. The Ammeter should indicate a definite discharge. If Ammeter indicates charge, reverse wires on Ammeter Posts.



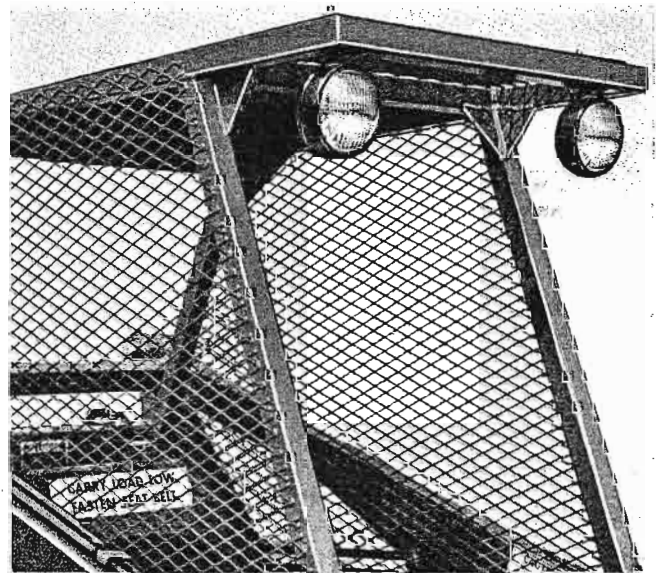
**LIGHT KIT**

Tail Light Brackets must be mounted with lower bolts where Overhead Guard attaches to rear crossmember. Bracket with holes provided for Toggle Switch Bracket is Right Side Bracket. Mount Toggle Switch Bracket to Light Bracket, facing inward.

Mount Work Light and Toggle Switch to Right Bracket, and Tail Light to Left Bracket with hardware provided.



Mount Head Lights to Screen on front of Overhead Guard with hardware provided.

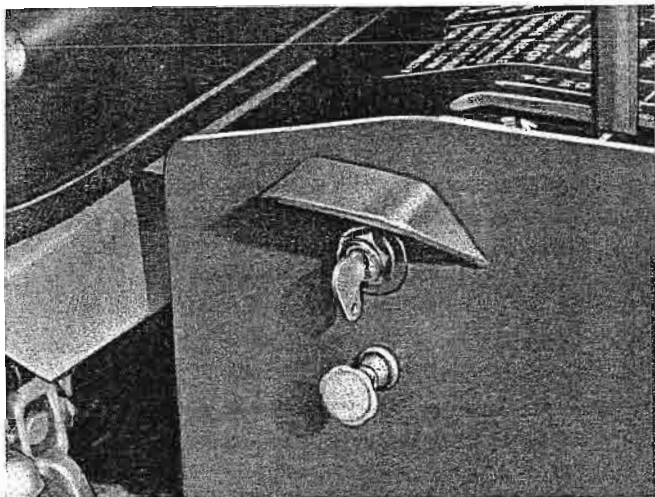


Locate self-stick wire tab on front Overhead Guard crossmember. Place remaining self-stick wire tabs along right side of Overhead Guard Frame and rear crossmember of Loader.

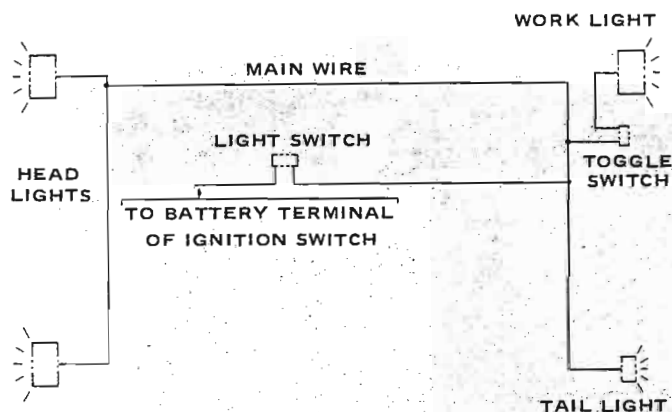
Connect end of wire provided with kit to left Head Light using Wire Connector. Route wire to right Head Light, placing wire in tab. Splice right Head Light leadwire to main wire. Locate main wire in tabs on Overhead Guard and rear crossmember, to Tail Light. Cut main wire and connect Tail Light.

Connect Work Light leadwire to Toggle Switch. Cut length of wire to connect Toggle Switch to main wire. Attach wire to remaining Terminal on Toggle Switch. Splice opposite end into main wire.

Measure 2 inches down in line with Ignition Switch. Drill 15/32 diameter hole and install Light Switch.



Cut length of wire and connect between Light Switch and Battery Terminal of Ignition Switch. Connect remaining wire to opposite Terminal of Light Switch, route wire under seat and back to main wire. Splice Light Switch wire to main wire.



**NOTE:** Fasten all wires to prevent sagging. Check that wires will not be pinched or torn by moving parts.

To test Lights pull Light Switch Knob out. Head and Tail Lights will come on. Work Light is controlled by Toggle Switch at rear of Loader.

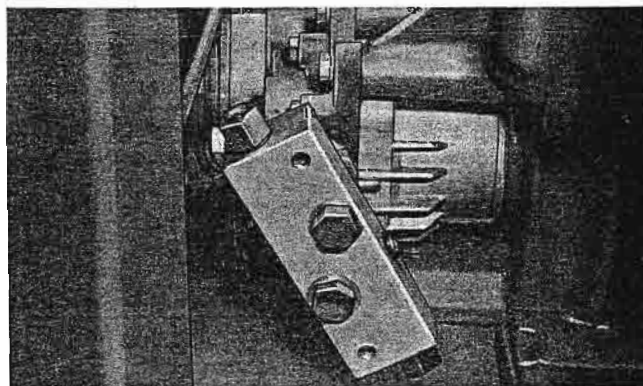
## FLOTATION TIRES

All Loaders with Flotation Tires must be equipped with Hydraulic Relief Valves to take pressure off lower port of the Hydrostatic Drive when driving forward.

Follow these instructions when installing Relief Valves:

1. Remove lower and upper plugs from the hydrostatic unit.
2. Install O-Ring (600582) on straight fitting (602229) and turn one fitting into both the upper and lower parts of the hydrostatic unit.
3. Install O-Ring (600582) on swivel fitting (602228) and turn one fitting into each port on one side of the relief valve.
4. Plug opposite side ports of relief valve with the plugs removed from the hydrostatic unit. (Plugs include O-Rings. Replace O-Rings if damaged.)
5. Fasten the relief valve to the fittings on the hydrostatic unit.  
**NOTE:** On the right side only; it is necessary to grind down one edge of the bolt head on the bottom end of the valve.
6. Tighten all fittings.
7. Repeat the procedure for the other side of the machine.

Repeat same procedure on Hydrostatic Drive unit on other side of the machine.









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