

530 CK
Loader Backhoe
Operators Manual

9-1215

CASE



THIS SAFETY ALERT SYMBOL INDICATES IMPORTANT SAFETY MESSAGES IN THIS MANUAL. WHEN YOU SEE THIS SYMBOL, CAREFULLY READ THE MESSAGE THAT FOLLOWS AND BE ALERT TO THE POSSIBILITY OF PERSONAL INJURY OR DEATH.

M171B

Safety Decals on this machine use the words **Danger, Warning or Caution**, which are defined as follows:

- **DANGER:** Indicates an immediate hazardous situation which, if not avoided, will result in death or serious injury. The color associated with Danger is RED.
- **WARNING:** Indicates a potentially hazardous situation which, if not avoided will result in serious injury. The color associated with Warning is ORANGE.
- **CAUTION:** Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.



WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH. BEFORE USING THIS MACHINE, MAKE CERTAIN THAT EVERY OPERATOR:

- Is instructed in safe and proper use of the machine.
- Reads and understands the Manual(s) pertaining to the machine.
- Reads and understands ALL Safety Decals on the machine.
- Clears the area of other persons.
- Learns and practices safe use of machine controls in a safe, clear area before operating this machine on a job site

It is your responsibility to observe pertinent laws and regulations and follow Case Corporation instructions on machine operation and maintenance.

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CASE[®] Model "32" Loader

INTRODUCTION

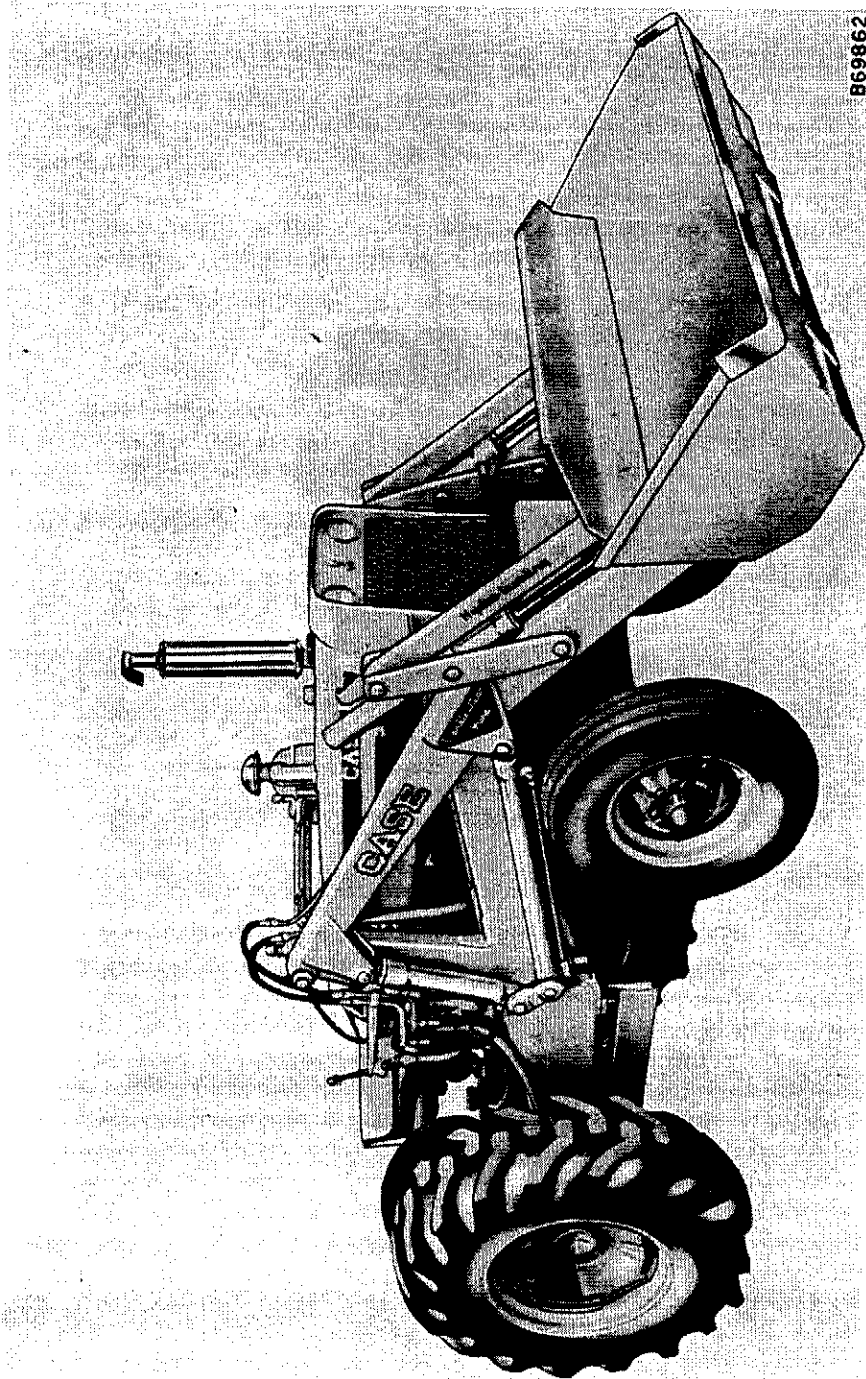


Figure 1 - Right Hand Front View Tractor-Loader

THE "530" CONSTRUCTION KING LOADER is a matched unit — a rugged, perfectly balanced Wheel Tractor-Loader combination. Here are some of the outstanding features of this machine.

1. **TORQUE CONVERTER DRIVE (OPTIONAL).** Torque Converter Drive provides greater push-power — instantly. Automatically adjusts working speeds to load and eliminates clutching.
2. **HIGH TORQUE GAS OR DIESEL ENGINES.** High torque, Case-built engines have been thoroughly proven through years of field use.
3. **HEAVY DUTY CONSTRUCTION.** Ruggedly built tractor chassis and 7000 lb. capacity front axle are for trouble free operation. Steel wrap-around grille for fully protected operation. Loader frame is of heavy box-welded construction with steel gussets at all stress points. All moving parts pivot on hardened steel pins with replaceable bushings at all critical wear points.
4. **TROUBLE-FREE HYDRAULIC CONTROLS.** Engine driven hydraulic pump delivers oil to dual control valve. Finger-tip controls allow the operator to easily and quickly control the bucket. A float position built into the lift control allows the Loader to follow the contour of the ground for perfect leveling. All oil circulates through a special "full flow" filter to trap any floating dirt or grit in the system.
5. **DUAL-RANGE SHUTTLE TRANSMISSIONS.** A four speed transmission, used in conjunction with a high-low range box and shuttle transmission, provides the operator with a total of eight speeds forward and eight speeds reverse. This enables the operator to shift instantly from forward to reverse (and vice-versa) in the same transmission gear. This shuttle control speeds up loading, dumping, and returning cycles, since reverse speeds are approximately 25% faster than forward in any gear.
6. **EASY STEERING AND MANEUVERING.** Hydrostatic steering with no mechanical linkage between the steering wheel and the front axle makes tractor handling practically effortless. Heavy duty, band actuated disk brakes, that are fully enclosed, operate on differential side gears for added leverage and accessibility for service.
7. **BUCKET FEATURES.** This heavily reinforced bucket has an exceptionally high reach, making it easy to load trucks or hoppers without spillage. Bucket angle can be changed from

a 110° forward roll to a 40° rollback at ground level. Dump angle is 45°. Roll forward for backfilling or grading and rollback for easy "breakout" when filling the bucket.



general specifications

SERIAL NUMBER LOCATION

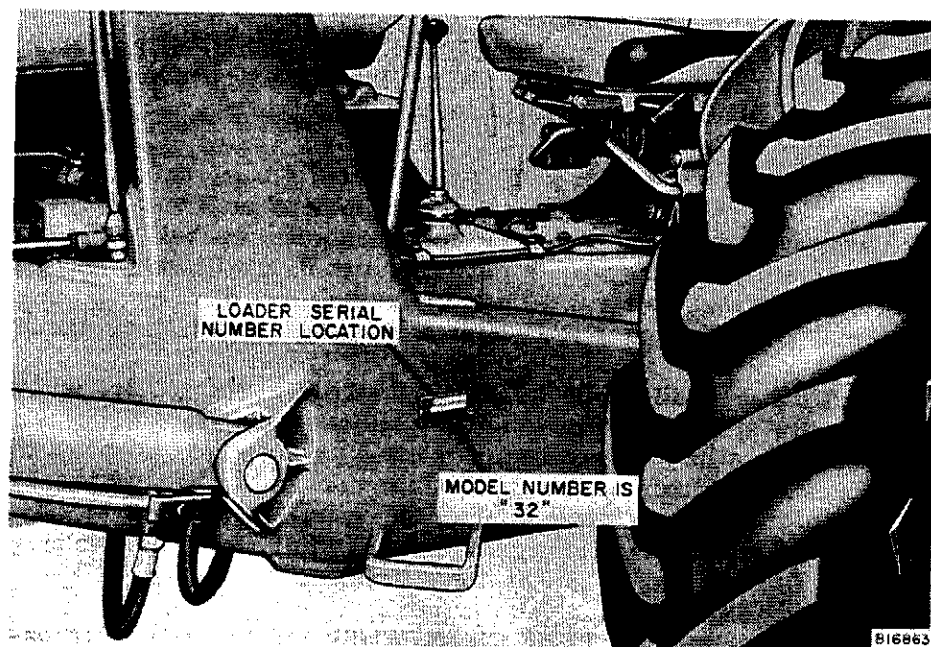
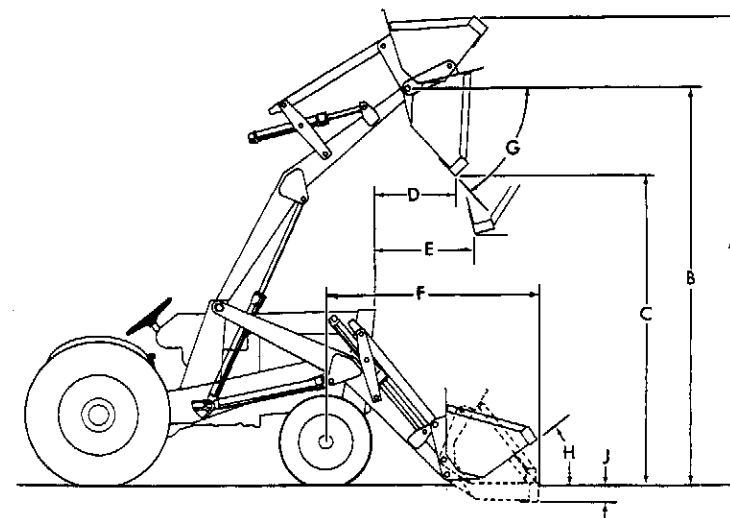


Figure 2 - Serial Number Location

When ordering parts from your Authorized CASE Dealer, always specify the Serial Number and Model of your Loader. The Serial Number Plate is located on the left hand loader subframe near the tractor step.

NOTE!

The terms, "right hand" or "left hand", whenever used in this Section are determined by standing at the rear of the Tractor and facing the direction of forward travel.



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Figure 3 - Loader Specifications

A. Overall Height (Bucket Level - Fully Raised)	12' 11"
*B. Height to Bucket Hinge Pin (Fully Raised)	10' 7"
*C. Dump Clearance (Fully Raised - 45° Dump)	
Short Lip Bucket	8' 7"
Long Lip Bucket	8' 2"
*D. Dump Reach (Fully Raised - 45° Dump)	
Short Lip Bucket	26"
Long Lip Bucket	28"
*E. Dump Reach (7 Ft. Height - 45° Dump)	
Short Lip Bucket	40"
Long Lip Bucket	42"
*F. Reach (Bucket Flat on Ground)	
Short Lip Bucket	71"
Long Lip Bucket	76"
*G. Dump Angle (Fully Raised)	45°
*H. Breakout Angle (Rollback)	
At Ground Line	40°
At 18 Inches Carry	45°
*J. Digging Depth Below Ground Line	
Bucket Flat	5"
Bucket at 4° Angle	7"

- * Overall Width of Tractor
 - Standard Loader Only Models (56"-64" Tread)... 71-79"
 - Standard Loader-Backhoe Models (62" Tread)... 77"
- * Height (To Top of Loader Frame) 62"
- * Overall Length (Bucket Flat on Ground to Rear of Counterweight) 15' 7"
- * Ground Clearance (At Loader) 12"
- * Tread, Front 54"
- * Tread, Rear (Adjustable Rims Standard on Loader Only Models) 56-64"
- * Tread, Rear (Fixed Standard on Loader-Backhoe Models) 62"
- * Wheel Base (Diesel) 78-7/16"
- (Gasoline) 77-3/16"
- * Front Axle Extra Heavy Duty, 7000 lb. Capacity (Dynamic Loading)
- Grading Angle Up to 110°
- * Hydraulic Lift Capacity (To Full Height) 3000 lbs.
- * Breakout Force (Maximum) 6200 lbs.
- * Raising Time to Full Height 5.0 Seconds
- * Lowering Time from Full Height 3.5 Seconds
- * Bucket Dump Time 1.0 Seconds

Tire Sizes

- * Front 7.50 x 16, 10 ply
- * Rear 14.9 x 24, 6 ply

Hydraulic System

- System Pump Direct Drive, Gear Type
- * Pump Capacity
 - (Standard Clutch Models) ... 20 G.P.M. @ 1900 R.P.M. @ 2000 P.S.I.
 - (Torque Converter Models) .. 22 G.P.M. @ 2100 R.P.M. @ 2000 P.S.I.
- Reservoir Refill Capacity
 - (Loader Only Models)..... 5.5 U.S. Gallons
 - (Loader-Backhoe Models) 11 U.S. Gallons
- * Filter Return line, full flow, replaceable micronic element
- Control Valve ... Dual Control Valve with Independent Levers For Raising or Tilting the Bucket
- Main Relief Valve Pressure Setting 1950 to 2000 P.S.I.

Secondary Relief Valve Pressure Settings

- Front of Valve (2) 2400 to 2600 P.S.I.
- Rear of Valve (1) 1675 to 1875 P.S.I.
- Oil Recommendation Case Hi-Lo TCH Oil
- Hydraulic Lines Steel tubing with brazed or flared fittings. Wire braid high pressure hose with crimped fittings (full-flow).

Hydraulic Cylinders

- * Type Double-acting with chrome plated rods
- Lift Cylinders (2) 3 x 31-1/2" Stroke, 1-1/2" Piston Rod
- Bucket Cylinders (2) 2-1/2 x 20" Stroke, 1-1/2" Piston Rod
- Hydra-Leveling Cylinder (1) 3 x 9-15/16" Stroke 1-3/4" Piston Rod

Shipping Weight

- * Shipping Weight (With D13022 Bucket - Less Counterweights)
 - Gasoline Engine with Torque Converter 5525 lbs.
 - Gasoline Engine without Torque Converter .. 5375 lbs.
 - Diesel Engine with Torque Converter 5725 lbs.
 - Diesel Engine without Torque Converter ... 5575 lbs.

*Specifications conform to Society of Automotive Engineers (SAE) or Industrial Equipment Manufacturers Council (IEMC) definitions whichever is applicable.

IMPORTANT!

Case Company reserves the right to change these specifications without notice and without incurring any obligations relating to such changes.



The lubrication of your Loader will require only a few minutes of regular daily attention and will greatly increase the life of the machine. Use only high-grade oil and grease of unvarying specification. Always buy lubricants from a reputable Dealer who handles a reliable product.

Basic Tractor Lubrication

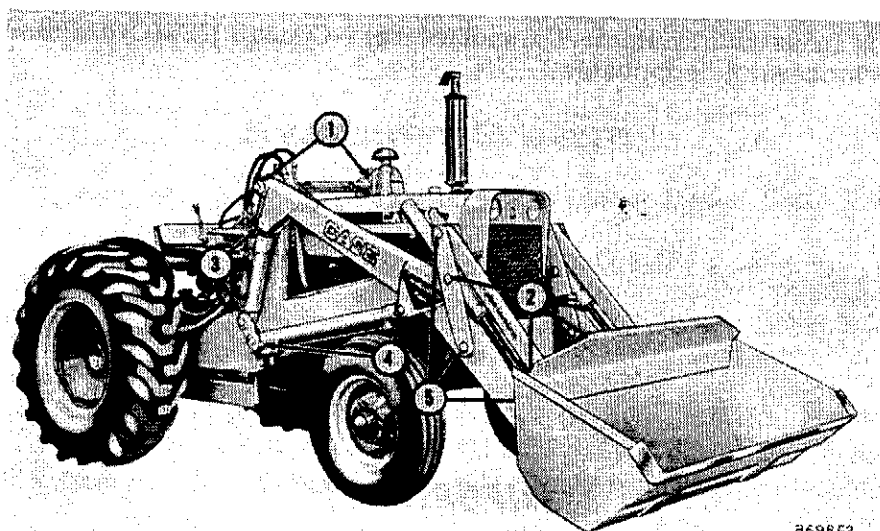
For lubrication of the basic Tractor, refer to the "530" Construction King Wheel Tractor Operator's Instruction Manual.

Recommended Lubricant

Pressure Fittings Lithium "soap-base" grease

Grade Recommendations — Below 32° F. #1
 32° F. to 90° F. #2
 Above 90° F. #3

Pressure Fittings



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Figure 4 - Loader Pressure Fittings

Before applying a grease gun to pressure fittings, wipe all accumulated dirt from each fitting tip.

LOCATION	NO. OF FITTINGS	*TIME INTERVAL
1. Cross Shaft	1 on each side	10 Hours
2. Dump Cylinder	1 front, 1 trunnion each side	10 Hours
3. Hydra-Leveling Cylinder	1 each end	10 Hours
4. Lift Cylinder	1 front, 1 rear each side	10 Hours
5. Dump Linkage	3 on each side	10 Hours

*If Loader is operating in mud or water, lubricate immersed fittings several times daily.

HYDRAULIC SYSTEM

A superior type hydraulic oil is the key to trouble free performance and low maintenance for hydraulic systems.

Case Hi-Lo TCH Oil was developed exclusively to meet the requirements of complex hydraulic systems and machined components. It is a non-foaming oil for all weather use. It remains stable from -55° F. to 230° F. Your Authorized Case Dealer has this oil in stock or can order it for you.



BN17363

AVAILABLE FROM YOUR CASE DEALER

Reservoir Refill Capacity (Loader only) 5-1/2 U.S. Gallons
(Loader-Backhoe) 11 U.S. Gallons
*Oil Recommendations Case Hi-Lo TCH Oil

*As an alternate oil, a heavy-duty motor oil meeting American Petroleum Institute service designation, MS-DG, may be used. Use only a good grade oil with non-foaming characteristics.

Viscosity Recommendations (Above 32° F.) SAE 10-W
(Below 32° F.) *SAE 5-W

*If SAE 5-W oil is not obtainable, Automatic Transmission Oil, type "A" may be used.

IMPORTANT!

DIRT IS THE ENEMY OF ANY HYDRAULIC SYSTEM. THE BEST WAY TO FIGHT THIS ENEMY IS TO PREVENT ITS ENTRY INTO THE SYSTEM. WHEN ADDING OIL BE SURE OIL, FUNNELS, AND CONTAINERS ARE CLEAN.

NOTE!

CHEAP GRADES OF OIL ARE NOT SUITABLE FOR USE IN THE HYDRAULIC SYSTEM.

Checking Hydraulic Oil Level

The loader subframes serve as reservoirs for the hydraulic oil. If the Tractor is equipped with a Loader only, just right hand reservoir contains hydraulic oil. If the Tractor is equipped with a Loader and Backhoe (or has provision for installing a Backhoe), both reservoirs are used. Drain plugs are located at the elbow in the bottom of the reservoirs.

In order to obtain an accurate measurement of the reservoir oil level:

1. Have the Tractor standing on a level surface.
2. Run the Tractor until the hydraulic system warms up (reservoir is warm to the touch).
3. Lower the bucket to ground level, and roll it back.

4. Place the Backhoe (if used) in transport position.

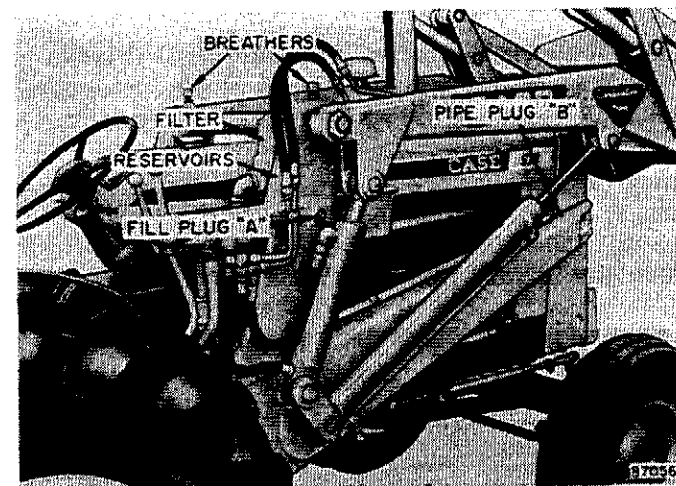


Figure 5 - Hydraulic Reservoirs

Remove pipe plug "A" from the right hand reservoir and check the oil level. It should be even with the bottom of the hole. If the oil level is too high, it could overflow through the reservoir breather. If the oil level is too low, there is a possibility of starving the pump — causing foaming, overheating, and damage to the hydraulic system.

Draining Hydraulic Oil

After the first 100 hours of operation and AT LEAST every 1000 hours thereafter, drain the hydraulic oil and replace it with new, clean, Case Hi-Lo TCH Oil.

The loader hydraulic system holds approximately 8 U.S. gallons of oil, and the backhoe hydraulic system holds an additional 11 U.S. gallons. However, only approximately 5-1/2 gallons of oil will drain from each reservoir as the lines, valves, cylinders, and pump hold oil. It is not necessary to drain the oil from these components.

To drain the reservoir(s):

1. Have the Tractor standing on a level surface.

2. Run the Tractor until the hydraulic system warms up (reservoir is warm to the touch).
3. Lower the bucket to ground level and roll it back.
4. Place the Backhoe (if used) in transport position.
5. Remove pipe plug "A" from the right hand reservoir, see Figure 5.
6. Remove the drain plug(s) at the bottom of the reservoir(s).

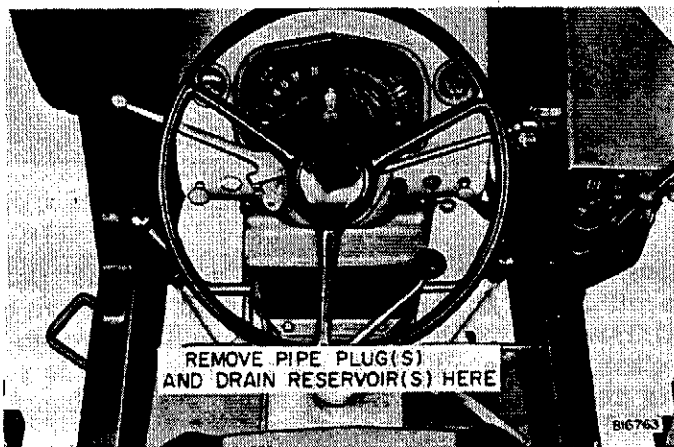
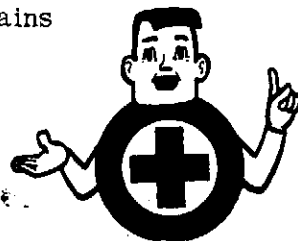


Figure 6 - Reservoir Drains

CAUTION!



BEFORE MAKING ADJUSTMENTS ON THE LOADER OR BACKHOE, MAKE SURE ALL MOVING PARTS ARE RESTING ON THE GROUND OR SECURELY BLOCKED UP TO PREVENT FALLING, RESULTING IN INJURY TO OPERATOR OR DAMAGE TO THE MACHINE.

IMPORTANT!

DO NOT RUN THE TRACTOR ENGINE WITH THE OIL DRAINED FROM THE RESERVOIR. THIS COULD DAMAGE THE HYDRAULIC PUMP IN A FEW SECONDS.

Filling Hydraulic Reservoir(s)

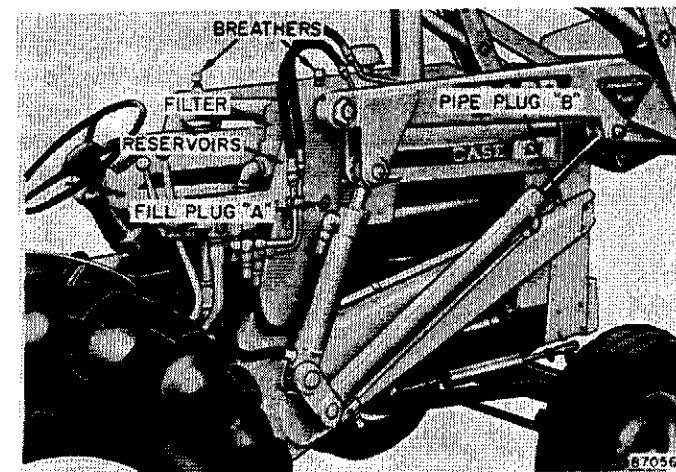


Figure 7 - Hydraulic Reservoirs

Refer to Figure 7 and remove pipe plug "A" and pipe plug "B". Using Case Hi-Lo TCH oil or an approved substitute, fill the reservoir through pipe plug "A" hole until the oil begins to run from pipe plug "B" hole. Replace pipe plug "B" and continue filling. Failure to remove pipe plug "B" may cause a "void" in the reservoir and insufficient oil in the system.

When the oil is up to level plug opening, replace plug "A"; start the engine; and put each control through its operational cycle to be sure all air is out of the system. When all the air is out of the system, check the oil level as indicated under "Checking Hydraulic Oil Level".

Reservoir Breather(s)

The reservoir breather(s) are located on top of the hydraulic reservoir(s), see Figure 5 and 8. The breather(s) allow air to enter or escape the reservoir(s) as the cylinders are extended or retracted. To insure proper operation of the hydraulic system, the breather element should be cleaned in solvent after every 50 hours operation.

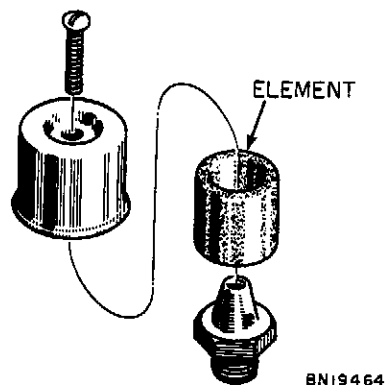


Figure 8 - Reservoir Breathers

Hydraulic System Filter

The hydraulic system filter is conveniently located above the level of the oil in the hydraulic reservoir(s). The element can be replaced without draining the hydraulic reservoir(s).

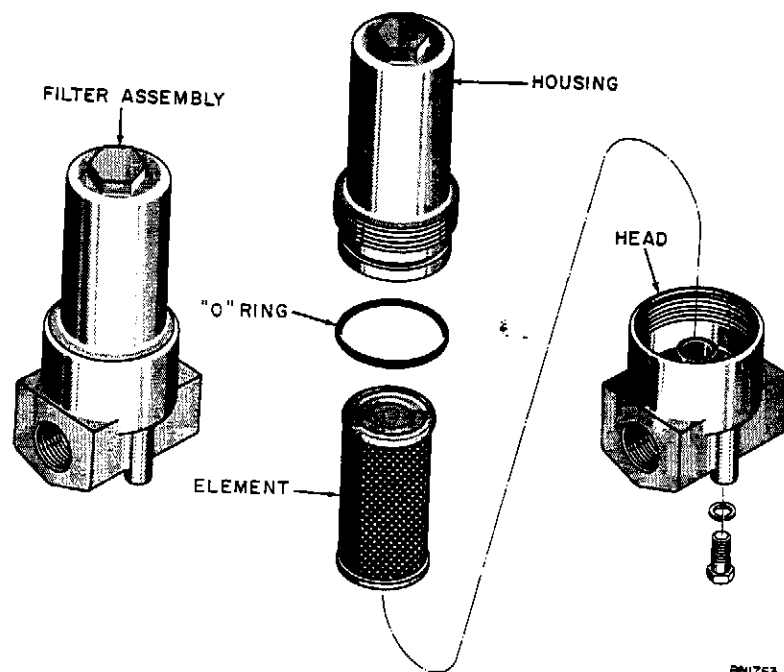


Figure 9 - Exploded View of Hydraulic Filter

The filter element should be replaced initially after the first 20 hours of operation. It should be changed every 240 hours thereafter or whenever indicated by the filter condition indicator gauge. A clogged or dirty filter element can cause serious damage to the hydraulic system. When the filter becomes dirty or clogged, the dirty oil bypasses the filter through a valve in the filter head and continues to circulate in the system. If the element is changed at the recommended time intervals and when the filter condition indicator gauge shows a change is necessary, damage to the hydraulic system due to unfiltered oil will be prevented.

After installing a new element, lubricate the threads and the "O" ring on the housing before replacing it. **DO NOT TIGHTEN THE HOUSING IN EXCESS OF 90 FOOT POUNDS TORQUE.**

Filter Condition Indicator Gauge

This gauge indicates return line pressure. The gauge scale is calibrated with two color codes for quick, easy reading:

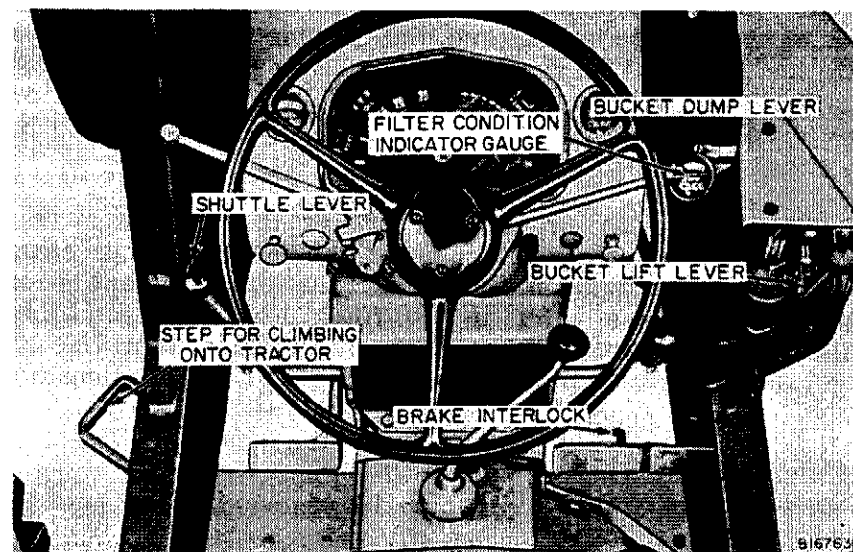


Figure 10 - Location of Filter Condition Indicator Gauge



operating instructions

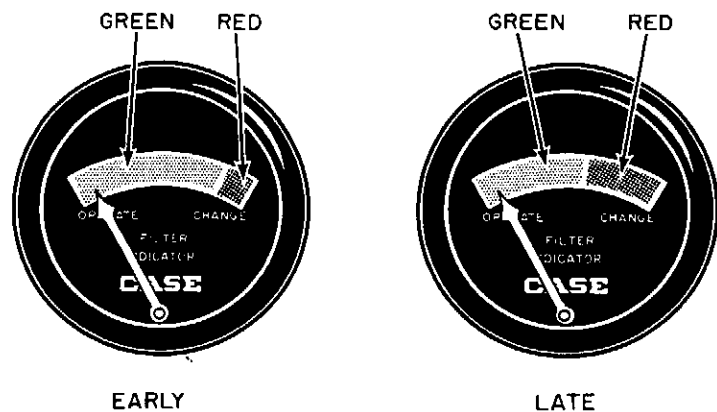


Figure 11 - Filter Condition Indicator Gauges

GREEN-OK-ZONE: When the needle is pointing in the green zone, the element does not require changing.

RED-DANGER-ZONE: When the needle is pointing in the red zone, the element requires changing. Always change the element before the needle extends halfway into the red zone.

Always read the gauge while the engine is running at full throttle, the hydraulic oil is up to operating temperature (reservoir warm to the touch), and the Loader or Backhoe is not in operation. **DISREGARD** surge (unsteady) pressures that occur while the Loader or Backhoe is in operation. Also, **DISREGARD** a pressure reading taken while the oil is cold or the engine is not operating at full throttle.

Make it regular practice to change the element at the end of every 240 hours operation (after the initial 20 hour change). Do not depend entirely on the gauge. If the filter element becomes clogged, the bypass valve in the filter head will open allowing unfiltered oil to circulate through the hydraulic system. Use of the gauge alone may result in element changes at inconvenient times.

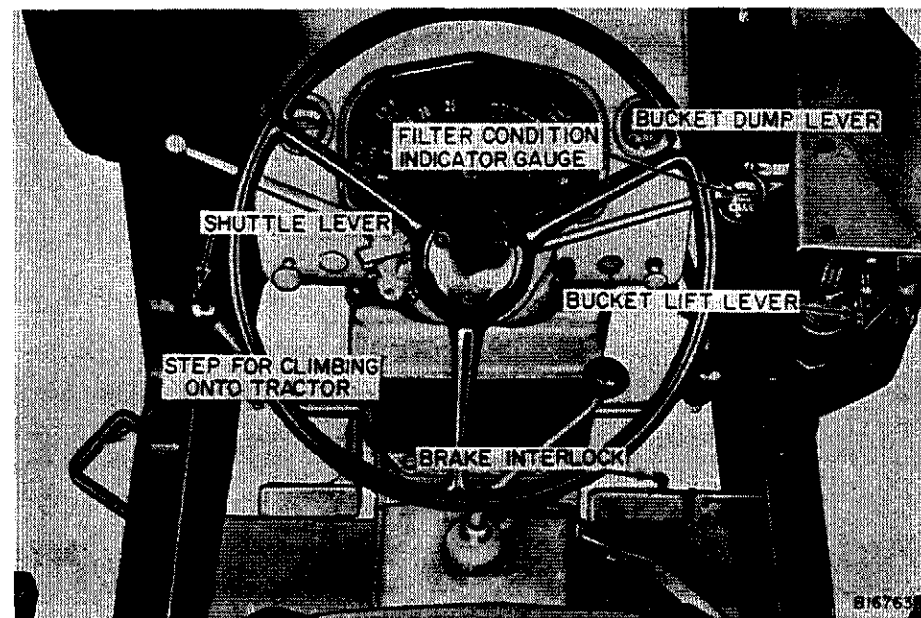


Figure 12 - Tractor and Loader Operating Controls

Before operating your Loader, check engine oil and water levels and hydraulic reservoir oil level. Then start the engine and allow a few minutes for it to warm up to operating temperature. In hot weather this will be a relatively short time. Increase the engine speed to approximately half throttle and test the action of both the bucket dump and lift cylinders. Check all hose and tubing connections for leaks and tighten if necessary.

Refer to "530" Construction King Wheel Tractor Operator's Instruction Manual for tractor operating procedures.

Operator's Seat

This Tractor is equipped with an extremely comfortable seat. This seat has transverse adjustment settings to accommodate the leg length of the operator. To make this adjustment, sit behind the wheel with your feet on the clutch and brake pedals, and assume a normal position. If it is difficult to actuate the pedals, pull out

on the adjusting lock pin under the right hand edge of the seat and move it forward; if too cramped, move it backward. After the desired position is obtained, release the knob locking it into position. BE SURE PLUNGER GOES THROUGH HOLE IN SEAT FRAME.

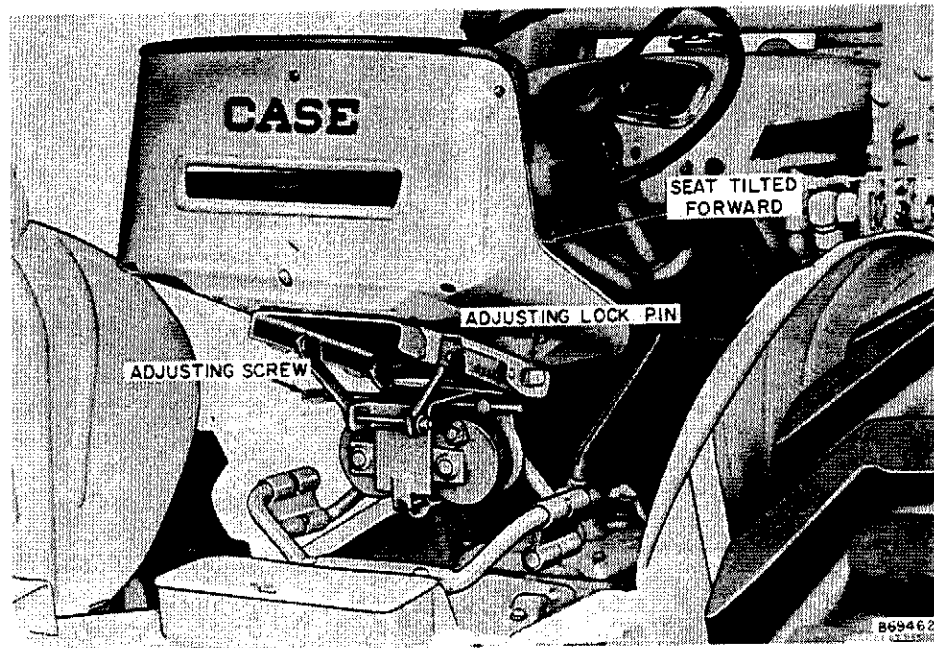


Figure 13 - Seat Adjustments

The seat can be adjusted to compensate for the difference in weight of operators. Turn the adjusting screw clockwise for heavier operators; counterclockwise for lighter operators. The seat can be tipped up if the operator wishes to stand up or if the machine is to be idle for a period of time.

Loader Control Valve

This dual plunger valve, located within easy reach of the operator's right hand, is designed to have a fully balanced control action. High pressures within the system are always balanced. Therefore, the controls never become hydraulically locked in any position. When either control lever is released, it will automatically return to neutral position. Either of these valves can be operated independently or together depending on the loading operation.

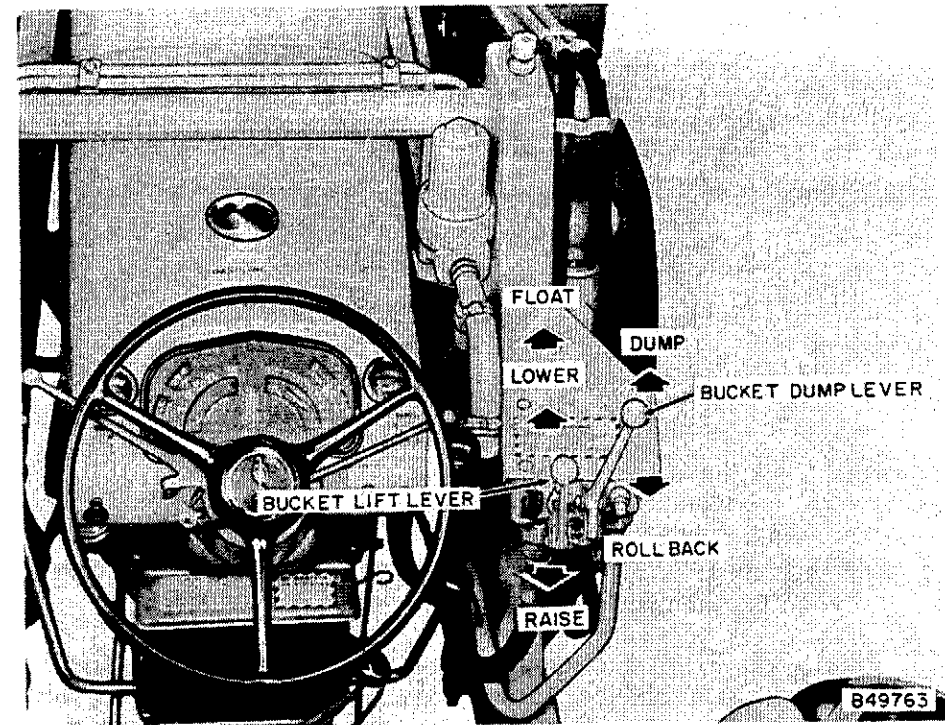


Figure 14 - Loader Controls

The outside lever controls the bucket dump cylinders. Pull the lever back to roll the bucket back; push the lever forward to dump the bucket.

The inside lever controls the lift cylinders. Pull the lever back to raise the bucket. Push the lever forward to lower the bucket. Push the lever forward to the lower position and apply a little extra pressure to put the lever in the "float" position.

With the lever in the "float" position the loader bucket is free to move either up or down and will follow the contour of the ground. The lever will remain in this position until it is returned to neutral by the operator.

The pressure required to place the lever in the float position is adjustable. It can be increased or decreased to suit the individual operator.

To adjust the float detent, proceed as follows:

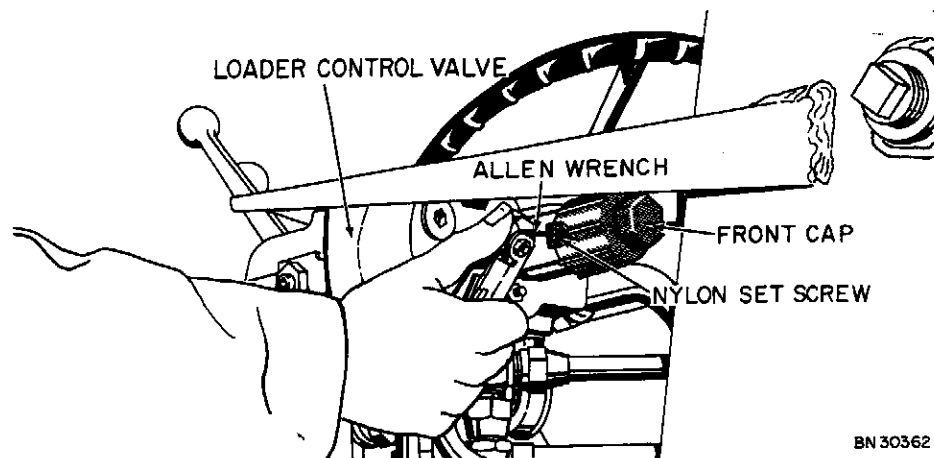


Figure 15 - Adjusting the Float Detent

1. Use a 3/32 inch Allen wrench (hex. wrench) or a screw driver as required and loosen the set screw.
2. Rotate the front cap as required. To decrease the pressure required to push the float lever into detent position, turn the cap out. To increase the pressure, turn the cap in.
3. After the desired adjustment position has been reached, tighten the set screw.

Bucket Sight Leveling Gauge

The "530" Construction King Loader is provided with a handy leveling gauge. Using the gauge, the bucket position can be ascertained without seeing the floor of the bucket.

Figure 16 - shows the position of the indicators when the bucket is level, fully rolled back, or fully dumped. After a short time, the operator should be able to ascertain the exact position of the bucket floor with just a glance at indicators.

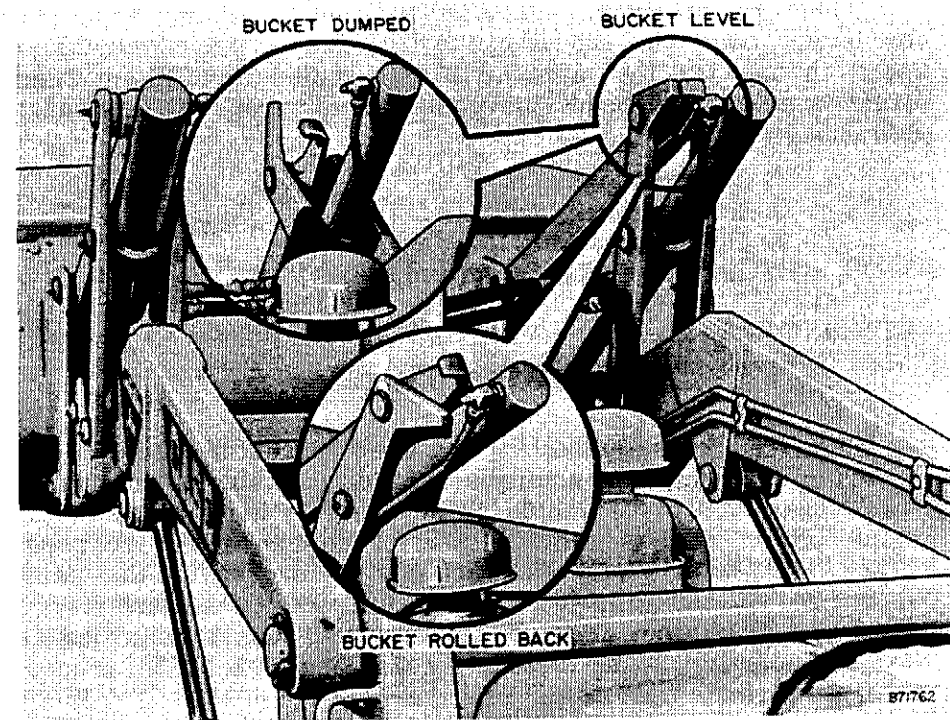


Figure 16 - Bucket Sight Leveling Gauge

Operating the Tractor - Loader

The Case Tractor-Loader combination is a fast, quiet piece of equipment designed for industrial type applications, such as earth moving, stock piling, material handling etc. Hydrostatic steering reduces steering effort to a minimum, even with a full bucket.

This Tractor is equipped with individual wheel brakes to aid in quick turns. A brake interlock is provided to lock the two brakes together for safety on the highway when transporting the unit.

The rear wheel drive Loader is at its best in pits, yards, streets, and other places that afford good traction. Stock piling or loading trucks is perhaps the most common use of the front end Loader.

When the operator becomes proficient with the handling of the bucket controls, and familiar with the proper transmission speed to use for the material to be handled, an efficient "work cycle" can be developed. This cycle consists of four (4) separate operations:

1. Filling bucket;
2. Transporting load;
3. Dumping bucket load;
4. Returning to stock pile.

Filling the Bucket

This Tractor is available with torque converter drive. Torque converter drive increases torque and cushions the engine against shock loads. As the machine is pushed into the bank under full engine power and is slowed, the torque converter increases torque output until maximum efficiency is reached. At this point, the engine will be running at the stall speed of the converter. If the bucket has penetrated deeply into the bank by this time, it may be necessary to de-clutch to raise engine R.P.M. for more efficient hydraulic operation.

Select the proper transmission gear and gear range, for example: "2nd" speed on the transmission and "low" gear range. In Torque Converter Drive, this will give a shuttle forward speed of 2.2 MPH and a reverse speed of 2.8 MPH. Approach the stock pile with the engine running at full governed speed. Have the bucket lowered so forward motion of Loader pushes the bucket into the material. While the bucket is being pushed forward into the stockpile, pull the lift lever. Then pull the bucket dump lever, rolling the bucket back. This can easily be done by using both control levers at the same time. This action of "moving in" and rolling back simultaneously, is called "crowd action".

The operator must learn to coordinate the use of the throttle and clutch (or Torque Converter Drive) with that of the two bucket levers.

Transporting the Load

When moving from stock pile, with a full bucket, carry the bucket just high enough to clear obstacles in the tractor's path.



CAUTION!

AT NO TIME SHOULD A LOAD BE TRANSPORTED WITH THE BUCKET FULLY RAISED.

WHEN TRANSPORTING THE LOADED BUCKET OVER ROUGH AND UNEVEN GROUND, KEEP THE TRAVEL SPEED WITHIN THE LIMITS NECESSARY FOR SAFE OPERATION.

Dumping the Bucket Load

When the bucket is dumped at low engine R.P.M., gravity will pull the bucket "under" faster than the hydraulic pump will fill the cylinder. If the cylinder is not full of oil when digging, the bucket will tend to roll back. To prevent this condition -- run the engine at high R.P.M. when dumping, never at low R.P.M., unless this is not possible. If this is not possible, retract bucket cylinders hydraulically until the relief valve can be heard by-passing. This will fill the cylinders with oil and eliminate the bucket "rolling back" as it is pushed into a load.

When approaching the truck or hopper, raise bucket high enough to clear the box or bin edge (after the bucket has been dumped). Then reduce forward speed slowly and dump load quickly. Flip outside lever back to tip the bucket up while backing away and returning to stock pile.

CAUTION!

DO NOT DROP LOADED BUCKET AND "CATCH" HYDRAULICALLY.



Leveling and Digging

The Tractor-Loader can be used for stripping or leveling topsoil. For leveling, the top of the bucket can be tipped forward and lowered. The floating action of the bucket can be obtained by pushing the inside lever all the way forward. This will allow the bucket to follow the contour of the ground.

For digging, push the inside lever full forward into float position. By changing position of the loader bucket leading edge, the bucket can be lowered to approximately 7 inches below ground level. After the bucket has reached the desired depth, it can be tilted upward or leveled off to have a constant depth of cut. The depth of cut to be taken will depend upon the type of soil, moisture content, and the traction of rear wheels.

CAUTION!

BE SURE THE TRACTOR IS COMPLETELY STOPPED BEFORE SHIFTING SHUTTLE, DUAL-RANGE, OR FOUR SPEED TRANSMISSION. ALWAYS USE THE CLUTCH WHEN SHIFTING.

TORQUE CONVERTER UNITS

THE CLUTCH ON THESE TRACTORS IS HYDRAULICALLY ACTUATED, WHEN THE TRACTOR ENGINE IS SHUT OFF THE CLUTCH IS DISENGAGED. THEREFORE, DO NOT PARK THE TRACTOR IN GEAR TO HOLD IT IN POSITION. SET THE FOOT BRAKES.



preventive maintenance

If trouble should develop and the Loader does not function properly, make the following systematic inspection checks first:

1. Check oil level in the reservoirs with all hydraulic cylinders retracted (Backhoe in transport position), see page 10.
2. Make a visual inspection of all hydraulic parts such as lines, cylinders, fittings, and valves.



CAUTION!

BEFORE MAKING ADJUSTMENTS ON THE LOADER, MAKE SURE MOVING PARTS ARE RESTING ON THE GROUND OR SECURELY BLOCKED UP TO PREVENT FALLING, RESULTING IN INJURY TO OPERATOR OR DAMAGE TO MACHINE.

3. Check hydraulic system pressure at the control valve as follows:

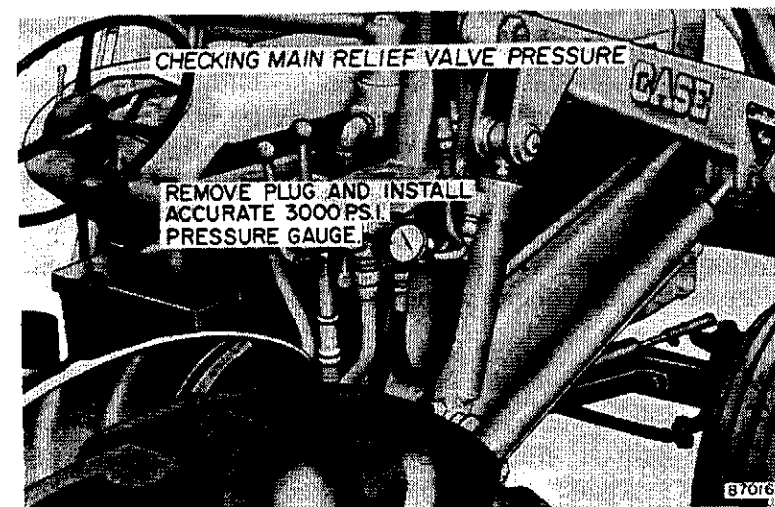


Figure 17 - Pressure Gauge Installed

Remove the plug and install an accurate pressure gauge that will register up to 3000 P.S.I., in the port in the control valve as shown in Figure 17. Run tractor engine until the hydraulic oil is warmed up.

Extend or retract loader dump cylinders to the limit, until the relief valve by-passes. This usually can be heard, as the relief valve will "squeal" as it by-passes. Actuate the control lever until a steady gauge reading is obtained. This should be 1950 to 2000 P.S.I. at 1800 engine R.P.M. (under load).

If the pressure is not 1950 to 2000 P.S.I. at 1800 engine R.P.M., the relief valve must be adjusted by your Authorized Case Dealer. Relief valves are pre-set at the factory and should be adjusted only by your Dealer, who is properly equipped to do this work.

If it is not possible to obtain the correct pressure, it could be an indication of a worn hydraulic pump. Your Authorized Case Dealer has the necessary equipment to test the condition of the hydraulic pump.

Hydraulic Cylinders

Check cylinder piston rods for scratches and score marks, which show effects of misalignment or sharp particles imbedded in the wiper ring. These should be polished out; or if excessively deep, have the piston rod replaced. Scratches and score marks can be removed by using a strip of medium grit emery cloth. Always polish with a rotating, rather than lengthwise motion.

If the hydraulic cylinders will not hold the load (when the control valve is in neutral) or raise slowly, it could indicate that the piston packing is worn. If it is determined that the leak is in the piston packing, the cylinder must be serviced.

Leakage around the packing gland indicates that packing or seals are worn and should be replaced.



extra equipment

Your Case Tractor-Loader is one of the most versatile Loaders available. In addition to several sizes of buckets, the following attachments may be mounted on the Loader arms in lieu of a bucket.

1. Pallet Lift Forks;
2. Logging Forks;
3. Dozer Blade;
4. Drott Multi-Purpose Bucket.

Buckets

Four standard loader buckets and a Drott Multi-Purpose Bucket are available. The four standard buckets all have integral spill guards. There is a bucket suitable for each job application.

D13022 BUCKET (SHORT LIP)

Width	63-3/8 Inches
Capacity (SAE Rated)	16 Cubic Feet

Optional Digging Teeth Available Yes

This bucket is intended for use in very hard digging and for very heavy material handling. It is the recommended bucket for handling materials in excess of 3500 pounds per cubic yard.

D13023 BUCKET (LONG LIP)

Width	63-3/8 Inches
Capacity (SAE Rated)	20 Cubic Feet

Optional Digging Teeth Available Yes

This bucket is intended for use in digging, heavy material handling, backfilling, and landscaping. It is the recommended bucket for handling materials weighing from 2600 to 3500 pounds per cubic yard. It is also the recommended bucket for use with a Loader-Backhoe combination.

D13021 BUCKET (SHORT LIP)

*Width 73-3/8 Inches (Tread Width)
Capacity (SAE Rated) 19 Cubic Feet

Optional Digging Teeth Available Yes

*Bucket is treadwidth for Loader units when 56" rear tread is used.

This bucket is intended for use in material handling and curb work. It is the recommended bucket for handling materials weighing from 2600 to 3500 pounds per cubic yard. It is also the recommended bucket for use with Loader only (no Backhoe) units.

D11946 BUCKET (LONG LIP)

Width 79-3/8 Inches
Capacity (SAE Rated) 1 Cubic Yard

Optional Digging Teeth Available No

This bucket is intended for use in snow removal and light material handling. It is the recommended bucket for handling materials weighing less than 2600 pounds per cubic yard.

WEIGHTS OF COMMON MATERIALS

To aid in the selection of the proper bucket, the following is a listing of the approximate (or average) weights of some common materials:

Lbs. Per Cubic Yard

Ashes	1100
Charcoal	675
Cinders	1100
Clay (Dry)	2400
(Wet)	3000
Clay and Gravel (Dry - Mixed)	2700
Coal (Anthracite - Loose)	1500
(Bituminous - Loose)	1200
Coke	800

Concrete	3900
Earth (Loose)	2000
(Packed)	2700
(Packed - Wet)	2850
Gravel (Dry)	3100
(Wet)	3400
Iron Ore (Broken)	3600-5500
Limestone (Crushed)	2600
Mortar	2700
Salt	1350
Sand (Dry)	2850
(Wet)	3400
Sand and Gravel (Mixed)	3000
Sandstone (Broken)	2500
Shale (Broken)	2700
Slag (Broken)	2400
Snow (Wet)	1100
Stone (Crushed)	3000

REMOVING AND INSTALLING THE BUCKET

To remove the bucket (or other attachment) proceed as follows:

1. Drive the Tractor to level ground.

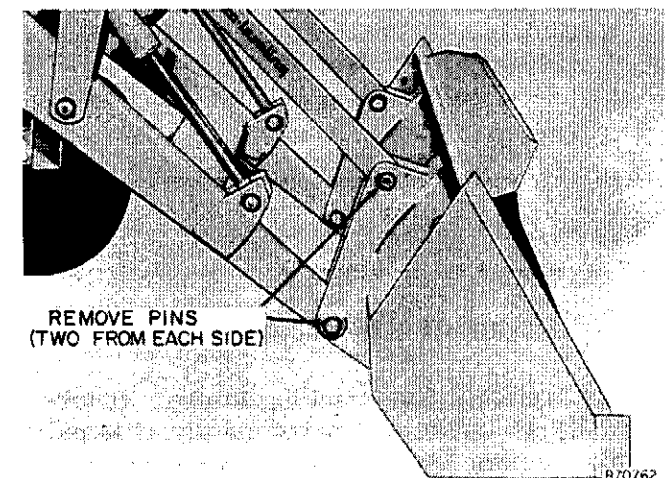


Figure 18 - Removing the Bucket

2. Refer to Figure 18, remove the snap rings and pins indicated (2) on each side, and then drive the tractor away.
3. Place the bucket (or other attachment) in position for attaching to the loader arms.
4. Using pins previously removed (unless others have been supplied with attachment) attach the loader arms and the dump linkage to the bucket. If the holes on the dump linkage do not line up, start the Tractor and extend or retract the dump cylinders hydraulically until the holes line up.
5. Reinstall the snap rings.

Pallet Lift Forks

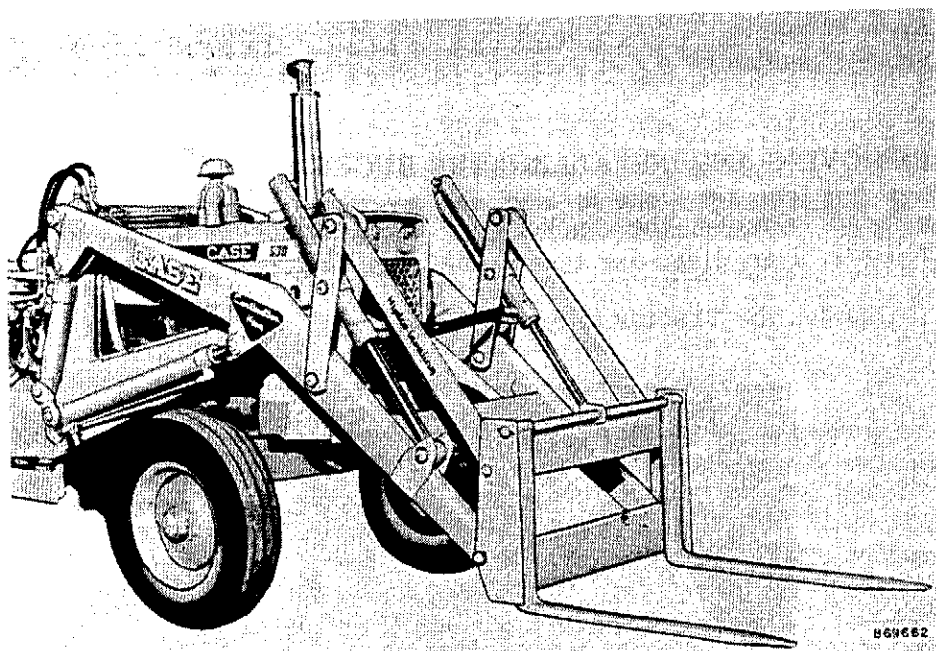


Figure 19 - Pallet Lift Forks

Pallet forks are ideal for stacking lumber, bricks, or concrete blocks. Especially valuable whenever material is palletized in the shop or storage yards. Each fork is 36 inches long and 3 inches wide. Forks may be adjusted to 38 inches overall width. Lifts up to 3000 pounds to full height.

Logging Forks

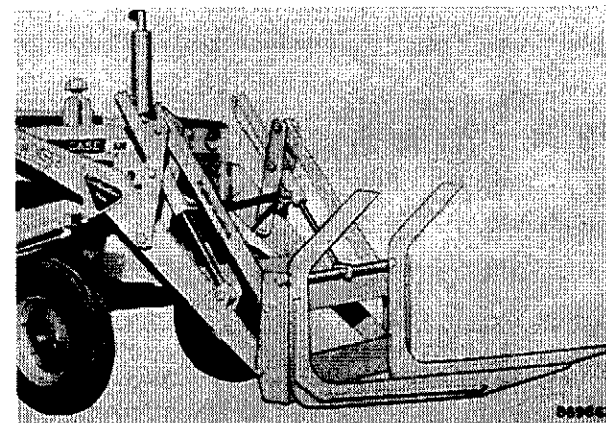


Figure 20 - Logging Forks

Logging forks make loading, stacking, and carrying of logs, pulpwood, posts, and other bulky materials an easy task. The forks can lift a 3000 lb. load to full height.

Dozer Blade

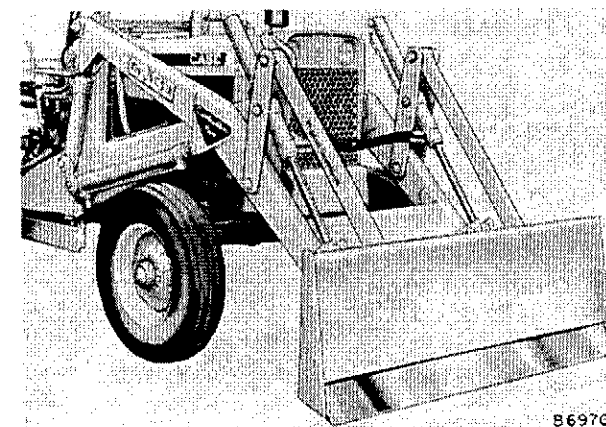


Figure 21 - Dozer Blade

The ideal attachment for back-filling, leveling, and grading. Blade has reversible and replaceable cutting edges and tips of high tempered steel. The dozer blade is 70-3/4 inches wide and 24 inches high. The maximum effective cutting depth is 6 inches.

Drott Multi-Purpose Bucket

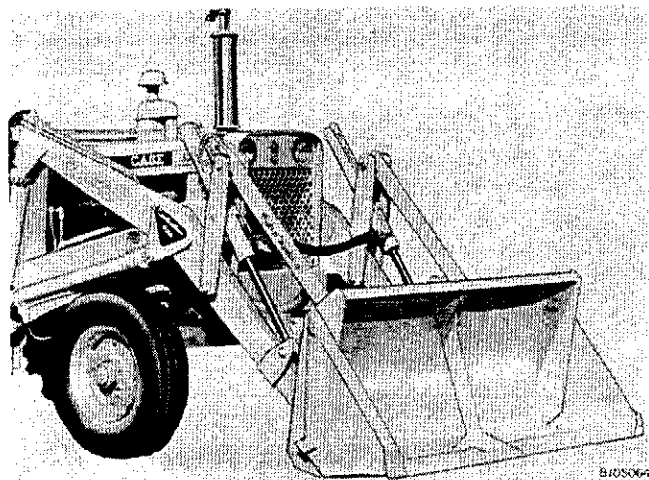


Figure 22 - Drott Multi-Purpose Bucket

Refer to page 35 for complete specifications and operating information on the Drott Multi-Purpose Bucket.

Case - Danuser, All - Purpose Blade

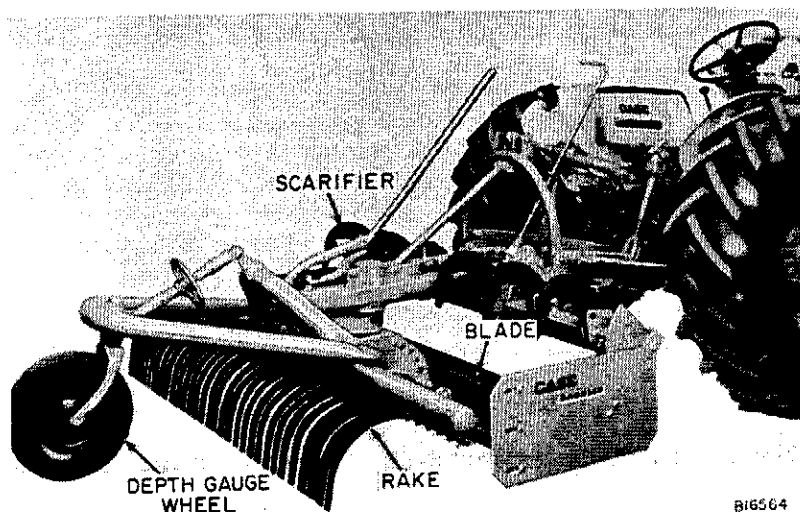


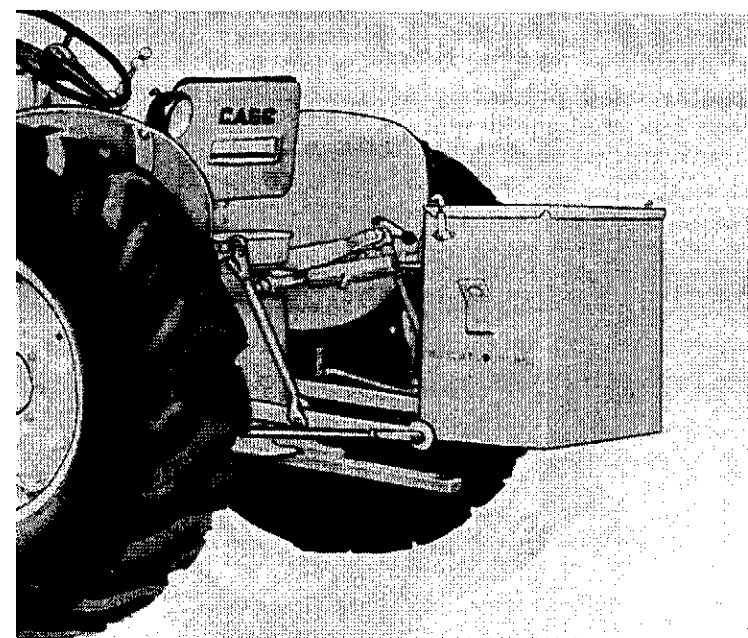
Figure 23 - Case - Danuser, All - Purpose Blade

The Case-Danuser all-purpose blade is ideal for ditching, leveling, windrowing, cleanup, reverse dozing, and backfilling. Six or eight foot widths are available. It can be rotated 360° right or left and positively locked in any position.

The scarifier, rake and depth gauge wheel attachments for the all-purpose blade may be raised or lowered independently of the blade. Scarifier teeth have replaceable points and are protected by shear bolts.

Counterweights and Weight Boxes

Two counterweights and a weight box are available for mounting on Loader units to provide additional stability during loading operations.



B99759

Figure 24 - Rear Weight Box

The 900 lb. rear weight box is designed to mount directly to the Draft-O-Matic hitch arms. This box will hold approximately 900 lb. of ballast such as steel punching. In addition, it has a convenient top shelf for tool storage.

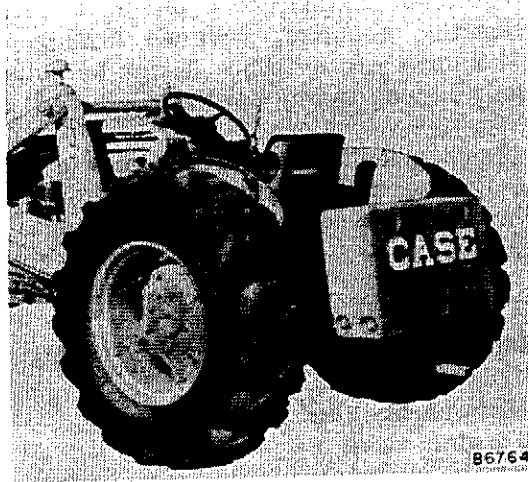


Figure 25 - Standard 1400 lb. Counterweight

The standard 1400 lb. rear counterweight is intended for use with Tractor used primarily as Loader or Drawbar units and not using rear mounted equipment.

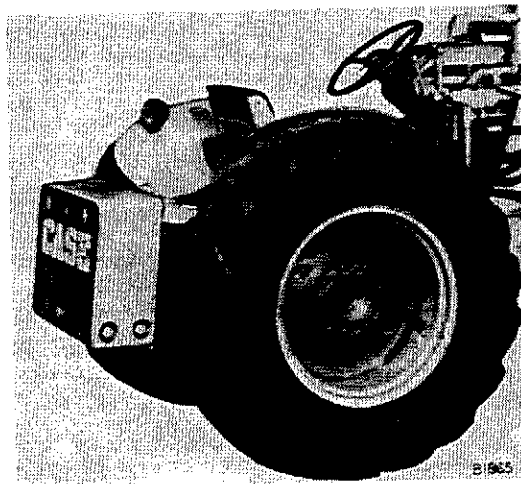


Figure 26 - Quick - Detachable 1400 lb. Counterweight

The quick-detachable 1400 lb. rear counterweight mounts on the same support arms as the Backhoe. It is intended for use when the Backhoe is removed or when it is necessary to remove the counterweight frequently in order to use rear mounted equipment in conjunction with the Draft-O-Matic hitch or the P.T.O.

Drott Multi-Purpose Bucket

INTRODUCTION

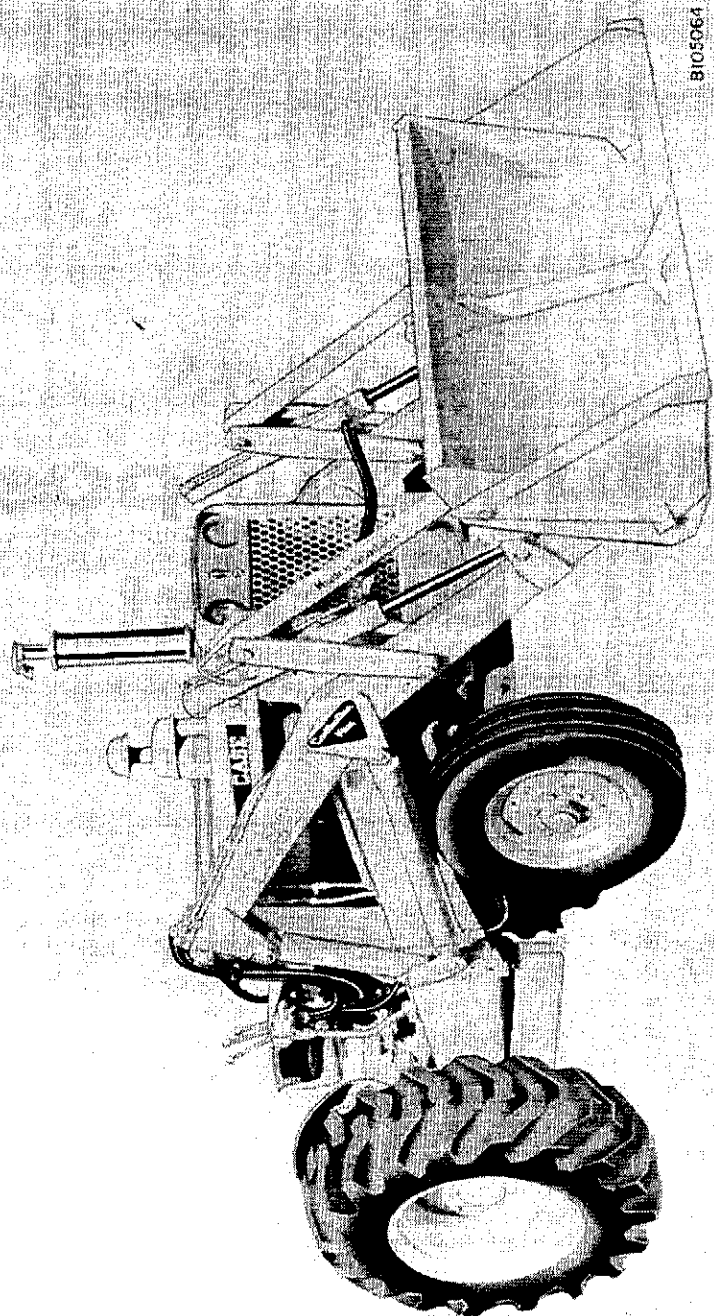


Figure 1 - Right Hand Front View of Loader/Counterweight with Drott Bucket

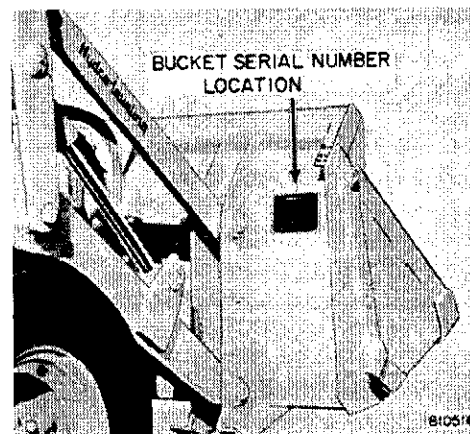
The Drott Multi-Purpose Bucket is an optional attachment available for mounting on the Loader arms, in lieu of the standard Loader Bucket.

Here are some of its outstanding features:

1. **Loader** - Handles all regular excavating, loading and material handling jobs, utilizing the entire bucket capacity. It can be dumped in two ways — by tipping the bucket in the conventional manner — or by opening the bottom (clam). It is equipped with a replaceable cutting edge.
2. **Clam Bucket** - Picks up loose material while tractor is stationary. It can pick up dirt, trash, brush and logs — deposits the load carefully in the truck or on the pile.
3. **Scraper** - Planing action fills the bucket for fast even spreading. Depth indicator on left hand side of bucket makes depth selection easy and accurate. Float position produces an even cut, essential for landscaping and grading operations.
4. **Bulldozing** - The high curved moldboard keeps the load in front of the blade. It's ideal for grading and backfilling and can be precisely adjusted for pitch and depth of cut.

SERIAL NUMBER LOCATION

When ordering parts from your Authorized Case Dealer, always specify the serial numbers and Model numbers of both the Loader and Drott Bucket.



NOTE!

"Right Hand" and "Left Hand" whenever used in this manual, apply to the Tractor when facing in the direction it will move in forward position.

Figure 2 - Serial Number Location

SPECIFICATIONS

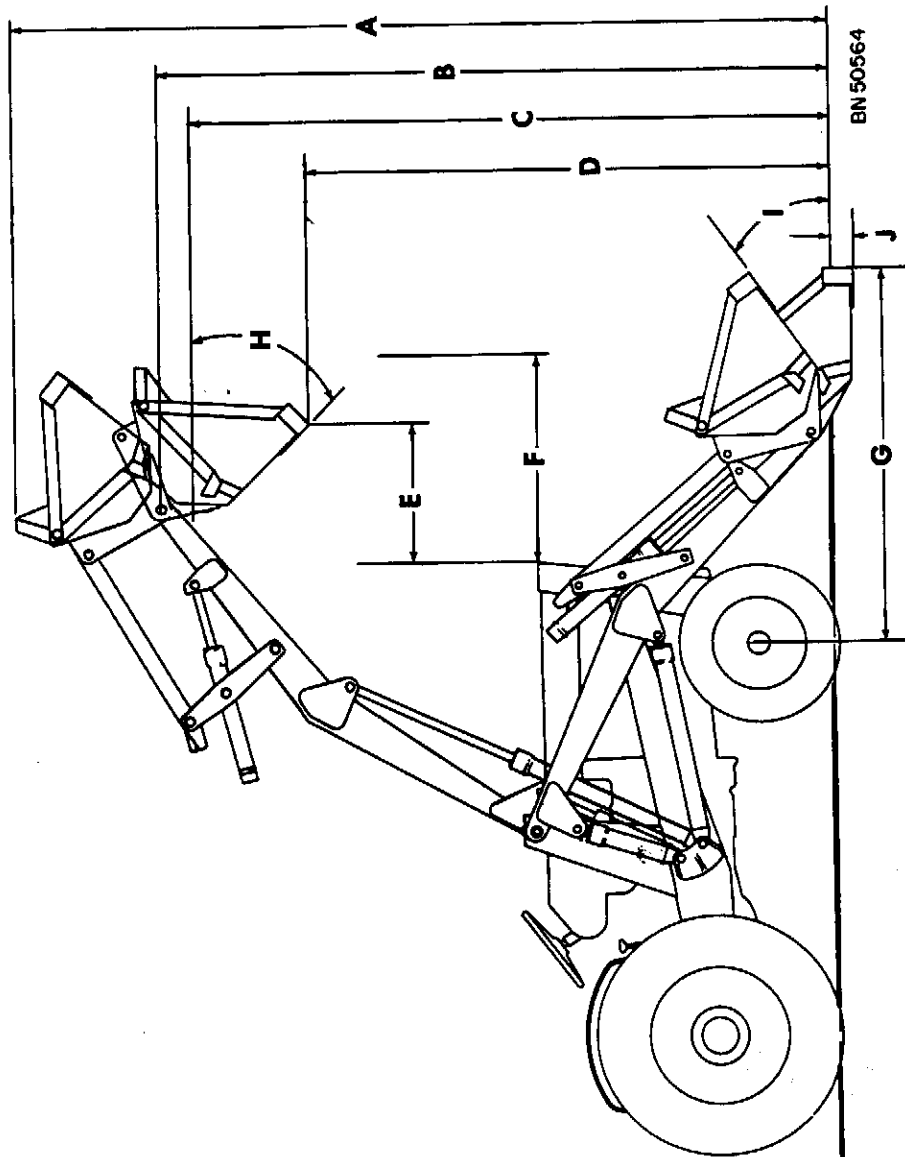


Figure 3 - Drott Bucket Specifications

A. Overall Height (Bucket Level - Maximum Height) . . .	12' 10"
*B. Height to Bucket Hinge Pin	10' 7"
C. Dump Over Maximum	10' 1"
*D. Dump Clearance (Maximum Lift)	8' 7"
(Using Clam)	10' 7"
*E. Dump Reach (Maximum Lift)	28"
*F. (45° Dump Angle at 7' Dump Height)	39-1/2"
*G. Reach (Bucket Flat on Ground)	70"
*H. Discharge Angle (10' 7" Hinge Pin Height)	43°
(10' Hinge Pin Height)	45°
*I. Breakout Angle (Rollback)	40°
*J. Digging Depth Below Ground (Bucket Flat)	6"
(At 4° Angle)	7-1/2"
Overall Length (Bucket Flat with Counterweight) . . .	15' 1"
Grading Angle	Up to 110°
* Width of Bucket	63"
Overall Width of Tractor (Adjustable Wheels) . . .	67" - 79"
(Integral Wheels)	77"
* Bucket Capacity (SAE Rated)	15 cu. ft.
* Rated Capacity (Lift Capacity to Maximum Height) . . .	2900 lbs.
* Breakout Force	6000 lbs.
Maximum Clam Opening	34"
Moldboard Height	30"
Dozing Depth	4"
Digging Depth Using Clam	34"

All specifications were taken with standard unit with counterweight.

Hydraulic System

* Hydraulic Pump	Direct Drive Off Engine Crankshaft
* Pump Capacity	
Standard Clutch	20 G.P.M. @ 1900 R.P.M. @ 2000 P.S.I.
Torque Converter	22 G.P.M. @ 2100 R.P.M. @ 2000 P.S.I.
Reservoir Refill Capacity	
Loader Only	5-1/2 U.S. Gallons
Loader-Backhoe	11 U.S. Gallons
Control Valve	Three Spool Control Valve with Independent Levers for Raising, Tilting, and Opening (Clam Action) the Bucket.
Hydraulic Lines	Steel Tubing and Double Steel Wire Mesh Braided Hose.

Main Relief Valve Pressure Setting 2000 P.S.I.
 Secondary Relief Valve Pressure Setting
 Dump Circuit (Rollback) 1675 - 1875 P.S.I.
 Dump Circuit (Dump) 2400 - 2600 P.S.I.

Hydraulic Cylinders

*Lift Cylinders (2) 3" x 31-1/2" Stroke, 1-1/2" Piston Rod
 *Dump Cylinders (2) 2-1/2" x 20" Stroke, 1-1/2" Piston Rod
 *Hydra-Leveling Cylinder (1) . 3" x 9-15/16" Stroke, 1-3/4" Piston Rod
 *Bucket Clam Cylinder (1) 3-1/2" x 8" Stroke, 1-1/2" Piston Rod

†Shipping Weight

	With Torque Converter	Without Torque Converter
Gasoline	7520 lbs.	7370 lbs.
Diesel	7720 lbs.	7570 lbs.
Counterweight (Optional)		1400 lbs.

†Counterweight or rear mounted equipment must be added.

* Specifications conform to Society of Automotive Engineers (SAE) or Industrial Equipment Manufacturers Council (IEMC) definitions, whichever is applicable.

LUBRICATION

The lubrication of the Drott Bucket and Loader will require only a few minutes of your regular daily attention. Use only a high grade grease of unvarying specifications. Always buy lubricants from a reputable dealer who handles a reliable product.

Recommended Lubricant

Pressure Fittings Lithium "Soap-Base" Grease
 Grade Recommendations Below 32° F. #1
 32° F. to 90° F. #2
 Above 90° F. #3

Pressure Fittings

Before applying a grease gun to pressure fittings, wipe all dirt from each fitting tip.

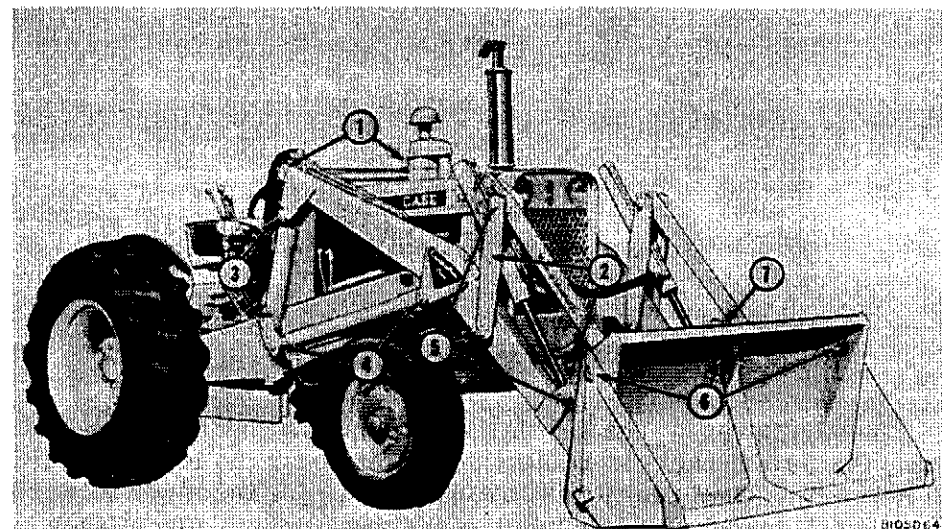


Figure 4 - Pressure Fittings

FITTING LOCATION	NO. OF FITTINGS	*TIME INTERVAL
1. Pivot Shaft	(2) 1 each side	10 hours
2. Dump Cylinder	(2) 1 fr., 1 trun. eachside	10 hours
3. Hydra-Leveling Cylinder	(2) 1 each end	10 hours
4. Lift Cylinder	(2) 1 each end	10 hours
5. Dump Linkage	3 each side	10 hours
6. Clam Pivots	(3) 1 each pivot	10 hours
7. Clam Cylinder	1 top	10 hours

* Lubricate fittings more often when working in mud or water.

OPERATING INSTRUCTIONS

A three spool control valve is located within easy reach of the operator's right hand.

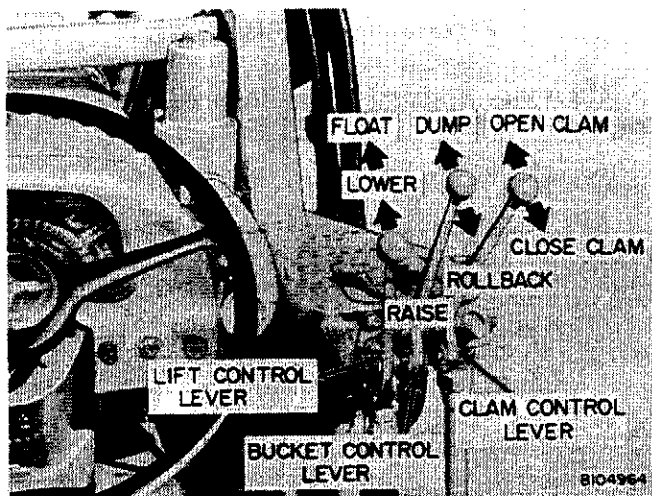


Figure 5 - Drott Bucket Control Levers

Inside Lever - The inside lever controls the lift cylinders. Pull the lever back to raise the bucket, push the lever forward to lower it. A float position is obtained by pushing the lever forward to normal travel and applying extra pressure to place lever in detent position. Pull lever back to release.

Middle Lever - The middle lever controls the dump cylinder. Push the lever forward to dump bucket. Pull the lever back to level the bucket or "roll" the bucket back.

Outside Lever - The outside lever controls the "clam action" of the bucket. Push the lever forward to open the clam; pull the lever back to close the clam.

The three spool valve is designed to have a fully balanced control action. High pressures within the valve are always equalized or balanced. The controls never become hydraulically locked in any position. When a control lever is released, it automatically returns to the neutral position and will assume positive control of the load.

Selector Gauge

The Drott bucket is equipped with a selector gauge and a depth indicator. The selector gauge is located on the upper end of the right hand dump linkage. It provides the operator with a visual means of checking the proper bucket angle desired to perform bulldozing, scraping, loading and clamshell work.

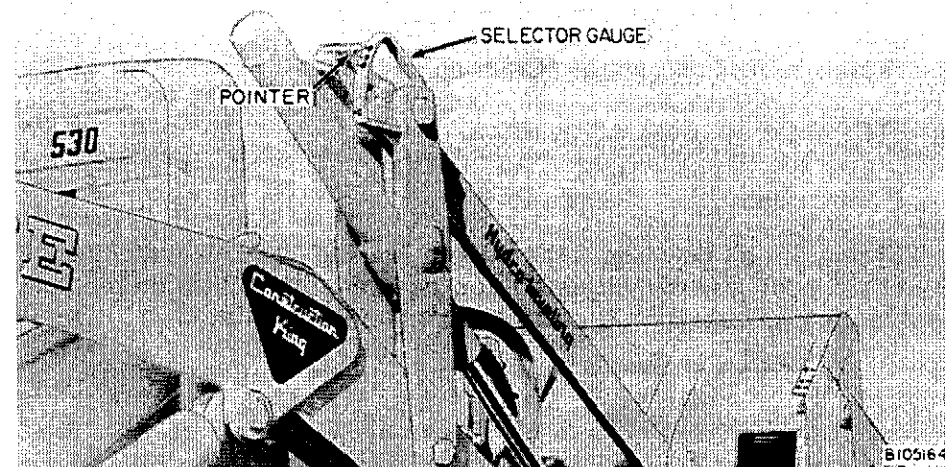


Figure 6 - Selector Gauge

Use the selector gauge as follows:

1. Place bucket level on ground.
2. Tilt bucket back or forward until indicator tip is on desired position (D - dozing, S - scraping, B - bucket loading, C - clamshell).

Depth Gauge

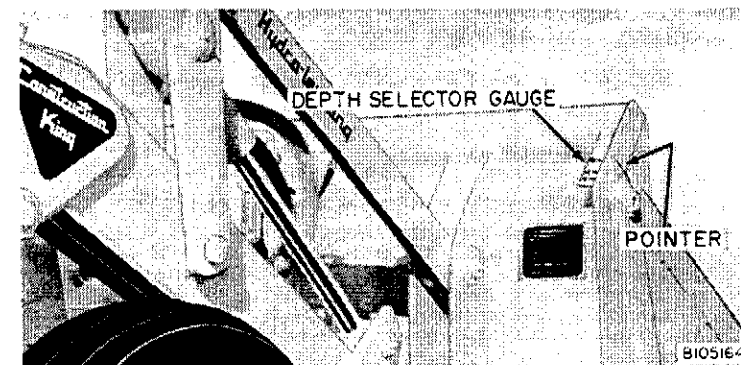


Figure 7 - Depth Gauge

The depth indicator gauge is located on the upper right hand edge of the bucket. It provides the operator with a visual means of checking the approximate desired cutting depth of the bucket and mold-board (clam open).

Use the depth selector as follows:

1. Place bucket on ground (Clam closed).
2. Tilt bucket to desired position.
3. Clam should be fully closed with depth selector at "0".

From this position, the depth of the bucket cutting edge (clam closed) can be adjusted for desired bite. With clam open, desired bite of moldboard cutting edge can be regulated.

Bulldozing With Drott Bucket

The Drott bucket offers "radius control bulldozing".

Bulldozing operations can be performed with the bucket in standard position or with the clam open, utilizing the moldboard cutting edge.

Simply actuate the control lever and the clam swings open revealing an efficient bulldozer with exclusive radius control. Extra fine grading comes as a result of the tilt control which sets the required cutting edge angle.

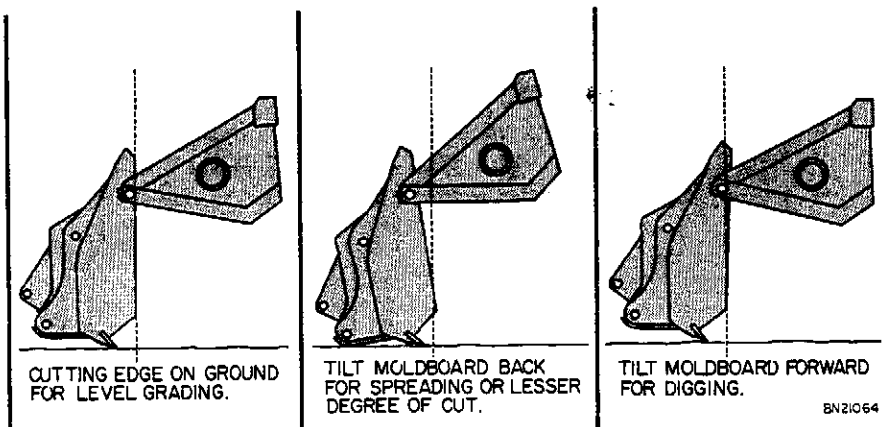


Figure 8

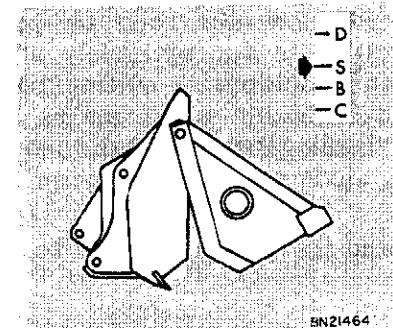
Figure 9

Figure 10

Scraping With Drott Bucket

Set the selection indicator on Scraper and you are ready to accurately strip sod, top-soil, or clay. The versatile Drott will give you a cut truly as clean as a carpenter's plane.

Figure 11 - Bucket in Scraping Position



Spreading On The Run

By placing the bucket in scraper position and opening the clam slightly, you can spread material on the run. The degree of clam opening will regulate the amount spread.

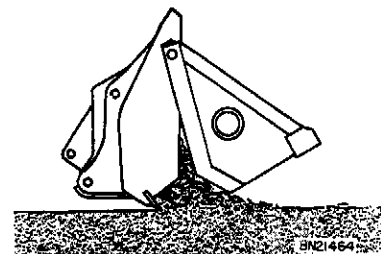


Figure 12
Scraper Position
Spreading On The Run

Loading With The Drott Bucket

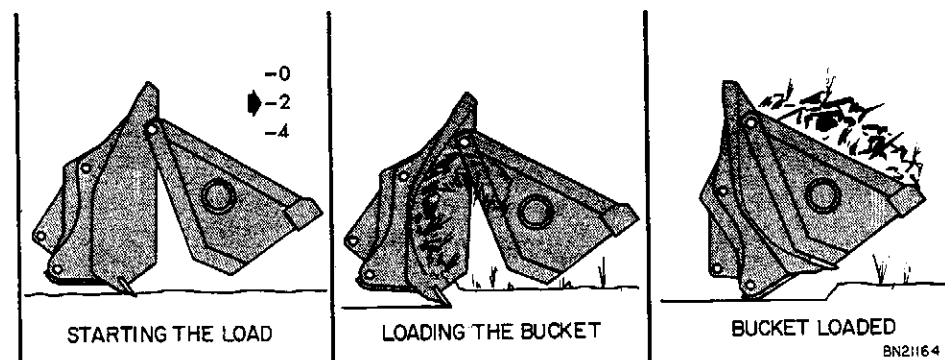


Figure 13
Starting the Load

Figure 14
Loading the Bucket

Figure 15
Bucket Loaded

When loading with the Drott bucket, the most stubborn materials can be broken-up and carried away in a full load every time.

The clam can be used as a depth gauge. When set at 2, the clam is approximately 2" off the ground. When moving forward, the moldboard cutting edge will enter the ground until the clam compaction plate makes contact. The bucket is designed to give "boiling action" when loading.

The cut is clean and smooth. When full, the clam is closed and the bucket is tilted back for easy carrying of the load.

Loading With The Drott Clamshell Bucket

The Drott "Clamshell" action is one of the most versatile aspects of the bucket.

With the clamshell at your fingertips, a multitude of operations can be performed. It is possible to pick up and carry beams of steel or wood, lift tree stumps, pick up stones, pull out fence posts, and get that last 1/2 yard of material which would normally require manual shoveling.

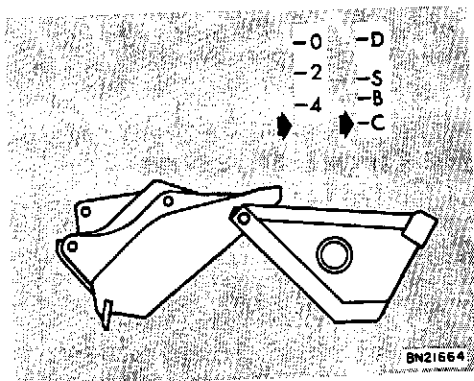


Figure 16
Clam in Full Open Position

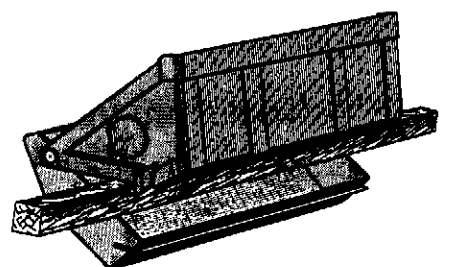


Figure 17
Clam Carrying Beam

Transporting The Load

When moving from the stockpile with a full bucket, carry the bucket just high enough to clear obstacles in the Crawler's path.

Dumping The Load

Two dumping methods are available with the Drott bucket. Forward dumping the standard way or bottom dumping by opening the clam. Bottom dumping provides some additional clearance and a clean bucket every time.

When approaching the truck or hopper raise the bucket high enough to clear the box or bin edge. Reduce forward speed slowly and dump load quickly (using standard dump method or "clamshell", bottom dump method).

When load is deposited, back off, lower bucket to carry position. Return to work site or stockpile.

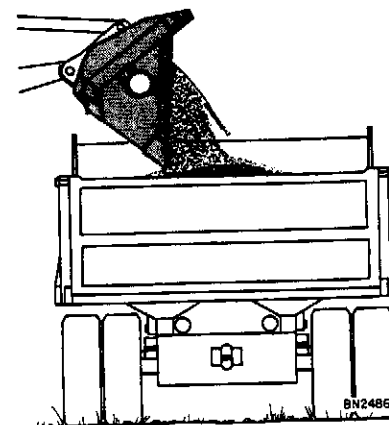


Figure 18
Method "A" Standard Dumping

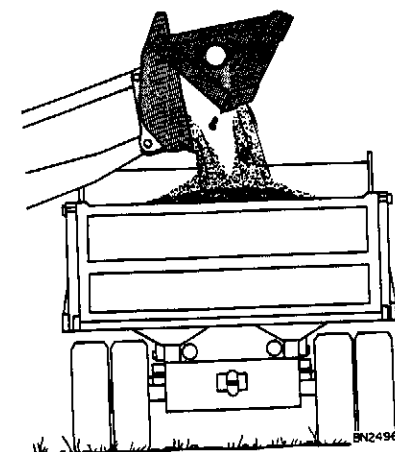
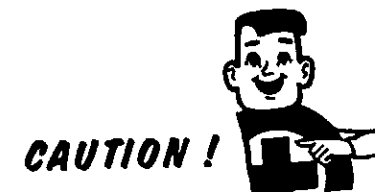


Figure 19
Method "B" Clam Open



CAUTION!
DO NOT DROP LOADED BUCKET AND "CATCH" HYDRAULICALLY. A LOADED BUCKET SHOULD NEVER BE TRANSPORTED IN A FULLY RAISED POSITION.

WHEN TRANSPORTING THE LOADED BUCKET OVER ROUGH UNEVEN GROUND, KEEP THE TRAVEL SPEED WITHIN THE LIMITS NECESSARY FOR SAFE OPERATION.

Loading Trucks

When loading trucks, the Loader operator is at the mercy of the truck spotter. Extra maneuvering will slow down the load cycle. There are certain basic methods of good truck spotting that will speed up the loading operation.

The most practical for the Loader is placing the truck at a 45° angle to the bank. With this method, the Loader turns are only half as sharp and in most cases the load can be delivered with a short reverse movement.

PREVENTIVE MAINTENANCE

See Loader manual for information on adjusting the float detent, main relief valve and maintenance of hydraulic cylinders.

The maintenance for the Drott bucket will require only a few minutes of regular daily attention. It will pay off in performance and length of service life.

Make it a daily habit to check the following.

1. Check all mounting and fastening bolts.
2. Check all keeper pins and pivot pins.
3. Check hydraulic cylinders, line connections and control valve for signs of oil leakage and wear.
4. Check oil level in reservoir.
5. Lubricate (See Lubrication Instructions for Drott Bucket).

NOTE!

The clam cylinder on the Drott Bucket should be cleaned each day to prevent the build up of dirt or foreign matter. This should be a part of the daily preventive maintenance checkup.

CASE[®]
Model
"32"
Backhoe