2010 Row-Crop Utility Diesel Tractor

JOHN DEERE

OPERATORS MANUAL

2010 Row-Crop Utility Diesel Tractor

OMT14692 H0 English

John Deere Waterloo Works
OMT14692 H0

LITHO IN U.S.A.
ENGLISH

operation

Operating the engine

Starting the engine

(1) Perform the following checks and services before starting the engine for the first time each day.

(a) Check the engine crankcase oil level--see page 52.

(b) Check the radiator coolant level--see page 68.

(c) Change the air cleaner oil when the dirt level exceeds 3/8 inch--see page 52.

(d) Check the fuel strainer sediment bowl --see pages 62 and 63.

(e) Grease drag link--see pages 52 and 53. Grease brake linkage--see page 53. Grease front rockshaft bearings when in use--see page 53.

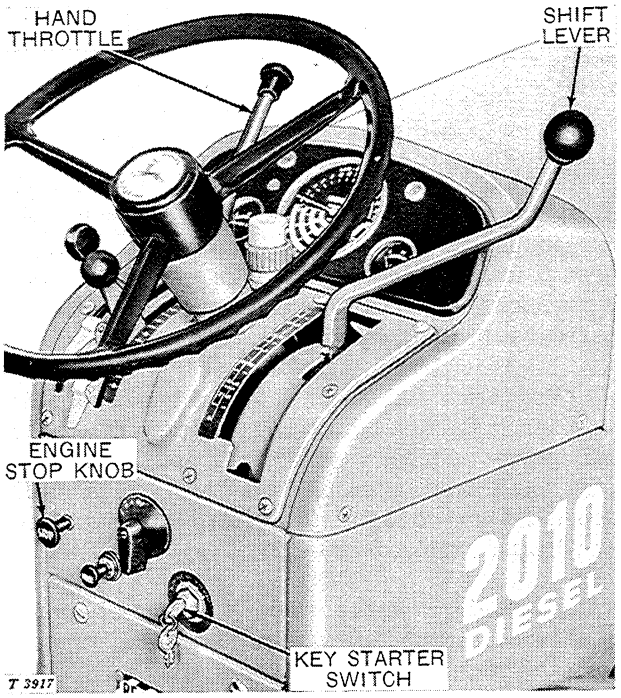
(2) Make sure the fuel shut-off valve on the fuel strainer is open--see page 63. Make sure the engine stop knob is pushed in.

(3) Place the shift lever in "PARK" (see page 15).

(4) Turn key starter switch one-eighth turn counter-clockwise to actuate glow plugs. Starter switch is spring loaded, and must be held in counter-clockwise position throughout desired preheating period.

Preheat the glow plugs a minimum amount of time as listed:

Temperature	Preheat Time
Above 40° F.	1 minute
40° F. to 10° F.	1-1/2 to 2 minutes
10° F. to -10° F.	2 to 3 minutes
-10° F. to -20° F.	3 to 4 minutes



5. To insure delivery of fuel to the injectors, move the hand throttle to the full open position (clockwise) and then move back to approximately one-half to three-quarters open.

6. Depress clutch pedal to decrease drag on engine.

7. Turn key starter switch one-quarter turn clockwise to crank engine.

8. If engine does not begin firing after 15 to 30 seconds of cranking, preheat glow plugs an additional one minute before cranking engine again.

CAUTION: If engine fails to start, do not re-use starting switch until starting motor stops rotating to avoid serious damage to the starting motor

Tires

Properly inflated tires are important to the operation of your tractor. The amount of air pressure to be carried in the front and rear tires depends upon the implement used with the tractor and the amount of ballast employed.

Under-inflated tires break easily and wear out rapidly. Over-inflated tires reduce traction and increase wheel slippage. Keep the tires inflated according to the recommendations in the following charts.

FRONT TIRES

Tire Size	Ply	Inflation Pressure: With towed or rear-mounted implement	With light front mounted implement	With heavy front-mounted implement
6:00 x 16	4	28 lbs.	32 lbs.	Do not use
6:00 x 16	6	28 lbs.	32 lbs.	48 lbs.
6:50 x 16	6	28 lbs.	32 lbs.	44 lbs.
7:50 x 15	6	28 lbs.	32 lbs.	36 lbs.

REAR TIRES

Tire Size	Ply	Inflation Pressure: With little ballast or no rear mounted implement	With moderate ballast or light rear mounted implement	With maximum ballast or heavy rear mounted implement
12.4 x 28	4	14 lbs.	14 lbs.	Do not use
13.6 x 28	4	14 lbs.	14 lbs.	14 lbs.
14.9 x 28	6	14 lbs.	16 lbs.	18 lbs.

Ballast

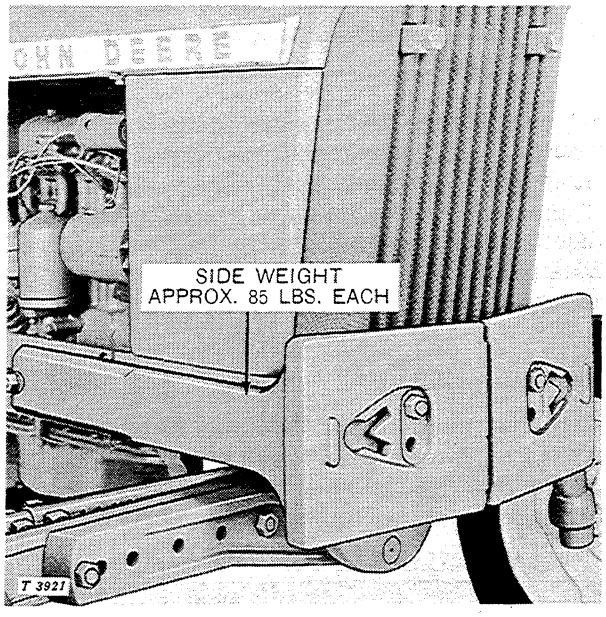
The performance of your tractor can be improved under certain conditions by adding or reducing the ballast at the front end or at the rear wheels.

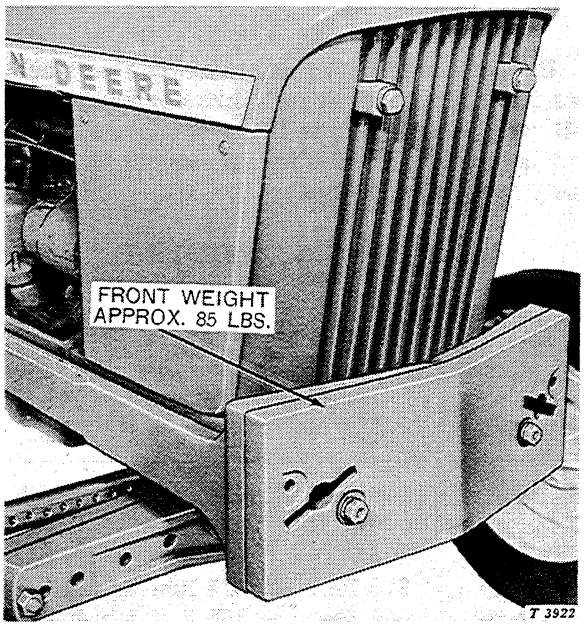
Front end and side weights

When operating with a heavy rear mounted implement, or when operating on hilly terrain, front end and side weights may be installed to maintain adequate stability.

The two side weights fit on the left-hand and right-hand sides and extend around to the front end. Up to 8 front end weights may be added. Each of the weights, available from your John Deere dealer, weighs approximately 85 pounds.

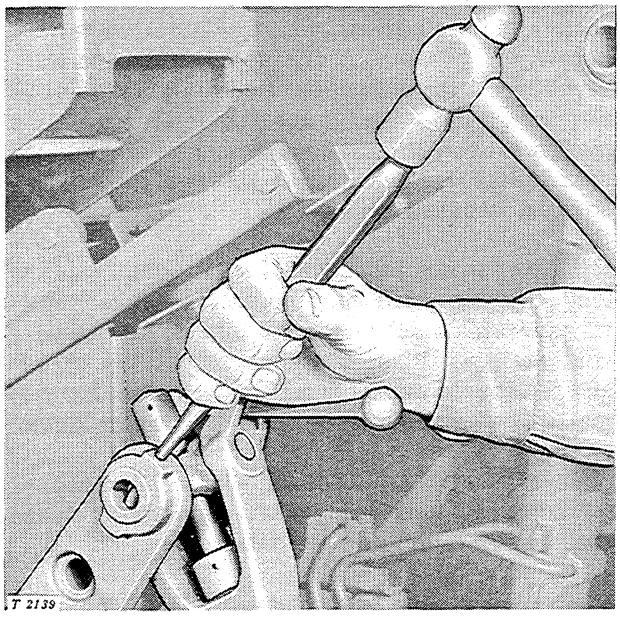
The side weights must be installed first. Attach them at the front and side with the round bolts and screws provided.





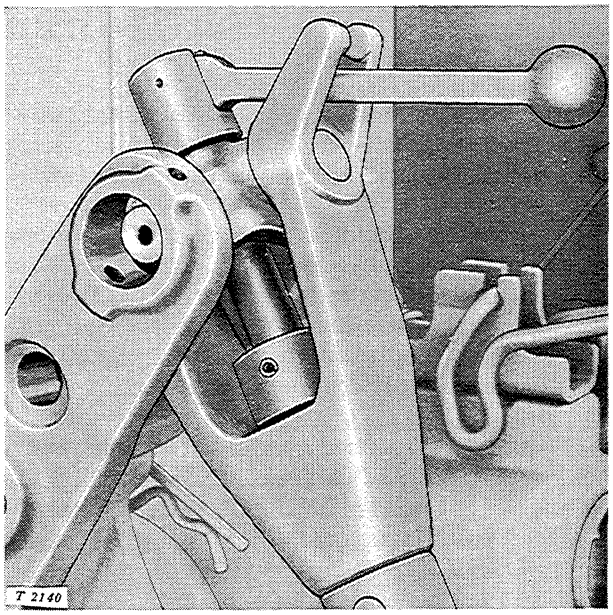
Removing the universal 3-point hitch

Detach the front end of each draft link from the tractor by removing cotter pin and slotted nut.



Removing roll pin

Detach the top end of each lift link from the rockshaft arms by driving out roll pin and removing bushing from outside of each attaching bracket. Then force each lift link body to the outside. This permits the draft links and lift links to be removed.



Bushing removed

Detach the center link from the tractor by removing the spring locking pin and pulling out center link attaching pin. Then pull the center link out of the transport bracket.

Vertical adjustment

The drawbar hitch point can be raised or lowered to obtain maximum traction for variable land conditions and variable heights of hitch points on drawn implements.

To raise or lower the drawbar hitch point on a tractor with offset drawbar, remove the drawbar, turn it over, and reinstall it.

If the drawbar is placed too high, the drawn implement may pull down on the rear of the tractor and raise the front end, causing loss of steering control. If the drawbar is placed too low, it will tend to raise the rear wheels, causing wheel slippage and loss of power at the drawbar.

Horizontal adjustment

The crossbar has a series of holes used for locking the drawbar in one of a number of fixed horizontal or lateral positions. Locking pins, dropped into the holes on either side of the drawbar, hold it in place.

Attaching implement to drawbar

To attach the implement to the drawbar, simply remove the implement hitch pin, line up the implement and drawbar hitches, insert the pin, and lock it in operating position.

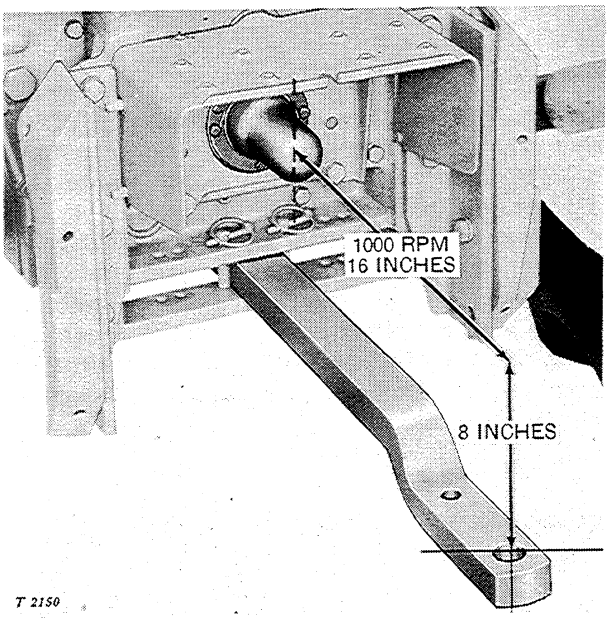
CAUTION: After attaching a heavy load to the drawbar, engage the clutch slowly. Do not start with a jerk.

Relation between drawbar and powershaft

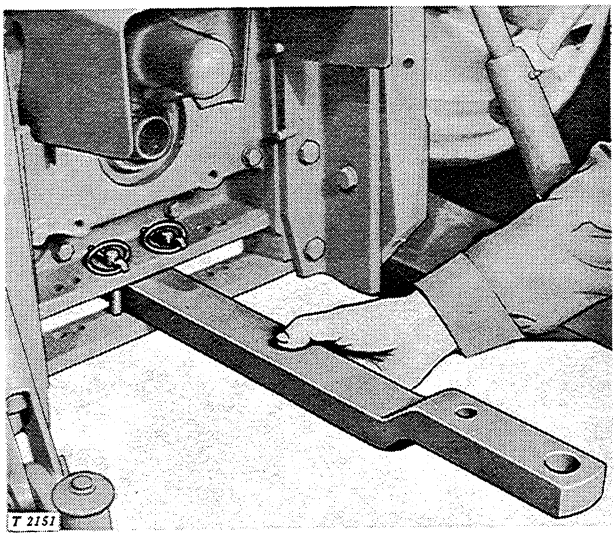
When powershaft is used, set swinging drawbar in line vertically with center of powershaft and lock it in position by inserting drawbar locking pins on either side of drawbar.

The drawbar conforms to ASAE-SAE standards.

For 1000 rpm PTO operation, the end of the drawbar should be swung down so that there is approximately 8 inches of clearance between the top of the drawbar and the center of the PTO stub shaft. The drawbar should be locked 16 inches directly to the rear of the PTO stub shaft.



Drawbar positioned for 1000 rpm PTO-driven implements



Positioning drawbar for 540 rpm operation

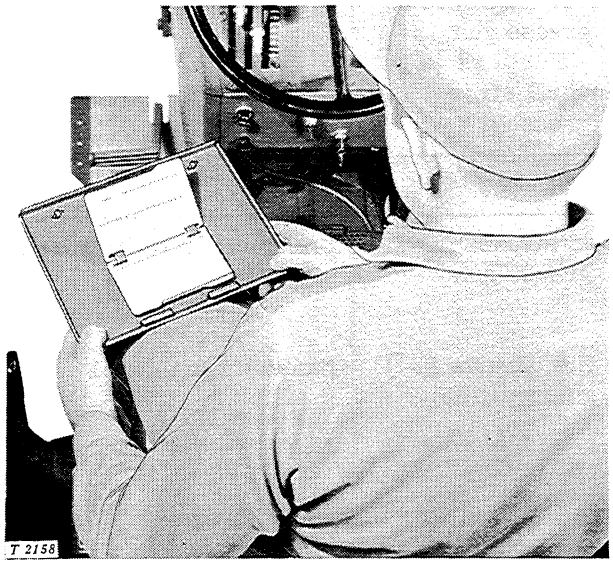
For 540 rpm PTO operation, the tractor drawbar should be set lengthwise so that the hole in the end of the drawbar is 14 inches directly behind the end of the powershaft. The top of the drawbar should be approximately 8 inches below the centerline of the PTO stub shaft.

lubrication and periodic service

Effective lubrication is the most important step toward low upkeep cost, long life, and satisfactory service. Without oil and grease you can ruin important working parts of your tractor in a very short time.

The engine has one of the finest lubricating systems it is possible to design. Do not handicap it by using an oil of doubtful quality. It pays to buy only nationally known brands of oil.

The intervals at which the various working parts should be checked, lubricated, serviced, or adjusted are based on hours of operation.



For your convenience, use the Mini-Manual located behind the cowl access panel as a handy reminder of the proper lubrication and service intervals. To open cowl access panel turn the two fasteners 1/4 turn, pull outward and lift up to remove.

Use the speed-hour meter on the instrument panel to determine when periodic services are required. The speed-hour meter, which operates whenever the engine is running, shows the accumulated hours of operation. Page 1 of the Mini-Manual provides space to record the speed-hour meter reading when services are performed.

Break-in period

During the period of engine break-in, follow the special lubrication procedures given on page 12. Be sure to change the breaking-in oil and crankcase filter element at the interval specified during this period.

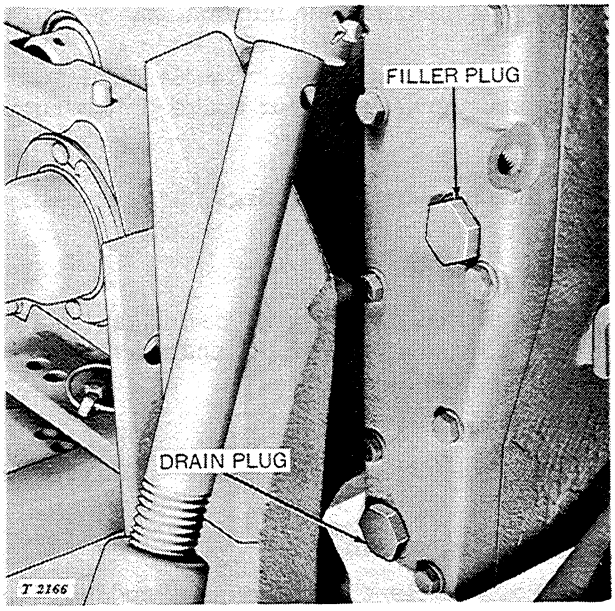
Lubrication and service intervals

The lubrication and service periods are daily or every 10 hours, every 200 hours, every 400 hours, every 600 hours, every 1200 hours, and every spring and fall season. These intervals are based on operation under normal conditions. When operating under unusual conditions, such as excessive heat, cold, or dust, the tractor should be checked and serviced at more frequent intervals.

The chart on the following pages is a condensed list of components to be serviced at each interval and the service to be performed. Detailed instructions for performing each service are given on the pages which follow the chart. Each item in the chart is numbered with the corresponding detailed procedure bearing the same number.

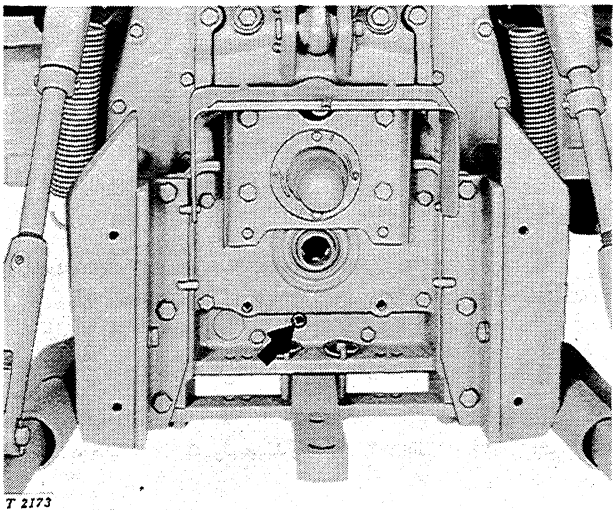
1200 hour service

24. Final drives



The two final drives on this tractor should be drained every 1200 hours. Drain the old oil and refill each final drive with 1 U.S. gallon of John Deere Special Oil or SAE 10W-30 crankcase oil.

25. PTO housing

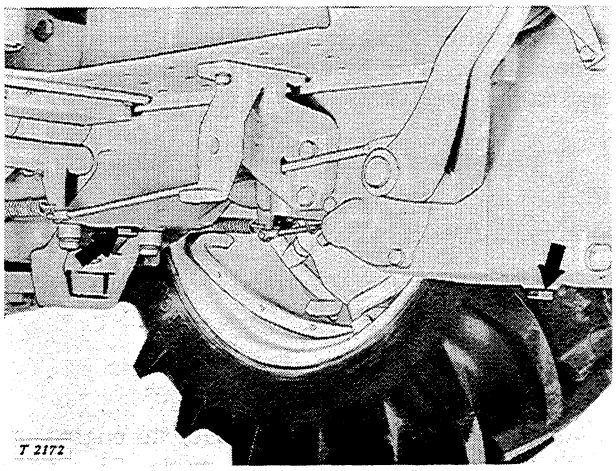


PTO housing drain plug

Every 1200 hours the PTO housing should be drained and flushed out with cleaning solvent. Fill to the oil level hole with John Deere Special Oil or SAE 10W-30 crankcase oil as shown on page 56.

26. Transmission and hydraulic system

The transmission and Hydraulic System oil should be drained every 1200 hours.



Transmission drain plugs

To drain the transmission case, warm up the tractor engine. Stop engine and remove the two drain plugs illustrated above. Replace the drain plugs.

Add either John Deere Special Oil JD303 or SAE 10W-30 crankcase oil, bringing the oil level to the level of the filler hole (page 55). Total capacity of the system is 8 U.S. gallons.

Operate tractor and all hydraulic functions. Then recheck level of oil.

27. Front wheel bearings

Remove the front wheels and clean the hub and spindle to remove dirt and old grease. Pack the front wheel bearings with SAE multipurpose-type grease (pages 71 and 72), and install the front wheels on the tractor. Adjust the front wheel bearings as outlined on pages 71 and 72.

28. Starter

Disconnect wires and cable from starter. Remove attaching hex. nuts and lift starter from tractor. Remove the slotted plugs from front and rear of starter and saturate wicks with SAE 10W or 5W-20 oil. Replace starter.

Preparing for cold weather

Prior to cold weather, be sure to drain, flush, and fill the cooling system. When filling the system, condition the system with a recognized brand of radiator sealer and add anti-freeze solution to eliminate the need for filling and draining the radiator daily.

Ethylene glycol (permanent type) anti-freeze must be used. Ethylene glycol anti-freeze will provide permanent protection since it has a much higher boiling point than other types and will not evaporate.

After adding the anti-freeze solution, run the engine for a few minutes until it reaches normal operating temperatures. This will allow the thermostat to open and make sure that the solution is circulated throughout the entire cooling system.

Recheck cooling system for leaks after anti-freeze solution has been added.

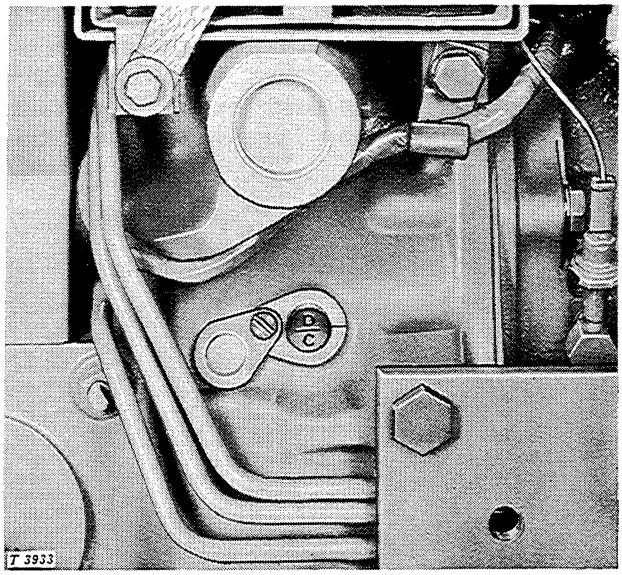
CAUTION: Never pour hot water into a cold engine or cold water into a hot engine. You may crack the head or the cylinder block. Do not operate the tractor without water for even a few minutes.

Tappet adjustment

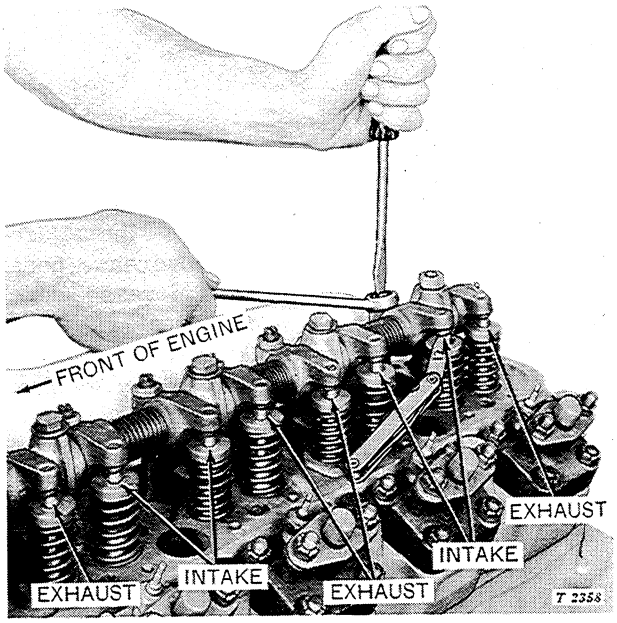
Tappet clearances should be checked at least every 600 hours. Adjustment can be made correctly only when engine is cold. To reach valves, remove ventilator outlet tube from rocker arm cover. Remove rocker arm cover.

To adjust valve tappet clearance properly, each piston must be on top dead center of its compression stroke at time adjustment is made. To determine correct position, turn engine until No. 1 (front piston) is at top dead center on compression stroke (both valves closed). The "DC" mark on flywheel will now be lined up with the marks on timing hole as shown.

Adjust valve clearance on both valves of No. 1 cylinder. Intake valves are set at .012-inch and exhaust valves are set at .018-inch when the engine is cold. (See illustration to identify valves.) Turn engine 1/2 revolution of the crankshaft (180°) and set No. 3 valves. Turn engine 1/2 revolution of the crankshaft and set No. 4 valves; turn engine 1/2 revolution of the crankshaft and set No. 2 valves.



"DC" mark on flywheel



Adjusting tappet clearance (No. 4 valves shown)

Install rocker arm cover and gasket. Tighten cover cap screws to 20 foot-pounds torque. Install ventilator outlet tube.

Starter inoperative

Possible cause	Possible remedy
Loose or corroded connections.	Clean and tighten loose connections. Page 66.
Low battery output.	Check specific gravity and electrolyte level of battery. Page 64.

Starter cranks slowly

Low battery output.	Check specific gravity and electrolyte level of battery. Page 64.
Too high viscosity crankcase oil.	Drain and fill crankcase with oil of proper viscosity and quality. Page 53.
Loose or corroded connections.	Clean and tighten loose connections. Page 66.

Hydraulic System, Universal 3-Point Hitch, and Load-and-Depth Control

Insufficient load response*

Implement not level.	Level implement by adjusting lift links. Page 27.
Implement not trailing correctly.	Adjust. See implement operator's manual.
Load control yoke endplay or linkage adjustment not correct.	Have serviceman check endplay and linkage adjustment.

Excessive load response*

Excessive "suck" in implement.	Adjust. See implement operator's manual.
Implement not trailing correctly.	Adjust. See implement operator's manual.

Insufficient transport clearance

Lift links or center link too long.	Shorten lift links or center link. Pages 26 and 27.
Implement not level.	Level implement by adjusting lift links. Page 27.
Implement improperly adjusted.	See implement operator's manual.

Hitch fails to lift

Excessive load on hitch.	Adjust auxiliary springs on implement.
Oil level in reservoir low.	Check oil level and add oil if necessary. Page 55.

**By proper positioning of the right control lever on the dash, the operator can control the load response to a certain extent. By raising the lever slightly, for example, he can overcome a certain amount of load response, since it will take a greater signal from the implement to activate the system in raising or lowering the implement.*