3000 Diesel Gasoline Wheel Tractors

JOHN DEERE

OPERATORS MANUAL

3000 Diesel Gasoline
Wheel Tractors

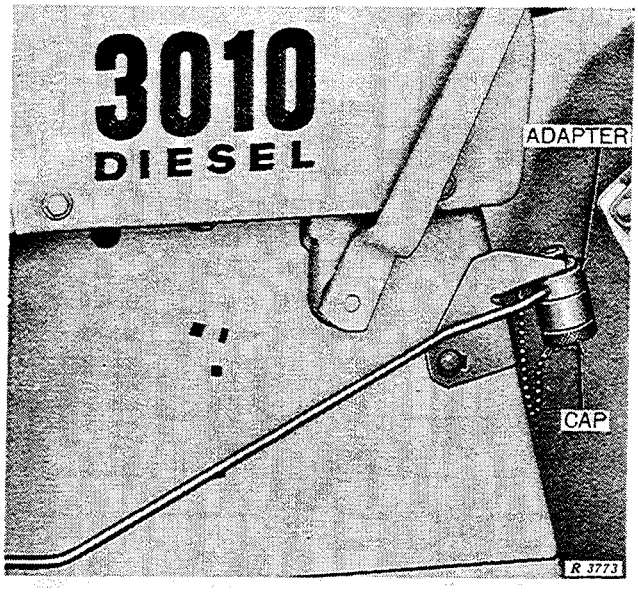
OMR30590 F1 English

John Deere Dubuque Works
OMR30590 F1

LITHO IN U.S.A. (REVISED)
ENGLISH

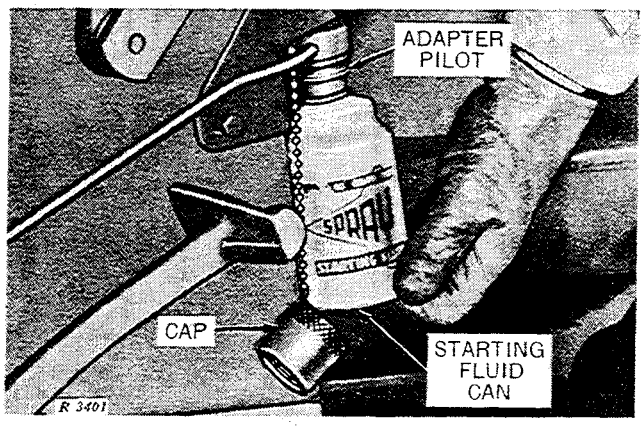
Ether starting fluid adapter (diesel tractors)

The diesel tractor is equipped with this adapter which is used to inject atomized starting fluid into the engine air intake system. Pressurized cans of starting fluid are available from your John Deere dealer.



Starting fluid adapter

To use the can of starting fluid, remove the safety cap and plastic spray button from the can. Remove the cap from the adapter and position the can under the adapter.



Injecting starting fluid

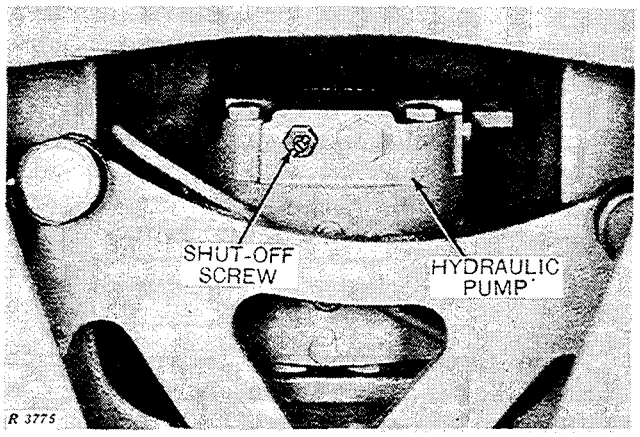
To inject starting fluid, push up on the can while operating the starter. Relax pressure on the can between "shots" of starting fluid. Stop injecting the fluid after the engine starts. If the engine begins to die during the first few minutes of operation, inject another "shot" of starting fluid. When the engine is operating satisfactorily, remove the can from the adapter and replace the safety cap on the can.

Be sure to install the cap on the adapter when it is not in use. This will prevent dust from being drawn into the engine.

Store starting fluid cans where they will not be subject to extreme cold or warm temperatures. For best results, store fluid at room temperature.

Shutting off hydraulic pump

During cold weather the starter speed may be increased by shutting off the hydraulic pump so it will not build up pressure. To do so, turn the shut-off screw in (clockwise) a few turns with a screwdriver. Then turn the screw in by hand until resistance is felt. With a screwdriver, turn the screw in one turn more.



Hydraulic pump shut-off screw

After the engine has started, use a screwdriver to back the shut-off screw all the way out (turn the screw counter-clockwise). The pump will now build up pressure.

NOTE: Oil will leak past the shut-off screw if it is not backed all the way out against the internal stop.

Additional batteries

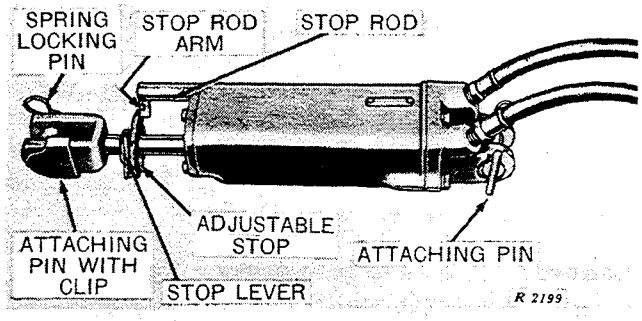
Starting the engine in cold weather can be made easier by connecting an additional 12-volt battery or batteries parallel with the 12-volt battery or batteries on the tractor.

Use jumper cables to connect the positive (+) terminals of the booster batteries to the positive (+) terminals of the tractor batteries and the negative (-) terminals of the booster batteries to the negative (-) terminals of the tractor batteries. See your John Deere dealer for tractor-mounted booster batteries.

Equipment hitch and control system

The equipment hitch and control system on your tractor provides a quick and easy means for attaching and lifting various pieces of equipment and for controlling its operation. The system may include one or two remote hydraulic cylinders, a hydraulically operated rockshaft, a Universal 3-Point Hitch (tractor must be equipped with a rockshaft), a drawbar, or a power take-off.

Remote hydraulic cylinders



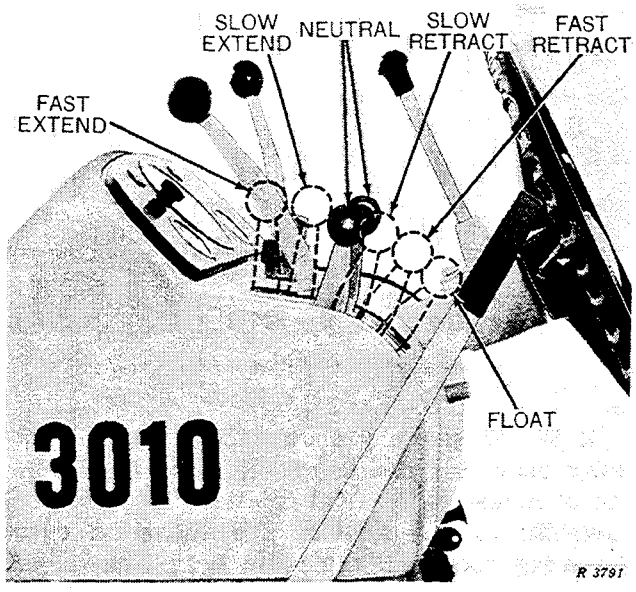
Remote hydraulic cylinder

Your tractor may be equipped to operate one or two single-acting or double-acting remote hydraulic cylinders. The cylinders are connected by hoses to breakaway couplers at the rear of the tractor and are operated by oil from the main hydraulic pump. Pressure oil from the pump is directed by the selective control valves, located under the hood, to the breakaway couplers.

If your tractor is equipped with one remote cylinder, the cylinder can be used to control various types of equipment. Two remote cylinders permit selective control or dual hookups on drawn machines. The two remote cylinders may be operated individually or simultaneously.

Using remote cylinder operating levers

Tractors equipped to operate one remote hydraulic cylinder have a remote cylinder operating lever located outside of the left-hand shift lever. Tractors equipped to operate two remote cylinders have two remote cylinder operating levers, side by side. The inner remote cylinder operating lever operates the remote cylinder attached to the right-hand breakaway coupling, and the outer lever operates the remote cylinder attached to the left-hand breakaway coupling. Each lever has six operating positions:



Remote cylinder operating levers

(1) *Neutral.* Move lever to center position in the quadrant.

(2) *Slow Extend.* Move lever slightly forward from neutral. The lever must be held until the desired adjustment is reached. In most applications, this will raise the equipment.

(3) *Fast Extend.* Move lever all the way to the front. The lever will remain in this position until the end of the piston stroke when it will automatically return to the neutral position.

(4) *Slow Retract.* Move lever slightly rearward from neutral. The lever must be held until the desired adjustment is reached. In most applications, this will lower the equipment.

(5) *Fast Retract.* Move lever rearward to the first lock position. The lever will remain in this position until the end of the piston stroke when it will automatically return to the neutral position.

(6) *Float.* In addition, after making a simple adjustment, each lever may be moved all the way rearward in the quadrant to a sixth position to permit "floating action" so that the equipment may vary its up and down action to follow the ground contour. The lever will lock in the float position until pushed forward to a new position.

Drawbar

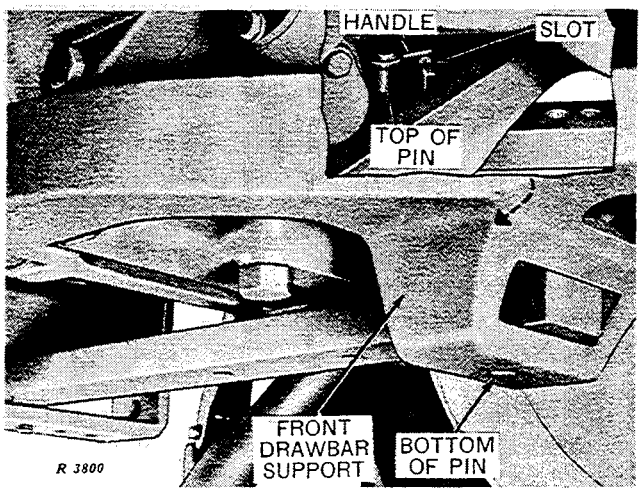
The drawbar is used to attach drawn equipment to the tractor. Use only the drawbar to pull towed loads. Attach integral equipment to the 3-point hitch or to the 3-point hitch with hitch bar or Quik Coupler.

NOTE: Before attaching a load to the drawbar, place the selector lever in the "D" (upper) position (page 22). Keep the lever in this position when using the drawbar.

The drawbar adjustments and the adjustments on most drawn equipment enable the operator to obtain a correct line of draft. Correct line of draft is essential to obtaining a minimum amount of rear wheel slippage and full amount of drawbar pull without raising the front wheels.

To change horizontal drawbar adjustment, move the locking pins and "Quik-Tatch" pins to another hole in the crossbar. The vertical hitch point adjustment is made by turning the drawbar over. Lengthwise adjustments are made by placing the drawbar pivot pin in another hole.

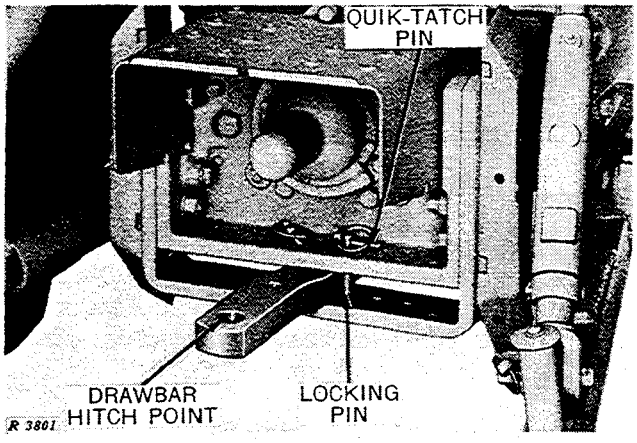
To make the vertical or lengthwise adjustment, line up the drawbar pivot pin handle at the front end of the drawbar with the slot on the drawbar front support. Lift up the pin and move the drawbar to the desired position. Drop the pin in place, making sure the handle drops into the slot in the front support. Turn the handle to lock the pin and drawbar in position.



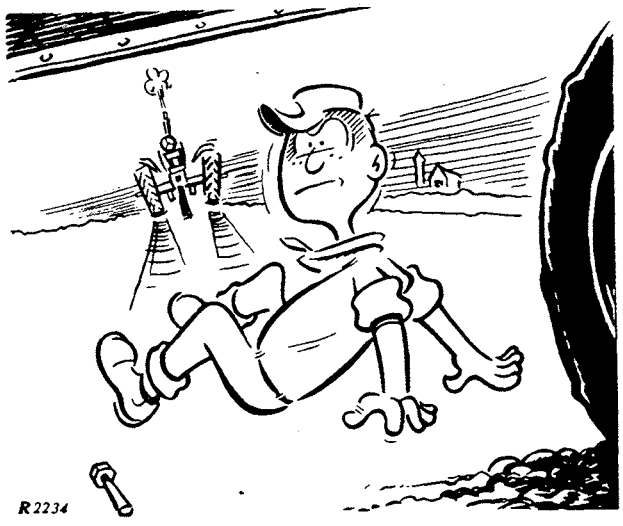
Drawbar pivot pin

For work where it is necessary to turn corners under load, the drawbar should be free to swing.

NOTE: The offset in the drawbar should always be downward for PTO work.



Offset drawbar installed in short, high position



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

Diesel and gasoline engine or air cleaner oil viscosity

Depending upon the prevailing air temperature, use the following weight of oil in the engine crankcase and air cleaner:

Air temperature	Single-viscosity oil	Multi-viscosity oil
Above 90° F.	SAE 30	SAE 20W-40
32° F. to 90° F.	SAE 20W	SAE 10W-30
-10° F. to 32° F.	SAE 10W	SAE 10W-30
Below -10° F.	SAE 5W*	SAE 5W-20

**Use of SAE 5W oil may cause some increase in oil consumption. Check oil level more often when using this oil.*

Be sure to select the oil you will use both by viscosity and by type of expected engine service; for example—SAE 20W, Service DS, for diesel engines; or SAE 20W, Service MS, for gasoline engines.

Transmission-hydraulic oil specifications

Use only John Deere Type 303 Special-Purpose Oil in the transmission-hydraulic system of your tractor. Other types of oil will not give satisfactory service and may result in eventual damage to the transmission or hydraulic system. See your equipment operator's manual for the type of hydraulic oil used in equipment that has its own hydraulic system.

The Special Oil, available from your John Deere dealer, may be used in all types of weather conditions.

Belt pulley oil specifications

Use the same John Deere Type 303 Special-Purpose Oil as used in the transmission and hydraulic system in the belt pulley of your tractor, if it is so equipped.

Greases

SAE multipurpose-type grease is recommended for all grease fittings, and wheel bearing grease for the front wheel bearings on your tractor.

Greases differ from oils in that they consist of oils and thickening agents, usually a special type of soap. Wheel bearing grease, made from soda soap for resistance to the effects of heat, is too stiff for dispensing through grease guns. SAE multipurpose-type grease, made from lithium soap for extreme resistance to both heat and water washing, has a broad range of uses. Grease fittings are conveniently located at points on the tractor and its optional equipment.

Single applications of these greases provide lubrication for a relatively long period and serve the important function of helping to keep contamination out of bearings.

Storing lubricants

Use clean containers to store and handle all lubricants. Your tractor can operate at top efficiency only if clean lubricants are used.

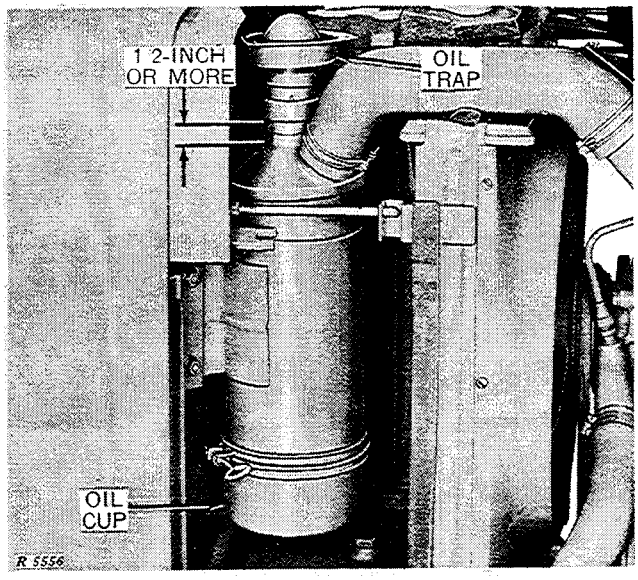
This tractor is equipped with safeguards, such as the air cleaner, oil seals, and oil filters, which are designed to keep dust, dirt, and other abrasives from reaching operating parts. Clean lubricants will help these safeguards do their jobs properly.

Adding lubricants

Add lubricants periodically at the recommended lubrication and service intervals (pages 41-42). Be sure to follow the recommended intervals carefully.

> An ounce of care can prevent a pound of cure—service your tractor at the recommended intervals, using the correct lubricant.

26. Servicing air cleaner



Air cleaner (gasoline tractor)

With the hood removed (page 52), remove the air cleaner oil cup. On gasoline tractors, also remove the oil trap. Swab out the air cleaner inlet tube. Clean the exterior of the radiator cores and the grille screens. See page 60. Service the oil cup and, on diesel tractors, the air cleaner tray (page 46). Replace the oil cup and the tray (diesel) or the oil trap (gasoline). There must be at least 1/2-inch between the bottom of the oil trap tube and the top of the air cleaner body.

27. Checking valve clearance

Check valve clearance and adjust the valves if necessary. See page 66.

28. Cleaning fuel injectors (diesel)

Remove the fuel injectors, as explained on page 54, and have them cleaned by your John Deere dealer. This service is extremely important to efficient tractor operation.

29. Checking injection pump timing (diesel)

Timing of the injection pump is also vital to efficient tractor operation. See your John Deere dealer for this service.

30. Checking distributor (gasoline)

Checking distributor point gap

Check the point clearance. See page 57.

Timing distributor

With a timing light, check the distributor timing and adjust it if necessary. See page 58.

31. Cleaning and setting spark plugs (gasoline)

Clean, file, and set the spark plug gaps. See page 58.

32. Checking engine idle speeds

Using the speed-hour meter, check the engine idle speeds (with the engine warm) as follows:

DIESEL TRACTORS

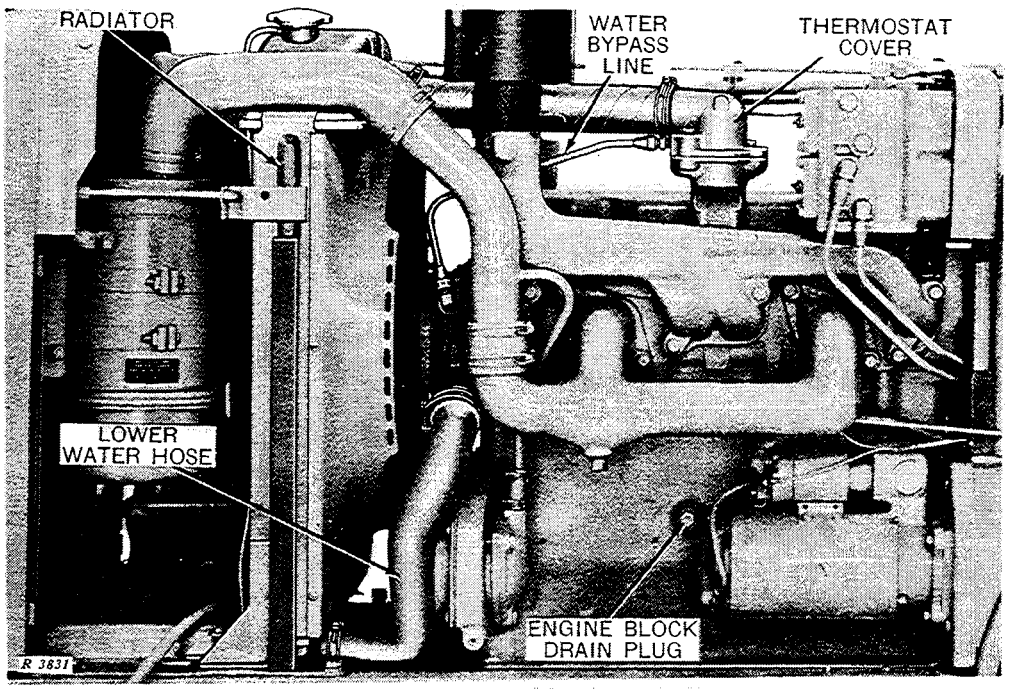
Throttle position	Throttle	Load speed	No load idle speed
Left	Hand	. . . . .	600 rpm
Right, knob in	Hand	1900 rpm	2150 rpm
Right, knob out	Hand	2200 rpm	2400 rpm
Pedal down	Foot	2500 rpm	2650 rpm

GASOLINE TRACTORS

Throttle position	Throttle	Load speed	No load idle speed
Left, knob out	Hand	. . . . .	450 rpm
Left, knob in	Hand	. . . . .	650 rpm
Right, knob in	Hand	1900 rpm	2170 rpm
Right, knob out	Hand	2200 rpm	2440 rpm
Pedal down	Foot	2500 rpm	2690 rpm

If the idle speeds need to be adjusted or if there is doubt as to the accuracy of the speed-hour meter, consult your John Deere dealer.

Cooling system



Cooling system components

Description

The cooling system of your tractor consists of the radiator, radiator filler cap, thermostat, water bypass line, upper and lower water hoses, and coolant passages within the cylinder head and block.

Because the cooling system is pressurized, all of its components must be tightened and in good condition before the system can operate properly. Unless pressure is maintained, overheating and loss of coolant will result.

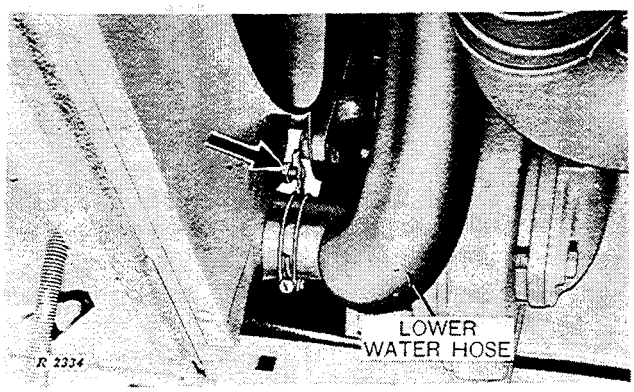
The pressure valve in the radiator filler cap is set to release when the pressure in the cooling system is from 6-1/4 to 7-1/2 pounds. Capacity of the cooling system is 16 U.S. quarts.

CAUTION: Remove the radiator filler cap only when the coolant temperature is below the boiling point (in the "N" range on the water temperature gauge). Then loosen the cap slightly to the stop to relieve pressure before removing the cap completely.

Cleaning cooling system

For efficient operation, the cooling system should be drained, flushed, and filled before and after the winter season.

To perform this service, drain the system by removing the drain plug from the engine block and by opening the radiator bottom tank drain cock. Remove the hood (page 52) and disconnect the water bypass line and upper water hose



Radiator drain cock

tractor storage

If your tractor is to be put in storage for several months, the suggestions for storing it and removing it from storage on this page will help to prevent excessive deterioration.

Storing the tractor

With the engine warm, drain the engine crankcase, replace the crankcase filter element, and fill the crankcase with new oil of the proper weight and quality (page 38). Service the air cleaner, oil cup, and tray or oil trap. See page 49.

Drain and thoroughly flush the cooling system (page 59). Fill the cooling system with clean, soft water. Add a rust inhibitor. If freezing weather is anticipated, add sufficient anti-freeze to protect the cooling system from freezing.

Operate the engine at 1500 rpm with no load until it reaches operating temperature to circulate the coolant with the thermostat open.

On diesel tractors, fill the fuel tank (page 37).

On gasoline tractors, drain all fuel from the carburetor, fuel pump, and fuel tank. Then with the engine cold, squirt some engine oil (1/8 pint) in each cylinder through the spark plug holes. Turn engine over 3 or 4 times with the starter. Replace the spark plugs and wipe off the oil.

Remove the valve rocker arm cover (page 66) and spray a thin film of polar type rust preventive (which is completely soluble in engine oil) on the valve operating mechanism, top of the cylinder head, and the underside of the rocker arm cover. Replace the cover.

Raise the tractor high enough so the tires do not touch the ground. Protect the tires from heat and sunlight to prevent undue deterioration.

Remove and clean the battery or batteries. Follow the instructions on page 62 for storing the battery or batteries.

Seal all openings in the engine and electrical equipment with plastic or other type covers, using a waterproof tape. Do not overload the exhaust outlet.

Clean the exterior of the tractor, removing all mud, dirt, grease, and other foreign material. Spray the painted surfaces with a liquid automotive type body wax or a rust preventive similar to a synthetic resin varnish.

If possible, store the tractor in a dry protected place. If it is necessary to store the tractor outside, cover it with waterproof canvas or other suitable protective material.

A good time to repair and paint your tractor is during the period between tractor working seasons. This can be done by your John Deere dealer at a nominal cost and will prove a profitable investment. A good coat of paint prevents rust, corrosion, and deterioration.

Removing the tractor from storage

Use the following procedure to remove your tractor from storage and place it in service.

Remove all protective coverings from the tractor. Check the tires to be sure they are properly inflated (page 15) and then remove the blocking from the tractor.

Unseal all openings in the engine, exhaust outlet, and electrical equipment.

Remove the batteries from storage, install them on the tractor, and connect the cables and ground straps (page 62). Polarize the generator (page 63). Check the generator belt tension and adjust it if necessary (page 63).

Remove the hood and valve rocker arm cover (page 66) and pour a small quantity of crankcase oil of the proper weight and quality (page 38) over the valve operating mechanism. Replace the cover and hood.

On gasoline tractors, fill the fuel tank with fresh gasoline.

Check the transmission and hydraulic system oil level and add oil if necessary (page 46).

To help maintain the power and efficiency of your tractor, perform the recommended 600-hour service (page 50).

Operate the engine for a few minutes at slow idle to make certain the tractor is in proper operating order before placing the engine under full load.