

5000 SERIES TRACTOR



SERVICE MANUAL 5000 SERIES TRACTOR

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SERVICE MANUAL

JOHN DEERE

5000 SERIES

TRACTORS

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TO THE JOHN DEERE SERVICEMAN

This service manual contains maintenance instructions for the John Deere 5000 Series Tractors. Included are complete instructions for removal, disassembly, inspection, repair, assembly and installation of the major parts and assemblies of the tractor.

In addition, this manual contains brief descriptions of the more complicated systems of the tractor, and tells how they operate. Tests and adjustments, required to keep the tractor operating efficiently, are explained in detail.

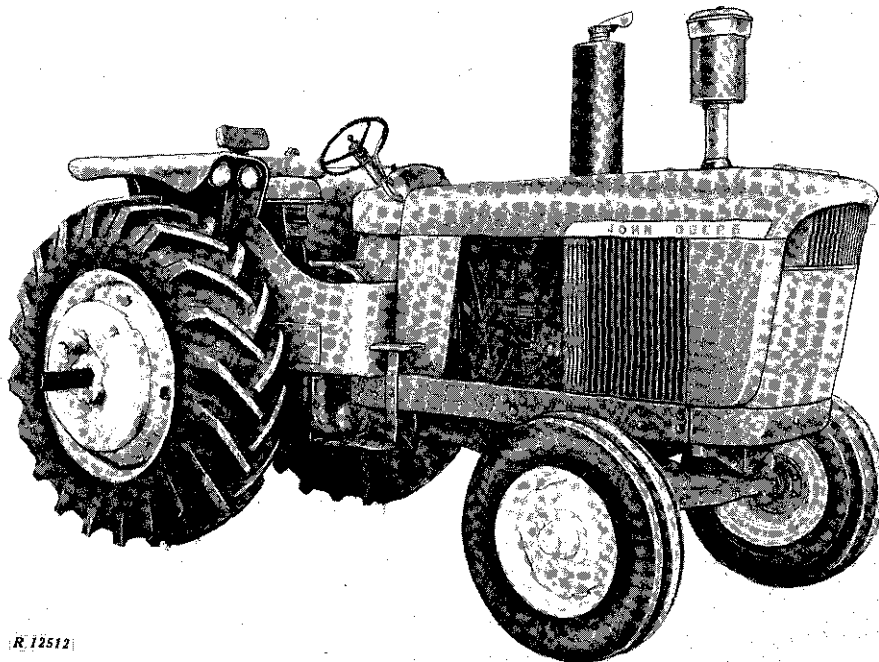
In Section 20, "Specifications," dimensions of many new wearing parts are given as an aid in determining when parts replacement is necessary.

A section on "Tune-Up and Adjustment" contains instructions for performing the services necessary to help the tractor perform efficiently

and economically after it has been in the field for some time.

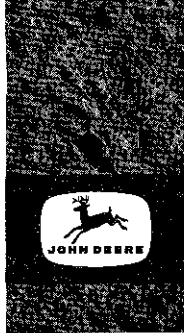
This manual was planned and written for the Service Department; its place is in the shop. Use the manual whenever in doubt about correct maintenance procedures. Use it as a text book for training new Service Department personnel who are unfamiliar with John Deere Tractors.

Daily use of this Service Manual as a guide in overcoming service problems will reduce error and costly delay to a minimum and assure you the best in finished service work. In many instances your customer's confidence in your work will be improved when he sees you using the Service Manual. He knows you are following approved maintenance procedures and making proper adjustments. There is no guesswork when you use the manual.



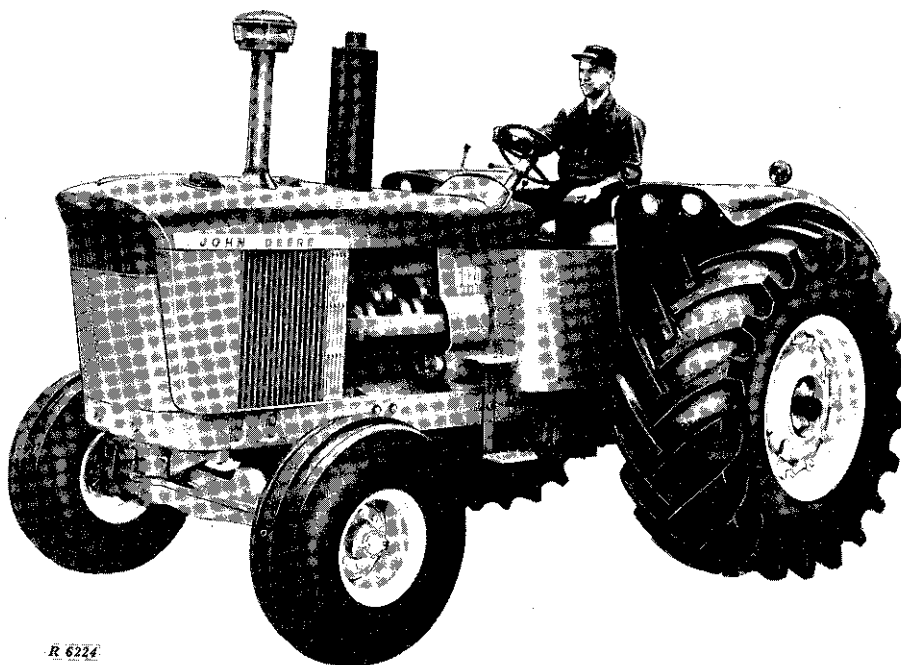
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Right-Hand View of John Deere 5020 Row-Crop Tractor



DESCRIPTION, OPERATION, AND SPECIFICATIONS

Group 5 DESCRIPTION



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Fig. 10-5-1—Left-Hand View of John Deere 5020 Standard Tractor

INTRODUCTION

The John Deere 5000 Series tractors are large heavy-duty tractors designed for high capacity operation. The 5020 tractor is available as a row-crop or a standard tractor. The 5010 tractor was available as a standard tractor only.

The features of the tractor are briefly described in the paragraphs which follow. Full description of the components are given in the various sections throughout this manual.

SERIAL NUMBERS

Each engine is identified by a serial number located on the right-hand side of the cylinder block in front of the fuel filters. The engine serial numbers given in this manual are the numerical serial numbers indicated in the examples in the next column.

Engine Serial No.
Prior to 12000

33E 1000

Numerical Serial No.

Engine Serial No.
12000 and After

M33R0 012000 R

Numerical Serial No.

The tractor serial number is located at the rear center of the transmission case. The tractor serial numbers given in this manual are the numerical serial numbers indicated in the following examples.

Tractor Serial No.
Prior to 8000

32T 1000

Numerical Serial No.

Tractor Serial No.
8000 and After

T323R 008000 R

Numerical Serial No.

For brevity, when serial numbers are referred to in this manual, all zeros preceding the first significant digit are omitted.

NOTE: When ordering engine or tractor parts, record all the digits in the serial number.

MODEL NUMBERS

Fuel injection pumps, main hydraulic pumps, and remote cylinder selective control valve housings, starters and generators or alternators each carry a model number.

ENGINE

The tractor is powered by a variable-speed, full-diesel engine. At 2200 rpm a 5010 engine develops up to 121 horsepower at the PTO shaft. At 2200 rpm a 5020 engine develops up to 132 horsepower at the PTO shaft.

The engine is a six-cylinder, in-line, four-stroke-cycle engine. The cylinder liners are the wet-sleeve type, and the crankshaft bearings are the precision-insert type.

The lubrication system has a full-flow filter with a replaceable element. The engine oil cooler is designed to cool the oil to a safe operating temperature.

A liquid seal, impeller-type, crankcase ventilating pump draws clean air from the air cleaner and circulates it through the engine for crankcase ventilating.

COOLING SYSTEM

The pressure-type cooling system has a centrifugal pump to provide continuous circulation of the engine coolant. Proper engine temperature is maintained by two thermostats in the upper water manifold.

When the thermostats are closed, the system is designed to permit circulation of the coolant through the engine without passing through the radiator. This feature results in the engine reaching operating temperature in a shorter length of time. When the engine reaches operating temperature, the thermostats open to control the flow of coolant through the radiator to maintain a constant operating temperature.

FUEL SYSTEM

The fuel tank is located at the front of the tractor, just ahead of the radiator.

A fuel pump, driven by the camshaft, assures a constant supply of fuel to the injection pump.

The large capacity fuel filter is connected between the fuel pump and injection pump. It contains two replaceable filtering elements.

Fuel is injected by a distributor-type, solid injection pump through high pressure nozzles into the cylinders. A common pipe, connected to each nozzle, returns leak-off fuel from the nozzles to the fuel tank.

ELECTRICAL SYSTEM

The electrical system is of the 24-volt split-load-type. A 24-volt alternator with regulator or generator with a three-unit regulator supplies current to maintain the charge in four 6-volt batteries, connected in series.

An enclosed solenoid-shift, 24-volt starter is used to crank the engine.

The current in both the charging and starting circuits is carried entirely by wires, using no part of the tractor as a conductor.

The lighting and accessory circuits are of the grounded type, using current at 12 volts.

CLUTCH

The transmission clutch is of the spring-loaded, dry disk-type, and is contained in a recess in the rear of the flywheel. It is operated by a pedal at the left side of the clutch housing.

TRANSMISSION

The tractor is equipped with a Syncro-Range, constant mesh transmission. The transmission has four shift "stations" with synchronized shifting within stations and collar shifting between stations. Helical cut gears are used in the transmission.

The transmission on tractors prior to Serial No. 4500 provides eight forward speeds and three reverse speeds. The transmission on tractors with Serial No. 4500 and after provide eight forward speeds and two reverse speeds. The transmission is shifted by a lever located at the right of the instrument panel.

An oil cooler maintains the transmission oil temperature at a satisfactory level.

DIFFERENTIAL AND FINAL DRIVE

A conventional differential with spiral bevel ring gear and pinion is used in the tractor. A planetary gear assembly for final drive provides the final gear reduction in the drive gear train.

A differential lock, incorporated in the differential assembly, is available as optional equipment.

POWER TAKE-OFF (PTO)

The tractor can be purchased with or without a power take-off.

The PTO clutch is hydraulically actuated and is engaged or disengaged by a lever located to the left of the instrument panel.

The PTO operates at 1000 rpm (at 1900 engine rpm) and can be disconnected when it is not being used and for easier cold weather starting.

DRAWBAR

The tractor is furnished with either regular or wide swing drawbar. The regular drawbar is used when tractors are equipped with rockshaft and 3-Point Hitch. The wide swing drawbar is used on tractors not so equipped.

FRONT AXLE

The heavy-duty fixed-tread front axle on 5010 Tractors has a tread of 67 inches. On 5020 Tractors the tread is 68-1/2 or 70-1/2 inches. Tractors with an adjustable-tread front axle have a tread range of 68 to 80 inches for standard tractors and 64-1/2 to 81-1/2 or 71 to 88 for row-crop tractors.

REAR WHEEL TREAD

Rear wheel tread may be adjusted as follows: Standard tractor with 24.5-32 tires - 70 to 82 inches; with 18.4-34 dual rear tires - 68 inches and 112 inches; 18.4-38 dual rear tires - 65 inches minimum, 120 inches maximum, and 5 inches minimum clearance between tires. Row-crop tractors have a minimum rear wheel tread of 60 inches and a maximum tread of 120 inches.

HYDRAULIC SYSTEM

The John Deere hydraulic system is a closed

center, constant pressure system, which supplies oil under pressure to operate the various hydraulic functions on the tractor. These include power steering, power brakes, and selective control for operation of remote cylinders, and the rear rockshaft with 3-Point Hitch and Quik-Coupler, that provide an easy means of attaching and controlling various implements.

Pressure and flow of hydraulic oil are maintained by a variable displacement, constant pressure pump, driven at engine speed by the engine crankshaft. The reservoir for the system is the transmission case. Oil is carried to each hydraulic function through external steel pipes. All oil in the system is filtered through a replaceable, full-flow filter.

BRAKES

The power brakes are hydraulically actuated by oil from the main hydraulic pump. They are applied by pedals at the right front of the operator's platform. The brakes can be applied independently or simultaneously. If desired, the two brake pedals can be temporarily locked together for simultaneous operation.

The brake system is equipped with an accumulator which stores energy for operation of the brakes if (1) the hydraulic pump should fail or (2) for several applications after the engine is stopped.

STEERING

Hydraulic power steering is regular equipment on the tractor. Movement of the steering wheel actuates a valve to direct a flow of oil (under pressure) to the steering cylinders, which turn the front wheels to steer the tractor.

SEATS

The 5010 Tractor may be furnished with a regular seat, which is cushioned with no-sag springs and foam rubber padding.

A deluxe seat is optional equipment on 5010 Tractors and standard equipment on 5020 Tractors. This seat uses a steel compression spring and hydraulic shock absorber to provide "Float-Ride" suspension. The deluxe seat is also equipped with a flexibly mounted, padded back rest and semi-circular foam padding which surrounds the operator.

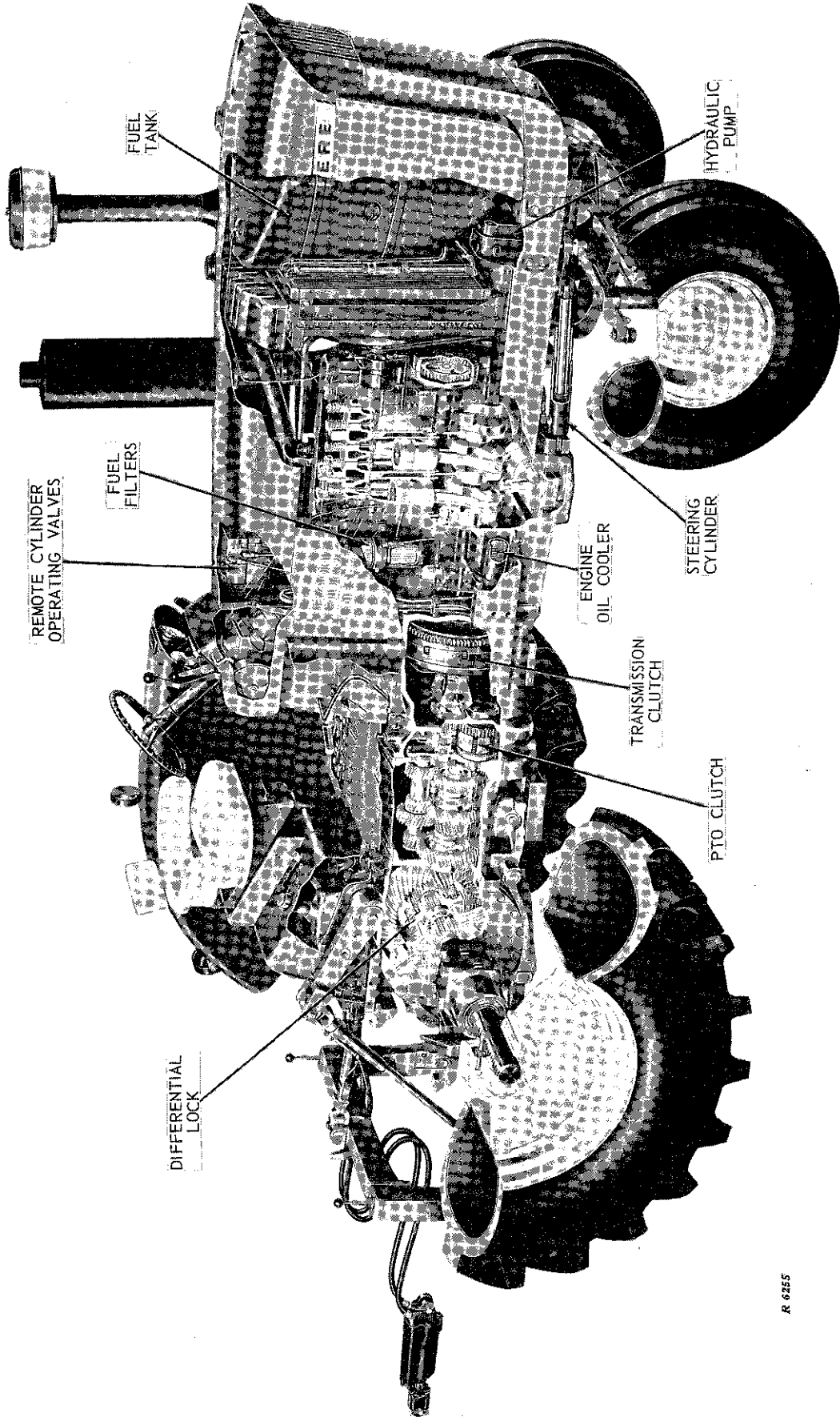


Fig. 10-5-2—Cutaway View of John Deere 5020 Standard Tractor

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Group 10 OPERATION

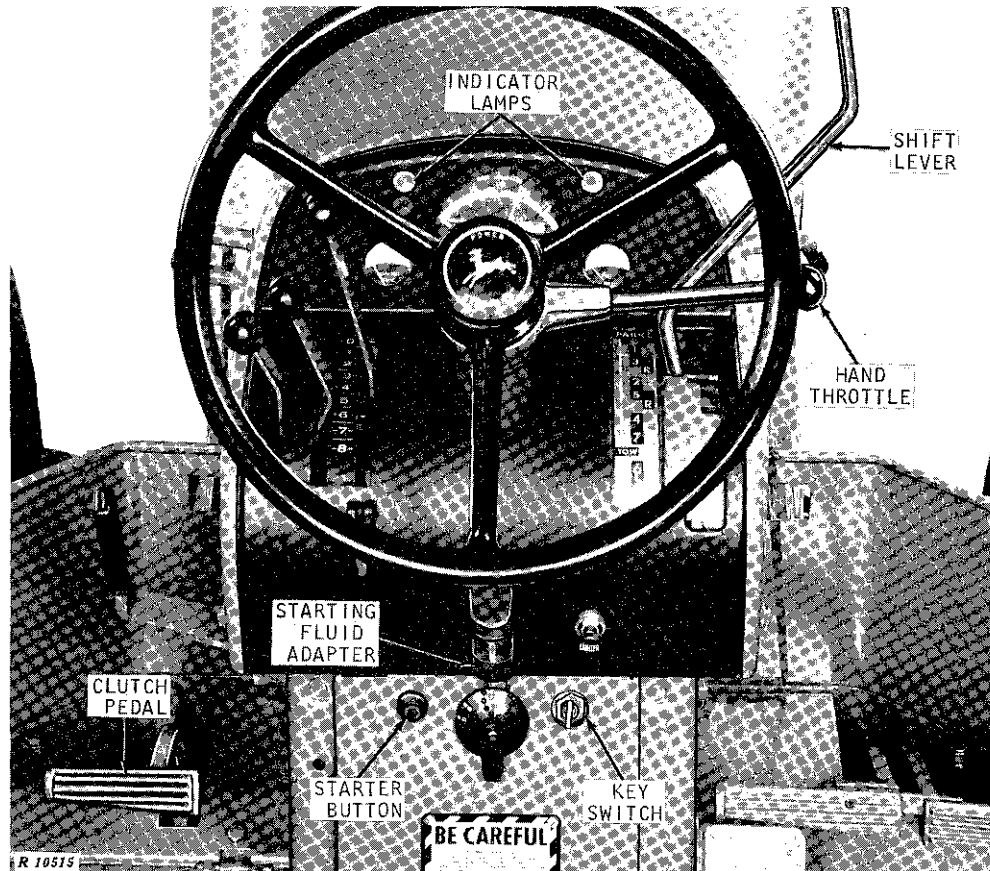


Fig. 10-10-1—Starting Controls

PRE-STARTING INSPECTION

- (1) Check engine crankcase oil level.
 - (2) Check radiator coolant level.
 - (3) Check amount of fuel in fuel tank. Turn key switch clockwise to first position and note reading on fuel gauge.
 - (4) Make sure fuel shut-off valve at bottom of fuel tank is open.
 - (5) Visually inspect the tractor and tires for any irregularities which might affect operation.
- (1) Place the gear shift lever in park or any neutral position.
 - (2) Place the hand throttle in the 1200 rpm position, approximately one-third of the way downward.
 - (3) Turn the key switch clockwise to the first position. The generator and oil pressure indicator lamps should light. If either lamp fails to light, turn the switch to the "OFF" position and determine the cause. See Section 150 of this manual.
 - (4) On tractors prior to Serial No. 8000, turn the key switch clockwise as far as it will go to crank the engine.

STARTING THE ENGINE

Figure 10-10-1 illustrates the controls for starting the engine.

On tractors with Serial No. 8000 and after, press the starter button to crank the engine.

CAUTION: Do not hold the switch in the start position more than 30 seconds at a time. To do so may overheat the starter.

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