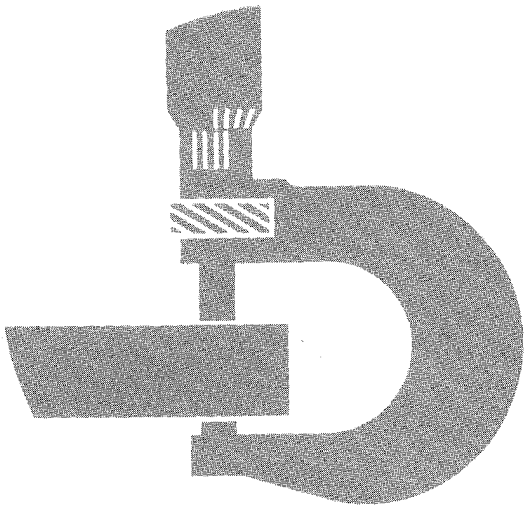
John Deere
JD760
Tractor



SERVICE MANUAL

John Deere Dubuque Works
SM-2075 (Jun-67)

SERVICE MANUAL

JOHN DEERE
JD760
TRACTOR

CONTENTS

SM-2075 (Oct-65) Litho in U.S.A.

TO THE JOHN DEERE SERVICEMAN

This service manual contains maintenance instructions for John Deere JD760 Tractors. Included are complete instructions for removal, disassembly, inspection, repair, assembly and installation of the major parts and assemblies of the tractor.

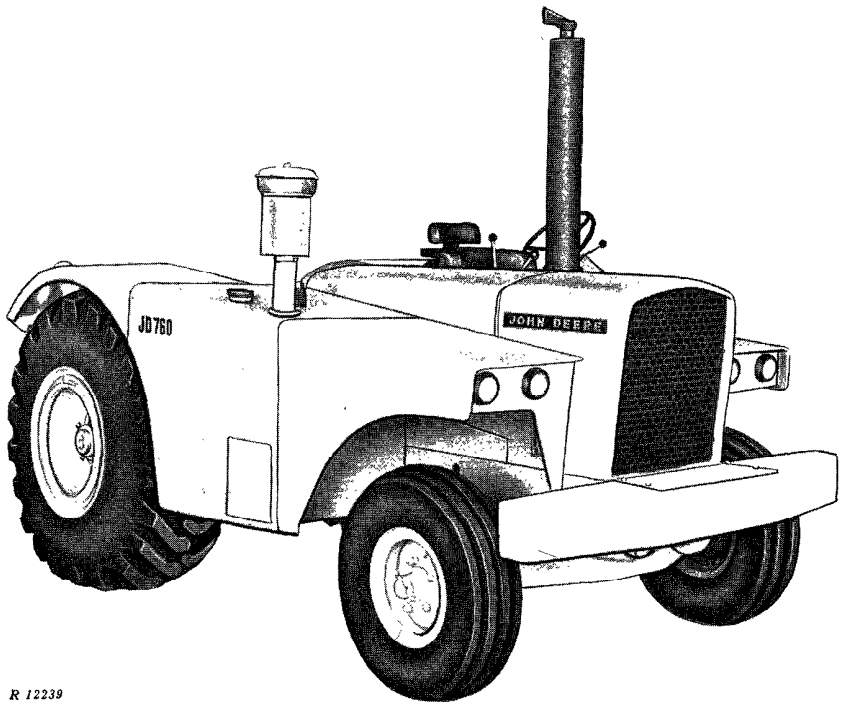
In addition, the manual contains brief descriptions of the more complicated systems of the tractor, and tells how they operate.

In Section 20, "Specifications," dimensions of many new wearing parts are given as an aid in determining when parts replacement is necessary. Section 260, "Special Service Tools," describes the tools necessary for proper servicing of JD760 Tractors.

Section 40, "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 the service manual as a guide for any and all 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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John Deere JD760 Tractor

Section 10
DESCRIPTION AND OPERATION

Group 5
DESCRIPTION

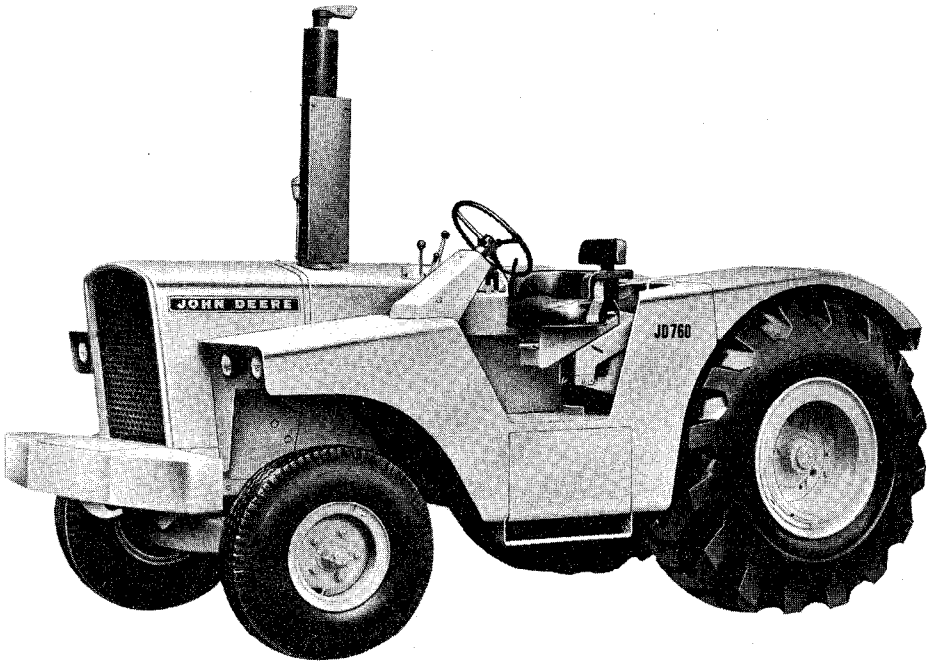

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Fig. 10-5-1–John Deere JD760 Tractor

INTRODUCTION

The John Deere JD760 Tractor is designed to operate heavy industrial equipment.

The tractor is the prime mover for the John Deere JD760 Scraper, a rugged, compact, efficient dirt-moving unit.

The operator's station is at the side of the tractor, a convenient position for better observation of the work being performed.

The tractor is equipped with a powerful John Deere engine developing 143 net engine flywheel horsepower.

The features of the tractor are described briefly in the paragraphs which follow. Full descriptions of each 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 immediately behind the alternator. The engine serial numbers given in this manual are the numerical serial numbers indicated in the following example:

SNM33RO 012000 R

Numerical Serial Number

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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 example:

SNT373R 012000 R

Numerical Serial Number

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

For brevity, when serial numbers are given in this manual any zeros which appear before the first significant digit are omitted.

MODEL NUMBERS

The fuel injection pump, main hydraulic pump, selective control valve housings, and alternator each bear a model number.

ENGINE

The tractor is powered by a variable-speed, full diesel engine. The engine develops up to 143 net engine flywheel horsepower at 2200 rpm.

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.

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 ventilation.

COOLING SYSTEM

The pressure type cooling system has a centrifugal pump to provide continuous circulation of 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

A 72 U.S. gallon fuel tank is an integral part of the fuel tank housing at the right side of the tractor just ahead of the rear wheel.

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

Two replaceable micronic filtering elements are connected between the fuel pump and the injection pump and filters the diesel fuel before it enters the injection pump.

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 tractor is equipped with a 24-volt alternator with regulator to furnish current for the electrical load and to maintain charges in four 6-volt batteries, connected in series.

This system is of the conventional grounded type, using negative grounded circuits.

A 24-volt starting motor with a coaxial, solenoid-shifted drive pinion is used to crank the engine.

Lighting circuits are 24-volt with two 12-volt loads in series in each circuit. All lamps are in pairs with exception of the tractor red tail lamp which is in series with a resistor. Current at 12 volts is furnished for the accessory circuit by two of the four 6-volt tractor batteries.

CLUTCH ASSEMBLIES

The heavy-duty, two-plate, spring-loaded, transmission clutch is located in a recess at rear of the engine flywheel. It is operated by a pedal (hydraulically assisted) located to the left of the operator's platform. The clutch-operating cylinder is connected to an accumulator which supplies energy to operate the clutch, should the engine be stopped or hydraulic pressure fail.

The PTO clutch is of the multiple wet-disk type and is hydraulically actuated. It is operated by a lever to right of operator.

TRANSMISSION

The Syncro-Range transmission, which contains constant-mesh, helical-cut gears, has four shift ranges. Three of the ranges have low, high, and reverse gears. The fourth range has low and high gears only. Thus, eight forward gears and three reverse gears are provided. Shifting is accomplished by means of two levers located to the left and forward of the instrument panel. The left-hand lever is used to select the desired range. The right-hand lever is used to select high, low, or reverse gear within the range.

The high, low, and reverse gear shifting is synchronized and can be accomplished while the tractor is moving.

While the shift between ranges is of the collar shift type and is normally accomplished with the tractor stopped, it can be accomplished while the tractor is on the move by proper use of the "double clutching" technique.

DIFFERENTIAL AND FINAL DRIVE

A conventional spiral bevel ring gear and pinion drive is used in the tractor. A planetary gear assembly provides the final gear reduction in the drive gear train. This design reduces strain on the gear train.

A lock located in the differential assembly, enables the operator to lock the differential. This causes both rear wheels to turn at the same speed, moving the tractor under conditions where one drive wheel has lost its traction.

POWER TAKE-OFF (PTO)

The tractor can be furnished with a right-angle, vertical PTO for use with the elevating scraper. At 2200 engine rpm, the vertical PTO operates at 1128 rpm.

The tractor can be obtained with a 1000-rpm horizontal PTO. At 1900 engine rpm, the horizontal PTO operates at 1010 rpm.

DRAWBAR

The tractor is equipped with a heavy-duty fixed drawbar for attaching towed equipment.

FRONT AXLE

The tractor is equipped with a heavy-duty, fixed tread front axle. The front wheels are truck-type rims bolted to hubs mounted on tapered roller bearings.

Front wheel tread is 69-1/4 inches.

REAR WHEELS

Heavy-duty rear wheels are attached to the rear axles with no provision for tread width adjustment.

Rear wheel tread is 72 inches.

SEAT

The tractor is regularly equipped with a deluxe suspension seat. This seat contains a steel compression spring and a shock absorber to provide "Float Ride" suspension.

The seat has a flexibly-mounted, padded back rest and semi-circular foam padding which surrounds the back of the operator.

HYDRAULIC SYSTEM

The tractor hydraulic system is pressurized by a constant-running, variable displacement, hydraulic pump. The pump is mounted below and ahead of the radiator. It is driven at engine speed by the engine crankshaft. The hydraulic pump supplies oil under pressure to operate the power steering, power brakes, transmission clutch, differential lock, up to three remote hydraulic cylinders (if so equipped) or, the brakes and operating cylinders of trailing equipment.

The hydraulic system is constant pressure, closed center, and "live"; that is, it operates when the engine is running, whether the tractor is moving or not.

STEERING

Hydraulic power steering is regular equipment on the tractor. Movement of the steering wheel actuates a steering valve which directs a flow of pressure oil to two steering cylinders which turn the front wheels. Should the hydraulic system lose pressure, the tractor can be steered manually.

POWER BRAKES

The power brakes are operated by pedals located at the right side of the operator's platform. The brakes can be applied independently or simultaneously. The brake pedals can be locked together for simultaneous operation if desired. The hydraulically actuated, disk type brakes operate in oil.

NOTE: The tractor brake pedals should always be locked together when operating the rock wagon or scraper unit except when it is necessary to use individual braking to make extremely short turns.

On scraper units, the scraper power brakes are operated by a lever located at the left of the steering column, just under the steering wheel. On tractors with Athey Rock Wagons, this lever is the brake selector lever and controls the operation of the rock wagon brakes.

CAUTION: Always apply the scraper brakes first when stopping the unit. Then, if necessary, use tractor brakes to assist. Using tractor brakes alone can be dangerous due to possible jackknifing of the unit.

A brake accumulator, charged with dry nitrogen at 500 psi pressure, is connected to the brake systems and transmission clutch operating cylinder.

The accumulator stores energy for operation of brakes and clutch for several applications after the engine is stopped or if the main hydraulic pump should fail.

Units with the selective control valve levers running crosswise to the tractor also have a hydraulic oil accumulator that is connected to the selective control valve circuits. The hydraulic oil accumulator is also charged with dry nitrogen at 500 psi pressure.