



# 5020 Tractor



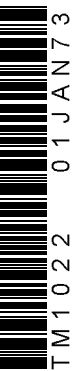
JOHN DEERE

## TECHNICAL MANUAL 5020 Tractor

TM1022 (01JAN73) English

**John Deere Tractor**  
**TM1022 (01JAN73)**

LITHO IN U.S.A.  
ENGLISH



# 5020 TRACTOR TECHNICAL MANUAL TM-1022 (JAN-73)

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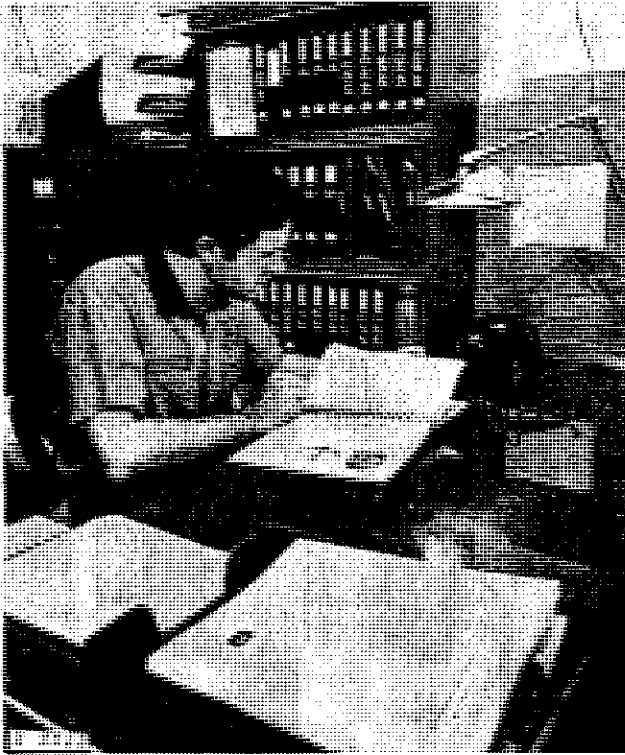
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## INTRODUCTION



Use FOS Manuals for Reference



Use Technical Manuals for Actual Service

This technical manual is part of a twin concept of service:

- **FOS manuals—*for reference***
- **Technical Manuals—*for actual service***

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

*Fundamentals of Service (FOS) Manuals* cover basic theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failures and their causes. FOS Manuals are for training new men and for reference by experienced men.

*Technical Manuals* are concise service guides for a *specific* machine. Technical Manuals are on-the-job guides containing only the vital information needed by a journeyman mechanic.



When a serviceman should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the TM to identify the reference.

Some features of this technical manual:

- *Table of contents at front of manual*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications grouped for easy reference*

This technical manual was planned and written for you—a journeyman mechanic. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.



This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.



**CAPACITIES:**

Fuel tank . . . . . 68 U.S. gals.  
Crankcase (with filter change) . 20 U.S. qts.  
Transmission-hydraulic system 16 U.S. gals.  
Cooling system (add 2 qts. for  
cab heater) . . . . . 33 U.S. qts.

**TRANSMISSION:**

Type . . . . . Syncro-Range, constant mesh  
Clutch . . . . . Heavy-duty, two 12 in. plate,  
foot operated  
Gear selections . . . 8 forward and 2 reverse  
Shifting . . . . . 4 stations, synchronized  
shifting within stations

**POWER TAKE-OFF:**

Type . . . . . Independent, rear  
Clutch . . . . . Wet disk, hydraulically actuated  
Speed (1900 engine rpm) . . . . . 1010 rpm  
PTO ahead of drawbar hitch point . . 16 in.

**HYDRAULIC SYSTEM:**

Type . . . . . Closed center, constant pressure.  
Includes power steering, power  
brakes and implement control  
Standby pressure . . . . . 2250 psi

**BRAKES** . . . . . Hydraulically power actuated,  
disk-type operating in oil  
Provision for manual opera-  
tion with brake accumu-  
lator to supply oil

**STEERING** . . . . . Full power, hydrostatic type  
Provision for manual operation

**ELECTRICAL SYSTEM:**

Type . . . . . 12-volt, negative ground  
Batteries . . . . . Two 6-volt, 87-plate, 204  
ampere-hour group 6T3A,  
tractor-type, connected in series  
Alternator . . . . . 12-volt, 55-amp, with  
integral transistorized regulator  
. . . . . Tractors with air  
conditioned cabs, 12-volt, 72-amp, with  
integral or separate regulator (depending  
on serial number)

**FRONT TIRES:\***

Standard . . . . . 11.00-16, 8-ply  
Row-Crop . . . . . 9.50-20, 8-ply

**REAR TIRES:\***

Standard . . . . . 24.5-32, 10-ply  
Row-Crop . . . . . 18.4-38, 12-ply

**FRONT WHEEL TREAD:**

Fixed tread . . . . . 69 or 71 in.  
Adjustable tread (11.00-16 tires). 68 to 80 in.

**REAR WHEEL TREAD:**

Standard:  
24.5-32 tire . . . . . 70 to 82 in.  
18.4-34 tire (dual) . . . . . 68 and 112 in.  
18.4-38 tire (dual) . . . . . 65 to 120 in.  
Row-Crop:  
18.4-38 tire . . . . . 60 to 120 in.  
24.5-32 tire . . . . . 70 to 112 in.

**GROUND SPEEDS IN MILES PER HOUR**

(1900 engine rpm with 24.5-32 tires)  
1st . . . . . 1.7  
2nd . . . . . 2.6  
3rd . . . . . 3.5  
4th . . . . . 4.5  
5th . . . . . 5.6  
6th . . . . . 7.3  
7th . . . . . 9.4  
8th . . . . . 15.4  
1st reverse . . . . . 3.4  
2nd reverse . . . . . 5.4

**DIMENSIONS:**

Standard (Fixed tread front axle):  
Wheel base . . . . . 104 in.  
Over-all length . . . . . 172.3 in.  
\*\*Over-all height . . . . . 98.3 in.  
Height to steering wheel . . . . . 82.4 in.  
Width . . . . . Regular wheel, 95.8 in.  
Drawbar clearance . . . . . 16 in.  
Turning radius . . . . . 12 ft. 6 in.  
Row-Crop (81.5-inch tread front axle):  
Wheel base . . . . . 102 to 106 in.  
Over-all length . . . . . 172.3 in.  
\*\*Over-all height . . . . . 98.3 in.  
Height to steering wheel . . . . . 82.4 in.  
Over-all width . . . . . 108.4 in.  
Turning radius . . . . . 13 ft.

**SHIPPING WEIGHT (With equipment for**

average field service, less fuel and ballast).  
Add 575 lbs. if equipped with Roll-Gard.  
Standard . . . . . 15,600 lbs.  
Row-Crop . . . . . 14,480 lbs.

\*Additional tire sizes available.  
\*\*Tractors with Air Conditioned Cab  
and 20.8-38 tires . . . . . 119.6 in.  
Tractors with Cab and without  
Air Conditioning (20.8-38 tires) . . 117.6 in.

(Specifications and design subject to change without notice.)

## Group 10

# PREDELIVERY, DELIVERY, AND AFTER-SALE SERVICES

### PREDELIVERY SERVICE

Because of the shipping factors involved, plus extra finishing touches that are necessary to promote customer satisfaction, proper predelivery service is of prime importance to the dealer.

Tractors shipped from the factory with the alternator completely disconnected require an AR47860 Auxiliary Ignition Battery Kit to supply power for the fuel shutoff solenoid. The adapter on the battery harness kit plugs into the cigar lighter. Be sure to read the instructions at-

tached to the tractor before starting the engine.

After completing the factory-recommended dealer checks and services listed on the predelivery tag, remove the tag from the tractor and file it with the shop order for the job. The tag will certify that the tractor has received the proper predelivery service when that portion of the customer's John Deere Delivery Receipt is completed.

### TEMPORARY TRACTOR STORAGE

Service	Specifications	Reference
Check radiator for coolant loss and antifreeze protection. . . . .	1-1/2 inches above baffle.	. . . . .
Reduce shipping pressure of tires. . .	. . . . .	Operator's manual
Cover tractor and tires for protection and cleanliness. . . . .	. . . . .	. . . . .

### BEFORE DELIVERING TRACTOR

<u>Electrical System</u>		
Install electrolyte and charge batteries. . . . .	. . . . .	FOS-20
Punch date code on battery tag. . . . .	. . . . .	. . . . .
Connect alternator. Do not attempt to polarize. . . . .	. . . . .	Section 40, Group 10
Install light switch knob. . . . .	. . . . .	. . . . .
Clean terminals and connect battery cables. . . . .	. . . . .	Section 40, Group 5
Check alternator belt adjustment. . .	1-inch deflection, 20 lb. force. .	Operator's manual

**BEFORE DELIVERING TRACTOR—Continued**

Service	Specifications	Reference
<u>Cooling System</u>		
Inspect radiator for coolant loss. . . .	1-1/2 inches above baffle. . . .	. . . . .
Check antifreeze protection. . . . .	. . . . .	. . . . .
<u>Tires and Wheels</u>		
Adjust pressure of tires. . . . .	. . . . .	Operator's manual
Check front wheel hub bolts, rear wheel rim clamp nuts, and rear wheel retainer cap screws for tightness. . . . .	Front hub bolts - 100 ft-lbs Rear hub bolts - 300 ft-lbs Rim clamp nuts - 170 ft-lbs	. . . . .
<u>Lubrication</u>		
Check crankcase oil level. . . . .	To upper marks on dipstick. . . .	Operator's manual
Check transmission-hydraulic system oil level. . . . .	To top of "SAFE" range on dipstick. Type 303 Special-Purpose Oil.	Operator's manual
Lubricate grease fittings. . . . .	SAE multipurpose-type grease.	Operator's manual
<u>Engine</u>		
Check air cleaner. . . . .	. . . . .	Operator's manual
Fill fuel tank and start engine. . . . .	Capacity - 68 U.S. gallons . . .	Operator's manual
Check operation of gauges and indicator lamps. . . . .	. . . . .	Operator's manual
Check speed control linkage for free operation. . . . .	. . . . .	Section 30, Group 10
Check engine idle speeds. . . . .	. . . . .	Section 30, Group 10
<u>Operation</u>		
Shift transmission through all speeds. . . . .	. . . . .	Operator's manual
Check transmission clutch operation.	Clutch pedal free travel should be 1-1/2 inches. . . . .	Operator's manual
Check power take-off operation. . . . .	. . . . .	Operator's manual
Check differential lock operation. . . . .	. . . . .	Operator's manual
Check hydraulic system operation: Rockshaft, steering, remote cylinder, and brakes. . . . .	. . . . .	Operator's manual

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**BEFORE DELIVERING TRACTOR—Continued**

Service	Specifications	Reference
Check 3-point hitch operation. . . . .	. . . . .	Operator's manual
Check seat operation . . . . .	. . . . .	Operator's manual
Check cab pressurizer and wind- shield wiper operation, air conditioner and heater system operation (if equipped) . . . . .	. . . . .	Operator's manual
Adjust headlights and check operation. . . . .	. . . . .	Operator's manual
<u>General</u>		
Adjust air conditioner drive belt tension. . . . .	1-inch deflection, 25 lb. force. .	Operator's manual
Tighten accessible nuts and cap screws. . . . .	. . . . .	. . . . .
Clean tractor and touch up paint. . . .	. . . . .	. . . . .

**DELIVERY SERVICE**

A thorough discussion of the operation and service of a new tractor at the time of delivery helps to assure complete customer satisfaction. Proper delivery should be an important phase of a dealer's program. A portion of the John Deere Delivery Receipt emphasizes the importance of proper delivery service.

Many complaints have arisen simply because the owner was not shown how to operate and service his new tractor properly. Enough time should be devoted, at the customer's convenience, to introducing the owner to his new tractor and explaining to him how to operate and service it.

The following procedure is recommended before the serviceman and owner complete the delivery acknowledgments portion of the delivery receipt.

Using the tractor operator's manual as a guide, be sure that the owner understands these points thoroughly:

1. Controls and instruments.
2. How to start and stop the engine.
3. The importance of the break-in period.
4. How to use liquid or cast-iron ballast.
5. All functions of the hydraulic system.
6. Using the power takeoff.
7. The importance of safety.
8. The importance of lubrication and periodic services.

After explaining and demonstrating the above features, have the owner sign the delivery receipt and give him the operator's manual.

### AFTER-SALE INSPECTION

The purchaser of a new John Deere tractor is entitled to a free inspection at some mutually agreeable time within the warranty period after the equipment has been "run in". The terms of this after-sale inspection are outlined on the back of the customer's John Deere Delivery Receipt.

The purpose of this inspection is to make sure that the customer is receiving satisfactory performance from his tractor. At the same time, the inspection should reveal whether or not the tractor is being operated, lubricated, and serviced properly.

If the recommended after-sale service inspection is followed, the dealer can eliminate needless service work by preventing minor irregularities from developing into serious problems later on. This will promote strong dealer-customer relations and present the dealer an opportunity to answer questions that may have arisen during the first few days of operation. During the inspection service, the dealer has the further opportunity of promoting the sale of other new equipment.

The following inspection program is recommended within the first 100 hours of tractor operation.

#### INSPECTION PROCEDURE

Service	Specifications	Reference
<u>Cooling System</u>		
Check radiator coolant level. . . . .	1-1/2 inches above baffle. . . . .	. . . . .
Clean external surface of radiator core. . . . .	. . . . .	. . . . .
Check hoses and connections for leaks. . . . .	. . . . .	. . . . .
<u>Fuel System</u>		
Remove water and foreign matter from filter sediment bowl. . . . .	. . . . .	Operator's manual
Bleed fuel system. . . . .	. . . . .	Operator's manual
Tighten loose connections and check entire system for leaks. Correct if necessary. . . . .	. . . . .	. . . . .
Check air cleaner element and clean it if necessary. . . . .	. . . . .	Operator's manual
<u>Electrical System</u>		
Check specific gravity and electrolyte level of batteries. . . . .	Full charge - 1.260 at 80° F.	Operator's manual
Check belt tension. . . . .	1-inch deflection with a 20-pound force. . . . .	Operator's manual
Start engine and check operation of starter, lights, and indicator lamps . . . . .	. . . . .	Operator's manual

INSPECTION PROCEDURE—Continued

Service	Specifications	Reference
<u>Lubrication</u>		
Check crankcase oil level.....	To upper marks on dipstick.	Operator's manual
Check transmission-hydraulic system oil level. ....	In "SAFE" range on dipstick. Use John Deere Type 303 Special-Purpose Oil. ....	Operator's manual
<u>Engine</u>		
Check valve clearance. ....	Intake - 0.018 inch. Exhaust - 0.028 inch.	Operator's manual
Check engine speed under load, fuel consumption, and horsepower. ....	Specification. ....	Group 15 of this Section
<u>Clutches and Differential Lock</u>		
Check transmission clutch free travel	Approximately 1-1/2-inch free travel. ....	Operator's manual
Check PTO clutch and brake operation. ....	.....	Section 50, Groups 35 and 40
Check differential lock operation. ...	.....	Operator's manual
<u>Hydraulic System</u>		
Check rockshaft and remote cylinder operation. ....	.....	Operator's manual
Check power steering. ....	Smooth, easy operation. ....	Section 70, Group 20
Check power brakes and accumulator.	The accumulator should supply oil to each brake for at least 20 applications at 5 second intervals after the engine has been stopped for 15 minutes, when applied individually. ....	Operator's manual
<u>Cab</u>		
Check operation of cab controls. ....	.....	Operator's manual
Check air conditioning compressor drive belt tension. ....	1-inch deflection, 25-lb force..	Operator's manual
<u>Nuts and Cap Screws</u>		
Tighten accessible nuts and cap screws that require adjustment. ....	.....	.....