2020
Tractor
(117,500-)

TECHNICAL MANUAL

2020 Tractor
(117,500-)

TM1044 (01FEB71) English

John Deere Tractor Works
TM1044 (01FEB71)

LITHO IN U.S.A.
ENGLISH

2020 TRACTOR
TECHNICAL MANUAL
TM-1044 (Feb-71)

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All information, illustrations and specifications contained in this technical manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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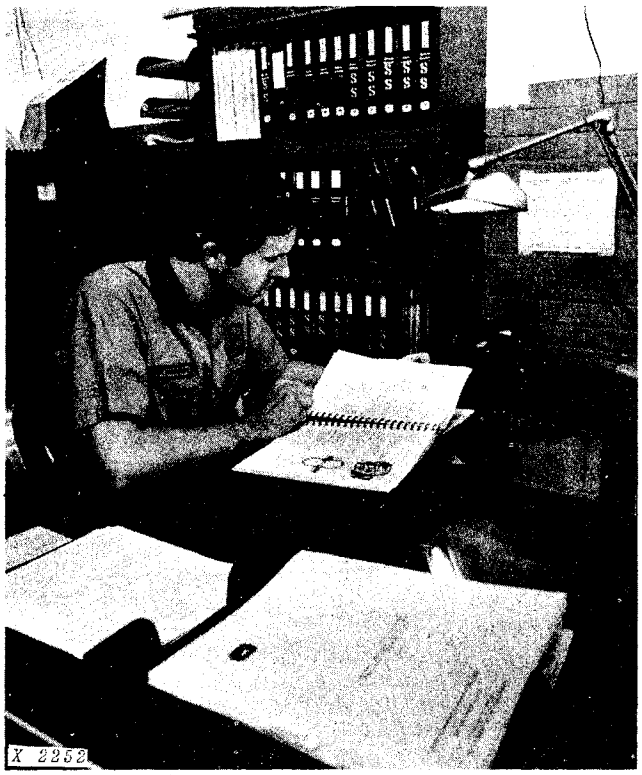
INTRODUCTION



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 whole manual*
- *Contents at front of each Section*
- *Specifications at end of each Group*
- *Special tools at end of each Group*

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.

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.

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Section 10
GENERAL

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Group 5
GENERAL TRACTOR SPECIFICATIONS

	Gasoline	Diesel
ENGINE		
Maximum PTO horsepower*	53.91	54.09
Maximum drawbar horsepower*	45.45	47.39
Number of cylinders	4	4
Bore and stroke, inches	3.86 x 3.86	3.86 x 4.33
Displacement in cubic inches	180.0	202.0
Compression ratio	7.5 to 1	16.3 to 1
Firing order	1-3-4-2	1-3-4-2
Intake valve clearance	0.014-in.	0.014-in.
Exhaust valve clearance	0.022-in.	0.018-in.
Slow idle	600 rpm	800 rpm
Fast idle	2680 rpm	2650 rpm

ELECTRICAL SYSTEM	
Battery dry voltage	12 volts
Battery specific gravity at full charge (corrected to 80°F.)	1.260
Battery terminal grounded	negative
CAPACITIES (U.S. Standard Measures)	
Fuel tank	19-1/2 gals.
Cooling system	12 qts.
Crankcase (including filter)	6 qts.
Transmission-hydraulic system	10 gals.
Belt pulley	2-1/2 pts.
CLUTCH	Single or dual stage, spring-loaded, dry disk, foot-operated.

* *Official test at 2500 engine rpm.*

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TRANSMISSION

Type ..... Collar shift
Gear selections ..... 8 forward and 4 reverse
Shifting..... 4 speeds each in high, low, and reverse ranges. Park lock included.

HI-LO SHIFT

Hydraulic wet clutches, no clutching required. Shifting from high to low decreases ground speed 25.8 percent and increases pull power up to 35 percent in any of the transmission speeds.

REVERSER

Hydraulic wet clutches, no clutching required. Provides reverse speeds for gear selections 1 through 4 which are 16% faster than corresponding forward speeds.

BRAKES..... Hydraulically actuated, wet-disk type.

DIFFERENTIAL AND FINAL DRIVES

Type..... Planetary reduction final drives with spiral bevel gear drive differential.
Differential lock... Hand or foot operated mechanical lock, spring-loaded out of engagement.

POWER TAKE-OFF

Type ..... Continuous-running, independent, or transmission-driven types available in 540 and/or 1000 rpm options.

HYDRAULIC SYSTEM

Type ..... Closed center, constant pressure.
Standby oil pressure ..... 2250 psi

STEERING

Type... Manual or power; power steering is hydraulically actuated, with manual provision in case of hydraulic failure.

FRONT TIRES*

	Size	Ply Rating
RU tractor	6.00-16	6
	7.5L-15	6
	7.50-16	6
LU tractors	5.00-15	4
	6.00-14	4
	9.00-10	4
HU tractors	6.00-16	4
	7.5L-15	6
	7.50-16	6

REAR TIRES*

RU tractors	12.4-28	4
	14.9-28	6
	16.9-28	6
LU tractors	14.9-24	6
	16.9-24	6
	18.4-16.1	6
HU tractors	12.4-36	4
	13.9-36	4
	14.9-36	6

* *Additional tire sizes available.*

DIMENSIONS

	RU Tractor	HU Tractor	LU Tractor
Over-all height	79-7/8 in.	83-1/8 in.	75-7/8 in.
Over-all width, min.	63-1/16 in.	67-1/4 in.	51-3/16 in.
Over-all length (with 3-point hitch)	139-3/4 in.	139-3/4 in.	139-3/4 in.
Shipping weight (approx.)			
Gasoline tractor	4565 lbs.	4850 lbs.	4060 lbs.
Diesel tractor	4645 lbs.	4930 lbs.	4140 lbs.

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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.

A tag pointing out the factory-recommended procedure for predelivery service is attached to each new tractor before it leaves the factory.

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	Specification	Reference
Check radiator for coolant loss and antifreeze protection	Midway between core and filler neck	
Drain fuel system (gasoline)		Operator's manual
Reduce shipping pressure of tires		Operator's manual
Cover tractor and tires for protection and cleanliness		

Before Delivering Tractor

Electrical System		
Remove resistor and connect wiring lead (red) to alternator output terminal. Do not attempt to polarize		Section 40, Group 10
Install electrolyte and charge batteries		FOS-20 Manual
Punch date code on battery tag		
Check battery terminal connections		Section 40, Group 5
Check alternator belt tension	3/4-inch deflection, 20 lb. force	Operator's manual
Cooling System		
Inspect radiator for coolant loss	Midway between core and filler neck	
Check antifreeze protection		

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Before Delivering Tractor—Continued

Service	Specification	Reference
Tires and Wheels		
Adjust pressure of tires		Operator's manual
Check front wheel hub bolts, rear wheel rim clamp nuts, and rear wheel cap screws for tightness	Front hub bolts; Tires 6.00-16 or smaller . . . 85 ft-lb. Tires larger than 6.00-16 . . . 100 ft-lb. Rear hub bolts-300 ft-lb. Rim clamp nuts-170 ft-lb. Rear wheel-to-flanged axle; cast-130 ft-lb., steel wheel-100 ft-lb.	Operator's manual
Lubrication		
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
Check distributor lubrication	Distributor cam lubricant	Section 40, Group 20
Check belt pulley oil level		Operator's manual
Engine		
Check air cleaner		Operator's manual
Drain sediment from fuel filter and (or) fuel pump bowl		Operator's manual
Fill fuel tank and start engine	19-1/2 U.S. gallons	Operator's manual
Check operation of starter, alternator, lights, flashers, gauges, and indicator lights		Operator's manual
Check engine timing	Diesel - TDC Gasoline - "S" mark, 2500 rpm	Operator's manual
Check throttle linkage for free operation		Section 20, Group 40

Before Delivering Tractor—Continued

Service	Specification	Reference
Check engine speeds		
Gasoline	Slow idle, 600 rpm High idle, 2680 rpm Foot throttle, 2800 rpm	
Diesel	Slow idle, 800 rpm High idle, 2650 rpm Foot throttle, 2800 rpm	Section 20, Group 40
Operation		
Check transmission clutch free travel (tractors without reverser)	Approximately 1-inch free pedal travel	Operator's manual
Check clutch wear adjustment (tractors with reverser)	5-1/4 in.	Operator's manual
Shift transmission through all speeds		Operator's manual
Check power takeoff operation		Operator's manual
Check differential lock operation		Operator's manual
Check steering operation		Operator's manual
Check brakes	Bleed brakes if spongy, check for excessive pedal travel, and even position	Operator's manual
Check hydraulic system operation: Rockshaft, and remote cylinder		Operator's manual
Check 3-point hitch operation		Operator's manual
Check negative stop screw adjustment		
Tractors without Independent PTO	1/4 turn	Section 70, Group 30
Tractors with Independent PTO	1/3 turn	Section 70, Group 30
Check operation of reverser, or Hi-Lo shift		Operator's manual
Check seat operation		Operator's manual
General		
Tighten accessible nuts and cap screws		
Clean tractor and touch up paint		

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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.

It is a well-known fact that may 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 and belt pulley.
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 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 John Deere Delivery Receipt.

The purpose of this inspection is to make sure that the customer is receiving satisfactory peformance 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 a needless volume of service work by preventing minor irregularites 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 possible sale of other new equipment.

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

Inspection Procedure

Service	Specification	Reference
Cooling System		
Check radiator coolant level.	Midway between core and filler neck	

Thank you very much for your reading. Please Click Here Then Get More Information.

NOTE:

If there is no response to click on the link above, please download the PDF document first and then click on it.

Inspection Procedure—Continued

Service	Specification	Reference
Clean external surface of radiator core		
Check hoses and connections for leaks		
Fuel System		
Remove water and foreign matter from fuel pump and filter sediment bowls		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 unloading valve. Clean element if necessary		Operator's manual
Electrical System		
Check specific gravity of battery(s).	Full charge - 1.260 at 80°F.	Operator's manual
Check level of battery electrolyte.	To bottom of filler neck in each cell	Operator's manual
Check belt tension	3/4-inch deflection with a 20 lb. force	Operator's manual
Start engine and check operation of starter, lights, and indicator lamps		Operator's manual
Lubrication		
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
Check distributor lubrication	Distributor cam lubricant	Section 40, Group 20
Engine		
Check valve clearance (static)	Intake: 0.014 in. Exhaust: Gasoline-0.022 in. Diesel -0.018 in.	Operator's manual

Inspection Procedure—Continued

Service	Specification	Reference
Check engine speed (under load), and horsepower	Specification	Group 15 of this Section.
Operation		
Check transmission clutch free travel (tractors without reverser)	Approximately 1-inch free pedal travel	Operator's manual
Check clutch wear adjustment (tractors with reverser)	5-1/4 in.	Operator's manual
Shift transmission through all speeds		Operator's manual
Check Reverser, Hi-Lo operation		Operator's manual
Check Power Take-Off operation		Section 50, Groups 35 & 40
Check differential lock operation		Operator's manual
Check rockshaft and remote cylinder operation		Section 70, Group 30
Check negative stop screw adjustment		
Tractors without Independent PTO	1/4 turn	Section 70, Group 30
Tractors with Independent PTO	1/3 turn	Section 70, Group 30
Check steering system operation	Smooth, without excessive freeplay	Section 70, Group 20
Check brakes	Bleed brakes if spongy, check for excessive pedal travel, and even position	Section 70, Group 25
Nuts and Cap Screws		
Tighten accessible nuts and cap screws that seem to require adjustment		

Group 15
TUNE-UP

GENERAL INFORMATION

Before tuning up a tractor, determine whether a tune-up will restore operating efficiency. When there is doubt, the following preliminary tests will help to determine if the engine can be tuned-up. If the condition is satisfactory, proceed with the tune-up. Choose from the following procedures only those necessary to restore the unit.

Preliminary Engine Testing

Operation	Specification	Section-Group Reference
Dynamometer Test (at 2500 engine rpm, full load)	Compare with previous recorded output; compare with output after tune-up	FOS 30 Manual, Chapter 12
Compression Test (minimum readings)		
Diesel	300 psi at full cranking speed	FOS 30 Manual, Chapter 12
Gasoline	120 psi at full cranking speed	
Manifold Depression Test (gasoline)	15 to 20 inches Mercury, engine at slow idle	FOS 30 Manual, Chapter 12
Engine Coolant Check Test	No air bubbles or oil film in radiator	FOS 30 Manual, Chapter 12

Engine Tune-Up

Operation	Specification	Section-Group Reference
Air Intake System		
Service air cleaner and check system for leaks		FOS 30 Manual, Chapter 12
Check system for restrictions using water manometer, and with clean filter element		FOS 30 Manual, Chapter 12
Normal reading (inches of water)	4 in. at 2500 rpm (full load)	
Maximum permitted reading	25 in. at 2500 rpm (full load)	
Exhaust System		
Check system for leaks		FOS 30 Manual, Chapter 12
Check muffler and exhaust pipe for restrictions		FOS 30 Manual, Chapter 12
Crankcase Ventilating System		
Check system for restrictions		FOS 30 Manual, Chapter 12

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Engine Tune-Up—Continued

Operation	Specification	Section-Group Reference
Cooling System		
Clean grille screen, radiator core, and oil cooler core		20-35
Clean and flush system; check thermostat opening temperature, if necessary		20-35
Check pressure cap	6.25 to 7.50 psi release pressure	20-35
Cylinder Head and Valves		
Torque cylinder head cap screws	110 ft-lbs in sequence	20-10
Set valve clearance	Intake-0.014 inch Exhaust-0.022 inch (gasoline) 0.018 inch (diesel)	20-10
Ignition System		
Inspect system; install new points, condenser, and plugs		
Points	0.020 in. (66-72 degrees dwell)	40-20
Spark plugs	0.025 in.; 35 ft-lbs torque	40-20
Time distributor	"S" mark, 2500 rpm	40-20
Gasoline Fuel System		
Check fuel tank for water or other foreign material		30-15
Clean fuel pump sediment bowl and filter screen		30-15
Check system for leaks		30-15
Check fuel pump pressure	3-1/2 to 4-1/2 psi	30-15
Clean carburetor inlet screen		30-15
Drain carburetor bowl		30-15
Check choke operation		30-15
Check carburetor load needle adjustment	Engine at high idle, turn in load needle until engine misses, turn load needle out until engine runs smooth, then turn out one extra turn	30-15
Adjust throttle linkage	Foot pedal - 2800 rpm Hand Throttle High idle - 2680 rpm Slow idle - 600 rpm	20-40